Study on the Financial Implications of the Early Retirement of Coal-fired Power Plants in Indonesia

Terms of Reference | 01 April 2022

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1 BACKGROUND

I. Southeast Asian Energy Transition Partnership

1. The Southeast Asian Energy Transition Partnership (ETP) is a five year, multi-stakeholder platform that aims to accelerate the energy transition in Southeast Asia with objective delivery towards 2025 with a possible extension so that it can contribute to the achievement of the UN's Sustainable Development Goals (SDGs) and the Paris Climate goals by bringing together Government Donors, Philanthropies and Partner Governments.

2. ETP aims to empower its partner countries to transition towards an energy system that simultaneously ensures environmental sustainability, economic growth, and energy security. To achieve this goal, ETP will mobilize and coordinate the necessary technical and financial resources to create an enabling environment for renewable energy, energy efficiency, and sustainable infrastructures in the region.

3. ETP delivers joint action, alignment and improved coordination, and dialogue to accelerate the energy transition in the region by addressing impediments to renewable energy, energy efficiency, and sustainable infrastructures. ETP Members have come together to fund ETP to (1) support an improved delivery environment to accelerate the energy transition in Southeast Asia, (2) improve coordination between other relevant initiatives in the region, including capital investments and technical assistance, and (3) where possible and appropriate, to promote communication and knowledge sharing among stakeholders in the region on energy transition.

4. With an initial focus on Indonesia, the Philippines, and Vietnam, ETP has the mandate to mobilize resources and coordinate the necessary technical assistance to create an enabling environment for the energy transition. This includes high-level technical advisory support, grant-making and capital investment programs, capacity, and skills development programs, and convening of cross-sectoral dialogues with decision-makers and broader sets of stakeholders.

II. Indonesian Commitment to Achieve Net-Zero Emission (NZE)

5. The Government of Indonesia pledged to reduce emissions from 2020-2030 by 29% (unconditional) up to 41% (conditional) against the 2030 business as usual scenario, an increased unconditional commitment compared to the 2010 pledge of 26% in its National Determined Contribution (NDC). This target is aligned with the National Energy Policy (KEN) target to increase renewable energy (RE) utilization in energy production to 23% by 2025 and 31% by 2050.

6. Despite these encouraging targets, the dynamics of the urgency depicted by the impacts of climate change, calls for a stronger and clearer ambition to tackle climate change, thus driving countries to adopt net zero emission (NZE) objectives, with a particular focus on delivering energy transition activities. Hence, there is an urgency for Indonesia, as the world's biggest coal exporter[1] and one of the main emitters, to develop a long-term energy transition scenario for guiding the implementation of the energy transition for all stakeholders, including for coal phase out..

7. At the institutional level, Bappenas is the national development planner and has issued the low carbon development Indonesia (LCDI) pathway to achieving the long-term development strategy for Indonesia

[1] Indonesia exports 455 metric tons (Mt) in 2019 with Australia second biggest exporter by volume at 395 Mt. Source: IEA.

2045 and with targets for RE penetration to reach 30% by 2045. To strengthen the pathway, Government of Indonesia through Ministry of Environment and Forestry (MoEF) submitted the Long-Term Strategy on Low Carbon and Climate Resilience 2050 (LTS-LCCR 2050) to the UNFCCC prior to the COP26 Meeting[2]. This document described that the electricity sector will be the prominent driver in achieving NZE and targets 32% of RE in the energy mix by 2050. In addition, the Ministry of Energy and Mineral Resources (MEMR) completed these pathways by announcing a Roadmap to NZE 2060 and started the coal-fired power plants (CFPPs) retirement according to its lifetime range (between 25-30 years). Hence, Indonesia is set to achieve the NZE by 2056 forward (see Graph 1).

III. Project background

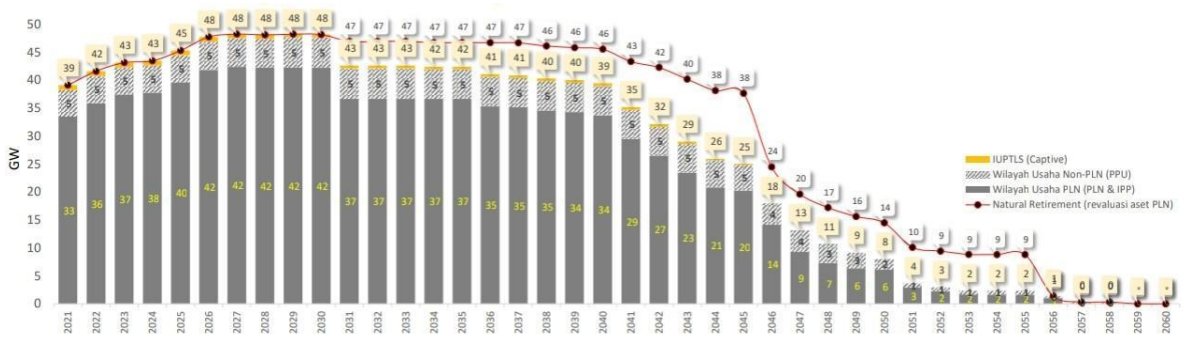
1. Early Retirement of Coal-Fired Power Plant (CFPP) to Develop a Cleaner Electricity Sector

8. In 2020, coal fuels around 37% of global electricity generation and despite the significant decrease of the Final Investment Decisions (FIDs) compared to 2015, however its FIDs in 2020 still reached 20 GW where most located in Asia (Cambodia, Indonesia, and Pakistan accounted for 5 GW FIDs).[3] Thus, greater efforts are needed by governments and industry to develop and deploy less polluting and more efficient technologies. The emergence of Environmental, Social and Governance (ESG) initiatives have triggered the leading financial institutions to avoid new investment in coal and move towards coal retirement financing facilities. Such facilities propose solutions to purchase CFPP in developing countries from the existing owners and retire the plants in 10 to 15 years, thus reducing their original life of 30-40 years of operation and be replaced by RE.[4]

9. During COP26, the Minister of Energy and Mineral Resources stated that Indonesia will start its first stage of early CFPP retirement from 2031-2035. This will be backed up with the increase of RE utilization up to 57% by 2035. The second stage, from 2036-2040, targets an increase in the RE shares to 66% by 2040.[5] Nonetheless, early CFPP retirement could be conducted before 2030 with the first target to retire 5.5 GW (see Graph 1) of coal-fired power production capacity to accelerate NZE to 2040. The Minister for Finance (MOF), in turn, indicated that such an acceleration would require a comprehensive assessment on the financial impact, including a huge level of investment.[6]

[2] https://unfccc.int/sites/default/files/resource/Indonesia_LTS-LCCR_2021.pdf
[3] https://www.iea.org/reports/coal-fired-power
[4] Maamoun, N., Kennedy, R., Jin, X. and Urpelainen, J., 2020. Identifying coal-fired power plants for early retirement. Renewable and Sustainable Energy Reviews, 126, p.109833.
[5]https://www.esdm.go.id/en/media-center/news-archives/speaking-at-cop26-energy-minister-gives-indonesias-commitment-to-net-zero-emission
[6]https://www.reuters.com/world/asia-pacific/indonesia-could-phase-out-coal-by-2040-with-financial-help-minister-2021-11-02/

Graph 1. Coal Phase-Out Plan 2060
(CFPP will be replaced with NRE PP)



Source: MEMR, 2021

10. There is strong support from international donors for the energy transition work in Indonesia. The World Bank and the Asian Development Bank (ADB) support early retirement of PLN's CFPPs. The phasing out of coal became one of key agendas under the Friends of Indonesian Renewable Energy (FIRE) dialogues, while UK-Foreign, Commonwealth and Development Office (FCDO) is preparing support to a study on the early retirement of the Independent Power Producers' (IPPs) facilities. In a series of discussions with FIRE stakeholders, ETP was approached to deliver a study on the financial implications of the early CFPP retirement with regard to the national fiscal conditions. Simultaneously, PLN also seeks ETP to assess the impacts of such programs on its financial conditions and to build a comprehensive model for selecting the CFPPs for an early retirement. Formulation of such criteria will help PLN prioritize its facilities for early retirement and take action toward implementation of early retirement plans. ETP's support can furthermore assist the Government and PLN pick appropriate CFPPs for demonstration effects, including those with the lowest capacity factors and/or the highest emitters.

11. The government needs to estimate the costs and benefits stemming from the early retirement of the CFPP on PLN under these alternative arrangements. Such an impact study needs to focus on the financial implications, cash flow and balance sheet impacts of the early retirement program to the government of Indonesia, PLN, and the consumers. While the direct impact affects PLN, the early retirement plans impact also on the MEMR as the regulator, the Ministry of State Owned Enterprises (MSOE) as the owner representative of PLN and MOF representing the national fiscal considerations as well as implications regarding fiscal measures relating to alternatives for the subsidies for public service obligation for electricity, among others.

12. Coal carries significant importance in Indonesian national fiscal revenue formation as well as in economies of certain provinces that heavily rely on the coal industry such as East Kalimantan, South Kalimantan, and South Sumatera. Based on the MEMR Annual Performance Report 2020[7], mining and coal industry generated IDR 34.6 trillion (around 80% of it coming from the coal) revenue, only from the non-tax revenue, whereas other revenue resulted from land rent, royalties and sales of exported coal that in total contributed to around 2% of total national fiscal revenue. In 2020, a study of the Institute for Essential Services Reform (IESR) indicated that the share of coal industry in the 3

7 MEMR Annual Performance Report 2020, https://www.esdm.go.id/assets/media/content/content-lapoan-kinerja-kesdm-2020.pdf

coal-dependent provinces accounted for between 7%-34% in 2018.[8] Hence, the early retirement of CFPP will drive the Government of Indonesia to encounter these economic implications as they will have a significant impact on the national financial performance and economic impact in the coal provinces.

13. The early retirement initiatives will need to include policy dialogue and assessment of the readiness of early retirement in Indonesia, important to accelerate the energy transition. In addition, the Government will need to build a financial framework and a comprehensive strategy and an implementation roadmap for early retirement of CFPP that considers the overall impacts to the electricity sector, including PLN's balance sheet, tariffs, subsidies, energy sector finance, and state fiscal conditions, and provides a systematic and coherence methodology for addressing these to ensure stable and controlled transition with positive employment, welfare, fiscal and financial impacts. An underpinning assumption is that the government agencies will facilitate the early retirement and collaborate among one another, particularly MEMR and MOF, with the strong support received from other ministries such as MSOE, Bappenas, and Coordinating Ministry of Maritime and Investment Affairs (CMMIA) to ensure the delivery of a realistic transition that will benefit Indonesia and enable Indonesia achieve its NZE target.

2 PROJECT DETAILS

IV. Rationale

14. This study aims to support the Government of Indonesia in analyzing, evaluating and providing suggestions on the current and alternative coal abatement pathways with respect to their financial implications.

15. The study will (i) review the Government's early retirement plans and provide an evaluation of these with suggestions and alternatives for the Government's consideration in view of its NZE target; (ii) it will develop a clear and quantitative analysis of the financial implications of the proposed early retirement roadmap at national financial and fiscal levels as well as identify implications for PLN as well as provide an assessment of the energy sector viability and pathways to enable a secure supply of energy in light of the demand forecast and consumption patterns; and (iii) it will provide a sub-national assessment of the financial implications of the early retirement plans for those regions affected by the transition away from coal-fired power generation.

16. These outputs are envisioned to strengthen resolve and the Government's capacity to implement early retirement actions under the identified optimized path forward and demonstrate the opportunities for concretely moving towards the Government's NZE. The project corresponds to ETP's strategic outcome area one, *policy alignment with climate commitments,* and aims to create a realistic and implementable action program to achieve GHG reductions from the energy sector in Indonesia.

V. Objectives

17. The project will be divided into three phases:

8 Ensuring a Just Energy Transition: Lessons learned from Country case studies, 2020, https://iesr.or.id/en/pustaka/ensuring-a-just-energy-transition-in-indonesia-lessons-learned-from-country-case-studies-iesr-2020

a. Phase 1 will take stock of the current pathways, policy and regulatory frameworks, provide insights into their implications, and an assessment of opportunities and risks. Phase 1 will design a tool for supporting the early retirement decision making process.

b. Phase 2 will include a deep-dive analysis of the coal retirement scenarios, map financial and environmental parameters, consider the impacts of current carbon tax and coal fuel subsidies and report on PLN's and national fiscal implications from such actions, including on tariff and subsidies that are relevant to the early retirement. Phase 2 will deliver a comprehensive analysis on financial implications on national fiscal and financial conditions (i.e. national accounts and balance of payments, fiscal expenditure and revenues, financing options and cost of financing, as well as mobilization considerations) as well as provide a detailed assessment of the energy sector viability, identify measures, alternatives and factors to consider, as well as design specific decisions with scales of tariffs and other variables to account for in making decisions in order to take action toward implementation of the early retirement road maps and implementation of specific early retirement decisions.

c. Phase 3 will assess regional variations of the retirement as well as the indirect effects of coal plant retirements on supply chains and their relevance to short- and long-term fiscal flows, wholesale electricity prices and the PLN cash flow. In addition, prospecting and subsequent document preparation for funding and financing will be included at this phase.

18. All of the project deliverables will be submitted in English and Bahasa, and there will be the responsibility from the consultant to attend workshops and meetings to ensure the successful dissemination of the work both during and after the reporting is complete..

VI. Scope and Description of Specific Activities

19. The selected consultant will produce the following products:

Deliverable	**Outline**
Inception Report 2 Weeks after start date	• Introduction and background • Work plan and schedule • Data requirements and collection strategy • Mapping of key stakeholders, Ministries and Government Institutions by verifying and extending previous mapping efforts • Reference of existing reference material • Provide outline of activities mapped against ETP Results Based Monitoring Framework (RBMF) in a project-level monitoring and evaluation framework with indicators and baseline data.

Phase 1: Review, Validation and Commentary of Current Government Early Retirement Roadmap(s) 10 weeks after start date	Considering the current road maps and frameworks as baseline: ● Map and identify the past and existing policy and regulatory framework including roadmaps, and financing frameworks for early retirement of coal highlighting gaps in the policy frameworks and roadmap, both validating and identifying gaps, limitations and necessary assumptions to be taken; ● Review the policy frameworks and roadmap, and financing frameworks and report high level implications with regards to (a) PLN's financial conditions; (b) State fiscal conditions (c) Identify specific measures, scales for these measures, and factors, risks and opportunities in decision-making enabling advancement of early retirement actions ● Report the GHG emission reductions from the proposed roadmap and monetize the value in terms of carbon tax and carbon offsetting revenue; ● Propose a CFPP retirement decision framework based on balancing energy security, environmental, financial and societal considerations; ● Conduct meeting and coordinate with MoF and relevant ministries/institutions (e.g., MEMR, MoSOE, Bappenas, PLN, etc) to seek guidance and input to support the assessment; ● Participate in roundtables and workshops, delivering presentations and compiling comments and feedback into the final report of Phase 1 and to be taken into consideration for Phase 2; ● Report on existing financing opportunities and mechanisms to support in the early retirement of coal; ● Prepare report and powerpoint for dissemination and delivery to relevant stakeholders; ● Map program updates against ETP Results Based Monitoring Framework (RBMF), providing indicator data depicting project progress.

Phase 2 18 weeks after start date	Based on outcomes of Phase 1, strengthen and deepen the studies by: ● Deep-dive analysis and implications of policy frameworks and roadmaps, and financing frameworks with regards to (a) PLN's financial conditions, (b) State fiscal conditions, (c) Identify specific measures, scales for these measures, and factors, risks and opportunities in decision-making enabling advancement of early retirement actions. ● Develop policy and technical recommendations that will support the establishment of early coal phase out strategy in Indonesia; ● Develop financing landscape in Indonesia, ASEAN, and global to provide the insight of potential financing support. ● Analysis compatibility of recommendations against current policy, developments and programs; ● Prepare and/or improve project level screening of CFPP retirement implications comparison table with scoring mechanism mapped as per outputs of Phase 1; ● Propose 1-2 (showcase) projects that can take the early CFPP retirement program based on the screening map mentioned above; ● Propose funding mechanism options to support the showcase project that will take the early CFPP retirement program; ● Prospecting and subsequent document preparation for funding and financing; ● Propose financial risk management and risk mitigation measures to be adopted; ● Calculate the impacts of current carbon tax, coal fuel subsidy and tariff impacts developing future projections based on varying scenarios and sensitivity analysis; ● Conduct meetings and coordinate with MoF and relevant ministries/institutions (e.g., MEMR, MoSOE, Bappenas, PLN, etc) to seek guidance and input to support the assessment; ● Participate in roundtables and workshops, delivering presentations and compiling comments and feedback into the final report of Phase 2 and to be taken into consideration for Phase 3; ● Produce a full report, synthesis report (executive summary) and accompany with effective communication slides for the dialogue with development with stakeholders; ● Map program against ETP Results Based Monitoring Framework (RBMF), providing indicator data depicting project progress.

Phase 3 30 weeks after start date	• Roadmap steers and suggestions with regards to policy, fiscal frameworks and resource allocation; • Analysis compatibility of recommendations against current policy, developments and programs; • Regional sensitivities (East Kalimantan and South Sumatera) with regards to highly affected areas from the coal phase-out for delivering a just transition; • Suggested donor/development partner interventions and future activities to strengthen PLN, IPPs and fiscal conditions; • Development of coordination tools and strategies for the development partner community; • Analysis on the indirect effects of coal plant retirements on supply chains and their relevance to short- and long-term fiscal flows, wholesale electricity prices and PLN's cash flow; • Provide capacity building program for the relevant ministries staff to enhance the acceptance and knowledge on the assessment and analysis methodology; • Map program against ETP Results Based Monitoring Framework (RBMF), providing indicator data depicting project progress.
Phase 4 Communication and Information Dissemination	Ongoing support with report dissemination; Attendance at stakeholder meetings and workshops; Delivering presentation; Updating communication materials as and when variations to inputs occur.

VII. Expected Outputs and Outcomes

Output	**Outcome**
Map of the past and existing policy and regulatory framework including roadmaps, and financing frameworks for early CFPP retirement	**Short-Term Outcome 1.1** National RE and EE policies, regulations, standards, and energy plans reflect a clear commitment to Energy Transition agenda and integrated into sectoral plans to contribute to the achievement of Paris Agreement
Review result of the high-level implication of early CFPP retirement program to PLN financial and state fiscal conditions	
Calculation of potential carbon tax and carbon offsetting revenue from the emission reduction through the early CFPP retirement	
Review result of deep dive analysis of the early	**Short-Term Outcome 1.2**

CFPP retirement impact to the PLN financial and state fiscal conditions	National Fiscal policies, regulations, and Investment policies have undergone reforms to create an Investment Climate that is conducive to investment flow into RE/EE and improves its energy transition readiness for capital and investments
Identification of measures, factors, risks, and opportunities to deliver the early CFPP retirement program	
Screening tool to determine the CFPP that eligible to join the early retirement program	
Identification of 1-2 (showcase) projects that can take the early CFPP retirement program and its option funding mechanisms	
Prepared proposal or document to access potential funding or investment to support the early CFPP retirement program	
Sensitivity analysis on the early CFPP retirement program to the electricity subsidy and tariff as well as regional economic impact	
Recommendation in regards to policy, fiscal frameworks, and resource allocation	**Short-Term Outcome 1.3** Energy transition agenda is centrally led and coordinated effectively at a National-level agency/institution that is tasked to champion the cause with right level of authority
Prepared capacity building program for relevant ministries staff to enhance the acceptance and knowledge on the assessment and analysis methodology	
Strategy of development partner interventions to enhance the PLN and state financial conditions	

VIII. Existing Support and Programs

20. There are various development partners conducting activities related to energy transition including early CFPP retirement to support the government of Indonesia in achieving its Paris Agreement objectives and SDG Goals. Amongst others, the list below are some examples of the development partners activities:

21. **The World Bank** is currently preparing the development of a power sector results-based loan (RBL) valued at USD 1 to 2 billion linked to reforms by the government and PLN. In addition the World Bank is delivering several themes (improved planning, incentives, remove disincentives, differentiate main and secondary systems, *coordination, regulation)* related to the energy transition.

22. **Asian Development Bank (ADB)** has a number of initiatives for the energy sector which include project investment, project preparation and technical assistance, e.g. Energy Transition Mechanism (ETM) to support the early CFPP retirement program, Sustainable and Universal Electricity Access

for eastern part of Indonesia, Sustainable and Reliable Energy Access Program (SREAP) to improve service reliability and grid automation in Jamali system, Grid-connected solar park / farm procurement and prefeasibility, etc.

23. **Agence Française de Développement (AFD)** is actively involves in supporting Indonesia energy sector by providing loans, technical assistance, including the current process with other development banks to prepare the energy transition results-based loan (RBL). AFD is also one of the funder of ETP.

24. **Japan International Cooperation Agency (JICA)** delivers several TA related to renewable energy investment particularly for the geothermal energy development. They are currently conducting Reviewing Geothermal Promotion Policies, Master Plan and Capacity Building of MoF, DGNREEC-MEMR, MoSOEs, and energy related SOEs (Pertamina, PLN).

25. **The Germany BMU and GIZ**, as identified potential partner for ETP, deliver their supports to Indonesia over five pillars, i.e. (i) policy advice and stakeholder engagement; (ii) access to finance; (iii) skill development; (iv) power system planning and operation; and (v) private sector and technology cooperation/start-ups. Doing so, they deliver five projects: (i) renewable energy for electrification program (REEP); (ii) ASEAN-German Energy Program (AGEP); (iii) Strategic exploration for economic mitigation potential through renewables (ExploRE), (iv) Clean, Affordable & Secure Energy for SEA (CASE), and (v) International Climate Initiative-Just Energy Transition (IKI-JET).

26. **The UK Embassy** is implementing the MENTARI programme (Menuju Transisi Energi Rendah Karbon Indonesia/Towards Indonesia's Low Carbon Energy Transition)[9]. It is a cooperation program with MEMR to develop low-carbon energy in Indonesia through four strands, i.e., (i) policies, by improving and enabling business environment in the low carbon energy sector; (ii) brokerage, by bridging the gap between available funding and viable projects and supporting the development of low carbon financing mechanisms and de-risking tools; (iii) demonstration project, by setting up two small-scale low carbon energy pilot projects in eastern Indonesia; (iv) collaborating & networking, by creating business and academic partnerships, organising workshops and events, and coordinating donor activity. The program also has a cross-cutting strand, it is gender and inclusion (G&I).

27. **The Government of Denmark** delivers the Indonesia-Denmark Energy Partnership Programme (INDODEPP) that focuses on aiming to support Indonesia reaching the 23% RE target in 2025. They provide resident advisors in MEMR and PLN to strengthen the energy transition with three outcomes: (i) scenario-based long-term energy plans and regulation, comprises modelling capacity, energy policy and planning, and regulation; (ii) integration of renewable energy, comprises wind power pilot tender, system operation, and lease cost grid integration strategies and planning; (iii) enhanced national strategy for EE, comprises EE in buildings, industry and power plants.

28. **USAID** is currently implementing the Sustainable Energy for Indonesia's Advancing Resilience (SINAR). This project is looking at for 5 years technical assistance to Indonesia in advancing

[9] https://mentari.info/who-we-are/

Indonesia's development goals in expanding reliable and equitable energy services necessary for sustainable development and inclusive economic growth. This project has four specific objectives, i.e., (i) accelerating deployment of advanced energy; (ii) improving performance of energy utility; (iii) adopting transparent and best value procurement; and (iv) strengthening institutional framework and capacity for sector transformation.

29. **The International Energy Agency (IEA)** provides support for the energy transition. The Government of Indonesia and IEA recently built new partnerships and launched new workstreams to support Indonesia's international energy leadership[10] and established the IEA-Indonesia Energy Transition Alliance. This alliance aims to provide a platform for both parties to enhance collaboration in developing energy policy, mobilising high-level political engagement, and accelerating the energy transition.[11] Further, the Alliance will underpin the IEA's ongoing support for Indonesia's energy transition and economic modernization, including power system enhancement, renewables deployment, energy efficiency implementation, and energy investment strengthening.

IX. Beneficiaries & Impact

29. TA implementation will require a consultant with experience and notable background in financial analysis of coal retirement plans and specific implications on entities and national revenues. The consultant will also need to have a strong understanding of the Indonesian energy sector, development and future opportunities to accelerate energy transition.

30. The TA will be anchored to frequent dialogue with the MOF, MEMR, and PLN as well as other relevant ministries/institutions in which the MOF will become the lead in guiding the implementation of the study, MEMR and PLN will provide technical support, and other relevant ministries/institutions will provide necessary support accordingly;

31. The TA will also benefited from coordination through the coal phase out working group under the Friends of Indonesian Renewable Energy (FIRE) Dialogue to reach the broader development community as well as regular interaction and sharing of documents with the key development partners involved in energy transition and particularly early retirement and coal phaseout activities;

32. ETP Secretariat will oversee and guide the progress of the TA. All deliverables to be submitted in English and Bahasa. At each reporting stage, the presentations will be prepared to deliver the information in a succinct, understandable and engaging manner. The following implementation arrangements are in place for the TA:

33. **Ministry of Finance (MOF)** is the direct/main beneficiary of the study as they would get more information and assessment tools which further could help to establish more scenarios from the impact of early CFPP retirement to the state fiscal conditions. The study will also provide assessment towards the economic impacts in the coal related regions.

[10] The landmark IEA-Indonesia Energy Transition Alliance will build a path to a sustainable energy future - News - IEA

[11] Fajri (2021), The IEA-Indonesia Energy Transition Alliance: Towards Indonesia's Leadership in Global Energy Governance?, IR-UI Commentaries, University of Indonesia, Jakarta

34. **Ministry of Energy and Mineral Resources (MEMR)** would receive the benefit of the study as it could assist and complement the Roadmap of NZE 2060 in quantifying the investment needs of the early CFPP program as well as the technical capacities in determining the CFPP to join the early retirement program. It will also provide the potential investment sources and the proposal to access it.

35. **State Electricity Company (PLN)** will benefit from the expected result of the study in assessing its financial conditions to be ready to implement the early retirement program that can lead them to transform its business model in the energy transition era.

36. **Ministry of National Development Planning (Bappenas)** would get the benefit in terms of knowing the impact of the early retirement program towards the national development planning for the energy (electricity) sector and the country's economy.

37. **Ministry of State-owned Enterprises (MOSOE)** can draw the experience of PLN's transformation towards energy transition to be replicated by other SOEs under its management including the supply chains and SOEs business model.

38. **The President Staff Office (KSP)** will receive information regarding the options in delivering the early CFPP retirement program as the input to KSP to carry its primary task to support and assist the President and Vice President of Indonesia in controlling, managing, and ensuring the realization of national priority programs as well as political and strategic affairs management.

Beneficiaries	Type of Benefit	Impact
MOF	Lead	- Get more information and tools to assess the early CFPP program - Could establish more scenarios to address the financial implications of early retirement program to the state fiscal - Would have an overview of the economic impacts in the coal related regions
MEMR	Direct	- Would get a comprehensive picture of the investment needs to run the early CFPP program - Would get the potential investment sources and the proposal to access it - Could have a transparent technical capacities in determining the CFPP to join the early retirement program
PLN	Direct	- Would receive an assessment to its financial performance in conducting the early CFPP retirement program - Could have the input in transforming its business model to adapt with the energy transition era
Bappenas	Indirect	- Would have the economic overview as the input to

		design the long-term national development strategy to support the NZE target
MOSOE	Indirect	- Would have the showcase of the business transformation that could be replicated to other SOEs towards NZE target achievement.
KSP	Indirect	- Would receive information regarding the options in delivering the early CFPP retirement program as the input to KSP to carry its primary task to support and assist the President and Vice President of Indonesia roles.

3 IMPLEMENTATION & TIMELINE

X. Implementation Modality & Arrangement

35. The consultant will deliver the outputs of this consultancy in line with the schedule below:

Task	Timeline	Percentage Payment Corresponding to the Task
Inception Plan	2 weeks of the contract start date	15% from the LS component of the contract
Phase 1 Report	3 months after the contract start date	25% from the LS component of the contract
Phase 2 Report	6 months after the contract start date	30% from the LS component of the contract
Phase 3 (Final) Report	10 months of the contract start date	30% from the LS component of the contract
Phase 4		Payment will be made on a reimbursable method

		based on actual expenses

XI. Assumptions

41. The proposal will be delivered by an implementing entity that has current experience with modelling and forecasting, and carrying out financial implication scenarios for the retirement of coal fired power generation plans or similar power assets.

42. The proposal will include resources for suitable powerpoint presentation, graphical and infographic skills to present the resultant information in a way that is easily accessible to all levels of understanding and eye-catching.

43. The implementing organization will incorporate global best practices and latest technological inputs and concepts based on a highly developed, detailed and analytical assessment of the current data.

44. The Project assumes cost-free, easy and unobstructed access to existing roadmaps and data sets from relevant government departments, availability of the pertinent staff for discussion on the data and analysis to the Project purposes, and where possible, availability of the Government and its agencies involved in energy sector scenario planning. Where this is not possible, the analysis aims to identify the underlying assumptions based on the publicly available results. The Project will make use of ETP's convening capacity and partnerships with its aligned programs and engage with the stakeholders economy-wide, particularly in the local context and based on the specific factors.

45. ETP Secretariat manages the selection of the experts and implementation of the Project. ETP Secretariat will help coordinate engagement with the Government parties and country authorities on the implementation of and process of this study.

46. The Project will capitalize on the latest information of the recent technological and energy related developments available globally and developments in fossil fuels abatement policy, as well as reflect their impact on prices and tariffs, among others efficiency improvements. The Project works in the context of Indonesia but will draw on global trends and examples

47. The Project will work under the overall guidance of ETP Steering Committee, its Secretariat and Advisory Committee. The implementing entity will prepare the reports with the relevant materials in publishable quality, through ETP Secretariat, Interim Report, and Final Reports. All reports will be reviewed and accepted by the ETP Secretariat upon the incorporation of its comments with the objective to improve the comprehensiveness and quality of the final Review. The Implementing organization will develop effective methods for collecting comments and suggestions in a speedy fashion and incorporate these into the proposal, as deemed quality improving.

48. The Project will ensure that it accounts for environmental and social impacts in the context of the terms of reference and identifies environmental and social costs and benefits within the Project. Furthermore, the Project shall provide a response that demonstrates its commitment to support gender equality and women's empowerment through its operations.

XII. Sustainability & Gender Diversity

49. The Project will adopt sustainability measures and mechanisms to extend the Project's objectives beyond the present administration. These will require stakeholder support, budget allocation from the involved agencies, and adoption of policies to institutionalize the design of the reserve market. The involvement of DOE and ERC officials from the start of the Project is essential to carry over the Project into the next administration. In addition, information and communication of the Project to constituents and beneficiaries shall also secure the commitment of the stakeholders.

50. The Project is committed to the promotion, enhancement and development of gender sensitivity of its implementation activities. For cause-oriented groups, the Project shall be inclusive of the invited stakeholders during the consultation, more particularly women's groups. The Project shall also ensure gender balance among the officials designated into the inter-departmental committee. Emphasis shall be given to policy measures that shall not discriminate or marginalize any personalities and groups based on gender.

4 Qualification and Experience of the Service Provider

The consultant's project team should demonstrate the capacity to execute the works and should include all essential roles filled with personnel with relevant experience. CV's of the personnel proposed should be used to verify this information. The lead individual should have the following qualifications :

- Education
  Master's Degree in Energy, Engineering, Economics, Climate Change, Social Sciences, Political Sciences, Development or related field is required. Additional two years of similar experience with a Bachelor Degree is considered equivalent.
- Work Experience
  1) A minimum of 10 years of relevant experience in similar role, with minimum 2 years of leadership experience
  2) Professional experience in electricity market, financial market, and energy system modelling(in Southeast Asia) is preferred
  3) Previous successful involvement with, and good knowledge of, donor, government, private sector and civil society is desired
  4) Knowledge of the electricity market, financial market, energy system modelling energy transition, political, economic and social situation in Indonesia is desired
  5) Computer literacy in Microsoft packages (MS Word, MS Excel, MS Access, MS Power Point) is required

Bidders should propose a team that has the required skills, knowledge, and experience to provide the service within the timeframe outlined in this Terms of Reference. While ETP does not prescribe the composition of the team, the below list might be used as a reference on the expertise that the proposed team needs to have:

1) Electrical engineer / Renewable Energy / Energy System and Management / relevant similar fields
2) Natural Resources Economics / Financial and management
3) Social sciences / political sciences

Considering the importance of close coordination with stakeholders in Indonesia, it is expected that the team proposed consists of consultant(s) who understands the local context in Indonesia.

The bidder should also assign a Contract Manager who would liaise on the non-technical part of the contract implementation, including coordination, liaising with key counterparts, liaising with UNOPS on submission of invoice and payment-related documents.

5 Evaluation Criteria

5.1 Eligibility and Formal Criteria

The criteria contained in the table below will be evaluated on Pass/Fail basis and checked during Preliminary Examination of the proposals.

Criteria	Documents to establish compliance with the criteria
1. Offeror is eligible as defined in Instructions to Offerors, Article 4. In case of JV, all JV members should fulfill this requirement	• Form A: Joint Venture Partner Information Form, all documents as required in the Form, in the event that the Proposal is submitted by a Joint Venture. • Form B: Proposal Submission Form
2. Completeness of the Proposal. All documents and technical documentation requested in Instructions to Offerors Article 10 have been provided and are complete	• All documentation as requested under Instructions to Offerors Article 10, Documents Comprising the Proposals
3. Offeror accepts UNOPS General Conditions of Contract as specified in Section IV	• Form B: Proposal Submission Form

5.2 Qualification Criteria

The criteria contained in table below will be evaluated on Pass/Fail basis and checked during Qualification Evaluation of the proposals.

Criteria	Documents to establish compliance with the criteria

1. The company should have a minimum of 5+ years of continuous experience in delivering similar projects in the past with a track-record of success. In case of JV, the experience will be calculated as an accumulation of the experience of all of the JV members.	• Certification of incorporation of the Offeror • Form F: Performance Statement Form
2. Offeror must provide a minimum of two (2) customer references from which similar services have been successfully provided, within any of the last 5 years. In case of JV, the experience will be calculated as an accumulation of the experience of all of the JV members.	• Form F: Performance Statement Form

5.3 Technical Criteria

Technical evaluation will be carried out to bids that pass the eligibility, formal and the qualification criteria, with requirements as follows:

The maximum number of points that a bidder may obtain for the Technical proposal is 80. To be technically compliant, Bidders must obtain a minimum of 56 points
Minimum pass score: 70% of maximum 80 points = 56 points

Technical proposal points allocation

Section number/description		Points Obtainable
1.	Offeror's qualification, capacity and expertise	20

2.	Proposed Methodology, Approach and Implementation Plan	35
3.	Key Personnel proposed and Sustainability Criteria	25
Total Technical Proposal Points		80

Section 1

Section 1: Offeror's qualification, capacity and expertise		Points	Sub-points
1.1	Brief description of the organization, including the year and country of incorporation, and types of activities undertaken, including relevance of specialised knowledge and experience on similar engagements done in the past. Bidders partnering up with an Indonesian entity to provide for the strategic consultation, translations; as well as the communications expertise is considered a valuable asset. (Max 4 pages written text plus 1 Matrix)	15	
	1. Experience in projects of comparable size, type, complexity and technical specialty		5
	2. Experience in providing similar services in the region, especially Indonesia		5
	3. Understanding of local context, and partnering up with an Indonesian entity to provide for the strategic consultation, translations; as		5

	well as the communications expertise		
1.2	General organizational capability which is likely to affect implementation: management structure, and project management controls. (Max 4 pages written text)	5	
	1. Management structure, management controls, and extent to which any part would be subcontracted		3
	2. Financial Capacity/financial stability: Bidder should have minimum annual turnover of 150,000 USD in any of the past 2 years Liquidity / quick ratio should be minimum 1, in any of the past 2 years . In case of a joint venture, annual turnover is calculated based on the total annual turnover of the JV members. In case of a joint-venture, at least one of the JV members should have 1 liquidity/quick ratio in any of the past 2 years.		2
Total points for section		20	

Section 2

Section 2: Proposed Methodology, Approach and Implementation Plan		Points	Sub-points
2.1	Description of the Offeror's approach, and methodology for meeting or exceeding the requirements of the	25	

	Terms of Reference		
	1. Description of the offeror's approach to take stock of the current pathways, policy and regulatory frameworks around Early Retirement of Coal-fired Power Plants in Indonesia		5
	2. Description of the offeror's approach to development of the analysis of the coal retirement scenarios, map financial and environmental parameters, consider the impacts of current carbon tax and coal fuel subsidies		12
	3. Description of the offeror's approach to assessment of regional variations of the retirement as well as the indirect effects of coal plant retirements on various aspects, including supply chains, short- and long-term fiscal flows, and wholesale electricity prices		8
2.2	Quality Assurance Plan	5	
	1. A plan outlining how the bidder intends to ensure oversight and quality assurance throughout the assignment. Quality Assurance plan should include discussion on risk-assessment and its mitigation plan		5
2.3	Implementation Timeline	5	
	1. Bidder submits a detailed implementation timeline which		5

	includes detailed activities to be undertaken during this assignment, and is completed with gantt chart		
Total points for section		35	

Section 3

Section 3: Key personnel proposed and Sustainability Criteria		Points	sub-points
3.1	Qualifications of key personnel proposed	20	
	1. Project lead		10
	2. Qualification of other proposed team members		10
3.2	The bidder shall provide a response that demonstrates its commitment to support gender equality through its operations	5	
Total points for section		25	

5.4 Financial Criteria (20 maximum points)

The financial part of those proposals that are found to be technically compliant will be evaluated as follows.

The maximum number of points that a bidder may obtain for the Financial Proposal is 20. The maximum number of points will be allocated to the lowest evaluated price bid. All other prices will receive points in reverse proportion according to the following formula:

Points for the Financial Proposal of a bid being evaluated =

$$\frac{\text{[Maximum number of points for the Financial Proposal] x \{Lowest price\}}}{\text{[Price of proposal being evaluated]}}$$

Financial proposals will be evaluated following completion of the technical evaluation. The bidder with the lowest evaluated cost will be awarded (20) points. Financial proposals from other bidders will receive prorated points based on the relationship of the bidder's prices to that of the lowest evaluated cost.

5.5 Formula for computing points: Example

Points = (A/B) Financial Points
Bidder A's price is the lowest at $20.00. Bidder A receives 20 points
Bidder B's price is $40.00. Bidder B receives ($20.00/$40.00) X 20 points = 10 points

The total score obtained in both Technical and Financial proposals will be the final score for the proposal, with 80% allocated to the Technical proposal and 20% to the Financial proposal. The proposal obtaining the overall highest score will be considered as the winning proposal. This proposal will be considered to be the most responsive to the needs of UNOPS in terms of value for money.

The selection of the preferred bidder will be based on a cumulative analysis, analysing all relevant costs, risks and benefits of each proposal throughout the whole life cycle of the services and in the context of the project as a whole. The lowest priced proposal will not necessarily be accepted.

7 ANNEXES

Annex 1: Results Framework Template for Project Implementation

ETP Results	Project Output(s)	Indicator	Target	Data Source and Means of Verification
Impact: Summary based on RBMF indicators				
Long-Term Outcome: Summary based on RBMF indicators				
Intermediate Outcome 1. Strengthened RE and EE policy enabling environment				
Short-Term Outcome 1.1 National RE and EE policies, regulations, standards, and energy plans reflect a clear commitment to Energy Transition agenda and integrated into sectoral plans to contribute to the achievement of Paris Agreement	Map of the past and existing policy and regulatory framework including roadmaps, and financing frameworks for early CFPP retirement	Number of database (4 database)	Database of stakeholders conducting the activity related to early CFPP retirement Database of past and existing policy and regulatory related to early CFPP retirement Database of financing frameworks early CFPP retirement - Database of long-term planning and roadmap related to early CFPP retirement	

	Review result of the high-level implication of early CFPP retirement program to PLN financial and state fiscal conditions	Number of report and powerpoint presentation (1 report and 1 ppt presentation)	Report and ppt presentation on the high-level implication of early CFPP retirement program to PLN financial and state fiscal conditions	
	Calculation of potential carbon tax and carbon offsetting revenue from the emission reduction through the early CFPP retirement	Number of table (1 table)	Table on the potential carbon tax and carbon offsetting revenue calculation	
Short-Term Outcome 1.2 National Fiscal policies, regulations, and Investment policies have undergone reforms to create an Investment Climate that is conducive to investment flow into RE/EE and improves its energy transition readiness for capital and investments	Review result of deep dive analysis of the early CFPP retirement impact to the PLN financial and state fiscal conditions	Number of report and powerpoint presentation (2 reports and 1 ppt presentation)	Full report and summary report, and ppt presentation on deep dive analysis of the early CFPP retirement impact to PLN financial and state fiscal conditions	
	Identification of measures, factors, risks, and opportunities to deliver the early CFPP retirement program	Number of table (2 tables)	Table of measurement and table of key success factors of the early CFPP retirement program	
	Screening tool to determine the CFPP that eligible to join the early retirement program	Number of table (1 table)	Table of measurement or screening to assess the eligibility of CFPP to join the early retirement program	
	Identification of 1-2 (showcase) projects that can take the early CFPP retirement program and its option funding mechanisms	- List of showcase project - Options of funding mechanism	- List of showcase project - Options of funding mechanism	
	Prepared proposal or document to access potential funding or investment to support the early CFPP retirement program	Number of proposal or document (2 proposals/documents)	Proposal/document to access the potential funding/investment (GEAPP, etc)	
	Sensitivity analysis on the early CFPP retirement program to the electricity subsidy and tariff as well as regional economic impact	Number of table (1 table)	Table of sensitivity analysis of the early CFPP retirement program to the electricity subsidy and tariff	
Short-Term Outcome 1.3 Energy transition agenda is centrally led and coordinated effectively at a National-level agency/institution that is tasked to champion the cause with right level of authority	Recommendation in regards to policy, fiscal frameworks, and resource allocation	Number of		
	Strategy of development partner interventions to enhance the PLN and state financial conditions	Number of		
	Prepared capacity building program for relevant ministries staff to enhance the acceptance and knowledge on the assessment and analysis methodology	Capacity building program proposal	Capacity building program proposal	
Intermediate Outcome 2. Increased flow of public and private investments to RE and EE projects in the power and end-user sectors				
Short-Term Outcome 2.1 National budgets indicate a resolve to maximize RE/EE	<Output 1>	Indicator 1, Indicator n		
	<Output 2>	Indicator 1,		

capacity by allocating increased amount of public funds and attracting FDI in the RE/EE sector		Indicator n		
	<Output n>	Indicator 1, Indicator n		
Short-Term Outcome 2.2 De-risked project finance is accessible via financial institutions generating a pipeline of large-scale RE/EE projects	<Output 1>	Indicator 1, Indicator n		
	<Output 2>	Indicator 1, Indicator n		
	<Output n>	Indicator 1, Indicator n		
Intermediate Outcome 3. Increasing the amount of RE integrated in smarter grids				
Short-Term Outcome 3.1 National energy strategy and sectoral plans involve evidence-based planning for an improved national-smart-grid system along with related infrastructure and innovative technologies	<Output 1>	Indicator 1, Indicator n		
	<Output 2>	Indicator 1, Indicator n		
	<Output n>	Indicator 1, Indicator n		
4. Increased development of and accessibility to RE/EE knowledge				
Short-Term Outcome 4.1 Stakeholders (relevant Government entities, Public sector companies, Financial institutions, Private entities, Academia, and Consumers) involved in the RE/EE value chain, are knowledgeable and better informed to advance the energy transition agenda	<Output 1>	Indicator 1, Indicator n		
	<Output 2>	Indicator 1, Indicator n		
	<Output n>	Indicator 1, Indicator n		