

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

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 assessment² 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