ADB

Concept Paper

Project Number: 49203
March 2016

Proposed Loan
Indonesia: Eastern Indonesia Sustainable Energy Access Sector Project

Asian Development Bank

CURRENCY EQUIVALENTS
(as of 1 February 2016)

Currency Unit	–	rupiah (Rp)
Rp 1.00	=	$0.00007315
$1.00	=	Rp 13,669.00

ABBREVIATIONS

ADB	–	Asian Development Bank
EA	–	executing agency
GW	–	gigawatt
LNG	–	liquefied natural gas
PLN	–	Perusahaan Listrik Negara (State Electricity Company)
PPTA	–	project preparatory technical assistance
PV	–	photovoltaic
RPJMN	–	National Medium-Term Development Plan
RUPTL	–	National Power Development Plan
MW	–	megawatt
SPS	–	Safeguard Policy Statement
TA	–	technical assistance

NOTES

(i) The fiscal year (FY) of the Government of Indonesia and its agencies ends on 31 December.

(ii) In this report, "$" refers to US dollars

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PROJECT AT A GLANCE

1. Basic Data — **Project Number:** 49203-002

Project Name	Eastern Indonesia Sustainable Energy Access Sector Project	**Department /Division**	SERD/SEEN
Country	Indonesia	**Executing Agency**	P.T. Perusahaan Listrik Negara
Borrower	Ministry of Finance		

2. Sector

	Subsector(s)	ADB Financing ($ million)
✓ **Energy**	Energy utility services	480.00
	Oil and gas transmission and distribution	10.00
	Renewable energy generation - solar	10.00
	Total	**500.00**

3. Strategic Agenda — **Subcomponents**

Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive
Environmentally sustainable growth (ESG)	Eco-efficiency Global and regional transboundary environmental concerns

Climate Change Information

Climate Change impact on the Project	Medium

4. Drivers of Change — **Components**

Knowledge solutions (KNS)	Pilot-testing innovation and learning

Gender Equity and Mainstreaming

No gender elements (NGE)	✓

5. Poverty Targeting

Project directly targets poverty	No

Location Impact

Rural	High
Urban	Medium

6. Risk Categorization: Complex

7. Safeguard Categorization **Environment:** A **Involuntary Resettlement:** B **Indigenous Peoples:** B

8. Financing

Modality and Sources	Amount ($ million)
ADB	**500.00**
Sovereign Sector loan: Ordinary capital resources	500.00
Cofinancing	**0.00**
None	0.00
Counterpart	**150.00**
Others	150.00
Total	**650.00**

9. Effective Development Cooperation

Use of country procurement systems	No
Use of country public financial management systems	No

I. THE PROJECT

A. Rationale

1. The recently adopted Sustainable Development Goals (SDGs) include targets to "ensure universal access to affordable, reliable, and modern energy", "increase substantially the share of renewable energy in the global energy mix", and "double the global rate of improvement in energy efficiency" by 2030. The SDGs also call for urgent action to combat climate change and its impacts. These efforts are essential to eradicate poverty and promote inclusive and sustainable growth.

2. Indonesia, as the country with the world's fourth largest population with many of its people living on small islands and other remote areas, has significant challenges in providing equitable access to modern energy services. In 2014, the electrification ratios in some provinces of Eastern Indonesia were particularly low—Nusa Tenggara West 68.1%, Nusa Tenggara East 58.9%, and Papua 43.5% against a national average rate of 84.3%. Moreover, these areas are mainly serviced, if at all, by diesel-fired generators that are inefficient, polluting, and expensive. Power disruptions due to supply shortages are common and household consumption levels remain suppressed (often less than 25 kWh per month).

3. The proposed $500 million sector loan aims to help improve access to electricity services in Eastern Indonesia[1] by supporting a cluster of new small- to mid-sized power stations fueled by natural gas which is a clean burning fuel that has lower power generation costs[2] and less local pollutants and carbon dioxide (CO_2) emissions compared to diesel-fired units. An added advantage of gas-fired generators is that they can respond very rapidly to fluctuating power demand. This characteristic can be tapped to integrate intermittent renewable energy systems while reducing the need for expensive battery storage and help make the use of solar and wind resources more affordable and reliable to the local communities. The project plans to include pilot-scale gas and solar hybrid units that can help enhance the borrower's operational know-how and position them well for future scale up of renewable energy use.

4. The project is part of an innovative effort by the government to expand the share of natural gas use in the country by establishing small scale distribution networks for liquefied natural gas (LNG). It is in line with the government's National Medium-term Development Plan 2015–2019 (RPJMN) and is included in the National Power Development Plan (RUPTL 2015–2024) of the State Electricity Company (PT Perusahaan Listrik Negara or PLN). The project is (i) consistent with ADB's Energy Policy (2009), (ii) incorporated in the draft Country Partnership Strategy (2016–2019) and energy sector assessment, strategy, and roadmap; and (iii) part of ADB's programmatic approach in Indonesia's energy sector, complementing the Sustainable and Inclusive Energy Program (SIEP) policy-based loan,[3] the results-based lending (RBL) for grid strengthening, and technical assistance projects to expand renewable energy use. The project preparatory technical assistance (PPTA) is included in the Country Operations Business Plan (2015–2017) and eligibility criteria for sector lending (OM D3/BP para. 4) are met.

5. ADB has financed 23 projects in Indonesia's energy sector with total lending of $3.91 billion. With few exceptions, completed loan projects have delivered their expected outputs and achieved their immediate objectives, although some have experienced implementation delays. In power generation, ADB supported the Renewable Energy Development Sector Program ($161 million) during 2004–2012 and private sector operations have provided financing for large geothermal projects during 2013–2014. Major lessons learned include the need for diligent selection of projects

[1] "Eastern Indonesia" is used to cover provinces in Kalimantan, Maluku, Nusa Tenggara, Papua, and Sulawesi.
[2] The pilot conversion of PLN's diesel-fired units in Sumatra had a payback period of under six months. The cost impact is largely depend on the cost of the LNG supply (see footnote 5) and will be assessed under the PPTA.
[3] The program supports policy actions, among others, aimed to increase domestic supply of natural gas particularly in Eastern Indonesia and reform electricity tariffs.

and high project readiness with close implementation support from the resident mission. In the gas sub-sector, ADB has supported a gas pipeline between Sumatra and Singapore and BP's Tangguh LNG project through its sovereign and private sector operations, respectively. Support from other development partners in recent years include: (i) a $45 million loan in 2012 by the International Finance Corporation to increase the fleet of vessels for the exploration and development of gas fields in Eastern Indonesia and (ii) grant funding from Australia Department of Foreign Affairs and Trade for the Gas Development Master Plan published in 2013. ADB is currently coordinating with the World Bank to support gas sub-sector regulatory development under SIEP.

6. PLN plans to add 2,696 megawatts (MW) of generation capacity by 2019 from small- to mid-scale gas-fired power plants across Eastern Indonesia and to establish a LNG distribution system via small scale vessels with a capacity of several thousand cubic meters of LNG per day. Beyond 2019, PLN has already identified sites for 1,420 MW of additional capacity by 2025. PLN has requested ADB's support for its mid-sized plants (30 MW and above) first, and ADB can scale up its assistance through a subsequent loan focused on small gas-fired and gas-solar hybrid generation units (5–20 MW). This can be combined with the planned RBL to expand and strengthen local distribution grids in Eastern Indonesia (following the approved RBL for the Sumatra grid) in order to deliver sustainable energy services to the island communities.

B. Impacts, Outcome, and Outputs

7. The impact of the project will be enhanced quality of life in Indonesian society by the sustainable use of electricity as a key driver of increased economic activity. Its outcome will be expanded access to modern and cleaner energy services in Eastern Indonesia. Project outputs will include: (i) gas-fired generation capacity in Eastern Indonesia installed; (ii) pilot-scale gas and solar hybrid units with energy management systems installed; (iii) enhanced know-how and implementation capacity within PLN for providing policy feedback to the government for expansion of gas use in Eastern Indonesia, sourcing LNG and utilizing gas for small- to mid-scale power generation, and operating gas-solar hybrid systems. The design and monitoring framework is in Appendix 1 and the problem tree is in Appendix 2.

C. Investment and Financing Plans

8. PLN's total investment for 2,696 MW of generation capacity is estimated to cost over $2.2 billion. The ADB-financed scope is estimated to cost $650 million and ADB may provide $500 million from ordinary capital resources (OCR) with the remaining $150 million from PLN as counterpart financing. Given the larger financing needs of PLN, there may be scope for cofinancing, including parallel collaborative cofinancing to support subprojects in different regions. The tentative financing plan is summarized in Table 1. It is expected that the loan will be provided directly to PLN with a sovereign guarantee from the Ministry of Finance.

Table 1: Tentative Financing Plan

Source	**Amount**($ million)	**Share of Total** (%)
Asian Development Bank (OCR)	500.00	76.92
PT Perusahaan Listrik Negara	150.00	23.08
Cofinancing [to be determined]		
Total	**650.00**	**100.00**

OCR = ordinary capital resources.
Source: Asian Development Bank staff estimates.

D. Indicative Implementation Arrangements

9. PLN will be the executing agency (EA) and will be responsible for the overall technical supervision and execution of the project. A dedicated project management unit headed by a full-time project director with administrative support will oversee project implementation.

10. The project is proposed to be structured as a sector project with a minimum of two core subprojects identified for full due diligence prior to ADB's Board consideration. Subsequent subprojects will be determined later based on the approved screening and selection criteria. The possible core subprojects identified by PLN based on demand growth forecasts include: (i) 150 MW Minahasa plant in North Sulawesi; (ii) 40 MW Jayapura plant in Papua, and (iii) 100 MW Kaltim plant in East Kalimantan with an estimated investment volume of $207 million.[4]

11. Lessons learned from the two ADB-financed sector projects in Indonesia's energy sector will be incorporated, mainly (i) careful selection of sites that minimize negative environmental and social impacts with required land acquisition, land and forestry permits, right of ways formulated as criteria for subprojects; (ii) safeguard requirements of ADB and PLN addressed in one preparatory consultancy in order to ensure that potential delays will be addressed; (iii) using centralized procurement and clustering of several subprojects when possible to avoid delays caused by procurement processes managed by multiple offices; and (iv) if required, inclusion of connection to the next substation into the project scope.

12. Turnkey contracts will likely be used and subprojects with compatible characteristics may be clustered together. The indicative procurement method will be international competitive bidding, and national competitive bidding may be applied for small subprojects (e.g. below 40 MW). All procurement will be conducted in accordance with ADB's *Procurement Guidelines* (2015, as amended from time to time). A supervision consulting firm will be recruited using the quality and cost-based selection method (quality: cost weighting of 90:10), following ADB's *Guidelines on the Use of Consultants* (2013, as amended from time to time) to assist the EA in implementing the project. The project envisages the use of advance contracting and retroactive financing of up to 20% of total financing subject to ADB management's approval, project readiness, and availability of counterpart financing. The project will be implemented from June 2017 to June 2022.

II. DUE DILIGENCE REQUIRED

13. The following aspects will be covered under the due diligence:
    (i) **Technical.** Basic design and relevant technical parameters for each core subproject and identification of suitable gas-solar hybrid models. Assessment of technical risks including integration with the LNG supply and power transmission capacity.
    (ii) **Economic and financial.** Cost estimates and financing plan, economic and financial analysis of project and EA, and updates to the financial management assessment of the EA will be performed. Financial and economic due diligence of subsequent subprojects will be part of the selection process and defined in the eligibility criteria.
    (iii) **Poverty and social.** Focus on minimizing negative social impacts while documenting positive impacts on gender, poverty reduction, and vulnerable people.
    (iv) **Safeguards.** The sector project is preliminarily categorized as A for environment, B for involuntary resettlement (IR), and B for indigenous peoples (IP). For the initial core subprojects, preliminary categorizations are: (1) Minahasa—A for environment, B for IR, and C for IP; (2) Jayapura—B for environment, C for IR, and C for IP; and (3) Kaltim—A for environment, C for IR, and C for IP.

14. Major risks and mitigation measures are as follows.
    (i) **Technical risks.** Availability of LNG at the generation site needs to be ensured and the interface with the regasification equipment needs to be assessed under the PPTA.[5]
    (ii) **Implementation delays:** Setting up the LNG supply scheme will take time. Risks to the project will be mitigated by ensuring (i) high degree of project readiness with technical

[4] These locations expect the highest level of demand growth based on updated forecasts by PLN and also anticipate earlier delivery of LNG supply due to their proximity to natural gas production sites.
[5] PLN concluded their pre-qualification process for the LNG supply tender in September 2015 and intends to proceed with the bidding and contract award in 2016 for LNG delivery starting in 2018.

designs, including consideration of engines and turbines with dual fuel capability, detailed cost estimates and financial analysis with adequate sensitivity scenarios, and close consultations with relevant PLN departments and government authorities and (ii) adequate provision for project implementation support including on coordination with PLN's work to secure LNG supply.

(iii) **Safeguards.** PLN will utilize the premises of existing facilities to the extent possible, however there will be a need to acquire new land for specialized jetties for LNG supply and the new power plants.[6] PLN has indicated that they are searching for sites with no or minimal IR and IP issues. All necessary consultations will be conducted under the PPTA and appropriate safeguard measures will be established. Identified risks will be mitigated through the implementation of ADB's *Safeguard Policy Statement* (2009) which PLN is familiar with. PPTA consultants will support PLN to prepare the required documents.

III. PROCESSING PLAN

A. Risk Categorization

15. The proposed project is categorized as complex as it involves subprojects across archipelagic Eastern Indonesia with the loan amount exceeding $200 million. The procurement risk category is B as PLN has substantial capacity including experience with turnkey contracts.

B. Resource Requirements

16. Staff requirements for due diligence of the project include: mission leader (6.0 person-months [pm]), energy economist (2.0 pm), climate change specialist (1.0 pm), safeguards specialists (2.0 pm), and financial specialist (1.0 pm). A PPTA funded by the Asia Clean Energy Fund under Clean Energy Financing Partnership Facility will finance the engagement of a team of consultants (Appendix 3).[7]

C. Processing Schedule

17. The processing schedule is as follows:

Table 2: Proposed Processing Schedule

Milestones	Expected Completion Date
PPTA inception	June 2016
Loan fact-finding mission	November 2016
Management review meeting	1st quarter 2017
Loan negotiations	1st quarter 2017
Board consideration	2nd quarter 2017
Loan signing	2nd quarter 2017

Source: Asian Development Bank.

IV. KEY ISSUES

18. Support from other ADB Departments will be essential especially from the Office of Cofinancing Operations for any cofinancing requirements of the project, the Sustainable Development and Climate Change Department for PPTA funding and safeguards, and the Operations Services and Financial Management Department for procurement and financing management related issues, particularly advanced procurement and retroactive financing.

[6] Environmental and social compliance audits will be conducted for existing facilities as per SPS.
[7] Established by the Government of Japan and administered by the Asian Development Bank.

DESIGN AND MONITORING FRAMEWORK

Impacts the Project is aligned with: The quality of life in Indonesian society will be enhanced by the sustainable use of electricity as a key driver of increased economic activity. (Electricity Power Supply Business Plan [RUPTL 2015–2024])			
Program Results Chain	**Performance Indicators with Targets and Baselines**	**Data Sources or Reporting Mechanisms**	**Risks**
Outcome Expanded access to modern and cleaner energy services in Eastern Indonesia.	By 2023: a. Electrification ratio in Eastern Indonesia increased by X% (2014 baseline: 70%)[a] b. Reduction of XX million tons of CO_2-equivalent per annum from baseline emission levels (Baseline estimated at 550 million tons of CO_2 equivalent per annum)[b]	a. National statistics and MEMR records b. PLN annual reports; government statistics and UNFCCC reports	Delay in developing LNG distribution network Delay in expanding and strengthening local grids for power delivery Tariffs kept below cost-recovery level Difficulty for PLN to raise the needed counterpart financing, given the ongoing financial markets slow down and a weakened currency
Outputs 1. Gas-fired generation capacity in Eastern Indonesia installed.	By 2022: 1a. Gas-fired power stations with total generation capacity of at least 600 MW commissioned (2016 baseline: 0)	1a. Quarterly progress reports and project completion reports provided by PLN; ADB review mission reports	Lack of inter-governmental coordination causing delay for PLN to obtain land permits and

Program Results Chain	Performance Indicators with Targets and Baselines	Data Sources or Reporting Mechanisms	Risks
2. Pilot-scale gas and solar hybrid units with energy management systems installed.	By 2022: 2a. Construction of 2 or more pilot solar PV-gas hybrid units commissioned (2016 baseline: 0)	2a. Quarterly progress reports and project completion reports provided by PLN; ADB review mission reports	development rights Lack of interest from private sector to enter into LNG supply contracts; Delay in securing LNG supply Rise in costs of specialized vessels and other equipment for small scale LNG distribution Delays to the construction of associated facilities not financed by ADB (e.g. jetty, LNG storage and regasification facility)
3. Know-how and project implementation capacity within PLN for providing policy feedback to the government for expansion of gas use in Eastern Indonesia, sourcing LNG and utilizing gas for small- to mid-scale power generation, and operating gas-solar hybrid units enhanced.	By 2022: 3a. Established or strengthened operational units for gas-fired generation with full-time trained staff within PLN who will also consolidate policy feedback to government on expanded gas use in Eastern Indonesia 3b. Established monitoring and reporting procedures to manage the distribution of LNG to the power plant sites. 3c. Established team to supervise and optimize the use of solar PV-gas hybrid units to expand capacity within PLN	3a. Periodic reports by PLN on safeguard compliance, organizational structure and staffing. 3b. Reports provided by independent agencies 3c. Progress reports and design documents submitted by PLN; ADB review mission reports	

Key Activities with Milestones

1. Output 1: Gas-fired generation capacity in Eastern Indonesia installed

1.1. Prepare procurement plan, and safeguard measures (EARF, RF, IPPF, EIA/IEEs, EMPs, RPs, IPPs as required): November 2016–September 2019
1.2. Prepare bidding documents: November 2016–September 2020
1.3. Undertake procurement, award of contract, and construction: January 2017–November 2021
1.4. Prepare EMPs, RPs and IPPs (as required) implementation: June 2017–September 2021
1.5. Start commissioning of the power plant and related transmission lines: November 2018–December 2021

2. Output 2: Pilot-scale gas and solar hybrid units with energy management systems installed

2.1. Prepare procurement plan, and safeguard measures (EARF, RF, IPPF, EIA/IEEs, EMPs, RPs, IPPs as required): November 2016–September 2019
2.2. Prepare bidding documents: November 2016–September 2020
2.3. Undertake procurement, award of contract, and construction: January 2016–November 2021

Program Results Chain	Performance Indicators with Targets and Baselines	Data Sources or Reporting Mechanisms	Risks
2.4. Prepare EMPs, RPs and IPPs (as required) implementation: June 2017–September 2021 2.5. Start commissioning of the power plant and related transmission lines: November 2018–December 2021 **3. Output 3**: **Know-how and project implementation capacity within PLN enhanced** 3.1. Recruit project implementation consultants: January 2017–September 2017 3.2. Undertake design, procurement, and construction supervision: July 2017–November 2021 3.3. Prepare and implement safeguards monitoring activities: July 2017–December 2021 3.4. Prepare independent safeguard compliance monitoring (for category A subprojects): July 2017–December 2021 3.5. Prepare policy briefs on national development strategy to expand gas use in Eastern Indonesia: January 2019–June 2022			
Inputs ADB loan: $500 million PLN financing: $150 million Cofinancing [to be determined]			
Assumption for Partner Financing: Not applicable			

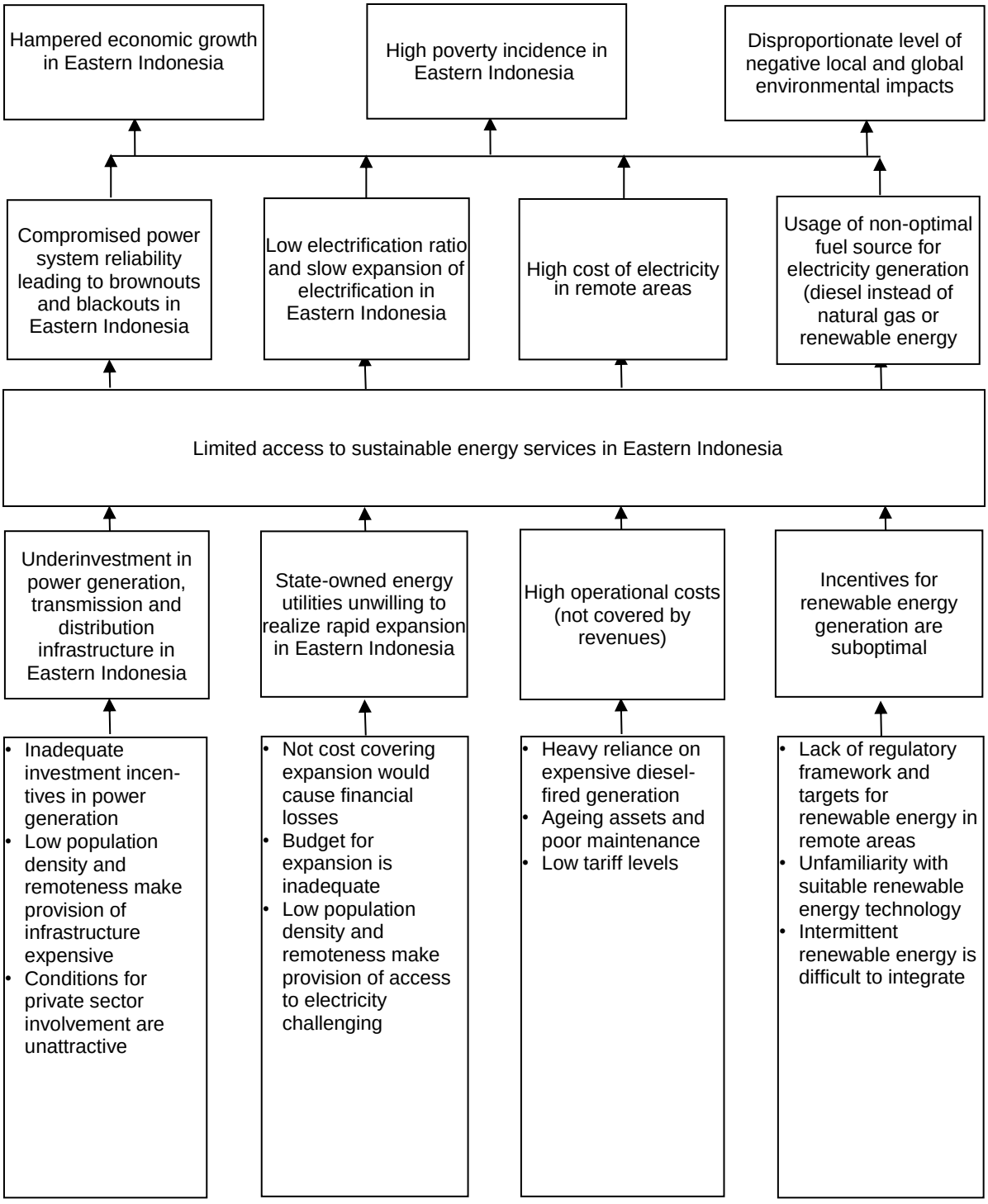
ADB = Asian Development Bank, EARF = environmental assessment and review framework, EIA = environmental impact assessment, EMP = environment management plan, GHG = greenhouse gas, IEE = initial environmental examination, IPP = indigenous peoples plan, IPPF = Indigenous Peoples planning framework, LNG = liquefied natural gas, MEMR = Ministry of Energy and Mineral Resources, MOF = Ministry of Finance, MW = megawatt, PLN = Perusahaan Listrik Negara, RF = resettlement framework, RP = resettlement plan, SPS = Safeguard Policy Statement; UNFCCC = United Nations Framework Convention for Climate Change.

[a] Baseline figures and annual plans will be verified during the PPTA and the 2022 target will be determined accordingly.

[b] Emission reduction volume will be estimated during the PPTA based on the applicable gas-fired generation system per site.

Source: ADB.

PROBLEM TREE



PROJECT PREPARATORY TECHNICAL ASSISTANCE

A. Justification

1. A project preparatory technical assistance (PPTA) is required to prepare all documents for the sector project framework and core subprojects to be considered by ADB's Board. The PPTA is also needed to support Perusahaan Listrik Negara (PLN) in securing the liquefied natural gas (LNG) supply contract which is critical for the project to deliver the intended energy access and sustainability benefits.

B. Major Outputs and Activities

2. A consulting firm will be employed to support PLN with the documentation of feasibility for the initial subprojects. This consultancy will (i) update and validate relevant studies, conduct analyses, and implement necessary surveys as required; (ii) review demand forecasts and preliminary project designs, and undertake alternative scenario analysis for additional generation capacity; (iii) conduct a rapid risk assessment and propose how to mitigate or manage the identified risks; (iv) prepare all information and project documents required for the Board approval (technical feasibility, economic and financial analysis) including framework documents for the sector project and those required under the Safeguard Policy Statement (SPS) 2009; (v) enable PLN to draft the terms of reference (TOR) and bidding documents for turnkey or other contracts; and (vi) assess the feasibility of supporting a large number of small subprojects (e.g. 5–20 MW) in combination with support for expanding and strengthening local distribution grids. The consultants will also organize workshops and information dissemination sessions. In addition, individual expert consultants will be engaged to help PLN to finalize the overall concept for the LNG distribution network, support the tendering of LNG supply and distribution services, and look into how to ramp up the demand for LNG in order to reach critical mass and develop a LNG market in Eastern Indonesia.

3. The major outputs and activities are summarized in Table A3.1.

Table A3.1: Summary of Major Outputs and Activities

	Major Activities	Major Outputs	Expected Completion
1.	Review of pre-feasibility or feasibility studies, gas supply and transmission access infrastructure.	Inception report detailing priority list of projects, PPTA implementation schedule, and issues that need resolution.	June 2016
2.	Technical feasibility assessment and confirmation of technical design, implementation arrangement, risk mitigation measures, estimation of project costs and preparation of a financing plan and procurement plan for the overall sector project and the core subprojects.	Technical report including technical design, cost estimate, procurement plan, and implementation schedule of the core projects. Initial review of technical viability, and cost estimation.	September 2016
3.	Development of all other assessments and plans (e.g. financial and economic analysis, detailed risk and sensitivity analysis, and safeguard documents) required for the overall sector project and the core subprojects and the executing/implementing entity.	All documents for the draft Report and Recommendation by the President; midterm workshop for PPTA review and loan fact finding.	November 2016
4.	Support for the tendering of LNG supply and distribution services	Advisory reports such as on global LNG market conditions and risk management strategy for PLN including suitable contractual structures.	April 2017
5.	Feasibility assessment and preparation of documents for selected non-core projects.	Technical report, procurement plan, and safeguard documents for selected non-core projects	April 2017
6.	Final workshop	Final report	May 2017

C. Cost Estimate and Proposed Financing Arrangement

4. The PPTA is estimated to cost $1.45 million, of which $1.4 million equivalent will be financed from the Asia Clean Energy Fund under Clean Energy Financing Partnership Facility (ACEF under CEFPF) and administered by ADB.[1] PLN will provide counterpart support in the form of communication facilities for consultants, and other in-kind contributions. The detailed cost estimate is presented in Table A3.2.

Table A3.2: Cost Estimates and Financing Plan
($'000)

Item			Total Cost
Asia Clean Energy Fund under the Clean Energy Financing Partnership Facility[a]			
1.	Consultants		
	a.	Remuneration and per diem	
		i. International consultants (28 person-months)	768.0
		ii. National consultants (27 person-months)	222.0
	b.	International and local travel	135.0
	c.	Reports and communications	10.0
2.	Equipment (computer, printer, etc.)[b]		10.0
3.	Surveys		50.0
4.	Workshops, training, seminars, and conferences[c, d]		50.0
5.	Miscellaneous administration and support costs		10.0
6.	Contingencies		145.0
	Total		**1,400.0**

Note: The technical assistance (TA) is estimated to cost $1,450,000 million equivalent, of which contributions from the Asian Clean Energy Fund under Clean Energy Financing Partnership Facility are presented in the table above. The value of the PLN's contribution is estimated to account for about 3.45% of the total TA cost.

[a] Established by the Government of Japan and administered by the Asian Development Bank.

[b] Equipment will be purchased in line with ADB's Procurement Guidelines (2015, as amended from time to time) and turned over to the executing agency upon completion.

Type	Quantity	Cost ($)
PC/Laptops	10	6,000
Printer	2	500
Copy Machine	1	500
Office Furniture		1,500
Communication equipment		1,500

[c]

Workshops, training, seminars, and conferences	Venue
Inception Workshop	Jakarta (start of PPTA)
Midterm Workshop	To be determined during the-fact finding
Training on hybrid PV	To be determined
Final WS	To be determined

[d] Includes travel costs of ADB staff acting as resource persons and/or facilitators.

Source: ADB estimates.

D. Consulting Services

5. The implementation of the PPTA will require the services of a multidisciplinary team comprising international and national consultants. Approximately fourteen (14) consultants (8 international and 6 national) for 55 person-months (PM) of consulting services (28 international and 27 of national) will be engaged through an international firm in accordance with the ADB's *Guidelines on the Use of Consultants* (2013, as amended from time to time) following Quality- and Cost-Based Selection (QCBS) (90:10). In addition, the following specialists will be hired following individual consultant selection method: international gas sector and power specialist (4 PM), national

[1] Established by the Government of Japan and administered by the Asian Development Bank.

gas sector specialist (3 PM), national environment specialist (3 PM), national resettlement specialist (2 PM), and national indigenous peoples specialist (2 PM).

6. The qualifications and outline terms of reference for the PPTA consultants under the international firm are described in paras. 7 to 14.

7. **Team Leader & Chief Engineer** (8 PM international). The international expert should preferably have a master's degree in mechanical or civil engineering with extensive experience in senior positions in a power utility. As team leader this expert will be responsible for all PPTA outputs and liaison with both PLN and the ADB project officer. The international expert will be supported by a national engineer (8 PM national). The expert will seek and coordinate the inputs of all team members and ensure that the quality of technical, financial, environmental, and social safeguards and implementation arrangements-related documents meet ADB's requirements. Specifically, the expert will: (i) supervise the preparation of the different subprojects in order to adhere to the time table, (ii) coordinate the technical team in order to achieve readiness for each subproject and timely data provision for the other team members, PLN and ADB, (iii) coordinate with the safeguard team to enable that all environmental and social permits and all documentation will be in place, (iv) coordinate with the economists in the team to confirm the economic feasibility of the proposed sector project and each sub-project, and (v) supervise the organization of workshops and conferences. He/she will also review PLN's technical capacity in supervising and managing the subprojects and identify the need for capacity strengthening.

8. **Mechanical Engineers** (4 PM international and 4 PM national). The international expert should have extensive experience in designing gas-fired power stations. The expert will validate the design and general layout of the power stations and other mechanical components, and provide detailed costs for the financial analysis. He/she will calculate physical and price contingencies and prepare detailed project-implementation schedules per subproject, clearly indicating the tasks on the critical path. A national mechanical engineer will work closely with the international expert.

9. **Electrical Engineers** (3 PM international and 3 PM national)**.** The international expert should have extensive experience in power generation plants and transmission lines. The expert should also be familiar with solar-gas hybrid systems. The expert will validate the design and general lay-out of the power stations, generators and other electrical components and power plant electrical systems, and protection systems. The expert will also review the technical plan for the connection to the grid (partly new construction, partly upgraded transmission lines) and report about any bottleneck that may become critical for the implementation of the time schedule. The expert will review the status of the regional grid and interconnection plans to evaluate feasibility of connecting the proposed power plants to the grid. A national electrical engineer will work closely with the international expert.

10. **Energy Economist** (2 PM international)**.** The expert will (i) assess the economics of the investments and provide a description of macroeconomic context, a sector analysis, economic rationale and DMF, demand analysis, analysis of alternatives with least costs, risks and sensitivity analyses, sustainability, cost-benefit and distribution analysis including impacts on environment and climate in line with ADB methodology, (ii) identify risks of the projects, (iii) prepare detailed project cost tables and financing plans for the proposed investments in line with ADB requirements, and (iv) review/update them in coordination with technical and procurement experts.

11. **Financial Analyst** (2 PM international). The international expert should preferably have a master's degree in finance or business administration. The expert will (i) conduct in-depth financial analysis and evaluation of the project executing agency, (ii) undertake a financial management assessment of the executing agency, (iii) recommend and describe the fund flow and disbursement mechanisms of the ensuing project, and (iii) analyze this particular investment in terms of profitability

taking into consideration the ongoing tariff reforms by the government supported by ADB's policy based loan.

12. **Procurement Specialist** (3 PM national)**.** The expert will work closely with the other specialists and will: (i) prepare a detailed procurement plan specifying schedule and mode of procurement and source of financing, (ii) provide guidance to the executing agency in preparing the Master Bidding Documents for procurement funded by ADB, with special attention to the advance procurement and retroactive financing requirements, and (iii) undertake a thorough review of the turn key contracts prepared by PLN to ensure that they are in line with ADB's Procurement Guidelines.

13. **Environmental Safeguards Specialists** (3 PM international and 5 PM national)**.** The international expert, supported by a national specialist, will guide the preparation of and be responsible for quality assurance of the following: (i) environmental assessment and review framework for the overall sector project, (ii) environmental impact assessment [2] or initial environmental examination of the proposed subprojects (the core subprojects and selected non-core subprojects) considering the likely impacts associated with construction activities, as well as the long-term impacts during operation, and (iii) outline of appropriate environmental mitigation measures for identified significant impacts, and monitoring plans and cost estimates to address these impacts in an environmental management plan.

14. **Social, Indigenous People and Resettlement Specialists** (6 PM international [two specialists, 3 PM each] and 4 PM national)**.** The international experts will, supported by national resettlement specialist and national indigenous peoples specialist, prepare and ensure quality assurance for the following: (i) social impact assessment, including gender analysis; (ii) resettlement framework and Indigenous Peoples planning framework for the overall sector project; and (iii) resettlement plan and indigenous peoples plans for the proposed projects (the core subprojects and selected non-core subprojects) as required. The experts should ensure and assist that the EA carry out meaningful consultations with affected people, and the consultation processes will be appropriately documented in the safeguards documents. The experts should pay special attention to ensure that vulnerable groups have sufficient opportunities to participate in consultations.

E. Implementation Arrangements

15. PLN is the executing and implementing agency. Equipment will be purchased in line with ADB's Procurement Guidelines (2015, as amended from time to time) and will be turned over to the executing agency upon completion of the TA activities. PPTA proceeds will be disbursed in accordance with ADB's Technical Assistance Handbook (May 2010, as amended from time to time). PLN will provide counterpart support in the form of counterpart staff, access to feasibility studies and data, communication facilities for consultants, and other in-kind contribution. The TA will be implemented over a period of twelve months from 15 May 2016 to 15 May 2017.

16. The proposed PPTA processing and implementation schedule is listed in Table A3.4.

[2] PLN is responsible for preparing the AMDAL (environmental impact assessment required under the government regulation). The consultants will need to work closely with PLN and prepare environmental impact assessments or initial environmental examinations to comply with ADB's requirements taking into account information contained in the AMDAL.

Table A3.4: Technical Assistance Processing and Implementation Schedule

Major Milestones	Expected Completion Date
PPTA approval	March 2016
Inception mission	June 2016
Midterm review/loan fact-finding	November 2016
Final workshop	May 2017

INITIAL POVERTY AND SOCIAL ANALYSIS

Country:	Indonesia	Project Title:	Eastern Indonesia Sustainable Energy Access Sector Project
Lending/Financing Modality:	Sector Project	Department/ Division:	Southeast Asia Department / Energy Division

I. POVERTY IMPACT AND SOCIAL DIMENSIONS

A. Links to the National Poverty Reduction Strategy and Country Partnership Strategy

The National Medium–Term Development Plan (RPJMN) 2015–2019 which is part of the Long-term National Development Plan 2005–2025 aims at achieving an annual economic growth rate of at least 7% by 2019 and reducing national poverty ratio to 7–8% by the end of 2019. One of the key priorities in the RPJMN is to enhance domestic energy security and energy accessibility. Improved infrastructure (including the generation of additional electricity) and climate change mitigation (a motivation for clean energy provision) lie at the intersection of RPJMN's priority areas and strategic priorities of midterm review of ADB's Strategy 2020.

The program is aligned with the priorities of ADB's draft Country Partnership Strategy for Indonesia (2016–2019) and the draft energy sector assessment, strategy, and road map, both of which are being finalized, and the recently approved policy-based loan for the Sustainable and Inclusive Energy Program.

B. Poverty Targeting

☒General Intervention ☐Individual or Household (TI-H) ☐Geographic (TI-G) ☐Non-Income MDGs (TI-M1, M2, etc.)

The project benefits the general population of Kalimantan, Nusa Tenggara, Papua, and Sulawesi provinces through the provision of more sustainable and stable supply of electricity from natural gas. Other than North Sulawesi, the provinces of the locations of the subprojects (preliminary list) are among the poorest provinces in Indonesia (Southeast Sulawesi, Nusa Tenggara Barat [NTB], Nusa Tenggara Timur [NTT], Papua, West Papua).

C. Poverty and Social Analysis

1. Key issues and potential beneficiaries.

Indonesian national statistic indicates that in 2014, the proportion of poor people[1] in North Sulawesi—8.75%, in Southeast Sulawesi—14.05%, in Papua—27.13%, in West Papua—30.05%, in NTB—17.24% and in NTT—19.82%. Most of these percentages are among the highest in the country (average 11.25%). In small islands and other remote areas with low population density and high poverty incidences, it is challenging to provide equitable access to modern energy services. In 2014, the average electrification ratios were less than 50% in some parts of Eastern Indonesia. Lack of generation capacity has been one of the biggest constraints to accessing the electricity service. The project will provide the regional population with new and improved supply of stable and high quality electricity at an affordable price. The beneficiaries will benefit from improved access to electricity.

2. Impact channels and expected systemic changes.

People who lack access to cleaner and affordable energy are often trapped in a re-enforcing cycle of deprivation, lower incomes, and the means to improve their living conditions while at the same time using significant amounts of their very limited income on expensive and unhealthy forms of energy that provide poor and/or unsafe services. The program will enhance the quality of life in the target project areas by expanding access to electricity as a key driver of increased economic activity. By increasing the supply of electricity from natural gas, the project will provide economic opportunities for large industries, and small and medium enterprises in the region, and households and community-level facilities (e.g. clinics, schools) in the area.

3. Focus of (and resources allocated in) the PPTA or due diligence.

The team of the PPTA with a budget of $1.4 million will comprise specialists analyzing the benefits of the project and identify concerns and needs specific to various community stakeholders (including poor, customary communities, and the socially excluded) to further improve project design features.

4. Specific analysis for policy-based lending.

Not applicable.

[1] Poverty line in Indonesia is differentiated by provinces and there are different figures for urban and rural areas. In March 2014, the national average poverty line in Indonesia was Rp 318,514 in urban area, and Rp 286,097 in rural area per capita per month. (National Statistics Agency, Human Development Index, 2009)

II. GENDER AND DEVELOPMENT

1. What are the key gender issues in the sector/subsector that are likely to be relevant to this project or program?

Women play an important role in energy-related domestic activities, including cooking and the provision of wood or other alternative fuels for cooking and lighting. Women in Indonesia also help meet their families' basic needs through income-earning activities. A more sustainable and stable supply of electricity will significantly reduce the time and effort women must spend on domestic activities by eliminating the need for them to obtain and use other fuels for their household tasks. This will increase the time they have for income-generating activities in the home and taking care of their families, as well as for leisure. In addition, the electricity supply can also enable women running home industries, businesses, and other enterprises to lower their production costs and increase their revenue. Energy provision is a critical input for improvement of women's life.

2. Does the proposed project or program have the potential to make a contribution to the promotion of gender equity and/or empowerment of women by providing women's access to and use of opportunities, services, resources, assets, and participation in decision making?

☐ Yes ☒ No Please explain.

Since the electricity is to be supplied to the population in the project areas irrespective of gender, it is not foreseen that the project will specifically widen gender equality or empower women.

3. Could the proposed project have an adverse impact on women and/or girls or widen gender inequality?

☐ Yes ☒ No Please explain.

The project will have positive impacts both on women and men. No adverse impact to be experienced by women and/or girls is expected.

4. Indicate the intended gender mainstreaming category:

☐ GEN (gender equity theme) ☐ EGM (effective gender mainstreaming)
☐ SGE (some gender elements) ☒ NGE (no gender elements)

III. PARTICIPATION AND EMPOWERMENT

1. Who are the main stakeholders of the project, including beneficiaries and negatively affected people? Identify how they will participate in the project design.

Provincial and district government agencies, local communities, customary councils will be consulted. The affected people, if any, will be integrated in the project planning, implementation, and monitoring through various ways including public consultation and focus group discussions (FGDs) with communities to get their views and suggestions on the project potential impacts and mitigation measures.

2. How can the project contribute (in a systemic way) to engaging and empowering stakeholders and beneficiaries, particularly, the poor, vulnerable and excluded groups? What issues in the project design require participation of the poor and excluded?

Meaningful consultation will be carried out. Views and concerns of affected parties will be elicited with regard to project potential impacts, resettlement, social risk, and mitigation measures. The methods to be used for consultations will vary and may include (i) public consultation meetings and FGDs with potential affected people; (ii) limited household surveys; (iii) meetings and interviews with government officials both at national and local levels; and (iv) meetings with informal leaders/groups in all project areas and customary council in Papua. The PPTA will facilitate social and environmental impacts assessment and promote participatory planning to enable local communities to voice their opinions on the project and its potential impacts, and appropriate mitigation measures.

3. What are the key, active, and relevant civil society organizations in the project area? What is the level of civil society organization participation in the project design?

There are several active non-government organizations in the project area that have concern on environment, energy, and water. There are also several indigenous councils that have concerns on the indigenous peoples rights. They will be consulted on the project design, its potential impacts, and efforts to minimize the impacts.

☐ Information generation and sharing ☒ Consultation ☐ Collaboration ☐ Partnership

4. Are there issues during project design for which participation of the poor and excluded is important? What are they and how shall they be addressed?

☐ Yes ☒ No

All affected people and communities including the poor, indigenous peoples/customary groups, and other vulnerable groups will be intensively consulted, especially during resettlement plan preparation and implementation. No specific capacity building program will be conducted to strengthen the participation of poor and other vulnerable groups.

IV. SOCIAL SAFEGUARDS

A. Involuntary Resettlement Category ☐ A ☒ B ☐ C ☐ FI

1. Does the project have the potential to involve involuntary land acquisition resulting in physical and economic displacement?

☒ Yes ☐ No

Some of the proposed and potential project sites may require land acquisition and possible resettlement, although the required land area for gas-fired power generation is small and resettlement will be avoided to the extent possible.

2. What action plan is required to address involuntary resettlement as part of the PPTA or due diligence process?

☒ Resettlement plan ☒ Resettlement framework ☐ Social impact matrix
☐ Environmental and social management system arrangement ☐ None

B. Indigenous Peoples Category ☐ A ☒ B ☐ C ☐ FI

1. Does the proposed project have the potential to directly or indirectly affect the dignity, human rights, livelihood systems, or culture of indigenous peoples?

☒ Yes ☐ No

2. Does it affect the territories or natural and cultural resources indigenous peoples own, use, occupy, or claim, as their ancestral domain?

☐ Yes ☒ No

The proposed project may affect the indigenous peoples living in or near a subproject area in Papua. No indigenous peoples are expected to be affected in Sulawesi and Nusa Tenggara however further due diligence will be conducted and explorations on alternative project designs to avoid physical displacement will be carried out by the PPTA team.

3. Will the project require broad community support of affected indigenous communities?

☐ Yes ☒ No Please explain.

A broad community support of affected indigenous communities will be sought, if any subprojects in Papua may affect the dignity, human rights, livelihood systems, or culture of indigenous peoples or affects the territories or natural or cultural resources that indigenous peoples own, use, occupy, or claim as an ancestral domain or asset. So far, this seems not to be the case, but will be verified during the PPTA.

4. What action plan is required to address risks to indigenous peoples as part of the PPTA or due diligence process?

☒ Indigenous peoples plan ☒ Indigenous peoples planning framework ☐ Social Impact matrix
☐ Environmental and social management system arrangement ☐ None

V. OTHER SOCIAL ISSUES AND RISKS

1. What other social issues and risks should be considered in the project design?

☒ Creating decent jobs and employment (L) ☒ Adhering to core labor standards ☐ Labor retrenchment
☐ Spread of communicable diseases, including HIV/AIDS (L) ☐ Increase in human trafficking ☐ Affordability
☐ Increase in unplanned migration ☐ Increase in vulnerability to natural disasters ☐ Creating political instability
☐ Creating internal social conflicts ☐ Others, please specify _____

2. How are these additional social issues and risks going to be addressed in the project design?

Social impact including key issues related to core labor standard will be assessed during the project preparation and it will be included in the provisions of civil works contract

VI. PPTA OR DUE DILIGENCE RESOURCE REQUIREMENT

1. Do the terms of reference for the PPTA (or other due diligence) contain key information needed to be gathered during PPTA or due diligence process to better analyze (i) poverty and social impact; (ii) gender impact, (iii) participation dimensions; (iv) social safeguards (resettlement and indigenous people); and (vi) other social risks. Are the relevant specialists identified?

☒ Yes ☐ No

2. What resources (e.g., consultants, survey budget, and workshop) are allocated for conducting poverty, social and/or gender analysis and participation plan during the PPTA or due diligence?

The PPTA team will include social impacts and resettlement specialist (and indigenous peoples specialist, if required) who will conduct poverty and social impact assessment including gender and community participation issues.