ENERGY TRANSITION PARTNERSHIP

Streamlining Government of Indonesia Plans as a Pathway to Achieve Net Zero Emissions

Milestone Report 1

By: NIRAS

08 August 2023

UNOPS AFD Federal Ministry for Economic Affairs and Climate Action Department for Energy Security & Net Zero Environment and Climate Change Canada / Environnement et Changement climatique Canada CIFF CHILDREN'S INVESTMENT FUND FOUNDATION SEQUOIA CLIMATE FOUNDATION Australian Government Department of Climate Change, Energy, the Environment and Water

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Abbreviation

ADB	Asian Development Bank
ACT	Accelerating Coal Transition
ADLIGHT	Advancing Indonesia's Lighting Market to High Efficient Technologies
AIM	Asia=Pacific Integrated Model
ASSIST	Accelerating SDGs Investment in Indonesia
Bappenas	Badan Perencanaan Pembangunan Nasional (*National Development Planning Agency)*
BNPB	Badan Nasional Penanggulangan Bencana (*Indonesian National Board of Disaster*)
BPDLH	Badan Pengelola Dana Lingkungan Hidup (*Environmental Fund Management Body)*
BPSDM	Badan Pengembangan Sumber Daya Manusia (*Human Resource Development Centre)*
BWI	Badan Wakaf Indonesia (*Indonesia Waqf Board*)
CAF	Charities Aid Foundation
CCT	Clean Coal Technology
CCUS	Carbon Capture, Utilisation, and Storage
CEIA	Clean Energy Investment Accelerator
CFPP	Coal-fired Power Plant
CGI	Consultative Group of Indonesia
CIF	Climate Investment Funds
CIFF	Children's Investment Fund Foundation
COP	Conference of the Parties
CPD	Country Programme Document
CREP	Center Research Energy Policy
CRF	Consolidated Retirement Fund
DEN	Dewan Energi Nasional (*National Energy Council)*
DEN	Dewan Energi Nasional (*National Energy Council)*
DJ-EBTKE	Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi (*Directorate General of New, Renewable Energy and Energy Conservation)*
EBT (NRE)	Energi Baru Terbarukan (*New and Renewable Energy)*
EBTKE	Energi Baru Terbarukan dan Konservasi Energi (*New, Renewable Energy and Energy Conservation)*
ESSP	Extended Shared Sosioeconomic Pathways
ETM	Energy Transition Mechanism
ETP	Energy Transition Programs

EU	European Union
FAO	Food and Agriculture Organisation
FGD	Focus Group Discussion
FOLUR	Food Systems, Land Use, and Restoration
GAMS	General Algebraic Modelling System
GBC	Green Building Council
GDP	Gross Domestic Product
GEF	Global Environment Facility
GFANZ	Glasgow Financial Alliance for Net Zero
GGGI	Global Green Growth Institute
GHG	Greenhouse Gases
GIS	Gas Insulated Switchgear
GIZ	Gesselschaft fur Internationale Zusammenarbeit
GJ	Gigajoules
GoI	Government of Indonesia
GUI	Graphical User Interface
GW	Giga-Watt
HVDC	High-Voltage Direct Current
ICCTF	Indonesian Climate Change Trust Fund
ICT	Information and Communication Technology
IEA	International Energy Agency
IFAD	International Fund for Agricultural Development
IGGI	Inter-Governmental Group on Indonesia
IKBI	Inisiatif Keuangan Berkelanjutan *(Indonesia Sustainable Finance Initiative*)
ILO	International Labour Organisation
INDODEPP	Indonesia Denmark Energy Partnership Programme
IOM	International Organisation for Migration
IPG	International Partners Group
IPP	Independent Power Producer
IPPU	Industrial Process and Product Uses
IRENA	International Renewable Energy Agency
ITB	Institut Teknologi Bandung (*Bandung Institute of Technology)*

JETP	Joint Energy Transition Plan or Just Energy Transition Partnership
KADIN	Kamar Dagang dan Industri Indonesia (*Indonesian Chamber of Commerce and Industry*)
KEMENKO-MARVES	Kementerian Koordinator Bidang Kemaritiman dan Investasi (*Coordinating Ministry of Maritime and Investment Affairs*)
KEN	Kebijakan Energi Nasional (*The National Energy Policy)*
Kepmen	Keputusan Menteri (*Ministerial Decree)*
KSP	Kantor Staf Presiden (*Presidential Staff Office*)
kWh	Kilo Watt-hours
LC	Least Cost
LCDI	Low Carbon Development Initiatives
LEAP	Low Emission Analysis Platform
LTS LCCR	Long Term Strategy Low Carbon and Climate Resilience
MDB	Multilateral Development Bank
MEMR	Kementerian Energi dan Sumber Daya Mineral (*Ministry of Energy and Mineral Resources)*
MoA	Kementerian Pertanian (*Ministry of Agriculture*)
MoEF	Kementerian Lingkungan Hidup dan Kehutanan (*Ministry of Environment and Forestry*)
MoF	Kementerian Keuangan (*Ministry of Finance)*
MoHA	Ministry of Home Affairs
MoI	Kementerian Perindustrian (*Ministry of Industry)*
MSOE	Kementerian BUMN (*Ministry of State-Owned Enterprises)*
MWh	Mega Watt-hours
NDC	National Determined Contributions
NGO	Non-Governmental Organisation
NZE	Net-Zero Emission
NZH	Net Zero Hub
OCHA	Office for the Coordination of Humanitarian Affairs
ODA	Official Development Assistance
OJK	Otoritas Jasa Keuangan (*Indonesia Financial Services Authority*)
PAGE	The Partnership for Action on Green Economy
PEA	Political Economy Analysis
Permen	Peraturan Menteri (*Ministerial Regulation)*
Perpres	Peraturan Presiden (*Presidential Decree)*
PESTLE	Political, Economic, Sociological, Technological, Legal and Environmental

PKK-ITB	Pusat Kebijakan Keenergian Institut Teknologi Bandung (*Centre of Energy Policy in Bandung Institute of Technology)*
PLN	Perusahaan Listrik Negara *(State Electricity Company)*
PP	Peraturan Pemerintah (*Government Regulation)*
RAPBN	Rencana Anggaran Pendapatan dan Belanja Negara (*Draft State Budget)*
RE	Renewable Energy
RE-ACT	Renewable Energy: Accelerated Transition Indonesia
Renja	Annual Country Work Plan
RIPIN	Rencana Induk Pembangunan Industri Nasional (*National Industry Development Master Plan)*
RITE	Research Institute of Innovative Technology for the Earth
RKA K/L	Rencana Kerja dan Anggaran Kementerian/Lembaga (*Ministry/Agency Work Plans and Budgets)*
RPJMN	Rencana Pembangunan Jangka Menengah Nasional (*National Mid-Term Development Plan)*
RPJPN	Rencana Pembangunan Jangka Panjang Nasional (*National Long-Term Development Plan)*
RUED	Rencana Umum Energi Daerah (*Regional Energy General Plan)*
RUEN	Rencana Umum Energi Nasional (*National Energy Plan)*
RUKD	Rencana Umum Ketenagalistrikan Daerah (*Regional Electricity Plan)*
RUKN	Rencana Umum Ketenagalistrikan Nasional (*National Electricity Master Plan)*
RUPTL	Rencana Usaha Penyediaan Tenaga Listrik (*Electricity Business Plan)*
SDGs	Sustainable Development Goals
SEDA	Sustainable Energy Development Agency
SEES	Simple Econometric Simulation System
SLM MOTF	Sustainable Landscape Management Multi-Donor Trust Fund
SOEs	State-Owned Enterprises
TWh	Terrawatt-hour
UK-FCDO	United Kingdom-Foreign, Commonwealth, and Development Office
UN	United Nations
UN REDD	The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation
UNDP	United Nations Development Programme
UNDRR	United Nation Office for Disaster Risk Reduction
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change

UNFPA	United Nation Population Fund
UN-HABITAT	United Nations Human Settlements Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organisation
UNITAR	United Nations Institute for Training and Research
UNODC	United Nation Office on Drugs and Crime
UNOPS	United Nation Office for Project Services
UNSDCF	United Nations Sustainable Development Cooperation Framework
USAID	United States Agency for International Development
UU	Undang-Undang (*Law)*
WaCIDS	Waqf Center for Indonesian Development and Studies
WB	World Bank
WFP	World Food Programme
WHO	World Health Organisation
WRI	World Resources Institute
WWF	Worldwide Fund for Nature

EXECUTIVE SUMMARY OF MILESTONE REPORT 1

Since President Jokowi endorsed the Paris Agreement in 2016, the variety of policies, regulations, and programs have complicated the net-zero emissions goals. Stakeholders have set different short-term targets to meet aspirational long-term goals. The ETP project Indonesia's Pathway to Achieve Net Zero Emissions Target seeks to align government, development partners, and other stakeholders towards a consensus on net-zero emissions policies discussions and goals.

Milestone Report 1 encompasses the advancements made in the project, as well as Task 1 and Task 2, as delineated in the inception report. Task 1 entailed **conducting a stocktake assessment to identify all existing government plans guiding the energy transition programs**. Meanwhile, Task 2 encompassed the **development of the communication and a donor coordination strategy to be implemented throughout the project**. The outcomes of these tasks are comprehensively encapsulated within Milestone 1, with detailed standalone versions provided separately. Additionally, the Report Summary will furnish an overview of the project's progress, including updates and challenges encountered, to facilitate constructive discourse for future considerations.

Project Management updates, including the updates on stakeholder engagements, meetings, and workshops, RBMF, Gender Mainstreaming Report, and Workplan will all be previewed in the Annex. We will also be previewing data on Energy Modelling Tools and Facts for reference. RBMF and Workplan will be sent separately for ease of reading.

Project Progress Summary

We present a short summary of recent activities that the ETP Consultant has achieved during the period between the Inception report and now. This will preview several challenges that The ETP Consultant faced along the way, along with several action plans to further progress the program. The project has been making significant headway, with various government institutions concurrently working on updating their respective energy policy documents. The National Energy Council (Dewan Energi Nasional/DEN) is finalizing the Draft of National Energy Policy (KEN) for the period 2024-2060, while the Ministry of Energy and Mineral Resources (MEMR), Directorate General (DG) of Electricity, is finalizing the National Electricity Plan (RUKN) for the period 2023-2030. Throughout the project, The ETP Consultant has achieved crucial milestones by developing strong relationships with key stakeholders, including the DEN (*Dewan Energi Nasional*) Secretariat, Mr. Herman Darnel Ibrahim from the National Energy Council, and the ITB Energy Policy Center (PKK-ITB, Pusat Kebijakan Keenergian – Institut Teknologi Bandung), who supports DEN in preparing the Academic Manuscript. However, the project also encountered several challenges, most notably concerns raised by stakeholders during the presentation of the Draft KEN in a Focus Group Discussion (FGD). The ETP Consultant will carefully document these concerns and facilitate further discussions to address the feedback adequately.

Task 1: Government Energy Transition Policy and Plans

The ETP Consultant re-evaluated energy-related policies' alignment with the NZE 2060 transition. Three key ministries, including the Ministry of National Development Planning, the Ministry of Energy and Mineral Resources, and the Ministry of Industry, shape energy policy. In large, the Consultant found that short-term policies bear the risk of changes to align with the new Government elect, and long-term policies lack harmony due to challenges arising from the Paris Agreement's ambitious goals. Non-Legally Binding Policies from bilateral/multilateral cooperations further complicate matters, with a recent focus on the Joint Energy Transition Plan (JETP) announced at the G20 Summit.

The energy policy landscape can be categorized into two main groups: **legally binding** and **non-legally binding** policies. The former takes the form of regulations, while the latter serves as guiding principles for program execution. Both categories serve as pivotal references for strategizing emission-neutral activities. The foundation of the legally binding law is anchored by Law No. 30 of 2007 concerning Energy, which serves as a pivotal reference for the subsequent regulations. Complementing it, the overall goal of the Omnibus Law (Law 11/2020) is to centralize and streamline the licensing procedures that apply to each of these industries. The modifications and potential easing of the environmental, forestry, and construction regulatory requirements will inform significant influence on the energy, resources, and infrastructure sectors. Accordingly, each of these sectors will continue to be separately regulated. However, the Omnibus Law generally seeks to streamline and centralize the licensing processes applicable to each of these sectors.

The relationships between the existing regulations are found in the table below. Despite emphasizing the commitment to diversify energy sources and enhance renewable integration, these policies encounter funding, transparency, and international alignment obstacle.

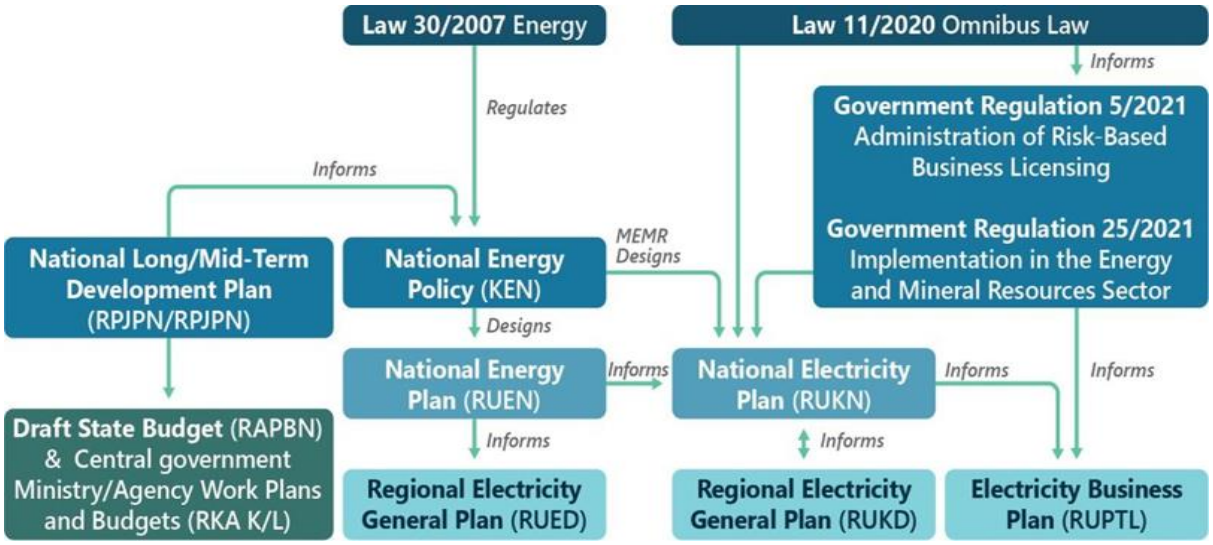


Figure 1: Relationships Between Energy Regulation

Further elucidating the trajectory of electricity supply and distribution, the National Electricity Master Plan (RUKN) and the PLN Electricity Business Plan (RUPTL) encounter financial and regulatory hindrances, affecting their successful execution. While they outline comprehensive strategies, ensuring the affordability of subsidies and establishing sustainable financing mechanisms remains a pivotal concern.

We examine the four largest, most relevant non-binding policy programmes that are supported by different ministries, all in agreement with the NZE 2060 goals with various mid-term targets. These roadmaps are listed in the table below. Non-legally binding policies, like the National Determined Contributions (NDC), illustrate Indonesia's global climate commitment. However, the absence of a clear implementation pathway and alignment with existing policies poses challenges in realizing emission reduction goals. Collaborative efforts among ministries and institutions are essential for aligning these objectives and ensuring a coherent approach.

LCDI 2045	LTS - LCCR 2050	NDC 2022	JETP

Bappenas	MoEF (Climate Change Directorate)	MoEF (Climate Change Directorate)	MEMR. Coordinating Ministry of Maritime & Investment

The success of Indonesia's energy transition hinges on clear policy coordination, transparent funding mechanisms, integration with economic growth projections, and policy harmonization across ministries. Effective implementation and monitoring frameworks, active stakeholder engagement, and adaptability to changing circumstances are key to overcoming challenges and achieving ambitious energy and environmental objectives. ETP partners (including governments and philanthropies, and donor countries) are recommended to collaborate closely, enhance funding strategies, support policy implementation, raise public awareness, advocate for coherence, address energy poverty, facilitate knowledge exchange, and monitor international commitments.

Task 2: Development Partner Mapping and Communication

The problem of development toward net zero emissions in Indonesia can be viewed as a 'collective action' problem that necessitates trust. This situation makes political engagement and coalition building crucial for ensuring an energy reformation toward the net-zero ambition. Development partners or donors are important for these coalitions. Development Partners, or donors, play a vital role by offering both financial and technical assistance to aid Indonesia’s decarbonization endeavors. Donor efforts tend to be most effective when they are supporting the agendas of respectable local organizations or government agencies whose interests are closely matched with the donor's development objectives. The donor map identifies key stakeholders, including UN-related agencies, international organizations, government agencies, private sector entities, and local communities. The development partners are broken into 4 categories: Bilateral support, multilateral support, private sector and philanthropies support, and other development partners. Using the donor map, task 2 then lays out a communication strategy to actively engage donors to find out their priorities and capacity for joint ventures.

The engagement methods include: 1) a series of focused group discussions around the relevant government policy (KEN, RUEN, RUKN), 2) a collaborative report consisting of related development partners or initiatives support for the decarbonization and NZE 2060, 3) publications on government plans and development partners support through shared media of ETP and other development partners media, 3) development of a consultative forum with representatives of DEN, Ministry of Finance, Bappenas, and MEMR and development partners with ETP as permanent secretariat.

Task 2 lays the groundwork for an ongoing communication process with development partner stakeholders for the duration of this project, as well as provides a resource for other future projects. The donor engagement plan will be part of the overall Stakeholder Engagement Plan design. Project information dissemination will be maintained in the ETP public domain, where donors can reach out and engage.

1. REPORT INTRODUCTION

The Energy Policy sector in Indonesia has been notorious for its inherent complexity, stemming from factors that are not easily mitigated. The interplay of a vast nation, democratic processes, and power dynamics between government and private entities has often led to energy pipelines and initiatives being stalled due to conflicting institutional interests and capacity constraints. Given the urgency of pursuing Indonesia's Net Zero Commitment by 2060, the ETP has introduced the "Streamlining Government of Indonesia Plans as a Pathway to Achieve Net Zero Emissions Target" program. This initiative aims to untangle the intricate web of Indonesia's energy roadmap and facilitate a smoother path toward achieving the Net Zero Emissions target.

The Milestone Report 1 encompasses the foundational start of the ETP programme, entailing a summary of our project progress, as well as Task 1 and Task 2, as delineated in the inception report. Task 1 entailed **conducting a stocktake assessment to identify all existing government plans guiding the energy transition programs**. Meanwhile, Task 2 encompassed the **development of the communication and a donor coordination strategy to be implemented throughout the project**. Technical and management findings are tagged in the Annex of this report for reference.

2. PROJECT PROGRESS SUMMARY

After the completion of the Inception Period, The ETP Consultant has achieved milestones by building effective collaborations with key stakeholders. This includes a strong connection with the National Energy Council (DEN) Secretariat, a vital player in the energy landscape. We've also established a productive partnership with Mr. Herman Darnel Ibrahim, a prominent member of DEN, ensuring our alignment with DEN's goals. We've extended this collaboration to include the Academics from the Center of Energy Policy, Bandung Institute of Technology (PKK-ITB), a crucial partner supporting DEN in the Academic Manuscript preparation. Moreover, we've developed a close working relationship with the Ministry of Energy and Mineral Resources (MEMR) NZE Roadmap person in charge. These alliances demonstrate our commitment to working closely with stakeholders to achieve impactful outcomes.

One of the key events in the course of the work for Milestone 1 is the attainment of the proposed Focus Group Discussion (FGD) schedule from DEN, which gives an approximate timeline of when the National Energy Policy will be finalized. The team will focus our attention on the pursuit of engaging donors and ministries that are active in this discussion to align proposed strategies and RE inclusion.

Table 1: Focus Group Discussion

No.	Topic	Objective	Institutions	Projected Timeline
1.	Academic Manuscript Dissemination	• Academic Manuscript finalization to serve as a supporting document for National Energy Policy Government Regulation Plan (RPP KEN)	• APK DEN • Academia	July – December 2023
2.	Public Consultation	• Public participation for RPP KEN	• Experts	July 2023
3.	FGD: RPP KEN Discussion with House of Representative (DPR) VII Commissioner	• Discuss RPP KEN with the House of Representative • Gain inputs from the House of Representative	• House of Representative (DPR) VII Commissioner • DEN	September – December (tentative, 3 times)

During this period, The ETP Consultant encountered several challenges. The draft KEN, overseen by DEN and nearing completion, underwent presentation and dissemination through an FGD. Concerns were raised by

specific stakeholders—an academician and an individual from the electricity sector—about potential oversight of their feedback. Right now, DEN is focusing on the presentation of the KEN Draft to the Ministry of Energy and Mineral Resources. The ETP Consultant will document feedback on this presentation and offer suggestions for future FGD discussions. A similar situation occurred with MEMR, tasked with the NZE 2060 Roadmap, where stakeholders question the level of flexibility exhibited by each party. Furthermore, the State Electricity Company (PLN), a central player in the electricity sector, must balance sustainability with financial viability, as government goals aim to avoid tariff hikes and subsidies. Successful green initiatives within the Electricity Business Plan (RUPTL) depend on PLN generating adequate returns on investments, elaborated further in the PLN Electricity Business Plan chapter.

Below is the status of Indonesia's energy policy roadmap, found by The ETP Consultant as of the writing of this report:

1. The National Energy Council is in the finalization stage of the Draft National Energy Policy (KEN) 2024-2060.
2. MEMR's Directorate General of Electricity (Ditjen Gatrik) is in the finalization phase of the National Electricity Plan (RUKN) 2023-2030.
3. MEMR's Directorate General of New Renewable Energy and Energy Conservation (Ditjen EBTKE), through the Task Force NZE2060, is in the process of finalizing the Energy Transition Roadmap toward NZE 2060.
4. The Center for Energy Policy ITB, supporting the National Energy Council, is in the process of finalizing the Academic Manuscript for the Draft National Energy Policy (Draft RPP KEN). Coordinating with the Ministry of Industry is necessary to ensure alignment with Government Regulation 14/2015 on National Industry Development Masterplan (RIPIN) 2015-2035.
5. Differing perspectives on the viability of CCS (Carbon Capture Storage), Hydrogen, and nuclear technologies have been identified. The ETP Consultant is well-positioned to conduct a thorough background study on these topics.

Looking ahead, The ETP Consultant will maintain close collaboration with the DEN Secretariat, guided by ETP, offering support for ongoing activities. Effective communication strategies will amplify Draft KEN visibility, targeting stakeholders, donors, and green investors. Meetings are done with MEMR Task Force's Consultant (CBS), and a session with ETP consultants in the country will ensure coordination. Engaging with the Ministry of Industry (MoI) includes an FGD uniting DEN, MOI, and the industrial sector to discuss the National Industry Development Master Plan (RIPIN) in relation to the draft KEN. Insights from the JETP Secretariat and an FGD with donors, coordinated by the consultant and facilitated by DEN, are planned. A meeting with PLN aligns with their update of the Electricity Business Plan (RUPTL) for 2021-2030, now revised as RUPTL 2023-2032.

3. TASK 1: Government Energy Transition Policy and Plans

3.1. Introduction Roadmap to NZE 2060

The Directorate General of New, Renewable Energy & Energy Conservation (DG -EBTKE), under the Ministry of Energy and Mineral Resources (MEMR), is in the process of updating a Road Map for NZE by 2060. According to MEMR's Road Map, the energy sector's emissions are projected to be 129 million tons (Mt) by 2060, achieving complete emissions elimination through nuclear and Renewable Energy (RE) utilization within the electricity sector. On the other hand, the Centre for Energy Policy at the Bandung Institute of Technology (PKK-ITB), which supported the National Energy Council (DEN) in formulating the KEN Road Map, envisions a 60% RE scenario by 2060. The anticipated electricity demand in 2060 is projected to be 1,942 terawatt-hours (TWh) according to MEMR and 1,652 TWh according to PKK-ITB, indicating a 300

TWh difference between the two forecasts. The forecasts suggest that energy sector emissions will peak at 748 Mt in 2035 (MEMR) or 947 Mt in 2035 (PKK-ITB). Both MEMR and PKK-ITB presentations are subject to discussion and are not yet official, representing aspects that need further refinement and alignment.

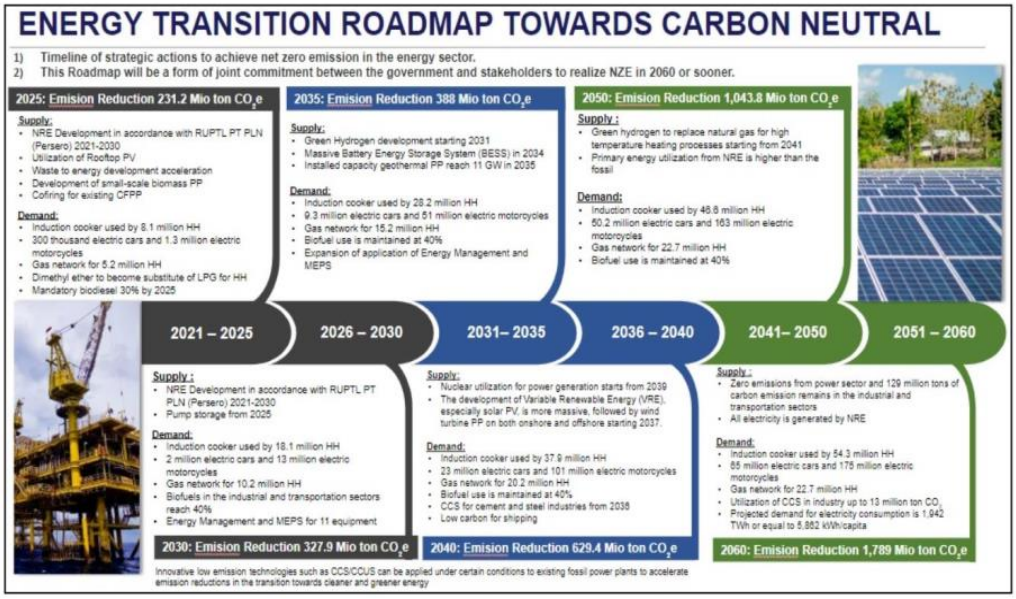


Figure 2: Energy Transition Roadmap

3.2. Background

This report aims to provide an in-depth overview of Indonesia's energy transition initiatives. It evaluates existing government plans guiding this transition, highlighting challenges and opportunities. The report proposes a practical framework aligning these plans with climate commitments, intended for adoption by the Government of Indonesia (GoI). It emphasizes trust-building among stakeholders and addresses potential implementation obstacles through mitigation strategies.

Crucially, the report anticipates the Focus Group Discussion (FGD) schedule from the National Energy Council (DEN) as a milestone for finalizing the National Energy Policy (KEN). By engaging donors and ministries, the report seeks to align strategies and advance renewable energy inclusion. Following President Jokowi's endorsement of the Paris Agreement, energy transition discussions have centered on achievable benchmarks in the Nationally Determined Contribution (NDC). The KEN, grounded in Government Regulation No. 79/2014, established a foundational framework for energy policies. However, discrepancies between short-term and long-term policies have emerged, exacerbated by factors like policy coherence, politics, and economic fluctuations.

Key ministries, including Bappenas, MEMR, MoI, and DEN play pivotal roles in energy policy. While short-term policies exhibit some cohesion within a presidential term, long-term policies face alignment challenges due to the intricate dynamics of the Paris Agreement. Non-Legally Binding Policies, such as the Just Energy Transition Partnership (JETP), complicate the landscape through collaborations between government agencies and donors. The report is a part of the Southeast Asia Energy Transition Partnership (ETP), aiming to streamline government plans for NZE by 2060. It re-evaluates existing policies for alignment with the NZE 2060 target, refining its methodology based on discussions with ministries and document analysis. Ultimately, this report contributes to a cohesive and effective energy transition strategy for Indonesia.

3.3. Methodology

The methodology used in Task 1 is the Systematic Review Method using the Compare-Contrast Matrix. Systematic reviews are an essential tool for evidence-based decision-making. They can help to inform policy, practice, and research. The systematic review method involves the following steps:

	**Research Question Formulation:** Identification of information required to be seen in the Compare Contrast Matrix.
	**Search Strategy Development:** To this task, it comprises of both existing Government Regulations (official documents) and Announced Pledges from various institutions. This is obtained through official channels and discussions with stakeholders.
	**Study Screening**: extracting relevant and recent information.
	**Data Extraction**: Includes information on the study design, methods, results, and limitations.
	**Assess Quality:** provision of analysis in each found information
	**Synthesize findings:** the output of the study is as follows: • Qualitative synthesis: Narrative summary of found results. • Quantitative synthesis: Compare Contrast Matrix

Figure 3: Systematic Review Method

3.4. Narrative Analysis of Each Government Plan

3.4.1. Summary of the Energy Policy Landscape

The energy policy landscape can be categorized into two main groups: **legally binding** and **non-legally binding** policies. The former takes the form of regulations, while the latter serves as guiding principles for programme execution. Both categories serve as pivotal references for strategizing emission-neutral activities.

3.4.1.1. Legally Binding Policy on Energy

Illustrated in Figure 2 are the interconnections among energy regulations. The foundation is anchored by Law No. 30 of 2007, which serves as a pivotal reference for the subsequent regulations.

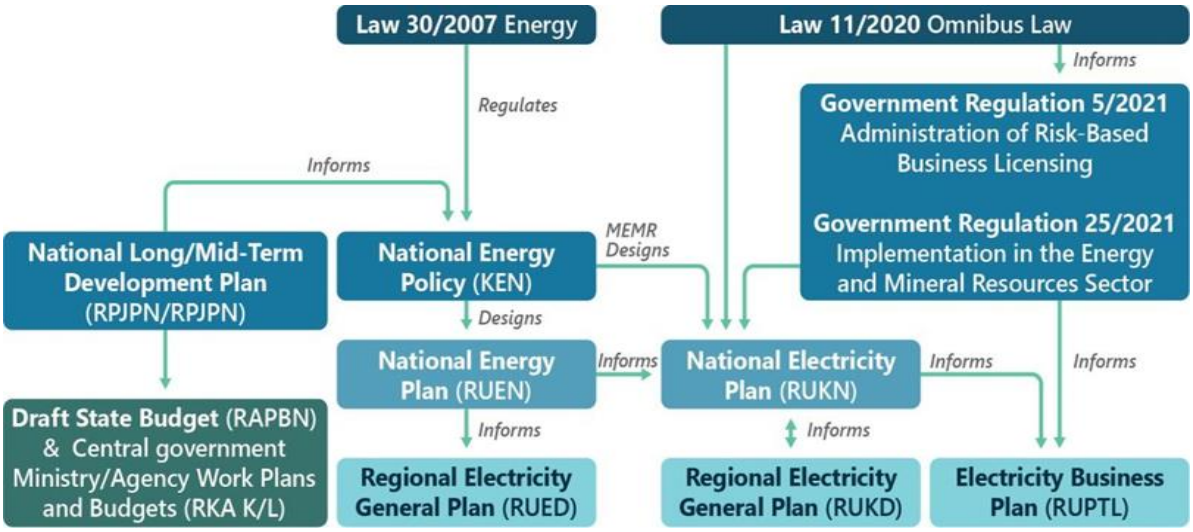


Figure 4: Relationships Between Energy Regulation

The Omnibus Law has had a limited impact on the energy, resource, and infrastructure sectors. The overarching objective of this legislation is to consolidate and streamline licensing procedures across these sectors. The most substantial ramifications arise from potential relaxations and modifications of environmental, forestry, and construction regulations, which stand to exert the most pronounced influence on the energy, resource, and infrastructure domains.

Examination of the shown policies in Figure.1 should provide sufficient stock take for the overall energy policy landscape in Indonesia. In addition, other government regulations were also observed to further inform the study. The list of energy-transition related policies are as follows:

- **Legal Framework and Energy Governance:**
  - Law No. 30/2007 concerning Energy
  - Law 30/2009 concerning Electricity
  - Government Regulation No. 79/2014 concerning National Energy Policy (Kebijakan Energi Nasional/KEN)
  - Presidential Regulation No. 22/2017 concerning National Energy General Plan (Rencana Umum Energi Nasional/RUEN) 2017-2050
  - Law No. 16/2016 concerning ratification of the Paris Agreement
- **Industrial Development and Economic Planning:**
  - Government Regulation No. 14/2015 concerning National Industrial Development Master Plan (Rencana Induk Pembangunan Industri Nasional/RIPIN) 2015-2035
  - Law No. 11/2020 concerning Job Creation (Omnibus Law)
  - Presidential Regulation No. 18/2020 concerning National Mid-term Development Plan (Rencana Pembangunan Jangka Menengah Nasional/RPJMN) 2020-2024
- **Renewable Energy Development and Climate Change Mitigation:**
  - Law No. 16/2016 concerning ratification of the Paris Agreement
  - Presidential Regulation No. 98/2021 concerning Implementing Carbon Economic Value to Achieve Nationally Determined Contribution Targets and Control of Greenhouse Gases in National Development

- Presidential Regulation No. 112/2022 concerning the Acceleration of the Development of Renewable Energy for the Provision of Electric Power
- Regulation of MEMR No. 3/2023 concerning General Guidelines for Government Assistance in the Conversion Programme of Electric Motorbikes to Battery-Based Electric Motorcycles

- **Electricity Generation and Distribution Planning:**
  - Law 30/2009 concerning Electricity
  - Presidential Regulation No. 22/2017 concerning National Energy General Plan (Rencana Umum Energi Nasional/RUEN) 2017-2050
  - Decree of MEMR Minister No. 188.K/HK.02/MEM.L/2021 concerning PLN's Electricity Business Plan (Rencana Usaha Penyediaan Tenaga Listrik/RUPTL) 2021-2030
  - Regulation of MEMR No. 26/2021 concerning Rooftop Solar Power Plants Connected to the Electric Power Grid Holders of Business Licenses to Supply Electricity for the Public Interest

Indonesia's enduring journey in formulating a comprehensive energy policy is marked by a series of strategic plans, each geared towards establishing sustainable and harmonious energy systems. The inception of KEN 2014-2050 set the stage for the pursuit of energy security and sustainable development, championing an array of energy sources that encompass renewables. Despite its emergence on the cusp of the Paris Agreement, KEN set Indonesia on a trajectory to reduce its dependency on fossil fuels, while championing the adoption of renewable alternatives like geothermal, hydroelectric, solar, wind, and biomass. Presently, an evolved rendition, the revised Draft KEN 2024-2060, is taking shape, propelled by global climate commitments. This revised iteration is meticulously calibrated to align with climate benchmarks and employs robust modeling methodologies to chart a course toward NZE by 2060.

Harmoniously intertwined with these energy blueprints is the National Medium-Term Development Plan (RPJMN) 2020-2024, a beacon guiding inclusive and sustainable development across various sectors. Encompassing economic transformation, infrastructure augmentation, and human capital empowerment, RPJMN underscores the significance of digital innovation and environmental stewardship. Concurrently, the National Energy Master Plan (RUEN) and National Electricity Master Plan (RUKN) furnish a comprehensive framework encompassing electricity supply, engineering protocols, and environmental guardianship, thus fortifying Indonesia's unwavering dedication to proficient, safeguarded, and sustainable energy systems. While positioning itself for a flourishing future, these synergistic plans underscore Indonesia's steadfast commitment to conscientious energy practices, economic expansion, and ecological sustainability.

Below, a compilation of documents fortified by legal and regulatory backing is presented, alongside each narrative analysis.

Table 2: Energy Regulations

Document Title	Objectives	Targets	Gaps
National Energy Policy (KEN)	Ensure energy security, and promote sustainable dev.	Diversify energy sources, increase renewables utilization	Address energy poverty, clarity in implementation, funding, and targets
National Energy Master Plan (RUEN 2025-2050)	Develop policies for electricity supply & eng.	Increase renewable energy to 23% by 2025, reduce energy intensity	Inconsistent with the 2060 Net Zero pledge, lacks climate change references
National Electricity Master Plan (RUKN 2019-2038)	Focus on electricity supply, engineering, env.	Incorporate 23% renewable energy by 2025, improve distribution	Ensure adequate electricity supply, and address land acquisition issues
Long/Medium Term Development Plan (RPJPN/RPJMN)	Achieve prosperity and advanced nation status	GDP growth of 6-7%, creates 10M jobs annually	Limited direct renewable energy targets, need for RE programme incorporation

National Industry Development Plan (RIPIN 2015-2035)	Set 10 priority industries for dev. planning	Develop upstream and intermediate industries based on resources	Enhance industrial human resources, advance technological expertise
PLN Electricity Business Plan (RUPTL)	Provide investment blueprint for generation/grid	Develop renewable energy, ensure supply-demand equilibrium	Uncertain tariff coverage, financial backing, challenges in full implementation
The matrix outlines the main objectives, targets, and challenges for each government plan. It shows how each plan addresses specific aspects of energy, electricity supply, industry development, and financial considerations.			

National Energy Policy (KEN) 2014-2050

Based on the Government Regulation No. 79 of 2014, The National Energy Policy (KEN) 2014-2050 was formulated by the National Energy Council (DEN) to secure energy supply, promote sustainable development, and achieve a renewable-energy mix portfolio. Instituted a year prior to the Paris Agreement in 2015, this policy underscores Indonesia's recognition of energy's pivotal role in driving economic growth and enhancing citizens' well-being. The nation is committed to diversifying its energy sources to reduce reliance on fossil fuels, notably oil. The government champions the development and utilization of renewable sources, including geothermal, hydroelectric, solar, wind, and biomass, for a more sustainable and ecologically conscious energy landscape.

The Government of Indonesia (GoI) is resolute in elevating the renewable energy share in the electricity mix. This encompasses advancing renewable power plants—such as geothermal, solar, wind, nuclear, and hydroelectric projects—to bolster power generation capacity and reliability across the nation. Concurrently, endeavors are underway to enhance energy efficiency and conservation practices, optimizing electricity consumption. Comparatively, **KEN holds superior legal authority as the sole binding document among ministerial plans**, with revisions ratified through the House of Representative Plenary Session. Presently, discussions on renewable energy progress are largely focused on collaborative programmes (e.g., JETP, LCDI), which might not perfectly align with KEN's objectives and targets. This endeavor seeks to ensure that approximations to KEN policies occur, facilitating integration and adaptation within the legal framework. The review and revision of KEN is anticipated to conclude by September.

It is noted that the regulation lacks addressing energy poverty, a pressing concern in Indonesia, urging the government to prioritize affordable energy for impoverished populations rather than just boosting the overall supply. Further clarity in the regulation's implementation is needed, as critics contend that explicit policies and measures are required to realize its objectives. Adequate funding is imperative for the regulation's success, particularly for investments in renewable energy and energy efficiency, necessitating a heightened government commitment in these areas.

Table 3: KEN (Challenge, Opportunity, Recommendation)

Challenge	**Elevation of RE Adoption** Despite its vast renewable potential, this prospect remains largely untapped. The government must channel investments into robust renewable infrastructure and provide incentives for enterprises and individuals to transition to sustainable energy sources **Support in Implementation** While KEN has the superior legal authority in Indonesia's Energy Planning, it lacks support in enforcement and funding to effectively disseminate and equalize processes in other policy frameworks, critically to equalize with the Electricity Business Plan (RUPTL) by PLN (State Electricity Company) and the National Industry Development Master Plan (RIPIN). **Infrastructure Optimisation**

	A substantial governmental investment is pivotal for the enhancement and expansion of energy infrastructure encompassing power plants, transmission networks, and distribution grids.
Opportunity	**Increase Political Will** The GoI has a law-binding commitment to the regulation. With the right support and attention directed to KEN, it will be possible to ease future streamline processes by highlighting its legality. **Cross-Ministry Discussion** The Council Stakeholder (APK-DEN) is comprised of individuals representing related institutions, including the Ministry of Industry, Environment, Energy, Consumers, Technology, and Academia. This provides the sufficient political push for DEN to carry the discussions with
Recommendation	**Implementation Synergy** This may look like a clear implementation timeline and outlining supporting policies and ongoing programmes which may help reach the intended short-term, medium-, and long-term goals of KEN, reflected in supporting documents such as RUEN. **Address Energy Poverty** The regulation should include specific measures to address the issue of energy poverty. The measures could include providing subsidies for renewable energy appliances or financial assistance to help people install solar panels. The subsidies and financial assistance may involve the ministry of Finance. The costs of renewable energy have been declining in recent years and are now comparable to or even lower than the costs of fossil fuels in many cases, and this may present a more attractive option for electricity generation. This is leading to an increase in the deployment of renewable energy projects around the world. **Greater Transparency** The regulation should include a process for public consultation and participation. The process would help ensure that the regulation is implemented in a fair and equitable way, as well as rally public support and discussion.

Draft National Energy Policy (KEN) 2024-2060

In response to global climate change concerns and commitments like the Paris Agreement, Indonesia's Government and National Energy Council (DEN) are revising the National Energy Policy. The objective is to align the long-term energy plan with current socio-economic and environmental conditions. This includes incorporating climate targets such as the NDC, Long Term Strategy Low Carbon & Climate Resilience (LTS-LCCR), and NZE 2060. The new policy aims to balance energy security, affordability, and environmental sustainability. To model the revised policy, DEN is assisted by the Centre for Energy Policy ITB. The modeling approach employs the Back casting Approach and utilizes the AIM-EndUse and AIM-ExSS Models. Achieving NZE 2060 is envisioned through a Low Carbon scenario, with academic manuscript finalization and widespread dissemination of figures being key steps.

The methodology employs the Back casting Approach, encompassing:

- Framework establishment,
- Base year data collection,
- Least Cost (LC) Measures information gathering,
- Snapshot estimation without LC Measures, and
- Snapshot estimation with LC Measures.

For analysis, the General Algebraic Modelling System (GAMS) v 24.0 is employed, integrating two models:

a. The AIM-EndUse Model, a collaborative product of CREP (Centre Research Energy Policy) ITB, NIES (Japan), and Mizuho (Japan). It utilizes linear optimization equations to select technologies with minimal cost and specified restrictions (e.g., supply capability, energy availability, technology

penetration, and emission targets). Demand projections hinge on population, economic growth, industrial structure, consumer technology usage, and lifestyle.

b. The AIM-ExSS Model estimates rational energy demand projections (electricity) from the user perspective (industrial, commercial, residential, transportation), incorporating socio-economic indicators.

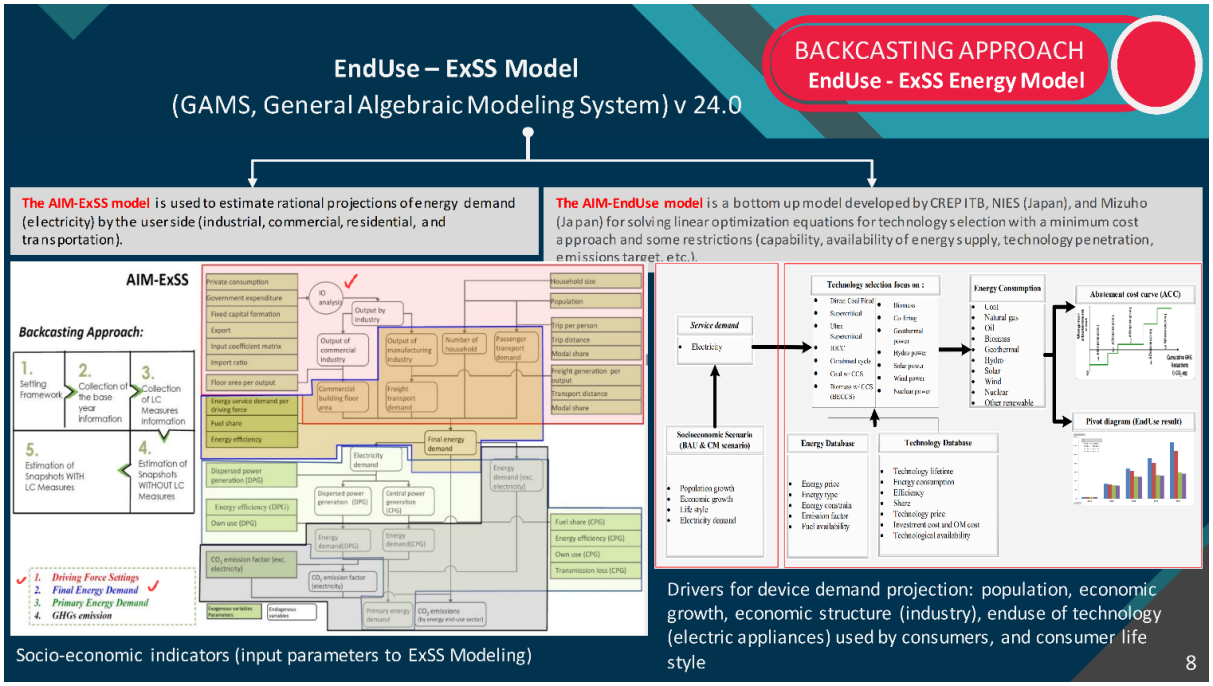
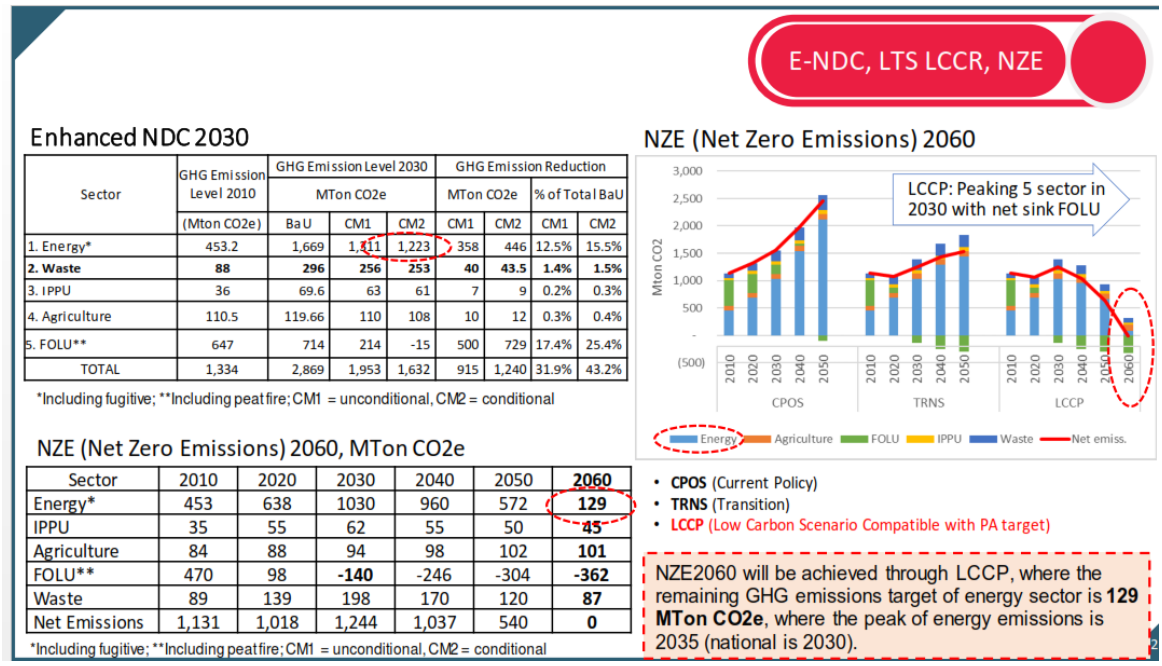


Figure 5: General Algebraic Modelling System (GAMS) v 24.0

To attain NZE 2060, a Low Carbon scenario harmonized with Paris Agreement objectives (LCCP) is envisioned. Targeting a remaining GHG emission of 129 Mtonne CO2e in the energy sector, with peak emissions expected by 2035. The National Energy Council (DEN) is finalizing the academic manuscript for the Draft KEN, concurrently facilitating an FGD involving diverse institutions to disseminate crucial data.



Sector	GHG Emission Level 2010	GHG Emission Level 2030			GHG Emission Reduction			
		MTon CO2e			MTon CO2e		% of Total BaU	
	(Mton CO2e)	BaU	CM1	CM2	CM1	CM2	CM1	CM2
1. Energy*	453.2	1,669	1,311	1,223	358	446	12.5%	15.5%
2. Waste	**88**	**296**	**256**	**253**	**40**	**43.5**	**1.4%**	**1.5%**
3. IPPU	36	69.6	63	61	7	9	0.2%	0.3%
4. Agriculture	110.5	119.66	110	108	10	12	0.3%	0.4%
5. FOLU**	647	714	214	-15	500	729	17.4%	25.4%
TOTAL	1,334	2,869	1,953	1,632	915	1,240	31.9%	43.2%

Sector	2010	2020	2030	2040	2050	2060
Energy*	453	638	1030	960	572	129
IPPU	35	55	62	55	50	45
Agriculture	84	88	94	98	102	101
FOLU**	470	98	-140	-246	-304	-362
Waste	89	139	198	170	120	87
Net Emissions	1,131	1,018	1,244	1,037	540	0

Figure 6: E-NDC, LTS, LCCR, NZE

National Energy General Plan (RUEN 2017 – 2050)

Presidential Regulation 22/2017, known as the National Energy Master Plan (RUEN), encompasses a comprehensive range of policies that extend across electricity supply, engineering strategies, and environmental safeguarding. Within the domain of electricity supply policy, the decree delineates multifaceted dimensions such as a primary energy mix strategy, the adept management of demand and supply, energy conservation tailored to the electricity sector, avenues for investment and funding, the intricacies of licensing, delineation of business areas, determination of selling prices and network rentals, tariff structures, subsidy frameworks, cross-border sales and purchases, initiatives for rural electrification, the safeguarding of consumer rights, mechanisms for dispute resolution, and the enforcement of punitive measures where needed. In conduct. RUEN is a direct by-product of KEN, designed by the MEMR. The RUEN has a subsequent regional document called the Regional Energy Master Plan (*Rencana Umum Energi Daerah* or RUED).

The RUEN presently stipulates a 23% incorporation of new and renewable energy (NRE) in the national energy blend by 2025. Mandating an annual 1% reduction in energy intensity from 2015 to 2025 and reductions of 17% and 39% in final energy consumption by 2025 and 2050 accordingly, RUEN targets are inconsistent with Indonesia's 2060 Net Zero pledge. While the document is subject to update to align with Indonesia's commitments, the 23% Renewable Energy share target of 2025 is far from achievable by the current progress. Nevertheless, it's noteworthy that these deviations from announced international roadmaps are marginal, which highlights an overall reluctance to set more ambitious targets in the country. The Plan also falls short in addressing the pressing issue of climate change, with the RUEN omitting explicit references and targets for greenhouse gas emissions reduction. This gap is concerning given the profound threat climate change poses to Indonesia's future.

Moreover, the plan's insufficiency in funding is evident, as the RUEN lacks adequate provisions for financing new and renewable energy endeavors. This funding shortfall constitutes a significant hurdle to achieving the outlined objectives. Furthermore, the plan's transparency is lacking, as its formulation occurred without public consultation and a coherent implementation strategy is still lacking. This opacity hinders the ability to hold the government accountable for the effective execution of the plan, which carries a risk of public rejection and unfavorable sentiment.

The RUEN underscores pivotal NRE focus areas encompassing solar, wind, geothermal, biomass, and hydropower, albeit these priorities remain dynamic due to ongoing challenges related to land acquisition and contractual arrangements. The RUEN highlights important NRE target areas including solar, wind, geothermal, biomass and hydropower. However, these priorities continue to change because of persistent difficulties with land acquisition and contractual agreements. Institutions and methods have been established inside the RUEN to monitor implementation.

Table 4: RUEN (Challenge, Opportunity, Recommendation)

Challenge	**Investment Cost & Risk** Developing NRE sources can be expensive, hindering achieving RUEN's targets. Reluctance in rising target numbers was catalysed by the global economic crisis due to COVID, and current downturns are expected as the nation nears Election Season. Another investment risk is in Technology. Indonesia still struggles with sufficient, reliable, and cost-effective RE sources. **Land Ownership** In addition to expenses, one of the biggest issues in NRE development is land ownership and land dispute. This is a multi-faceted problem, which includes dynamics in law, politics, societies, and Indonesia's natural energy potential.

	Political Instability Constant personnel rotation, unrest, and democratic dynamics all carry a risk of poor implementation. Public acceptance is also a significant factor, especially in regional and local initiatives. Job loss, land loss, and local overlords often result in delayed development.
Opportunity	**Market Growth** The proliferation of public demand and positive sentiment results in increasing interest both in domestic and foreign investment. The MEMR, through RUEN, can act as an official demand driver to attract investors. This can be done through the promotion of NRE development and energy conservation projects. **Energy Efficiency Mandate** The RUEN mandates a reduction in energy intensity by 1% annually from 2015 through 2025. The energy efficiency measures will create opportunities for businesses and investors to develop energy efficiency solutions, such as energy-efficient appliances and buildings.
Recommendation	**Push for Urgency** With climate change already negatively affecting the livelihoods of many Indonesians, especially vulnerable societies, RUEN has an opportunity to introduce a political, and socio-economic urgency to push for acceleration of Renewable Energy development and aggressive energy efficiency measures. This also means aiming for higher targets. Indonesia should achieve a target of at least 30% NRE by 2025 and 50% by 2050. While it might be too late to revise the current target of 23% NRE by 2025, accelerating future short-term targets through a stepwise strategy should be decided in FGD with the main stakeholders. **Local and Rural Area Consideration** RUEN needs to address the needs of rural areas adequately, ensuring that the plan includes measures to address the issue of energy poverty in rural areas. The problems could be solved by concentrating efforts on negotiations and cooperation for renewable energy projects in rural areas or investing in accessible energy efficiency measures. **Enhance Public Engagement and Transparency** The RUEN's absence of public consultation during its development, coupled with the absence of a well-defined implementation strategy, underscores the need for heightened openness and engagement. Amplifying dialogue and transparency in both the creation and execution of the programme will contribute to aligning the plan with public necessities and bolstering its effective implementation.

National Electricity General Plan (RUKN 2019 – 2038)

The National Electricity Master Plan (RUKN) encompasses a triad of policies: electricity supply, engineering guidelines, and environmental safeguarding. The electricity supply policy encompasses a spectrum of aspects, including the primary energy mix policy, demand and supply management, energy conservation within the electricity sector, investment and funding avenues, licensing procedures, business scope delineation, pricing and network rental structures, tariff frameworks, subsidy mechanisms, cross-border trade considerations, rural electrification strategies, consumer protection protocols, dispute resolution mechanisms, and the implementation of punitive measures.

The trajectory of electricity supply development aligns with the mandate of electricity development articulated in Article 2, paragraph (2) of Law Number 30 Year 2009 on Electricity, safeguarding the provision of electricity in adequate quantity, high quality, and reasonable pricing. The developmental pathway for electricity supply, particularly in the generation, encompasses diverse components, including a minimum of 23% new and renewable energy by 2025 (RE), power plants employing fuel exclusively for urgent and temporary supply needs, utilization of Clean Coal Technology (CCT) for coal-fired power plants, harnessing local primary energy resources, and judicious utilization of nuclear energy in agreement with the National Energy Policy (KEN).

Distribution initiatives focus on supplying electricity to Special Economic Zones, Tourism and Industrial Zones, long-distance High-Voltage Direct Current (HVDC) transmission for inter-island power evacuation, a minimum of one Substation (GI) per district/city, augmentation of GI transformers with loading nearing 70%, and the

integration of Gas Insulated Switchgear (GIS) to optimize limited land usage, network reduction, and revamping old networks.

Incorporated in the RUKN 2019-2038 are assumptions and targets involving an average national economic growth of approximately 6.0%, an average inflation rate of about 3.5%, moderate population growth of around 0.8%, and electrification ratios targeting nearly 99.9% in 2019. The targets accommodate anticipated demands from Special Economic Zones, Industrial Zones, smelters, and electric vehicles. By 2025, the new and renewable energy mix aims to reach at least 23%, while gas, coal, and oil are estimated to constitute around 22%, 55%, and 0.4% respectively. By 2038, the renewable energy mix target aims for 28%, while gas, coal, and oil targets are set around 25%, 47%, and 0.1% respectively. These energy mix objectives are applicable to the State Electricity Company (PLN) and other business entities operating in the sector, encouraging collaborative efforts to realize the energy mix goals.

The 2023-2060 Revised Electricity Supply Business Plan (RUKN) is finalized by the Directorate General of Electricity at the Ministry of Energy and Mineral Resources (MEMR). In contrast to the previous RUKN 2019-2038, which drew from the National Energy Policy 2014-2050 (KEN), the RUKN 2023-2060 will reflect alignment with the forthcoming 2024-2060 KEN draft. This update is rooted in several factors:

- Notably divergent economic growth and electricity demand actualities from projections due to the COVID-19 pandemic.
- Significant modifications in intermediate energy presumptions and/or targets linked to the NZE 2060 objective.
- Evolving government policies pertinent to the electricity sector, including enhanced oversight over coal-fired power plants and downstream mineral activities that reverberate on projected electricity requisites.

While the 23% NRE shares are consistent with previous policies, related institutions like PLN and civil societies alike worry that without adequate subsidy, this will lead to a steep increase in electricity prices. With many in Indonesia still living in Energy Poverty, a review of targeted subsidy policies need to be done quickly to avoid a massive access gap that may occur, especially for vulnerable communities living in less developed regions. Exploration of accessible alternative energy sources and low carbon technology must be done quickly to compensate for future aggressive strategies. This may include investing and utilizing advanced technologies, enhancing infrastructure, such as roads, pipelines, and storage facilities, which can impede exploration, and creating better public dialogue and engagement through education and information dissemination.

Table 5: RUKN (Challenge, Opportunity, Recommendation)

Challenge	**Finance and Investment** The RUKN 2019-2038 calls for a significant investment of Rp139 trillion (US$9.6 billion) in the electricity sector from 2019-2038. The government must find a way to raise this money to implement the plan. **Technology, Research and Development** The RUKN 2038 relies on several new technologies, such as renewable energy and smart grids. These technologies are still in their early stages of development, and it is still being determined whether they can be deployed on a large scale to meet the RUKN 2038's targets. Insufficient research and technology implementation could be detrimental to the distribution efficacy and environmental disruption in the surrounding area. **Regulation** The RUKN 2038 will require changes to Indonesia's electricity regulations. These changes must be made in time to facilitate the plan's implementation. **Local Reception**

	Achieving the targets of RUKN 2038 means a significant number of constructions of new power plants and transmission lines. These projects may need more support from local communities, which could delay or derail their implementation. **Geographical** Indonesia is a vast country with diverse geographical conditions. The challenges could make it difficult to implement the RUKN 2038 uniformly across the country
Opportunity	**Smart Grids** The Plan aims to implement smart grid technologies across Indonesia. The programmes could create opportunities for businesses and investors involved in developing and deploying smart grid technologies, such as advanced metering infrastructure, demand response, and energy storage. **Transmission and Distribution** Renewable Energy initiative requires a large expansion of Indonesia's transmission and distribution network. This provides another area of ample opportunities for manufacturing, services, and foreign and domestic investment outside of RE technologies. **Employment** The plan could create new jobs in the electricity sector, both in the construction and operation of new power plants and transmission lines, as well as in the manufacturing and service industries that support the electricity sector
Recommendation	**Re-Evaluate Target Implementation** While consistent target share is an ideal condition for the streamlining of policies, implementable strategies must be addressed in the RUKN. This could look like an annual target review, acceleration of technology development, and increased collaboration to address energy-poor areas with faster small-scale programmes. This could look like an annual target review, acceleration of technology development, and increased collaboration to address energy-poor areas with faster small-scale programmes. **Strengthen Regulatory Frameworks** The government could strengthen existing regulatory framework for the electricity sector to ensure that the plan is implemented effectively. This may include provision of better monitoring and evaluation on implementation, investment returns, and target achievements. **Engage with Stakeholders** Donors, businesses, consumers, and environmental groups should be engaged to ensure that the plan is implemented beneficially. The engagement could include holding public consultations and establishing a forum for stakeholders to provide input on the plan. **Investment Coordination** Post-Election 2024 provides a unique opportunity for the new government to re-examine and coordinate existing investments to ensure efficacy and forward-moving initiatives. (See Recommendation, RUPTL).

PLN Electricity Business Plan (RUPTL 2021 – 2030)

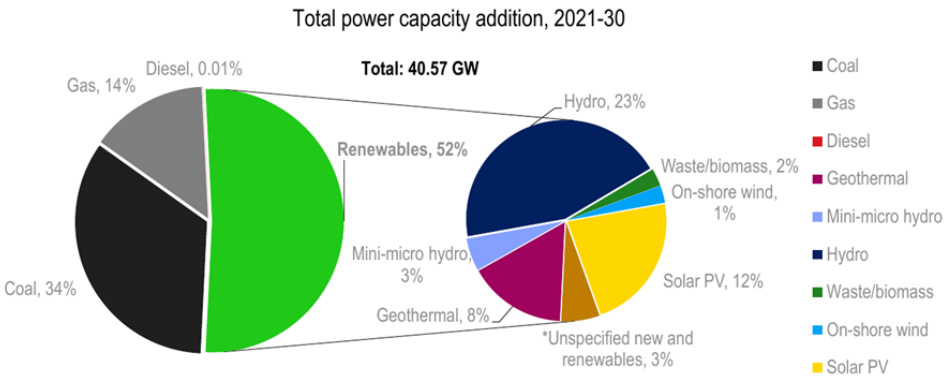


Figure 7: Total Power Capacity Addition, 2021-2030

The Electricity Business Plan (RUPTL) is a formulation by the State Electricity Company (PLN), carried out as the implementation of the National Electricity Master Plan (RUKN) and overseen by the guidance of the MEMR. The initiation of PLN's RUPTL is formalized through a MEMR Ministerial Decree. This duality presents a complex scenario. On one hand, the MEMR anticipates PLN's RUPTL to serve as a comprehensive investment blueprint for generation and grid infrastructure, ensuring the fulfilment of electricity demand and alignment with government emissions reduction targets and energy policies. However, tariff coverage for costs remains uncertain. On the flip side, PLN's financial health is dependent upon financial backing from the Ministry of Finance (MoF) for subsidies and Public Service Obligation (PSO) compensation, which is limited by the annual government budget. PLN's financial health attracts scrutiny from the Ministry of State-Owned Enterprises (MSOE) overseeing PLN's balance sheet and profit & loss. Up till the current PLN's RUPTL 2021-2030, this dynamic hinders the full implementation of PLN's RUPTL programmes. This makes the full implementation of the RUPTL target difficult, requires significant time, investment and requires strong internal incentive from the Government to restructure.

The recent Presidential Decree 112/2022 introduces new directives for RUPTL compilation:

(1) PLN is mandated to advance renewable energy development in line with the National Electricity Masterplan (RUKN), accounting for supply-demand equilibrium and economic feasibility.

(2) RUPTL Draft is subject to consultation with both the MoF and MSOE, entities responsible for considering demand-supply equilibrium, electricity infrastructure status, and government budget considerations.

This framework aims to enhance the pragmatic viability of the new RUPTL. In line with the energy transition, the RUPTL 2021-2030 crafting entails three foundational principles: 1) Ensuring Security of Supply (availability and accessibility), 2) Ensuring Affordability (optimal cost), and 3) Ensuring Environmental Acceptability.

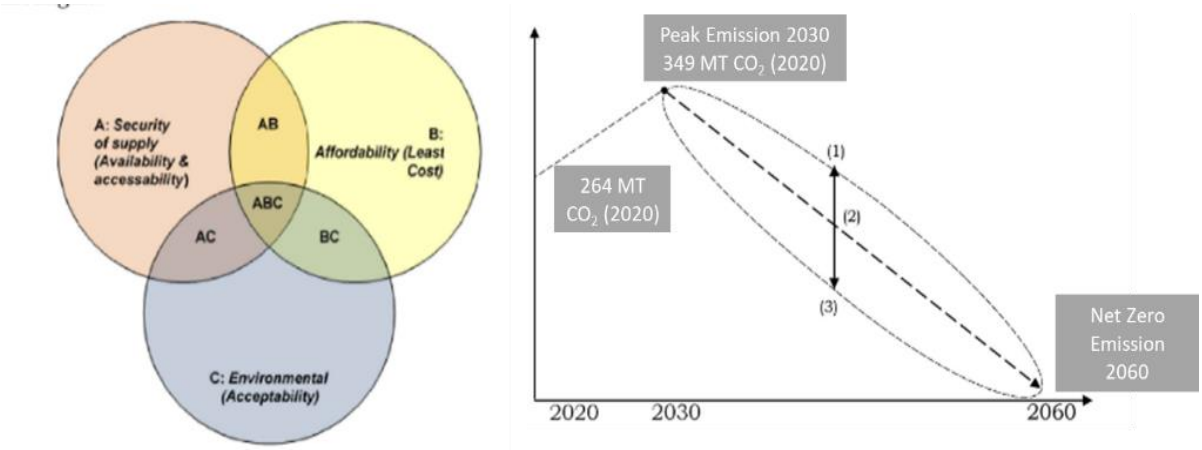


Figure 8: RUPTL Net Zero Emission

To achieve NZE 2060, RUPTL 2021-2030 suggests a moderate speed in emission reduction. This is a prudent step since the company needs to engage the new technology for producing electricity with much less emission. This way, it limits the technological risk when choosing a new emission reduction technology.

Recognizing the pivotal role of energy efficiency and demand-side management in optimizing electricity consumption, Indonesia is actively implementing energy-saving measures. These encompass the enforcement of appliance standards and labeling, formulation of building codes[1], and promotion of public awareness campaigns. These efforts aspire to cultivate energy-conserving behaviors, diminish overall electricity demand, and mitigate the necessity for additional power generation capacity. The plan also expands on the need for power transmission and distribution infrastructure for a dependable and efficient electricity supply. This involves expanding and upgrading transmission networks, adopting innovative grid technologies, and curbing losses during transmission and distribution.

However, the RUPTL 2021-2030 also explains the financial impact on PLN and the government's fiscal situation:

- It requires an annual investment of 8.6 billion USD, comprising 4.8 billion USD from PLN and 3.8 billion USD from other sources.
- Tentatively, the government commits to an equity injection of 0.6 billion USD per year.
- Over the last 10 years, additional coal-fired power plants and increased coal contribution in the energy mix (from 50,4% in 2012 to 60% in 2018) have successfully reduced government subsidies for electricity. In 2012, electricity subsidies amounted to 6.9 billion USD annually, which decreased to 3.2 billion USD in 2018. This is due to the lower average generation cost (from 0,13 USD to 0,8 USD/kWh).
- Government policies promoting a higher renewable energy mix and reducing coal will increase average generation cost because of higher cost of geothermal and gas/LNG, and CFPP TOP cost, rising from 9.6 US cents/kW in 2021-2024 to 11 US cents in 2025-2030.
- Assuming the government cannot raise electricity tariffs with the decreased coal share scenario, electricity subsidies and compensation are projected to increase from 4.8 billion USD per year (2021-2024) to 12.48 billion USD per year (2025-2030).

[1] See *Buku Pedoman Energi Efisiensi untuk Desain Bangunan Gedung di Indonesia,* MEMR, supported by EECHI and Danida.

Table 6: RUPTL (Challenge, Opportunity, Recommendation)

Challenge	**High Investment Cost** The RUPTL 2021-2030 is a significant investment programme, with total investment costs estimated at IDR 1,200 trillion (approximately USD 88 billion). The government is committed to providing financial support for the RUPTL, but it still needs to be determined how the plan's total cost will be financed. **Need for Infrastructure** The plan includes several projects to expand the transmission and distribution network. However, the current infrastructure must be improved to support the growth of the electricity sector. The improvement means that significant investment in new infrastructure will need to be made to achieve objectives. **Conflicting Function** The RUPTL and RUKN often conflict due to PLN's compound function as a government apparatus with a national mandate and a national business entity with profit targets. PLN's RUPTL resembles a government programme for electricity infrastructure development. It carries government commitments on international fronts (such as early retirement of coal-fired power plants and COP-related agreements) and for its constituents. However, like any other company's business plan, the RUPTL has financial limitations and constraints. Presidential Decree 112/2022 gives a strong signal for this direction. **Human Resources** The electricity sector in Indonesia needs more skilled human resources. Skilful labour is a significant challenge for the industry, as it will need to attract and train more skilled workers to achieve the plan's objectives.
Opportunity	**Transmission and Distribution Infrastructure** Consistent with the RUKN, the RUPTL opens an opportunity for the expansion and modernisation of transmission networks, the adoption of pioneering grid technologies, and curbing transmission and distribution losses. This provides channels for investors to tap into. **Electricity Accessibility** Ren Augmenting electricity accessibility in rural and isolated regions entails launching initiatives to extend the electricity grid's reach, deploy off-grid and mini-grid systems, and offer cost-effective electricity solutions to underserved communities to elevate living standards and foster economic growth. Isolated regions allow for innovative pilot programmes and studies to be done, providing a baseline for future duplication. **Electricity Demand Growth** The demand for electricity in Indonesia is expected to grow by an average of 4.9% per year over the next ten years. The growth is a significant opportunity for the electricity sector and is expected to create substantial business opportunities. Following Presidential Decree 112/2022, PLN's RUPTL will only consist of programmes that is financially viable. However, there will be government's programmes in RUKN that can be financially viable with government fiscal support. PLN can bid as a contractor for these programmes. **Demographic Bonus and Energy Transition** Energy transition brings new technologies (myriad of renewable and environmentally friendly technology) and mindset of sustainability. Government programs for down streaming minerals will strengthen energy transition. Indonesia will have enough human resources since it is in an era of a demographic bonus until 2036.
Recommendation	**Concentrated Investment Scheme for PLN** The contrast between the function of the PLN as a government apparatus and independent business has always caused conflicting interests. The energy transition is a government programme, and PLN, as a State-Owned company, can only execute it with government funding. MEMR could create an agency similar to SEDA (Sustainable Energy Development Agency) In Malaysia. There, the agency collect surcharge from big electricity customer (assuming they have big CO_2 footprint) and use the money "compensate" PLN for absorbing "green" electricity. To enable PLN to take a stronger role in Energy Transition, the government should consider a more realistic tariff and credible commitment for subsidy or compensation. **Consider Split Function**

	RUKN, as the national RUPTL, should emphasize that the availability of generation capacity is the government's responsibility. Generation Expansion Planning is the responsibility of MEMR (similar to *Tenaga Suruhan Jaya in Malaysia* and the Energy Policy & Planning Office in Thailand). Example: Oversupply or deficit supply can be MEMR's responsibility. PLN, like other Independent Power Producers (IPP) can bid capacity in government capacity tender. This can also promote more competition and innovation in the sector.

Contiguous Binding Policies for Consideration

After consultations with ETP Indonesia, the National Energy Council, and other relevant stakeholders, we identified two significant policy pipelines that, despite having limited interaction with the aforementioned policies, pose a significant challenge to the advancement of Renewable Energy in Indonesia. These policies, although not originally addressed in the Proposal or Inception stage, are deemed crucial and potentially detrimental to the success of the programme.

A. National Medium-Term Development Plan (RPJMN 2020 – 2024)

The Indonesia Medium Term Development Plan (RPJMN) 2024 is a strategic planning document that outlines the government's priorities for the next five years published by the Ministry of National Development Planning (Bappenas). It is based on the National Long-Term Development Plan (RPJPN) 2005-2025, and its primary goal is to achieve Indonesia's vision of becoming a prosperous, democratic, and advanced nation by 2045. The government's goals for 2020-2024 encompasses various aspects. It targets GDP growth of 6-7% yearly, prioritizing sectors like manufacturing, tourism, and the creative economy, with the aim of creating 10 million jobs annually relies on labor-intensive areas like agriculture, manufacturing, and construction.

While not directly establishing renewable energy targets, the RPJPN/RPJMN significantly influences the State Budget (APBN) and subsequently the Local Budget (APBD) across all regions. Incorporating RE programmes into these budgets is vital for maintaining consistent political support nationwide. Beyond budgeting, the RPJPN/RPJMN establishes the foundational economic growth predictions and targets for Indonesia, influencing all policy frameworks including KEN. Scheduled for review and renewal in 2024, the RPJPN concludes its current term at the end of the Long-Term Plan period in 2025.

Recommendation
Concentrated Engagement Scheme
Bappenas is a large ministry with different organizing bodies within, encompassing various aspects from infrastructure, environment, and poverty alleviation. The Consultant recommends Bappenas to be engaged separately, under a collective working consultancy group, to streamline economic target growth numbers.

B. The National Industry Development Master Plan (RIPIN) 2015-2035

Government Regulation No. 14/2015, known as the National Industry Development Master Plan 2015-2035[2] (*Rencana Induk Pembangunan Industri Nasional* or RIPIN), is a strategic document that provides guidance for the government and industrial stakeholders in industrial planning and development for the next twenty years. The RIPIN identifies ten priority industries for the 2015-2035 period, encompassing sectors like power plants and oil, gas, and coal-based chemical industries. This regulation not only outlines the 2015-2035 agenda for these industries but also provides essential direction for government and industry players in long-term industrial

[2] Industry Facts and Figures, 2015. Ministry of Industry

planning and development over the next two decades. RIPIN has relevance to the net zero emission program in several ways:

- It prioritizes clean and renewable energy development within the Indonesian industrial sector, encompassing solar, wind, geothermal energy, and enhanced energy efficiency.
- It outlines policies and strategies promoting investment in clean energy, fostering clean energy workforce development, and enhancing regulatory support for clean energy projects.
- It highlights key industries like food and beverage, textile and apparel, chemicals, and machinery as potential contributors to the net zero emission program.

Another relevant clause can be found in the Qualitative Target of Industrial Development Indicator no.7, which states "The strengthening of industrial structure with the growth of natural resources based upstream and intermediate industry", which also refers to the Oil, Gas and Coal Based Chemical Industry. Indonesia's industrial development from 2015 to 2035 follows a structured approach:

- Initial Phase (2015-2019): This phase focuses on enhancing the added value of natural resources within agriculture, minerals, and oil processing-based upstream industries.
- Subsequent Phase: Following the initial phase, the emphasis shifts towards cultivating selective and dependable industries. This involves preparing skilled and competent industrial human resources while advancing technological expertise.

Recommendation
Inclusion in Discussion
The National Energy Policy has implications for Industry Regulation and the baseline Energy Demand Forecast figures. Given the Ministry of Industry's representation in the National Energy Council, involving them in upcoming KEN discussions, particularly during the distribution of the Academic Manuscript, could offer insights into the ministry's challenges and opportunities. These insights can then be integrated with previous frameworks to provide comprehensive recommendations, which may aid in the reorientation of RIPIN trajectories with streamlined numbers, allowing for better consistency with KEN.

3.4.2. "Non-Legally Binding" Policy on Energy

After the Paris Agreement, Indonesia meticulously crafted roadmaps across diverse ministries to propel the nation towards its ambitious Net Zero objective by 2060. These roadmaps, ever adapting, provide a comprehensive blueprint for governmental and donor stakeholders. But they also remain vulnerable to the influence of domestic and foreign interventions, a danger heightened by the upcoming National Election.

For this report, we examine the four largest, most relevant non-binding policy programmes which are supported by different ministries, all in agreement with the NZE 2060 goals with various mid-term targets. These roadmaps are:

LCDI 2045	LTS - LCCR 2050	NDC 2022	JETP
Bappenas	MoEF (Climate Change Directorate)	MoEF (Climate Change Directorate)	MEMR. Coordinating Ministry of Maritime & Investment

Enhanced National Determined Contribution (NDC) Indonesia – Ministry of Environment and Forestry

Indonesia's commitment to low-carbon, climate-resilient development within the framework of the Paris Agreement is evident through a series of National Determined Contribution (NDC) updates. The initial NDC document from November 2016 set a 2030 target to reduce greenhouse gas emissions by 29% unconditionally or 38% conditionally, with international collaboration. The July 2021 Updated NDC increased these targets to 29% and 41% respectively. Further advancement occurred in the September 2022 Enhanced NDC, raising the unconditional target to 31.89% and the conditional goal to 43.20%. These NDC adjustments align with evolving national climate policies, encompassing areas like FoLU (Forestry and Other Land Uses) Net-sink 2030, electric vehicle adoption, waste management enhancements, and agricultural and industrial sector amplification, as well as Presidential Decree 98/2021 focused on Carbon Economic Value implementation for GHG emission control within national development. NDC is designed and published by the Ministry of Environment and Forestry (MoEF).

The targets outlined in the NDC lack a credible pathway for implementation, necessitating a comprehensive plan to achieve Indonesia's goals. The absence of this roadmap makes it challenging to assess the feasibility of these targets. The NDC does not offer clear strategies for achieving a 50% reduction in deforestation and forest degradation by 2030. In addition, the most pressing issue for Indonesia's NDC commitment is its lack of coherence with existing government policies. The communication of NDC design processes was insufficiently disseminated among relevant stakeholders, resulting in strained relations and a deficiency in garnering adequate support. NDC doesn't bind to national Energy Policy roadmaps which have regional derivatives like RUEN-RUED, resulting in poor buy-in in local spheres.

Acknowledging this, the MoEF organized a National Technical Meeting (*Rapat Kerja Teknis Nasional)* themed "NDC 2023 Collaboration and Synergy" in March 2023. Regrettably, although the MEMR was included in the invitation, other pertinent sectors such as Bappenas and MoI were absent from the event. This maybe a huge miss-opportunity to align targets and streamline growth forecasts, which may impact the accuracy of future NDC short-term targets.

Table 7: NDC (Challenge, Opportunity, Recommendation)

Challenge	**Steep Target** Indonesia is the world's second-largest emitter of greenhouse gases from deforestation and forest degradation. Indonesia must reduce deforestation by 50% by 2030 to meet its NDC goals. The programmes will require a significant investment in forest protection and restoration. **Roadmap Design Gap** The NDC is led by the Ministry of Environment and Forestry (MoEF), as the initial mandate discusses targets for reducing deforestation and carbon emission. However, the MoEF doesn't take part in the National Energy Policy (DEN) nor the National Development Planning (Bappenas) design. This creates a mismatch in targets and a certain tension in political dynamics. **Local Adaptation** The pipeline has insufficient details to address the impacts of climate change on vulnerable communities across different regions in the country and lacks implementable strategies for facing imminent impacts. **Monitoring and Evaluation** Lacks local capacity and technical ability to implement its climate action plans. The ability includes the capability to develop and enforce policies, monitor, and evaluate progress, and make public awareness and support for climate action
Opportunity	**Increased International Support**

	Both bilateral and multilateral cooperations in Indonesia have a high vested interest in the NDC. A clear programme implementation plan could increase donor engagement and push for support, domestically and internationally. **Cross-Ministry Collaboration** Initiatives such as the *NDC 2023 Collaboration and Synergy* can serve as a catalyst for future similar initiatives, especially involving prominent government institutions in the energy sector such as MEMR, National Energy Council, Bappenas, Ministry of Industry, PLN, and so on.
Recommendation	**Facilitate Collaborative Efforts** NDC design must encompass inputs from all relevant actors. This means making a target comprising various scenarios from different ministries. It needs to be consistent with national policies, such as KEN, to foster a political push in implementation. **Strengthen the Transparency and Accountability** The NDC should include a clear plan for how Indonesia will monitor and evaluate its progress toward its emission reduction targets. The NDC should also commit to transparency so stakeholders can track Indonesia's progress and hold the government accountable. The commitment can be achieved by publishing regular reports on the country's progress and making data on emissions and other climate-related indicators publicly available.

LTS - LCCR 2050 – Ministry of Environment and Forestry

In the 2021 Updated NDC submission, Indonesia introduced The Long-Term Strategy for Low Carbon and Climate Resilience 2050 (LTS-LCCR 2050), crafted by the MoEF, and ratified by the President. This strategic document outlines Indonesia's overarching policy direction for the long term, serving as a comprehensive framework for climate change mitigation and adaptation across all sectors, subsequently influencing the forthcoming five-year NDC targets. Notably, the most ambitious framework within LTS-LCCR is the LCCP scenario (Low Carbon scenario Compatible with the Paris agreement), primarily targeting the energy sector. This scenario envisions substantial growth in the renewable energy segment of the energy mix, simultaneous reduction of coal consumption, heightened efficiency, and the adoption of Carbon Capture and Utilization/Storage (CCUS) technology in thermal and bio-energy generators.

The following outlines the electricity sector targets in 2050 according to the LTS-LCCR for the LCCP scenario:

- Power generation mix: RE (43%), coal (38%), natural gas (10%), BECCS (8%). The RE target includes hydro, geothermal, solar PV, biomass, biofuel, and wind.
- Installed capacity of RE: solar PV 113 GW, hydro 68 GW, geothermal 23 GW, wind power 17 GW, biomass 13 GW, biofuel 14 GW, BECCS 23 GW with harmful emissions.
- About 76% of coal-fired power plants are equipped with CCS to achieve zero emissions at the power plant.
- Carbon intensity in power generation: 104 grams CO2/kWh.
- It was also stated that an intermittent VRE supply requires a continuous stable baseload, such as coal-fired power plants and smart grids.

The LTS-LCCR 2050 document has been adjusted to account for the impacts of Covid-19, which have led to a notable decrease in the anticipated national economic growth. This deviation from the projected figures in various government policy documents, including the National Energy Policy (KEN), has resulted in a reduced primary energy projection in LTS-LCCR in comparison to KEN (600 Mtoe compared to 1000 Mtoe). Another disparity lies in the estimated growth rate of electricity power plants (up to 5.5% per year), which is now closer to the pre-Covid-19 prediction. To achieve these LTS-LCCR scenarios, a substantial proportion of Renewable Energy and robust support through the completion Draft Law of New and Renewable Energy are imperative.

The document also underscores the need for a stable baseload, with intermittent Renewable Energy supply necessitating the presence of continuous sources such as coal-fired power plants and smart grids. This

independent calculation was submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in July 2021.

Green House Gas Emission to achieve NZE 2060 or sooner

	2010	2020	2030	2040	2050	2060
Energy	453	688	1,030	960	572	87
Agriculture	84	88	94	98	102	101
FOLU	470	98	-140	-246	-304	-326
IPPU	35	55	62	55	50	45
Waste	89	139	198	170	120	87
Net emiss.	1,131	1,068	1,244	1,038	540	-6

FOLU: Forestry and Other Land Uses
IPPU: Industrial Process and Product Uses
CCS: Carbon Capture and Storage
CCUS: Carbon Capture, Utilisation and Storage

Energy Sector Emission	MoEF	Energy Sector NZE Contribution	
		Original	Consolidated
Power Plant	-66	0	0
Industry	51	231	60 with CCS
Transportation	62	149	52
Household	41	21	9,6
Commercial			4,4
Others			3,3
TOTAL	87	401	129

Figure 9: Consolidated LTS-LCCR Targets, Ministry of Environment and Forestry, Directorate General of Electricity, MEMR

Table 8: LTS-LCCR (Challenge, Opportunity, Recommendation)

Challenge	**Investment Needs** Consistent with all roadmaps, a significant investment both domestic and international is needed to fund initiatives to achieve the LTS-LCCR targets. **Political Support** LTS-LCCR is not as prominent in the overall energy roadmap sphere in the country. The non-transparent nature of the NDC causes the LTS-LCCR to gain less traction than their counterparts (ex: LCDI, JETP). **Lack of Transparency** The number submitted under LTS-LCCR may not reflect the capacity of RE developments stipulated in other energy policy pipelines, resulting in incoherent targets and an unclear implementation roadmap.
Opportunity	**Increased International Support** Consistent with NDC, there is a strong push from the international community for Indonesia to achieve its LCCP targets. An increase in efforts and publication can foster long-term collaborative efforts to achieve their goals. **Climate Change Mitigation** Aggressive, detailed targets may serve as a clear objective for Indonesia's climate change mitigation efforts, which can be utilized by both government and private sectors.
Recommendation	**Facilitate Collaborative Efforts** Just like the NDC, generating political backing and attracting increased investment necessitates the collaboration of the LTS-LCCR roadmap across ministries, institutions, and relevant sectors. This synergy aims to align targets and baselines, resulting in a practical and actionable roadmap. **Increase Publication and Public Involvement** LTS-LCCR targets, especially the LCCP scenario, must continue to seek greater public discourse and consultation. This means a significant increase in communication is needed to engage outside the inner-government sector.

Low Carbon Development Initiatives (LCDI) 2045 – Bappenas

In October 2017, the Indonesian Government initiated the integration of climate action into its development agenda through the launch of the Low Carbon Development Initiative (LCDI) by the Ministry of National Development Planning (Bappenas). The LCDI's objective is to incorporate greenhouse gas (GHG) emissions reduction targets explicitly into policy planning and interventions for natural resource conservation and restoration. The integration of low carbon development policies into the National Medium-term Development Plan (RPJMN) 2020–2024 is aligned with the broader implementation of the National Long-term Development Plan (RPJPN) 2005–2025, which envisions a developed, self-reliant, just, democratic, peaceful, and united country. The LCDI policies will work towards realizing the Indonesia Vision 2045, targeting a 30% renewable energy penetration by 2045.

Targets include:

- Reduce greenhouse gas emissions by 41% by 2030 and achieve net-zero emissions by 2045.
- Increase the share of renewable energy in the power mix to 23% by 2025 and 31% by 2045.
- Reduce deforestation by 50% by 2030.
- Increase access to clean water and sanitation to 95% by 2030.
- Improve air quality in major cities by 50% by 2030.
- Reduce waste generation by 30% by 2030.

The Low Carbon Development Initiative (LCDI) Phase 1 was a five-year program (2016-2021) that aimed to support Indonesia's transition to a low-carbon and green economy. LCDI Phase 2 is a five-year program (2022-2027) that aims to build on the successes of LCDI Phase 1 and accelerate Indonesia's transition to a low-carbon and green economy. The LCDI Phase 2 has four main objectives:

1. To support the implementation of Indonesia's nationally determined contribution (NDC) under the Paris Agreement.
2. To promote low-carbon and green investments.
3. To build the capacity of national and subnational governments to implement low-carbon development policies and programs.
4. To raise awareness and understanding of low-carbon development among key stakeholders.

The program is funded by the Global Environment Facility (GEF) and implemented by the Ministry of National Development Planning (Bappenas).

While LCDI is one of Bappenas' flagship collaborative projects which attracts high interest from many international donors and collaborators, it's unclear how it will be monitored and accountable. With Phase 2 expanding for regional capacity building, inefficiencies, and fund-related risks are quite prominent. Furthermore, while the current initiative discloses its plan to exercise the programme in 6 provinces, it is yet clear how it will involve stakeholders in decision-making. This lack of transparency could lead to a lack of public trust in the LCDI.

Table 9: LCDI (Challenge, Opportunity, Recommendation)

Challenge	**Contingency to Funding** LCDI's continuation is highly contingent on the inflow of investment from its donor countries due to its high cost, considering the cost of low-carbon technologies and human capital. **Increase Public and Private Involvement** While Bappenas is highly influential in proliferating their programmes within government spheres, the public and private sectors are not as engaged. This is crucial considering the influence of IPP and fossil fuel industries in market initiatives.

Opportunity	**Business Opportunity** The LCDI II programme is now focusing on making the project for scale – with concentration on identifying investment areas and potential economic development. The LCDI II programme is now focusing on making the project for scale – with a concentration on identifying investment areas and potential economic development.
Recommendation	**Investment Consolidation** Considering the close proximity of the programme with other pipelines in the country, Bappenas has the potential to exercise an investment plan for existing roadmaps to ensure the effective disbursement of funds. **Clear Impact Assessment & Public Discourse** LCDI could benefit greatly from a transparent climate impact assessment which should include socio-economic and environment factors.

Just Energy Transition Partnership (JETP) – MEMR, Coordinating Ministry of Maritime and Investment

On November 15, 2022, during the G20 Summit's Partnership for Global Infrastructure and Investment (PGII) event in Bali, President Joko Widodo and leaders of the International Partners Group (IPG) — co-led by the United States and Japan, alongside Canada, Denmark, the European Union, France, Germany, Italy, Norway, and the United Kingdom — introduced a significant Joint Statement on the Just Energy Transition Partnership (JETP). Developed within Indonesia's G20 Presidency, this USD 20 Billion Climate Financing partnership aims to ensure an equitable shift in the nation's power sector to uphold the 1.5°C global warming limit.

JETP focuses on accelerating the decarbonization of the country's power sector for maximum emissions reduction. It incorporates the Glasgow Financial Alliance for Net Zero (GFANZ) Working Group, featuring institutions like Bank of America, Citi, Deutsche Bank, HSBC, Macquarie, MUFG, and Standard Chartered, while also leveraging the expertise of multilateral development banks. JETP's objective is to formulate a comprehensive investment plan (JETP Investment and Policy Plan) with shared targets for the power sector, including achieving emissions peaking by 2030 and reaching NZE by 2050, including coal plant retirements with international support. It's important to highlight that the Joint Statement represents political commitments and not a binding international accord. Indonesia's JETP secretariat was established earlier this year.

JETP aligns closely with the goals of the Paris Agreement, setting forth ambitious targets such as achieving a 34% share of New and Renewable Energy (NRE) by 2030. However, according to an analysis conducted by the Institute for Essential Services Reform (IESR)[3], the current allocation of 20.9 GW for renewable energy projects outlined in the 2021-2030 RUPTL falls short. An additional minimum capacity of 5.4 GW for renewable energy will be necessary. This incremental renewable energy capacity must be carefully integrated into the plan alongside the phasing out of up to 8.6 GW of Coal-Fired Power Plants (CFPP), ensuring the reliability of the electricity system remains intact.

Table 10: JETP (Challenge, Opportunity, Recommendation)

Challenge	**Ambitious Targets** Like NDC, JETP aligns its target to the Paris Agreement, setting RE acceleration in higher numbers compared to national policies. This may result in poor national alignment, as the delta between commitments is quite high. JETP, like similar pledges, has a massive undertaking of pushing for agreement in setting higher RE numbers. **Conflicting Political Interest** While the JETP secretariat is held under the MEMR, JETP as a cooperation between Indonesia, IPG, and other funding institutions is led by the Coordinating Ministry of Maritime and

[3] "JETP Secretariat Launched, Government Needs to Remove Barriers for Renewable Energy Development", IESR, February 2023, https://iesr.or.id/en/jetp-secretariat-launched-government-needs-to-remove-barriers-for-renewable-energy-development

	Investment (KEMENKO-MARVES). This overlap in the jurisdiction has the potential for incoherent policy and inefficient programme implementation. **Funding and Investment** As of the writing of this report (07/08/2023), it is yet to be clear how and when the pledged USD 20bn investment is going to be disbursed. This has created a strong level of scepticism from both the government and the public.
Opportunity	**EV Investment** The Government of Indonesia has given large incentives for people to shift from their fossil-fuel vehicles to electric ones. Aside from an increase in EV investment, this will create a demand for charging stations, EV batteries, and subsequent infrastructures. **Strong International Partners** JETP is supported by influential multilateral collaborators, comprising both funding institutions and government institutions (see paragraph above). This potentially results in investor confidence, which brings in more funding for RE development.
Recommendation	**Programme Observation and Analysis** The JETP programme holds the potential to become Indonesia's largest renewable energy initiative. Nonetheless, the risk of misaligned targets and insufficient collaboration could lead to future discussions becoming bottlenecked. To mitigate this, a comprehensive analysis and programme mapping are necessary to anticipate forthcoming impacts. This is especially crucial during the upcoming election year. The mandate on JETP implementation has the potential to be shifted, and prioritisation on investment may change. A year-long observation may be necessary to better inform possible collaborations in the future.

3.4.3. Energy Policy Framework Analysis

In this report, a compare-contrast matrix is utilized as a visual tool to present the relevant data on various policies side-by-side. The compare-contrast matrix enables a swift examination of similarities and differences between different entities' policies. The matrix, which is presented below, focuses on the NZE targets among these entities.

Table 11: Binding and Non-Binding Policy

	BINDING POLICY					NON-BINDING POLICY			
	KEN	**RUEN**	**RUKN 2038**	**RUPTL 2021 – 2030**	**RPJPN / RPJMN 2025**	**LCDI 2045**	**LTS – LCCR 2050**	**NDC 2022**	**JETP**
MINISTRY	DEN – MEMR	MEMR	MEMR	PLN	Bappenas	Bappenas	MoEF (Climate Change Directorate)	MoEF (Climate Change Directorate)	MEMR. Coordinating Ministry of Maritime & Investment
AUTHORIZER	House of Representatives	President	Ministry	Ministry	President				
CURRENT PERIOD	2014 – 2050	2017 – 2050	2019 – 2038	2021 – 2030	2005 – 2025 / 2020 – 2024	(Planning)	2022 – 2060	2021 – 2060	2023-2026/2028 (initial fund disbursement)
PERIOD RENEWAL	2024-2060		2023 – 2060	2023 – 2032	2025 – 2045 / 2025 – 2029	2023 – 2045			
UPCOMING REVIEW	2024**	2024**	2024**	Annual	2024**				
REGIONAL DOCUMENT		RUED	RUKD		RPJPD / RPJMD				
LAW	PP	PERPRES	KEPMEN	KEPMEN	PERPRES				
KNOWN PARTNERS	WB, ADB, UNDP, GIZ, IRENA	WB, ADB, UNDP, IEA, EU, USAID, CASE, Denmark	WB, ADB, UNDP, GEF, IRENA, USAID, CASE, IEA, Denmark	WB, ADB, IEA	USAID, CASE, GGGI, WRI	WB, ADB, UNDP, Norway, The Netherland, UK-FCDO, DAI Europe, WRI	WB, ADB, UNDP, GGGI	WB, ADB, UNDP, GCF, CIF	GFANZ, IPG, CIF, ADB
RE SHARES BY 2050		100%	100%	100%	100%	100%	100%	100%	100%
RE SHARES TARGET PRIOR	23% by 2025 31% by 2050	23% by 2025 39% by 2050	23% by 2025	51,6% by 2030	23% by 2024	30% by 2045	31% by 2050	32% by 2049	34% by 2030 100% by 2050
TARGET	Mix target 2025: 1. NRE: 23% 2. Oil: 25% 3. Coal: 30% 4. Gas: 22% Mix target 2050: 1. NRE: 31% 2. Oil: 20% 3. Coal: 20% 4. Gas: 24%	Mix Target by 2025: NRE: 23% 2. Energy intensity reduction: 1%/year 3. Reduction in final energy consumption: 17% by 2025 39% by 2050	Mix target in 2025: 1. NRE: 23% 2. Gas: 22% 3. Coal: 55% 4. Fuel: 0.4% Mix target in 2038: 1. NRE: 28% 2. Gas: 25% 3. Coal: 47% 4. Fuel: 0.1%	Mix Target by 2025: NRE: 23% 1. Meet Indonesia's electricity demand growth (avg. 4.9%/year) 2. Constructing 40,575 MW of new power generation capacity	1. 6-7% per year GDP growth 2. 5% poverty reduction 3. 5% unemployment reduction	1. 41% emissions reduction by 2030 2. Achieve NZE by 2045	Mix Target by 2025: NRE: 23% Mix target 2050: NRE: 31% Power generation mix: RE (43%), coal (38%), natural gas (10%), BECCS (8%). The RE target includes hydro, geothermal, solar PV, biomass, biofuel, and wind. Installed capacity of RE: solar PV 113 GW, hydro 68 GW, geothermal 23 GW, wind power 17 GW, biomass 13 GW, biofuel 14 GW, BECCS 23 GW with harmful emissions. Equip 76% coal-fired power plants with CCS to achieve zero emissions	1. Reduce GHG emissions by 31.89% unconditionally and 43.2% conditionally by 2030, compared to BAU scenario. 2. 50% deforestation and forest degradation reduction by 2030 3. 30% energy efficiency improvement by 2030	1. Peaking power sector emissions by 2030 (max absolute value: 290 MT CO2) 2. Achieve NZE power sector by 2050 3. RE comprises at least 34% of all power generation by 2030 4. IPG and GFANZ mobilize $20 billion in total over 3 – 5 years

							Carbon intensity in power generation: 104 grams CO2/kWh. Reduction of deforestation by 50% in 2030		

Upon analyzing the matrix, it becomes evident that there are discernible divergences in the NZE targets among the entities under consideration. While they may share some commonalities, significant disparities arise when it comes to the long-term targets for achieving NZE. These differences may be attributed to varying priorities, resources, and approaches to addressing climate change. One area of partial similarity is found in the projected Renewable Energy shares for the year 2025, which stand at 23% across the entities. This suggests that, in the short term, there is a certain level of alignment regarding the promotion of renewable energy sources. The difficulty may be found in the differing indicative year targets by various entities due to various reasons, likely due to their conception period and donor request. It is also possible for all pipelines to renew their indicative years following the upcoming election.

However, the more profound differences manifest when considering the long-term objectives beyond 2025. The entities' targets for net-zero emissions show substantial variations, indicating diverse levels of ambition and commitment to combating climate change on a broader scale. Moreover, the matrix also brings attention to the distinct targets set for coal and fossil fuel usage among the entities. This discrepancy highlights that not all of them are equally committed to reducing reliance on these high-emission energy sources. Of particular concern is the observation that the detailed targets outlined in the LTS-LCCR do not align with the prevailing government regulations. This misalignment suggests a potential lack of coherence or harmonization between the long-term climate goals established by the entities and the existing regulatory frameworks set by their respective governments.

To address these discrepancies and ensure a more effective and collaborative approach to tackling climate change, it is essential for policymakers and stakeholders to engage in comprehensive dialogue and strive for greater coordination between the long-term targets of different entities and the overarching governmental regulations. This will lead to a more unified and synergistic effort in achieving global climate objectives. This task is monumental, given the significant challenges within Indonesia's government systems, which often hinder ongoing efforts. These challenges include:

- **Administrative Complexity**: Indonesia's vast bureaucracy, driven by various modes of administration reform, ad-hoc assignments, and rapid progress, has made it one of the largest bureaucracies globally. This complexity leads to overlapping jurisdictions and policies at both the national and local levels. An example is the recent assignment of JETP, heavily influenced by the Coordinating Ministry of Maritime Affairs and Investment.
- **Covid-19 Pandemic Impact**: The slower economic growth resulting from the Covid-19 pandemic has prompted the current administration to expedite assignments across all line ministries, leaving little time for the synchronization of efforts.
- **Upcoming Elections**: As an election year approaches, government stakeholders tend to be less inclined to engage in long-term programs, focusing instead on preparing for pipeline renewals in 2024.

While non-legally binding policies, like the NDC and JETP, illustrate Indonesia's global climate commitment, implementors and donors alike should also recognize the disparities between key policies, supplementing policies, and non-binding policies in the degree of influence and reach and strategize accordingly. Their status may be fluid, and constant observation of the ruling administration is highly necessary. The Consultant supports the focus on the National Energy Policy revision as the highest legal binding document, while increasing engagement with approximate implementors like donors and ministry working groups to retain interest. At the same time, maintain high-level conversation in line ministries to increase networking presence while anticipating the result of the 2024 Election. The Consultant further elucidates this information in Task 2 of the program, where we outline donor coordination strategies.

3.5. Energy Modelling Tool

Energy modelling tools are essential computational tools that provide valuable insights into energy systems. They enable policymakers, researchers, and stakeholders to make informed decisions for sustainable development and climate mitigation. This article introduces prominent energy modelling tools such as AIM-ESSP, AIM End-Use, GAMS Balmorel, LEAP, and Simple-E/SEES. Each tool offers unique features and capabilities, ranging from comprehensive system-wide models to specialized sector-specific analyses. Through these discussions, readers will gain an understanding of the significance of these tools in addressing the challenges of energy transition and sustainability.

Prior to the narrative description of each energy modelling tool, the table below provides a summary of each tool based on key features, capabilities, and applications.

Table 12: Energy Modeling Summary

Energy Modelling Tool	Key Features	Applications	Utilized by
AIM ESSP	A comprehensive tool for long-term policy impact assessment on climate change, energy, and socioeconomics in Asia-Pacific.	• Understanding relationships between climate action, energy systems, and regional development. • Assessing policy effects on energy transition, emissions, land use, etc. • Informing evidence-based decisions for sustainable development.	• National Energy Policy (KEN) • LTS-LCCR 2050
AIM End-Use	Analyzing energy consumption patterns and end-use sectors in Asia-Pacific.	• Understanding and projecting energy demand in different sectors. • Evaluating technology adoption and policy impact on energy demand. • Aiding energy planning and climate action.	• LTS-LCCR 2050
GAMS Balmorel	Energy system optimization model for analyzing energy markets and policy scenarios.	• Assessing long-term investment and operational decisions related to energy supply and demand. • Studying renewable energy integration and policy effectiveness. • Guiding energy planning and policymaking.	• National Electricity General Plan (RUKN) 2038 • Enhanced NDC 2022 (GAMS ExSS)
Low Emission Analysis Platform (LEAP)	Software tool for analyzing energy and emissions scenarios.	• Exploring energy and emissions scenarios. - Evaluating policy impacts and developing low-emission strategies. • Estimating greenhouse gas releases from various sectors. • Supporting clear communication of analysis findings.	• National Electricity General Plan (RUKN) 2038 • National Energy General Plan (RUEN) 2050
Simple-E/SEES	User-friendly Excel add-in for creating and testing econometric models. Supports various econometric models and estimation methods.	• Teaching and learning econometrics. • Research in economics, finance, marketing, etc. • Forecasting future trends. • Policy analysis. • Risk assessment. • - Education in various subjects.	• National Electricity General Plan (RUKN) 2038 • National Electricity Business Plan (RUPTL) 2030

Asia-Pacific Integrated Model Extended Shared Socioeconomic Pathways (AIM-ESSP) model

The AIM ESSP (Asia-Pacific Integrated Model - Extended Shared Socioeconomic Pathways) is a comprehensive tool developed by Japan's RITE to assess the long-term impacts of policies on climate change, energy, and socioeconomics in the Asia-Pacific region. It expands on the SSPs framework, which outlines various socioeconomic development paths considering factors like population growth, economics, technology, and environmental policies. The ESSP model enhances these pathways by including dimensions such as energy, emissions, and land use, enabling a more thorough evaluation of potential scenarios.

This model aids policymakers and researchers in understanding the intricate relationships between climate action, energy systems, and regional development. It assesses the effects of policies, technology deployment, and international cooperation on energy transition, emissions, pollution, land use, and more. By simulating various variables under different scenarios, the AIM ESSP model provides insights into potential outcomes and trade-offs associated with policy choices, informing evidence-based decisions for climate mitigation, energy transition, and sustainable development in the Asia-Pacific region.

AIM End-Use

AIM End-Use is a component of the Asia-Pacific Integrated Model (AIM) developed by the Research Institute of Innovative Technology for the Earth (RITE) in Japan. The AIM End-Use model analyses energy consumption patterns and end-use sectors in Asia-Pacific. The AIM End-Use model aims to understand and project energy demand in different sectors, such as residential, commercial, industrial, and transportation. It considers various factors influencing energy consumption, including population growth, economic development, technological advancements, and policy measures.

The AIM End-Use model boasts several key features and capabilities:

- Sector Analysis: It dissects energy usage in residential, commercial, industrial, and transportation sectors, examining drivers like population growth, urbanization, income, prices, efficiency enhancements, and technology shifts.
- Technology Impact: The model scrutinizes energy-efficient technology adoption and its demand impact. It simulates the effects of adopting energy-efficient appliances, building designs, industrial processes, and transportation technologies on energy consumption and emissions.
- Policy Evaluation: The model gauges the effect of policy interventions on sectoral energy demand. It analyzes energy standards, building codes, vehicle regulations, and more to assess their impact on energy use and the environment.
- Long-Term Insights: Through future scenarios and policy variations, the AIM End-Use model offers extended projections of energy demand and emissions. It aids decisions in energy planning, climate action, and sustainable development.
- As part of the AIM framework, this model sheds light on consumption patterns, identifies efficiency prospects, and aids in devising policies for environmentally responsible energy consumption across the Asia-Pacific region.

GAMS Balmorel

The GAMS Balmorel model is an energy system optimization model for analyzing and simulating energy markets and policy scenarios. Balmorel stands for "*Balancing Market Equilibrium Model*" and is developed and maintained by the Technical University of Denmark's Department of Technology, Management, and Economics. The Balmorel model is designed to capture the complexities of the energy system, including the interaction between different energy sources, technologies, markets, and policies. It can assess the long-term investment and operational decisions related to energy supply, demand, and infrastructure.

Key features and capabilities of the GAMS Balmorel model include:

- Sector Integration: The model integrates energy sectors like electricity, heat, and gas, analyzing their interactions for sector-coupling potential.
- Generation and Transmission: Balmorel models power generation and transmission, considering diverse sources like fossil fuels, renewables, and nuclear, while accounting for grid constraints.
- Market Simulation: The model replicates energy markets, including spot and capacity markets, evaluating outcomes like prices, generation mixes, and investments under various policies.
- Renewable Integration: Balmorel assesses renewable energy integration, studying targets, support schemes, and grid challenges like intermittency and storage.
- Policy Assessment: It evaluates policy scenarios, like carbon pricing and subsidies, measuring effectiveness and costs to aid policy formulation.
- Scenario Exploration: By adjusting parameters, Balmorel tests scenarios, gauging uncertainties and alternative routes.
- Adaptable and applied globally, the GAMS Balmorel model delves into sector connections, tech choices, markets, and policies, guiding energy planning and policymaking.

Low Emission Analysis Platform (LEAP)

The Low Emission Analysis Platform (LEAP) is a widely used software tool for analyzing energy and emissions. LEAP is designed to assist policymakers, researchers, and analysts in exploring energy and emissions scenarios, assessing the impacts of policies and measures, and developing low-emission strategies.

The Low Emission Analysis Platform (LEAP) offers an array of key features and capabilities:

- Energy System Modelling: LEAP constructs comprehensive energy system models encompassing supply, demand, and conversion sectors. It visualizes energy flows, technologies, and policies for a dynamic system understanding.
- Scenario Exploration: LEAP crafts and assesses diverse energy and emissions scenarios. Users can probe demand, renewables, efficiency, and policies to scrutinize their emissions implications.
- Emissions Inventory: LEAP develops and manages emissions inventories, estimating and tracking greenhouse gas releases from energy, industry, transport, waste, and agriculture. It pinpoints sources, trends, and mitigation effectiveness.
- Policy Appraisal: LEAP evaluates policy impacts on energy use, emissions, and related metrics. It gauges policy options' cost-effectiveness and feasibility, fostering informed low-emission strategies.
- Data Control: LEAP employs a database system to organize energy data, tech specs, emissions factors, and policy details. It simplifies data storage, updates, and retrieval for analysis.
- Visuals and Reporting: LEAP visualizes outcomes via charts, graphs, and maps, supporting clear communication with stakeholders. It generates reports to articulate analysis findings.

Widely adopted globally, LEAP aids energy planning, climate action, and low-emission strategy development. Its flexibility enables users to tailor analyses to specific contexts and requirements.

Simple Econometric Simulation System (Simple-E or SEES)

SEES is a user-friendly Microsoft Excel add-in for creating and testing econometric models without programming knowledge. It consists of three main sheets: a datasheet (for data entry), a model sheet (for model specification), and a simulation sheet (for viewing results). SEES offers a graphical interface, supporting various econometric models (linear, autoregressive, non-linear) and estimation methods (OLS, autoregression, non-linear). Users can simulate model behavior over time to assess robustness and parameter impact.

Suitable Applications for Simple-E/SEES include:

- Teaching and learning econometrics: SEES can be used to teach and learn econometrics. The graphical user interface (GUI) makes it easy to create and simulate models, and the extensive documentation provides clear instructions on how to use the software. The ease makes it a valuable tool for students and instructors learning about econometrics.
- Research: SEES can be used for research in various fields, including economics, finance, and marketing. The ability to create and simulate a wide range of models makes it a versatile tool for research applications. For example, SEES could be used to model the impact of a new policy on the economy or to forecast the demand for a new product.
- Forecasting: SEES can be used to forecast future trends.

Simulating models over time makes it possible to explore the impact of different factors on future outcomes. For example, SEES could be used to forecast the economy's growth or a stock's price, as well as to support business decision-making. Simulating models can help businesses understand the impact of different decisions on their bottom line. For example, SEES could be used to model the impact of a price increase on sales or the impact of a new marketing campaign on brand awareness.

In addition to these applications, SEES can also be used for a variety of other purposes, such as:

- Policy analysis: SEES can be used to analyze the impact of different policies on the economy.
- Risk assessment: SEES can assess the risk of various events, such as a financial crisis or a natural disaster.
- Education: SEES can be used to teach students about economics, finance, and other subjects.

Comparison of Energy Modelling Tools

The table below shows the comparison of the tools above regarding key features, basic concepts, advantages, disadvantages, and suitable applications.

Table 13: Comparison of Energy Modelling Tools

	Pros	Cons
AIM ExSS	Comprehensive: AIM/ESSP includes components for the economy, energy, agriculture, and water, making it a comprehensive tool for assessing the impacts of climate change. Flexible: AIM/ESSP can be used to explore a wide range of possible future scenarios, allowing users to understand the potential impacts of different climate change mitigation and adaptation strategies. Transparent: AIM/ESSP is transparent, allowing users to understand the assumptions and uncertainties underlying the results.	Data-intensive: AIM/ESSP requires a large amount of data, which can be difficult and expensive. Complex: AIM/ESSP is a complex model, making it difficult to use and interpret the results. Dependent on SSPs: The result of AIM/ESSP depend on the SSPs used, which can introduce uncertainty into the analysis.

AIM End-use	Disaggregated Data: AIM End-use is disaggregated by sector, technology, and fuel type. It allows the model to capture the diversity of end-use sectors and the different technologies used in each sector. Detail: AIM End-use includes detailed representations of the technologies used in each sector. The inclusion allows the model to capture the efficiency and cost of different technologies. Data capture: The calibration ensures that the model is consistent with past trends in energy demand and CO2 emissions. Simulation: The model simulates the energy demand and CO2 emissions from different scenarios. The simulation allows the model to assess the potential impacts of various policies and technologies.	Data-intensive: The model requires a large amount of data, which can be difficult and expensive. Complex: The model is a complex model, which can make it challenging to use and interpret the results. Dependent on assumptions: The results of AIM End-use depend on the assumptions used, which can introduce uncertainty into the analysis.
GAMS Balmorel	Improvement: Balmorel is constantly being updated and improved, which helps to address some of the limitations of earlier versions. Popular: Balmorel is used by a wide range of researchers and policymakers, which helps to ensure that the results are widely disseminated and used. User-friendly: Balmorel is relatively easy to use, which makes it accessible to a broad range of users.	Price: Balmorel is computationally expensive, which can limit its use by some researchers and policymakers. Limitation: The model is only one tool that can be used to assess the impacts of different policies and technologies, and it is important to consider the results of other models and studies when making decisions.
LEAP	Flexibility: LEAP is a flexible model that can be used to assess a wide range of policies and technologies. Powerful: LEAP is able to capture the complex interactions between different sectors of the economy. Accurate: LEAP is calibrated to historical data, which ensures that the results are accurate. User-friendly: LEAP is relatively easy to use, even for users who are not familiar with modeling software.	Complexity: LEAP is a complex model and can be difficult to understand and use. Data requirements: LEAP requires a significant amount of data to run. Cost: LEAP can be expensive to purchase and run. Uncertainty: The results of LEAP are subject to uncertainty, as the model is based on a number of assumptions.
Simple-E	Flexibility: Simple-E is a flexible model that can assess various policies and technologies. Powerful: Simple-E can capture the complex interactions between different sectors of the economy. Accurate: Simple-E is calibrated to historical data, ensuring accurate results. User-friendly: Simple-E is relatively easy to use, even for users unfamiliar with modeling software.	Complexity: Simple-E is a complex model and can be challenging to understand and use. Data requirements: Simple-E requires a significant amount of data to run. Cost: Simple-E can be expensive to purchase and run. Uncertainty: The results of Simple-E are subject to uncertainty, as the model is based on several assumptions.

The AIM-ESSP model, with its comprehensive framework, empowers decision-makers to assess the long-term impacts of policies on climate change, energy, and socioeconomics. By considering multiple dimensions and

interactions, AIM-ESSP enhances the understanding of policy trade-offs and informs evidence-based choices for sustainable development.

The AIM End-Use model brings a focused lens to energy consumption patterns and end-use sectors in the Asia-Pacific region. Through detailed sector analysis, technology impact assessment, and policy evaluation, this model aids in identifying efficiency prospects and guiding environmentally responsible energy consumption strategies.

The GAMS Balmorel model stands out for its intricate optimization of energy markets and policy scenarios. With its sector integration, generation and transmission modeling, and market simulation capabilities, Balmorel provides a robust platform to explore the complex interplay of energy sources, technologies, and policies in energy planning and policymaking.

The Low Emission Analysis Platform (LEAP) offers a user-friendly interface for analyzing energy and emissions scenarios. Its comprehensive energy system modeling, scenario exploration, emissions inventory, policy appraisal, data control, and visualization capabilities make it an indispensable tool for developing low-emission strategies, supporting climate action, and enhancing energy planning worldwide.

Finally, the Simple Econometric Simulation System (Simple-E or SEES) offers a versatile approach to creating and testing econometric models, making it a valuable tool for teaching, research, forecasting, policy analysis, risk assessment, and education in various fields.

Energy modeling tools offer significant assistance to policymakers, researchers, and analysts in comprehending and influencing energy systems and their consequences. They enable exploration of diverse scenarios, policies, and technologies, empowering informed decision-making for sustainable development. The effectiveness of these tools depends on the distinct requirements and goals of each user. Currently due to differing needs, various tools are utilized by different policy pipelines. To effectively support well-informed decisions for sustainable energy development, tools used must possess the flexibility and adaptability to generate precise data and insights that align with user-specific needs. Energy modeling tools offer significant assistance to policymakers, researchers, and analysts in comprehending and influencing energy systems and their consequences. They enable exploration of diverse scenarios, policies, and technologies, empowering informed decision-making for sustainable development. The effectiveness of these tools depends on the distinct requirements and goals of each user. Currently due to differing needs, various tools are utilized by different policy pipelines. To effectively support well-informed decisions for sustainable energy development, tools used must possess the flexibility and adaptability to generate precise data and insights that align with user-specific needs. A key requirement would be to maximize resource capacity in each implementing department to allow the most effective utilization by users. This is especially crucial for downstream modelling in regional and local areas, where human resource and technological advancements are often underequipped to follow the acceleration of energy transition development at national levels. A nationwide Energy Transition effort must be coupled with capacity building reforms, establishment of new guidelines and curriculum for local staff, and consistent information dissemination to all relevant implementors. Down the line, ETP can play a role in establishing these guidelines. During the timeline of this programme, the Consultant will consolidate the needs in ongoing and further discussions, and a capacity building proposal plan will be presented prior to the implementation in ***Task 7: Capacity Building Program***.

4. Task 2: Communication and Donor Coordination Strategy

Task 2 of the ETP project outlines Indonesia's sustainable energy supporters and partners, along with suggesting a communication strategy for engagement, which aligns with all project tasks, given the importance of political and financial backing for successful idea integration from concept to execution and reporting. Progress in

discussions about sustainable energy, donor participation, and policy formulation has been hindered by issues like redundant procedures, prolonged bureaucratic processes, and changes in key personnel.

This report comprises the following key components:

- A comprehensive mapping of donors and a Political Economy Analysis (PEA), identify proponents and obstacles of the "NZE 2060" goal. These stakeholders are to be actively engaged by donors.
- Identification of emerging opportunities for participation in events that are aligned with concurrent initiatives within the nation.
- Formulation of communication strategies and approaches for disseminating knowledge to specific target audiences.
- Implementation of activities to enhance awareness among pivotal donors and influential figures.

The goal of these efforts is to make sure that investors, donors, and potential collaborators are thoroughly informed about GoI's Energy Transition agenda. This includes upcoming updates to the development plan in 2024 due to the election, along with its potential impacts, as well as the initiatives and key areas of focus for other parties involved.

To optimize the effectiveness of this involvement, it's crucial for stakeholders to fully comprehend each other's actions and goals, enabling collaborative efforts, increased investment, and the achievement of Indonesia's 2060 NZE goals.

4.1. Background

A robust donor communication and engagement strategy fosters meaningful and long-term ties between the government and its development partners. The fundamental goal of this method is to **create lines of communication, creating openness and trust and thereby increasing donor retention and participation**.

The success of achieving NZE 2060 targets is highly contingent on engaging institutions that have a hand in policy making and capital generation. The National Energy Council (DEN) was created for such a purpose. However, there is a slight disconnection where the National Electricity Company or PLN - the state-owned enterprise which designs Indonesia's Electricity Business Plan (RUPTL) and plays a central part in RE plan development, is not represented in the Council. As the PLN is a State-Owned Enterprise, their input on capital generation and sustainable business models is invaluable to the long-term success of NZE targets. Bridging this disconnect would be pivotal not only for this programme, but to ETP's long-term success in the country. For this, DEN has started discussions with relevant State-Owned Enterprises (PLN, Pertamina) for their feedback on the National Energy Policy (KEN) Draft and has plan to be in the discussion of the National Electricity General Plan (RUKN), which will be the reference for RUPTL and future PLN activities.

Political authorities play a decisive factor in programme design. In determining which principals all NZE 2060 pipelines should align to, mapping actors and the degree of their decision-making power should be the first step. Recognizing incentive structures and the degree of influence for each policy maker and adopting different engagement techniques that best suit them will determine the success of streamlining efforts. Awareness of dynamics between ministries is also crucial. Discussions for sustainable energy transition can be quite skeptical as too many overlapping targets overwhelm many implementors, especially local and regional counterparts. The reluctance for a swift transition is quite high, as Indonesia's energy needs and supply are inconsistent.

4.2. Stakeholder Matrix

Stakeholders are hereby referred to as individuals, groups or institutions, including governmental agencies at national and local levels, industries, societies and associations, or civil societies that have interests or concerns

in the state of affairs within an organization or industry and typically can affect or be affected by the NZE 2060 actions, objectives or policies.

In the pursuit of achieving a comprehensive pathway towards net-zero emissions, a multitude of key stakeholders interact in intricate ways, as illuminated by the intersectional impact analysis. ***The Ministry of Energy and Mineral Resources (MEMR)*** plays a central role by overseeing energy policies and collaborating with other ministries to align energy and environmental goals. MEMR's decisions have a significant influence on emissions reduction, encompassing political, economic, sociological, technological, legal, and environmental dimensions. Similarly, ***the National Development Planning Agency (Bappenas)*** integrates climate goals into national development strategies, exercising high influence across these dimensions. The President of Indonesia wields the ultimate authority to guide climate policies, with a focus on influencing public attitudes and endorsing technological innovation. ***The Presidential Staff Office (KSP)*** acts as a crucial liaison, driving initiatives across dimensions through its advisory and coordinating role. ***The Ministry of Environment and Forestry (MoEF)*** contributes to emissions reduction with a focus on environmental, societal, and legal aspects. Equally crucial is ***The Ministry of Industry (MoI),*** which will utilize existing policy calculations to determine their energy consumption forecast in the context of industrial growth and expansion. ***The Ministry of Finance*** influences emissions reduction initiatives economically and legally through budget allocation and fiscal incentives***.*** ***Development Partner*** significantly contribute economically, sociologically, and environmentally, while ***NGOs*** exert variable influence across dimensions by advocating for policy changes. ***State-Owned Enterprises (SOEs)*** hold substantial political and economic sway, primarily focusing on energy generation. ***PLN***, a major player in energy, influences emissions reduction primarily through its pivotal role in electricity generation and distribution. Lastly, the ***Energy Transition Partnership (ETP)*** strategically influences emissions reduction across dimensions by facilitating clean energy transition through collaboration. Collectively, these stakeholders intricately interplay to pave the way for Indonesia's net-zero emissions target.

The table below presents a comprehensive analysis of key and major stakeholders, categorized by their degree of influence, in the strategic planning of a pathway to achieve the NZE target based on energy development. This assessment is conducted through a PESTLE (Political, Economic, Sociological, Technological, Legal and Environmental) analysis framework, which encompasses the multidimensional impact of these stakeholders on the policy landscape. The analysis highlights the intricate interplay of political authority, economic incentives, sociological awareness, technological innovation, legal frameworks, and environmental stewardship that each stakeholder contributes to the collective endeavor of realizing Indonesia's net-zero emissions goal. By categorizing these stakeholders based on their degree of influence, the table provides a clear visual representation of their respective roles and positions in shaping the nation's energy transition. This holistic approach underscores the collaborative nature of the pathway to net-zero emissions, emphasizing the need for cohesive strategies and concerted efforts across diverse sectors and stakeholders to achieve this critical environmental objective. They are divided to the following category:

- **High**: influence is central to shaping Indonesia's energy and climate policies, making crucial decisions, and driving the transition towards net-zero emissions.
- **Notable:** influence contributes significantly to climate resilience and financing climate projects.
- **Varies:** influences are based on their commitment and capacity to implement net-zero policies effectively at the local level. Overall, these stakeholders collectively shape a comprehensive and collaborative approach to achieving Indonesia's net-zero emissions target.

Table 14: Major Stakeholder Based on Categorized by Degree of Influence based on PESTLE Analysis

No.	Degree of Influence	Key Stakeholder	Roles
1	High	**President of Indonesia**	• Ultimately holds the highest authority and can set the direction for climate policies and commitments. • Provides guidance and political support to various ministries and agencies. • The President of Indonesia holds a central position in guiding the nation's efforts toward achieving NZE targets. • Politically, the President's authority enables the establishment of ambitious climate policies and the prioritisation of emissions reduction goals. • Economically, the President's support for clean energy development can stimulate economic growth in sustainable sectors and attract green investments. • Sociologically, the President's advocacy can influence public attitudes toward environmental responsibility and climate action. • Technologically, the President can encourage the adoption of innovative solutions and technologies that contribute to emissions reduction. • Legally, the President's endorsement can reinforce the implementation of climate-related regulations and agreements. • Environmentally, the President's commitment can drive substantial reductions in carbon emissions, improved air quality, and enhanced natural resource conservation.
2		**National Development Planning Agency (Bappenas)**	• Responsible for national development planning, including integrating climate goals into economic development strategies and energy goals. • Coordinates and monitors the implementation of climate-related policies. • Bappenas exercises political influence by integrating climate and energy goals into Indonesia's national development plans, showcasing the government's commitment to sustainability. • Economically, Bappenas' prioritisation of green investments can stimulate job creation in renewable energy sectors and support economic growth driven by sustainable practices. • Sociologically, Bappenas plays a role in fostering awareness and advocacy for environmentally conscious development among citizens. • Technologically, Bappenas can catalyze the adoption of cleaner technologies through targeted funding and incentives. • Legally, the agency's alignment of development strategies with climate objectives can reinforce legal frameworks that facilitate the transition to net-zero emissions. • Environmentally, Bappenas' policies can contribute to reduced ecological strain through sustainable land use and reduced reliance on carbon-intensive industries.
3		**Ministry of Energy and Mineral Resources (MEMR)**	• Oversees energy policies, including the transition to renewable energy sources and energy efficiency measures. • Collaborates with other ministries to align energy and environmental goals. • MEMR is a linchpin in formulating a pathway toward NZE through energy development. • Politically, MEMR's influence is significant, as it shapes the energy policies and regulatory frameworks that guide the nation's transition to cleaner energy sources.

			• Economically, the ministry's decisions can impact investments in renewable energy projects, fostering economic growth and job creation in related sectors. • Sociologically, MEMR can promote awareness and acceptance of renewable energy technologies among the public. • Technologically, the ministry's support for research and development can drive technological innovation and efficiency improvements. • Legally, MEMR's regulations can incentivize the adoption of energy-efficient practices and technologies. • Environmentally, MEMR's efforts can lead to reduced carbon emissions, improved air quality, and decreased reliance on fossil fuels.
4		**Presidential Staff Office (KSP)**	• Advises the President on various matters, including climate policies and strategies. • May help coordinate efforts between different ministries and agencies. • KSP plays a pivotal role in aligning political strategies to achieve the NZE targets. • Politically, KSP's advisory role to the President can facilitate the integration of climate priorities into high-level decision-making. • Economically, KSP's coordination efforts can ensure that budget allocations support sustainable energy projects and emissions reduction initiatives. • Sociologically, KSP's guidance can enhance public awareness and engagement in climate action, shaping a culture of environmental responsibility. • Technologically, the office can encourage the adoption of innovative solutions through policy directives and strategic partnerships. • Legally, KSP's support can strengthen the enforcement of climate-related regulations and agreements. • Environmentally, KSP's actions can contribute to emissions reduction, conservation of natural resources, and increased resilience to climate change impacts.
5		**Ministry of Environment and Forestry (MoEF)**	• Responsible for environmental policy and management, including climate change mitigation and adaptation. • Plays a crucial role in setting emission reduction targets and developing strategies to achieve net-zero emissions. • MoEF holds a critical role in crafting a comprehensive pathway to achieve NZE targets • Politically, MOEF's influence is notable, as it shapes environmental policies that underpin the country's commitment to emissions reduction. • Economically, the ministry's strategies can foster the growth of green industries and sustainable practices, contributing to a more diversified and resilient economy. • Sociologically, MOEF's initiatives can elevate public awareness of climate change impacts and the need for collective action. • Technologically, the ministry can incentivize the adoption of eco-friendly technologies and innovation in energy production. • Legally, MOEF's regulatory framework can facilitate the integration of renewable energy sources into the national energy mix. • Environmentally, its efforts can lead to reduced emissions, better air quality, and enhanced biodiversity conservation.
6		**State-Owned Enterprises (SOEs)**	• Manages various state-owned companies, including those in the energy sector.

			• SOEs hold significant political influence due to their integral role in Indonesia's economy and energy sector. • Economically, their investments in renewable energy/energy efficiency and sustainable practices can drive economic growth through new industries and job creation. • Sociologically, SOEs can set a precedent for responsible corporate citizenship by embracing environmentally friendly practices. • Technologically, their adoption of cutting-edge clean technologies can advance Indonesia's energy landscape. • Legally, SOEs' adherence to regulations can set industry standards.
7		**PLN (*Perusahaan Listrik Negara*) – State Electricity Company**	• PLN is responsible for electricity generation, distribution, and transmission across Indonesia. As a major player in the energy sector, its role is crucial in determining the energy mix and driving the transition to renewable energy sources. • PLN's decisions and actions have a significant impact on Indonesia's overall energy landscape and emissions profile. • PLN, as a major electricity generator in Indonesia, holds a pivotal role in the country's journey towards the NZE target. Its decisions on energy sources profoundly impact the carbon footprint of the energy sector, necessitating a shift from fossil fuels to renewables like solar, wind, hydro, and geothermal for achieving net-zero emissions. PLN's integration of renewable energy into the grid involves managing intermittency, optimizing grid stability, and adopting smart grid technologies. Investment choices and infrastructure plans directly mold the energy landscape, prioritizing clean energy and technology upgrades for emissions reduction. Energy efficiency initiatives in generation, transmission, and distribution reduce waste and emissions. Participation in research and development drives innovation in clean energy tech, enhancing low-carbon solutions. Collaborations with international bodies, governments, and private entities provide expertise and funding. • However, PLN faces challenges like securing adequate funding for renewable infrastructure, addressing technological adaptation, aligning operations with evolving policies, and engaging diverse stakeholders. • o In sum, PLN's significant influence and collaborative efforts with ministries and stakeholders are vital to realize a low-carbon future and attain net-zero emissions.
		Ministry of Industry (MoI)	• The Ministry of Industry in Indonesia plays a pivotal role in the nation's economic growth and industrial development. They have a mandate to boost manufacturing, create jobs, and increase the sector's contribution to the country's GDP. • The Ministry of Industry is responsible for formulating and implementing policies to enhance the industrial sector's competitiveness and sustainability. • Politically, they have a substantial influence in determining industrial expansion, including power-plant and oil and gas industries. • Economically, it sets a national target for infrastructure growth value – which directly correlates with the energy consumption roadmap. • Sociologically, they have a huge influence on business owners, private investment and market actors. • Legally, the Industrial Development Master Plan (RIPIN) will have its independent calculation on energy planning. • Environmentally, the ministry affects energy needs, carbon emissions, and renewable energy enforcement in the country.

9		**National Energy Council (DEN)**	• The National Energy Council (DEN) advises the government on energy policies and strategies, playing a critical role in shaping the energy landscape. • The National Energy Council exerts substantial influence on the energy landscape. • Politically, it guides policy decisions by offering expert advice to government leaders. • Economically, its choices impact budget allocations and stimulate investments in sustainable energy ventures. • Sociologically, the council's recommendations shape public awareness and perception of clean energy alternatives. • Technologically, it promotes advanced technology adoption by advising on research and development. • Legally, the council may propose frameworks aligning with net-zero emissions targets. • Environmentally, its counsel contributes to reduced carbon emissions and enhanced environmental sustainability.
10		**Ministry of Finance (MoF)**	• MoF manages budget allocation and fiscal incentives for energy development projects. • MoF occupies a crucial position in the formulation of policies geared towards achieving NZE targets, as assessed through a PESTLE analysis approach. • Politically, their role encompasses the allocation of budgets, granting them the authority to direct financial resources towards projects that align with emissions reduction objectives. • Economically, the ministry's influence is evident in its ability to provide fiscal incentives, potentially catalyzing investments in renewable energy initiatives and steering economic growth towards sustainable sectors. • Sociologically, the ministry's fiscal policies can shape public perceptions and behavior by promoting environmentally friendly practices and technologies. • Technologically, the Ministry of Finance can drive technological innovation by directing funding toward research and development in clean energy technologies. • Legally, their policies can set regulatory frameworks that guide financial support toward projects that advance emissions reduction goals. • Environmentally, the ministry's financial decisions hold the power to accelerate the transition to renewable energy sources, contributing to lowered carbon emissions, improved air quality, and minimized ecological impact.
11	Notable	**Indonesian National Board for Disaster Management (BNPB)**	• Addresses climate-related risks, disasters, and adaptation strategies. • Collaborates with other ministries to ensure climate resilience. • The BNPB exerts a notable degree of influence in the planning process for achieving NZE targets. • Politically, BNPB's role involves addressing climate-related risks and advocating for adaptation strategies, placing them at the forefront of climate resilience efforts. • This influence extends economically, as BNPB's initiatives can safeguard economic activities by mitigating vulnerabilities to climate-induced disruptions, ensuring sustained development.

			• Sociologically, the board's actions raise public awareness, fostering a collective understanding of climate resilience's importance and encouraging community participation. • BNPB's technological impact is significant, driving the development of climate-resilient infrastructure and technologies that mitigate disaster risks. • Legally, the board's guidelines enforce climate adaptation standards within development projects, contributing to a comprehensive and regulated approach to net-zero emissions. • Environmentally, BNPB's actions contribute to enhanced ecosystem protection, reducing vulnerabilities to climate-related disasters and supporting the broader emissions reduction agenda.
12		**Indonesian Climate Change Trust Fund (ICCTF)**	• Manages and allocates funds for climate change mitigation and adaptation projects. • Collaborates with relevant ministries to fund initiatives that contribute to achieving net-zero emissions. • The ICCTF wields substantial influence in shaping the pathway to achieve NZE targets, particularly on the financial and economic fronts. • Politically, the fund's role involves strategically allocating resources to support policies aligned with net-zero emissions targets, enabling the realization of key climate goals. • Economically, ICCTF's investments stimulate green industries and generate economic opportunities, promoting renewable energy and sustainable practices that contribute to emissions reduction. • Sociologically, the fund empowers communities to participate in climate action, fostering engagement and promoting environmentally friendly behaviors. • Technologically, ICCTF's support accelerates the adoption of clean technologies and innovative solutions, fostering technological advancements aligned with net-zero objectives. • Legally, the fund's funding criteria provide financial incentives for projects compliant with emissions reduction goals, reinforcing the legal framework for achieving net-zero emissions. • Environmentally, ICCTF's contributions result in reduced carbon emissions, ecosystem restoration, and improved environmental quality, directly supporting the overarching net-zero emissions target.
13		**Development Partners**	• Development Partners provide financial support for climate change mitigation and adaptation projects, including renewable energy and energy efficiency initiatives • Development Partners wield a significant impact in shaping the trajectory toward achieving NZE. • Politically, their programmes can steer policy direction by allocating resources to prioritize and finance climate-related projects. • Economically, their financial support acts as a catalyst for economic growth within the clean energy sectors, subsequently generating job opportunities. • Sociologically, development partners play a pivotal role in elevating public awareness and fostering active participation in climate action through their funded initiatives. • Technologically, they propel innovation by providing funding for research and development in clean energy technologies. • Legally, their funding criteria can incentivize projects aligned with emissions reduction goals and legal standards.

			• Environmentally, the contributions of development partners translate to diminished carbon emissions, heightened environmental quality, and an overall commitment to sustainability.
14	Variable	**Regional Governments**	• Implement energy and climate policies at the local level, including renewable energy projects and land-use planning. • Politically, Regional governments have varying degrees of influence depending on their commitment to net-zero goals and their capacity to implement relevant policies effectively. They hold political influence by implementing climate and energy policies tailored to local contexts. • Economically, their support for renewable energy projects can attract investments and stimulate economic growth within their regions. • Sociologically, regional governments can shape public awareness and engagement in climate action through localized initiatives. • Technologically, their implementation of sustainable urban planning and infrastructure projects can drive technological advancements. • Legally, regional governments can establish zoning laws and regulations that encourage renewable energy adoption. • Environmentally, their policies can lead to reduced pollution and ecosystem restoration, benefiting the local environment and contributing to national emissions reduction targets.
15		**Academia (Universities)**	• Academic institutions are highly involved in the research and study of Energy, often cooperating with policymakers to make recommendations in policy analysis. • They play a pivotal role in providing continuous technical updates for policy reviews and upcoming programmes. • Politically, they often provide critical data recommendations for policy drafting. • Economically, studies made can influence decision-making for future investments by both the government and the public. • Sociologically, they influence the knowledge and sentiment of Indonesia's next generation. • Technologically, they are at the forefront of testing new technology and sciences for renewable energy and energy efficiency. • Legally, they are able to publish journals and studies which influence policy and law adoption. • Environmentally, academic campaigns can push public opinion on environmental safeguarding, renewable energy proliferation, and more.
16		**Non-Governmental Organisations (NGOs, including Research Institutions, Think Tanks)**	• NGOs advocate for environmental protection, sustainable practices, and policy changes to achieve emissions reduction targets • NGOs play a significant role in shaping the pathway to achieving NZE targets. • Politically, NGOs advocate for policies endorsing clean energy and exert influence on governmental decisions through public pressure. • Economically, they channel funding towards sustainable projects and impact consumer preferences via awareness campaigns. • Sociologically, NGOs heighten public awareness, foster behavioral shifts, and cultivate a culture of environmental responsibility. • Technologically, they champion the adoption of clean technologies and innovation through research and advocacy.

		• Legally, NGOs may take legal actions to ensure adherence to environmental regulations. • Environmentally, their endeavors contribute to carbon emissions reduction, ecosystem preservation, and overall enhanced sustainability.

4.3. Narrative Analysis of the Donors

4.3.1. Understanding Political Dynamics and Resource Allocation for Effective Development

In Indonesia's NZE transition, political engagement and coalition-building are vital. Despite donor reservations, successful models involve backing local organizations or government agendas that align with donors' goals. We borrow the principles of Political economy analysis (PEA) which seeks to place development interventions into the context of society's prevalent political and economic processes, specifically the motivations, linkages, and allocation and contestation of power among various groups and individuals. The resulting analysis presents practical approaches to inclusive and impactful development, considering real-world complexities and enabling progress toward transformative objectives. It also aims to comprehend many stakeholders' power dynamics and incentives, how they aid or impede collectively desired reforms, and whether politically viable possibilities exist to remove such impediments. By understanding power, motivations, and incentives among stakeholders, PEA shapes feasible and effective initiatives.

One of the challenges of environmental reformation in Indonesia is overcoming the collective action problem. A collective action problem is "*a situation in which multiple actors, if they act together, can produce an outcome that benefits everyone; however, action is costly for each actor, so they are hesitant to act unless they are confident that everyone else will do the same*." (Kelsall, 2016). While the collective action problem is not unique to Indonesia, overcoming it requires a strategy designed to bring Indonesian power brokers to the table, given Indonesia's unique political and economic situation.

Indonesia's political system is an avenue for overcoming the collective action problem. The Indonesian government already plays a strong role in the energy transition efforts. In many countries, the collective action problem can be maintained with a legal and regulatory framework and enforced by the justice system. In Indonesia, certain political and economic elites hold undue influence over the legal and economic processes. "*As a result, essential confidence is frequently obtained through individualized relationships among elites. The general structure and substance of a society's agreement between elites is often called the 'political settlement*' " (Kelsall, 2016). Stakeholders will have to engage or at least be aware of the political settlement required for comprehensive NZE policy.

The pivotal step towards attaining the net-zero emission goal involves ratifying the draft National Energy Policy. The National Energy Council has prepared this draft, and ongoing discussions are underway via focused group sessions involving key stakeholders, such as PT PLN (Persero) and PT Pertamina (Persero). While the Government Regulation outlines the National Energy Policy, its formal approval rests with the House of Representatives. This juncture is of paramount importance as, from late 2023, parliamentarians' primary focus will shift to preparing for the General Election **scheduled for February 14, 2024**.

4.3.1.1. Politics: Political Shifting May Significantly Impact the Energy Policy Continuity

An imminent challenge lies in the upcoming 2024 National Election. Indonesia's economy is characterized by a balanced interplay between businesses and government, except in crucial sectors such as energy, where governmental influence is predominant. This introduces a significant risk to bilateral engagements, given the potential for shifts in political power to impact programme continuity.

Several risks stemming from the election are notable:

- **Increased subsidies**: Candidates might prioritize subsidies to safeguard vulnerable populations, potentially hampering phase-out efforts like coal retirement. This approach is appealing to lower-middle-class constituencies and could lead to elevated electricity subsidies.
- **Reevaluation of Renewable Energy Development Regulation**: While President Jokowi's 2022 decree on the Acceleration of Renewable Energy Development for Electricity Generation regulation was seen as a milestone for renewable energy (RE) progress, doubts persist about its effectiveness in addressing PLN's concerns, such as deficits and entrenched coal-based contracts. A pro-business candidate could oppose this regulation, stalling RE advancement.
- **Personnel changes**: Many bilateral programmes hinge on specific government entities, regions, or local authorities. The forthcoming elections risk a complete overhaul of personnel, jeopardizing programme continuity.

4.3.1.2. Resource: Insufficient Committed Funds to Support the Energy Transition Pathway

As declared at the G20 summit, the coalition countries of the Just Energy Transition Partnership (JETP) have committed to mobilizing USD 20 billion over the next 3-5 years to expedite carbon reductions in the energy sector. The partnership will later develop an investment plan aimed at accelerating peak emissions in the power sector by 2030 and reaching net-zero emissions in the power sector by 2050, which will include, among other things, doubling renewable energy generation to at least 34% by 2030 and retiring coal power plants early.

While the agreement's carbon reduction commitment is a significant improvement, it is insufficient to keep global temperature rise below 1.5°C. Several additional estimates point to the necessity for more aggressive steps, such as peaking power sector emissions before 2030, raising renewable energy share to around 50% by 2030, and achieving NZE by the 2040s.

Similarly, the committed funds are insufficient to support the energy transition pathway. Cui et al (2022) compiled research predicted that USD 4.6 billion would be required by 2030 to retire 9.2 GW of the Indonesian coal fleet to meet the 1.5°C target (Cui et al., 2022), while Transition Zero indicated that early retirement of Indonesian CFPPs would cost, on average, USD 1.2 billion per GW and furthermore, IESR (2022) predicted that around USD 116 billion is required to create renewable energy infrastructure until 2030, excluding those currently specified in RUPTL 2021-2030. To comply with the 1.5°C pathway, the IEA (2022) proposed an even more significant additional investment of USD 35 billion annually in the electricity industry until 2030.

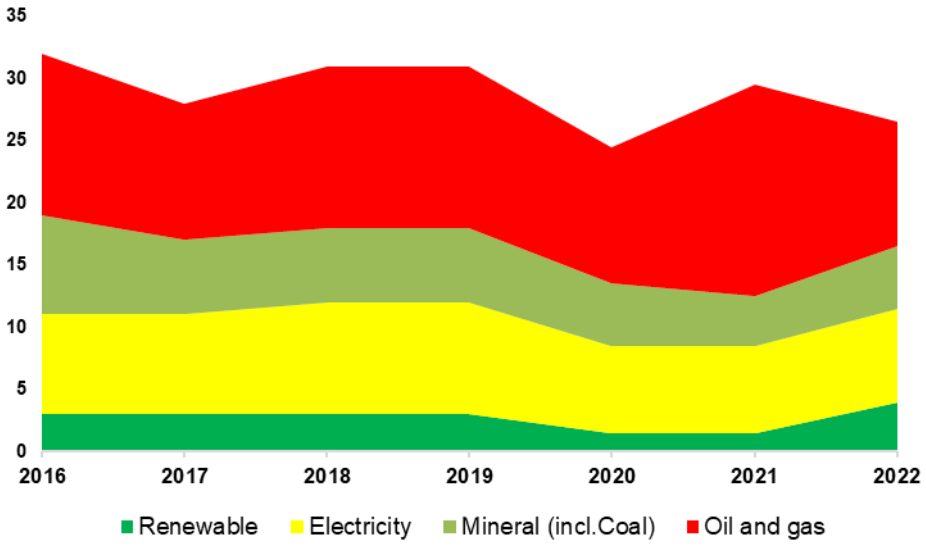


Figure 10: GoI Investment Allocation in Energy Sector (2016-2022). Source: Outlook ESDM 2022, IESR Report 2022

For 2022, the government targeted to attract USD 33.5 billion of investment in the energy sector: USD 17 billion in oil and gas, USD 7.6 billion in the power sector, USD 5 billion in coal and mineral, and USD 3.9 billion in renewable energy. The renewable energy investment target saw the most significant increase from the previous year but was still lower than other sub-sectors. The overall investment in the energy sector failed to meet the target as only USD 18.7 billion was obtained by Q3 2022. Only the coal and mineral mining sector managed to get close to the target, achieving 80% by Q3 following the high coal price.

The increase in investment targets was not supported by sufficient regulatory changes, including delays in the stipulation of the New and Renewable Energy Bill and the Presidential regulation on renewable energy tariffs, resulting in a low rate of investment realisation in renewable energy. By Q3 2022, investment in renewable energy only reached USD 1.35 billion, less than 35% of this year's target of USD 3.97 billion.

The long-awaited replacement of MEMR Regulation No. 50/2017, which is the major barrier to renewable investment, was finally issued in September 2022. However, instead of introducing Feed-in-Tariff as previously anticipated, Presidential Regulation No. 112/2022 only introduced the new price-ceiling mechanism for renewable energy, which could provide better investment returns for developers. The presence of regulation that can attract investors for renewable energy projects depends on the communication between the government and the parliament, and will also rely on PLN policy, particularly in procurement processes.

Financing supports from multilateral development agencies for energy transition have emerged, but achieving meaningful results requires better planning and coordination. As mentioned above, the energy development towards the NZE problem in Indonesia can be viewed as a 'collective action' problem, that is, a situation in which multiple actors, if they act together, can produce an outcome that benefits everyone; however, action is costly for each actor, so they are hesitant to participate unless they are confident that everyone else will do the same. The situation with the renewable energy development for electricity, for example, involves the national government, the local government, the parliament, and finally, PLN as the operator and final off-taker for the electricity market in Indonesia.

Solving collective action issues necessitates trust. In some countries, a legal and regulatory framework and accompanying enforcement through the courts ensure that agreements are kept. As a result, essential confidence is frequently obtained through individualised relationships among elites. The general structure and substance of a society's agreement between elites is often called the 'political settlement' (Kelsall, 2016). Both the political and economic situation laid out in the rest of the report makes political engagement and coalition building crucial for ensuring energy reformation toward the net-zero ambition. Although some donors are hesitant to sponsor such efforts, there are examples of success stories when development partners assist with political mobilisation around problems. This approach tends to be most effective by supporting the agendas of respectable local organisations or government agencies whose interests are closely matched with the donor's development objectives.

4.4. Overview of Development Partner's Support for The Net-Zero Emission Target in Indonesia

Donors' or development partners' support plays a crucial role in Indonesia's efforts toward decarbonisation. As one of the largest emitters of greenhouse gases, Indonesia faces significant challenges in transitioning to a low-carbon economy. The presence of multilateral and bilateral donors, including countries and international organisations, offers essential financial and technical assistance to support Indonesia's decarbonisation initiatives. The donor coordination strategy and agenda start with identifying the key stakeholders, including UN-related agencies, international organisations, government agencies, private sector entities, and local communities. By mapping out their interests, priorities, and capabilities, the ETP can establish potential areas of collaboration and leverage resources effectively. In this section, we divide the support into 3 sub-categories: 1)

Bilateral Support, 2) Multilateral Support, 3) UN Groups Support, 4) International NGO Support and 5) Private Sector and Philanthropies Support.

Table 15: Development Partners' Support for Net-Zero Emission Summary

Type of Support or Intervention	Development Partners Category				
	Bilateral	Multilateral	UN	INGO	Philanthropies and Business
Technical Assistance	JICA - CCS/CUCS JICA - PLN KOICA – ACCESS NZ – NZMATES UK - ESMAP	GCF - SnCF	UNDP- ACCESS UNDP- ADLIGHT UNEP-ADLIGHT UNOPS – ETP		
Capacity Building	ADF – PEEB Denmark – INDODEPP GIZ – CASE GIZ - PEEB SECO – RESD	ADB-SIAP GCF-SRMI GCF-PEEB*	UNDP-KADIN NZH UNICEF – CEED UNOPS – ETP	CDP - KADIN NZH GRI WRI CEIA WRI – LCDI WWF - KADIN NZH	ADEME – PEEB IBCSD - KADIN NZH IBEKA - PE KADIN - KADIN NZH Bloomberg NEF -NZH
Policy Development	BMU IKI - JET BMU IKI- SETI GIZ – AGEP GIZ - REEP UK-Mentari UK – ASEAN LCEP US-USAID SINAR	ADB – ETM ADB - EGDP OECD – CEFIM GGGI - DAPA WB – PMI	ILO - PAGE UNDP – PAGE UNDP – MTRE3* UNEP - PAGE UNIDO - PAGE UNITAR – PAGE UNOPS - ETP		Viriya ENB
Financing	ADF – PEEB GIZ - PEEB	ADB-SIAP GCF – GGC GCF-GGP III GCF – SnCF	UNDP UNEP UNIDO UNOPS		
Research / Knowledge Management	JICA - PLN	IEA – ETS OECD - ETS			

*Ends in 2022

4.4.1. Bilateral Support

At least 11 countries have pledged to support Indonesia's energy transformation through financial and technical aid, grants or collaborative projects, and an investment plan by 2023. The United States, the United Kingdom, and Germany are all entirely engaged in renewable energy and energy efficiency, and they are very supportive

of reforming related regulations and mobilising investment. However, based on current commitments in the table below, the overall worth of financial support in various ways has only reached at least USD 14 billion (including USD 1 billion from the UK's JETP contribution). It accounts for less than 37% of expected financial needs by 2025, suggesting more foreign assistance and private investment in the energy transition.

The table below includes some of the known programmes from countries in relation to Energy Transition and Renewable Energy investment in the country.

Table 16: Bilateral Support for NZE

Country	Type	Total Amount	Details
United Kingdom	Technical and Financial Assistance	USD 30 million	Mentari (*Menuju Transisi Energi Rendah Karbon*) is a USD 16.6 million programme to support low-carbon energy development and energy access in Indonesia. An additional UK Pact has total funding of 17.5 million for energy, mobility, and policy reform. UK's commitment made under JETP will be channeled through a loan facility from the World Bank.
Japan	Memorandum of Cooperation	N/A	Collaborations on a net-zero transition roadmap development, technology development and dissemination, and support in multilateral forums to accelerate technological cooperation
United States of America	Project Grant	USD 38.8 million	Sustainable Energy for Indonesia's Advancing Resilience (USAID SINAR) project (2021-2025) aims to mobilize USD 5 billion worth of private and public financing for renewable energy investment and installation (2,000 MW).
The Federal Republic of Germany	Technical and Financial Assistance	USD 2 billion	Grant for TA and financial assistance to support energy transition by developing RE sources through capacity building to support 23% RE mix by 2025. Germany also provides support through various projects run by GIZ
France	Technical and Financial Assistance, Loan	USD 544 million	Loan for developing the Sustainable and Inclusive Energy Programme Policy, loan to PLN for transmission and distribution project. Grants for experts and feasibility studies for RE development.
Norway	Technical Assistance	USD 28.7 million	Support for a climate and green finance investment in Indonesia through supporting of BPDLH (*Badan Pengelola Dana Lingkungan Hidup*, or Environmental Fund Management Body) and managed through SLM MOTF (Sustainable Landscape Management Multi-Donor Trust Fund)
Singapore	Investment	USD 5 billion	The development of a logistic hub in Tanjung Priok Seaport (Jakarta) and renewable energy projects in Batam (Riau Islands) and West Manggarai (East Nusa Tenggara)

New Zealand	Project Grant	USD 3.6 million	Grant funding agreement for the Renewable Energy: Accelerated Transition Indonesia (RE-ACT)
Australia	Cooperation Project	USD 200 million	Climate and infrastructure partnership
Denmark	Cooperation Project	USD 8.3 million	Technical assistance through G-to-G cooperation on energy modeling, energy policy and planning, and capacity building through INDODEPP (2020-2025)
Republic of Korea	Grant	USD 15 million	Grant for RE development in 23 villages in four provinces in Indonesia (2020-2023) through the installation of approximately 1.2 Megawatt communal solar-PV power plants.

Considering potential funding limitations, ETP partners can initiate dialogues with partner countries to explore collaborative joint-programme opportunities, while being mindful of the fact that political motivations may override bilateral initiatives. Caution is advised in engagement, taking specific political affiliations into account, particularly given potential shifts in Indonesia's bilateral agreements and alliance dynamics following the upcoming election. In light of these uncertainties, the most prudent approach appears to be awaiting post-election stabilisation. This will enable ETP to assess the continuity of existing programmes and potential changes, ensuring a cost-effective and well-informed course of action aligned with the evolving landscape.

Furthermore, dialogue with bilateral partners, a largely untapped resource, offers an avenue to broaden funding avenues, foster collaborative joint programmes, and enhance coordination for projects sharing similar objectives.

To ensure aid effectiveness, ETP can support the government and its development partners to have a more sectoral perspective rather than a single or conventional approach to international aid by promoting joint sector discussions or forums to facilitate a wider perspective for the government and its development partners.

Table 17: Sector Wide and Single Project/Conventional Approach

Sector Wide Approach	Single Project or Conventional Approach
• Country's holistic view of the entire sector • Partnerships with shared accountability • Collective coordination and dialogue • Increased use of local procedures • Long-term capacity/system development in the sector • Process-oriented approach	• Focus on projects to support defined objectives. • Recipient accountable to donor • Bilateral negotiations and agreements • Parallel implementation arrangements • Short-term disbursement and success of projects • Blueprint approach

Adapted from World Bank (2004), SWAps in Latin America.

4.4.2. UN Agencies Support

UN Member States are committed to meeting the Sustainable Development Goals (SDGs) through improved financing mechanisms, pooling of resources and enhanced UN partnerships that will achieve results in line with national development plans and The United Nations Sustainable Development Cooperation Framework (UNSDCF) as a core instrument for providing a coherent, strategic direction for UN development activities by all UN entities at country level. During the formulation of the UNSDCF 2021–2025, the UN in Indonesia prepared a

multi-year funding framework to estimate the total resources that would be required for the full five-year implementation of the UNSDCF, as well as the total resources available.

The United Nations system focuses its expertise on four strategic priorities to help Indonesia pursue dynamic economic transformation based on inclusive human development underpinned by good governance and help trigger catalytic changes to its own unique, sustainable growth pathway, as follows:

- The first strategic priority is 'Inclusive Human Development,' which covers human capital and social development, cultural capital, promoting equality and social cohesion, closing gaps in health, food security and nutrition, sanitation and hygiene, education, skill development, and social protection.
- The second strategic priority is 'Economic Transformation,' which aims to speed the transition to Industry 4.0 by creating jobs and increasing women's economic participation, ultimately leading to a higher-value-added economy.
- The third strategic priority is 'Green Development, Climate Change, and Natural Disasters.' The clear and timely imperative is to support Indonesia's quick transition to low-carbon development, focusing on climate change and natural resource management and lowering vulnerabilities to natural disasters.
- The fourth strategic priority is 'Innovation to accelerate progress towards the SDGs'. Strategic priorities and all SDGs benefit from innovation. The UN can provide the space, skills, networks, and partnerships needed to promote and implement new solutions to accomplish the SDGs, such as innovative finance structures, Information and Communication Technology (ICT) tools, and data gathering and analysis.

The UN in Indonesia promotes the use of joint programmes, which combine the expertise, resources, and networks of several UN entities, to support the Government more efficiently in achieving its national development priorities and the SDGs. Joint Programmes also offer integrated policy advice to the Government. This enabled UN agencies to integrate their advocacy and joint support to the government on select issues including social protection, innovative financing for the SDGs, and employment. Pooled funds, such as the Joint SDG Fund and the COVID-19 Response & Recovery Multi-Partner Trust Fund, made the increase in joint programmes possible. Eleven of Indonesia's 19 joint programmes receive funding from trust funds, while eight are funded by international development partners.

The UN in Indonesia launched five new joint programmes in 2021 including Advancing Indonesia's Lighting Market to High Efficient Technologies (ADLIGHT), a joint programme between UNDP and UNEP; United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation (UN REDD) supported by FAO, UNDP, UNEP; and The Partnership for Action on Green Economy (PAGE) Indonesia by UNDP, UNEP, UNIDO, UNITAR, and ILO; Resilience to Climate Change and Disasters and Reduced Greenhouse Gas Emissions with contributing UN Entities: FAO, OCHA, IOM UNICEF, UNDP, UNDRR, UNESCO, UNEP, UNIDO, UNOPS, UNFPA, UNHCR, UNHABITAT, UNODC, UN WOMEN, WFP, WHO; and Financing Renewable Energy Development with contributing UN Entities UNDP, UNEP, UNIDO, and UNOPS.

Table 18: UN Programmes in Indonesia

Focus of Intervention	End Date	Agency	Government Partners	Development Partners
Partnership for Action on Green Economy (PAGE)	2023	ILO, UNDP, UNEP, UNIDO, UNITAR	BAPPENAS	PAGE Secretariat
Advancing High Efficient Lighting Market (ADLIGHT)	2024	UNDP, UNEP	MEMR	GEF
Strengthening Sustainability in Commodity and Food Systems, Land Restoration and Land Use Governance (FOLUR)	2025	FAO, UNDP	Coordinating Ministries of Economic Affairs, MOEF (MOEF) MOA (Kementan)	GEF

			BAPPENAS	
Accelerating SDGs Investment in Indonesia (ASSIST)	2026	FAO, UNDP, UNEP	Ministry of Finance, Bappenas, OJK	Joint SDG Fund
Reducing Emissions from Deforestation and Forest (REDD)	2026	FAO, UNDP, UNEP	MOEF (MOEF)	Norway
Resilience to Climate Change and Disasters and Reduced Greenhouse Gas Emissions		FAO, OCHA, IOM UNICEF, UNDP, UNDRR, UNESCO, UNEP, UNIDO, UNOPS, UNFPA, UNHCR, UNHABITAT, UNODC, UN WOMEN, WFP, WHO	Bappenas	
Financing Renewable Energy Development		UNDP, UNEP, UNIDO, UNOPS	Ministry of Finance, Bappenas, OJK	

Several UN agencies in Indonesia have also specific portfolios of projects that contribute to the achievement of the Sustainable Development Goals (SDGs), in particular SDG 13 on climate action. UNOPS in Indonesia, for example, since 2005, has supported a variety of projects on behalf of the government of Indonesia and other partners in their efforts to improve education, health, the environment, and disaster prevention and preparedness. In Indonesia, UNOPS supports ETP, a multi-donor trust fund that brings together governments and philanthropies to support efforts to accelerate the transition to sustainable energy across Southeast Asia.

Throughout 2022, UNDP worked together with the Government of Indonesia and its partners on inclusive economic transformation, climate action and integrated innovation to achieve the Sustainable Development Goals (UNDP, 2023) and is a reflection of the priorities as reflected in the Government's Medium-Term National Development Plan (RPJMN) and UNDP's Country Programme Document (CPD). UNDP works on energy transition as a key enabler of the green economy. The energy transition can be addressed through the nexus of Climate Action including energy transition, carbon pricing and innovative financing. Together, they can promote a phasing out of coal, decarbonization in industries, and adoption of renewable energy at scale. For example, with the Ministry of Finance (MoF), Ministry of Energy and Mineral Resources (MEMR), and Ministry of Environment and Forestry (MoEF), UNDP is supporting the development of the Carbon Tax Roadmap, Emissions Cap Roadmap, and Carbon Trade Mechanism, all of which will contribute to the Net-Zero agenda, a top priority for the government. In parallel, the shift towards low-carbon growth can generate enormous economic benefits such as 15.3 million new jobs, according to Bappenas.

Table 19: UN Agencies Specific Portfolio in Green Development

Focus of Intervention	End Date	Agency
Technology and market for sustainable use of peatlands	2025	IFAD
Rural empowerment for agriculture development	2025	IFAD
Village Economic Transformation	2025	IFAD
Just Energy Transition	2026*	ILO
Forest Area Planning and Management in Kalimantan	2024	UNDP
Accelerating Clean Energy Access to Reduce Inequality (ACCESS)	2023	UNDP
Tropical Landscape Financing Facility	2024	UNEP

Energy Transition Partnership	2025	UNOPS

4.4.3. Multilateral Support

Since Indonesia became a signatory to the Paris Agreement in 2016, the nation has taken significant strides toward fulfilling its commitment to reducing carbon emissions and embracing sustainable energy alternatives. In line with its climate goals, Indonesia has actively sought multilateral financing support from prominent development agencies. **Organisations like the World Bank, Asian Development Bank (ADB), and the United Nations Development Programme (UNDP) have stepped forward with funding to facilitate a just energy transition.** These financial resources have been instrumental in conducting comprehensive studies and exploring the feasibility of shifting towards renewable energy sources while concurrently managing the complex task of phasing out coal. However, it's crucial to acknowledge that realizing meaningful and lasting results necessitates a higher level of strategic planning and coordination among all stakeholders involved, including government bodies, private enterprises, and local communities.

The following programmes are some of the most recent and well-known support, with active projects in the country.

Southeast Asia Energy Transition Partnership (ETP)

ETP is a multi-donor partnership of government and philanthropic donor partners to support a sustainable energy transition in Southeast Asia (Indonesia, Philippines, and Vietnam), with UNOPS as the fund manager. ETP managed a USD 24–25 million budget to spur rapid deployment of clean energy. The total commitment is USD 16.6 million, with 5.5 million allocated for Indonesia. This partnership engages Bappenas as its political partner in Indonesia to work on:1) Modernizing and integrating electricity infrastructure; 2) Developing financial risk study; 3) Knowledge and capacity development; 4) Policy alignment. The *Streamlining the Government of Indonesia Plans as a Pathway to Reach Net Zero Emission Target,* for which this report is under, collaborates with the National Energy Council (*Dewan Energi National* or DEN) to help with the revision of the National Energy Policy, the highest energy policy document in the country, to hopefully be published this year as a way to streamline baseline numbers for all upcoming energy policies and pledge announcements.

Funding for the ETP is sourced from the French Development Agency (AFD), Germany's Ministry for Economic Affairs and Climate Action, the UK's Department for Business, Energy and Industrial Strategy, and Canada's Department of Environment and Climate Change. In addition, philanthropic donors include the Children's Investment Fund Foundation (CIFF), IKEA Foundation, and Windward Fund. As of November 2022, the ETP supports 17 projects in Indonesia, amounted USD 1.39 million of USD 4 million total financial commitment in 2021/2022.

The Energy Transition Mechanism (ETM)

Indonesia launched the Energy Transition Mechanism (ETM) Country Platform at the G20 summit and through the ETM Country Platform aims to achieve optimum energy mix according to National Energy Policy; (2) reduce greenhouse gasses to achieve NDC and NZE in Indonesia's power sector (15 MtCO2-eq by 2030 or 160 MtCO2 -eq by 2040) ; (3) shorten the economic performance of CFPPs; and (4) accelerate investments for Renewable Energy Power Plants. It is important to note that ETM shall support the acceleration of CFPP phase-out and RE deployment based on Indonesia's RUPTL 2021-2030, which aims to achieve 51.6% of RE and 48.4% of fossil fuel in the national energy mix by 2030.

Recent updates following the formal launch of the country platform in November highlighted the country platform's high commitment to the early retirement of CFPPs. Early retirement will be done through the Carbon Reduction Fund Platform, particularly through spin-offs of CFPP assets where third parties will procure the assets in return for cash and equity, which will then be utilized to repay investors, similar to the Asian Development Bank (ADB) International ETM Platform CRF scheme (ADB, 2022).

ETM Partnership

Indonesia's ETM-Country Platform acts as a coordination center for the country's equitable energy shift, uniting efforts, offering financial backing, and ensuring just transitions. PT Sarana Multi Infrastruktur (PT SMI) leads the platform, developing a financing framework working with a variety of institutional partners. Collaborating with diverse partners, including grant providers like Bloomberg Philanthropies, UK MENTARI, and financial institutions such as Asian Development Bank and HSBC, PT SMI is working to replace 2 GW of coal-fired power plants with renewables, backed by a USD 4.6 billion investment. This move supports Indonesia's pledge to cut energy sector emissions by 12.5% and 15.5% in line with its enhanced NDC.

The government has identified 15 GW of CFPPs for early retirement and has decided that Pelabuhan Ratu CFPP (3x350MW) and Pacitan CFPP (2x315MW) will undergo early retirement through the spin-off scheme. In addition, Cirebon-1 CFPP (660MW) has also been chosen for early retirement under an agreement between Indonesia Investment Authority, PT. PLN, and Cirebon Electric Power (CEP). Currently, INA is also working on a pipeline of potential private sector transactions totaling 1.5 GW, which includes Cirebon-1 CFPP. This has become one of the programme's most critical milestones.

While ETM's significant agreement with Cirebon Electric Power is seen as a pivotal step towards coal phase-out, it's essential to recognize that, according to the Acceleration of Renewable Energy Development for Electricity Generation regulation, PLN retains the ability to establish Coal Power Plants (CPPs) is aligned with their 2021-2030 Business Plan. Nonetheless, the collaboration with ETM offers a unique chance to observe CPP shutdown procedures. We believe that engaging in knowledge-sharing discussions with ETM donors and implementers could yield invaluable insights into the coal retirement process. This understanding will guide our approach, identify risks, and unveil potential opportunities for future coal phase-out initiatives.

Climate Investment Funds (CIF) Accelerating Coal Transition Programme (CIF-ACT)

In 2021, Indonesia proposed funding from Climate Investment Fund (CIF) under Accelerating Coal Transition (ACT) for the Energy Transition Mechanism (ETM) in Indonesia. The ACT programme will support accelerated retirement of coal plants, decommissioning and repurposing coal plants, mine closure (including just transition for the workers impacted by the closure), and scaling up renewable energy and storage. The CIF-ACT programme works in tandem with the ETM and the World Bank Group.

ACT will support Indonesia to strengthen the enabling policy and infrastructure readiness for CFPP retirement and replacement by RE generation in order to avoid 77 MtCO2-eq greenhouse gas emissions and mobilize USD 2.2 billion in Multilateral Development Bank (MDB) co-financing and over USD 1.3 billion in commercial co-financing for retiring up to 2 GW of CFPP, reclaiming, reforesting, and restoring 150 hectares of mine area, and saving 3,504 GWh energy per year from CFPP closure and repurposing. Lastly, the financing will also be utilized to install RE of up to 550 MW and an energy storage capacity of up to 380 MWh. The programme seeks to support 1,160 employees of retired CFPP and coal mines with access to sustained income and 3,200 direct beneficiaries of social plant and economic regeneration activities.

Just Energy Transition Partnership (JETP)

During the G20 conference in November 2022, the Just Energy Transition Partnership (JETP) was officially announced for Indonesia. This programme is a partnership between the International Partners Group (IPG) and the Indonesian government, as well as Denmark and Norway, with discussions co-led by Japan and the United States. The IPG will raise USD 20 billion over the next three to five years to assist Indonesia in its transition from

fossil fuels to renewable energy. This initiative is funded equally by public and private sources through grants, concessional loans, market-rate loans, guarantees, and technical assistance. Except for the United Kingdom's USD 1 billion World Bank loan and GFANZ's USD 10 billion private investment, the amount of other countries' pledged financial contributions remains to be discovered.

JETP aims to achieve net-zero energy by 2050 and a 34% renewable energy contribution in the power sector by 2030. These objectives are supported by the Indonesian government's decision to halt the existing CFPP project in RUPTL 2021-2030, limit new coal fleets following Presidential Regulation No.112/2022, and reduce fossil fuel subsidies. The JETP is expected to speed the energy transition by providing governmental support and strengthening the enabling environment for RE, developing the energy efficiency industry, and expanding the sustainable finance market. To achieve these objectives, Indonesia must modify the high local content criterion, create local renewable energy sectors, and collaborate with financial institutions to unlock vast investment potentials to attain a net-zero economy.

JETP is currently one of the most well-known programmes in the country. However, there is some level of contention surrounding its jurisdiction in the overall landscape of energy policy. While the JETP secretariat is currently hosted under the Ministry of Energy and Mineral Resources (MEMR), it is heavily endorsed by the Coordinating Ministry of Maritime and Investment Affairs (KEMENKO-MARVES), which brought up some questions regarding the appropriate jurisdiction of decision-making.

4.4.4. Private Sector and Philanthropies Support

Indonesia is ranked as the world's 'Most Generous Country' in the World Giving Index 2022. The Charities Aid Foundation (CAF) Index has consecutively crowned Indonesia the world's most generous country for the sixth year. For over a decade, CAF has compiled the report by examining the data on the essential concerns of assisting a stranger, donating money, and donating time. According to the CAF's 2022 report, Indonesia ranked top with a 68 percent score, with eight out of every ten people donating money and six out of every ten offerings their time. According to the research, "in 2021, more than eight out of ten people donated money, and more than six out of ten (63%) volunteered time."

According to the research, religious-based organizations, philanthropies, and foundations sponsored by private sectors and business organizations are critical for the Indonesian giving ecosystem, including support for environmental challenges such as climate change, deforestation, and decarbonization.

Green Waqf Initiative

The Indonesia Waqf Board (BWI), in collaboration with United Nations Development Programme (UNDP Indonesia), Waqf Center for Indonesian Development and Studies (WaCIDS), Green Waqf Organisation, proposed a Green Waqf Framework, which covers the concept, stages, successful indicators, stakeholder mapping, and policy implications for future development of Green Waqf in Indonesia, based on experiences of related stakeholders in Indonesia.

Green Waqf is defined as the utilization of a waqf asset to support the attainment of ecological balance and sustainability while also providing a social and economic impact on society. Green in this framework refers to the Green Growth Framework, in which expected outcomes related to sustained economic growth and inclusive and equitable growth can help achieve social economic and environmental resilience, enable healthy and productive ecosystems providing services to society, and contribute to a reduction in greenhouse gas emissions (GoI-GGGI, 2014, 2015).

The framework also modifies the ROI's Green Bond and Green Sukuk Framework, which consists of nine eligible sectors which range from dark, medium, and light green. Eligible green projects which encourage the switch to a low-emission economy and climate-smart growth include transmission and production of energy from renewable sources, increasing infrastructure's energy efficiency, disaster risk reduction, creating sustainable transportation networks, enhancing waste management, sustainable use of natural resources, building new

tourist destinations in accordance with green tourism principles, developing green buildings following the Greenship defined by the Green Building Council of Indonesia ("GBC Indonesia"), and creating sustainable agricultural management and practices (Indonesian Ministry of Finance, 2021).

Furthermore, this framework also adapts the categorization of green according to CICERO (2022) and considers the socio-economic dimension for the beneficiaries and the environment in a waqf context, which range from dark to light green. Waqf needs to prioritize the high demand from businesses for investment alternatives to promote sustainability while achieving social and economic benefits at the same time. Projects under this category include the utilization of a waqf asset for renewable sustainable agriculture. In addition, the waqf asset may be used, for instance, to build efficient infrastructure for a hospital, school, or mosque.

4.4.5. International Non-Government Organisation (NGO) Support

As the world's sixth-largest producer of greenhouse gases (GHG), Indonesia benefits from the presence of international organizations that provide vital technical assistance to various entities including government agencies, private sector associations, industrial groups, universities, media outlets, and civil society. This assistance empowers these stakeholders to actively engage in addressing decarbonization challenges. Noteworthy examples of this support encompass initiatives such as GHG emission reduction measurement (supported by CDP, Carbon Disclosure Project), technology development (World Wide Fund for Nature, WWF), research and capacity building (WRI, World Resource Institute), and GHG reporting, disclosure, and documentation (Global Reporting Initiative, GRI), as well as financial backing for decarbonization projects.

Highlighted below are a few key development partners or initiatives that exemplify this collaborative effort. The selection of KADIN NZH, CEIA, and IKBI as prominent partners/initiatives is driven by their remarkable capabilities in propelling private sector involvement, shaping policy and financial frameworks, cultivating demand for clean energy driven by businesses, and championing sustainable finance practices. These partnerships collectively augment Indonesia's determined pursuit of its NZE target. By harnessing the wealth of expertise, resources, and collaborative platforms furnished by each partner/initiative, Indonesia strengthens its resolve to successfully navigate the complex path toward achieving a sustainable and decarbonized future.

Table 20: Other Development Partners or Initiatives

Country	Details
KADIN NZH (Net Zero Hub)	Promoting a sustainable business ecosystem for Indonesia by supporting the private sector in achieving the global net zero commitment and gaining a competitive advantage within the global market. Supported by Bloomberg NEF, CDP, IBCSD, WWF, UNDP, and WRI.
CEIA (Clean Energy Investment Accelerator	CEIA advances the policy and financing frameworks to scale commercial and industrial clean energy deployment in key emerging markets and brings together governments and companies to promote effective policy frameworks, create a business-led demand signal for clean energy, and mobilize a robust pipeline of investment-ready clean energy projects. Supported by WRI, Allotrope, and U.S. National Renewable Energy Laboratory
IKBI (Inisiatif Keuangan Berkelanjutan Indonesia, Indonesia Sustainable Finance Initiative)	IKBI (Indonesia Sustainable Finance Initiative) is a multi-stakeholder platform established on May 31, 2018, to promote the inclusive implementation of sustainable finance in Indonesia. IKBI seeks to support the implementation of the Financial Services Authority Regulation (POJK) No. 51 of 2017 on Sustainable Finance and encourage the active contribution of Financial Services Institutions (FSIs) to the government's achievement targets in terms of sustainable development goals (SDGs) and climate change control.

International NGOs usually have a distinct approach or framework to sustainable development issues. World Resources International, for example, under collaboration with CDP, the United Nations Global Compact, and the Worldwide Fund for Nature, actively promotes Science Based Targets to set ambitious, science-based

emissions reduction targets. ETP can tap into form membership programmes for government agencies or the private sector with technical support from international NGOs or other development partners. The membership programme is designed for technical support, capacity building, or policy development in certain areas of energy issues.

4.5. Development Partners Analysis and Engagement Plan

Political mobilization and coalition building toward 'collective action' is important to ensure the achievement of net-zero ambition. The main objective of the development partner's engagement plan is **to facilitate a consultative forum between the development partners and key government agencies** (DEN, Ministry of Finance, Ministry of National Planning, and Ministry of Energy and Mineral Resources). This forum will include government agencies and development partners and to some extent supported by universities, research institutions, and think tanks.

The seeming mismatch between the promises of Official Development Assistance (ODA) and the development needs may confront the financing support sustainability. Assistance is sometimes subject to national politicization or a factor in the political calculus, despite some donors' efforts to uphold and even extend their ODA promises. The dissolution of the IGGI (Inter-Governmental Group on Indonesia) by the Government of Indonesia in 1992, which was later replaced by the establishment of the Consultative Group of Indonesia (CGI), **shows the vulnerability of this multilateral approach to political conditions**, either within the government or between the government and members of the multilateral group.

Given uncertainties with the coming election, Indonesia's bilateral agreements and alliance dynamics might substantially shift post-election, impacting programme continuation. **Currently, the most pragmatic approach appears to await post-election stabilization, allowing ETP to assess which programmes persist and which undergo changes**. This strategy ensures a cost-effective and informed course of action based on the evolving landscape.

To optimize activities during the programme period, **ETP partners can initiate dialogues with partner countries to explore collaborative joint-program opportunities.** However, it's crucial to recognize that political motivations can supersede bilateral initiatives, necessitating cautious engagement while taking certain political affiliations into account. A largely unused resource, dialogue with bilateral partners is an opportunity to expand funding, explore collaborative joint programmes, and improve coordination on projects that have similar goals.

4.5.1. Coordination and Communication Strategy

The analysis below is to provide valuable insights into the potential challenges and risks associated with bilateral programmes involving ETP in the context of Indonesia's upcoming 2024 National Election. We believe the initiative to collaborate closely with the National Energy Council Secretariat (Setjen DEN) is a valuable strategy, which allows ETP and their implementing partner a judicial push to engage with programmes under different ministries. We must, however, acknowledge that resources in Setjen DEN are finite, and therefore progress can be quite halted knowing that their utmost priority at the time of this report is to finish the revision of the National Energy Policy (KEN).

The following are points of consideration in the donor mapping strategies that can be adapted, with adaptation to their respective institutional role:

Diverse Engagement Strategies: Given the complex and uncertain political landscape surrounding the election, ETP should adopt a flexible approach to engagement. This may involve diversifying their strategies to accommodate different potential outcomes of the election. For instance, they could engage in a range of dialogue channels, including formal negotiations, public-private partnerships, and knowledge-sharing platforms, to ensure programme relevance and continuity under various political scenarios. Understanding that Election Year carries certain sensitivities which may result in difficult access points, we advise prioritizing certain parties (see below).

Mitigating Subsidy-Related Risks: To address the risk of increased subsidies hampering energy transition efforts, DEN could proactively engage with political candidates and decision-makers. They can present data-driven analyses that demonstrate the long-term benefits of a balanced energy portfolio, highlighting the economic, environmental, and social advantages of gradually reducing coal dependency while promoting renewable energy sources. Engaging with policy influencers and conducting targeted advocacy campaigns can help prevent knee-jerk reactions favoring excessive subsidies.

Advocacy for Policy Continuity: To mitigate the risk of policy reversal on renewable energy regulations, DEN and ETP should engage in proactive advocacy efforts. This can involve collaborating with local think tanks, research institutions, and advocacy groups to generate evidence-based reports on the positive impacts of existing policies. By demonstrating how renewable energy development aligns with Indonesia's broader economic and environmental goals, they can encourage political candidates to uphold and build upon existing regulations.

Scenario Planning: DEN and ETP should conduct thorough scenario planning exercises to anticipate the potential impacts of different election outcomes on bilateral programmes. By developing action plans for different scenarios, they can be better prepared to respond swiftly to changes in political dynamics. This might involve identifying alternative funding sources, adjusting programme timelines, or redefining programme goals based on the post-election landscape.

Engagement Continuity Assurance: Regardless of the election outcome, DEN and ETP should work towards establishing bilateral programmes with built-in resilience mechanisms. This includes designing programmes that are adaptable to changing political priorities and personnel, as well as establishing mechanisms for continuous monitoring and evaluation. Regular progress assessments and transparent reporting can help maintain programme continuity and demonstrate their value to decision-makers.

4.5.2. Donor Engagement Plan

The donor engagement plan in 2023-2024 will be focused on the **establishment of a consultative forum between the development partners and GOI**, and the **documentation and publication of best practices or initiatives of donors**. The engagement plan includes the suggested engagement method, a list of initial priority stakeholders to approach, and a detailed activity table. These suggestions are subject to approval by the ETP and stakeholders.

4.5.2.1. Engagement Method

The main principle of our strategy is to establish a consultative forum between development partners and the Government of Indonesia (GOI), fostering effective communication. Additionally, we will focus on documenting and publishing the best practices and initiatives of our donors. We believe that while streamlining overall policies is a massive undertaking that may not be possible during the timeline of this project, establishing good communication grounds between relevant parties may ease future discussion and information dissemination.

Establishment of a Consultative Forum between the Development Partners and GoI

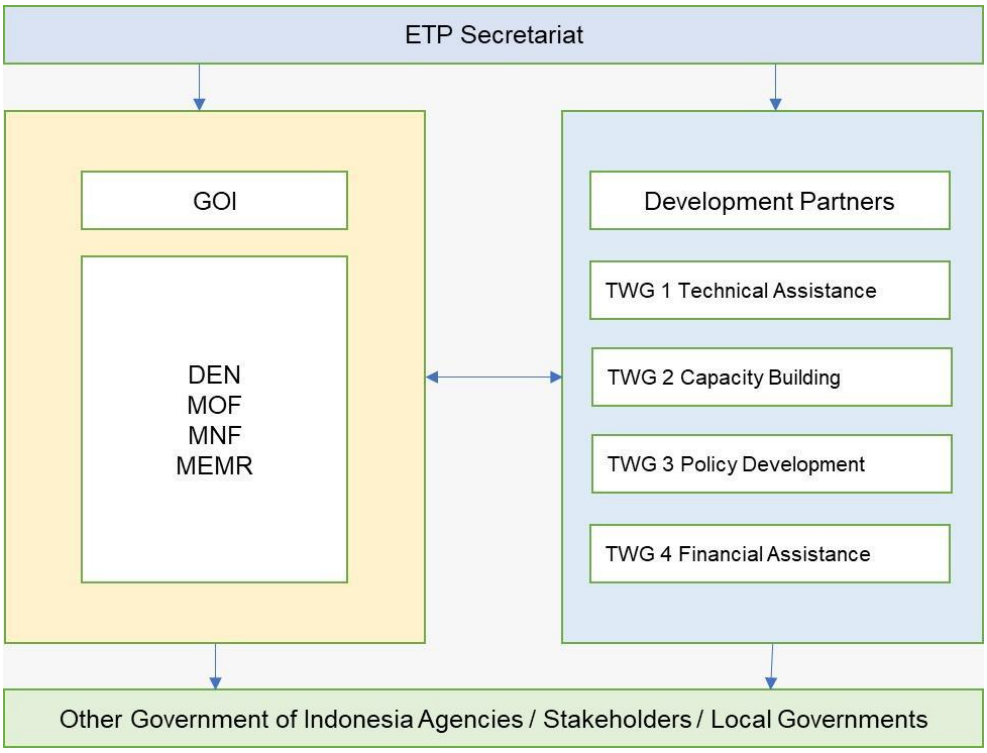


Figure 11: Consulting Group Structure

The ETP Consultant suggests the development of a Consultative Group, comprised of representatives from DEN, Ministry of Finance, Bappenas and MEMR Donors (representatives from respective Technical Working Groups) for donor institutions can offer several potential benefits:

- ***Enhanced Stakeholder Engagement***: A consultative group allows the donor institution to engage with a diverse range of stakeholders, including experts, community leaders, beneficiaries, and other relevant parties. This engagement helps the institution gain insights, gather feedback, and incorporate different perspectives into its decision-making processes.
- ***Informed Decision-Making***: By involving a consultative group, the donor institution can make more informed and well-rounded decisions. The group's collective expertise and input can lead to better-informed strategies, project designs, and resource allocation.
- ***Effective Resource Allocation***: The consultative group can assist the donor institution in identifying priority areas, assessing needs, and allocating resources effectively. This ensures that funds and resources are directed toward projects that align with the actual needs and preferences of the target communities.
- ***Improved Project Relevance and Impact***: Consulting with a diverse group of stakeholders can lead to developing projects and initiatives that are more relevant to the local context. This can increase the potential for positive impact and sustainable development outcomes.
- ***Risk Mitigation***: A consultative group can help the donor institution identify potential risks and challenges associated with their projects or initiatives. The institution can proactively mitigate risks and improve project success rates by addressing these issues early on.
- ***Strengthened Partnerships***: Engaging a consultative group can foster stronger relationships and partnerships between the donor institution and local communities, NGOs, government agencies, and other relevant actors. This can lead to more collaborative and effective implementation of projects.

- ***Transparency and Accountability***: Involving external stakeholders in decision-making can enhance transparency and accountability. This can help build trust and credibility with local communities and other interested parties.
- ***Capacity Building***: The consultative group can serve as a platform for capacity building and knowledge sharing. It allows local experts and community members to learn from each other, share best practices, and build their skills.
- ***Adaptability to Changing Circumstances***: A consultative group can provide a mechanism for the donor institution to adapt its strategies and projects based on changing circumstances, emerging challenges, or new opportunities.
- ***Public Relations and Reputation***: The joint or shared communication between partners in the Consultative Group will enhance each other's reputation and increase the public confidence about (public) policies that might be produced, endorsed, or sponsored by the Consultative Group.

A consultative group can be crucial in ensuring that the donor institution's efforts align with local interest, are contextually appropriate, and are more likely to achieve meaningful and lasting impact. The consultative group engagement will be conducted through the following activities:

1. A policy dialogue about the updated government plan and pathway toward NZE (KEN, RUEN, RUPTL, or RUKN).
2. Series of focused group discussions about development partners' support for the GoI (technical assistance, capacity building, policy development, and financing.
3. Development of Technical Working Groups with focused on sectoral approach for the NZE.
4. Establishment of a consultative forum with representatives of DEN, Ministry of Finance, Bappenas, and MEMR and development partners with ETP as permanent secretariat.

Documentation and Publication of Best Practices and Initiatives

The imperative for transparent reporting and comprehensive publication of donor activities to the newly elected government cannot be overstated. Such disclosure is the cornerstone of accountable governance, fostering an environment of trust, collaboration, and effective resource utilization. By communicating the donor-funded initiatives, projects, and outcomes, donor institutions contribute to the government's ability to make informed decisions aligning with national development priorities.

We propose a transparent exchange of information that empowers the government to assess the impact of donor contributions, strategically allocate resources, and engage in evidence-based policy formulation. Ultimately, the report and publication of donor activities catalyze synergistic partnerships between the government and donor organizations, driving sustainable development and ensuring support for the net-zero ambition. The documentation and publication programme will be conducted through the following activities:

1. A joint or collaborative report consisting of related development partners or initiatives support for the decarbonization and NZE 2060 (“Impact Report 2023”).
2. Publications on government plans and development partners' support through shared media of ETP and other development partners' media.
3. Development of a consultative forum with representatives of DEN, Ministry of Finance, Bappenas, and MEMR and development partners with ETP as permanent secretariat.

Pre-Engagement

Donors relevant to achieving NZE by 2060, such as USAID, UK-FCDO, GGGI, and ADB, along with their collaborators, will be initially engaged separately from government and ministerial counterparts. This separation aims to ensure unbiased insights into existing programmes and gauge sentiment regarding future involvement.

As the DEN prepares the updated National Energy Policy (KEN), **The ETP Consultant proposed that stakeholders involved in the development and submission of KEN will be given priority.**

Secondary priorities lie in the Ministry of Industry and PLN (under the Ministry of State-Owned Enterprise). The National Industry Development Master Plan (RIPIN) and the National Electricity Business Plan (RUPTL) are key documents that determine the progress of Renewable Energy progress in the country.

This list of priority stakeholders below is not exhaustive and ideally, all stakeholders interested should be included in the conversation.

Table 21: List of Priority Stakeholders

Groups	Members	Remarks
Dewan Energi Nasional (National Energy Council)	• Dr. Ir. Agus Puji Prasetyono M.Eng. IPU. ASEAN Eng. • Dr. Ir. Musri, M.T • Dr. Ir. Satya Widya Yudha MSc.,PhD • Dr. Ir. Herman Darnel Ibrahim M.Sc. IPU. • Ir. H. Daryatmo Mardiyanto • Dr. Ir. Eri Purnomohadi, M.M. • Dr. Ir. As Natio Lasman • Dr. (HC) Yusra Khan, S.H.	Non-Government Representatives
	• Ministry of Finance • Ministry of National Development Planning • Ministry of Tranportation • Ministry of Industry • Ministry of Agriculture • Ministry of Education Research and Higher Education • Ministry of Environment and Forestry	Government Representatives
Other Government Agencies	• The House of Representatives, Commission VII • PLN (Ministry of State Owned Companies)	
Development Partners	• ETP • USAID • UK – Mentari • UNOPS • UNDP • JETP • WB • ADB	

4.5.3. Recommended Activities for Enhanced Donor Engagement and Government Collaboration in Indonesia's Sustainable Development Initiative

The ETP consultant proposed the following Engagement plan for 2023-2024, which proactively center around developing and executing a robust communication and engagement strategy. This plan will entail a series of dynamic actions to achieve the desired outcomes, including strategy development and delivery, consultative forum establishment, best practice documentation and publication, engaging government entities, enhancing communication channels, continuous monitoring and adaptation, measurable success metrics as well as flexibility in the activity table.

Incorporating the extensive influence of the Indonesian government, the recommended activities **prioritize fostering transparent and robust communication channels among donors, programmes, and government entities.** It is essential to remain agile and adaptable, modifying the activity table based on achievements and unforeseen challenges to ensure a continually effective donor engagement plan.

Table 22: Donor Engagement Plan 2023-2024

Result	Specific Activity	Methodology	Deliverable(s)	Due Date
Result 1 Donor Communication and Engagement Implementation	Finalize Donor mapping and Engagement strategy	Desk review Interviews with representatives from Identified donors, DEN, ETP, MEMR	Donor Map Donor Engagement Plan Development	August 2023
	Implement a comprehensive donor communication strategy	**Communication Activities (See 5.3.1)**	Formulation of schedule, key messages, activities, and outputs Policy dialogue on National Energy Policy (KEN) recommendation and target Dissemination of the updated energy policies (KEN, RUEN, and KEN) to donors The development of Technical Working Groups The development of consultative groups or forums for development partners Joint and shared publications or communication activities	September 2023- July 2024
Result 2 A consultative forum between GOI and its development partners toward NZE ambition established	Organize national policy dialogues on KEN recommendation	FGD	Meeting conducted (2) Report prepared(1)	September 2023
	Set up technical working groups to streamline the Government of Indonesia Plans as a Pathway to Achieve NZE Target	Meetings and Discussions	Technical Working Groups established	October 2023

	Organize face-to-face dialogues and roundtable discussions between key stakeholders to establish a consultative forum	Organize and facilitate discussions, dialogues and consultations with key actors identified in the donor mapping	Discussions (4) Consultative Forum established (1)	January 2024
	Workshop with GOI, development partners, and stakeholders to support the consultative forum	FGD Roundtable discussion	Workshops (2)	January 2024
Result 3 Documentation and publication of Donor activities in Indonesia are available	Documenting and publication of best practices or initiatives of donors through the ETP website and shared media or promotion events	Data Collection Content Production Publication	Series of best practices published ETP website updated	July 2024

4.5.3.1. *Communication Activities*

The ETP Consultant will use the following principles in designing communication activities:

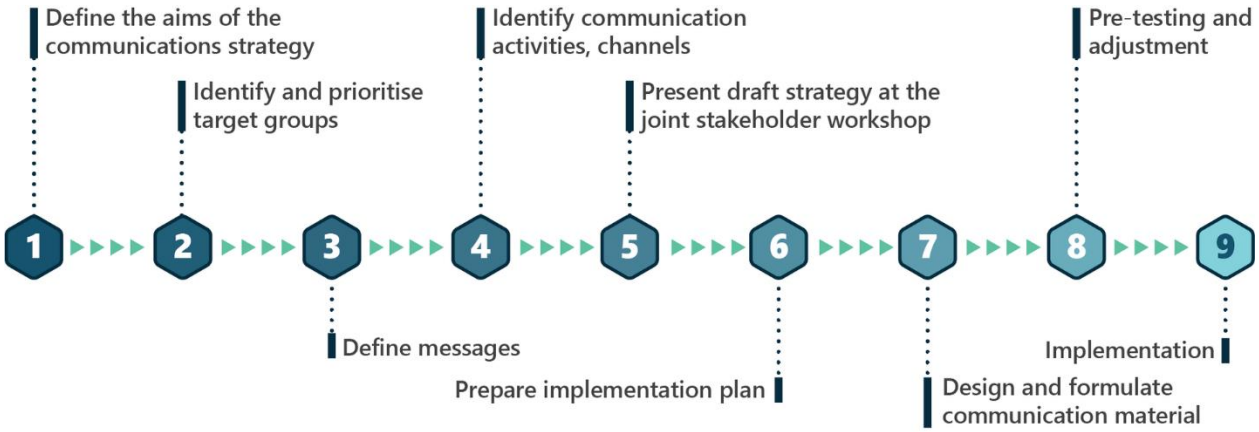


Figure 12: Communication Design Principles

Communication Design Principle Notes:

1. **Define Communication Strategy:** The first step in any campaign is to clarify its purpose with all the relevant stakeholders. This is to ensure the efficacy and impact of the communication.
2. **Identify Groups:** Our experience in similar projects shows that a carefully designed dissemination plan significantly increases the effectiveness of the campaign message because it sets out the best timing for the campaign to reach its maximal effects. The dissemination method will vary according to the intended audience.
3. **Define Message:** While the thematic area may be the same, the intended objective for different audiences will be different. Messaging will be customed for different actors. For example, the message

of collaboration with other donors (joint programme/ funding scheme possibility) will be different from the message of collaboration with government bodies (consultative services, joint-event collaborations).

4. **Identify Activities & Channels:** Determined by scope and audiences.
5. **Present Draft Strategy:** The strategy needs to be approved by both the ETP and DEN Secretariat.
6. **Prepare Plan:** Make detailed ToR for event implementation.
7. **Design & Formulate Material:** Comprises of substantive material (Presentation, handouts) and brand materials (ETP portfolio, goodie bags).
8. **Pre-testing & Adjustment:** All materials will be presented to the ETP for approval. For Live events, there will be a rehearsal.
9. **Implementation.**

Due to the majority of intended audiences being representatives from donors and government officials, the ETP Consultant will focus on optimizing ***High-Level Events / Engagements,*** namely:

- Formal Luncheon
- Focus Group Discussions
- DEN sponsored Workshops
- Webinars with high-level programme stakeholders as featured speakers.

Mass materials, which are for public dissemination will be comprised of:

- Online promotion and web content;
- Printed materials
- Social media updates (ETP and DEN accounts)

Further discussion with the ETP and DEN will be done to establish the right momentum to start information dissemination, as the KEN revision is not yet finished.

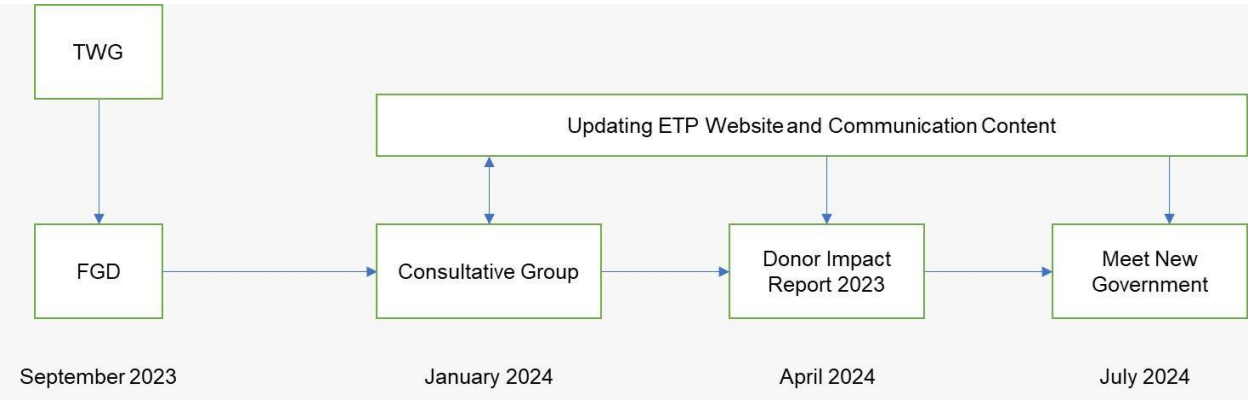


Figure 13: Summary Outreach Plan 2023 – 2024

4.6. Summary of Recommendations

In conclusion, the role of development partners, including bilateral and multinational donors, is crucial in advancing renewable energy projects in Indonesia. Their financial support and technical expertise have the potential to drive the country's transition toward sustainable and low-carbon energy sources. However, effective

engagement and collaboration among all stakeholders are essential to overcome challenges such as the collective action problem and to build trust.

The Energy Transition Partnership (ETP) emerges as a promising platform that synergizes governments and philanthropies, accelerating the energy transition in Southeast Asia. ETP's focus on maximizing energy efficiency, promoting renewable energy investment, expanding smart grids, and fostering knowledge dissemination aligns well with Indonesia's goals. Potential collaborations with partners like the Green Chamber of Commerce (KADIN), offer promising avenues for further progress.

Recognizing the diverse stakeholders within Indonesia's renewable energy sector, cooperation, and information sharing among these entities are vital for effective project implementation. DEN and ETP should adopt a multifaceted approach to engage with bilateral programmes, focusing on stakeholder engagement, evidence-based advocacy, scenario planning, and programme design for resilience. By taking these steps, they can navigate the uncertainties of the upcoming election while ensuring the continued progress of their energy transition initiatives.

5. Conclusion

The Energy Policy sector in Indonesia faces significant complexities due to various factors, hindering the smooth progress of energy pipelines and initiatives. With the urgent need to achieve Indonesia's Net Zero Commitment by 2060, the "Streamlining Government of Indonesia Plans as a Pathway to Achieve Net Zero Emissions Target" program introduced by the ETP holds great promise in untangling the intricate web of energy roadmaps and facilitating a smoother path toward achieving the Net Zero Emissions target.

Milestone Report 1 marks the foundational start of the ETP program, detailing the progress made in Task 1 and Task 2. Task 1 involved identifying existing government plans guiding energy transition programs, while Task 2 focused on developing communication and donor coordination strategies for effective implementation throughout the project.

Indonesia's energy policy framework is a complex amalgamation of binding and non-legally binding policies, regulations, and plans. While the binding policies establish a legal foundation for renewable energy advancement and energy efficiency, they encounter obstacles related to funding, transparency, and international alignment. Similarly, non-legally binding policies illustrate Indonesia's global climate commitment but need to be aligned with existing policies for effective emission reduction. To overcome challenges and achieve ambitious energy and environmental objectives, Indonesia must prioritize policy coordination, transparent funding mechanisms, integration with economic growth projections, and policy harmonization across ministries. Effective implementation and monitoring frameworks, stakeholder engagement, and adaptability to changing circumstances are essential for success.

Development partners, including bilateral and multinational donors, play a crucial role in advancing renewable energy projects in Indonesia. Their financial support and technical expertise can drive the country's transition toward sustainable and low-carbon energy sources. However, effective engagement and collaboration among all stakeholders are vital to overcome challenges and build trust.

The ETP serves as a promising platform that synergizes governments and philanthropies, accelerating the energy transition in Southeast Asia. Potential collaborations with partners like KADIN offer promising avenues for further progress.

Recognizing the diverse stakeholders within Indonesia's renewable energy sector, cooperation and information sharing among these entities are vital for effective project implementation. Adopting a multifaceted approach,

including stakeholder engagement, evidence-based advocacy, scenario planning, and resilient program design, will help navigate uncertainties during upcoming elections while ensuring continued progress in energy transition initiatives.

In conclusion, Indonesia's path to a sustainable and equitable energy future lies in the harmonisation of policies, collaboration among stakeholders, and concerted efforts to address energy poverty, promote renewable energy, and embrace energy-efficient practices. By following the recommendations and actively participating in the ETP program, Indonesia can make significant strides toward achieving its energy transition goals and advancing towards a NZE future.

References

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Mcloughlin, C. (2014). *Political economy analysis: Topic guide.* GSDRC University of Birmingham.

ANNEXES

Annex 1. Workplan update

There are slight deviation from the workplan due to Milestone 1 revision, but otherwise The ETP Consultant will pursue the Deliverables as Planned. Delays due to coordination with stakeholders will be informed to the ETP Secretariat.

NO.	ACTIVITIES
	PROJECT TIMELINE
	1May · 2/Jun · 3/Jul · 4/Aug · 5/Sep · 6/Oct · 7/Nov · 8/Dec · 9/Jan · 10/Feb · 11/Mar · 12/Apr · 13/May · 14/Jun · 15/Jul
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64
	DELIVERABLE 1 : INCEPTION REPORT
	Approval & Revision [BUFFER]
	Task 1: Stock take Mapping
6	Data collection: NZE 2060 relevant pipelines
7	Data Synthesis
8	Data validation: consultation with relevant implementors
	Task 2: Donor Engagement Strategy
9	Donor identification and activity mapping
10	Donor engagement communication strategy planning
11	Consultation with ETP & DEN to finalize coordination strategy & agenda
12	Develop donor coordination strategy & agenda
13	Implementation (Donor engagement)*
14	Workplan Update
15	Stakeholder Engagement progress report
16	RBMF Assessment update
17	Report Drafting
	DELIVERABLE 2: MILESTONE REPORT 1
18	Approval & Revision [BUFFER]
	Task 3: Background Study on Priority Programs
19	Prepare introduction workshop
20	WORKSHOP: Project introduction and stakeholder synergy (ONLINE)
21	Data collection and verification: LCDI and LTS Pipelines, review of KEN, RUEN, ACT, and other relevant
22	Stakeholder interviews & consultation
23	Develop review on priority programs
	Task 4: Emerging Technology Review
24	Data collection and verification: EBTKE pipelines, Law, Announced Pledges
25	Stakeholder interviews & consultation
26	Develop Compare/Contrast Matrix
27	Workplan Update
28	Stakeholder Engagement progress report
29	RBMF Assessment update
30	Report Drafting
	DELIVERABLE 3: MILESTONE REPORT 2
31	Approval & Revision [BUFFER]
	Task 5: Streamline Strategy
32	Data synthesis and final verification (carryover from Task 1, 3 & 4)
33	Develop quantitative and qualitative findings
34	Develop Process Outline
35	Develop streamline strategy draft
36	Workshop Preparation
37	WORKSHOP: Brainstorming strategy draft with key stakeholders
38	NZE 2060 Working group formation
39	Develop Streamline Strategy Document
40	Develop WG activity agenda
41	Workplan Update
42	Stakeholder Engagement progress report
43	RBMF Assessment update
44	Report Drafting
	DELIVERABLE 4: MILESTONE REPORT 3
45	Approval & Revision [BUFFER]
	Task 6: Communication & Stakeholder
46	Develop engagement vision
47	Stakeholder mapping & analysis
48	Develop stakeholder engagement plan
49	Update stakeholder engagement plan
50	Engagement logistic, scheduling, and objective development
51	Develop project webpage in ETP Domain
52	Develop communication and media strategy
53	Consultation and Engagement Plan review UNOPS &MEMR
54	Implementation (all stakeholder
55	Engagement implementation
	Task 7: Capacity Building
56	Consultation with DEN, UNOPS, ETP and MEMR
57	Define programe scope and method
58	Identify participants
59	Develop scheduling and education media
60	Capacity building implementation (4 x Online Workshop)*
61	Workshop documentation & reporting*
	FINAL REPORT PHASE
62	Deliverable compilation, data cleaning
63	Develop communication & engagement report
64	Develop capacity building activities report
65	Develop final narrative advisory
66	Develop NZE 2060 WG activities report
67	Finalized RBMF Outputs report
68	Final report drafting
	DELIVERABLE 5: FINAL REPORT
69	Approval to GOI [BUFFER]
70	Submission to ETP
71	Project Closure

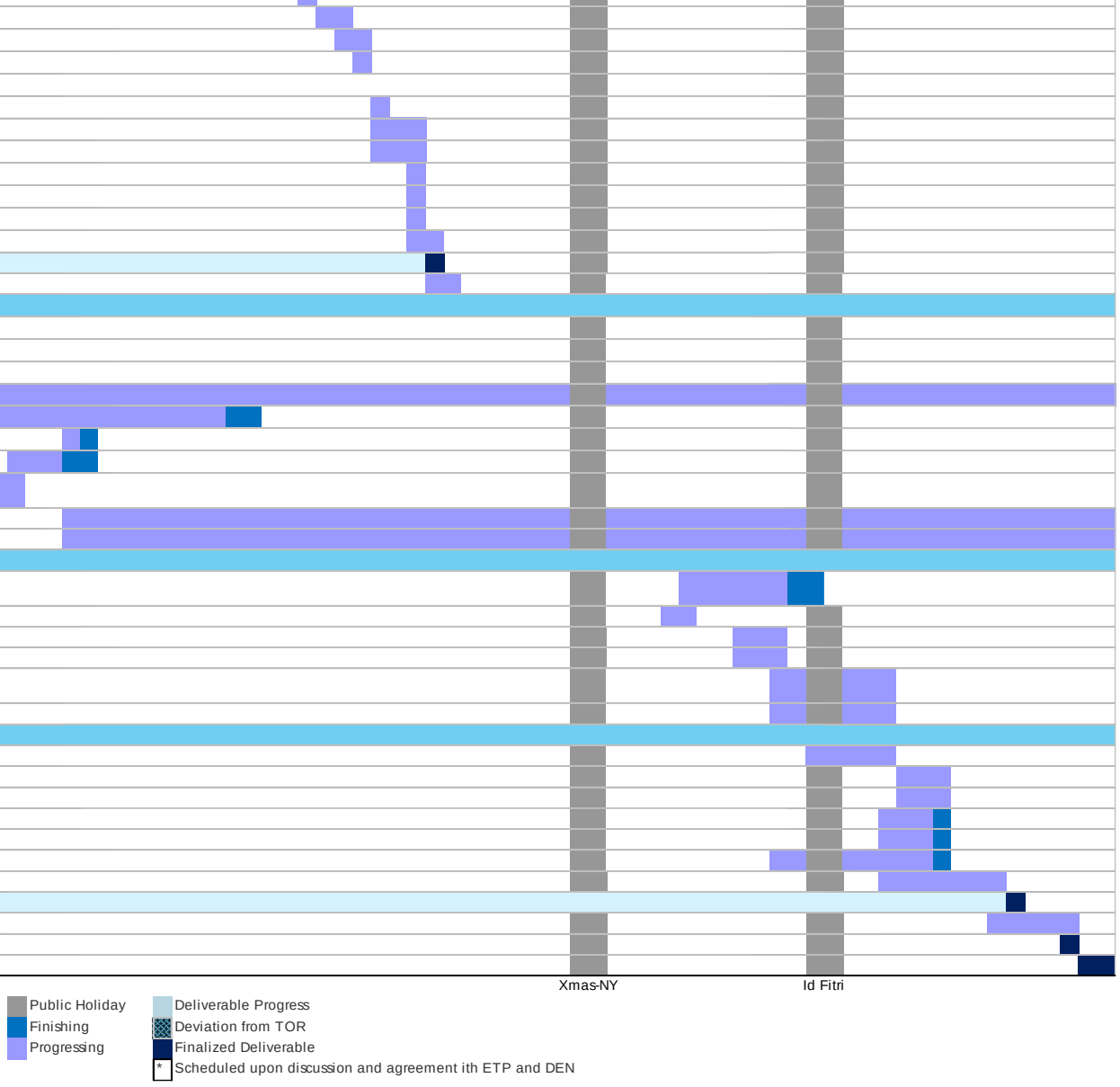

Figure 14: Workplan Update

Annex 2. Gender Mainstreaming Report

As of the collection of Milestone Report 1, the programme has encounter two stakeholders (The Directorate General of New and Renewable Energy, the National Energy Council), and has worked with one Academic Institution (ITB). Below are the percentage of female representatives in our stakeholders, including from The ETP Consultant team.

Table 23: Gender Mainstreaming

Institution	Number of Female (%)	Names
NIRAS Consultant	4 out of 9 (44%)	Arum Sari Farida Zed Jane Revevalin Annegrete Larston
DEN Secretariat	2 out of 5 (40%)	Lisa Ambarsari Agnes Novita
Institut Teknologi Bandung (ITB)	4 out 6	Retno Gumilang Dewi Rias Parinderati Gissa Navira S. Darsila W.

It is also of note that the Academia who oversees the Law Review of the Academic Manuscript *(Naskah Akademis)* is also a woman, by the name of Agustina Merdekawati. Our observation so far is the programme is quite balance in female representation, with a significant majority in academic representation. This signifies good progress, showing probability that women can, and are involved in the critical role in the establishment of technical backgrounds in energy policy making. It may also signal the non-biased nature of Academia.

This is unfortunately untrue for the National Energy Council Stakeholder (APK-DEN) which is populated by men. Decision makers in the Energy Policy field are still dominated by men, as is the case for many Indonesian government apparatus.

Identification of Relevant Aspects: the 4R Methodology

In the pursuit of Indonesia's net-zero emissions goal, a comprehensive approach is required, seamlessly integrating considerations of gender, environment, and social inclusion into the core strategies of the Energy Transition Partnership (ETP) and the National Energy Council (DEN). This integration ensures that these factors cease to be treated as peripheral, instead of becoming integral to decision-making processes. This approach fosters equitable and sustainable energy development. Concurrently, the initial stages of the program, encompassing Inception, Milestone 1 & 2, heavily prioritize securing buy-in and fostering collaborative efforts with the National Energy Council. This concentrated effort is driven by the urgent need to finalize and publish revisions to the National Energy Policy. As a preparatory measure for future activity planning, likely to be executed next year, a preliminary Identification is established using the 4R methodology as its foundational framework. The 4R components are:

- **REALIA**: Information about gender issues in the wider project context.
- **REPRESENTATION**: Information on the distribution of women and men, boys and girls in the various parts of the project.
- **RESOURCES**: What resources will the project bring and how will these be distributed among women and men.
- **REALIZATION**: What measures can be formulated to address the identified inequalities.

Below is the preliminary observation.

REALIA	While the Presidential Instruction no 9 Year 2000 stipulates the rights of Gender Mainstreaming in development, there are no specific clause addressing Gender in Energy Transition policies. This may be due to the general lack of public knowledge on energy transition, and that the government is still focus on the provision of access for energy poor areas.
REPRESENTATION	Representation in policy discussion forums is elaborated. As the National Energy Policy is the foundational policy for energy activities, it assumes equal effect to citizens indiscriminately. However, we recognized that many vulnerable groups, especially women in underdeveloped areas and lower economic status may feel the impact of specific energy transition initiatives (example: Coal Power Plant closing). While this is a much more specific area in comparison to this programme, conversations about gender mainstreaming should be raised during policy dissemination.
RESOURCES	There are no disseminated resources for gender in the programme. To ensure proper allocation, the Consultant will arrange future capacity building programme to include fair gender representation.
REALIZATION	Prioritized activities that can build on Gender Mainstreaming efforts during the programme: • Public knowledge dissemination targeted to women and vulnerable groups • Ensure high female representation during capacity building efforts

Synergizing Gender, Environment, and Social Inclusion (GESI)

Integrating GESI considerations into the core strategies of ETP and DEN aligns with their respective goals and paves the way for a coherent approach to achieving net-zero emissions.

Gender Mainstreaming: *Enhancing ETP's Effectiveness:* Gender mainstreaming, recognizing distinct roles and needs of men and women in energy activities, enhances the effectiveness of ETP's initiatives. Equal access to clean energy resources and involving women in decision-making aligns with ETP and DEN's goals, fostering inclusivity.

Environmental Integration**:** Sustainable Energy Practices: Both ETP and DEN prioritize clean and renewable energy sources while minimizing environmental impact. By mainstreaming environmental considerations, these organizations make informed decisions that contribute to net-zero emissions while conserving the environment.

Social Inclusion**:** Balancing the Transition: Social inclusion, a shared goal of ETP and DEN, ensures equitable energy access for marginalized communities. By targeting vulnerable populations, these organizations avoid exacerbating inequalities and promote a just energy transition.

GESI Mainstreaming for a Net-Zero Future

Incorporating GESI mainstreaming into the core strategies of ETP and DEN ensures a holistic approach. This synergy recognizes societal needs, gender equity, environmental preservation, and sustainable development. By mainstreaming these components, Indonesia can achieve an environmentally responsible, socially inclusive, and economically beneficial net-zero emissions future.

Annex 3. RBMF Update

Table 24: RBMF Update

						FY23 Q1		
ETP Pillars	**Result(s)**	**Description**	**Indicator Number**	**Program Indicator(s)**	**Project-level Indicator**	**Target**	**Achievement (Numeric input)**	**Achievement (comment)**
Policy alignment with climate commitments	**Intermediate Outcome (By 2030)**	1. Strengthened RE and EE policy enabling environment	IN 1-01	No. of new/revised RE and EE policies, laws, regulations, and/or technical standards endorsed and adopted by the national government in coordination with relevant institutions	Not relevant			
	Short-Term Outcome (By 2025)	1.1 National RE and EE policies, regulations, standards, and energy plans reflect a clear commitment to Energy Transition agenda and integrated into sectoral plans to contribute to the achievement of Paris Agreement	IN 1.1-02	National energy plans reflect an ambition towards increasing the share of RE/VRE, improving EE, and phasing-out fossil fuels	Not relevant			
			IN 1.1-03.1	No. of RE and EE policies, laws, regulations, and/or technical standards **developed and presented** to the government entities	Assessment of all existing government plans guiding the energy transition programs - Identify the past and current support received by the government from development partners, assessing the methodology/ approach used, and how the results are being utilized by the government so that it can determine further activity to be covered by this project - Assessment of current projects and pathways in regards to their alignment with Roadmap to NZE 2060	Alignment of KEN with NZE 2060	(2x) Workshop with DEN and ITB on the drafting of Academic Manuscript, the background study which will inform the upcoming revision of KEN. MoM can be found in Annex (3x) Coordination meeting with National Energy Council (Dewan Energy Nasional). Notes in MoM and integrated in report. (1x) Coordination meeting with Directorate General of Renewable Energy and Energy Conservation (Ditjen EBTKE). Notes in MoM	Project team is actively involved in KEN discussions with the National Energy Council, appointed partners from governments, and related institutions such as the the Directorate General of Renewable Energy (Ditjen EBTKE), the National Electricity Company (PLN) and the Ministry of Industry (MoI). As the deadline for KEN revision is near, the team is focusing all efforts to get engagements with related ministries to socialize NZE programs and help provide streamline datas and studies

								to help KEN in determining realistic RE targets.
			IN 1.1-03.2	No. of RE and EE policies, laws, regulations, and/or technical standards **revised and adopted** by the government entities	Not relevant			
		1.2 National Fiscal policies, regulations, and Investment policies have undergone reforms to create an Investment Climate that is conducive to investment flow into RE/EE and improves its energy transition readiness for capital and investments	IN 1.2-01	No. of RE and EE related Financing Frameworks and Fiscal reforms developed and presented to the government entities	Not relevant			
			IN 1.2-02	No. of Fiscal policy adjustments, Investment framework instruments, established and enacted by the government entities	Not relevant			

		1.3 Energy transition agenda is centrally led and coordinated effectively at a National-level agency/institution that is tasked to champion the cause with right level of authority	IN 1.3-01	Presence of an effective National level agency/institution	Provide a streamlined approach/methodology that can ensure the coherence of government plans to pursue alignment with the climate commitment.	1		Proposed FGDs and activities by the Consultant to Stakeholder (National Energy Council) are not accepted for the time being as they are still focused on the completion of the Academic Manuscript, which informs the National Energy Policy revision.
			IN 1.3-02	Improved dialogue among government ministries and departments for a coordinated response to Energy Transition	Develop the communication and a donor coordination strategy to be implemented throughout the project	TWG is established	0	TWG has yet to be establish.
Knowledge and Awareness Building	**Intermediate Outcome (By 2030)**	4. Increased development of and accessibility to RE/EE knowledge	IN 4-01	Targeted audiences indicate improved knowledge about EE/RE and the ability to sustain Energy Transition efforts	Pre and post capacity building tests and/or surveys (if applicable)	80% improvement in knowledge outcomes		Early efforts in gathering data is reported in Milestone Report
	Short-Term Outcome (By 2025)	4.1. Stakeholders (relevant Government entities, Public sector companies, Financial institutions, Private entities, Academia, and Consumers) involved in the RE/EE value chain, are knowledgeable and better informed to advance the energy transition agenda	IN 4.1-01	No. of studies, research, new evidence gathered and published, for raising awareness, improving knowledge base, driving decisions, and dissemination	Literature review on emerging technology proposed by GOI's long term-planning such as hydrogen, ammonia, nuclear and Carbon Capture and Storage (CCS)	1	0	Literature on technology will be done in Milestone 2, Task 4 Task 1 (submitted) has reviewed Modelling Tools
			IN 4.1-02	No. of trainings, knowledge sharing events, and/or awareness workshops organized at national and regional levels building institutional capacity and knowledge networks	Roundtable discussions, conferences, meetings to ensure identified donors are aware of GOI's RE pipeline	TBD	0	Introduction discussions has been done with: - DEN - Ministry of Industry - Department General of Renewable Energy - Academic institutions (ITB)
			IN 4.1-02 A	Total Number of participants	Total Number of participants in roundtables	TBD		
			IN 4.1-02 B	Number of Female Participants	Number of Female Participants in roundtables	50%		On average, female participants during DEN FGDs are around 40%. Highest female participation so far are at 56%.

			IN 4.1-02	No. of trainings, knowledge sharing events, and/or awareness workshops organized at national and regional levels building institutional capacity and knowledge networks	At least 4 two-day workshops conducted to training program for government and related stakeholders	4	0	Task 7
			IN 4.1-02 A	Total Number of participants	Total Number of participants in capacity building sessions	TBD		
			IN 4.1-02 B	Number of Female Participants	Number of Female Participants in capacity building sessions	50%	0	Task 7
			IN 4.1-04	No. of articles, press releases on social media, and mass media, for outreach releases on social media, and mass media, for outreach	Not relevant			
Share 3 high resolution photographs that are key to the project and add a description					photo 1 Link + Description			
					photo 2 Link + Description			
					photo 3 Link + Description			

UNOPS Net Zero Emission

NIRAS-EBTKE Streamlining Meeting

Date		23 June 2023	**Place**	EBTKE Office, 4th floor
			Recording Link	
Minute Taker		Alham Kurnia	**Next Meeting**	TBD
Appendix		-		
Participants	Harry Hartoyo	Male		NIRAS
	Farida Zed	Female		NIRAS
	Alham Kurnia	Male		NIRAS
	Qatro R.	Male		EBTKE
	Nurcahyanto	Male		EBTKE
	Hendro Gunawan	Male		EBTKE
	Zulkarnain	Male		EBTKE
Absent	Soeharwinto	Male		NIRAS
	Ichsan Ichsan	Male		NIRAS
	Salman Nursiwan	Male		NIRAS
	Jane Revevalin	Female		NIRAS
	Arum Satya Sari	Female		NIRAS
Distribution		UNOPS NZE Technical Team		NIRAS

	UNOPS NZE Indonesia Team	UNOPS

Agenda

1. Information from Pak Qatro (EBTKE)

- Pak Qatro and Pak Cahyo are responsible for NZE at EBTK
- EBTKE is trying to align the numbers from ESDM and DEN, although it is unlikely they will match percisely.
- Due to changes from Bappenas, several agreements have been made:
    - Utilization of PLTU as a reserve.
    - Encouraging PLTN to enter the system by 2032. Small entry point. 1 unit = 77 megawatts x 3.
- EBTKE will also facilitate FGDs and workshops in coordination with UNOPS.
- If NIRAS aligns with EBTKE, collaboration is possible. However, EBTKE's events are impromptu and situational, making them highly unpredictable.
- UNOPS is provide funding assistance to EBTKE regarding NZE.
- Eselon 1 meetings are held once a month, while technical meetings occur 2-3 times a month. Eselon 1 meetings can cost up to Rp200 mio per session. The meetings take place in Bogor.
- The energy efficiency rate has changed from 17% 8%.

2. Infomation from Pak Harry (NIRAS)

- KEN serves as the highest regulation for Indonesia's energy policies.
- K/L are unsynchronized, progressing towards NZE 2060.
- K/L acknowledge the existing differences, but bridging efforts are needed for synchronization.
- The project aims to streamline all K/L requirements towards NZE.
- NIRAS does not create new models; it facilitates discussions and conducts background studies.
- NIRAS has already discussed the matter with Bu Gelang from ITB.
- One of the urgent needs for streamlining NZE is to address the concerns of foreign investors who wish to enter Indonesia but face regulatory confusion. UNOPS aims to assist in ensuring consistent and aligned regulations.
- NIRAS's timeline can be adjusted to align with EBTKE and DEN.

3. Infomation from Bu Ida (NIRAS)

- NIRAS requested by UNOPS to assist DEN in revising KEN.
- One of the considerations: the NZE developed by EBTKE.
- NIRAS has already had discussions with Bu Gelang from ITB. RIPIN is one of the aspects that needs to be harmonized.
- Question: Will KEN be approved through a Plenary Session. If through commission 7, will its status be the same as the previous KEN? If not the same, will the new KEN have the same position as the previous KEN?
- ITB has identified inconsistencies in data between K/L.
- Energy policies, including Bappenas, should refer to ESDM
- DEN should have consistent figures with other ministries.
- NIRAS-EBTKE need to communicate and coordinate data.

Streamlining Government of Indonesia Plans as a Pathway to Achieve Net Zero Emissions Target

EVENT: Academic Manuscript Consolidation Workshop for RPP KEN

Date	14 July 2023	**Place of Event**	Pertamina Office, Bandung
Minute taker	Jane Revevalin	**Date of Event**	13-14 July 2023
Organizer	DEN Secretariat	**Event Type**	Hybrid
Participants	**Setjen DEN, APK-DEN, NIRAS, ITB** 10 Participants: 6 male (60%), 4 female (40%)		
Absent			
Distribution	ETP/UNOPS Indonesia		

Event Details

1. Attendance

Institutions	Male	Female
DEN	Yunus Saefulhak Ramous Aditya Cresenda H Musri Agus Puji Prasetyono	Lisa Ambarsari
NIRAS	Harry Hartoyo	Jane Revevalin
Academia		Agustina Merdekawati (UGM) Retno Gumilang Dewi (ITB)

2. Objectives Given to the Event

Discussion for the completion of the Academic Manuscript Draft with ITB
National Energy Policy law review with UGM
Finalizing narrative from the Academic Manuscript, completion target 29th of July

3. Event Agenda

DAY 1		DAY 2		DAY 3	
14:00-16:00	Preparation	09:30 – 15:00	Focus Group Discussion: Academic Law Review Focus Group Discussion: Base numbers and substance, *Draft Government Regulation – National Energy Policy* (RPP KEN)	09:30 – 11:30	Focus Group Discussion: *Narrative outline for the Draft Government Regulation - National Energy Policy* (RPP KEN)

4. Event Notes

Day 2:

KEN modelling preparation through Back casting NZE 2060
DEN Stakeholder emphasized that KEN should not be dictated by JETP, and should prep 2 scenarios: one with successful JETP implementation and one with failed JETP implementation.
Retno Gumilang (Gelang) from ITB informed that while the current JETP emission peak numbers for 2030 only accounts for electricity (power), and nothing else. Implying the inaccuracy of the NZE 2050 modelling.

Day 3:

Discussion with ITB on Academic Manuscript completion.

5. Project Notes

Request from DEN for ETP consultants to hold an FGD meeting for the completion of the Academic Manuscript in Bandung.

Streamlining Government of Indonesia Plans as a Pathway to Achieve Net Zero Emissions Target

EVENT: Academic Manuscript Consolidation Workshop for RPP KEN

Date	22 July 2023	**Place of Event**	Patra Jasa Hotel, Bandung
Minute taker	Jane Revevalin, Alham Kurnia	**Date of Event**	20-22 July 2023
Organizer	NIC Indonesia, DEN Secretariat	**Event Type**	Hybrid
Participants	**DEN, ITB, NIRAS** **Day 1:** 12 participants, 5 female (42%), 7 male (58%) **Day 2:** 28 participants, 13 female (46%), 15 male (54%) **Day 3:** 18 participants, 10 female (56%), 8 male (44%) [See complete list below]		
Absent	[See complete list below]		
Distribution	ETP/UNOPS Indonesia		

Event Details

1. Attendance

DAY 1 (20 July 2023)			
No	**Name**	**Gender (M/F)**	**Institution**
1	Musri	Male	APK-DEN
2	Ucok Siagian	Male	ITB
3	Rias P.	Female	ITB
4	Gissa Navira S.	Female	ITB
5	Darsila W.	Female	ITB
6	Jane Revevalin	Female	NIRAS
7	Alham Kurnia	Male	NIRAS
8	Ichsan (OL)	Male	NIRAS
9	Yunus S.	Male	Setjen DEN

DAY 2 (21 July 2023)			
No	**Name**	**Gender (M/F)**	**Institution**
1	Agus Puji P.	Male	Anggota DEN
2	Herman D. I.	Male	Anggota DEN
3	Musri	Male	Anggota DEN
4	Supriadi	Male	Biro 1 SJ DEN
5	Nanang K.	Male	Biro 2 SJ DEN
6	Adil	Male	Biro 3 SJ DEN
7	P. Agung P. S.	Male	Biro 3 SJ DEN
8	Yenshi Harniati	Female	Biro 3 SJ DEN
9	M. Baihaqi	Male	Humas DEN

10	Lisa Ambarsari	Female	Setjen DEN
11	Ramous	Male	Setjen DEN
12	Aditya C. H	Male	Setjen DEN

DAY 3 (22 July 2023)			
No	**Name**	**Gender (M/F)**	**Institution**
1	Yenshi Harniati	Female	Biro 1 SJ DEN
2	Dodik Ariyanto	Male	Biro 3 SJ DEN
3	Prima Agung	Male	Biro 3 SJ DEN
4	Rias	Female	ITB
5	Gissa Navira S.	Female	ITB
6	Darsila W.	Female	ITB
7	Retno G. D.	Female	ITB
8	Harry Hartoyo	Male	NIRAS
9	Alham Kurnia	Male	NIRAS
10	Farida Zed	Female	NIRAS
11	Salman N.	Male	NIRAS
12	Jane Revevalin	Female	NIRAS
13	Lisa Ambarsari	Female	Setjen DEN
14	Aditya C.	Male	Setjen DEN
15	Yunus S.	Male	Setjen DEN
16	Ramous	Male	Setjen DEN
17	Anana D.	Female	UDHP
18	Friska S.	Female	UDHP
10	Retno G. D.	Female	ITB
11	Darsila W.	Female	ITB
12	Rias	Female	ITB
13	Gissa Navira	Female	ITB
14	Farida Zed	Female	NIRAS
15	Harry Hartoyo	Male	NIRAS
16	Alham	Male	NIRAS
17	Jane Revevalin	Female	NIRAS
18	Anang	Male	Sekjen DEN
19	Yunus S.	Male	Sekjen DEN
20	Lisa Ambarsari	Female	Sekjen DEN
21	Aditya C.	Male	Sekjen DEN
22	Dodik	Male	Sekjen DEN
23	Ramous	Male	Sekjen DEN
24	Rani A. Dewi	Female	Sekjen DEN
25	Mersi M.	Female	Sekjen DEN
26	Munayaty	Female	Sekjen DEN
27	Siti Khumaerah	Female	Sekjen DEN
28	Friska S.	Female	Biro Umum DEN

2. Objectives Given to the Event

Final discussion for the completion of the Academic Manuscript Draft with ITB
Drafting the Problem Inventory List (*Daftar Isian Masalah / DIM)* by DEN

Finalizing narrative from the Academic Manuscript, completion target 29th of July

3. Event Agenda

DAY 1		DAY 2		DAY 3	
10:00 – 15:00	Focus Group Discussion: Base numbers and substance, *Draft Government Regulation – National Energy Policy* (RPP KEN)	09:30 – 17:30	Focus Group Discussion: Base numbers and substance, *Draft Government Regulation – National Energy Policy* (RPP KEN) Focus Group Discussion: *Narrative outline for the Draft Government Regulation - National Energy Policy* (RPP KEN)	10:00 – 15:00	Focus Group Discussion: *Narrative outline for the Draft Government Regulation - National Energy Policy* (RPP KEN) Focus Group Discussion: *Problem Inventory List (DIM)*

4. Event Notes

Day 1:

Detailed discussion by the National Energy Council Secretariat members with the ITB team on numbers and data needing to revise from the current Academic Manuscript draft.
Inputs from Musri (National Energy Council Stakeholder Member / APK-DEN)
NIRAS Consultant in audience.

Day 2:

Forum Discussion of the Academic Manuscript draft with various National Energy Council bureaus.
Inputs from Herman Daniel Ibrahim (National Energy Council member)
NIRAS Consultant in audience, providing inputs and suggestions.

Discussion Notes:

1. The national development aims for Advanced Indonesia 2045, in line with the Paris Agreement commitment.
2. Notable differences in NZE 2060 targets arise between DEN, MEMR, and JETP:
3. MEMR anticipates NZE with 100% Renewable Energy in the mix, mainly solar and supplemented by hydro, geothermal, and wind power. EV adoption replaces petrol vehicles, with a projected 5.5-6% economic growth.
4. DEN maintains coal in the mix, with hydropower, geothermal, biomass, and nuclear (by 2032) as other RNE components.

5. JETP emphasizes biomass as the primary energy source during the transition.
6. Notably, the DEN scenario prioritizing resilience and self-sufficiency appears to ensure enduring energy supply security.
7. Data from Indonesia's Vision 2045 highlights economic growth in the eastern part, driven by non-renewable resource exploitation, prompting concerns over long-term sustainability.
8. Retrofit ZE interconnection and PT PLN (Persero) super grid 2034-2060 development focus on Java and Kalimantan, raising concerns about reliable electricity supply for the eastern industrial sector.
9. The Directorate General of Electricity suggests achieving the 22% RE mix target in 2025 through PLTU biomass co-firing, considering the current 12.29% RE contribution.
10. Emission reduction from the land sector (FOLU) decreases from 320 to 60 million tons CO2, while NZE 2060's 129 million tons CO2 reduction target shifts to the energy sector.
11. Addressing disparities in MEMR, DEN, and JETP targets is crucial, avoiding a recurrence of the MoEF NDC scenario and Bappenas' development plan baseline numbers. It affects sector and regional planning alignment. KEN clarity is paramount for all NZE 2060 stakeholders.
12. The ITB team is tasked with finalizing the KEN draft, ensuring its inclusion in the 2023 National Legislation Program.

Day 3:

Drafting the Problem Inventory List (DIM) with the National Energy Council Secretariat. NIRAS Consultant in audience, providing inputs and suggestions.

5. Project Notes

Discussion with NIRAS & ITB: the completion of the Academic Manuscript will be done by ITB, with review done by DEN. ITB will have future discussions with NIRAS for this.
While information dissemination by DEN and ITB will continue, it is advised that inputs are limited by the Academia (ITB), as the Consultant is not part of the conversation in the beginning. Relays of information will be done by DEN and ITB.

Annual energy consumption per capita (kWh/capita)

Annual energy consumption per capita is the amount of energy consumed by a person in a year. It is measured in kilowatt-hours (kWh) or gigajoules (GJ).

Several factors affect annual energy consumption per capita, including:

- The level of economic development
- The climate
- The type of energy used
- The availability of energy

As economies develop, people consume more energy because they have more disposable income for energy-intensive goods and services, such as air conditioning and cars. The climate also plays a role in energy consumption. In cold climates, people need more energy to heat their homes and businesses. The type of energy used also affects energy consumption. For example, countries that rely on fossil fuels tend to have higher energy consumption than those that rely on renewable energy sources.

The availability of energy also affects energy consumption. In countries where energy is scarce, people tend to conserve energy more because they have to pay more for it and may not be able to get it if needed.

Indonesia's energy consumption per capita trend is inclined from 2020-2022. In 2022 the energy consumption in Indonesia is 9854 kWh. It is the smallest compared to the other countries, as shown in Figure 15.

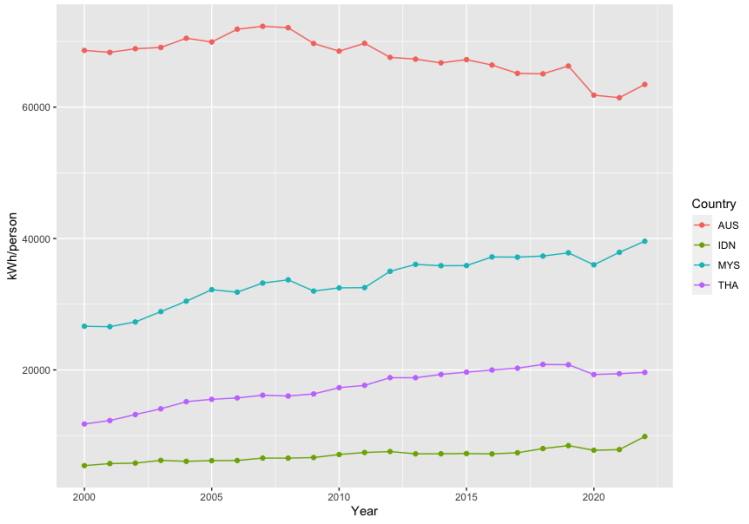

Figure 15: Annual energy consumption per capita (kWh/capita). Source: U.S. Energy Information Administration (EIA); Energy Institute Statistical Review of World Energy (2023)

Countries energy consumption (TWh)

From 2020 until 2022, Indonesia's energy consumption increased by over 200%. Among other countries in Figure 16, energy consumption in Indonesia is the smallest during the periods. From 2019 to 2020, energy consumption decreased drastically as the effects of Covid-19.

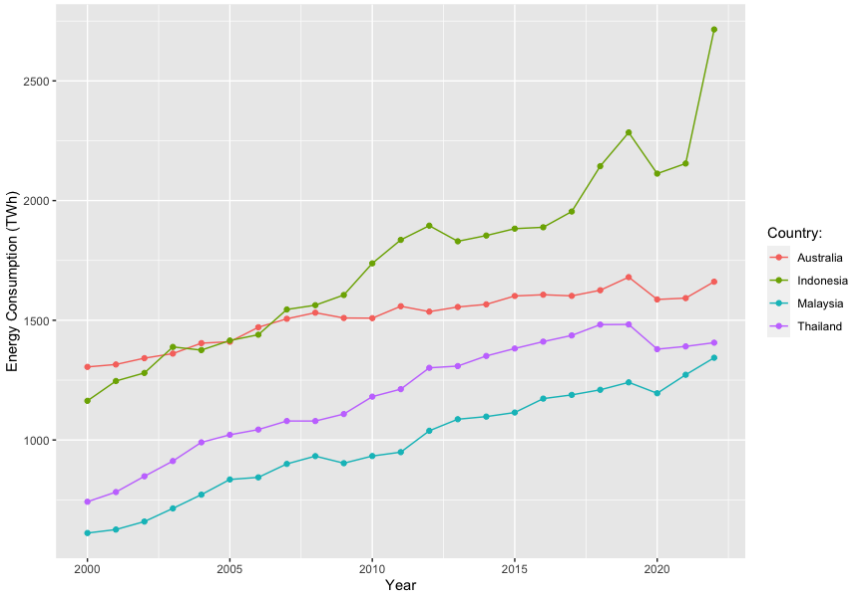

Figure 16: Countries energy consumption (TWh). Source: U.S. Energy Information Administration (EIA); Energy Institute Statistical Review of World Energy (2023)

Electricity generation per capita (kWh/person)

Electricity is the most important source of energy that we depend on daily. Every year, the electricity consumed per capita continues to increase. From 2020 to 2023, Indonesia's per capita electricity consumption increased by 2.6. Figure 17 exhibits the electricity consumed per capita by Indonesia, Australia, Malaysia, and Thailand. Among those countries, electricity consumed per capita by Indonesia is the smallest. On the other hand, Indonesia has the largest population among them. In 2021, Indonesia's population will be above 270 million, with a growth rate of 0.63%.

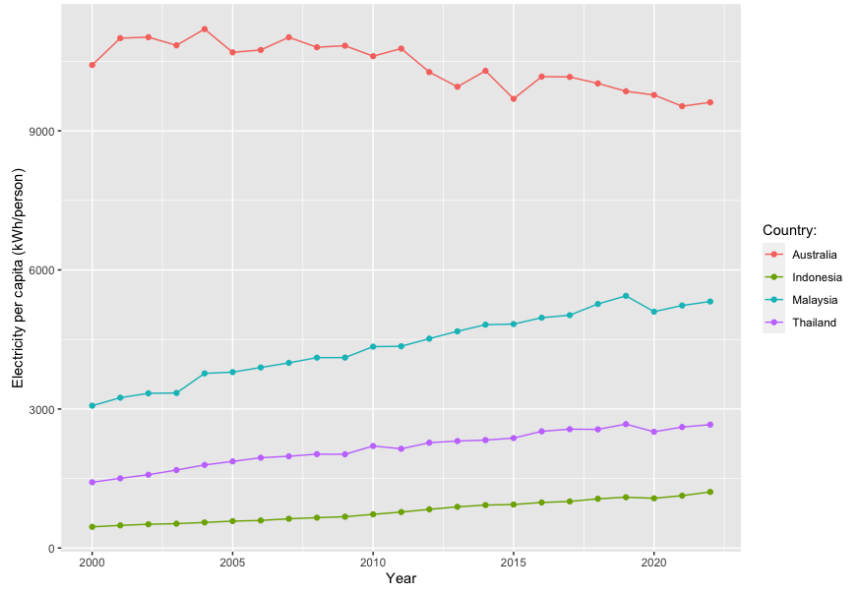

Figure 17: Electricity generation per capita (kWh/person). Source: Ember's Yearly Electricity Data; Ember's European Electricity Review; Energy Institute Statistical Review of World Energy

Electricity generation (TWh)

Like total energy consumption, the amount of electricity a country consumes is reflected mainly by population size and the average incomes of people in the given country. The electricity generation in Indonesia in 2022 is 333.54 TWh. Starting in 2014, electricity consumption for Indonesia became above other nations, as seen on Figure 18.

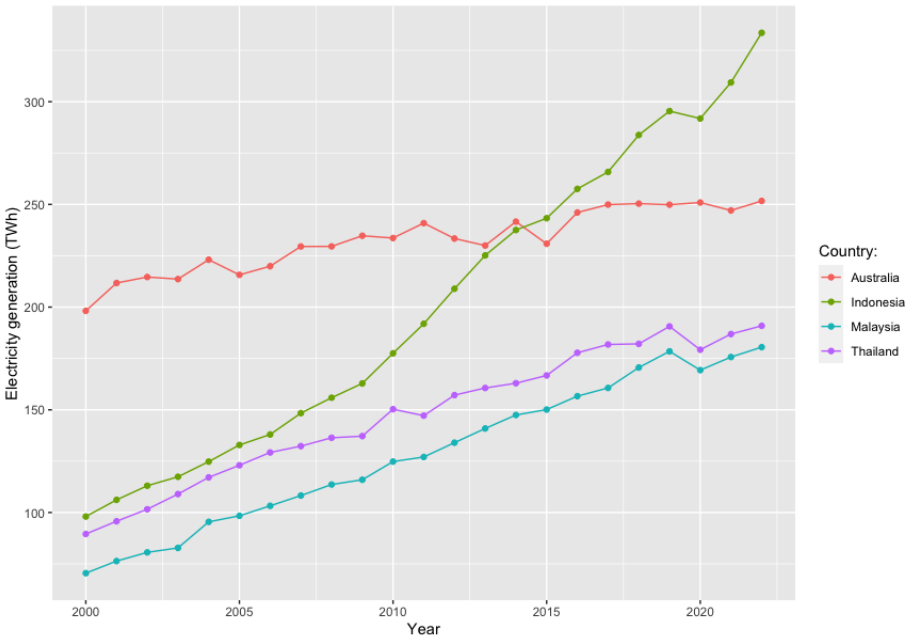

Figure 18: Countries electricity generation. (Source: Ember's Yearly Electricity Data; Ember's European Electricity Review; Energy Institute Statistical Review of World Energy)

Share of energy consumption by source

It is essential to know where energy sources come from. By understanding the energy sources, the stakeholders will have sufficient data to design an optimal plan for providing the energy as demand needs. The energy from coal still has a dominant role to meets the demand needs, as seen in Figure 19. The dominant part of coal must be taken carefully since coal harms the NZE efforts. In 2022, coal will take 44.81% of shares, while oil and gas will take 31.35% and 13.63%, respectively. Energy from renewable sources is 10.20% in total.

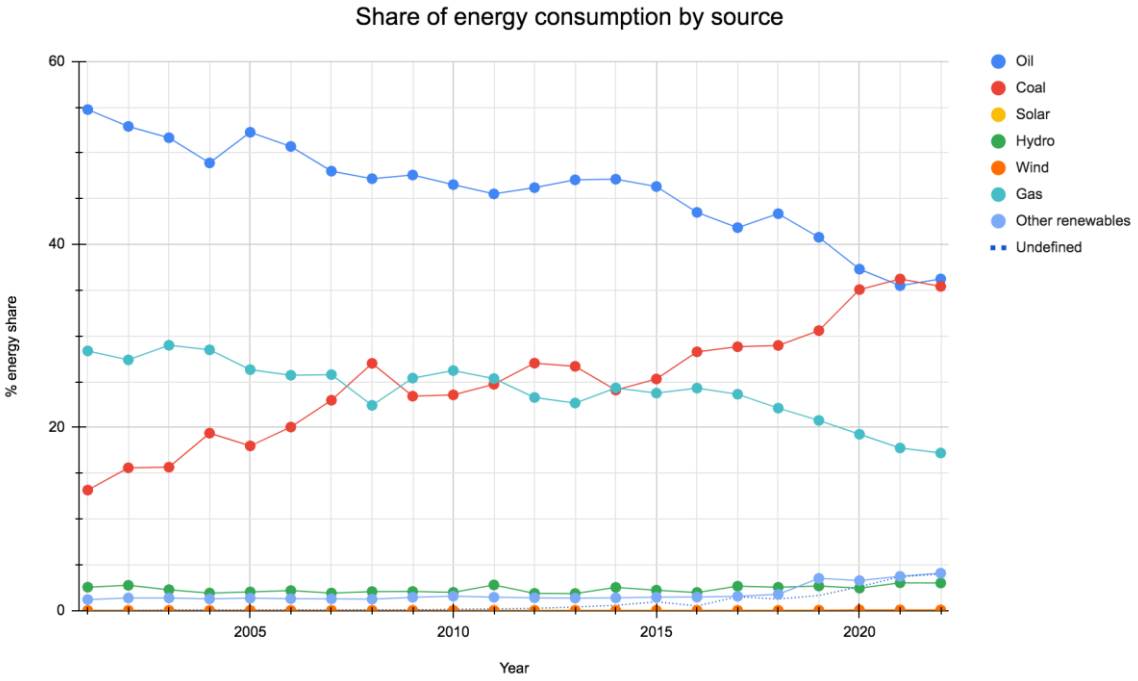

Figure 19: Share of energy consumption by source. Source: Energy Institute Statistical Review of World Energy 2023)

Energy consumption by source (Energy mix)

An energy mix combines primary energy sources to meet a country's or region's energy needs. The energy mix can vary depending on several factors, including the availability of resources, the cost of energy, and environmental concerns.

The energy mix of a country or region can significantly impact its economy, environment, and security. A country with a diversified energy mix is less vulnerable to price shocks and supply disruptions. Additionally, a country with a high reliance on renewable energy sources can reduce its greenhouse gas emissions and improve its air quality.

The following are some of the factors that can influence a country's energy mix.:

- The availability of resources: Countries with abundant fossil fuel resources are more likely to have a fossil fuel-based energy mix. Countries with great renewable energy resources, such as solar and wind, are more likely to have a renewable energy-based energy mix.
- The cost of energy: The cost of energy can also affect a country's energy mix. Countries with high energy prices are more likely to invest in renewable energy sources, which are often more expensive than fossil fuels.
- Environmental concerns: Environmental concerns can also affect a country's energy mix. Countries concerned about climate change are more likely to invest in renewable energy sources.

The energy mix of a country or region is constantly evolving. As the cost of renewable energy sources falls and environmental concerns grow, the energy mix will likely shift towards renewables in the coming years.

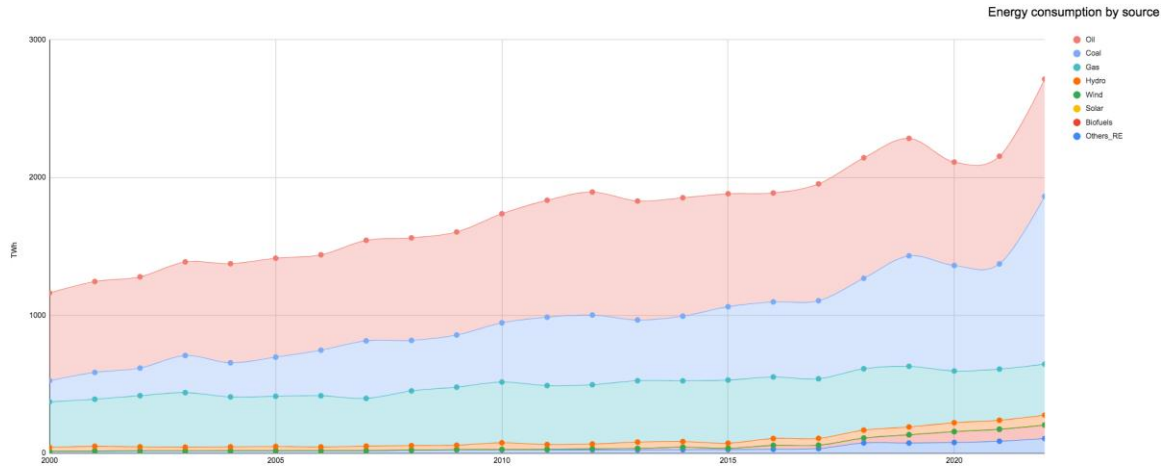

Figure 20: Energy consumption by source (Energy mix). Source: Energy Institute Statistical Review of World Energy (2023)

Electricity production by source

Until 2022, coal become the main source of power plant in Indonesia. The coal power plant plant produce 205.31 TWh of electricity (Figure 21). While in the global electricity production, the coal power plant is declining, since coal is the most polluting fossil fuel and is becoming more expensive.

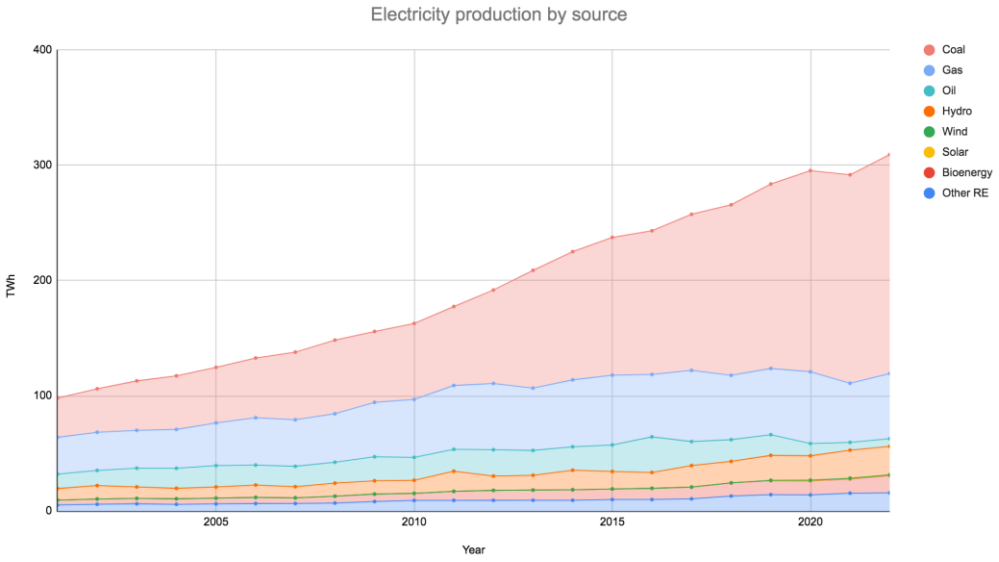

Figure 21: Indonesia's Electricity production by source. Source: Ember's Yearly Electricity Data; Ember's European Electricity Review; Energy Institute Statistical Review of World Energy

Share of electricity production by source.

The trends in the share of electricity production by source include:

- The decline in the share of coal in electricity production is driven by several factors, including the increasing cost of coal, the availability of cleaner-burning alternatives, and environmental concerns.
- The increase in the share of natural gas in electricity production is driven by several factors, including the relatively low cost of natural gas, its cleaner-burning properties, and its availability.

- The stable share of nuclear power in electricity production is driven by many factors, including the safety of nuclear power plants, the availability of nuclear fuel, and the public's acceptance of nuclear power.
- The growth in the share of renewables in electricity production is driven by several factors, including the falling cost of renewable energy sources, the increasing availability of renewable energy resources, and environmental concerns.

In Indonesia, the primary source of electricity production is coal, about 61.55% in 2022 (Figure 22), while the sources from renewable remain small. The situation becomes a challenge for other government of Indonesia initiatives, such as LCDI, NDC, NZE, and others. As a result, the scenarios for phasing out coal-fired power plants should be revealed.

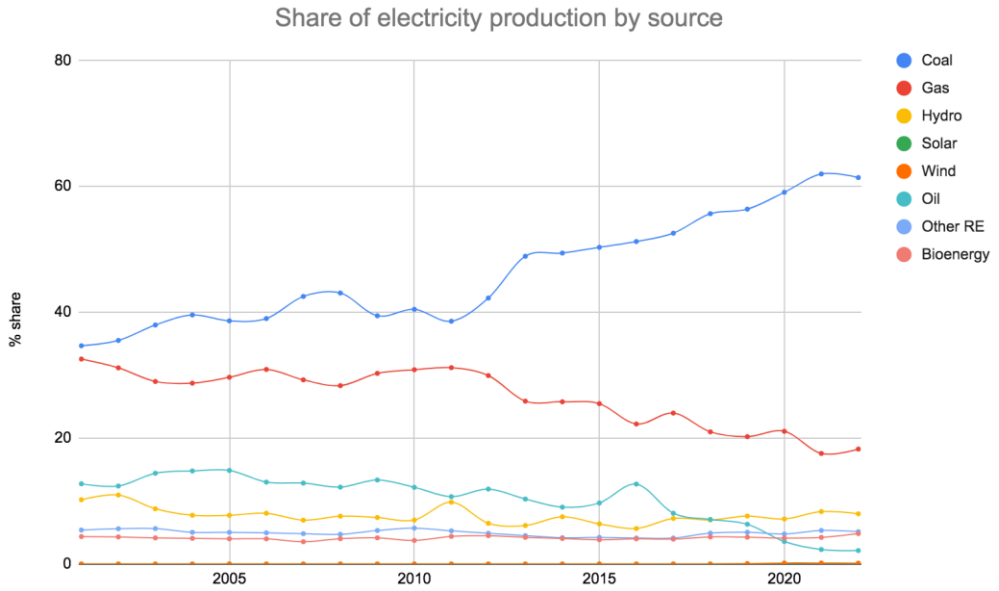

Figure 22: Indonesia's share of electricity production by source. Source: Ember's Yearly Electricity Data; Ember's European Electricity Review; Energy Institute Statistical Review of World Energy

Carbon intensity

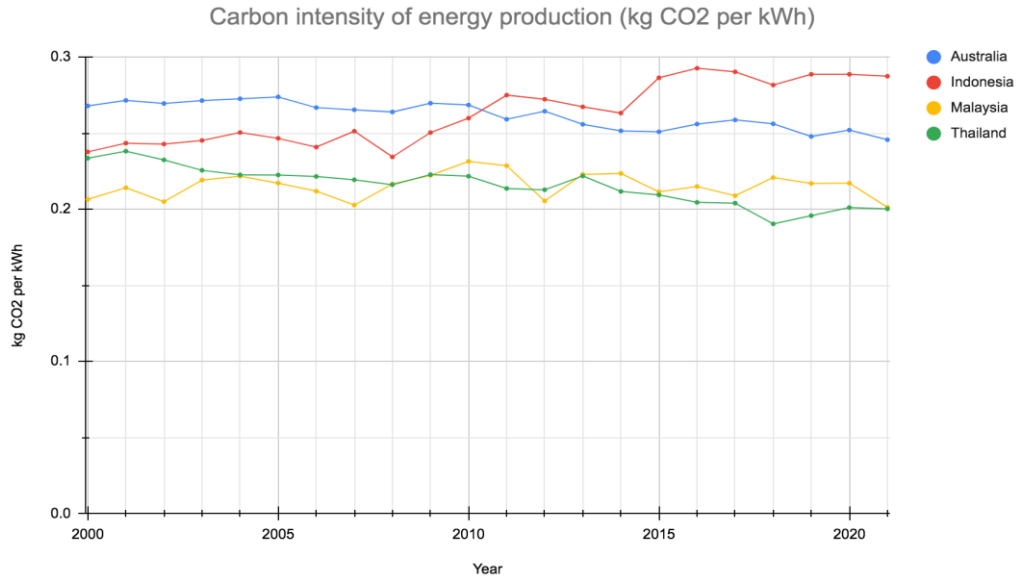

Figure 23: Carbon intensity of energy production (kg CO2 per kWh). Source: Global Carbon Budget (2022); U.S. Energy Information Administration (EIA); Energy Institute Statistical Review of World Energy (2023)

Energy intensity is one important metric to monitor whether countries are making progress in reducing emissions. The other essential part is carbon intensity: the amount of CO2 emitted per unit of energy, measured in kilograms of CO2 emitted per kilogram of oil equivalent consumed.

Figure 23 exhibits carbon intensity for Indonesia, Malaysia, Thailand and Indonesia. The existing green energy planning should include the activities to reduce the emission, which can be done by:

- Using less energy
- Lower carbon-energy

The carbon intensity in Indonesia for 2021 is 0.29 kg-CO2/kWh. The amount is the highest among other nations.

Energy Intensity

Energy intensity is a measure of the energy inefficiency of an economy. It is calculated as units of energy per unit of GDP (Gross Domestic Product) or some other measure of economic output. High energy intensities indicate a high price or cost of converting energy into GDP. On the other hand, Low energy intensity indicates a lower price or cost of converting energy into GDP.

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Although the data in Figure 24 is outdated, still the data can be used for the approximation of the current energy intensity. In terms of energy consumption, Indonesia is less efficient than other nations. In 2018, the energy intensity for Indonesia was 0.70 kWh/$ while Malaysia was 1.56 kWh/$.

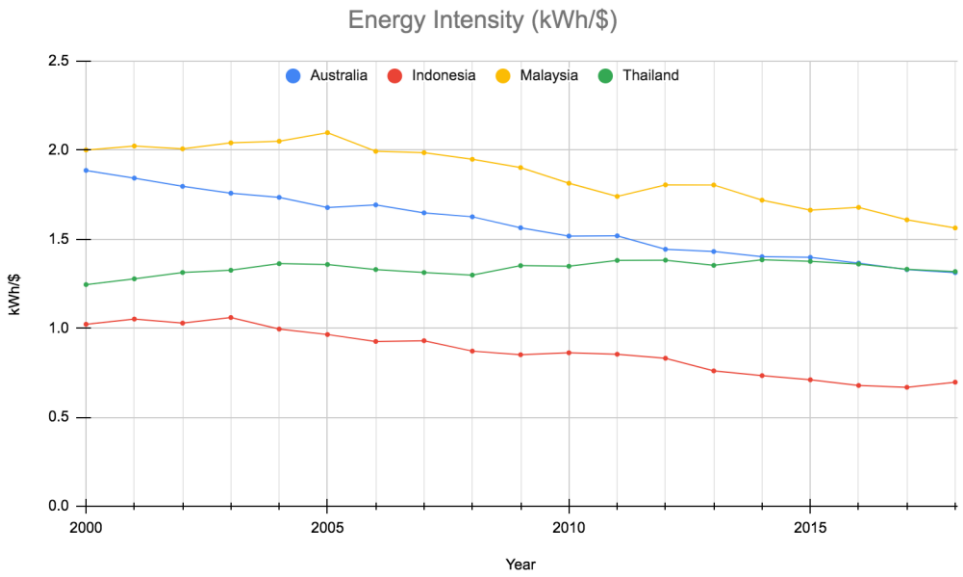

Figure 24: Energy intensity for Indonesia, Malaysia, Thailand, and Australia. Source: U.S. Energy Information Administration (EIA); Energy Institute Statistical Review of World Energy (2023)

Change in CO_2 emissions and GDP (Decoupling CO_2 emissions with GDP)

Recently, a growing focus has been on decoupling CO_2 emissions from economic growth. The decoupled condition means that countries can grow economically without increasing CO_2 emissions. There are several ways to achieve decoupling, including:

- Investing in energy efficiency: This can reduce the energy needed to produce a unit of GDP.
- Switching to renewable energy sources can help reduce reliance on fossil fuels, which emit CO_2 when burned.
- Changing how we live, and work can involve telecommuting, walking or biking instead of driving, and eating less meat.

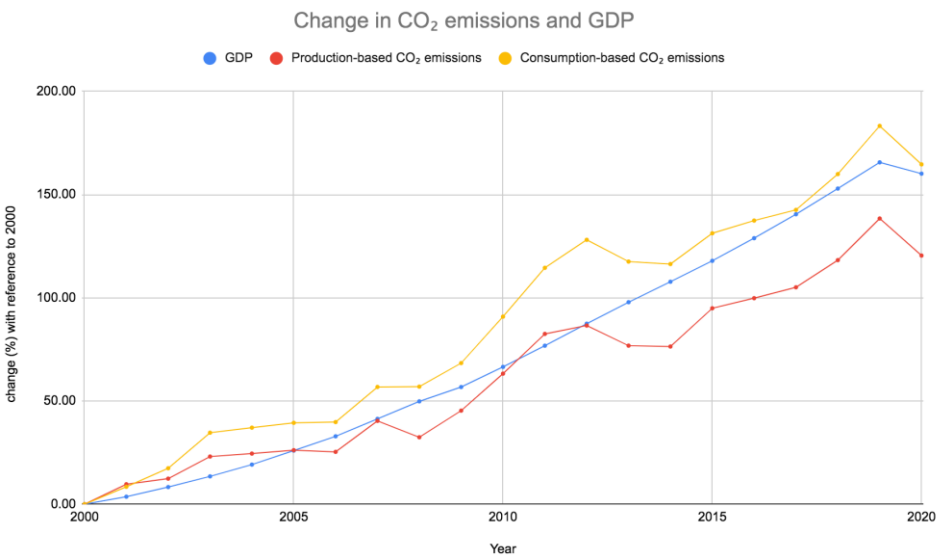

Figure 25: Change in CO_2 emissions and GDP. Source: Data compiled from multiple sources by World Bank, Global Carbon Budget (2022)

There is a positive correlation between the two, meaning that CO_2 emissions also tend to increase as GDP increases. However, several factors can affect this relationship, including the type of economic activity, the level of energy efficiency, and government policies.

Figure 25 exhibits the relationship between GDP and CO_2 emissions (production and consumption). The decoupled condition is met when GDP lies above the CO_2 emissions.

Share of energy mix from renewable sources

Renewable energy sources include hydropower, solar, wind, geothermal, bioenergy, wave, and tidal. They don't include traditional biofuels, which can be a key energy source, especially in lower-income settings. Until 2022, the renewable sources only 10.20%, which is far behind the target of any existing document plans (Figure 26).

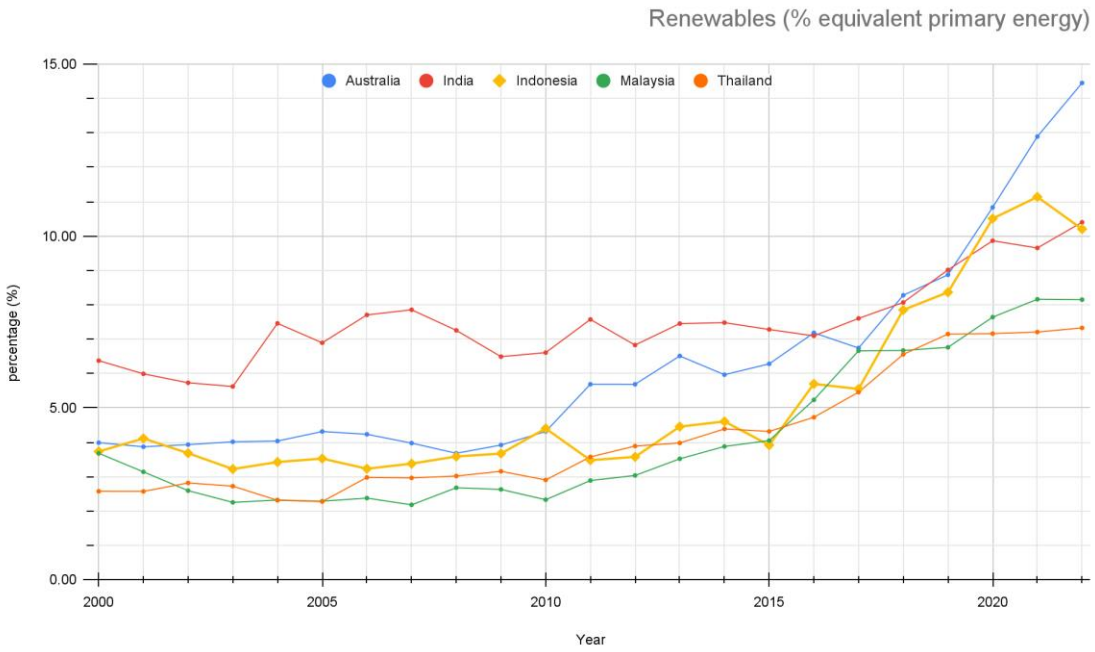

Figure 26: Share of energy mix from renewable sources. Source: Energy Institute Statistical Review of World Energy (2023)

Annex 6. Framework for UK Support for the Implementation of LCDI Phase 2

Source: Scoping Study for UK Support for the Implementation of the Low Carbon Development Initiative (LCDI) Phase 2 Indonesia, May 2022. NIRAS LTS International. Courtesy of Foreign, Commonwealth and Development Office of the United Kingdom (UK-FCDO)

Table 25: Framework for UK Support for the Implementation of LCDI Phase 2

Component	Outcome	Output	No.	Activity	Intervention level	Timeline
Aa. LCDI Policy at National Level (Green RPJMN 2025 – 2029 and RPJP 2025 – 2045)	Aa.1. Mainstreamed LCDI and climate resilience into RPJMN 2025 – 2029	Aa.1.1. LCDI Model for RPJMN 2025-2029	1.	Aa.1.1.1. Develop LCDI Model for RPJMN 2025-2029, including integration of blue economy framework, climate-resilient water and sanitation framework, and other related sector frameworks [ABD]	National	2022 – 2023
		Aa.1.2. Study report of comprehensive risk assessment and management to address loss and damage	2.	Aa.1.2.1. Develop comprehensive risk assessment and management to address loss and damage	National	2023
	Aa.2. Institutionalization of the LCDI	Aa.2.1. Policy brief for institutionalization of the LCDI at national level	3.	Aa.2.1.1. Formulate policy brief for institutionalization of the LCDI at national level	National	2022
		Aa.2.2. Formal institution of LCDI across national line ministries	4.	Aa.2.2.1. Embedding LCDI conception into formal institution to increase collaboration policies across national line ministries[ACDQ]	National	2023 – 2024
	Aa.3. Encouragement of the economic decarbonization and circular economy	Aa.3.1. Analytical study report of green jobs development in Indonesia	5.	Aa.3.1.1. Conduct analytical study on green jobs development and circular economy in Indonesia[B]	National	2023 – 2024
		Aa.3.2. Study report on potential stranded assets for energy transition	6.	Aa.3.2.1. Conduct study and dissemination on potential stranded assets for energy transition[B]	National	2023 – 2024
	Aa.4. Mainstreamed LCDI into planning and budgeting in RPJPN 2025 – 2045	Aa.4.1. LCDI Model for RPJPN 2025 – 2045	7.	Aa.4.1.1. Develop LCDI Model for RPJPN 2025 – 2045	National	2023 – 2024
		Aa.4.2. Policy analysis study report on how incorporating net zero emission scenario into long-term national development policy direction (RPJPN 2025 – 2045)	8.	Aa.4.1.1. Conduct policy analysis study on how incorporating net zero emission scenario into long-term national development policy direction (RPJPN 2025 – 2045)	National	2023 – 2024
Ab. LCDI Policy at National Level (Technology Needs Assessment)	Ab.1. Low Carbon Development Initiatives Scale Up	Ab.1.1. Scale up of technology application for low carbon development initiatives	9.	Ab.1.1.1. Conduct study on smart practices of technology application for low carbon development initiatives	National	2022 – 2025
			10.	Ab.1.1.2. Piloting selected smart practices of technology application for low carbon development initiatives scale up	National	2022 – 2025

Component	Outcome	Output	No.	Activity	Intervention level	Timeline
B. LCDI Policy at Regional Level	B.1. Improved regional low-carbon development planning and addressed partnership with key provincial government	B.1.1. RPRKD document at new pilot provinces	11.	B.1.1.1. Develop LCDI Model for RPJMD[D]	Province, Regency/City	2022 – 2023
			12.	B.1.1.2. Develop RPRKD by integrating the LCDI framework[ADQ]	Province, Regency/City	2022 – 2023
	B.2. Low emission and environmental protection based economic development	B.2.1. Project pipeline and implementation based on RPJMD & RPRKD	13.	B.2.1.1. Preparation and implementation of sustainable forest and land management project such as forest and land rehabilitation[DQ], agroforestry[C], partnerships between stakeholders in landscape-based ecosystem management[Q], community empowerment in the management and protection of peatlands[C], advocacy for land clearing without burning to communities[C], forest protection integrated with the sustainability of the livelihoods of indigenous peoples[C]	Province, Regency/City	2022 – 2025
			14.	B.2.1.2. Preparation and implementation of low carbon agriculture project which includes adoption of circular economy such as community assistance to obtain Indonesian Sustainable Palm Oil (ISPO) certification[C], manufacture of organic fertilizer from agricultural waste[C], development of biogas[C], facilitation of institutions at the village or regional level to supply biomass[C], development of village nurseries and community nursery (KBR/KBD)[Q]	Province, Regency/ City	2022 – 2025
			15.	B.2.1.3. Preparation and implementation of energy efficiency and transportation project such as implementation of green buildings for energy efficiency[Q], support the implementation of car free days[Q], support the preparation of a road map for low-carbon transportation[C]	Province, Regency/ City	2022 – 2025
			16.	B.2.1.4. Green industry project such as downstreaming of plantation and forest products in the region[C]	Province, Regency/ City	2022 – 2025
			17.	B.2.1.5. Waste management project such as advocating for 3R-based waste management to community[C], assessing the need for appropriate technology for the development of waste to energy[C], feasibility study for the development of waste to energy[C]	Province, Regency/ City	2022 – 2025
			18.	B.2.1.6. Terrestrial and marine biodiversity preservation project such as rehabilitation of mangroves and coral reefs[C], monitoring and reporting system from coastal communities in mangrove areas[BC], studies of carbon content in mangroves and coral reefs[Q]	Province, Regency/ City	2022 – 2025

Component	Outcome	Output	No.	Activity	Intervention level	Timeline
C. Monitoring, Evaluation and Reporting (MER)	C.1. Integrated Low Carbon Development MER System	C.1.1. New integrated MER system under Satu Data Indonesia	19.	C.1.1.1. Facilitation of data consolidation for LCDI MER system (in cooperation with BPS, BMKG, and other national government institutions as well as non-state actors)[AQ]	National	2023
			20.	C.1.1.2. Conduct study on review of MER system for improvement (including Satu Data system)[ABCQ]	National	2022
			21.	C.1.1.3. Conduct study on integration of green economy indicators into MER system	National	2022
			22.	C.1.2.4. Develop integrated MER system with other MRV systems under Satu Data Indonesia[ABCQ] and add spatial-based MER system (integrated with GIS)[D]	National	2023
			23.	C.1.2.5. Develop platform for self-reporting systems on low-carbon development actions from private sector and community which integrated with the MER system[CQ]	National	2023 – 2025
	C.2. Improved sub-national government capacity on monitoring, evaluation, and reporting for LCDI	C.2.1. Integrated MER system pilot project	24.	C.2.1.1. Technical asisstance to operate new integrated LCDI MER system[C]	Province	2023 – 2025
			25.	C.2.1.2. Synchronize subnational MER with new integrated national MER system	Province	2023 – 2025
D. Capacity Building	D.1. Improved sub-national capacity and addressed partnership with key provincial government	D.1.1. Improved capacity of key provincial government in developing and implementing LCDI and climate resilience plans and policy	26.	D.1.1.1. Provide training/workshop for leadership skills among key provincial leaders[ABQ]	Province, Regency/ City	2022 – 2025
			27.	D.1.1.2. Conduct workshop on Low Carbon Development Initiative[C]	Province, Regency/ City	2022 – 2025
			28.	D.1.1.3. Provide training on systems dynamics for LCDI modeling[C]	Province	2022 – 2025
			29.	D.1.1.4. Provide training on comprehensive risk management to address loss and damage	Province	2022 – 2025
			30.	D.1.1.5. Provide training on the preparation of appropriate proposals for financing low carbon development actions[C]	Province	2022 – 2025
		D.1.2. Improved capacity of human resources at sub-national level in green economy activities	31.	D.1.2.1. Provide training on preparation of local human resources on green jobs[ABC]	Province	2022 – 2025
E. Financial and Investment	E.1. Green financing policy for low carbon development	E.1.1. Study report on low carbon development investment and financing	32.	E.1.1.1. Develop and dissemination study on low carbon development investment through public and private partnership	National	2022 – 2025
			33.	E.1.1.2. Develop and dissemination study on tax and subsidies needed to promote low carbon development	National	2022 – 2025
		E.1.2. Innovated planning for carbon economic value scheme	34.	E.1.2.1. Investment of renewable energy by using carbon economic value scheme[A]	National	2022 – 2025

Component	Outcome	Output	No.	Activity	Intervention level	Timeline
		E.1.3. Green fiscal policy framework	35.	E.1.3.1. Ministry level policy on green fiscal framework and green budgeting	National	2022 – 2025
		E.1.4. Green fiscal policy for energy transition	36.	E.1.4.1. Ministry level policy on phasing out subsidy gradually for fossil energy	National	2022 – 2025
			37.	E.1.4.2. Develop incentive and disincentive policies related to low carbon development	National	2022 – 2025
			38.	E.1.4.3. Delegation of authority to local governments to provide fiscal and non-fiscal incentives	National	2022 – 2025
		E.1.5. Innovated finance mechanisms to address loss and damage	39.	E.1.5.1. Develop national insurance mechanisms for companies and individuals, including poor households with a high dependency on natural resources for their livelihoods	National	2022 – 2025
			40.	E.1.5.2. Develop contingency funds for climate-related disasters	National	2022 – 2025
	E.2. Mobilised and leveraged investment for low carbon development from private sector and other stakeholders	E.2.1. Engagement of the private sector and financial institution at the regional level	41.	E.2.1.1. Develop communication strategy on low carbon development investment for regional private sector, financial institutions, and development partners[C]	Province, Regency/ City	2022 – 2025
			42.	E.2.1.2. Conduct workshop on Low Carbon Development for private sector, financial institutions, and development partners[C]	Province, Regency/ City	2022 – 2025
		E.2.2. Engagement of the LCDI stakeholders at the regional level	43.	E.2.2.1. Establish platform for collaborative efforts from regional multi-stakeholders[C]	Province, Regency/ City	2022 – 2025
			44.	E.2.2.2. Establish regional communication forum to promote inclusive LCDI dialogues[A]	Province, Regency/ City	2022 – 2025
		E.2.3. Engagement of the political actors at the regional level	45.	E.2.3.1. Conduct workshop on Low Carbon Development for legislative level[C]	Province, Regency/ City	2022 – 2025
		E.2.4. Mobilized investment from international funding and philanthropy	46.	E.2.4.1. Technical assistances for Indonesian private sectors and development partners to access international financing scheme (such as GCF and GEF), and philanthropy funding, including blended finance scheme.	National	2022 – 2025

Note:

[A] : FGD 1 (with internal Bappenas)

[B] : FGD 2 (with internal Bappenas at technical level)

[C] : FGD 3 (with provincial government and stakeholders)

[D] : FGD 4 (with Ministry of Home Affairs and Ministry of Finance)

[Q] : Questionnaire