



KEMENTERIAN KOORDINATOR
BIDANG PEREKONOMIAN
REPUBLIK INDONESIA



ENERGY
TRANSITION
PARTNERSHIP



UNOPS



Final Report

Innovating New Incentive Mechanisms for Energy Transition Projects

October 2025



Federal Ministry
for Economic Affairs
and Climate Action



Department for
Energy Security
& Net Zero



Environment and
Climate Change Canada
Environnement et
Changement climatique Canada



Australian Government
Department of Climate Change, Energy,
the Environment and Water



CHILDREN'S
INVESTMENT FUND
FOUNDATION



SEQUOIA
CLIMATE
FOUNDATION

Disclaimer

This document relies on information made available through 27 October 2025. Accordingly, changes in circumstances after this date could affect the contents of this document including any findings, conclusions or recommendations.

The reader of this report acknowledges that this report was prepared at the direction of the United Nations Office for Project Services ("issuer") and may not include all procedures or content deemed necessary for the purposes of the reader.

The reader agrees that the issuer, its employees, agents, subcontractors, and advisors neither owe nor accept any duty or responsibility to it, whether in contract or in tort (including without limitation, negligence and breach of statutory duty), and shall not be liable in respect of any loss, damage or expense of whatsoever nature which is caused by any use the reader may choose to make of this report, or which is otherwise consequent upon the gaining of access to the report by the reader. Further, the reader agrees that this report is not to be referred to or quoted, in whole or in part, in any prospectus, registration statement, offering circular, public filing, loan, other agreement or document and not to distribute the report without the issuer's prior written consent.

All policy options made in this report are based on desk study, literature review, as well as consultations with stakeholders and should be subject to further analysis prior to deciding whether to adopt or implement them. Some of the findings are changes to existing mechanisms and not completely new. The effectiveness of any policy measure is subject to a wide range of factors, including effectiveness of implementation, and the combination of measures adopted. The authors of this report therefore cannot be responsible for the ultimate outcome of such measures.

Information provided in this document is provided "as is", without warranty of any kind, either express or implied, including, without limitation, warranties of merchantability, fitness for a particular purpose and non-infringement. UNOPS specifically does not make any warranties or representations as to the accuracy or completeness of any such information. Under no circumstances shall UNOPS be liable for any loss, damage, liability or expense incurred or suffered that is claimed to have resulted from the use of the information contained herein, including, without limitation, any fault, error, omission, interruption or delay with respect thereto. Under no circumstances, including but not limited to negligence, shall UNOPS or its affiliates be liable for any direct, indirect, incidental, special or consequential damages, even if UNOPS has been advised of the possibility of such damages. This document may also contain advice, opinions, and statements from and of various information providers. UNOPS does not represent or endorse the accuracy or reliability of any advice, opinion, statement or other information provided by any information provider. Reliance upon any such advice, opinion, statement, or other information shall also be at the reader's own risk. Neither UNOPS nor its affiliates, nor any of their respective agents, employees, information providers or content providers, shall be liable to any reader or anyone else for any inaccuracy, error, omission, interruption, deletion, defect, alteration of or use of any content herein, or for its timeliness or completeness.

Foreword from the Coordinating Ministry for Economic Affairs of the Republic of Indonesia

Indonesia's energy sector is entering a pivotal phase of transformation. As we strive toward achieving our Net Zero Emissions target by 2060 and meeting commitments under the *Kebijakan Energi Nasional* or National Energy Policy under Government Regulation No. 40 of 2025, the need for robust and innovative policy frameworks has never been greater. This transition is not only about shifting from fossil fuels to renewable energy, but also about implementing Indonesia's Energy Transition roadmap under the Net Zero Emissions target, as outlined in the *Rencana Umum Ketenagalistrikan Nasional* or National Electricity General Plan and Ministry of Energy and Mineral Resources Regulation No. 10/2025 on the Roadmap for Energy Transition in the Power Sector, to create an enabling environment that attracts investment, fosters technological innovation, and ensures energy security for future generations.

This project supported by the UNOPS Energy Transition Partnership, *Innovating New Incentive Mechanisms for Energy Transition Projects*, offers a structured pathway to accelerate renewable energy development. It presents a comprehensive analysis of Indonesia's regulatory landscape, identifying gaps and bottlenecks, and drawing lessons from global best practices to propose actionable policy measures. These measures aim to drive investment in renewable energy, expedite the early retirement of coal-fired power plants, and increase the implementation of coal phase-down strategies, while ensuring the transition remains just, inclusive, and economically viable. Through collaboration between government, industry, and development partners, the project seeks to build a policy ecosystem that meets climate commitments and supports sustainable economic growth and job creation.

Through collaborative efforts between government, industry, and development partners, we can build a policy ecosystem that not only meets our climate commitments but also drives sustainable economic growth and job creation.

We hope the results of this project serve as a valuable



Elen Setiadi

Deputy for Energy and Mineral Resources Coordination

resource for policymakers, investors, and stakeholders committed to advancing Indonesia's energy transition.



Foreword from the Energy Transition Partnership

With over 675 million people and growing climate-related pressures, Southeast Asia urgently needs a just, inclusive, and economically viable energy transition. The Southeast Asia Energy Transition Partnership (a programme of the United Nations Office for Project Services) supports this through collaboration with governments, industry, and development partners to reduce investment risks, strengthen institutions, and promote knowledge exchange for a sustainable future.

Indonesia, as Southeast Asia's largest economy, plays a pivotal role in shaping the region's energy future. Achieving its Net Zero Emissions target by 2060 and meeting commitments under the *Kebijakan Energi Nasional* or National Energy Policy will require bold policy reforms, innovative financing mechanisms, and strong stakeholder collaboration.

This project, *Innovating New Incentive Mechanisms for Energy Transition Projects*, provides a comprehensive analysis of Indonesia's regulatory landscape, identifies gaps, and proposes actionable measures to accelerate renewable energy development, support the early retirement of coal-fired power plants, and promote coal phase-down strategies. Building on lessons from global best practices and regional experience, the project has delivered a set of proposed policy options that introduce incentive measures to advance Indonesia's energy transition, offering practical solutions to accelerate renewable energy deployment and support coal phase-down.

On behalf of ETP, I extend my sincere appreciation to our funders and partners for their unwavering support. Together, we can accelerate Indonesia's energy transition and, in doing so, help transform Southeast Asia's energy landscape to create a sustainable future for generations to come.



Philip Timothy Rose

Director of the Energy Transition Partnership (ETP) for Southeast Asia, United Nations Office for Project Services (UNOPS)

Table of Contents

| | |
|--|-----------|
| Foreword from the Coordinating Ministry for Economic Affairs of the Republic of Indonesia | 3 |
| Foreword from the Energy Transition Partnership | 5 |
| Executive Summary | 13 |
| 1 Background | 18 |
| 1.1 Background | 18 |
| 1.2 Project Objectives, Outcomes and Outputs | 20 |
| 1.3 Approach and Methodology | 21 |
| 1.4 About this Report | 32 |
| 2 Landscape of Indonesia Current Energy Transition Incentives | 33 |
| 2.1 Regulatory Landscape Mapping | 33 |
| 2.2 Impact of Existing Incentives/Disincentives | 36 |
| 2.3 Regulatory Gap Analysis | 42 |
| 3 Benchmarking Insights and Lessons Learned for Indonesia | 44 |
| 3.1 Best Practices Country Filtering and Pros & Cons Analysis | 44 |
| 3.2 International Best Practices and Lessons Learned for Indonesia | 47 |
| 4 Shaping Indonesia's Proposed Policies for Energy transition | 52 |
| 4.1 Policy Prioritisation | 52 |
| 4.2 The Proposed Policy Options | 56 |
| 4.3 Impact Analysis of the Proposed Policies | 59 |
| 5 Key Findings and Next Steps for Policymakers | 65 |
| 5.1 Key Findings | 65 |
| 5.2 Next Steps | 70 |
| 6 Appendix | 74 |
| 6.1 Best Practices Country Filtering | 74 |
| 6.2 Relevant Regulations to Indonesia's Energy Transition | 75 |
| 6.3 Best Practices based on International Benchmarking | 86 |
| References | 94 |

List of Tables

| | |
|--|----|
| Table 2-1 Summary of Existing Energy Related Incentives and Disincentives in Indonesia | 34 |
| Table 2-2 Key Insights from Stakeholder Consultations | 37 |
| Table 2-3 Regulatory Gap Analysis..... | 42 |
| Table 3-1 India's Incentive Mechanisms for Energy Transition..... | 45 |
| Table 3-2 Slovakia's Incentive Mechanisms for Energy Transition | 47 |
| Table 4-1 List of Prioritised Policy Categories | 53 |
| Table 4-2 Proposed Policies and Proposed Amendment | 56 |
| Table 4-3 Summary of Qualitative Analysis | 59 |
| Table 4-4 Results of the CBA..... | 62 |
| Table 5-1 Implementation Plan | 65 |
| Table 5-2 RACI Matrix..... | 68 |

List of Figures

| | |
|---|----|
| Figure 1-1 Overall Project Framework..... | 22 |
| Figure 1-2 Methodology for Selecting Best Practice Countries..... | 24 |
| Figure 1-3 Prioritisation Process to Develop the Preferred Policy Framework | 25 |
| Figure 1-4 Methodology for the CBA | 27 |
| Figure 1-5 Methodology for the Impact Analysis of DPO Increase on PLN's Cost to Produce Electricity | 27 |
| Figure 1-6 Methodology for the Impact Analysis for DPO Increase on the Increase in Gol Subsidies | 28 |
| Figure 1-7 Impact Analysis of Reduced Domestic Demand for Coal..... | 28 |
| Figure 1-8 Breakdown of Participants | 32 |
| Figure 4-1 Urgency-Impact Prioritisation Matrix..... | 53 |
| Figure 4-2 Long list of Policy Options | 55 |

List of Abbreviations

| Abbreviation | Full Form |
|-----------------|---|
| 3T | <i>Tertinggal, Terdepan, Terluar</i> (Underdeveloped, Frontmost, and Outermost regions) |
| AFD | <i>Agence Française de Développement</i> |
| AHP | Analytical Hierarchy Process |
| ARED | Accelerated Renewable Energy Development |
| Bappenas | Ministry of National Development Planning |
| BAU | Business-as-Usual |
| BCR | Benefit Cost Ratio |
| BESS | Battery Energy Storage System |
| BMP | <i>Bobot Manfaat Perusahaan</i> or Corporate Benefit Score |
| BNI | Bank Negara Indonesia |
| BOO | Build-Own-Operate |
| BPP | <i>Biaya Pokok Produksi</i> or Basic Production Cost |
| BRI | Bank Rakyat Indonesia |
| CapEx | Capital Expenditure |
| CfP | Contract for Premium |
| CFPP | Coal-Fired Power Plant |
| CMEA | Coordinating Ministry of Economic Affairs |
| DISCOM | Distribution Companies |
| DHE | Foreign Exchange Export Proceeds |
| DMO | Domestic Market Obligation |
| DPO | Domestic Price Obligation |
| DPT | <i>Daftar Penyedia Terseleksi</i> |
| Electricity Law | Law No 30 of 2009 on Electricity |
| ENDC | Enhanced Nationally Determined Contribution |
| ENPV | Economic Net Present Value |
| EPC | Engineering, Procurement and Construction |

| Abbreviation | Full Form |
|-----------------------|--|
| ERR | Economic Internal Rate of Return |
| ESG | Environment, Social and Governance |
| ETM | Energy Transition Mechanism |
| ETP | Energy Transition Partnership |
| ETS | Emissions Trading System |
| EU | European Union |
| ETS | Emissions Trading System |
| FACTS | Flexible AC Transmission System |
| FGD | Focused Group Discussion |
| FIT | Feed-in Tariff |
| FOB | Free-On-Board |
| FTP I | Fast Track Program I |
| FTP II | Fast Track Program II |
| FY | Fiscal Year |
| GDP | Gross Domestic Product |
| GEC | Green Economy Corridor |
| GeM | Government e-Marketplace |
| Geothermal Energy Law | Law No. 21 of 2014 on Geothermal Energy |
| GHG | Greenhouse Gas |
| Gol | Government of Indonesia |
| GR | Government Regulation |
| Investment Law | Law No. 25 of 2007 on Investment |
| IPP | Independent Power Producer |
| ISTS | Inter State Transmission System |
| IUPTL | <i>Izin Usaha Penyediaan Tenaga Listrik</i> or Electricity Supply Business License |
| IUPTLU | <i>Izin Usaha Penyediaan Tenaga Listrik untuk Kepentingan Umum</i> or Electricity Supply Business License for Public Use |

| Abbreviation | Full Form |
|------------------|---|
| JETP | Just Energy Transition Partnership |
| Job Creation Law | Law No. 6 of 2023 on Stipulation of Government Regulation in Lieu |
| KEN | <i>Kebijakan Energi Nasional</i> (National Energy Policy) |
| KPPIP | Committee for Acceleration of Priority Infrastructure Delivery or <i>Komite Percepatan Penyediaan Infrastruktur Prioritas</i> |
| LCR | Local Content Requirement or <i>Tingkat Komponen Dalam Negeri</i> |
| LCOE | Levelised Cost of Electricity |
| MCA | Multi-Criteria Analysis |
| MEMR | Ministry of Energy and Mineral Resources |
| MF | Ministry of Forestry |
| Mining Law | Law No. 4 of 2009 on Mineral and Coal Mining |
| MoE | Ministry of Environment |
| MoF | Ministry of Finance |
| Mol | Ministry of Investment and Downstream Industry |
| MRV | Measurement, Reporting and Verification |
| MW | Megawatt |
| NZE | Net Zero Emission |
| O&M | Operation & Maintenance |
| OSS-RBA | Online Single Submission Risk Based Approach |
| PIK | <i>Pengembangan Infrastruktur Ketenagalistrikan</i> (Electricity Infrastructure Development) |
| PJBI | PT Pembangkit Jawa Bali Investasi |
| PLI | Production-Linked Incentives |
| PLN | <i>PT Perusahaan Listrik Negara</i> (State Electricity Company of Indonesia) |
| PLN EPI | <i>PT PLN Energi Primer Indonesia</i> |
| PLN IP | <i>PT Perusahaan Listrik Negara Indonesia Power</i> |
| PLTS | <i>Pembangkit Listrik Tenaga Surya</i> (Solar PV Plant) |
| PLTU | <i>Pembangkit Listrik Tenaga Uap</i> (Steam Power Plant) |

| Abbreviation | Full Form |
|--------------|---|
| PMSE | <i>PT Pembangkitan Jawa Bali Masdar Solar Energi</i> |
| PMSE | PT Pembangkitan Jawa Bali Masdar Solar Energi |
| PPA | Power Purchase Agreement |
| PPE | Export Custom Notice |
| PR | Presidential Regulation |
| PSN | <i>Proyek Strategis Nasional</i> (National Strategic Projects) |
| PV | <i>Photovoltaic</i> |
| RACI | Responsible, Accountable, Consulted, Informed |
| RE | Renewable Energy |
| REC | Renewable Energy Certificate |
| RPJMN | <i>Rencana Pembangunan Jangka Menengah Nasional</i> (National Medium-Term Development Plan) |
| RPJPN | <i>Rencana Pembangunan Jangka Panjang Nasional</i> (National Long-Term Development Plan) |
| RPO | Renewable Purchase Obligation |
| RTC | Round-The-Clock |
| RUEN | <i>Rencana Umum Energi Nasional</i> (National Energy Plan) |
| RUKN | <i>Rencana Umum Ketenagalistrikan Nasional</i> (National Electricity General Plan) |
| RUPTL | <i>Rencana Usaha Penyediaan Tenaga Listrik</i> (Electricity Supply Business Plan) |
| SAMARTH | Sustainable Agrarian Mission on use of Agri-Residue in Thermal Power Plants |
| SCF | Standard Conversion Factor |
| SDR | Social Discount Rate |
| SERC | State Electricity Regulatory Comissions |
| SKBPPN | Notice of VAT Exemption for Imports or <i>Surat Keterangan Bebas PPn Impor</i> |
| SMI | Sarana Multi Infrastruktur |
| SNDC | Second Nationally Determined Contribution |
| SNI | Indonesian National Standard |
| SOE | State-Owned Enterprise |

| Abbreviation | Full Form |
|--------------|---|
| UNFCCC | United Nations Framework Convention on Climate Change |
| UNOPS | United Nations Office on Project Services |
| UOB | United Overseas Bank |
| WACC | Weighted Average Cost of Capital |

Executive Summary

The Southeast Asia Energy Transition Partnership managed by the United Nations Office for Project Services (“UNOPS”), in collaboration with the Coordinating Ministry of Economic Affairs (“CMEA”) of the Republic of Indonesia, initiated a project titled “Innovating New Incentive Mechanisms for Energy Transition Projects.” The Project aims specifically to drive investments in renewable energy (“RE”) and facilitate early retirement of coal-fired power plants (“CFPPs”) in Indonesia by identifying effective incentive mechanisms to support energy transition projects across three focus areas: (i) RE development; (ii) CFPP early retirement; and (iii) coal phase-down projects.

As part of Indonesia’s Enhanced Nationally Determined Contribution (“ENDC”) for the 2021-2030 period submitted to the United Nations Framework Convention on Climate Change (“UNFCCC”), the country has committed to reducing its greenhouse gas (“GHG”) emissions by 31.89% below business-as-usual (“BAU”) levels by 2030, with an enhanced target of 43.20% reduction contingent on international support. A Second Nationally Determined Contribution (“SNDC”) released in October 2025, covering the 2031-2035 period, further strengthens these commitments by setting a goal to cut total emissions by 8–17.5% below the ENDC projected levels for 2030. In addition to its ENDC and SNDC, Indonesia has developed a long-term strategy to achieve net-zero emissions by 2060 or sooner. This strategy includes peaking GHG emissions by 2030 and achieving significant reductions in emissions through the deployment of RE, energy efficiency measures, and reforestation efforts.

Indonesia’s energy transition strategy aims to shift from fossil fuel dependence to a more sustainable and diversified energy mix, in line with its climate ambitions and net zero targets. This strategy is guided by a series of interconnected national plans and policies. Through Presidential Regulation (“PR”) No. 112 of 2022 on the Acceleration of Renewable Energy Development for Power Supply, the Government of Indonesia (“Gol”) initiated a coal phase-down, mandating the Ministry of Energy and Mineral Resources (“MEMR”) to develop a roadmap for accelerating the retirement of CFPPs.

Progress to date has been slower than the national targets require. In 2024, the RE share of electricity generation stood at 14.65%, below the RE targets outlined in Indonesia’s planning documents. Under the Government Regulation No. 40 of 2025 on the *Kebijakan Energi Nasional* (or National Energy Policy) (“KEN”), the Gol set a target for the share of RE in the electricity generation mix of 19 - 23% by 2030. The PT Perusahaan Listrik Negara (Persero) (“PLN”) 2025-2034 *Rencana Usaha Penyediaan Tenaga Listrik* (or Electricity Supply Business Plan) (“RUPTL”) sets a RE share of 15.9% by 2025, rising to 21% by 2030. This is mirrored by the National Electricity General Plan (“RUKN”) 2025-2060, which also targets a 15.9% RE share by 2025. The National Medium-Term Development Plan (“RPJMN”) 2025-2029 is more ambitious, aiming for 20% by 2025 and 21% by 2029. These milestones culminate in the National Long-Term Development Plan (“RPJPN”), which targets a 70% RE share in the energy mix by 2045.

Although current progress has not yet reached the necessary targets, the alignment across these planning documents signals the GoI's intent to pursue a coordinated pathway to national renewable energy objectives. To meet these new targets, however, specific policy actions are needed to accelerate investment in RE, both by introducing targeted incentives and by removing disincentives to RE adoption.

This report consolidates the findings and outputs of the *Innovating New Incentive Mechanisms for Energy Transition Projects* initiative into a compiled final report designed for policymakers in Indonesia. It provides an integrated narrative across all deliverables, summarising the project's key activities, analyses and insights.

To effectively address the multifaceted challenges in energy transition and policy development, a structured methodology comprising three key components has been adopted for this project: (i) a regulatory landscape gap assessment; (ii) benchmarking of international best practices; and (iii) the development of a proposed policy framework. The regulatory landscape gap assessment is based on mapping existing regulations relevant to the energy transition in Indonesia, and further supported by interviews, surveys and case studies assessing their impact on renewable energy projects. The key lessons from international best practices result from a filtering process to identify countries Indonesia could benchmark against, followed by a pros-and-cons analysis of the shortlisted countries and a deep dive into each country's incentives and best practices. Both components (component i and ii) inform the incentive categories that are selected (component iii) based on their urgency and potential impact. Then, a longlist of policy options was developed for each of these categories for assessment, which were then scored based on ease of implementation, scalability, feasibility, policy effectiveness and stakeholder acceptance. An impact analysis and an implementation plan were then prepared based on these proposed policies.

In the first component, a review of Indonesia's regulatory landscape for energy transition projects was conducted, mapping fiscal, financial and risk-reduction incentives alongside disincentives such as coal subsidies and pricing obligations. It identifies gaps in tariff structures, procurement processes and licensing frameworks that hinder RE development and CFPP early retirement. Key findings include unattractive ceiling tariffs under President Regulation ("PR") 112/2022, lack of standardised Power Purchase Agreement ("PPAs"), and persistent fossil-fuel subsidies, all of which reduce RE competitiveness and investor confidence.

In parallel, a benchmarking analysis was conducted to extract insights and lessons for Indonesia from global best practices in India and Slovakia, supplemented by high-level insights from Bulgaria, Germany and China. Mechanisms such as Renewable Purchase Obligations, competitive bidding, transmission charge waivers and carbon pricing systems were analysed, with lessons highlighting the importance of transparent procurement, fiscal incentives for manufacturing and just transition measures for coal regions. These insights help to inform the project's policy design component by demonstrating how integrated incentives and phased subsidy removal can accelerate RE adoption and coal phase-down.

Based on the analyses from Indonesia's existing incentives and disincentives, and global best practice examples, policy options were developed and then prioritised using Multi-Criteria Analysis ("MCA") across parameters including ease of implementation, scalability, technical and financial feasibility, and stakeholder acceptance. The resulting proposed actionable measures include adjusting RE ceiling tariffs, standardising tender processes, clarifying Strategic National Project or *Proyek Strategis Nasional* ("PSN") status, developing transmission infrastructure near RE clusters, phasing out the coal Domestic Price Obligation ("DPO"), introducing right-to-match privileges for CFPP-to-RE transitions, and enabling flexibility in biomass pricing. The suite of the proposed policy options aims to reduce transaction costs, improve bankability and create a coherent regulatory framework for Indonesia's energy transition.

The economic and fiscal implications of the proposed policies was also considered through qualitative and quantitative methods, including Cost-Benefit Analysis ("CBA") and sensitivity modelling. Results show strong economic viability for timely RE adoption, with Economic Net Present Value ("ENPV") of up to USD 36.6 billion and Economic Rate of Return ("ERR") exceeding 25%. Adjusting coal DPO could raise coal Levelised Cost of Electricity ("LCOE") by 15%, improving RE competitiveness but requiring subsidy reallocation. Redirecting coal exports could generate USD 454 million annually and avoid 446 million tonnes of CO₂ emissions over 2025–2034, reinforcing the case for policy reforms.

Based on the proposed policy options identified, this report proposes an implementation plan aimed at strengthening regulatory effectiveness. These incentive measures are designed to strengthen Indonesia's energy transition framework by improving existing policies and introducing new mechanisms that accelerate RE development, enable the early retirement of CFPPs, and support broader coal phase-down efforts. The proposed measures are as follows:

- **Adjust RE Ceiling Prices:** revise tariff ceilings under PR No. 112 of 2022 to reflect realistic RE generation costs, environmental impacts and affordability, improving project bankability and attracting investment.
- **Standardise Tender Processes and Clarify PSN Status:** streamline procurement by introducing standardised tender guidelines and clearly defining PSN status for RE projects to enhance transparency and reduce delays.
- **Develop Transmission Lines Near RE Clusters:** implement PLN's transmission development strategy to build lines in close proximity to designated RE clusters, reducing connection losses and integration costs.
- **Adjust DPO and Mitigate Social Impact:** align domestic coal pricing with market conditions to improve RE competitiveness, while introducing safeguards to protect low-income households from short-term electricity price increases.

- **Introduce Right-to-Match Privilege for Owners of Early-retired CFPPs:** amend PR No. 112 of 2022 to allow Independent Power Producers (“IPPs”) which agree to early-retire CFPPs to match offers for RE projects in the same area, supporting early retirement and system stability.
- **Revise Biomass Pricing Policies for Co-Firing:** introduce flexible biomass pricing linked to quality standards, supported by mandatory Indonesia National Standard or *Standar Nasional Indonesia* (“SNI”) standards and a biomass-specific Domestic Market Obligation (“DMO”) to ensure supply stability.

To complement the implementation plan, a Responsibility Assignment (“RACI”) Matrix was developed to clarify the roles and involvement of key stakeholders throughout each stage of policy execution. This matrix defines which institutions are *Responsible (R)*, *Accountable (A)*, *Consulted (C)*, and *Informed (I)* for each proposed action. The mapping of these roles should support clear coordination, accountability and communication among all relevant parties during the regulatory amendment and implementation processes.

The matrix indicates that the MEMR holds the main *Responsible* and *Accountable* roles for most initiatives, reflecting its central position in policy formulation and coordination. Other ministries such as the Ministry of Finance (“MoF”), the Ministry of Environment (“MoE”), and the Ministry of Forestry (“MF”) alongside PLN and IPPs are typically *Consulted* to provide financial and operational perspectives, while industry associations and financial institutions are mainly *Informed* to maintain alignment during implementation. An exception applies to the revision of biomass pricing policies, where PLN holds both Responsibility and Accountability given its operational mandate in biomass procurement, while MEMR remains Responsible for regulatory oversight.

Overall, the proposed implementation plan and accompanying RACI framework provide a clear roadmap for advancing regulatory reforms in Indonesia’s energy sector. By outlining both the sequence of actions and the distribution of responsibilities, this approach should help strengthen coordination and alignment across institutions. It is emphasised that the implementation of regulatory amendments will be subject to the provisions of Law 12 of 2011 on Establishment of Laws and Regulations and must be proposed to stakeholders through a well-planned and coordinated approach. The combined structure supports the smooth execution of policy adjustments in a transparent and collaborative manner, creating a solid foundation for a more resilient and adaptive regulatory environment that might help sustain Indonesia’s long-term energy transition goals.

While the analysis centres on proposed policies that are more readily implementable in the short term, it also informs medium- and long-term measures that can follow once foundational regulations are in place and the sector ecosystem is more favourable for larger-scale RE deployment. The GoI may consider designing these policies to work in synergy to lower transaction costs and overcome structural barriers across key focus areas.

Medium-term actions, such as standardising PPA terms and adjusting ceiling prices, may collectively enhance project bankability and keep RE developments financially attractive. In parallel, continued expansion of transmission lines and grid modernisation can address integration bottlenecks and improve the reliability of RE supply across regions. Targeted investment in grid modernisation and energy storage can further enhance system stability, enable higher penetration of variable RE, and support smart-grid development, thereby minimising electricity losses.

Over the longer term, clarifying carbon credit revenue mechanisms may provide additional incentives for RE projects, complementing earlier measures such as grid expansion and price adjustments. This should be accompanied by clear guidelines for robust measurement, reporting and verification (“MRV”) of emission reductions achieved by implementing RE projects, along with a well-defined framework for carbon credit revenues, which could further incentivise RE and energy-efficiency initiatives in Indonesia. Together, these actions may foster sustained investor confidence and align national RE policy with global best practices.

1 Background

1.1 Background

The Southeast Asia Energy Transition Partnership (“ETP”) is a multi-donor partnership of government and philanthropic funders, working to accelerate sustainable energy transition in Southeast Asia, in line with the Paris Agreement and Sustainable Development Goals. ETP is managed by United Nations Office for Project Services (“UNOPS”) and operates in Southeast Asia, focusing on Indonesia, the Philippines and Vietnam. ETP’s strategy for advancing energy transition is based on four interconnected pillars: (i) aligning policy with climate commitments; (ii) de-risking investments on renewable energy (“RE”), energy efficiency and fossil fuel phasedown; (iii) developing sustainable and resilient infrastructure; and (iv) promoting a just transition.

As part of Indonesia’s Enhanced Nationally Determined Contribution (“ENDC”) for the 2021-2030 period submitted to the United Nations Framework Convention on Climate Change (“UNFCCC”), the country has committed to reducing its greenhouse gas (“GHG”) emissions by 31.89% below business-as-usual (“BAU”) levels by 2030, with an enhanced target of 43.20% reduction contingent on international support.¹ A Second Nationally Determined Contribution (“SNDC”) released in October 2025, covering the 2031-2035 period, further strengthens these commitments by setting a goal to cut total emissions by 8–17.5% below the ENDC projected levels for 2030.² In addition to its ENDC and SNDC, Indonesia has developed a long-term strategy to achieve net-zero emissions by 2060 or sooner. This strategy includes achieving significant reductions in emissions through the deployment of RE, energy efficiency incentive measures, and reforestation efforts.³

A key component of the strategy for reducing GHG emissions is increasing the mix of RE in electricity generation. As of 2024, the RE share in Indonesia’s power generation stood at 14.65%.⁴ While this remains below the *Rencana Usaha Penyediaan Tenaga Listrik* (or Electricity Supply Business Plan) (“RUPTL”) target of achieving 15.9% RE share by 2025, recent progress indicates positive momentum toward achieving national objectives, including the 2025-2034 RUPTL’s increased target of 21% RE by 2030.⁵ In particular, the Accelerated Renewable Energy Development Scenario (“ARED”) in the 2025-2034 RUPTL signals a major transition towards renewable energy, with planned capacity rising to 61% from 53% in the previous RUPTL, while fossil fuel capacity is expected to fall from 47% to 24%.⁶

These targets are part of a broader policy framework that includes the *Kebijakan Energi Nasional* (or National Energy Policy) (“KEN”), the *Rencana Umum Energi Nasional* or the National Energy Plan (“RUEN”), the *Rencana Umum Ketenagalistrikan Nasional* or the National Electricity General Plan (“RUKN”), the *Rencana Pembangunan Jangka Menengah Nasional* or the National Medium-Term Development Plan (“RPJMN”), and the *Rencana Pembangunan Jangka Panjang Nasional* or the National Long-Term Development Plan (“RPJPN”). Each document reflects different planning horizons and ambition levels. Additionally, the Government of Indonesia (“GoI”) through the Indonesian Just Energy Transition Partnership (“JETP”), has ambitious aims to reduce the reliance on Coal Fired Power Plants (“CFPPs”) and cap its on-grid power sector emissions to 250 million tonnes CO₂ by 2030.⁷

To further support the development of RE, Indonesia has implemented multiple incentive mechanisms including the Presidential Regulation (“PR”) No. 112 of 2022 on the Acceleration of Development of RE for Electric Power Supply. This regulation allows the Gol to offer incentives such as tax holidays, import tax exemptions, financing through State-Owned Enterprises (“SOEs”), and non-fiscal incentives from Central and Regional Governments.

However, it should be noted that the ARED scenario under the 2025-2034 RUPTL plans for 70.6% of the total RE capacity of 69.5 GW to be built over that period to be developed by Independent Power Producers (“IPPs”), while the state electricity utility, PT Perusahaan Listrik Negara (Persero) (“PLN”), focuses on development of the rests and 47,758 km of transmission and distribution lines over the same period.⁸ This further emphasises the need for improvement in the investment climate for IPPs, including new incentive mechanisms, if these targets are to be met.

In this report, incentives refer to mechanisms that de-risk investments, promote RE, and encourage private-sector participation. Incentives include fiscal measures, which reduce tax and customs burdens to improve the financial viability of RE projects and attract investment; financial measures, which mobilise capital and lower financing costs to accelerate the energy transition; and risk-reduction and business facilitation measures, which streamline processes, reduce regulatory uncertainty, and mitigate investment risks, enabling faster and more secure project implementation.

Apart from the Gol efforts on providing incentives for RE investments, policies and regulations that act as disincentives for RE projects persist, such as fossil-fuel subsidies, the Coal Domestic Market Obligation (“DMO”) and the Coal Domestic Price Obligation (“DPO”). The presence of such policies may counteract the Gol’s progressive and significant efforts in de-risking RE investment and promoting more penetration of renewables in the energy mix, especially when fiscal support continues to be allocated to fossil fuel production and consumption.

Given Indonesia’s ambitious energy transition goals and the challenges that persist in developing RE and phasing out coal, this study on Innovating New Incentive Mechanisms for Energy Transition Projects (this “Project”) was initiated with the aim of accelerating investment in RE projects in Indonesia. Through this Project, ETP UNOPS seeks to support the Gol’s targets by facilitating impactful measures that strengthen the nation’s energy transition framework.

The Project has identified an opportunity to enhance the current regulatory landscape by refining existing policies and/or integrating new policies across three focus areas: (i) accelerating RE development; (ii) supporting CFPP early retirement; and (iii) encouraging coal phase-down efforts. Ultimately, the Project aims to propose mechanisms that are economically viable and practically implementable to support RE development, CFPP early retirement, and coal phase-down efforts, thereby accelerating Indonesia’s energy transition.

By aligning incentives and removing disincentives to RE development, while considering the nation’s unique challenges and opportunities, the framework will promote the adoption of RE and encourage the reduction of reliance on CFPPs. This strategic approach not only seeks to align with current regulations but also actively involves key stakeholders, aimed to ensure practical and impactful implementation.

1.2 Project Objectives, Outcomes and Outputs

1.2.1 Objectives

The objective of this Project is to drive investment in RE and expedite the early retirement or phase-down of CFPPs in Indonesia. The outcome of the project is to support the GoI in meeting its enhanced RPJPN targets, achieving Net Zero Emissions (“NZE”) by 2060 and meeting its JETP commitments, hence this objective is aligned with such targets and will be achieved by identifying effective incentives, and removing disincentives, to RE adoption while balancing applicability and economic viability.

1.2.2 Outcomes

The Project aims specifically to formulate suitable incentive mechanisms, and the removal of disincentives for the following categories:

- RE development
- CFPP early retirement; and
- Coal phase-down projects.

1.2.3 Outputs

The primary outputs of this Project are as follows:

- a. Analysis of existing energy-related incentive and disincentive regulations in Indonesia; and
- b. Analysis of the suitable incentive mechanisms, and the removal of disincentives, required to accelerate energy transition

A total of six separate reports has been prepared for this Project, including the inception report which details the methodology and approach of the project, and the Final Report (this “Report”) which integrates all deliverables. The other reports include:

- **Deliverable 2: Comprehensive Analysis of Existing Incentive and Disincentive Regulations for Energy Transition Projects in Indonesia**, which consisted of conducting a comprehensive review and analysis of Indonesia's existing energy-related incentive and disincentive regulations across the three focus areas. The report analysed the regulatory landscape; identified fiscal and non-fiscal mechanisms; and assessed the impact of the existing regulations to specific case studies. It underwent a regulatory gap analysis of the existing incentives and evaluated the effectiveness of existing and prospective incentive categories based on urgency and potential impact.

- **Deliverable 3: Incentive and Disincentive Mechanisms based on International Experience**, which conducted an in-depth analysis of the international best practices and drew lessons learned from India and Slovakia, as well as higher-level analysis and lessons learned from Germany, China and Bulgaria, related to incentives and disincentives for energy transition projects.
- **Deliverable 4: Proposed Suite of Policy Measures for Designing and Implementing the Most Effective Types of Incentives to RE Development and Removal of Disincentives**, which included a prioritisation matrix from the list of incentive categories from Deliverable 2 and proposed policy options. It utilised multi-criteria analysis (“MCA”) to prioritise the proposed policy options, presented a policy framework, detailed a practical action plan for adjustments and proposed an implementation plan.
- **Deliverable 5: Impact Analysis of the Proposed Incentives to RE Development and Removal of Disincentives**, which conducted an impact and sensitivity analysis of the policy options prioritised in Deliverable 4. It applies qualitative assessment to examine stakeholder implications and quantitative modelling, including a Cost-Benefit Analysis (“CBA”) and fiscal impact models, to evaluate economic and financial effects of proposed measures such as tariff adjustments, DPO changes, and coal demand reduction.

1.3 Approach and Methodology

To effectively address the multifaceted challenges in energy transition and policy development, a structured approach has been adopted for this project.

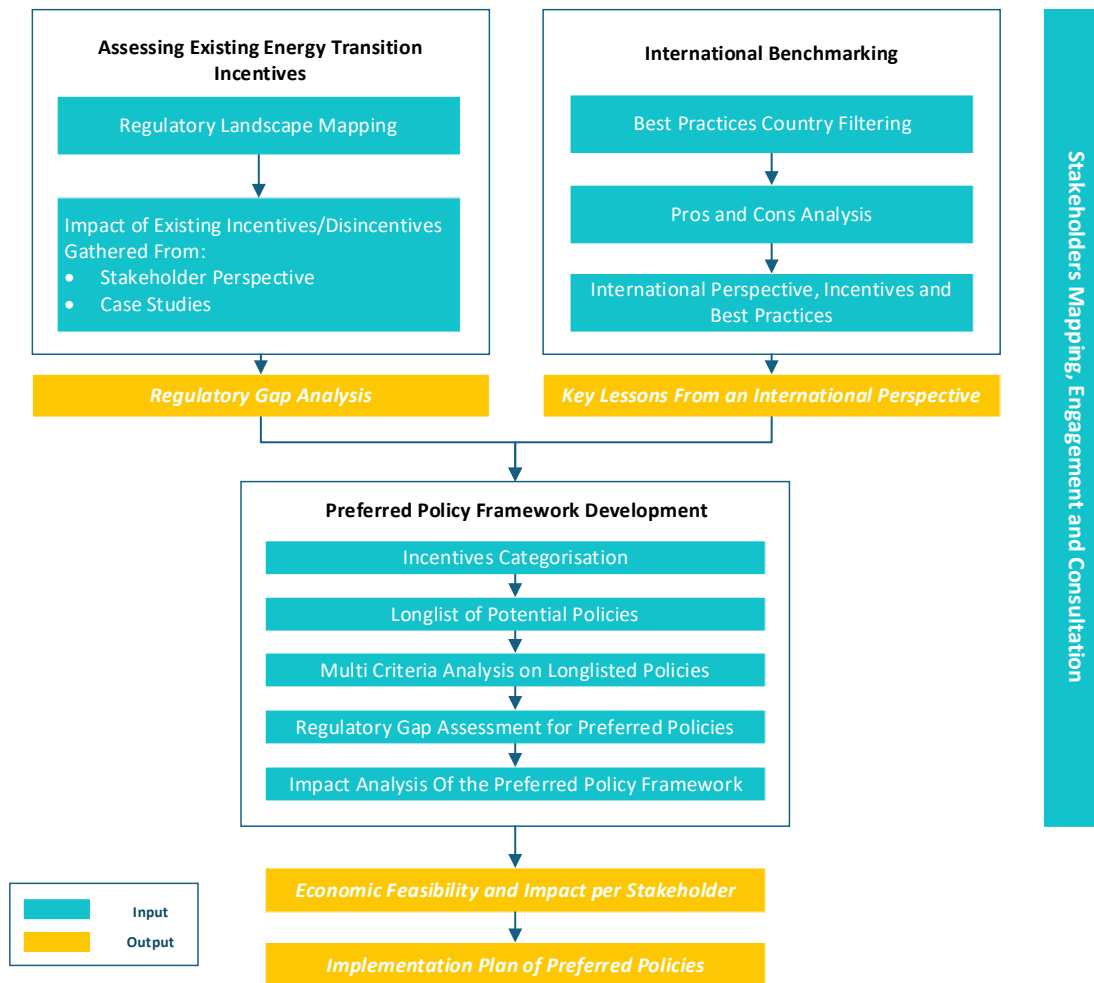


Figure 1-1 Overall Project Framework

As illustrated in Figure 1-1, the framework comprises three key components: (i) a regulatory landscape gap assessment; (ii) benchmarking of international best practices; and (iii) the development of a proposed policy framework. These components are underpinned by literature review, stakeholder engagement and analytical tools such as multi-criteria analysis and impact analysis of proposed prioritised policies. The next sections outline each sub-approach in more detail to show how the framework is put into practice.

1.3.1 Assessing Existing Energy Transition Incentives

Evaluating the current energy transition incentives serves as a critical first step in the project's objective to develop a policy framework that aims to optimise incentives and remove disincentives. This assessment provides a comprehensive review of existing mechanisms mapped from regulations and their impact on ongoing energy transition projects to identify the barriers, overlaps, and opportunities that influence Indonesia's energy transition pathway. This is conducted through regulatory analysis, literature review, stakeholder inputs and case study analysis.

In the context of this project, incentives are defined as any mechanisms designed to de-risk investments, increase the penetration of renewable energy, accelerate the early retirement of CFPPs, or enhance private sector participation. Conversely, disincentives are identified as regulatory or financial measures that directly or indirectly hamper renewable energy deployment or discourage early CFPP retirement.

After mapping current energy transition incentives, existing incentive mechanisms and disincentives are reviewed to identify how current policies influence investment behaviour and the overall progress of Indonesia's energy transition based on stakeholder surveys, interviews and focus group discussion. Additionally, to understand the impact on ongoing energy transition projects, a case-based analytical framework using two representative projects is used to gather input and feedback from relevant stakeholders:

- **Case Study 1:** the Cirata Floating Solar photovoltaic ("PV") Project.
- **Case Study 2:** the PT Perusahaan Listrik Negara Indonesia Power ("PLN IP") Adipala CFPP Co-firing Project.

These cases capture different dimensions of the transition, one highlighting renewable energy expansion and the other focusing on fossil fuel phase-down.

Based on the above review, a structured gap analysis approach is utilised to identify regulatory and implementation challenges that may impede the effectiveness of current mechanisms. It particularly focuses on issues of regulatory clarity, institutional coordination, and practical feasibility, as highlighted in the aforementioned stakeholder feedback and case study evidence. The findings underscore where policy refinements or implementation adjustments may be needed to improve the enabling environment for Indonesia's energy transition.

This analytical framework provides the foundation for subsequent prioritisation, benchmarking, and the formulation of a proposed policy framework presented in later sections of this report.

1.3.2 International Benchmarking

In parallel with assessing Indonesia's energy transition regulatory landscape, international benchmarking of countries with similar characteristics is conducted to identify lessons learned and relevant best practices. This process examines how other countries were able to accelerate their energy transition, including RE development, CFPP retirement, and other feasible mechanisms potentially adaptable to Indonesia's context.

Potential best practice countries are filtered based on a set of key attributes deemed relevant and important to create a shortlist of comparable cases as can be seen in Appendix 6.1. A pros and cons analysis is then undertaken to qualitatively review the general power sector attributes of the shortlisted countries and focus on defining a quantitative scoring system for two sets of considerations related to: (i) RE development; and (ii) CFPP early retirement and coal phase-down. The pros and cons analysis identified best-practice countries for benchmarking incentive

mechanisms and the removal of disincentives for Indonesia’s energy transition progress.

An overview of the filtering process and the pros and cons analysis is presented in the figure below.

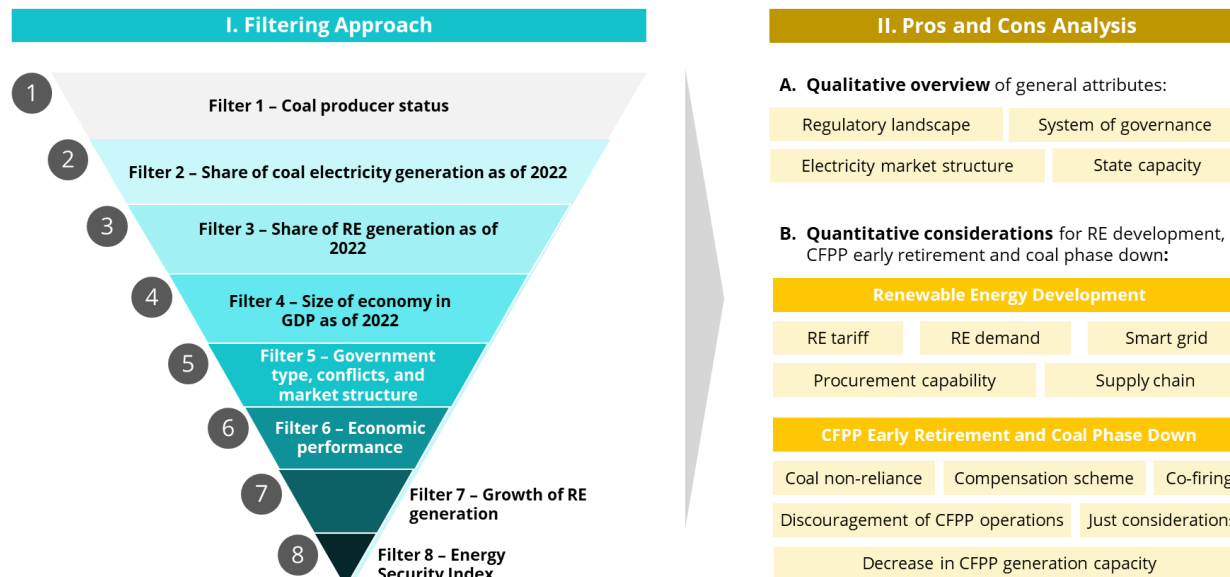


Figure 1-2 Methodology for Selecting Best Practice Countries

Following the pros and cons analysis, insights and lessons learned are extracted from the countries that score the highest based on the qualitative overview and quantitative considerations. These outputs include examples of policy framework, and implementation strategies that have proven effective in accelerating RE deployment and facilitating coal phase-down. The findings serve as a foundation for identifying potential measures that can be adapted to Indonesia’s context, ensuring that proposed mechanisms are informed by global experience while remaining aligned with local priorities and constraints.

1.3.3 Proposed Policy Framework Development

The *Proposed Policy Framework Development* builds upon the findings from earlier analyses in sections 1.3.1 and 1.3.2, which examines Indonesia’s existing energy transition landscape and international benchmarking insights. This section identifies and prioritises policy incentives or the removal of disincentives that could further support Indonesia’s energy transition. This methodology extends the analytical stages established in earlier work to form a contextual foundation for policy evaluation and international benchmarking. The process helps determine which policy options may deliver the highest potential impact while remaining practical and implementable within Indonesia’s regulatory and institutional settings. The prioritisation process is depicted below.

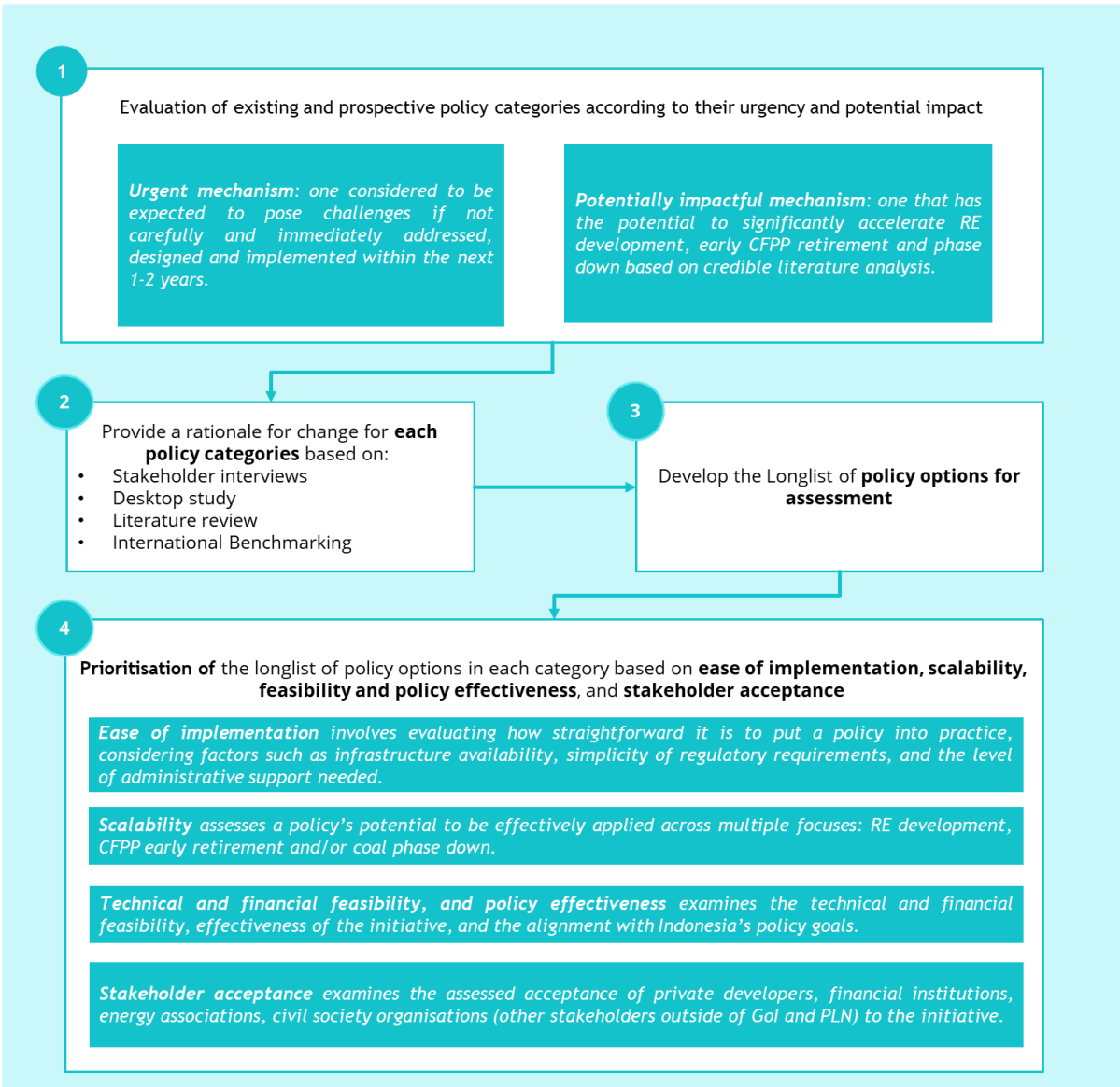


Figure 1-3 Prioritisation Process to Develop the Proposed Policy Framework

Several stages of evaluation are conducted to develop the framework of proposed policies. This includes:

- Drawing from 1.3.1's activity, an evaluation of existing and prospective policy categories according to their urgency and potential impact is developed and prioritised. The **urgency** which reflects the risk and time-sensitivity flagged by stakeholders and the analysis i.e., mechanisms whose absence or delay would materially hinder project bankability, slow procurement and permitting, jeopardise near-term pipelines, or miss financing windows and **potential impact** which reflects the expected contribution to accelerating RE build-out and CFPP retirement, drawing on evidence from case studies and international experience and alignment with Indonesia's transition objectives.

- A rationale for change for each policy category is then developed based on stakeholder interviews, desktop study, literature review, and international benchmarking (based on key findings from Deliverable 3).
- Based on each policy category, a longlist of policy options for assessment are developed. This longlist of incentive mechanisms and disincentives are then scored using an MCA to prioritise the list of policy options that could be suitable to improve Indonesia's policy landscape for energy transition projects. The criteria used include **ease of implementation, scalability, technical and financial feasibility and policy effectiveness**, and potential **stakeholder acceptance** for each policy. The MCA is utilised to evaluate the rationale behind each policy option, considering various factors to propose the best-fit incentives or removal of disincentives which should be removed across the three focus areas of the project.

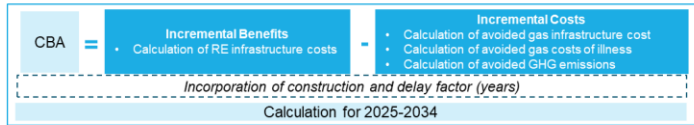
Following the prioritisation to identify the proposed policies, a regulatory gap assessment is carried out to review the alignment of proposed policy options with Indonesia's existing legal and regulatory frameworks. This step is intended help identify where new provisions or amendments may be necessary to support effective implementation and coordination among institutions noting that any regulatory amendments should comply with Law 12/2011 on the Establishment of Laws and Regulations and require a further coordinated approach to stakeholder engagement.

In addition to the regulatory gap assessment, an impact and sensitivity analysis is conducted on the proposed policies. The quantitative analysis focuses on evaluating the fiscal implications of removing or mitigating quantifiable disincentives, including adjustments to government expenditure and revenue. Through this dual approach, the deliverable aims to provide an understanding of how these measures can accelerate Indonesia's energy transition.

The analysis is structured as follows:

- **Qualitative Impact Analysis:** Examines the potential advantages, synergies, disadvantages, and trade-offs of the previously defined policy options. The impacts are assessed across key stakeholders, namely: PLN, the Gol, developers, and consumers.
- **Quantitative Impact Analysis:** Utilises various models, including the following:
 - The CBA, which aims to assess the costs and benefits of transitioning to RE in a timely manner, with the following approach:

Formula:



| Technology | Construction (Years) | Delay Period for Delayed Scenario (Years) |
|------------|----------------------|---|
| Solar PV | 1 | 3 |
| Wind | 2 | 3 |
| Geothermal | 4 | 5 |
| Hydro | 4 | 5 |
| Bioenergy | 2 | 3 |
| Gas | 2 | - |

Cost-Benefit Analysis (CBA)

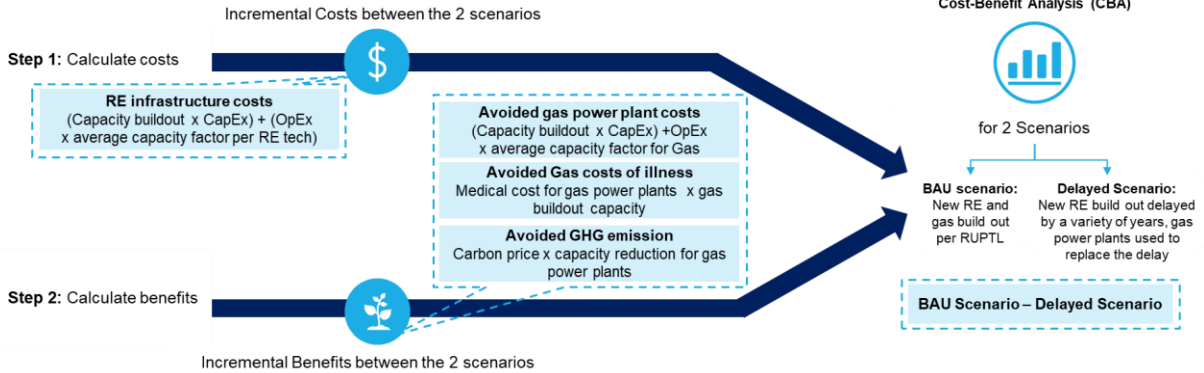


Figure 1-4 Methodology for the CBA

- o Impact Analysis of DPO increase, which aims to measure the impact of DPO increase on PLN's cost to produce electricity and to determine the estimated increase in Gol subsidies resulting from it, with the following approach:

Formula:

$$LCOE \text{ of CFPP using Market Price (cUSD/kWh)} - LCOE \text{ of CFPP using DPO prices \& Market Price (cUSD/kWh)} = \text{Price Difference (cUSD/kWh)}$$

$$\text{Base Case Electricity Tariff (cUSD/kWh)} + \text{Price Difference (cUSD/kWh)} = \text{Market Price Case Electricity Tariff (cUSD/kWh)}$$

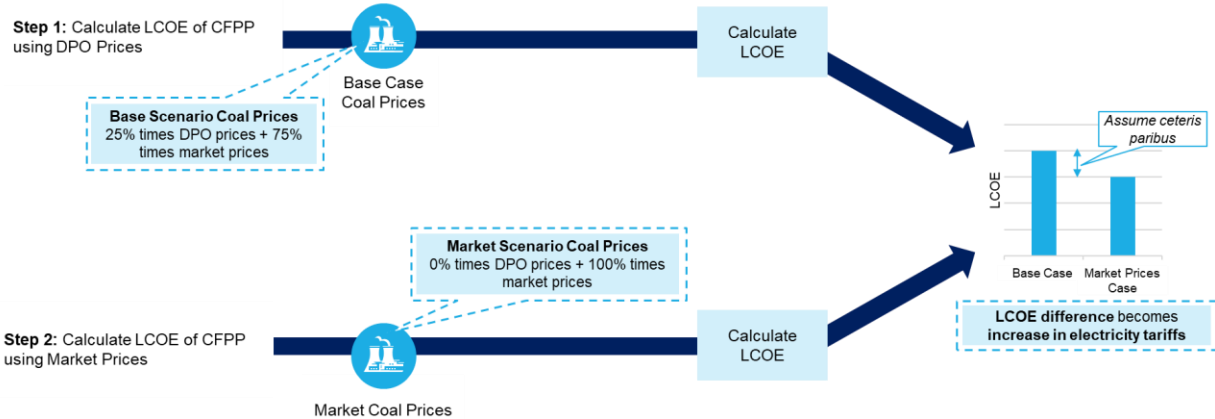


Figure 1-5 Methodology for the Impact Analysis of DPO Increase on PLN's Cost to Produce Electricity

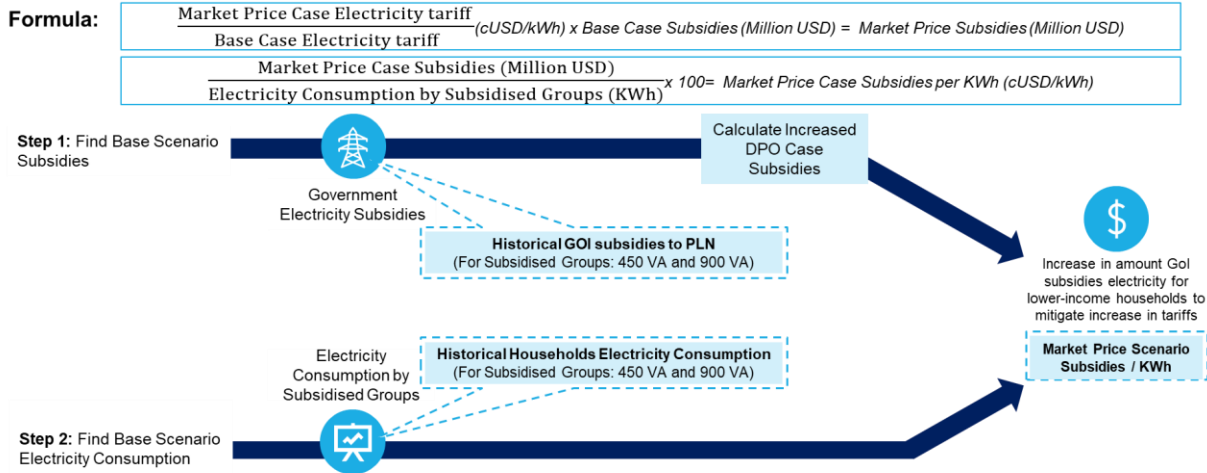


Figure 1-6 Methodology for the Impact Analysis for DPO Increase on the Increase in Gol Subsidies

- o Impact Analysis of reduced domestic demand of coal: which aims to measure the impact of reduced domestic demand of coal in regard to the increase of RE share (based on the new RUPTL) on Gol revenue from coal export royalties. In this model, the decrease in domestic coal demand is assumed to be allocated to export sales, which in turn results in Gol revenue increase. This is conducted with the following approach:

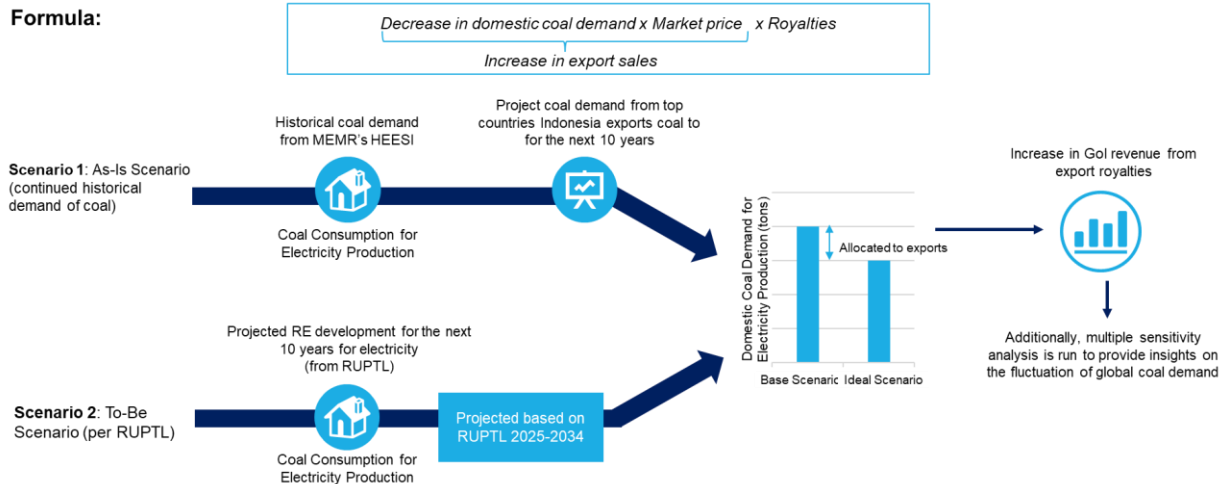


Figure 1-7 Impact Analysis of Reduced Domestic Demand for Coal

The impact analysis presents a comprehensive understanding of the economic feasibility of each policy option and its distributional effects across stakeholders. It outlines how fiscal adjustments, cost implications, and market responses may influence stakeholders, thereby informing evidence-based policy options for Indonesia's energy transition.

The framework development is then concluded with the development of an **implementation plan of proposed policies and Responsibility Assignment (“RACI”) Matrix**. This plan could support policymakers in clarifying institutional roles, responsibilities, and coordination mechanisms, and in implementing the short-term, immediate actions needed to enact the proposed policies, thereby enabling a more coherent and actionable policy roadmap for advancing Indonesia’s energy transition. Next steps are also provided for policymakers to consider. Other highly ranked, non-proposed policies identified by the scoring mechanism may be suitable for medium- or long-term implementation and could be implemented to result in synergies with one another, provided certain regulatory conditions and process improvements are met.

1.3.4 Stakeholder Mapping, Engagement and Consultation

To help ensure a comprehensive and inclusive approach, the project’s analyses and preliminary findings were reinforced through an extensive stakeholder engagement process throughout its implementation. This process aimed to capture diverse perspectives, align priorities, and foster collaboration among key stakeholders involved in Indonesia’s energy transition. These interactions provided valuable insights into policy frameworks, investment challenges, and practical considerations for accelerating RE deployment.

Stakeholder Mapping

Indonesia’s energy transition involves a broad spectrum of stakeholders, including government ministries and agencies, state-owned enterprises, and private sector participants encompassing independent power producers, developers, financial institutions, industry associations, and research organisations. Each plays a distinct role and holds specific interests in shaping the transition, as outlined below.

1. Government Ministries and Agencies

The Government of Indonesia plays a central role in advancing RE by setting clear policies, ambitious targets, and enabling regulations. It offers fiscal and non-fiscal incentives to attract investment, manages licensing, and supports infrastructure development to enable large-scale integration of renewables. By maintaining policy consistency, transparency, and stakeholder engagement, the government aims to build investor confidence and deliver a sustainable energy transition that supports economic growth and energy security. Stakeholders consulted in this category included representatives from The Coordinating Ministry for Economic Affairs (“CMEA”), Ministry of National Development Planning (“Bappenas”), MEMR, Ministry of Finance (“MoF”), and Ministry of Investment and Downstream Industry (“Mol”).

2. Project developers, Sponsors and Associations

Developers handle feasibility studies, financing, and engineering, procurement and construction (“EPC”) processes to ensure bankable projects, while collaborating with government, financial institutions, and communities to meet regulatory requirements and build social acceptance. In

addition, they operate and maintain power plants under IPPs arrangements. By leveraging technical expertise and partnerships, they help expand renewable capacity, optimise operations for higher capacity factors, cut emissions, and advance national energy transition goals. Stakeholders consulted included leading developers such as PT PLN Indonesia Power, Star Energy Geothermal, Vena Energy, PT Supreme Energy, alongside industry associations like Indonesian Biomass Association, the Indonesian Wind Energy Society, and the International Hydropower Association.

3. Financial Institutions

Financial institutions are essential to scaling RE by mobilising capital and offering innovative financing solutions. They assess project bankability, structure loans, and provide risk mitigation tools such as guarantees and hedging to attract private investment. Public financial institutions also enable blended finance by leveraging public and concessional funds to de-risk projects and crowd in private capital. By applying environment, social and governance (“ESG”) principles, issuing green bonds, and supporting developer capacity building, they promote sustainable financing and expand funding sources. Through these efforts, financial institutions help accelerate RE deployment and advance national transition goals. Stakeholders consulted included PT Sarana Multi Infrastruktur (“SMI”), Bank Negara Indonesia (“BNI”), United Overseas Bank (“UOB”), and *Agence Française de Développement* (“AFD”)¹.

4. Others

Other stakeholders such as research institutions, think tanks and consulting firm play a strategic role by providing technical expertise, advisory services, and operational support. Consulting firms contribute through policy analysis, market studies, and financial modelling to guide decision-making and optimise investments. Research institutions and think tanks foster dialogue, advocate for enabling regulations, and promote best practices. Through collaboration, knowledge sharing, and capacity building, these actors help bridge gaps between policy, finance, and implementation, ensuring RE projects are delivered efficiently and sustainably.

Engagement and Consultation Activities

These efforts included a series of consultations with stakeholders identified above, as well as insights from subject matter experts on international best practices. Key activities undertaken to achieve this including surveys, interviews, focus group discussions, bilateral meetings with the Project’s beneficiaries, an overseas policy visit to Slovakia and hybrid session with subject matter experts from India to draw lessons from their RE integration and coal phase-out strategies. The breakdown of the engagement and consultation activities is presented below:

¹ AFD is France’s public development bank, providing financing and technical assistance to support sustainable development projects worldwide including in energy transition and climate resilience.

- **Survey and Interviews (held between October 2024 to December 2024):** A structured questionnaire was distributed to more than 80 stakeholders, including government agencies, independent power producers (“IPPs”) and investors, power project developers, PLN, SMI, energy associations, financial institutions, and research organisations. Together with targeted interviews, this exercise yielded responses from 28 unique institutions.
- **First Focus Group Discussion (“FGD”) (21 February 2025, Jakarta):** This session served as a dissemination workshop to present findings from the analysis of existing incentives and disincentives for energy transition projects in Indonesia, as well as benchmarking insights from international experience. It provided a platform for stakeholders to share feedback, discuss challenges in RE development, early CFPP retirement, and coal phase-down, and identify additional factors not captured during the initial survey and interviews.
- **Slovakia Visit (21-25 July 2025, Slovakia):** This visit provided practical insights into Slovakia’s coal phase-out and RE integration strategies. Meetings with government agencies, regulators, and industry stakeholders highlighted the role of the European Union Emissions Trading System (“EU ETS”), stakeholder engagement, and socio-economic transition measures. The visit captured lessons on policy design, grid modernisation, and investment facilitation relevant to Indonesia’s energy transition.
- **Hybrid FGD on Energy Transition Experience in India (15 September 2025, Jakarta):** The hybrid FGD explored India’s energy transition experience, focusing on policy frameworks, investment strategies, and lessons for Indonesia. Discussions covered renewable energy targets, competitive bidding, biomass co-firing, and green hydrogen development. Key insights highlighted the importance of regulatory clarity, financial viability, and infrastructure readiness to accelerate renewable integration while maintaining energy security.
- **Second FGD (15 September 2025, Jakarta):** The second FGD focused on refining the proposed policy options, assessing their feasibility, and gathering input on regulatory adjustments required for implementation. It engaged key stakeholders from government ministries, private developers, and financial institutions to help ensure alignment with practical considerations. The main agenda also included sharing international perspectives on RE development, particularly lessons from India’s energy transition experience.

A total of 58 unique institutions participated in the stakeholder consultation process during this Project implementation. A breakdown of the institutional categories is presented in the figure below.

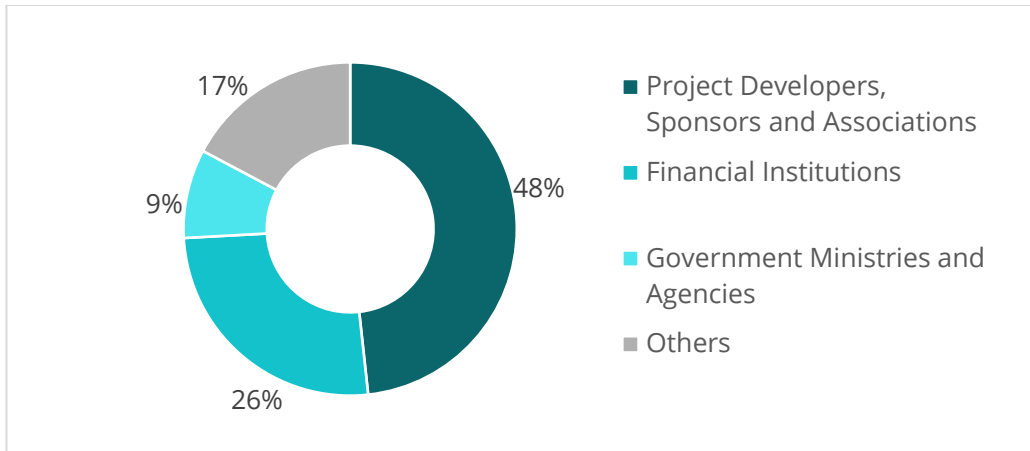


Figure 1-8 Breakdown of Participants

1.4 About this Report

This report consolidates the findings and outputs of the *Innovating New Incentive Mechanisms for Energy Transition Projects* initiative into a compiled final report designed for policymakers in Indonesia. It provides an integrated narrative across all deliverables, summarising the Project’s key activities, analyses, and insights.

In addition to this report, two policy briefs have been prepared under Deliverable 6 to facilitate targeted dissemination of insights:

- **International Benchmarking of Incentives for Energy Transition Projects and the Removal of Disincentives** (based on Deliverable 3); and
- **Prioritised Measures to Advance Indonesia’s Energy Transition** (based on Deliverable 4).

Together, these outputs aim to provide actionable guidance for accelerating renewable energy development, supporting early retirement of coal-fired power plants, and promoting coal phase-down efforts in alignment with Indonesia’s energy transition objectives.

2 Landscape of Indonesia Current Energy Transition Incentives

2.1 Regulatory Landscape Mapping

Indonesia's energy governance is anchored in Article 33 of the 1945 Constitution, which mandates state control of natural resources for the greatest benefit of the people, and is operationalised through a comprehensive legal framework led by Law No. 30/2007 on Energy. This framework sets the core principles for energy management and utilisation across fossil fuels, renewables, and conservation, with particular attention to the development of renewable energy and the transition from coal, including early termination and phasedown of coal-fired power plants.

Whilst Indonesia does not yet have a standalone law dedicated solely to renewables, their utilisation is primarily regulated under the Electricity Law (No. 30/2009, as amended) and the Geothermal Law (No. 21/2014, as amended). Implementation is articulated through government regulations and supplemented by ministerial regulations and decrees, detailing technical and administrative requirements; the country's legal hierarchy ensures these instruments derive from higher-level mandates, creating a coherent and consistent regulatory environment.

Appendix 6.2: Relevant Regulations to Indonesia's Energy Transition provides a structured overview of the key regulations governing energy, renewable energy, and energy transition in Indonesia, categorised according to the regulatory hierarchy from laws to ministerial decrees.

In order to accelerate the energy transition in Indonesia, these regulations establish a basis for incentives but, in turn, are constrained by the existing disincentives that allow fossil-fuel energy to remain prevalent and competitive. For clarity, incentives in the context of energy transition projects can be defined as any mechanisms that are developed to **de-risk** investments for energy transition projects, **increase** the penetration of renewable energy, **accelerate** early retirement of CFFPs, and **connect** renewable energy and CFPP early retirement projects with potential private investments. On the other hand, disincentives in the same context refer to the mechanisms that directly or indirectly **increase the risks** of investment in energy transition projects, **hamper** the deployment of renewable energy and CFPP early retirement, and **discourage** private investments and participation in energy transition projects.

Thus, the type of incentives can be classified into three main categories:

- **Fiscal incentives**, designed to reduce tax and customs burdens, thereby improving the financial viability of RE projects and attracting investment.
- **Financial incentives** focus on mobilising capital and reducing financing costs to accelerate the energy transition.
- **Risk-reduction and business facilitation measures** aim to streamline processes, reduce regulatory uncertainty, and mitigate investment risks, enabling faster and more secure project implementation.

The following list shows the list of existing incentives and disincentives in Indonesia for RE development, coal-fired power plant early retirement and phase down.

Table 2-1 Summary of Existing Energy Related Incentives and Disincentives in Indonesia

| Category | Incentives/Disincentives |
|---|--|
| Incentives | |
| Existing Fiscal and Financial Incentives for Renewable Energy Development | <p><u>Tax Holiday</u></p> <p>Corporate taxpayers who make new investments in Pioneer Industries are eligible for a corporate income tax reduction. This reduction applies to the income earned or received from their core business operations.</p> |
| | <p><u>Tax Allowance</u></p> <p>Income tax benefits include reductions in net income, accelerated depreciation of physical assets, accelerated amortisation of intangible assets, a specific income tax rate for foreign taxpayers who do not have a permanent establishment in Indonesia, and compensation for financial losses.</p> |
| | <p><u>Import Duty Exemption</u></p> <p>Import duty exemptions may be granted to products originating from free port areas, free trade areas, special economic zones, and bonded storage areas.</p> |
| | <p><u>Energy Transition Platform</u></p> <p>The Energy Transition Platform, managed by SMI, can offer loans, other financing instruments, or public-private partnership schemes. It can secure external funds from international financial institutions and other entities, including philanthropic organisations and public service agencies.</p> |
| | <p><u>Government Guarantee</u></p> <p>Government guarantees are provided by the Ministry of Finance and/or infrastructure guarantee business entities. They may take the form of loan guarantees or business feasibility guarantees.</p> |
| | <p><u>Green Bonds</u></p> <p>Green bonds and sukuk are financing instruments specifically designed to support projects contributing to environmental sustainability. By facilitating financing through these instruments, they indirectly encourage investment in renewable energy.</p> |
| Existing Risk-Reduction Measures and Business Facilitation Measures for Renewable Energy Development | <p><u>Direct Appointment and Direct Selection Mechanism for Power Purchase</u></p> <p>Available mechanism for the purchase of electricity from power plants utilising renewable energy, implemented with certain qualifications and criteria.</p> |
| | <p><u>Exemption to Local Content Requirement and Relaxation</u></p> <p>This incentive provides exemptions from local content requirements for power plant projects funded by offshore loans or grants. Incentives are also given in the form of price preferences, including adjustments or normalisation of bid prices during the procurement process for goods and/or services in power infrastructure development projects.</p> |
| | <p><u>Electricity Generation Business Licensing Requirements</u></p> <p>This incentive aims to prioritize and facilitate renewable energy (RE) projects by providing ease in the licensing process.</p> |
| | <p><u>Carbon Tax/Credit</u></p> <p>The framework allows renewable energy projects to earn and trade carbon credits by reducing greenhouse gas emissions below set caps.</p> |
| | <p><u>Build, Own and Operate (“BOO”) Scheme</u></p> <p>Renewable energy projects that have entered a PPA with PLN under the BOOT scheme are allowed to be converted into BOO. A BOO model allows IPPs to provide collateral to banks when obtaining loans.</p> |

| Category | Incentives/Disincentives |
|---|---|
| | <p><u>National Strategic Projects ("PSN")</u> RE projects designated as PSN receive various benefits, including expedited licensing, non-licensing processes, and a 0% Land and Building Acquisition Duty. RE projects designated as PSN may also receive support in land acquisition as the funding has allocated by the MOF based on the proposed list of PSN.</p> <p><u>Positive Investment List</u> This allows 100% foreign investment in business sectors including power generation, except for power plants under 1 MW, reserved for cooperatives and Micro, Small, and Medium Enterprises. Aims to boost investment and support RE development by creating more opportunities for foreign investors.</p> |
| Existing Incentives for Coal-Fired Power Plant Early Retirement and Phase Down | <p><u>Fiscal Incentives for CFPP Early Retirement</u> Fiscal support may be provided in the form of blended finance. It may also be provided through the through the Energy Transition Platform and in the form of government guarantee or risk coverage.</p> <p><u>Risk-Reduction and Business Facilitation Measures</u> This incentive facilitates biomass use in CFPPs and ensures legal certainty for biomass cofiring. This allows collaboration between IPPs and PLN, with no increase in electricity costs. Other benefits for biomass cofiring operators and suppliers include certificates of appreciation, announcements in mass media, and recommendations for improved performance ratings.</p> |
| Disincentives | |
| Existing Disincentives for Energy Transition Projects | <p><u>Cofiring</u> Currently, PLN and its electricity supply partners must adhere to the highest benchmark price as a ceiling for biomass purchases. This policy discourages domestic sales of high-quality feedstock in favour of more profitable exports. Moreover, there are no regulations that further govern the implementation of cofiring, particularly regarding the sustainability of cofiring biomass.</p> <p><u>Domestic Market Obligation and Domestic Price Obligation</u> For DMO, the MEMR determines the amount of national mineral and coal production for national interests and controls the sales to ensure domestic supply. For DPO, the MEMR controls the prices of minerals and coal, requiring holders of Special Mining Business Permits and Mining Business Permits for Production Operation to adhere to the coal reference price, with administrative sanctions for non-compliance.</p> <p><u>Mandatory Placement of Foreign Exchange Export from Natural Resources</u> Mining exporters with a Free-on-Board ("FOB") export value of at least US\$250,000 must fully deposit (100%) their foreign exchange proceeds into designated DHE accounts in Indonesia, for at least 12 months. Non-compliance may lead to administrative sanctions which could lead to potential blockage access to the export customs service system in Indonesia</p> <p><u>Electricity Pricing</u> PR 112/2022 regulates that the purchase price of electricity by PLN from RE power plants is determined either by the highest benchmark price (ceiling price) or through mutual agreement, with specific provisions for direct appointment procurement mechanisms.</p> <p><u>Subsidies for Non-RE</u> The government provides and distributes subsidised fuel oils like kerosene and gas oil, with subsidies determined annually in the state budget and adjusted as per government policies.</p> |

| Category | Incentives/Disincentives |
|----------|--|
| | <p><u>Renewable Energy Power Plant Business Licensing</u></p> <p>Certain renewable energy sources require specific permits such as Water Utilisation Permit and Approval for the Use of Water Resources, Standards and Quality of Biomass for Co-firing in Steam Power Plants, and Geothermal Energy Utilisation Permit.</p> |
| | <p><u>Land Acquisition for Development in the Public Interest</u></p> <p>There is a legal comprehensive framework that provides any facilities for land acquisition for government-related projects. However, if the developer does not cooperate with the government, the facilities will not apply.</p> |
| | <p><u>Renewable Energy Power Plan PPA Standards</u></p> <p>The lack of standardised PPA templates complicates finance raising and causes delays.</p> |
| | <p><u>Direct Appointment and Selection for Power Purchasing</u></p> <p>Indonesia allows replacing terminated CFPP capacity with renewable generation, potentially via direct appointment, but provides no detailed guidelines. Procurement timelines for RE electricity purchases require direct selection within 180 days and direct appointment within 90 days.</p> |
| | <p><u>Minimum Threshold for Local Requirement</u></p> <p>Current regulations lack specific procedures for calculating Local Content Requirement (“LCR”) value for goods and services in electricity infrastructure projects, posing a challenge for renewable energy development.</p> |
| | <p><u>Bank Lending Limit or <i>Batas Maksimum Pemberian Kredit</i></u></p> <p>SOE banks are only limited to providing loans to SOEs and SOE subsidiaries at a maximum of 30% of the capital of the SOE bank. Thus, there are limitations that developers who establish joint ventures with PLN will face challenges in obtaining financing from state-owned banks.</p> |

2.2 Impact of Existing Incentives/Disincentives

To evaluate the effectiveness of existing incentives and disincentives by examining their impact on the ongoing energy transition projects on relevant stakeholders, stakeholder engagement is conducted through surveys, one-on-one interviews and focus group discussions with government authorities/regulators, government special mission vehicles, state-owned enterprises, international and national financial institutions, and research institutions focused in energy transition. This has helped contextualise the challenges regarding incentives from the developers’ perspective. One of the key examples highlighted was a wind power plant project, where they faced multiple challenges, including:

- Revocation of a tax allowance initially granted to promote RE investment. The revocation was based on the grounds that some incentivised assets had been transferred. The developer argued that the transferred assets were immaterial, had been replaced, and that it was not informed of the audit’s purpose, given a chance to respond before the revocation or provided an avenue for appeal. A lawsuit challenging the revocation was filed with the Tax Court; however, as of the date of the interview (more than two years after the lawsuit was submitted), no decision had been issued.

- Imposition of import duties and substantial fines following an attempt to secure exemptions for machinery and components. A customs audit found discrepancies between the declared goods and the import notification (*Pemberitahuan Impor Barang*, or "PIB"), leading authorities to conclude duties had not been properly paid and impose fines. The project company objected, arguing that it had obtained the required exemption (masterlist) and that discrepancies were administrative, with goods correctly documented in the packing list and bill of lading. However, the authorities dismissed the objection, and the company was subjected to both the imposition of import duties and a substantial fine of up to 1,000%, despite asserting no fraudulent activity or intent.

A collection of these challenges across different RE projects and contexts was compiled and summarised. Key points raised about the challenges they face are summarised in the table below:

Table 2-2 Key Insights from Stakeholder Consultations

| Factor | Key Challenges | GoI | PLN | Dev ^b | FI ^c | RI ^d |
|-------------------------------------|---|-----|-----|------------------|-----------------|-----------------|
| Renewable Energy Development | | | | | | |
| Electricity Tariff | RE tariff: The tariff for RE has not been attractive enough to drive the investors and developers to participate in RE development. | | ✓ | ✓ | ✓ | ✓ |
| | Coal DMO and DPO: The current RE tariff is not competitive due to government support for coal-based electricity in the form of domestic sales mandate and coal price cap. | | | ✓ | | ✓ |
| Procurement | RE demand: Lack of pipeline available for project financing as PLN does not open enough RE tenders. | | | | ✓ | ✓ |
| | Transparency and accountability: Lack of transparency and accountability in procurement process and commercial terms, particularly on how PLN will participate in eventual project's consortium. | | | ✓ | ✓ | |
| | Timeline uncertainty: Poor communication on tendering processes, postponed submission deadline, long PPA negotiation process and approval waiting time, causing delays. | | | ✓ | ✓ | |
| Supporting Infrastructure | Smart grids: Indonesia lacks a smart grid for high variable RE penetration in the grid. | | ✓ | ✓ | ✓ | |
| Permitting and Licensing | Streamlining of processes: Difficulties in acquiring license/permit after securing the project. | ✓ | | | | ✓ |
| PSN Status | Clarity in PSN processes: RE Developers are unsure whether their projects are counted as PSN, how to apply to be a PSN and the benefits gained from the PSN status. | | | ✓ | | |
| Fiscal Incentives | Complicated process: Developers have no clear information on how to apply for tax facilities and face difficulties during the application | | | ✓ | | |

^b Power project developers, sponsors and energy associations

^c Financial institutions

^d Research institutions and think tanks

| Factor | Key Challenges | GoI | PLN | Dev ^b | FI ^c | RI ^d |
|------------------------------|--|-----|-----|------------------|-----------------|-----------------|
| | process | | | | | |
| | Conditionality: Developers will not be able to utilise tax facilities unless they are able to secure the project. | | | ✓ | | |
| Financial Incentives | Accessibility and clarity: Developers are not clear on how to access financial schemes such as Energy Transition Mechanism (“ETM”) or JETP funding. | | | ✓ | | ✓ |
| | Conditionality: Developers will not be able to utilise financing facilities unless they are (i) able to secure a PPA in a timely manner, (ii) offered a reasonable electricity tariff. | | | | ✓ | |
| | No incentives for FIs: As the source of funding for FIs (deposits) is at a constant rate, FIs generally cannot offer more favourable terms for RE projects compared to other projects. | | | | | ✓ |
| CFPP Early Retirement | | | | | | |
| Compensation Scheme | Loss coverage: CFPP owners will be willing to early retire so long as it remains at least financially neutral for them, but there is no clarity in who will cover the actual loss. | | | ✓ | ✓ | |
| | State loss: If early retirement projects result in state losses, stakeholders involved may be criminalised, hence closure of early retirement projects is slow. | | | ✓ | ✓ | ✓ |
| | Legal complication: Contracts signed between the IPP and PLN, EPC company, coal suppliers, and O&M companies are legally binding and difficult to terminate one-sidedly. | | | ✓ | ✓ | |
| | Bureaucracy: The need for coordination among multiple stakeholders and gain approval from many ministries delays early retirement closure. | | | ✓ | | |
| CFPP Phase Down | | | | | | |
| Capital | Capital expenditure: Support is needed as retrofits are needed to upgrade the CFPP’s coal boiler capacity to increase co-firing capability. | | | ✓ | | |
| Electricity Purchase | Purchase merit order: Co-firing CFPPs offer less competitive electricity price compared to IPPs, resulting in lower electricity purchase by PLN. | | | ✓ | | |
| Coal Quality | Access to high quality coal: Co-firing CFPPs need sufficiently high-quality coal to compensate for the lower calorific value and higher moisture content of feedstock during co-firing. | | | ✓ | | |
| Biomass Feedstock | Sustainable feedstock: Ensuring a reliable and environmentally responsible supply of biomass is essential for the success of co-firing initiatives. | | | ✓ | ✓ | |
| PPA | Flexibility: The PPA structure penalises IPPs when CFPPs operate below a certain capacity factor, hence not allowing flexible operations of CFPPs. | | | | ✓ | ✓ |
| Emission | Financing CF reduction: Reducing the utilisation rate of CFPPs can | | | | ✓ | |

| Factor | Key Challenges | GoI | PLN | Dev ^b | FI ^c | RI ^d |
|---|--|-----|-----|------------------|-----------------|-----------------|
| Reduction Guarantee | lead to operational inefficiencies. This makes it challenging for developers to guarantee emission reductions, complicating financing for carbon footprint reduction initiatives by financial institutions. | | | | | |
| CFPP Early Retirement and Phase Down | | | | | | |
| Mandated Actions | Mandates in early retirement/co-firing: There has not been a roadmap to mandate which CFPPs will be subject to early retirement that considers system stability and reliability, nor those mandated for co-firing outside of PLN EPI's cofiring initiative. | | | ✓ | ✓ | ✓ |
| Carbon Pricing | Emission charge: Currently, carbon tax and trading system are not effectively applied to entities that are not reducing their emissions. | | | ✓ | ✓ | ✓ |
| | Credit rights: Developers cannot claim benefits from carbon credit sales. Currently any carbon credits from carbon avoidance can only be claimed by the off-taker, PLN. | | | | ✓ | ✓ |

The challenges faced by stakeholders are further examined through deep dives into a selection of ongoing energy transition projects as case studies to contextualise the impact of incentives and disincentives, namely the Cirata Floating Solar PV Plant and the Adipala CFPP co-firing project. Data collection for this was conducted through one-on-one interviews with the Cirata Floating Solar PV team and the CFPP Adipala team, along with undergoing desktop research to strengthen the findings with context. The results are discussed in the following sections.

2.2.1 Case Study 1: Cirata Floating Solar PV Plant

Pembangkit Listrik Tenaga Surya (“PLTS”) Cirata is a 145 MWac/192 MWp floating solar PV plant in West Java, Indonesia, developed by PT Pembangkitan Jawa Bali Masdar Solar Energi (“PMSE”), a PT Pembangkit Jawa Bali Investasi (“PJBI”)–Masdar joint venture, constructed from 2021 to 2023 at a cost of US\$145 million, and inaugurated on 9 November 2023 under a 25-year PPA with PLN at 5.82 US cents/kWh.

The Cirata project leveraged several incentives: a government-to-government Project Development Agreement that granted Masdar a right-to-match in exchange for taking feasibility-study risk; PSN status (via a letter from the Committee for Acceleration of Priority Infrastructure Delivery or *Komite Percepatan Penyediaan Infrastruktur Prioritas* (“KPPIP”) that streamlined procurement, licensing, and permitting and mitigated development, construction, and operational risks; tax incentives under MoF 130/2020 and MoI 7/2020 including a 100% tax holiday for seven years then 50% for two years, corporate income tax reductions, import duty and VAT exemptions (by the issuance of the Notice of VAT Exemption for Imports or *Surat Keterangan Bebas PPN Impor* (“SKBPPN”)), which bolstered cash flow to manage construction delays and operating costs; and an “optimisation” of LCR from about 40% to 23% to ensure compliance.

From this experience, PMSE provide several key insights and lessons learned:

- Masdar assumed responsibility and risk for conducting the necessary feasibility studies. In exchange, Masdar received a special privilege known as the "right-to-match," allowing it to match the best price offered by tender participants during the project tendering process, thereby prioritizing its chances of winning the project. This right-to-match scheme, alongside the government-to-government collaboration, provided Masdar with an additional incentive to participate in the development of the Cirata Floating Solar PV project as a renewable energy developer.
- The PSN status is beneficial as it is evidence of government backing, facilitating smoother processes related to procurement, licensing, and permitting. According to PMSE, the PSN status has effectively mitigated business risks associated with project development, construction, and operation, such as delays and challenges in obtaining permits.
- Tax incentives, such as a tax holiday that PMSE was granted, have been instrumental in bolstering the project's cash flow, allowing funds initially earmarked for tax payments to be redirected towards managing construction delays and covering operational costs.
- Although both local and international financiers have shown a keen interest in supporting renewable energy projects renewable energy tenders have been limited, since PLN has been careful about integrating renewable energy sources into the electricity grid, as it can introduce additional complexity and unpredictability due to the intermittency of renewable energy.
- The LCR for the Cirata Floating Solar PV Project was adjusted below the standard requirement, and this was considered an "optimisation" rather than a waiver of the LCR for the project. PT PMSE indicated that this adjustment enabled the project to proceed in compliance with the regulation.
- While regulations exist to guide the mechanism for setting renewable energy tariffs, the final pricing remains open to negotiation between the off-taker and the developer. Their experience is that negotiations can deviate from the regulatory tariff formula, which can result to project bankability being dependent on complementary fiscal incentives, such as tax holidays.
- The procurement process for renewable energy development in Indonesia varies significantly depending on the specific circumstances of each project. Private developers may encounter more challenges than local or state-owned developers during the procurement process. To foster greater participation and investment in Indonesia's renewable energy sector, it would be beneficial to streamline the procurement process and enhance transparency and accountability, thereby encouraging more developers to engage.

2.2.2 Case Study 2: PT PLN, CFPP Adipala Co-firing

Pembangkit Listrik Tenaga Uap ("PLTU") Jateng 2 Adipala, commonly known as Adipala, is a CFPP situated in Cilacap Regency, Central Java. CFPP Adipala began commercial operations in 2016 and is fully owned and operated by PLN IP with an installed capacity of 660 MW. Adipala CFPP initiated the biomass co-firing initiative in 2021 with the support of PT PLN Energi Primer Indonesia ("PLN EPI") to source the biomass feedstocks and determine the price. In 2024, CFPP Adipala aims to generate 83,037 MWh of electricity by burning 70,106 tonnes of biomass, which accounts for around 3.68% of Adipala CFPP's total electricity generation. Adipala CFPP faces specific challenges related to co-firing implementation, such as additional operational costs, limited access to high-calorific-value coal, and the need for capital expenditure on pulveriser upgrades.⁹

While there are currently no specific incentives provided either by the GoI or PLN for supporting the practice of co-firing in Indonesia, there are several lessons learned based on the current experience of Adipala CFPP in implementing biomass co-firing:

- The Adipala CFPP uses a pulverised coal boiler with supercritical technology, which enhances combustion efficiency and facilitates the use of both coal and biomass as fuel sources. However, it is currently limited to about 5% biomass cofiring due to its lower calorific value. Raising the biomass share would require significant power upgrades, which would entail additional capital investment. However, its investment autonomy is limited due to its dependency on the budget allocations from PLN IP. It could be useful for the PLN group to consider allocating budget to CFPP retrofits to allow CFPPs to accommodate a higher biomass cofiring capability.
- Despite the increased operational expenditures associated with co-firing at the Adipala CFPP, it does not benefit from prioritisation in the merit order for electricity purchase. Since there are additional operational costs, this makes them less competitive than non-co-firing CFPPs, and as a result PLN generally purchases only 50-70% of Adipala CFPP's total electricity generation capacity. Consequently, the lack of prioritisation not only may hinder broader adoption of more sustainable practices within the industry (unless mandated) but also decreases the profitability and financial sustainability of co-firing plants like Adipala.
- To enhance biomass combustion and elevate the co-firing rate while sustaining equivalent energy output, Adipala CFPP requires utilising coal with a high calorific value. However, Adipala CFPP is currently experiencing challenges in accessing high-quality coal, which hinders its ability to increase its percentage of co-firing. Moreover, unlike IPPs, PLN-owned CFPPs like Adipala does not possess the independent authority to select its proposed suppliers and procure high-quality coal necessary for co-firing practices.
- The current biomass feedstock supply in Cilacap exceeds the demand for co-firing. However, there is no governmental directive encouraging IPPs in the region to utilise this abundant biomass supply and implement co-firing in their CFPPs. IPPs have the autonomy to choose their coal supply sources, granting them access to coal with higher calorific value. This access enables them to burn more biomass and achieve greater efficiency in co-firing compared to state-owned CFPPs like Adipala.

2.3 Regulatory Gap Analysis

Based on a mapping of Indonesia’s regulatory landscape and an analysis of the impact of these incentives and disincentives on existing power projects, the regulatory gap analysis highlights significant challenges in Indonesia’s current incentive mechanisms for energy transition projects, as summarised below.

Table 2-3 Regulatory Gap Analysis

| Challenges | Detailed Explanation |
|---|---|
| RE Development | |
| Unattractive RE tariff and challenges in financing RE projects | The ceiling tariffs under PR 112/2022 are lower than is required for commercial feasibility, discouraging developers and financial institutions due to concerns about project viability and return on investment. Financial institutions face challenges in financing RE projects due to high perceived risks, lack of suitable financing instruments and security packages. Indirect subsidies in the form of fiscal incentives are underutilised due to complex conditions and unfamiliarity among developers. |
| Challenges in Power Purchase Agreement (“PPA”) negotiation and risk allocation | The process of negotiating PPAs, governed by certain MEMR regulations, places unmanageable risks on developers, resulting in an unbalanced risk allocation. The lack of standardised PPA templates complicates finance raising and causes delays. Developers face difficulties in securing PPAs due to multiple layers of government approvals and internal corporate approvals of PLN, as well as the need for clear stipulation of projects in PLN’s RUPTL. |
| Challenges in RE procurement, licensing, and acquiring PSN status | The procurement process lacks transparency and accountability, leading to project delays, frequent cancellations and financial losses for participants. Developers face uncertainty in procurement timelines, lack of clarity in project PSN status and lengthy procedures for acquiring necessary permits. |
| Absence of right to match mechanism for developer-initiated projects | The removal of the right-to-match mechanism complicates procurement. Reintroducing this mechanism could incentivise initiators and facilitate a smoother transition to RE projects. This approach could also encourage financial institutions to support developers transitioning from CFPPs to RE projects. |
| Lack of comprehensive guidelines for feasibility studies | There is a need for detailed instructions for feasibility studies to provide certainty and support to prospective business actors. Current provisions lack specificity in feasibility study requirements for business licensing. |
| The absence of an implementing regulation for MOF Regulation 103/2023 on the Energy Transition Platform | A comprehensive implementing policy for the Energy Transition Platform would be beneficial to bridge existing gaps and ensure effective, transparent, and accountable operation for the platform. Such policy would provide clarity for developers to be able to access the financing options. |
| Challenges in the implementation of tax incentives | Existing tax incentives aimed at increasing investment in RE projects are often underutilised due to complexities and the risk of penalties from incorrect usage (for instance, if a company attempts to secure exemptions from import duties on machinery and components, there is a risk that the authorities might conclude that the import duties were not properly paid and impose administrative penalties, such as fines, on the RE developer). Regulatory barriers further limit the effectiveness of tax incentives, highlighting the importance of ensuring that tax incentives are complemented by efforts to reduce regulatory hurdles. |

| Challenges | Detailed Explanation |
|--|---|
| CFPP early retirement and coal phase-down projects | |
| Challenges in implementing a carbon pricing mechanism to support CFPP early retirement and coal phase-down | Indonesia currently lacks an approved methodology to measure emission reductions from initiatives such as CFPP early retirement and coal phase-out actions, preventing the recognition of carbon credits. |
| Challenges in early termination | PR 112/2022 does not specify who bears the costs of early retirements, leading to legal uncertainties about how IPPs can be compensated for the resulting losses, including whether fiscal incentives are sufficient to offset those losses. Moreover, regarding PLN-owned CFPPs, the potential write-off or disposal of PLN assets below their book value raises concerns about legal compliance and risks associated with reducing the asset value of PLN, as this could be perceived to indicate a state loss, and therefore corruption, under the current regulations. The lack of certainty and clarity poses a significant challenge to implementing early CFPP retirement, creating hesitancy in IPPs or PLN to initiate the process. |
| Absence of implementation regulations regarding biomass domestic market obligations | The government requires biomass suppliers to prioritise domestic needs before exporting, but the MEMR has not determined domestic market obligation figures, which leads to uncertainty for suppliers of feedstock regarding commercial viability of their operations. Co-firing in coal power plants carries risks such as prolonging coal dependency, limiting overall emissions reductions, and creating supply chain challenges for biomass or ammonia, such as the deforestation issue mentioned above. It can also reduce plant efficiency, making it less cost-effective. However, it is being considered an interim step because it offers an immediate reduction in coal use, leverages existing infrastructure, help ensures grid stability, and helps develop supply chains for future low-carbon fuels while renewables scale up. |
| Favourable coal prices for conventional power plants | It could be beneficial for the GoI to explore strategies to maintain affordable electricity for its citizens during the transition to RE sources. This may involve developing RE initiatives while simultaneously reducing incentives for CFPPs, allowing RE to become more competitively priced. By adjusting the incentives for traditional fossil-fuel energy sources, the government can encourage investment in renewables and help ensure that the shift to cleaner energy does not lead to increased costs for consumers |
| Ineffective carbon trading system | There is a need to streamline the process to obtain greenhouse gas emission reduction certificates to encourage trading in carbon credits. |

This analysis highlights that significant gaps remain in the current regulatory framework. Key challenges for project developers include unattractive RE tariffs and complicated procurement, licensing and permitting processes, as well as uncertainty in compensation and contractual adjustments for IPPs for early CFPP retirement projects. Moreover, biomass co-firing lacks clear supporting incentives, while challenges in carbon pricing and taxation further hinder the shift to low-carbon technologies.

3 Benchmarking Insights and Lessons Learned for Indonesia

As a way to benchmark with best practices that have been successful in other countries transitioning to renewable energy, this section presents an in-depth analysis of international best practices and lessons learned from selected countries regarding incentive mechanisms and the removal of disincentives for energy transition projects. Indonesia's current energy landscape, with its heavy reliance on coal and challenges in increasing RE penetration, guided the selection of the most appropriate and comparable countries for this study.

3.1 Best Practices Country Filtering and Pros & Cons Analysis

As mentioned in the Approach Section, a set of filters were conducted to shortlist best practice countries that can be used for benchmarking for energy transition practices in Indonesia. The eight filters used (see Appendix 6.1: Best Practices Country), which are coal producer status, the share of coal electricity generation, the share of renewable electricity generation, the size of the economy in Gross Domestic Product ("GDP"), the government type, conflicts, and market structure, economic performance, growth of renewable electricity generation, and energy security index.

Starting with 55 countries in the first filter, five countries remain after the final filter to be further analysed and selected for a pros and cons analysis: Bulgaria, India, Malaysia, Romania, and Slovakia. Among the

short-listed countries, India and Slovakia obtained the highest scores in the pros and cons analysis. Accordingly, the deep-dive benchmarking analysis focuses on best practices in each focus area: India (renewable energy development and coal phase down) and Slovakia (CFPP early retirement).

Apart from the short-listed countries, a further selection of additional countries that were initially excluded in the filtering process was reconsidered for pros and cons analysis. The qualitative considerations and quantitative scoring concluded that high-level analysis on Bulgaria, China and Germany would be conducted. These nations are frequently cited in literature as benchmark countries due to their significant experience in energy transition, offering valuable lessons.

3.1.1 India's Energy Transition Landscape

Traditionally, India's power sector has been heavily dependent on conventional fuels to meet energy demand. However, given its climate change commitments, India has increased the share of renewables in the installed capacity mix at a rapid pace. As of September 2024, India ranks 4th globally for the total renewable power capacity additions with combined installed RE capacity of approximately 203.18 GW (including hydro)¹⁰. Since the Paris Agreement in 2015, India has put forth enhanced ambitions on climate action and announced the "*Panchamrit*" targets at the 26th Conference of Parties 26 (COP-26) summit, which include achieving net-zero by 2070 and installing 500 GW of non-fossil fuel-based energy capacity by 2030¹¹. In contrast to Indonesia, the Indian power

sector is characterised by the presence of multiple players in the value chain, across generation, transmission and distribution. The country's power sector has transitioned from a rigid market structure to a more open but regulated one. Governed by the Electricity Act of 2003, the generation of electricity has been delicensed, while transmission, distribution, and trading remain licensed activities. Independent system operators have been envisaged at national, regional and state levels.

The Government of India has introduced several policy and regulatory support mechanisms to aid the country's energy transition from conventional fossil fuels to more sustainable and RE sources. Decentralised implementation is central to this adaptive policymaking approach, allowing state governments to set their own policy targets and regulations that align with, yet remain independent of, federal policy. The Ministry of New and Renewable Energy, at the federal level, is supported by various national and sub-national autonomous bodies, such as the Electricity Regulation Commissions¹². This may lead to differences in electricity prices among regions, resulting in variations in electricity costs. Overall, the support mechanisms utilised by the Government of India involve several incentive mechanisms aimed at encouraging clean energy adoption and reducing reliance on polluting energy sources:

Table 3-1 India's Incentive Mechanisms for Energy Transition

| Project Type | Incentive Mechanisms |
|--|--|
| <p style="text-align: center;">RE Development</p> | <p>Fiscal incentives: Accelerated Depreciation, Generation-Based Incentives, tax holidays, duty exemptions, reduced Goods and Services Tax rates, and Production Linked Incentives</p> <p>Financial incentives: Viability gap funding, concessional loans, sovereign green bonds, and financial assistance for solar pumps and decentralised solar projects such as the Prime Minister's Farmer Energy Security and Upliftment Mission or <i>Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan</i> or also called as PM-KUSUM".</p> <p>Risk reduction and business facilitation measures: Renewable Purchase Obligations ("RPOs") and improved grid access, Feed-in tariffs, Renewable energy certificates ("RECs"), Transmission charge waivers, etc.</p> |
| <p style="text-align: center;">CFPP early retirement and coal phase- down</p> | <p>Fiscal incentives: Coal cess/levy, Reduction in fossil fuel subsidies</p> <p>Financial incentives: Biomass co-firing in thermal power plants, capacity factor reduction</p> <p>Risk reduction and business facilitation measures: Supply of Round-the-Clock ("RTC") power. RTC power means delivering a contracted amount of electricity every hour, 24/7, using a portfolio of resources to provide a firm, uninterrupted supply. India implements this through RTC tenders/PPAs that require continuous availability, encouraging hybrid projects that combine renewable sources such as solar, wind, and hydro with energy storage, complemented by baseload generation from RE or potentially fossil fuels (e.g., natural gas or coal), and aggregate capacities to meet consumers' demand¹³.</p> |

3.1.2 Slovakia's Energy Transition Landscape

Slovakia's electricity mix is dominated by nuclear power, which supplied 62% of total annual production in 2024, followed by hydroelectric power at 18%¹⁴. Coal and natural gas were historically also significant sources of power production. Coal's share has steadily declined, from 19.6% in 2000 to 14.6% in 2010, 9.5% in 2019, and under 3.1% in 2024, with remaining output mainly used to burn through stockpiles, signalling the end of coal-fired power in Slovakia¹⁵. Slovakia officially ended coal-based power generation in 2024, although the Vojany Power Plant (220 MW) may still produce limited electricity from coal¹⁶. All CFPPs are expected to be fully closed by the 2024–2025 heating season: Novaky (220 MW) has shut down, and Teko (121 MW) is burning through its remaining coal stocks¹⁷. Moreover, the use of natural gas was priced out of power production due to the conflict in Ukraine¹⁸.

The electric power sector is dominated by the state, as the Ministry of Economy owns significant shares in major market players or directly operates entities at all levels of the power value chain—in production, distribution, and supply companies. The Slovakian transmission company, *Slovenska elektrizacna prenosova sustava* ("SEPS"), and the operator of the short-term market, *Organizator kratkodobeho trhu s elektrinou* ("OKTE"), are both state-owned and operated. Many RE plants are operated by national or state-co-owned companies, as hydroelectric power installations have historically belonged to well-established national companies. Nevertheless, PV and wind power plants are mostly owned and operated by private companies.

The European Green Deal is the latest strategic document of the EU, which announces the strategic goal to create a climate-neutral economy in the EU by 2050. The EU required its member states to pledge carbon emission reduction goals and to describe the measures that should lead to achievement of the reduction goal in the national strategic documents.

Slovakia's coal phase-out was driven by economic and climate commitments. Since domestic coal contribution to the electricity mix was largely subsidised by the government as a service of general economic interest, it was not economically viable when facing the rise in overall operational costs following the increase in the carbon allowance price. A definitive coal phase-out is one step toward achieving the greenhouse gas emissions reduction target of 22.7% by 2030 compared to 2005 levels, as set out in the Integrated National Energy and Climate Plan. In 2017, coal-fired electricity (3,540 GWh) accounted for 37.5% of total carbon dioxide emissions, while in 2022 it accounted for 32% (2,054 GWh)—a decline of 5.5 percentage points over 5 years—and emissions decreased by about 4 million metric tonnes¹⁹.

The final updated version of the National Energy and Climate Plan from April 2025 set the new goal for RE in total energy production at 25% (instead of the former 23%) by 2030. In order to support stability of national grids and a common electricity market development, the EU also sets targets for system interconnection. Cross-border trading allows for higher penetration of RE without raising the probability of a blackout, especially in unexpected short-term peak consumption periods. In summary, the incentives Slovakia implemented to accelerate its energy transition are as follows:

Table 3-2 Slovakia's Incentive Mechanisms for Energy Transition

| Project Type | Incentive Mechanisms |
|---|--|
| RE Development | <p>Fiscal incentives: Excise duty exemption</p> <p>Financial incentives: EU grants, green auctions</p> <p>Risk reduction and business facilitation measures: Feed-in tariff, RE grid access, grid interconnectivity and flexibility, Guarantees of Origin</p> |
| CFPP early retirement and coal phase-down | <p>Fiscal incentives: Cessation of subsidies, EU Emissions Trading System</p> <p>Financial incentives: Just Transition Fund</p> <p>Risk reduction and business facilitation measures: Support for Land Repurposing</p> |

3.2 International Best Practices and Lessons Learned for Indonesia

Moving ahead in its energy transition journey, it is critical for Indonesia to create a supportive ecosystem for the energy transition, with the aim of ensuring a reliable and affordable energy supply for consumers while reducing the carbon emissions.

Despite the differences in country contexts in Slovakia and India, this section summarises only international lessons that are relevant to the Indonesian context, which can serve as references should the government choose to adopt similar measures in the coming years. Some policies can be implemented in the short term, while others will be feasible only after foundational incentives are established and operating within Indonesia's energy transition framework.

India has boosted its RE sector by incentivising **domestic manufacturing** to lower plant costs, implementing **demand-side incentives** and **efficient procurement** to **align supply with rising demand, and promoting biomass co-firing**—offering a model for Indonesia to reduce coal dependency.

- India's RPO targets reinforce this by requiring specific entities to **source a certain percentage of their energy from renewable sources**. As of this writing, Indonesia has not implemented any mechanisms similar to that of India's RPO. Moreover, its applicability may be limited, given that Indonesia has only one utility company, PLN, compared to approximately 100 distribution companies ("DISCOMs") in India. However, **there are two options** that Indonesia may explore to implement a similar mechanism to the RPO:
 - The first approach involves requiring predetermined consumers (mainly industry or high electricity use consumers) **to purchase electricity generated from clean sources at a certain level**. However, this would necessitate PLN's ability to distinguish between energy produced by RE plants and that from fossil-fuel-based plants. This can be achieved **through allowing power wheeling and direct PPAs between the RE IPPs to consumers**. PLN could benefit from this arrangement through charging transmission fees.

- The second approach **involves mandating RPOs through the purchase of RECs from PLN**. However, REC availability is currently limited due to the constraints on new RE projects. This can support PLN in achieving its RE generation targets under the 2025-2034 RUPTL, which calls for significant new RE supply. For this mechanism to be viable, **RECs must be backed by additional RE developments**—otherwise, the RPO system cannot function effectively due to insufficient supply.
- The establishment of **clear RPO targets** that are phased in over several years can transition Indonesia's currently voluntary REC system into a more structured framework. This includes implementing **penalties for non-compliance with RPOs** and in parallel **increasing the procurement for RE projects to increase the supply of RECs** (if the second approach is adopted). As has been demonstrated in India, this also provides the platform **for incentivising the development of an in-country manufacturing ecosystem for RE technology components** such as solar panels, reducing the reliance on imports and generating economic value-add. This can be further supported by investment in grid infrastructure and connectivity, and by appropriate monitoring and reporting frameworks, which would drive effective RE deployment and, in turn, REC purchases to meet future RPO targets.
- India's establishment of independent tendering agencies, such as the Solar Energy Corporation of India ("SECI"), has **facilitated national- and state-level tenders for utility-scale renewable-energy projects** and, as of December 2024, has issued more than 113 GW of tenders²⁰, driving large-scale adoption of renewables across the country. SECI periodically issues tenders and awards projects to eligible solar power developers through a **transparent, online, international open competitive bidding process**. This transparency is evident on SECI's website, which publicly posts tender results and related information, including tender documents, pre-bid meeting schedules, publication dates, bid submission deadlines, tendered capacities, lists of successful bidders and a database of live tenders²¹. SECI releases **draft PPAs that developers can use for reference** during the Request for Selection ("RfS") process, which are then adapted based on bidding outcomes²². Model PPAs for specific procurements, such as long-term wind-solar hybrid power, are available during tenders and are publicly accessible. Indonesia can adopt India's practices of **publishing model PPAs and using transparent procurement processes to reduce uncertainty, increase bankability and investor appeal, and likely gain stakeholder support**, as these measures can help boost renewable energy projects in Indonesia.
- India supports the **development of a RE project pipeline by strengthening its grid infrastructure** to accommodate greater RE penetration and waived Inter State Transmission System ("ISTS") charges to **lower RE project costs**. Indonesia could implement this through direct subsidies and grants, coupled with a regularly updated RE procurement schedule that specifies **timing, capacity, value, and investment**. Engaging key stakeholders including

PLN, the government, and donors such as the World Bank and the Asian Development Bank could help secure grants or concessional loans to fund waivers on transmission charges. A **well-defined and supportive policy and regulatory framework** would further create a favourable ecosystem for project development. Government initiatives can accelerate deployment by providing market certainty and stability, incentives for renewable energy development, and support for technological advancement, thereby boosting investor confidence.

- **Production-Linked Incentives (“PLI”)** have enabled India to reduce import dependence while **increasing the production capacity and competitiveness of its solar PV modules**. Indonesia can draw on these lessons by tailoring performance-linked incentives and complementary policies to catalyse domestic manufacturing and reduce supply-chain risks. MEMR Regulation No. 11 of 2024 on the Use of Domestic Products in the Development of Electrical Infrastructure allows temporary relaxation of local content requirements for certain technologies. For example, solar power plants can be fully exempt if they meet specific criteria^e, but only until 30 June 2025; thereafter, solar power plants must comply with the 40% LCR. Indonesia could **strengthen its domestic manufacturing capacity** and could pair the LCR with **PLI-style financial incentives** to support domestic manufacturing of solar PV modules. It would be beneficial for the incentive to define the performance standards such as module efficiency and temperature co-efficient, to maintain the quality of the solar modules and to be competitive with the imported goods. These measures should be anchored by a clear and supportive policy framework with long-term commitments and a defined incentive period.
- India has **mandated biomass co-firing in thermal power plants**, setting clear targets and providing financial incentives to encourage adoption. India has also established benchmark prices for biomass pellets to ensure fair trade and viability, which could be adapted to stabilise Indonesia's biomass market. To reach 5% biomass utilisation as in India, Indonesia could introduce strong **financial incentives, subsidies, and financing access, clarify tariff/pass-through rules**, invest in storage, transport, and distribution to ensure **reliable biomass supply and quality**, and secure **long-term procurement contracts** to stabilise the market. Moreover, providing clear guidelines and support for tariff adjustments and regulatory compliance can ensure that financial burdens related to biomass co-firing are manageable.

Slovakia was identified as the only country on the shortlist that has officially **ended its coal subsidies entirely** and **accelerated its coal exit timeline** from 2030 to 2024. Slovakia is expected to be coal power-free in terms of electricity production in 2024-2025, following the closure of its last

^e The PPA must be signed by 31 December 2024, the project must commence commercial operations by 30 June 2026 and the solar modules must either be assembled domestically or imported by a foreign solar module company committed to investing in domestic solar module production.

coal power plant which succumbed to financial difficulties stemming from various factors, including the long-term decline in electricity prices and the rising costs of CO₂ permits and the coal price itself²³. The successful retirement of CFPPs was largely due to economic factors, with the effective use of **market-based disincentives** to furthering coal use coupled with **incentives that supported CFPP owners and developers in the coal exit**. Key findings based on Slovakia's experience include:

- Slovakia's EU ETS participation shifted the merit order toward renewables and generated auction revenues for clean energy. Indonesia can **phase in carbon pricing once foundational RE incentives are in place**, earmark proceeds for RE premiums, grid upgrades, and efficiency, and pair it with complementary policies while managing loss of investment and affordability risks. Additionally, incorporating **early-stage incentives like Feed-in Tariffs ("FITs") for RE can accelerate their deployment**. Complementing this with **just transition grants and financial instruments** (for measures such as land repurposing, industrial zones, reskilling) is key to enable economic restructuring and diversification for the affected vulnerable regions where coal mines and CFPPs are located. Once more foundational incentives are already underway, Indonesia **can consider linking with other emissions trading systems**, which can reduce the cost of cutting emissions, increase market liquidity, stabilise carbon prices, align carbon prices across countries, and assist global cooperation on climate change.
- Slovakia advanced coal subsidy removal with **sufficient notice and backed it with grants/loans like the EU Just Transition Fund, workforce reskilling, and regional diversification**. Indonesia could announce timelines early, engage unions, local governments, and communities, and channel concessional finance (e.g., via the I Country Platform/PT SMI) to mitigate socio-economic impacts and build replacement capacity ahead of retirements.
- Following Slovakia, Indonesia can **consider adopting lessons from Slovakia's Report on Land Use Plan**, Indonesia can provide a strategic approach that extends beyond the financial and operational focus of its current Early Coal Retirement Roadmap outlined in PR 112/2022 and MEMR Regulation 10/2025. By **incorporating land use planning into its roadmap**, Indonesia can aim to ensure that decommissioned sites are effectively utilised for sustainable development, potentially boosting local economies and supporting national energy objectives. Currently, the roadmap primarily mandates the early retirement of CFPPs without emphasising future site use, which could serve as a valuable incentive for CFPP owners and developers.

Bulgaria, Germany and China provide additional insights into effective energy transition strategies.

- Bulgaria's market liberalisation and integration of FiTs and Contracts for Premium ("CfP") have accelerated its transition from CFPPs to renewable sources. The strategic use of EU Just Transition Funding has facilitated economic restructuring in coal-dependent regions including Bulgaria.

- Germany's structured framework for coal phase-out, including auction-based mechanisms and ambitious renewable energy targets, demonstrates the feasibility of market-based retirement models. This highlights the importance of a legal and financial framework, grid modernisation and stakeholder engagement in supporting Indonesia's energy transition.
- China's energy transition strategy, characterised by government intervention and financial incentives, offers further lessons for Indonesia. Similar to Bulgaria, China's FiT provides a stable income for producers and encourages investment. The country's gradual reduction of subsidies and comprehensive support for supply chain development highlight the importance of balancing energy security with decarbonisation goals.
- These strategies underscore the need for Indonesia to design long-term RE support schemes and integrate grid modernisation with its RE expansion plans.

Lessons learned from international best practices provide valuable insights to help inform the development of a policy framework that prioritises economically viable and practically implementable policies to accelerate Indonesia's energy transition. A more comprehensive list of applicable policies to Indonesia are detailed in Appendix 6.3 for more information.

4 Shaping Indonesia's Proposed Policies for Energy transition

Building on previous sections' analyses on international lessons learnt and Indonesia's current energy transition landscape, this section presents the development of a proposed policy framework to guide Indonesia's energy transition by identifying key policy categories that warrant further refinement. These categories represent areas where targeted policy interventions can accelerate investment readiness, enhance regulatory efficiency, and strengthen institutional capacity for renewable energy deployment.

4.1 Policy Prioritisation

As a key first step to identify mechanisms that could be prioritised for energy transition projects in Indonesia, existing and prospective incentives and disincentives are assessed for their urgency and potential impact. This assessment draws on stakeholder perspectives, lessons from ongoing energy transition projects and identified regulatory gaps in section 2.

Based on their applicability to various focus areas, thirteen mechanisms are shortlisted for prioritisation. Subsequently, a scoring scale is developed, ranging from 1 to 4, with 1 indicating low urgency or impact and 4 indicating high urgency or impact. Each mechanism is then evaluated against the criteria defined in the scoring matrix, with the total score calculated as the product of individual criterion scores.

The results have been summarised and mapped into a matrix categorised into 4 sections, as seen below:

- High urgency, high impact
- High urgency, low impact
- Low urgency, high impact
- Low urgency, low impact

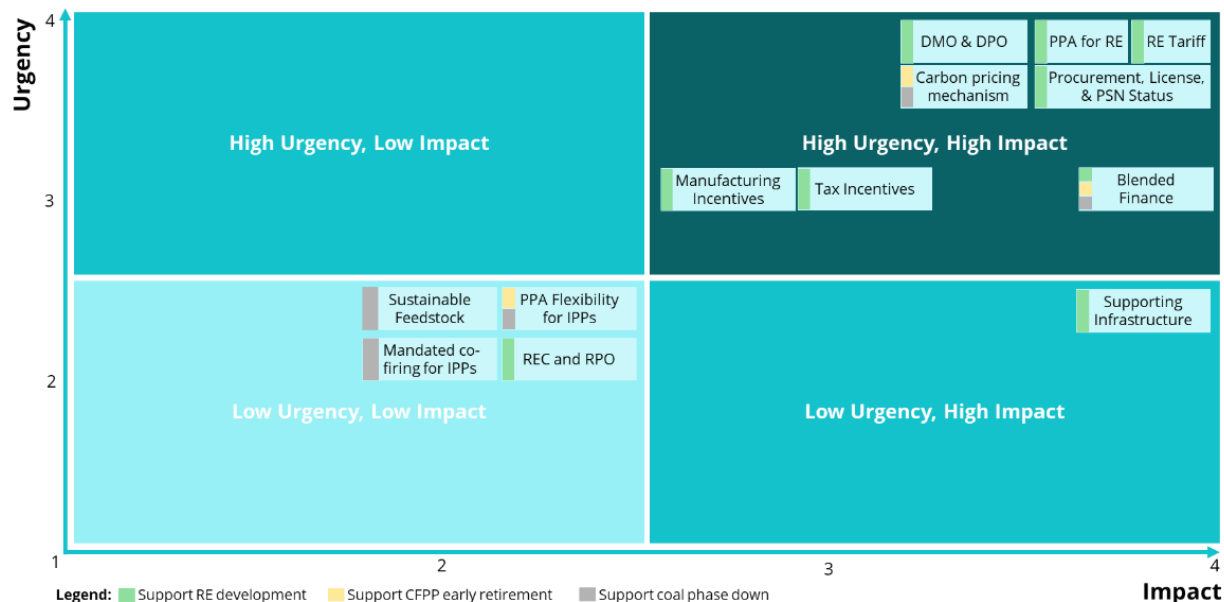


Figure 4-1 Urgency-Impact Prioritisation Matrix

Based on the assessment scoring, the most urgent and potentially most impactful incentives are in the areas of carbon pricing, removal of coal DPO, PPAs for RE, RE tariffs, RE procurement, licensing and PSN status. Conversely, mechanisms perceived as conditional such as fiscal or financial incentives are less impactful, as they can only be utilised after project approval.

Furthermore, the rationale for the inclusion of the most urgent and potentially most impactful incentive categories, and the subsequent potential solutions based on international benchmarking is summarised in the table below:

Table 4-1 List of Prioritised Policy Categories

| Category | Rationale for Change and Potential Solutions from International Perspectives |
|--|--|
| RE Tariff Adjustment | <ul style="list-style-type: none"> Ceiling tariffs under PR No. 112 of 2022 on the Acceleration of RE Development for Power Supply may fall short for commercial feasibility, potentially deterring developers and financial institutions due to concerns about project viability and limited suitable financing instruments. Bulgaria, China and India provide valuable insights for Indonesia's RE tariffs, such as the importance of long-term price certainty, transparency, government adaptability, risk mitigation and competitive bidding processes to enhance investor confidence and efficiently expand the RE sector. |
| Procurement, PPAs Licensing, Tender and PSN Status Standardisation and Streamlining | <ul style="list-style-type: none"> Enhancing transparency and streamlining procedures in Indonesia's RE procurement process is essential to address current uncertainties in timelines, PPA negotiations and PSN status, which may otherwise lead to delays, financial challenges and the under-utilisation of tax incentives due to administrative complexities. Lessons from India and Slovakia highlight the importance of competitive and transparent procurement processes and the utilisation of fiscal incentives, such as tax holidays and excise duty exemptions, to enhance equitable market access and encourage RE energy development. |

| Category | Rationale for Change and Potential Solutions from International Perspectives |
|--|--|
| <p>Supporting the Development of Electricity Infrastructure</p> | <ul style="list-style-type: none"> • To bolster RE development and accommodate rising demand, Indonesia plans to enhance electricity infrastructure, including expanding transmission lines, grid interconnections, and green industrial hubs, although challenges persist due to regional supply-demand mismatches and insufficient grid integration capacity for RE sources, especially those in rural or Disadvantaged, Frontier and Outermost or <i>Tertinggal, Terdepan dan Terluar</i> (“3T”) areas. Areas driving this demand include industrial hubs and special economic zones such as Sei Mangkei in Sumatra, Batam Bintan Karimun in the Riau Islands, and Industries like JIPE Gresik in Java. • A lesson can be derived from India, where it has successfully increased its capacity to manage high solar PV penetration by implementing waivers for inter-state transmission charges and incentivising domestic solar PV manufacturing through its Production Linked Incentive scheme, thereby lowering project costs and enhancing the financial viability of large-scale RE initiatives. |
| <p>Removing the DPO for Coal</p> | <ul style="list-style-type: none"> • Reevaluating the DPO offers Indonesia an opportunity to improve the competitiveness of RE development, as the current policy allows coal to be sold at below-market rates, influencing PLN's decision-making and complicating RE adoption. By realigning the DPO, the government can encourage investment and allow RE to better compete cost-wise with traditional energy sources. • A key lesson from Slovakia is the importance of announcing subsidy removals well in advance, providing sufficient time for stakeholder management, planning and preparation for the transition. |
| <p>Encouraging Early Retirement of CFPPs</p> | <ul style="list-style-type: none"> • Reevaluating early retirement policies for CFPPs in Indonesia is important to address challenges such as uncertainties around cost responsibilities, the absence of a roadmap for the early retirement of CFPPs, regulatory gaps in transitioning to renewables, and the need to improve national carbon trading mechanisms for better utilisation of carbon credits. • Slovakia's strategy for CFPP early retirement and phase-down utilises the EU ETS to diminish coal competitiveness and provides financial and planning support for transitioning regions, while Germany's model employs auction-based mechanisms to incentivise early retirements and maintain cost efficiency. |
| <p>Co-firing Incentives</p> | <ul style="list-style-type: none"> • To effectively utilise co-firing in CFPPs, it is crucial to address coal dependency, supply chain issues and reduction in power plant efficiency. Implementing a universal mandate, establishing a carbon market for developers, and ensuring a sustainable biomass supply can enhance adoption while addressing the need for increased PPA flexibility. • A key lesson from India's CFPP early retirement and phase-down efforts is the effectiveness of biomass co-firing incentives, which highlight the importance of comprehensive financial support, regulatory clarity, supply chain infrastructure development and long-term procurement contracts to reduce coal reliance and achieve higher co-firing targets. |

A more comprehensive list of best practices that can be adopted based on the results of international benchmarking can be found in Appendix 6.3: Best Practices based on International Benchmarking.

The categories identified above are further detailed into a long list of policy options compiled from analyses gathered in sections 2: Landscape of Indonesia Current Energy Transition Incentives and 3: Benchmarking Insights and Lessons Learned for Indonesia, respectively.

A multi-criteria analysis is then conducted on the long list of policy options derived from the selected categories. The evaluation applies four key parameters: **ease of implementation, scalability, technical and financial feasibility, and policy effectiveness**, and **stakeholder acceptance**. Specifically, regarding the stakeholder acceptance parameter, this is assessed through a series of engagement activities detailed in section 1.3.4 Stakeholder Mapping, Engagement and Consultation.

| <i>RE Tariff Adjustment</i> | <i>Procurement, PPAs, Licensing, Tenders, and PSN Status Standardisation and Streamlining</i> | <i>Supporting the Development of Electricity Infrastructure</i> | <i>Reducing or Removing DMO and DPO</i> | <i>Encouraging Early Retirement of CFPPs</i> | <i>Co-firing Incentives</i> |
|---|---|---|---|--|--|
| Online auction for bidders to provide the lowest tariffs | Revisiting project allocation between PLN Group and IPPs to offer greater flexibility, opportunity to and empower IPPs | Accelerating grid modernisation (smart grid) to integrate and manage a higher share of variable RE sources | Improving RE competitiveness through adjusting DPO and mitigating short-term impacts of increased electricity prices for lower-income households | Facilitate System Stability through RE Development with Right-to-Match Privilege for RE replacement generation, supporting potential revenue continuity | Encouraging sustainably sourced biomass utilised in co-firing. |
| Adjusting ceiling prices | Standardising tender process, establishing and socialising clear guidelines outlining RE projects which have PSN status | Developing transmission lines in proximity to designated RE plant clusters to help minimise connection costs | | Clarifying the carbon credit revenue calculation to allow developers to gain revenues from carbon credits of avoided carbon emissions | Encouraging flexibility in biomass pricing |
| Providing a premium payment (subsidy from Gov't to IPP) to mitigate increase in electricity tariffs | Providing land technical data clarity in tender documents by PLN for RE projects | Improving the national land registry to have a more comprehensive coverage | Encouraging coal exports and increasing coal export royalties | Setting guidelines for PPA restructuring for early coal retirement / coal phase down initiatives | |
| Implementing FiTs for electricity generated from RE sources | Standardising PPA terms, increasing bankability and attractiveness towards investors through providing clarity in timeline and contract terms | Introducing transmission charge in electricity tariffs and adding waivers for priority projects | | Introducing auctions for CFPP early retirement with a declining ceiling price to compensate and incentivise IPPs to early retire their CFPPs | |
| | Limiting price negotiation process between the tender winner and PLN after the winner is appointed | Scaling up the Geothermal Risk-Sharing Fund for geothermal power projects | | Removing fossil fuel subsidies (including coal) to better reflect the cost to produce electricity to increase RE competitiveness | |
| | Improving technical detail in tender documents to enable bidders to calculate tariffs more accurately, fostering a more competitive landscape | Reintroducing net metering policies that credit consumers for surplus energy exported to the grid against electricity consumption | | | |
| | Partial bidding mechanism which allows bidders to submit bids for less than the total capacity offered in the tender | | | | |

Figure 4-2 Long list of Policy Options

As shown in the figure above, the highest-priority policy options are highlighted in blue, indicating the incentive measures that scored the best across the MCA parameters. Based on this foundation, the next section presents the proposed policy options. These incentive measures potentially represent the most practical and impactful pathways to accelerate RE deployment, facilitate early retirement of coal-fired power plants, and support a gradual coal phase-down, in line with Indonesia's energy transition objectives.

4.2 The Proposed Policy Options

After the scoring and prioritisation of policies for each category in the previous section, this section aims to summarise the key elements of the RE policy framework, containing the chosen incentives. These options represent the outcome of the prioritisation process, helping to ensure alignment with Indonesia's energy transition objectives.

All policy options made in this report are based on desk study, literature review, as well as consultations with stakeholders and should be subject to further analysis prior to deciding whether to adopt or implement them. Some of the findings are changes to existing mechanisms and not completely new. The effectiveness of any policy measure is subject to a wide range of factors, including effectiveness of implementation, and the combination of measures adopted. The authors of this report therefore cannot be responsible for the ultimate outcome of such measures.

Table 4-2 Proposed Policies and Proposed Amendment

| Proposed Policy Option | Proposed Amendment | Expected Impact |
|--|--|---|
| Adjusting RE Ceiling Prices | <ul style="list-style-type: none"> The proposed policy option favours adjusting ceiling tariffs to provide long-term price certainty and enhance the investment environment for RE in Indonesia. Adjusting ceiling tariffs to reflect the generation costs of the technology deployed, construction, maintenance, fuel, location, network costs, recognising regional differences in infrastructure readiness, logistical complexity as well as clarification in Battery Energy Storage Systems ("BESS") costs. Ceiling tariffs should also reflect money markets and overall market conditions under normal economic circumstances. Where justified, a calibrated escalation clause could be considered to reflect inflation and exchange-rate risks, balanced against expected LCOE optimisations from technology learning curves and supply chain improvements. | These adjustments are expected to create a more predictable and attractive pricing mechanism, which may drive development in the RE sector, reduce project cancellations, and lead to smoother project implementation. |
| Standardising tender processes, and establishing and socialising clear guidelines on PSN status for RE projects | <ul style="list-style-type: none"> The proposed policy option favours standardising tender processes and clarifying PSN status for RE projects to improve procurement efficiency and consistency. Enhance transparency by making procurement stages, evaluation criteria, and timelines publicly accessible, rather than requiring formal requests through Selected Provider List or <i>Daftar Penyedia Terseleksi</i> ("DPT") system. | The standardisation of PPAs, tender processes, and clarity of the PSN status are expected to enhance procurement efficiency, reduce transaction costs, accelerate project timelines, and improve the reliability and appeal of RE projects. |

| Proposed Policy Option | Proposed Amendment | Expected Impact |
|---|--|--|
| | <ul style="list-style-type: none"> Develop a concise guideline summarising all current incentives, including eligibility and application steps, to improve transparency for stakeholders. Align the designation of PSN status with PLN's RUPTL to ensure consistency between planning priorities and incentive eligibility. | |
| Developing transmission lines in proximity to designated RE plant clusters to help minimise connection losses | <ul style="list-style-type: none"> The proposed policy option favours developing transmission lines near RE plant clusters to reduce costs and optimise infrastructure efficiency. Increase the visibility and attractiveness of this incentive by offering IPPs reduced or zero transmission charges when PLN develops supporting infrastructure, ensuring greater tariff certainty and predictability during bidding. | <p>This is expected to accelerate the integration of RE into the grid by optimising the placement of new projects near existing grids and enhancing investor confidence in the technical readiness of RE adoption within the current electricity infrastructure.</p> |
| Improving RE competitiveness through adjusting or eliminating the Coal DPO and mitigating short-term impacts of increased electricity prices for lower-income households | <ul style="list-style-type: none"> The proposed policy option favours adjusting the DPO to reflect market prices reducing coal's cost advantage and improving RE competitiveness. It also proposes implementing protective measures for low-income households from potential electricity price increases, to help maintain energy affordability during the transition. | <p>By aligning coal prices closer to market rates, the cost to produce electricity from coal becomes more expensive and less attractive, thereby incentivising a transition to cleaner energy sources and promoting an equitable shift towards RE. Tariff differentiation is proposed to protect low-income households, aiming to ensure continued affordability for consumers and strengthening the business case for the early retirement of CFPPs and the phasing down of coal.</p> |
| Facilitate System Stability through RE Development with Right-to-Match Privilege for RE replacement generation, supporting potential revenue continuity | <ul style="list-style-type: none"> The proposed policy option favours introducing a right-to-match privilege for CFPP developers to build RE projects in the same area after retirement to help ensure system stability and revenue continuity. Effective coordination and regulatory adaptation are required to align CFPP retirements with the RE potential and technology considerations of each area, helping to ensure timely procurement of replacement RE projects. | <p>This policy allows CFPP developers to match post-tender offers for RE projects intended to replace early retired CFPPs, thereby incentivising early retirement with the aim to ensure the continuity of revenues, minimising transition disruptions through existing infrastructure, and supporting a stable energy supply while encouraging a gradual shift to cleaner sources.</p> |
| Revising policies to encourage flexibility in biomass pricing for co-firing | <ul style="list-style-type: none"> The proposed policy option favours encouraging flexibility in biomass pricing by linking prices to quality standards to incentivise higher quality sales to the domestic market and adoption of co-firing initiatives in CFPPs. | <p>By enabling PLN to explore high quality biomass options and increase procurement cost effectiveness, this approach is expected to drive wider implementation of co-firing, thereby supporting a gradual coal phase-down.</p> |

| Proposed Policy Option | Proposed Amendment | Expected Impact |
|------------------------|--|-----------------|
| | <ul style="list-style-type: none"> The amendment includes clarifying the biomass DMO mechanism through fixed percentage guidelines and developing mandatory Indonesia National Standard or <i>Standar Nasional Indonesia</i> ("SNI") standards for biomass to ensure quality compliance and support a stable domestic supply. | |

The proposed policy options aim to provide a framework that creates synergies to address structural barriers, reduce transaction costs, and accelerate RE investment. By improving existing regulations and introducing new mechanisms, these measures could support RE development, enable early CFPP retirement, and advance broader coal phase-down efforts, helping to strengthen Indonesia’s energy transition framework and build investor confidence.

The outcomes of these proposed policy options are subsequently examined through a regulatory gap assessment, which identifies areas within Indonesia's current regulations that may benefit from adjustment or enhancement. The insights and observations derived from this assessment are presented in Section 5.1 Key Findings.

4.3 Impact Analysis of the Proposed Policies

This analysis seeks to provide an impact and sensitivity analysis on the proposed policy options, as set out in section 4.2. It employs both qualitative and quantitative approaches to assess the potential impact of the proposed policy measures. The quantitative analysis focuses on evaluating the fiscal implications of removing or mitigating quantifiable disincentives, including adjustments to government expenditure and revenue. Through this dual approach, the deliverable aims to provide an understanding of how these measures can accelerate Indonesia’s energy transition.

Among the policy options considered, the adjustment of the DPO and associated mitigation mechanisms such as reallocating electricity subsidies to maintain affordability and/or directing revenue from coal export royalties to support these subsidies are quantified for their potential impact. In addition, a CBA is undertaken to assess the overall economic viability of implementing RE incentives as an integrated policy package, with particular emphasis on timely RE deployment.

4.3.1 Qualitative Analysis

The findings of the qualitative analysis are summarised below:

Table 4-3 Summary of Qualitative Analysis

| Proposed Policy Option | Advantage | Disadvantage |
|--|--|---|
| Adjusting ceiling prices and providing an escalation clause to account for inflation | <ul style="list-style-type: none"> • May enhance project bankability by improving internal rates of return, attracting private investment, and supporting RE targets. Therefore, RE projects and financing for IPPs may be able to proceed without disruption. • Could stimulate green job creation through RE project development and align with Indonesia’s climate commitments, while boosting investor confidence in long-term policy stability. | <ul style="list-style-type: none"> • Likely to increase PLN’s generation costs, which may lead to higher electricity tariffs unless offset by subsidies. This may increase PLN’s financial burden and also result in a potential increase in energy costs for consumers. • Requires complex coordination with the ministries and banking sector to provide affordable financing and careful design to avoid inflationary pressures. |
| Standardising tender processes and establishing and socialising clear guidelines on RE projects which have PSN status | <ul style="list-style-type: none"> • May reduce negotiation burdens and administrative delays, creating a transparent and predictable procurement framework that improves project bankability. This simplifies the overall process and reduces effort for the government to monitor the negotiations. • Could accelerate RE deployment by granting PSN projects access to fast-track permitting and tax incentives, enhancing investor confidence. | <ul style="list-style-type: none"> • Initial restructuring within PLN and government agencies may increase short-term costs and require significant training and system upgrades. • Risk of political scrutiny or perceived favouritism in PSN classification, which may undermine stakeholder trust if not managed transparently. |

| Proposed Policy Option | Advantage | Disadvantage |
|---|---|--|
| Development of Transmission Lines in Proximity to RE Plants | <ul style="list-style-type: none"> • May significantly reduce grid connection costs for developers, improving financial viability and accelerating project timelines. For PLN, this may result in more strategic grid planning and management, as well as reduced delay in connections. For consumers, this enhances access to cleaner energy. • Could enhance system reliability and unlock green financing opportunities by aligning transmission development with RE clusters. | <ul style="list-style-type: none"> • Requires substantial upfront investment and long-term planning, with potential fiscal challenges and land acquisition delays. This may also lead to tariff adjustments, which may affect consumers. • Risk of stranded assets or underutilised infrastructure if RE projects in targeted clusters are delayed or cancelled. The dependence on government/PLN timelines may lead to further delays. |
| Improving RE competitiveness through adjusting DPO and mitigating short-term impacts of increased electricity prices for lower-income households | <ul style="list-style-type: none"> • May increase the competitiveness of RE by removing artificial price advantages for CFPPs, supporting energy transition goals. • From the government point of view, this rectifies a policy imbalance and incentivises RE at a national level. • Could incentivise cleaner energy adoption and align pricing structures with market principles, improving transparency. | <ul style="list-style-type: none"> • Potential for consumer tariff increases and political resistance due to coal's economic significance and regional employment dependence. This may result in the need for subsidies for low-income households. • May disrupt existing fiscal arrangements, requiring adjustments to royalty structures and subsidy mechanisms to maintain affordability. Moreover, this may potentially disrupt contracts and planning for coal producers. |
| Facilitate System Stability through RE Development with Right-to-Match Privilege for early-retiring CFPPs | <ul style="list-style-type: none"> • May enable a smoother transition by allowing CFPP owners to pivot to RE, reducing stranded asset risks and leveraging existing infrastructure. • Could attract financing for early CFPP retirement and RE development by lowering integration costs and improving bankability. • This would result in a more efficient procurement process, since there is no need for prolonged procurement for new RE power plants. | <ul style="list-style-type: none"> • Risk of reduced competition in tenders, which may lead to higher procurement costs, limiting innovation and resulting in potentially higher long-term electricity costs for consumers. • Requires regulatory amendments and strong oversight to prevent misuse and maintenance of technical quality standards. • Potential for dominance by CFPP owners in the RE procurement process. |
| Revising policies to encourage flexibility in biomass pricing for co-firing | <ul style="list-style-type: none"> • May make biomass co-firing more attractive by allowing PLN and IPPs to source high quality feedstock that is linked to an established standard, supporting RE targets. • Could incentivise biomass feedstock suppliers to supply high-quality feedstock domestically, expanding the biomass market. | <ul style="list-style-type: none"> • Price volatility and inconsistent biomass quality may complicate procurement and affect combustion efficiency. Moreover, implementation of co-firing may result in prolonged dependence on coal. • Additional quality assurance protocols may be necessary, increasing operational complexity and administrative costs. |

While these policies present significant opportunities for progression, they also entail various risks and trade-offs that must be considered comprehensively, such as regulatory amendments and stakeholder resistance, necessitating strategic implementation to achieve effective outcomes. Additionally, one concern is the impact on land use, as implementing RE technologies can lead to ecosystem disruptions and social displacement. This is particularly relevant when considering the mining of minerals required for the manufacture of renewable energy components, which can disturb local ecosystems. Additionally, renewable energy infrastructure development can displace communities and alter traditional land usage, incurring significant costs in Indonesia's diverse ecological and social landscape. A crucial aspect involves potential job losses or shifts, especially in vulnerable regions dependent on CFPPs, which may experience economic disruption as the country transitions to more renewable energy sources. These externalities are not covered in the quantitative impact analysis presented in the next section. However, this highlights the importance of implementing a Just Transition approach to minimise these externalities and ensure equitable and sustainable development for all stakeholders involved. According to JETP Indonesia, a Just Transition is an energy transition in which the resulting social, economic, and environmental risks and opportunities are equitably distributed among stakeholders according to their capacity and conditions. By adopting this principle and adhering to the Just Transition Framework outlined in the CIPP, stakeholders both within the government and outside of it can follow its guidelines with the aim that no one is left behind during the transition.

4.3.2 Quantitative Analysis

It should be noted that the models are constructed based on a set of assumptions that aim to simplify complex real-world dynamics. While they provide structured frameworks for analysing economic outcomes, they do not fully account for unpredictable or irrational behaviours exhibited by individuals, firms, or governments. Factors such as behavioural biases, sudden policy shifts, geopolitical events, and market sentiment can significantly influence economic variables in ways that deviate from model predictions. Therefore, the results and forecasts derived from these models should not be considered definitive or universally applicable.

The quantitative impact analyses findings are summarised below:

- **Cost Benefit Analysis:** The CBA aims to evaluate the costs and benefits of a timely transition to RE, following the plan set out in the RUPTL. The analysis compares two scenarios: Base Carbon Price and High Carbon Price over 2025–2034, matching the period of the latest RUPTL.

Table 4-4 Results of the CBA

| Results | Units | Values | |
|--|--------|-------------------|-------------------|
| | | High Carbon Price | Base Carbon Price |
| Economic Return | | | |
| Present Value of Economic Costs | Mn USD | (32,590) | (32,590) |
| Present Value of Economic Benefits | Mn USD | 69,231 | 50,729 |
| Economic Net Present Value ("ENPV") | Mn USD | 36,641 | 18,139 |
| Net Discounted Benefit Cost Ratio ("BCR") | - | 2.12 | 1.56 |
| Discounted Economic Internal Rate of Return ("ERR") | % | 38.10% | 25.40% |

Table 4-4 Results of the CBA summarises the economic performance of both scenarios using a 10% social discount rate ("SDR"). The ERR of both scenarios exceed the SDR, indicating the economic viability of a timely energy transition. This highlights the potential net benefits to society and supports the strong economic case for a timely adoption of RE in line with the RUPTL targets.

Sensitivity analyses were conducted for inflation rates, Standard Conversion Factor ("SCF")⁶ and SDRs. These analyses indicate that minor adjustments in the SCF and differences in inflation projections have negligible impact, suggesting reliability in the cost estimates. Furthermore, the transition consistently delivers strong net economic benefits, with positive ENPV, a BCR above 1, and an ERR that exceeds social discount rates across a wide range of discounting scenarios (6% to 15%).

- Impact Analysis of DPO Price Increase on Government Subsidies:** This impact analysis examines the effects of adjusting current disincentives to energy transition, particularly the support for artificially low coal prices caused by the DPO price cap. Adjusting coal prices to better reflect market prices could raise the LCOE for coal by up to approximately 15%, improving the competitiveness of RE sources in comparison. This increase in coal LCOE under the Market Price Scenario is expected to incentivise PLN to adopt more RE, accelerating the development of RE power plants and reducing dependency on coal. Even if global coal prices decline in the future, RE is projected to maintain lower LCOEs, reinforcing its long-term competitiveness. While government subsidies may need to be reallocated to mitigate the impacts of higher electricity tariffs on lower-income households, additional yearly subsidies of USD 451 million may be required to maintain socio-economic stability. Increased government revenues from coal royalties could partially offset this fiscal gap, alongside alternative measures such as utilising coal revenue taxes, passing some costs on to consumers, raising tariffs for certain electricity users, implementing a carbon tax for high

⁶ SCF is a financial adjustment used in estimating costs by converting the prices of non-traded goods into economic prices that reflect their true economic costs. This factor helps in aligning the values of goods and services with broader economic assessments, ensuring that their economic contributions and costs are accurately represented.

emitters, or identifying efficiencies within PLN to invest in cheaper RE. However, if subsidies exceed what can be offset through coal royalties, further study on the potential use of coal revenue taxes would be required, which is outside the scope of this study..

Sensitivity analyses were conducted for inflation, capital expenditure (“CapEx”) and Weighted Average Cost of Capital (“WACC”). The results reveal notable impacts on the LCOE of coal for increases in CapEx and thus, potential increase in subsidies to offset the impacts compared to the default scenario.

- **Impact Analysis of Reduced Domestic Demand for Coal:** This impact analysis examines the effects of redirecting reduced domestic coal demand to exports as Indonesia transitions to RE sources for electricity generation. The redirection of coal exports is expected to generate additional revenue for the government through coal royalties. The analysis projects that as the RE usage for electricity generation increases over the period 2025–2034, approximately 89 million tonnes of coal per year, originally allocated for domestic use, can be redirected for export. This shift is expected to generate an additional USD 454 million in average royalty revenues per year under the base coal price scenario over the period. Such income may be allocated to subsidise consumer tariffs to mitigate the potential impacts of the DPO increase on electricity tariffs, which would affect low-income households. In parallel, PLN is expected to gradually shift towards purchasing coal at market prices instead of under the DPO scheme, which could be partially compensated by the additional royalty revenue generated from the redirected coal exports.

In addition to fiscal benefits, this strategy could avoid approximately 446 million tonnes of CO₂ emissions over 2025–2034 (averaging 45 million tonnes annually), contributing to a 7% reduction in Indonesia’s annual fuel combustion emissions compared to 2022 levels and supporting Indonesia’s Enhanced Nationally Determined Contribution targets of 31.89% unconditional and 43.20% conditional reductions by 2030.²⁴ While other countries have also made commitments to decarbonisation, highlighting the vulnerability of Indonesia’s export strategy amidst declining global coal demand, reallocating domestic coal to foreign markets could still provide significant additional royalty revenues annually and help fund the subsidies needed to mitigate impacts from Indonesia’s transition towards RE.

Sensitivity analyses, conducted for coal production, export demand, and coal prices, reveal that variations in export volumes and coal prices significantly impact government revenue in Indonesia, especially for medium and high-quality coal compared to low-quality coal.

Overall, the impact analyses and the CBA support the economic feasibility and beneficial returns on investment associated with Indonesia’s timely energy transition. Specifically, the impact analysis demonstrates the effects of RE competitiveness through DPO adjustment, with costs potentially supported by additional coal export royalties, reallocated due to decreased domestic demand resulting from increased RE adoption. However, it should be noted that this is a high-level analysis of coal markets for the purpose of this study, and a number of assumptions and simplifications have been used. There are many varied factors which can impact this assessment, including the

international and domestic demand and supply of coal, the design of CFPPs for specific types of coal quality, and the forecast prices for coal. In particular, the use of historical production and export figures may not accurately indicate future trends. Further detailed analysis should be performed before any policy adjustments are made.

These impact analyses underscore the potential for significant advancement in Indonesia's energy transition through clear policy actions that encourage RE investment and balance economic effects. Achieving these aims requires a careful strategy, continuous stakeholder involvement, and adaptable policies, ensuring that development is economically viable.

5 Key Findings and Next Steps for Policymakers

5.1 Key Findings

Building on the proposed policies identified in Section 4 as short term, actionable measures that the Indonesian government can prioritise in executing, this report proposes an implementation plan to improve regulatory effectiveness. This plan includes strategic amendments and the rollout of policies that align with the focus areas to accelerate Indonesia's energy transition, by helping to support a resilient and adaptable legislative framework.

Table 5-1 Implementation Plan

| Proposed Policy Option | Required Adjustments to Implement the Proposed Policy Option | Principles to be applied based on higher regulations |
|---|--|---|
| <p>Adjusting RE Ceiling Prices</p> <p>Adjust ceiling tariffs to reflect the generation costs of technology deployed, construction, maintenance, fuel, location, network costs, recognising regional differences in infrastructure readiness, logistical complexity as well as clarification in the costs for projects with BESS. Ceiling tariffs should also reflect money markets and overall market conditions under normal economic circumstances. Where justified, a calibrated escalation clause could be considered to reflect inflation and exchange-rate risks, balanced against expected LCOE optimisations from technology learning curves and supply chain improvements</p> | <ul style="list-style-type: none"> Amend electricity purchase pricing mechanism outlined in PR No. 112 of 2022 and its annexure. The amendment is expected to consider PLN's RUPTL, given that PLN plays a primary role in procuring and purchasing electricity. | <ul style="list-style-type: none"> Law No. 30 of 2007 on Energy ("Energy Law") and GR 40/2025: energy prices must be set based on equitable economic value, reflecting production costs, public affordability, and determined by the government. GR 14/2012: The pricing must take into account construction costs, maintenance costs, fuel costs, and/or network costs, and sound business principles. |
| <p>Standardising tender processes, and establishing and socialising clear guidelines on PSN status for RE projects</p> <ul style="list-style-type: none"> Enhance transparency by making procurement stages, evaluation criteria, and timelines publicly accessible, rather than requiring formal requests through elected Provider List or DPT system. Develop a concise guideline summarising all current incentives, including eligibility and application steps, to improve transparency for stakeholders. | <ul style="list-style-type: none"> Amend PR No. 112 of 2022 to include specific guidelines on negotiation steps and timelines with flexibility based on project scale and complexity to expedite processes. Align PLN's internal policies with PR No. 112 of 2022 for consistent procurement coordination. Align PSN procedures with GR No. 42 of 2021 on Making National Strategic Projects Easier and regional development goals. | <ul style="list-style-type: none"> Article 21 of PR 112/2022 has set maximum timeframes for completion of tender process. PR No. 3/2016 and GR No. 42/2021: Must prioritise the integration of connectivity between infrastructure and/or centres of economic activity to encourage accelerated economic growth. |

| Proposed Policy Option | Required Adjustments to Implement the Proposed Policy Option | Principles to be applied based on higher regulations |
|---|---|--|
| <ul style="list-style-type: none"> Align the designation of PSN status with PLN's RUPTL to help ensure consistency between planning priorities and incentive eligibility. | | |
| <p>Developing transmission lines in proximity to designated RE plant clusters to help minimise connection losses</p> <p>Implement PLN's transmission development strategy and increase the visibility and attractiveness of this incentive by offering IPPs reduced or zero transmission charges when PLN develops supporting infrastructure, with the aim to ensure greater tariff certainty and predictability during bidding.</p> | <p>PLN to follow the transmission strategy laid out in the RUPTL (as legally mandated by MEMR Decree No. 188 of 2025 on PLN's RUPTL for 2025-2034) and implement it with consistency and technical rigor, including developing the Green Enabling Super Grid and Grid Lines to boost system efficiency and RE integration.</p> | <p>No additional considerations based on higher regulations needed.</p> |
| <p>Improving RE competitiveness through adjusting or eliminating the Coal DPO and mitigating short-term impacts of increased electricity prices for lower-income households</p> <p>Adjust the DPO of coal to reflect market prices and implement protective measures for low-income households from potential electricity price increases, to help maintain energy affordability during the transition.</p> | <p>Amendments to MEMR Regulation No. 7 of 2017 on the Procedure for Determining Coal and Mineral Benchmark Prices and MEMR Regulation No. 10 of 2025 on the Roadmap for the Energy Transition in the Electricity Sector should introduce binding provisions for phasing out price-distorting mechanisms, plant retirement schedules, and enforceable deadlines.</p> | <p>MEMR Regulation No. 17/2017: The price determination must consider public interest.</p> |
| <p>Facilitate System Stability through RE Development with Right-to-Match Privilege for RE replacement generation, supporting potential revenue continuity</p> <p>Drive effective coordination and regulatory adaptation to align early CFPP retirements with the RE potential and technology considerations of each area, helping to ensure system stability through timely procurement of replacement RE projects.</p> | <ul style="list-style-type: none"> Amend PR No. 112 of 2022 to introduce a right-to-match privilege in direct selection methods for RE projects replacing retired CFPPs. Develop a ministerial regulation to oversee RE project procurement for CFPP replacements, with defined scopes balancing CFPP owner privileges and opportunities for other developers. A main obstacle in the implementation of early CFPP retirement is legal uncertainty due to risks of state losses from asset impairment or disposal below book value, which could be perceived as corruption. Clearer mandates and supporting documents are needed to provide legal certainty prior to discussing the privileges that may be granted to IPPs whose CFPPs are subject | <p>PR 112/2022: CFPP retirement should consider factors such as electricity supply and demand, capacity, plant age, availability of financial support, and technological assistance.</p> |

| Proposed Policy Option | Required Adjustments to Implement the Proposed Policy Option | Principles to be applied based on higher regulations |
|--|--|---|
| <p>Revising policies to encourage flexibility in biomass pricing for co-firing</p> <p>Encourage flexibility in biomass pricing by developing mandatory SNI quality standards for biomass, linking prices to the SNI standards and clarifying the biomass DMO mechanism. These measures aim to incentivise higher-quality sales to the domestic market, support a domestic supply and increase adoption of co-firing in CFPPs.</p> | <p>to early retirement.</p> <ul style="list-style-type: none"> • Amend MEMR Regulation No. 12 of 2023 on the Utilisation of Biomass Fuel as Fuel Mixture in Steam Power Plants as the pricing strategy does not account for the availability of high-quality biomass and collaborate with the MoE to establish a clear policy for sustainable biomass co-firing. • Develop SNI standards for biomass to justify premium prices and encourage investment in coordination with the National Standardisation Agency and MEMR. • Implement a biomass-specific DMO percentage via ministerial decree under MEMR Regulation No. 12 of 2023 aimed at ensuring a stable and prioritised supply for co-firing. | <p>Article 3, 17 and 18 of MEMR Regulation No. 12/2023: Biomass quality must consider technological developments, producer capabilities, consumer capabilities and needs, specific conditions at each PLTU location, and occupational safety and health and environmental management.</p> |

To complement the implementation plan, a RACI Matrix has been developed to clarify the roles and involvement of key stakeholders throughout each stage of policy execution. This matrix defines which institutions are *Responsible (R)*, *Accountable (A)*, *Consulted (C)*, and *Informed (I)* for each proposed action. By mapping these roles, the framework could create a clear coordination, accountability, and communication among all relevant parties during the regulatory amendment and implementation processes.

Table 5-2 RACI Matrix

| Action Plan | Regulatory Amendments (including new Regulations) | | Supporting Policy | Role of Stakeholder | | | | | | | |
|---|--|--|------------------------------|---------------------|-----|--------|----------|-----|-----|---------------------------|---------------------------|
| | Presidential Regulation | Ministerial regulation | | MEMR | MoF | MoE/MF | Bappenas | PLN | IPP | Association & Industry | Financial Institutions |
| RE tariff adjustment: Priority Adjustment on Ceiling Prices | PR 112/2022 | | | R/A | C | - | - | C | C | C | I |
| Standardising tender process, establishing and socialising clear guidelines outlining PSN status for all RE projects | PR 112/2022 | | | R/A | C | - | C | C | C | I | I |
| Adjust DPO to Reflect Market Price of Coal | | MEMR Regulation 17/2017, MEMR Regulation 10/2025 | | R/A | C | - | - | C | C | C, I | - |
| Facilitate System Stability through RE Development with Right-to-Match Privilege | PR 112/2022 | New Ministry Regulation | | R/A | - | I | - | C | C | I | I |
| Flexibility in Biomass Pricing | | MEMR Regulation 12/2023, new | New ministerial decree | R | - | C | - | R/A | C | I | - |

| Action Plan | Regulatory Amendments (including new Regulations) | | Supporting Policy | Role of Stakeholder | | | | | | | |
|-------------|--|--|----------------------|---------------------|-----|--------|----------|-----|-----|---------------------------|---------------------------|
| | Presidential Regulation | Ministerial regulation | | MEMR | MoF | MoE/MF | Bappenas | PLN | IPP | Association & Industry | Financial Institutions |
| | | Ministry Regulation on Biomass SNI | | | | | | | | | |

Overall, the proposed implementation plan and accompanying RACI framework provide a clear roadmap for advancing regulatory reforms in Indonesia’s energy sector. By outlining both the sequence of actions and the distribution of responsibilities, this approach aims to help strengthen coordination and alignment across institutions. The combined structure supports the smooth execution of policy adjustments in a transparent and collaborative manner, creating a solid foundation for a more resilient and adaptive regulatory environment that might help sustain Indonesia’s long-term energy transition goals. Once these proposed adjustments are implemented, additional lessons learned and proposed policies from international benchmarking with Slovakia and India may serve as the basis for exploring the implementation of energy transition initiatives and identifying further policy options to enable them. A summary of these lessons can be found in Appendix 6.3: Best Practices based on International Benchmarking for reference.

5.2 Next Steps

This report is intended as a resource to support the Gol in achieving its energy transition goals and targets. The analyses and policy options presented provide a foundation for informed decision-making, recognising that the authority to act rests with the government.

If adopted, the implementation of regulatory amendments and additional policy measures for the short-term as set out in the proposed policies identified in Section 4.2, will be subject to the provisions of Law Number 12 of 2011 on the Formation of Laws and Regulations, which governs the legislative process in Indonesia, including planning, drafting, consultation, and enactment. It also includes proposed amendments to PR 112/2022, MEMR Regulation 17/2017, MEMR Regulation 10/2025, MEMR Regulation 12/2023, and the formation of new ministerial regulations and decrees. The publication of this report may help inform the ongoing revisions on PR 112/2022. Changes such as amending the electricity purchase price mechanism to reflect the bankable generation costs of technologies, standardising tender processes and enhancing transparency during procurement stages, and introducing a right-to-match privilege in direct selection methods for RE projects replacing retired CFPPs can significantly improve the bankability of RE projects in Indonesia and accelerate their implementation, supporting the goals set forth in PR 112/2022.

It is important to note that the timeline for the steps to support the proposed policies is indicative and will depend significantly on the cooperation and commitment of all parties involved. The proposed measures fall into two categories: (a) regulatory amendments, which involve revising existing laws or regulations to enable the proposed policy approach; and (b) additional policy measures, which introduce new or supplementary policies to operationalise the proposed approach. Where multiple amendments are required, certain changes can be implemented concurrently, while others such as the introduction of new ministerial regulations under the right-to-match privilege must follow sequential steps to ensure legal authority is established.

Regulatory amendments for these proposed policies, specifically amendments to PR 112/2022, are expected to address key areas such as the adjustment of ceiling prices, standardising tender processes and the PSN status of projects, as well as facilitating system stability through a right-to-match privilege for IPPs retiring CFPPs. Additionally, an amendment to MEMR Regulations No. 7/2017 and No. 10/2025 could also be done to adjust the DPO to reflect market-based coal pricing. These actions may progress through a series of stages, including preparation and stakeholder engagement, drafting of Presidential Regulations and MEMR revisions, followed by public consultations and promulgation. The indicative timeframe for these steps is estimated between six months and one year, depending on coordination and commitment among relevant stakeholders.

In parallel, additional policy measures are proposed to complement these amendments. This includes the introduction of a new ministerial decree to improve flexibility in biomass pricing, these measures may follow a similar sequence of preparation, stakeholder consultation, and policy finalisation, with an indicative completion period of around six months.

It should be emphasised that, although this project prioritised identifying the proposed policies for short-term, actionable implementation, the analysis also produced insights into other high-scoring policies suitable for medium and long-term adoption. As achieving Indonesia's energy transition targets would require a coordinated approach that maximises the combined impact of complementary incentive measures, the proposed policy options outlined in this brief are designed to work together, creating synergies that can address structural barriers, reduce transaction costs, and accelerate investment in RE.

The synergies between the proposed policies, as well as the other high-scoring policies, all contribute to one or more of the three focus areas set out for this project: RE development, CFPP early retirement, and coal phase-down. Details on the potential synergies and possible implications are shown below.

Synergies for RE Development

Medium Term Implication on RE Development:

In the medium term, standardising PPA terms and adjusting ceiling prices might collectively enhance project bankability and ensure that RE developments remain financially attractive. At the same time, the continued expansion of transmission lines and grid modernisation could help address integration bottlenecks and improve the reliability of RE supply across regions. Directing investments in grid modernisation and energy storage can enhance system stability and reliability, enable higher penetration of variable RE, and support smart-grid development, thereby minimising losses in electricity supply.

Long Term Implication on RE Development:

Over the longer term, clarifying carbon credit revenue mechanisms may provide an additional incentive for RE projects, complementing earlier measures such as grid expansion and price adjustments. This can be complemented by publishing clear guidelines for robust MRV plans for emission reductions achieved through the implementation of RE projects²⁵, along with a well-defined framework for carbon credit revenues, which could further incentivise the development of RE and energy efficiency initiatives in Indonesia. Together, these actions may foster sustained investor confidence and align national RE policy with global best practices.

Synergies for CFPP Early Retirement

Short-Medium Term Implication on CFPP Early Retirement

Early retirement of CFPPs requires a combination of incentive measures that balance financial viability with system stability. Recently, MEMR issued Regulation No. 10 of 2025 as an implementing rule of PR 112/2022, setting a roadmap for energy transition and outlining procedures for CFPP early retirement. Under Regulation No. 10 of 2025, PLN is mandated to prepare technical, legal, commercial, and financial assessments for CFPP early retirement. These assessments require

approval from the MEMR. Once approved, they will serve as the formal basis of a mandate for PLN to implement CFPP early retirements in line with good governance and business assessments.

While this marks progress, PLN's preparation of assessments does not necessarily provide regulatory certainty for CFPP owners affected by early retirement. Concerns remain that early retirement could result in asset write-offs for PLN which could be construed as state losses, potentially triggering corruption allegations pursuant to the State Finance Law 17/2003, State Treasury Law 1/2004 and GR 38/2016 on Guidelines on Proceedings of Restitution of State Losses Against Non-Treasury State Official or Other Official. These frameworks may need revisiting to enhance clarity and safeguards. Accordingly, detailed regulations governing CFPPs are still necessary to provide regulatory certainty for project developers. Once this foundation is in place, incentive measures such as adjusting the DPO to better reflect market conditions and introducing the right-to-match privilege could help maintain revenue continuity for developers while encouraging participation in RE projects.

Long Term Implication on CFPP Early Retirement

Over the longer term, establishing clear carbon credit revenue mechanisms may provide additional financial incentives for early retirement by creating new income streams from avoided emissions, supporting a smoother and more sustainable transition away from coal.

Synergies for Coal Phase-Down

Medium Term Implication on Coal Phase-Down

In the medium term, DPO adjustments and flexibility in biomass pricing might help reduce coal dependency by making alternative fuels more competitive and operationally viable. When combined with the right-to-match privilege, these measures could provide CFPP developers with opportunities to participate in RE markets while maintaining revenue stability during the transition period.

Long Term Implication on Coal Phase-Down

Over the longer term, the concurrent implementation of these policy measures may foster stronger alignment across related instruments, leading to a more adaptive and coherent regulatory framework. This approach could help sustain momentum in Indonesia's energy transition, lower transaction costs, and encourage continued investment in renewable energy.

Further Studies

Beyond the shortlisted proposed policies, insights from international benchmarking in countries such as Slovakia, India, Bulgaria, Germany and China can guide the further development of Indonesia's renewable energy policy framework. Once the foundational short-term policies are in place, these lessons can be combined with the synergies noted above, and additional measures used elsewhere, such as RPO and REC, mechanisms for coal phase out, and production-linked incentives, can be assessed through targeted studies to determine their applicability, adaptability and feasibility

in the Indonesian context.

Furthermore, because a number of assumptions and simplifications were used in the high-level analysis of the proposed policies, additional qualitative and quantitative studies should be conducted before any policy adjustments are made. Moreover, engagement with stakeholders, such as PLN, coal power producers, and other relevant associations, will be needed to confirm their receptiveness to the proposed policies before they are implemented.

6 Appendix

6.1 Best Practices Country Filtering

| Filter Number | Filter Name | Filtering Criteria |
|---------------|---|--|
| Filter 1 | Coal producer status | Top coal-producing countries, based on their production levels as of 2022, were listed to match Indonesia's resource conditions. |
| Filter 2 | Share of coal electricity generation as of 2022 | Countries with a coal electricity generation share of at least 8% as of 2022 were included to align with Indonesia's resource conditions and prevent early exclusion where potential countries might have been excluded too early in the filtering process. |
| Filter 3 | Share of renewable electricity generation as of 2022 | Countries with a renewable electricity generation share below 10%, indicating a low share of renewables in their electricity mix, were excluded from the list. |
| Filter 4 | Size of economy in GDP as of 2022 | Countries with a minimum nominal GDP of US\$60 billion were included to ensure economic size comparability with Indonesia. |
| Filter 5 | Government type, conflicts, and electricity market structure | Countries demonstrating at least one of the following characteristics were excluded: 1) a system of governance dissimilar to Indonesia, 2) involvement in war/conflicts, and/or 3) lack of a dominant electricity market player. |
| Filter 6 | Economic performance (GDP per capita, PPP) as of 2022 | Countries with a GDP per capita at PPP more than three times that of Indonesia as of 2022 were excluded to maintain comparability of living standards. |
| Filter 7 | Growth of renewable electricity generation share | Countries with negative growth in renewable energy generation share from 2000 to 2022 were excluded. |
| Filter 8 | Energy Security Index as of 2022 according to the Energy Trilemma Index | The Energy Security Index, developed by the World Energy Council as part of the World Energy Trilemma Framework, defines energy security as "a nation's capacity to meet current and future energy demand reliably, withstand, and recover swiftly from system shocks with minimal disruption to supplies." The World Energy Council measures a country's Energy Security Index (with a scale of 0-100) using three security-related key metrics, namely import independence, diversity of electricity generation, and energy storage. To maintain comparability of energy security levels with Indonesia, countries with an Energy Security Index below 60 were excluded from the list. |

6.2 Relevant Regulations to Indonesia’s Energy Transition

The following table shows the list of relevant regulations governing energy, renewable energy, and energy transition in Indonesia, categorised according to the regulatory hierarchy from laws to ministerial decrees.

| Legal & Regulatory Framework | Key takeaway |
|---|---|
| Law | |
| Law No. 4 of 2009 on Mineral and Coal Mining as lastly amended by Law No. 2 of 2025 on the Fourth Amendment to Law No. 4 of 2009 on Mineral and Coal Mining (“Mining Law”) | The Mining Law establishes the legal framework for the exploration, extraction, and management of mineral and coal resources in Indonesia. It emphasises sustainable mining practices, environmental protection, and the prioritisation of domestic needs. Furthermore, the law underscores the importance of local community development and mandates value-added processing of extracted resources. It is noteworthy that this report specifically focuses on coal as the primary resource for CFPPs. The regulatory environment and policies governing coal mining play a crucial role in influencing or potentially accelerating the early termination of CFPP operations in Indonesia. |
| Law No. 59 of 2024 on the National Long-Term Development Plan 2025–2045 | The RPJPN 2025–2045 outlines Indonesia’s 20-year vision for achieving a sovereign, advanced, and sustainable nation by its centennial in 2045. It establishes the long-term framework for national development, including a transition toward a green economy and energy independence. The plan emphasizes energy diversification, expansion of renewable energy, and reduced reliance on fossil fuels, aligning with Indonesia’s commitment to net-zero emissions by 2060 or earlier. |
| Law No. 6 of 2023 on Stipulation of Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation to become Law (“Job Creation Law”) | This regulation is an omnibus law that aims to streamline various regulatory frameworks to boost economic growth and job creation in Indonesia. The Job Creation Law introduces several new provisions into several laws (i.e. Geothermal Energy Law, Electricity Law, and Mining Law), including measures that simplify business licensing, enhance investment opportunities, and support the development of enterprises (including RE). |
| Law No. 25 of 2007 on Investment as lastly amended by Law No. 6 of 2023 on Stipulation of Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation to become Law (“Investment Law”) | The Investment Law regulates various aspects of investment, including the types of business entities, the rights and obligations of investors, as well as the facilities and incentives provided to encourage investment. In the context of energy transition, this law provides an important legal basis to attract investment across all sectors and is not specifically directed towards the renewable energy sector. Although there are provisions regarding facilities that provide incentives to investors, only business activities with certain qualifications are covered, and the specific forms of these facilities are not detailed in the Investment Law. |
| Law No. 21 of 2014 as lastly amended by Law No. 6 of 2023 on Stipulation of Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation to become Law on Geothermal Energy (“Geothermal Energy Law”) | The Geothermal Energy Law outlines the regulatory framework for the exploration, exploitation, and utilisation of geothermal energy in Indonesia. Geothermal energy is recognised as a renewable and environmentally friendly resource that plays a crucial role in supporting sustainable national development and improving public welfare. The law also establishes a regulatory framework, including the creation of regional regulations, business licensing, supervision, data management, and resource inventory. |

| Legal & Regulatory Framework | Key takeaway |
|--|--|
| <p>Law No. 30 of 2009 on Electricity as lastly amended by Law No. 6 of 2023 on Stipulation of Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation to become Law ("Electricity Law")</p> | <p>Renewable energy projects in Indonesia are regulated under the Electricity Law. While private business entities, cooperatives, and community organisations are permitted to engage in electricity provision, priority is given to the state-owned enterprise, PT <i>Perusahaan Listrik Negara</i> (Persero) (or known as "PLN"). It is important to note that the provision of electricity is controlled by the state and managed through a licensing regime by both central and regional governments. The Electricity Law mandates that primary energy sources should prioritise new and renewable energy.</p> <p>As the primary entity responsible for providing electricity to the public, PLN is obligated to ensure a reliable and high-standard electricity supply. To meet these standards, PLN is also authorised to purchase electricity from private sectors/independent power producers.</p> |
| <p>Law No. 30 of 2007 on Energy ("Energy Law")</p> | <p>The Energy Law serves as the legal framework for energy management in Indonesia, ensuring energy supply, optimising energy use, and promoting energy sustainability. It emphasises that new and renewable energy sources are regulated by the state to serve the best interests of the people. The formulation of national energy policy is a collaborative effort between the Government of Indonesia and the House of Representatives of Indonesia.</p> <p>Pertaining to renewable energy, the Energy Law specifies that:</p> <ul style="list-style-type: none"> a) The Government must increase the provision of new and renewable energy sources. b) Businesses or individuals involved in renewable energy provision can receive <u>facilitation and/or incentives</u> from the government for a specified period until they achieve economic viability. These incentives will be detailed in government and/or regional regulations. <p>Furthermore, the Government of Indonesia is tasked with facilitating research and development in energy technology to bolster the development of new and renewable energy sources, thereby fostering an independent national energy industry. The development of renewable energy initiatives is funded through state revenues generated from non-renewable energy sources.</p> |
| <p>Government Regulation ("GR")</p> | |
| <p>GR No. 40 of 2025 on <i>Kebijakan Energi Nasional</i> (or National Energy Policy)</p> | <p>The KEN, as mandated by the Energy Law, delineates Indonesia's strategy for achieving energy security, independence, and sustainability. It includes several provisions aimed at accelerating the provision and utilisation of renewable energy sources and facilitating the country's energy diversification. The GR sets ambitious targets for the energy mix, aiming for new and renewable energy to comprise 19-23% of the total energy mix by 2030 and at least 53-55% by 2050, contingent upon their economic aspects.</p> <p>The GR also outlines both primary and supporting policies for energy management. The primary policies focus on the prioritisation of national energy development and the optimal utilisation of national energy resources. This involves adhering to principles that promote the use of renewable energy and the exploitation of various renewable energy sources.</p> |

| Legal & Regulatory Framework | Key takeaway |
|--|--|
| GR No. 28 of 2025 on Implementation of Risk-Based Business Licensing | GR 28/2025 is a legal instrument of Indonesia's broader initiative to simplify and streamline business licensing processes, including those pertaining to the energy sector. The regulation aims to reduce bureaucracy and expedite the business licensing process through the implementation of an electronic licensing system named Online Single Submission Risk Based Approach (“OSS-RBA”). By classifying licences based on risk levels and applying proportional supervision, GR 28/2025 seeks to attract more investments by providing legal certainty and enhancing efficiency and transparency. |
| GR No. 36 of 2023 on Foreign Exchange Export Proceeds from Business, Management, and/or Processing of Natural Resources as lastly amended by Government Regulation No. 8 of 2025 on the Amendment to GR 36 of 2023 on Foreign Exchange Export Proceeds from Business, Management, and/or Processing of Natural Resources | Under GR No. 36/2023, Indonesia’s mining sector is subject to Foreign Exchange Export Proceeds (“DHE”), mining exporters in Indonesia with a FOB export value of at least US\$ 250,000 are required to deposit their foreign exchange earnings into designated DHE accounts in Indonesia, corresponding to the amount listed in the Export Customs Notice (“PPE”). |
| GR No. 12/2023 on the Granting of Business Licences, Ease of Doing Business, and Investment Facilities for Business Actors in the Capital City of the Nusantara, as lastly amended by GR No. 29/2024 | GR 12/2023 regulates incentives, tax reduction facilities, and ease of taxation if a business undertakes the development of public service infrastructure in the form of new and renewable energy power plants. However, this regulation is specifically aimed at business operators conducting activities exclusively in the Capital City of the Nusantara to promote accelerated development. |
| GR 49/2022 on Exempted Value-added Tax and Value-added Tax or Non-collection of Value-added Tax and Luxury Goods Sales Tax on Imports and/or Delivery of Certain Taxable Goods and/or Delivery of Certain Taxable Services and/or Utilisation of Certain Taxable Services from Outside of the Customs Area | GR 49/2022 revoked GR No.12 of 2001 on Import and or Delivery of Certain Strategic Taxable Goods Exempted from Value Added Tax Imposition which is cited in MOF Regulation 21/2010 that governs tax facilities, including VAT facilities. GR 49/2022 outlines the procedures for obtaining an exemption from VAT imposition. |
| GR No. 25 of 2021 on Implementation of the Energy and Mineral Resources Sector | To implement the Job Creation Law, specifically within the Energy and Mineral Resources Business Sectors, GR 25/2021 was issued. This regulation provides detailed guidelines on governance, licensing, and operational standards for business activities in Indonesia's energy and mineral resources sectors. The primary objective of GR 25/2021 is to improve the management and utilisation of these resources in a sustainable and efficient manner, ensuring that the sector contributes positively to national development and energy security. |
| GR No. 42 of 2021 on Facilities for Nationally Strategic Projects | The regulation governs the facilitation of the implementation of national strategic projects, both in the form of permits and non-permits, provided to accelerate the process of planning, preparation, transactions, construction, and smooth operational control, including the financing mechanism for National Strategic Projects. |

| Legal & Regulatory Framework | Key takeaway |
|---|--|
| GR No. 7 of 2017 on Geothermal Energy for Indirect Utilisation as partially revoked by GR 25/2021 | <p>GR 7/2017 serves as an implementing regulation under the Geothermal Energy Law in Indonesia. It specifically addresses the indirect utilisation of geothermal resources, which involves converting geothermal heat energy and/or fluids into electrical power.</p> <p>In Indonesia, the indirect utilisation of geothermal resources is conducted within designated work areas assigned by the MEMR. These assignments are made in alignment with the national energy policy and the national general plan for electricity.</p> <p>The allocation of these work areas can be accomplished through various methods, including auctions, direct appointments, or limited offerings.</p> <p>According to GR 7/2017, geothermal exploration activities are permitted for a maximum duration of five years from the date the geothermal permit is issued. This period can be extended twice, with each extension granting an additional year. For exploitation and utilisation activities, the regulation sets a maximum duration of 30 years, starting from the date the feasibility study is approved by the minister.</p> |
| GR No. 28 of 2016 on Amounts and Procedures for the Deposit of Geothermal Production Bonuses | <p>This regulation is an implementation regulation for Article 53 paragraph (2) <i>jo</i>. Article 83 of the Geothermal Energy Law which mandates the production bonuses payable by parties involved in the geothermal business to the regional government where the business is located. All businesses involved in geothermal activity (including holders of geothermal-business licences, holders of geothermal-utilisation authorisations, holders of geothermal joint-utilisation contracts, and holders of geothermal-utilisation licences) should pay production bonuses to the relevant regional government from the time that they enter into the commercial-production stage.</p> |
| GR No. 14/2012 as lastly amended by Government Regulation 23/2014 on Electricity Supply Business | <p>GR 14/2012 was enacted to serve as the implementing regulation for the Electricity Law in Indonesia. This regulation establishes the framework governing business activities related to the supply of electricity within the country. It includes detailed provisions on various aspects such as the types of business activities permitted, designated areas of operation, involved entities, licensing requirements, rights and obligations of license holders, compensation for land use, pricing structures, safety standards, and the supervision and guidance of electricity supply activities.</p> <p>A key aspect to highlight is that holders of business licences for electricity supply (<i>Izin Usaha Penyediaan Tenaga Listrik</i>, or “IUPTL”) are mandated to continuously supply electric power that meets established quality and reliability standards. To fulfil this obligation, license holders are permitted to purchase electricity, rent electricity networks, and interconnect electricity networks, all in accordance with the Electricity Supply Business Plan (<i>Rencana Usaha Penyediaan Tenaga Listrik</i>, or “RUPTL”).</p> |

| Legal & Regulatory Framework | Key takeaway |
|---|---|
| Presidential Regulation (“PR”) | |
| PR No. 12 of 2025 on the National Medium-Term Development Plan 2025–2029 | <p>The RPJMN 2025–2029 operationalizes the RPJPN 2025–2045 by setting medium-term priorities for inclusive and sustainable growth. It reinforces the government’s agenda on energy transition through the expansion of renewable energy infrastructure, development of supporting technologies such as energy storage and smart grids, and the gradual phase-out of coal-fired generation. The plan also integrates climate resilience and just-transition principles across all sectors.</p> |
| PR No. 109 of 2025 on the Urban Waste Handling Through Waste Processing Into Renewable Energy Based on Environmentally Friendly Technology | <p>PR 109/2025 serves as the main legal basis to fast-track Waste-to-Energy plants using environmentally friendly technology. It addresses the municipal waste emergency by converting city waste into electricity, bioenergy, renewable fuels, and other products to strengthen energy security and protect public health.</p> <p>The regulation assigns clear roles to local governments to secure and deliver waste feedstock, provide land and supporting infrastructure, allocate budgets for collection and transport, issue local retribution rules, and cooperate across regions when needed. It empowers Badan Pengelola Investasi Danantara through SOE or their subsidiaries to select and invest in the implementing business entity called BUPP PSEL, which will finance, build, own, and operate the facilities. PT PLN is required to purchase the electricity under standardized long-term must-dispatch contracts.</p> |
| PR No. 110 of 2025 on the Implementation of Carbon Economic Value (<i>Nilai Ekonomi Karbon</i> or “NEK”) Instruments and National Greenhouse Gas Emission Control | <p>PR 110/2025 establishes a comprehensive legal framework for Indonesia’s carbon economic value instruments and national greenhouse gas control. It sets national carbon allocation and guides the planning, targets, and execution of the country’s NDC through mitigation and adaptation across defined sectors and provinces. It operationalizes market-based mechanisms for carbon trading via an exchange or direct trades, offsets, and emission trading with caps and quotas, and complements these with results-based payments and carbon levies. It regulates rules for domestic and international trading that require authorization and corresponding adjustment under the Paris Agreement when relevant.</p> |
| PR No. 4 of 2016 on Acceleration of Electricity Infrastructure Development as lastly amended by PR No. 89 of 2025 on the Second Amendment to PR No. 4 of 2016 on Acceleration of Electricity Infrastructure Development | <p>PR 4/2016 is the legal framework designed to expedite the development of electricity infrastructure, ensuring it is effective, efficient, transparent, fair, and accountable. The regulation aims to support the Gol’s ambitious goal of establishing 35,000 Megawatts (“MW”) of electricity infrastructure and 46,000 kilometres (“km”) of transmission lines, a program initiated in 2016.</p> <p>Additionally, the framework prioritises electricity infrastructure that utilises new and renewable energy sources. PLN is specifically tasked with realising this acceleration program.</p> <p>To support this policy, the central and regional governments may provide various facilities, including:</p> <ul style="list-style-type: none"> (i) Fiscal incentives; (ii) Ease of licensing and non-licensing processes; (iii) Determination of purchase prices for electricity from various types of new and renewable energy sources; (iv) Formation of separate business entities to sell electricity to PLN; and (v) Subsidies; |

| Legal & Regulatory Framework | Key takeaway |
|--|--|
| | <p>Under PR 4/2016, the implementation of electricity infrastructure development (“PIK”) is carried out by PLN. This can be achieved through cooperative efforts with PLN subsidiaries or Independent Power Producers (“IPPs”) via purchase agreement mechanisms. Both types of cooperation receive a government guarantee in the form of a business feasibility guarantee for PLN's financial obligations under the electricity purchase agreements.</p> <p>For implementation through cooperation with PLN subsidiaries, PLN must hold at least 51% of the shares either directly or indirectly. This cooperation is contingent on PLN partnering with domestic or foreign business entities that offer strategic value.</p> <p>The implementation of PIK with IPPs is subject to specific conditions, including:</p> <ul style="list-style-type: none"> • The need for substantial funding; • Significant construction risks, particularly in new locations requiring land acquisition; • High risks associated with fuel supply or uncertainty in gas supply and infrastructure; • Utilisation of new and renewable energy sources; • Expansion of existing IPPs’ power plants; and • Development of power plants by multiple IPPs in a specific area. |
| <p>PR No. 112 of 2022 on Acceleration of Renewable Energy Development for Electricity Supply</p> | <p>PR 112/2022 is the latest legal framework issued by the Government of Indonesia with the aim of boosting investment in renewable energy, accelerating the achievement of energy mix targets, and reducing greenhouse gas emissions. This regulation explicitly mandates that PLN draft a RUPTL that incorporates the development of renewable energy sources. Additionally, PLN is required to prioritise the procurement of electricity generated from renewable power plants.</p> <p>PR 112/2022 also revises the pricing mechanism for renewable energy, shifting from the previous BPP model to a ceiling price or negotiated prices, which may or may not consider the location of the projects. These ceiling prices are subject to annual reviews based on the average value of PLN's new contracts.</p> <p>The regulation outlines two procurement methods for acquiring electricity from renewable power plants: direct appointment and direct selection. Direct appointment can be utilised under specified conditions.</p> <p>In the context of the electricity sector's energy transition, the MEMR is tasked with developing a roadmap to expedite the decommissioning of CFPPs, as detailed in sectoral planning documents. Moreover, PR 112/2022 imposes a moratorium on the development of new CFPPs, with exceptions for existing projects planned before the regulation and those meeting certain stringent criteria. As of the date of this report, the Gol is in the process of preparing this roadmap to facilitate the early retirement of CFPPs, and PLN has yet to issue the new RUPTL.</p> |

| Legal & Regulatory Framework | Key takeaway |
|---|--|
| PR No. 10 of 2021 on Investment Business Fields as lastly amended by PR No. 49/2021 | PR 10/2021 shifts from a negative to a positive investment list, which opens most business sectors in Indonesia to foreign investment. Under this regulation, business sectors are now generally 100% open to foreign investors unless specific requirements apply. This move is aimed at boosting foreign investment by simplifying the rules, particularly in sectors like power generation, including new and renewable energy. |
| PR 3/2016 on the Acceleration of the Implementation of National Strategic Projects as lastly amended by PR 109/2020 | PR 3/2016 listed the National Strategic Projects assigned by the government that may submit an application for corporate Income Tax deduction, as referred to in MOF Regulation 130/2020. |
| Presidential Regulation No. 22 of 2017 on the National Energy General Plan (<i>Rencana Umum Energi Nasional</i> or " RUEN ") | Pursuant to the Energy Law, Indonesia's RUEN operationalises the National Energy Policy (<i>Kebijakan Energi Nasional</i> or " KEN "), providing a detailed, cross-sector roadmap for national energy supply, demand, and diversification through 2050. It sets strategies for developing renewable energy, improving energy efficiency, and expanding energy access, and functions as a coordination framework for ministries, state-owned enterprises, and regional governments to meet energy security and sustainability targets. The plan remains effective until 2050, is reviewed and updated at least every five years (or sooner if necessary), and serves as a foundational reference for central and regional development planning, including the preparation of the RUPTL and state budget allocation. |
| PR No. 71 of 2006 on Assignment to PT Perusahaan Listrik Negara (Persero) to Perform the Acceleration of the Development of Coal-powered Power Plants as lastly amended by PR No. 193 of 2014 | Fast Track Program I ("FTP I") is the government's program for accelerating electricity infrastructure development through CFPPs (Based on PR 71/2006). |
| Ministerial Regulation and Decree | |
| Minister of Finance Regulation No. 5 of 2025 on Government Guarantees for Renewable Energy Acceleration Projects | This regulation governs the issuance and management of government guarantees to support renewable energy infrastructure and mitigate investment risks, particularly those associated with PLN's payment obligations. It details eligibility criteria, risk-sharing mechanisms, and claim procedures. The PMK reinforces the government's role in de-risking energy transition investments to attract private and foreign participation. |
| Minister of Industry Regulation No. 35 of 2025 on the Certification of LCR and <i>Bobot Manfaat Perusahaan</i> or Corporate Benefit Score ("BMP") | The regulation modernises the certification system for local-content calculation and introduces a BMP of up to 15% as an additional incentive for companies contributing to national development priorities. It enables digital submission and self-declaration for small industries, significantly reducing processing time. The rule simplifies calculation methods, extends certificate validity to five years with only one surveillance audit, and strengthens the linkage between industrial participation and green, inclusive economic growth. |





| Legal & Regulatory Framework | Key takeaway |
|--|--|
| Minister of Energy and Mineral Resources Regulation No. 10 of 2025 on the Roadmap for Energy Transition in the Electricity Sector | This regulation establishes a strategic framework for Indonesia's energy transition in the electricity sector. It introduces a structured methodology for selecting CFPPs for early retirement using the Analytical Hierarchy Process ("AHP"), incorporating criteria such as age, emissions, system reliability, and just transition. The regulation prohibits new CFPPs except under strict conditions and promotes RE deployment and grid readiness. |
| National Electricity General Plan or Rencana Umum Ketenagalistrikan Nasional 2025 | The RUKN serves as Indonesia's overarching policy and planning framework for national electricity development up to 2060. It sets long-term targets for electricity demand, generation capacity, and energy mix diversification, prioritising renewable energy deployment and system reliability. The plan provides macro-level guidance for electricity infrastructure expansion, grid interconnection, and regional balance in supply-demand planning. |
| Electricity Supply Business Plan or Rencana Usaha Penyediaan Tenaga Listrik 2025–2034 | The RUPTL outlines PLN's ten-year plan for electricity generation, transmission, and distribution development. It operationalises the RUKN's national targets, translating them into concrete project pipelines and capacity additions. The 2025–2034 plan targets a renewable energy share of around 32–35% by 2034, prioritising solar, hydro, and geothermal projects while phasing out older coal-fired power plants. |
| Minister of Energy and Mineral Resources Regulation No. 25 of 2018 on the Mineral and Coal Mining Operations as lastly amended by MEMR Regulation No. 17 of 2020 and partially revoked by MEMR Regulation No. 17 of 2025 on the Procedures for the Preparation, Submission and Approval of Work Plans and Budgets as Well as Procedures for Reporting on the Implementation of Mineral and Coal Mining Business Activities | The regulation provides guidelines for the entire lifecycle of mining activities, from exploration and exploitation to reclamation and post-mining activities. It emphasises the importance of sustainable and environmentally responsible mining practices, including specific requirements for environmental management and community development. Additionally, the regulation outlines the procedures for obtaining and renewing mining permits, the obligations of mining companies, and the mechanisms for government oversight and enforcement. |
| Minister of Energy and Mineral Resources Regulation No. 10 of 2017 on the Main Provisions for PPA as lastly amended by MEMR Regulation No. 10 of 2018 and partially revoked by MEMR Regulation No. 5 of 2025 on The Guidelines for Power Purchase Agreements from Power Plants Utilizing Renewable Energy Sources | Establishes the key elements of the power purchase agreement between PLN and the electricity generation company to ensure fair and transparent electricity supply operations, while providing legal certainty in the implementation of the power purchase agreement. |
| Minister of Energy and Mineral Resources Regulation No. 11 of 2024 on the Use of Domestic Products in the Development of Electrical Infrastructure | This regulation introduces a broader type of power plants which are subject to the local content threshold. The scope of local content threshold includes wind power plants, biomass power plants, biogas plants, waste to-energy plants, and gas engine power plants. |




| Legal & Regulatory Framework | Key takeaway |
|---|--|
| Minister of Energy and Mineral Resources Decree No. 191.K/EK.01/MEM.E/2024 on the Minimum Limit of Combined Domestic Component Level of Goods and Services within the Scope of the Electricity Infrastructure Development Project | This regulation mandates a minimum level of domestic components in goods and services used in electricity infrastructure development projects in Indonesia. It applies to various electricity infrastructure projects, including power plants and transmission lines. |
| Minister of Energy and Mineral Resources Regulation No. 2 of 2024 on On-Grid Rooftop Solar Panel | This regulation covers the development of on-grid rooftop solar panels and regulates rights over the carbon economic value. |
| Minister of Energy and Mineral Resources Decree No. 277.K/MB.01/MEM.B/2024 on the Reference Price of Metal Minerals and the Reference Price of Coal for the month of October 2024 | This Decree establishes the latest reference price for coal. |
| Minister of Energy and Mineral Resources Regulation No. 12 of 2023 on the Utilisation of Biomass Fuel as a Fuel Mixture in Steam Power Plants | Focuses on the utilisation of biomass fuel as a fuel mixture in steam power plants in Indonesia. The regulation aims to reduce dependency on fossil fuels and promote cleaner energy sources by mandating the use of biomass in existing and new steam power plants. It sets out specific guidelines for the types of biomasses that can be used, the blending ratios with conventional fuels, and the technical and environmental standards to be met. Additionally, the regulation provides incentives for power plant operators to adopt biomass fuel mixtures and outlines monitoring and reporting compliance procedures. This initiative is part of Indonesia's broader strategy to enhance energy sustainability and reduce greenhouse gas emissions. |
| Minister of Energy and Mineral Resources Decree Number 14.K/TL.04/MEM.L/2023 of 2023 on Technical Approval for the Upper Limit of Greenhouse Gas Emissions for Coal-fired Power Plants Connected to the Electricity Network of PT Perusahaan Listrik Negara (Persero) for Phase One | MEMR Decree 14/2023 provides categories of coal-fired power plant emissions caps in the appendix of this decree. |
| Minister of Energy and Mineral Resources Decree No. 267.K/MB.01/MEM.B/2022 as lastly amended by MEMR Decree No. 399.K/KMB.01/MEM.B/2023 on the Fulfilment of Domestic Coal Needs | Mandates that coal producers allocate a portion of their production to meet domestic demand. The decree outlines allocation quotas, pricing mechanisms, and compliance requirements to ensure energy security. It also includes monitoring and enforcement measures to ensure adherence to domestic market obligations, balancing domestic needs with export opportunities. |





| Legal & Regulatory Framework | Key takeaway |
|--|--|
| Minister of Energy and Mineral Resources Regulation No. 10 of 2022 on Procedures for Applications for Approval of Sales Price for Electrical Power And Leasing of Electrical Power Networks and Procedures for Applications for the Stipulation of Electrical Power Tariffs | To support holders of Business Licences for Electrical Power Supply in the Public Interest (<i>IUPTL untuk Kepentingan Umum</i> – “IUPTLU”) who have secured business areas (“IUPTLU Holders with Business Areas”) during activities relating to the sale and purchase of electrical power and the leasing of electrical power networks, this regulation sets out procedures for applications for the following: <ol style="list-style-type: none"> 1. Approvals for sales prices for electrical power and leasing; and 2. Determinations of Tariffs. |
| Minister of Energy and Mineral Resources Regulation No. 16 of 2022 on Procedures for The Implementation of Carbon Economic Value within The Power Plant Subsector | The regulation outlines the procedures for implementing carbon economic value in Indonesia’s power plant subsector. It establishes emission upper limits for power plants, mandates the creation of GHG monitoring plans, and sets guidelines for carbon trading, including emission trading and GHG emission offsets. The regulation also details reporting obligations for business actors and introduces a web-based application for calculating and reporting emissions. |
| Minister of Environment and Forestry Regulation No. 21 of 2022 on Procedures for The Application of Carbon Economic Value | The regulation establishes the framework for implementing carbon economic value in Indonesia. It includes guidelines for carbon trading, result based payment, and carbon levies. The regulation includes the energy sector as one of the sectors that can contribute to the carbon economic value implementation. In this case, the energy sector also includes renewable energy. |
| Minister of Maritime Affairs and Investment Regulation No. 5/2022 on the Structure and Work Procedures of the Steering Committee for the Implementation of Carbon Economic Value for Achieving Nationally Determined Contribution Targets and Controlling Greenhouse Gas Emissions in National Development | There is a Carbon Economy Steering Committee that functions to develop cross-field national and international cooperation and is tasked with coordinating the implementation of the carbon economy and the direction of fiscal policy related to it. |
| Minister of Energy and Mineral Resources Regulation No. 7 of 2017 on the Procedures for Determining Benchmark Prices for Sales of Metal Minerals and Coal as lastly amended by MEMR Regulation No. 11 of 2020 | This regulation establishes standardised procedures for determining benchmark prices for the sales of metal minerals and coal in Indonesia. The regulation ensures transparency and fairness by outlining criteria and data sources, such as market prices and production costs, for price calculations. It also specifies the roles of mining companies and the government in the pricing process, aiming to create a stable and predictable pricing environment that supports industry growth and national economic interests. |
| Minister of Maritime Affairs and Investment Regulation No. 6/2020 on the Strategic Plan of the Coordinating Ministry for Maritime Affairs and Investment Year 2020 – 2024 | One of the national development agendas is to fulfil energy needs by prioritising the increase of renewable energy. |





| Legal & Regulatory Framework | Key takeaway |
|---|---|
| Minister of Energy and Mineral Resources Regulation No. 50 of 2017 on the Utilisation of Renewable Energy Sources for the Provision of Electric Power as lastly amended by MEMR Regulation No. 4 of 2020 | This regulation focuses specifically on the utilisation of renewable energy sources for electricity generation. It outlines policies to promote the use of renewable energy sources in Indonesia's electricity sector. It establishes procurement mechanisms to encourage investments in renewable energy projects and aims to diversify the energy mix, enhance energy security, and reduce greenhouse gas emissions by integrating more renewable energy into the national grid. Additionally, it provides a framework for the development of renewable energy projects, including licensing, grid access, and pricing. |
| Minister of Energy and Mineral Resources Regulation No. 19/2017 on Utilisation of Coal for Electricity Generation and Purchase of Excess Power | MEMR Regulation 19/2017 determines the purchase of electricity for power plants using coal based on PPA. |
| Minister of Energy and Mineral Resources Regulation No. 3 of 2016 on Technical Settlements for Land, Buildings and/or Plants Owned by Communities Living in Forestry Areas for the Purpose of Accelerating the Development of Electrical Infrastructure | This regulation is an implementation regulation of PR 4/2016 regarding procedures for the procurement of land owned by local communities in forestry areas for the construction of electrical infrastructure for electrical infrastructure development. |
| Minister of Energy and Mineral Resources Regulation No. 15/2010 on The List of Development Acceleration Projects of Power Plants Using Renewable Energy, Coal and Gas as Well as Related Transmissions as lastly amended by MEMR Regulation 40/2014 | MEMR Regulation 15/2010 establishes the FTP II, which aims to accelerate the development of power plants utilising renewable energy, coal, and gas. This regulation provides a list of power plant projects that will be undertaken by the PLN, and IPPs. |






6.3 Best Practices based on International Benchmarking





| Topic | International Best Practices | Lessons Learned for Indonesia’s Potential Implementation |
|---|--|---|
|  RE Development |  CFPP Early Retirement |  Coal Phase Down |
| <p>Renewable Purchase Obligations</p> <p>(Lesson from India)</p>  | <ul style="list-style-type: none"> • RPOs are quantity-based mandates that require a defined share of electricity to come from renewable sources, and in India, state electricity regulatory commissions (“SERCs”) set the required purchase percentages for obligated entities such as DISCOMs, open-access consumers, and captive generators. The scheme aims to increase renewable adoption, cut dependence on fossil fuels and greenhouse gas emissions, reduce market risk for developers/investors, and build viable markets for clean technologies that are not yet cost-competitive. RPOs are classified into solar and non-solar, with national targets set by the Ministry of Power and incremental state targets set by SERCs based on resource potential, demand patterns, and tariff impacts, and updated periodically to raise the renewable share over time. • Since 2010, RPOs have helped expand India’s non-hydro renewable capacity from ~14 GW to ~155 GW by 2024 (around a 10x increase)²⁶ by creating a stable, mandatory market with long-term targets that provide predictable demand, reduce investor risk, and steadily increase renewable penetration. This is further supported by India’s REC mechanism, under which obligated entities meet their RPOs by purchasing RECs from renewable generators. The REC market provides an additional revenue stream for RE producers, incentivising greater renewable generation and increasing demand for clean power. • Key challenges include uneven implementation due to misalignment between national and state targets; low RPO compliance; REC and green power markets that are still developing, and procurement hurdles (slow distributed and open-access growth; grid and land constraints; delays in PPAs and tariff approvals; weak wind tenders); and DISCOMs’ lock-in to long-term thermal PPAs with capacity charges, which deters new RE commitments. | <p>As of this writing, Indonesia has not implemented any mechanisms similar to that of India’s RPO. Moreover, its applicability may be limited, given that Indonesia has only one utility company, PLN, compared to approximately 100 DISCOMs in India. However, the concept of RECs can still be applicable in the Indonesian context. Although RECs have been introduced by PLN in 2020, the purchase of RECs in Indonesia is on a voluntary basis. To create more demand for RE, increase the adoption of RE, and develop a viable market for clean energy technologies, Indonesia can consider the following:</p> <ul style="list-style-type: none"> • Applicability of RPO: there are two options that Indonesia may explore to implement a similar mechanism to the RPO. <ul style="list-style-type: none"> ○ The first approach involves requiring predetermined consumers (mainly industry or high electricity use consumers) to purchase electricity generated from clean sources at certain level. However, this would necessitate PLN’s ability to distinguish between energy produced by RE plants and that from fossil-fuel-based plants. This can be achieved through allowing power wheeling and direct PPAs between the RE IPPs to consumers. PLN could benefit from this arrangement through charging transmission fees. ○ The second approach involves mandating RPOs through the purchase of RECs from PLN. However, REC availability is currently limited due to the constraints on new RE projects²⁷. This can support PLN in achieving its RE generation targets under the 2025-2034 RUPTL, which calls for significant new RE supply. For this mechanism to be viable, RECs must be backed by additional RE developments—otherwise, the RPO system cannot function effectively due to insufficient supply. • Policy & regulatory framework: A clear, supportive policy and regulatory framework—including, if adopted, RPOs—would strengthen |






| Topic | International Best Practices | Lessons Learned for Indonesia's Potential Implementation |
|--|--|---|
|  RE Development |  CFPP Early Retirement |  Coal Phase Down |
| | | <p>investor confidence and create a conducive environment for investments in the RE sector. This could be reinforced by increasing massive procurement of new renewable projects to build a pipeline of PLN-recognised RECs, which would facilitate RPO implementation and compliance. If RPOs are introduced, targets should be calibrated to reflect resource availability and grid conditions across Indonesia's islands.</p> <ul style="list-style-type: none"> • Availability of grid infrastructure to integrate RE: With the aim to ensure project viability, investments in grid infrastructure and connectivity are necessary. Lack of adequate grid infrastructure would impact the RE development and offtake. • Setting the RPO targets: Depending on the availability of PLN's REC supply, RPO targets could be phased in over several years. This would give long-term visibility for market participants, support system planning and help in optimising the power procurement portfolio of the obligated entities. Initially, it may be preferable for RPOs to apply to industrial and other energy-intensive consumers, while excluding households. • Penalties for non-compliance with RPOs: The penalties for non-compliance with RPOs need to be carefully considered, given that these penalties will indirectly be borne by the consumer through increased tariffs. • Monitoring framework: An appropriate monitoring and reporting framework is necessary for effective implementation of REC purchases and RPO targets, thereby reducing grid dependency on conventional power sources. |
| Utility-scale RE tender + waiver of transmission charges | <ul style="list-style-type: none"> • India moved from feed-in tariffs to tariff-based competitive bidding, scaling utility-scale tenders amounting to around 218 GW issued, with 150 GW allotted; in Fiscal Year ("FY") 2024, the annual target of 50 GW was exceeded with a record issuance of more than 69 GW, underpinned by standardised PPAs, payment security, and reverse auctions. It waived the Inter State Transmission System ("ISTS") charges/losses for renewables (initially solar/wind, later extended to pumped | <p>In Indonesia, utility-scale RE tenders, coupled with waivers of transmission charges, could effectively promote RE development, provided the government finances the waiver either through direct subsidies or through grants. To drive the successful development and implementation of utility-scale projects in the country, it is important to consider the following key aspects:</p> |




| Topic | International Best Practices | Lessons Learned for Indonesia's Potential Implementation |
|---|---|--|
|  RE Development |  CFPP Early Retirement |  Coal Phase Down |
| <p>(Lesson from India)</p>  | <p>storage hydro, Battery Energy Storage System (“BESS”), large hydro >25 MW, offshore wind, green hydrogen/ammonia) to cut delivered costs. It also built enabling grid infrastructure via the Green Energy Corridor (“GEC”) with grants from the Indian Ministry of New and Renewable Energy and international loans to evacuate and integrate renewable power²⁸.</p> <ul style="list-style-type: none"> • These measures accelerated deployment and discovered lower tariffs, improving cost-competitiveness and progress towards national targets (target of 500 GW by 2030). The ISTS waivers reduced landed costs, improving project viability and interstate offtake. The GEC is enabling integration of about 44 GW of renewables, bolstering grid stability and readiness for higher variable shares. • Although ensuring that financial incentives and subsidies remain adequate and sustainable over the long term is challenging, the Government of India has worked to improve loan access and encourage industry participation. Consistent financial support is essential to sustain engagement from both new entrants and existing players. • Challenges include cross-subsidisation from the ISTS waivers (prompting calls for capacity caps or budget-funded subsidies), flexibility needs that reduce offtake of standalone solar/wind in favour of firm products, and uneven tendering where RPO-compliant, resource-rich states slow issuance. Aggressive bidding has harmed project viability, delaying commissioning and dampening participation, while land, right-of-way and forest clearances have slowed transmission and projects. Addressing these issues will require clearer cost allocation, continued firm/dispatchable procurement models, and stronger risk-sharing and implementation discipline. | <ul style="list-style-type: none"> • Developing a pipeline of projects: Through the RUPTL and the National Electricity General Plan or <i>Rancangan Umum Ketenagalistrikan Nasional</i> (“RUKN”), an RE master plan outlining the project pipeline serves as a guiding document for project development. To support this pipeline, transmission and RE procurements should follow a regular schedule that specifies timing, capacity (MW), expected value, and potential investment, and be updated regularly to drive consistent, sustainable growth. By adopting a long-term strategic approach, the plan demonstrates government commitment to sector development and enhances investor confidence in the country’s adoption of RE. • Policy and regulatory framework: A well-defined, supportive policy and regulatory framework creates a favourable ecosystem for project development. Government initiatives would help accelerate deployment by providing market certainty and stability, incentives for RE development, and support for technological advancement, thereby boosting investor confidence. Additionally, the government could address bottlenecks in the existing framework that hinder project development and the growth of the supporting ecosystem. For example, to implement waivers similar to India’s ISTS policy, further studies are needed to analyse the transmission subsidies required for PLN—quantifying the required subsidy and clarifying whether transmission charges and/or losses would be covered. This analysis would assist the government in designing regulations if it chooses to implement waivers of transmission charges. • Stakeholder engagement: Engaging stakeholders—including PLN, the government, and donors such as the World Bank and Asian Development Bank—could help secure grants or low-cost loans to fund the waivers. Establishing effective communication channels and incorporating stakeholder feedback into decision-making processes fosters a sense of ownership and facilitates smooth project implementation. |

| Topic | International Best Practices | Lessons Learned for Indonesia's Potential Implementation |
|--|--|--|
|  RE Development |  CFPP Early Retirement |  Coal Phase Down |
| <p data-bbox="205 329 373 467">Production Linked Incentives ("PLI")</p> <p data-bbox="205 540 373 602">(Lesson from India)</p>  | <ul data-bbox="401 318 1083 1395" style="list-style-type: none"> • Surging solar demand outpaced domestic manufacturing, making India heavily reliant on imported photovoltaic ("PV") cells and modules. To curb import dependence, the government introduced tariff barriers (e.g., safeguard duty), made domestic manufacturing one of the key pillars of India's long-term development strategy²⁹, and implemented a PLI scheme across 14 key sectors, comprising labour-intensive and heavily import-dependent sectors. Implemented by the Ministry of New and Renewable Energy, the PLI scheme targets manufacturers of high efficiency- PV modules/cells. Financial rewards are awarded based on the volume of high-efficiency solar modules they produce and sell, the level of local value addition, the performance of their modules, and the degree of manufacturing integration. This is offered for a period of five years to selected solar PV manufacturers following commissioning³⁰. Aimed at building domestic manufacturing capacity, the scheme has a total outlay of approximately US\$3 billion, and awards incentives through a transparent bidding process. • As a result, PV manufacturing scaled rapidly—modules from 15 GW (2020) to 64.5 GW (2023) and cells from 3 GW to 5.8 GW³¹—supported by 48,337 MW of PLI allocations to domestic solar PV module manufacturers and strong job creation (101,487 jobs under the PLI Tranche-II scheme)³². India is moving toward upstream integration, improving supply security, cost control, and attracting new entrants like ReNew and First Solar while strengthening micro, small & medium enterprises ancillaries. Overall, domestic capacity growth reduces import dependence and underpins India's progress toward ambitious renewable targets. • Despite the gains from PLI, implementation faced challenges: early investor scepticism driven by the perceived lower quality and higher cost of domestic modules versus imports, though measures like Domestic Content Requirement and Make-in-India have since attracted investment and boosted | <p data-bbox="1104 329 1871 570">PLIs have enabled India to reduce import dependence while increasing the production capacity and competitiveness of its solar PV modules. Indonesia can draw on these lessons by tailoring performance-linked incentives and complementary policies to catalyse domestic manufacturing and reduce supply-chain risks. To strengthen Indonesia's manufacturing capacity to meet its local content requirements ("LCR"), it is important to consider the following:</p> <ul data-bbox="1104 589 1871 1395" style="list-style-type: none"> • Policy framework to boost manufacturing and reducing import dependence: To stimulate the domestic manufacturing sector, the Indonesian government has recently prohibited the export of quartz sand and silica sand, which are essential materials for solar PV modules. However, limited manufacturing capacity, reliance on imported materials and equipment, and a limited number of RE projects have reduced the effectiveness of the LCR policy. Drawing on India's experience, Indonesia could introduce PLI-style financial incentives to support domestic manufacturing of solar PV modules and/or other RE technology components. These measures should be supported by a clear and supportive policy framework with long-term commitments and a defined incentive period (e.g. five years, as in India). • Enhancing domestic market and demand: With the RE segment in Indonesia still at an early stage, it is critical to encourage the adoption of RE sources including solar energy through favourable policies, incentives for rooftop installations, and utility-scale solar projects to create a sustainable domestic market for locally manufactured solar PV modules. Introduction of policies focusing on local value addition could also aid in enhancing investor confidence to set up the manufacturing facilities. • Establishing parameters: It would be beneficial for the policy to define the performance standards such as module efficiency and temperature co-efficient, to maintain the quality of the solar modules and to be competitive with the imported goods. Moreover, the financial incentives may be linked with parameters such as LCRs to |

| Topic | International Best Practices | Lessons Learned for Indonesia's Potential Implementation |
|--|--|---|
|  RE Development |  CFPP Early Retirement |  Coal Phase Down |
| <p>EU Emission Trading System</p> <p>(Lesson from Slovakia)</p>   | <p>demand. PLI also does not fully address research and development gaps or dependence on key inputs from China, prompting parallel initiatives to foster innovation, build local raw-material ecosystems, and prioritise integrated manufacturing to enhance resilience. Moreover, rapid PV technology shifts (e.g., from polycrystalline to mono-PERC and beyond) require manufacturers to design flexible, upgradable production lines and continuously adapt to remain competitive.</p> <ul style="list-style-type: none"> • Slovakia has progressively integrated its energy sector into a market-based approach to cutting emissions by participating in the EU ETS, a cap-and-trade scheme that limits total emissions and requires polluters to surrender tradable allowances. Allowances are obtained via auctions, free allocation, or secondary markets, with one allowance equal to one tonne of CO₂e. Auction revenues are channelled to energy-related priorities, including premiums for renewable operators. • The EU ETS has contributed to emissions reductions in covered sectors and generated revenues that can further support clean energy and climate initiatives. By adding a carbon cost, it shifts the merit order toward low-marginal-cost renewables (wind and solar) and away from coal, making coal-fired plants largely peak-only and less competitive. Overall, it strengthens the price signal favouring decarbonisation. • It is difficult to isolate the Emissions Trading System (“ETS”)’s exact impact due to overlapping policies and economic factors, and there is a risk of carbon leakage if firms move to jurisdictions with weaker rules. The ETS alone cannot deliver Slovakia’s climate targets and must be complemented by measures such as FITs, increased nuclear generation, energy efficiency in buildings, and air pollution taxes. Rising carbon costs also elevate electricity prices from polluting sources, | <p>promote the use of domestically sourced materials and services in the manufacturing of solar PV modules.</p> <p>While the EU ETS is a sophisticated mechanism, Indonesia can still draw useful lessons from it and consider adoption once foundational incentives to accelerate the energy transition are in place. Lessons include:</p> <ul style="list-style-type: none"> • Complementary measures: Carbon tax policies are powerful tools for reducing emissions, but they are most effective as part of a broader energy/climate and just transition strategy. Complementing carbon tax with measures like energy efficiency standards and RE can drive more effective energy/climate transition results. Additionally, incorporating early-stage incentives like FITs for RE can accelerate their deployment. Complementing this with just transition grants and financial instruments (for measures such as land repurposing, industrial zones, reskilling) is key to enable economic restructuring and diversification for affected vulnerable regions where coal mines & CFPPs are located. • Managing the risk of investment losses: Nations implementing a carbon tax system need to consider the risk of loss of investment by investors that seek to move their business operations to countries with less stringent carbon policies. If Indonesia adopts more strict carbon policies in the future, policymakers may explore risk mitigation measures such as carbon border adjustments for products made in other countries with less strict carbon rules (such as has been implemented by the EU). • Interoperability between EU ETS and Indonesia’s ETS: Once more foundational incentives are already underway, Indonesia can consider linking with other emissions trading systems, which can reduce the |

| Topic | International Best Practices | Lessons Learned for Indonesia's Potential Implementation |
|---|--|--|
|  RE Development |  CFPP Early Retirement |  Coal Phase Down |
| | <p>requiring careful policy design to manage competitiveness and affordability.</p> | <p>cost of cutting emissions, increase market liquidity, stabilise carbon prices, align carbon prices across countries, and assist global cooperation on climate change. To enable potential EU-Indonesia ETS linkage, Indonesia would need to expand coverage beyond power plants to align with EU sectors (energy, heavy industry, forestry, aviation), transition from an intensity-based cap to an absolute cap with tradable allowances, make its ETS mandatory, and harmonise MRV standards with EU requirements. Currently, Indonesia has only just started with the Technical Emissions Ceiling Approvals or <i>Persetujuan Teknis Batas Atas Emisi</i> for CFPPs. Therefore, more targeted policy development, adaptation to the local context, and further studies will need to be undertaken once foundational incentives are established and functioning in Indonesia, in order to enable large-scale implementation of carbon policies.</p> |
| <p>Biomass co-firing in thermal power plants</p> <p>(Lesson from India)</p>  | <ul style="list-style-type: none"> The Indian government has introduced mandatory co-firing requirements, financial incentives, regulatory support, and market mechanisms to promote the adoption of biomass co-firing. These measures enhance RE investments, accelerate technology adoption, and attract private sector investment, creating a conducive environment for cleaner energy production. India is advancing biomass co-firing by mandating 5% blends in FY 2024-25 rising to 7% in FY 2025-26, setting Indian Central Electricity Authority ("CEA") benchmark pellet prices³³, and overseeing implementation through The National Mission on Use of Biomass in Thermal Power Plants ("SAMARTH") with boiler-specific Standard Operating Procedures and an exemption pathway via the CEA Exemption Committee for Biomass. The viability of co-firing is supported by capital subsidies, Reserve Bank of India priority lending, and tariff recovery via Energy Charge Rate. This means that co-firing costs are recoverable under India's existing tariff regimes, since they are included in the Energy Charge Rate and passed through in tariff determination. Moreover, the procurement for biomass | <p>Indonesia has currently reached a biomass utilisation target equivalent to approximately 3% of the coal volume managed by PLN, with the potential to reduce emissions by up to 3.3 million tonnes of CO₂e per year³⁴. However, it has yet to successfully develop a landscape to support the implementation of co-firing, from financial incentives such as facilitating access to financing, to business facilitation mechanisms such as infrastructure development to support the storage, transportation and distribution of biomass feedstock. Therefore, to reach a 5% biomass utilisation similar to what India has achieved, it could be beneficial for Indonesia to establish several key mechanisms outlined below:</p> <ul style="list-style-type: none"> Financial Support and Market Development: Implementing financial incentives, subsidies, and facilitating easy access to loans, as seen in India, can foster a supportive environment for biomass utilisation and benefit co-firing CFPPs in Indonesia. By adopting such financial mechanisms, Indonesia can encourage participation from both existing and new stakeholders in the biomass sector, thereby promoting sustainable energy solutions, contributing to environmental goals. |

| Topic | International Best Practices | Lessons Learned for Indonesia's Potential Implementation |
|---|--|--|
|  RE Development |  CFPP Early Retirement |  Coal Phase Down |
| | <p>pellet purchases is streamlined through the Government e-Marketplace (“GeM”) portal and long-term contracts, with ongoing capacity-building via SAMARTH and the National Power Training Institute conferences and trainings.</p> <ul style="list-style-type: none"> As of 15 October 2024, 65 thermal plants have co-fired 1.1 million tonnes of biomass, generating 1,408 MU of power and avoiding 13.4 million tonnes of CO₂; success is driven by a co-ordinated policy mix (financial incentives, regulatory support, benchmark pricing), stable procurement via GeM and long-term contracts, strong leadership from the National Thermal Power Corporation and other thermal power plants, and active stakeholder engagement. Key hurdles—supply chain gaps, boiler retrofit needs, financial sustainability, tariff pass-through delays, and pellet price volatility—are being addressed through SAMARTH guidance and SOPs, CEA price benchmarks and exemption processes, subsidies and RBI priority lending, GeM-enabled procurement with long-term contracts, and tariff recovery. | <ul style="list-style-type: none"> Regulatory Clarity and Support: Providing clear guidelines and support for tariff adjustments and regulatory compliance can ensure that financial burdens related to biomass co-firing are manageable. Establishing a transparent process for tariff determinations and pass-through mechanisms will help in sharing costs equitably across stakeholders. Supply Chain Development: Building a supply chain that ensures consistent quality and availability of biomass material is critical for successful implementation. This includes infrastructure investments to support storage, transportation, and distribution, particularly addressing seasonal availability and quality control. Market Stability through Long-term Contracts: Establishing long-term procurement contracts for sustainable biomass material ensures market stability, reduces volatility, and provides a secure demand for suppliers. This can help in building confidence among stakeholders and create a profitable market to further encourage investments in biomass conversion to pellets for use in power plants. |
| <p>Support Mechanisms for Coal Phase Out</p> <p>(Lesson from Slovakia)</p>   | <ul style="list-style-type: none"> Since 2005, Slovakia subsidised domestic coal production and coal-fired generation to ensure security of supply and protect jobs in Upper Nitra, mandating annual coal-based volumes with preferential grid access and a regulated subsidy per MWh³⁵. Over time, these subsidies imposed rising systemic costs on consumers—exacerbated by EU ETS allowance prices since 2017—and as EU priorities shifted toward clean energy, partners pressured Slovakia to shorten the duration of coal subsidies. It coupled this with a Just Transition approach: an Action Plan for Upper Nitra, EU Just Transition Fund financing, workforce upskilling, and early planning for brownfield repurposing, including Slovenské elektrárne’s plans to install solar PV on the former Nováky plant site and ash ponds. The decision to accelerate the transition away from coal was fundamentally economic. Electricity production at the CFPP | <p>There are several differences between the Slovak and Indonesian contexts. In Indonesia, coal remains economically viable under the DPO scheme, so transitioning would require deliberate regulatory intervention; in Slovakia, by contrast, the shift was primarily driven by economics. Moreover, although Indonesia does not currently have an ETS or access to the EU’s Just Transition funding, it could still benefit from similar grants, which may be channelled through platforms such as the ETM Country Platform via PT SMI. Indonesia can learn from Slovakia’s coordinated, place-based approach—combining transparent policy timelines, dedicated funding, and proactive site repurposing—to design a just, well-sequenced coal transition. To implement a well-supported approach to coal phase-out, Indonesia could consider the following:</p> |

| Topic | International Best Practices | Lessons Learned for Indonesia's Potential Implementation |
|--|---|---|
|  RE Development |  CFPP Early Retirement |  Coal Phase Down |
| | <p>Novaky was viable only because it was subsidised. Once subsidies were withdrawn, coal generation became uneconomic. However, the management of the removal of the subsidies was announced sufficiently long before it entered into force. Therefore, local stakeholders had sufficient time to prepare and adapt. Additionally, national and local authorities could prepare support scheme and effectively communicate with the local public, how the socio-economic challenges related to the subsidy removals will be addressed. On the national level, expected loss of generation capacity prompted national authorities and investors to plan construction of new RE capacity to replace the coal power plant.</p> <ul style="list-style-type: none"> • The transition is also supported by dedicated EU grants and loans, which may incentivise the build-up of wind turbines and PV installations of various sizes. Furthermore, EU grants were available for Just Transition measures directed towards economic diversification, skills development, and site regeneration, easing the shift from coal to cleaner energy. Planning for renewable capacity and reusing existing grid connections supports faster integration of renewables. • Coal's phase-out risked significant socio-economic impacts in Upper Nitra due to high employment dependence and regional isolation. Plant owners were reluctant to retire assets before end-of-life, requiring clear repurposing visions, financial support, and environmental approvals to unlock early closure. Coordinating multi-level authorities, executing land remediation, and attracting investment to brownfields have remained complex, execution-sensitive tasks. | <ul style="list-style-type: none"> • Early announcement and stakeholder engagement: As part of the preparation for coal subsidy removal and consequent coal phase-out, Indonesia can develop a stakeholder engagement strategy, including not only directly affected enterprises, but also local public administrations, the mining unions, civil society and other businesses active in the region. Policy changes should be communicated early and clearly, providing sufficient time for stakeholder engagement, planning and preparation for the transition. Engaging these groups early in the planning process facilitates the identification of local needs and opportunities, driving an inclusive transition and provides a net benefit to communities. • Strategic planning: Adopting lessons from Slovakia's Report on Land Use Plan, Indonesia can provide a strategic approach that extends beyond the financial and operational focus of its current Early Coal Retirement Roadmap outlined in PR 112/2022 and MEMR Regulation 10/2025. By incorporating land use planning into its roadmap, Indonesia can aim to ensure that decommissioned sites are effectively utilised for sustainable development, potentially boosting local economies and supporting national energy objectives. Currently, the roadmap primarily mandates the early retirement of CFPPs without emphasising future site use, which could serve as a valuable incentive for CFPP owners and developers. Further, the development of strategic documents up to the regional level is vital. Indonesia could create a comprehensive plan that involves national and regional authorities, industry stakeholders, and local communities to ensure a coordinated approach to coal phase-out. • Financial support mechanisms: Indonesia can target its financial support to mitigate socio-economic impacts and drive economic diversification in coal-dependent regions. Funding and planning support can target RE, building efficiency, circular waste management, worker reskilling, clean public transport, and stronger secondary education to equip youth with future-ready skills. Indonesia could adopt similar mechanisms, prioritising workforce retraining and regional development to manage coal plant closures. |

References

- ¹ Ministry of Environment and Forestry. (2022). [Indonesia's Enhanced Nationally Determined Contribution \(ENDC\) to the UNFCCC.](#)
- ² Ministry of Environment and Forestry. (2025). [Indonesia's Second Nationally Determined Contribution \(SNDC\) to the UNFCCC.](#)
- ³ Ministry of Environment and Forestry of the Republic of Indonesia. (2021). [Long-Term Strategy for Low Carbon and Climate Resilience 2050 \(LTS-LCCR\).](#)
- ⁴ Ministry of Energy and Mineral Resources Indonesia (MEMR Indonesia). (2025). [Handbook of Energy & Economic Statistics of Indonesia 2024.](#)
- ⁵ MEMR and PT PLN Persero. (2025). [Rencana Usaha Penyediaan Tenaga Listrik \(RUPTL\).](#)
- ⁶ MEMR and PT PLN Persero. (2025). [Rencana Usaha Penyediaan Tenaga Listrik \(RUPTL\).](#)
- ⁷ JETP Secretariat. (2023). [Comprehensive Investment and Policy Plan.](#)
- ⁸ MEMR and PT PLN Persero. (2025). [Rencana Usaha Penyediaan Tenaga Listrik \(RUPTL\).](#)
- ⁹ Sourced from consultations with Adipala CFPP in 2024.
- ¹⁰ Press Information Bureau (2023), [India's total renewable energy installed capacity.](#)
- ¹¹ Press Information Bureau (2023), [PM's address during the national renewable energy summit.](#)
- ¹² Partnership on Transparency in the Paris Agreement. (2013). [India: Developing renewable energy targets and supporting strategies.](#)
- ¹³ IEEFA. (2021). [Understanding Round-the-Clock Tenders in India: The Current Context and Ways Forward.](#)
- ¹⁴ IEA. (2025). [Slovak Republic Energy Mix.](#)
- ¹⁵ IEA. (2025). [Slovak Republic Energy Mix.](#)
- ¹⁶ European Commission. (2025). [Slovakia.](#)

-
- ¹⁷ Beyond Fossil Fuels. (2025). [Europe's Coal Exit.](#)
- ¹⁸ Brookings. (2025). [Ukraine's energy sector is a key battleground in the war with Russia](#)
- ¹⁹ IEA. (2024). [Countries & Regions: Slovak Republic - Emissions](#)
- ²⁰ IEEFA. (2025). [Challenges in India's Tender-Driven Renewable Energy Market.](#)
- ²¹ SECI. (2025). [Tenders Results.](#)
- ²² Central Electricity Regulatory Commission New Delhi. (2024). [Petition No. 53/AT/2024](#)
- ²³ TheMayor.eu. (2024). [Slovakia shuts down its last coal plant today.](#)
- ²⁴ Ministry of Environment and Forestry. (2022). [Indonesia's Enhanced Nationally Determined Contribution \(ENDC\) to the UNFCCC.](#)
- ²⁵ PwC. (2024). [Indonesia Carbon Market White Paper.](#)
- ²⁶ MNRE - [Physical Achievements | MINISTRY OF NEW AND RENEWABLE ENERGY | India](#)
- ²⁷ Halimatussadiyah, Alin and Kruger, Wikus J.L. and Wagner, Fabian and Afifi, Fachry Abdul Razak and Lufti, Roes Ebara Gikami and Kitzing, Lena. (2024). [The Country of Perpetual Potential: Why is it so Difficult to Procure Renewable Energy in Indonesia?](#)
- ²⁸ Ministry of Power (2023), [Green Energy Corridor project highlights and objectives](#)
- ²⁹ PIB (2020) - [Government Reforms and Enablers across Seven Sectors under Aatma Nirbhar Bharat Abhiyaan](#)
- ³⁰ Ministry of New and Renewable Energy. (n.d.). [Production Linked Incentive \(PLI\) Scheme: National Programme on High Efficiency Solar PV Modules.](#)
- ³¹ Mercom India. (2024) [India's State of Solar PV Manufacturing](#)
- ³² PIB (2023) - [Government allocates 39600 MW of domestic Solar PV module manufacturing capacity under PLI](#)
- ³³ PIB (2023) - [Policy to regulate price of biomass pellets for co-firing with coal in thermal power plants](#)
- ³⁴ CNN. (2025). [PLN EPI Genjot Ekosistem Biomassa, Demi Target 3 Juta Ton di 2025.](#)
- ³⁵ IEA. (2025). [Slovak Republic 2024: Energy Policy Review.](#)