

## PROJECT PREPARATORY TECHNICAL ASSISTANCE

### A. Justification

1. The Government of the Republic of the Union of Myanmar has requested the Asian Development Bank (ADB) to provide a project preparatory technical assistance (PPTA) to conduct due diligence and prepare the relevant project documents in accordance with ADB's requirements for a Power Network Development Project for approval by ADB and the government.

### B. Major Outputs and Activities

2. The PPTA will (i) confirm the rationale and priority of the transmission and distribution components respectively; (ii) prepare technical design and cost estimates for subprojects and propose appropriate contract packaging and procurement plans; (iii) conduct economic and financial due diligence; (iv) undertake social impact assessment, capacity, and governance assessment; (v) carry out social, resettlement, and environment safeguard due diligence and stakeholders consultation in accordance with ADB Safeguard Policy 2009; and (vi) prepare engineering design and bidding documents, and assist in preparing request for proposal for project implementation consultants.

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

**Table A3. 1: Summary of Major Outputs and Activities**

Major Activities	Expected Commencement Date	Major Outputs	Expected Completion Date
Project rationale	project inception	Technical Report	project inception + 3 months
Technical appraisal and cost estimates for project components including the computerized assets management system and computerized customer billing system	project inception	Technical Report	project inception + 3 months
Financial and economic analyses of the project	project inception + 2 months	Financial and Economic Evaluation Report	project inception + 6 months
Governance, procurement capacity assessment of MOEE, DPTSC and ESE	project inception + 2 months	Governance capacity assessment report Procurement assessment report	project inception + 5 months
Financial management assessment of MOEE, DPTSC and ESE	project inception + 2 months	Financial Management Assessment	project inception + 6 months
Poverty and social impacts assessment	project inception + 2 months	Poverty and social impacts assessment Report	project inception + 5 months
Safeguards due diligence	project inception + 2 months	Environmental and social safeguard reports for all subprojects as required Assessment of project impacts on greenhouse gases emissions and climate risks	project inception + 8 months
Preparation of bidding documents and outlines of the project implementation consultant	project inception + 6 months	Bidding Documents	project inception + 8 months

DPTSC = Power Transmission and System Control Department, ESE = Electricity Supply Enterprise, MOEE = Ministry of Electricity and Energy.

Source: Asian Development Bank estimates.

### C. Cost Estimate and Financing Arrangement

4. The TA is estimated to cost \$1,700,000 equivalent, of which \$1,500,000 will be financed on a grant basis by ADB's Technical Assistance Special Fund (TASF-V). The government will provide counterpart support in the form of counterpart staff, counterpart staff salaries, office space, and other in-kind contributions. The detailed cost estimate is presented in Table A3.2.

**Table A3.2: Cost Estimate and Financing Plan**  
(\$'000)

Item	Total Cost
<b>Asian Development Bank<sup>a</sup></b>	
1. Consultants	
a. Remuneration and per diem	
i. International consultants (40 person-months)	960.0
ii. National consultants (35 person-months)	120.0
b. International and local travel	150.0
c. Reports and communications	10.0
2. Training, and consultation workshops <sup>b</sup>	50.0
3. Vehicle <sup>c</sup>	40.0
4. Miscellaneous and support cost	50.0
5. Contingencies	120.0
<b>Total</b>	<b>1,500.0</b>

Note: The government provides counterpart support in the form of counterpart staff, counterpart staff salaries, office space, and other in-kind contributions, equivalent to 12% of the total TA cost.

<sup>a</sup> Financed by the Technical Assistance Special Fund V.

<sup>b</sup> Training and consultations workshops:

Purpose	Venue
Training on the use of computerized systems for assets management and customer automatic billing	Nay Pyi Taw,
Consultation workshops for environmental and social impact assessment	Nay Pyi Taw, project sites
Costs include ADB staff acting as resource persons in training and consultation workshops, and representation costs.	

<sup>c</sup> Cost of vehicles rent for field works: 4 vehicles, one month each

Source: Asian Development Bank staff estimates.

### D. Consulting Services

5. A firm will be engaged to provide consulting services including 36 person months of international consultants and 34 person months of national consultants.<sup>1</sup> Recruitment will be by quality- and cost-based selection method with a technical: financial weighting of 90:10. In addition, a number of individual consultants will be engaged to deliver specific outputs, including: ornithologist, sector procurement assessment, climate risk vulnerability assessment, financial performance of DPTSC and ESE, community consultation and communication strategy and implementation. The proposed composition of the consulting firm (estimated, can be reallocated by the consulting firms) is shown in Table A3.3. The outlines terms of references of the PPTA consultant are given in paragraphs below.

6. Technical appraisal and cost estimates. Prepare technical design for the three transmission lines and substations; for distribution substations and lines per regions. Propose technical solution for assets management system for transmission assets and billing system, prepare conceptual design for such systems.

<sup>1</sup> Output-based/lump sum contracts will be considered in the engagement of consulting services to reduce administrative burden and improve economy, efficiency and value for money.

**Table A3.3: Summary of Consulting Services Requirement**

<b>International Experts</b>	<b>person-months</b>	<b>National Experts</b>	<b>person-months</b>
230 kV transmission line engineer, TL	5	Transmission engineer	6
230 kV substation engineer	3	Distribution engineer	6
Distribution substation engineer, DTL	4	Environmental specialist	6
Distribution line specialist	2	Social resettlement specialist	6
Procurement specialist	4	Procurement specialist	4
Environmental specialist	6	Stakeholder communicator	6
Social resettlement specialist	6		
Project financial specialist	2		
Project economist	2		
Social/economic impact specialist	2		
<b>Total person-months</b>	<b>36</b>		<b>34</b>

DTL = deputy team leader, kV = kilovolt, TL = team leader.

7. Prepared detailed cost estimates for each subprojects under transmission and distribution components; prepare estimates for project operation and maintenance costs; prepare cost estimates for land acquisition, resettlement and environment measures; prepare physical, price contingencies, taxes, duties, and financial charges.

8. Financial appraisal. Prepare all cost and financing tables, charts, diagrams in accordance with ADB's requirements to be included in the Report and Recommendation to the President (RRP) and project administration manual (PAM). Conduct in-depth financial analysis of the project including calculation of the financial internal rates of return (FIRR), net present value (NPV), and weighted average cost of capital (WACC), in accordance with ADB guidelines. Identify all risks to the proposed project/sub-projects' revenues and costs and conduct sensitivity analysis on the FIRR of the project against these variables.

9. Financial management assessment.<sup>2</sup> Review audited financial statements of DPTSC and ESE to assess historical financial performance, transmission charges, tariff levels, capital structure, equity and financing arrangements, and whether sufficient internal funds have been generated to ensure sustainability of ongoing operations of DPTSC and ESE. Prepare financial projections (balance sheet, income statement and statement of cash flows) for DPTSC and ESE; taking into account the proposed investment, borrowings, forecasted growth and the implementing agencies actual performance. Assess future financial viability and sustainability of DPTSC and ESE. Identify procedures to strengthen financial management for DPTSC and ESE and propose action plans.

10. Economic appraisal. Identify with- and without-project situations, define the benefits of the project both for incremental and non-incremental benefits; estimate unserved energy cost due to unreliability of the system; quantify benefits comparing the with- and without project situation; and describe unquantified benefits qualitatively if exist; assess the carbon dioxide emissions reduction attributable to the project. Conduct the economic analysis of the project and calculate economic internal rate of return (EIRR) in accordance with ADB's Guidelines. Identify the risks and undertake appropriate risk and sensitivity analysis with respect to the EIRR.

11. Environmental due diligence. Prepare a Draft Rapid Environmental Assessment (REA) Checklist to confirm categorization for transmission component. Prepare an environmental impact assessment/initial environmental evaluation (EIA/IEE) report including (i) up to date quantified

<sup>2</sup> <http://www.adb.org/projects/operations/financial-management-resources>

baseline data, (ii) appropriate quantification of project's impact, (iii) environmental management plan (EMP), (iv) explanation of a grievance redress mechanism for environment, and (v) assessment of the borrower's capacity and need for a capacity building program to ensure satisfactory implementation of the environment safeguards, following ADB Safeguard Policy Statement (2009). Conduct, as necessary, environmental audits of existing substations. Conduct consultation with stakeholders including affected people and document consultation results in EIA/IEE. Prepare the terms of reference for the implementation consultant.

12. Land acquisition, social safeguard due diligence. Conduct a socio-economic study of the project impact area. Conduct consultation with affected people and document consultation results in draft resettlement plans and indigenous peoples plans (RPs/IPPs). Prepare land acquisition, RP and IPP as necessary for each project component. Prepare the terms of reference for the implementation consultant and independent monitoring agency (if required) and estimate their costs. Prepare a Grievance Redress Mechanism taking into consideration suggestions stemming from community consultations. Assess capacity development and recommend a capacity strengthening program. Conduct consultations with project affected peoples, project beneficiaries, stakeholders, civil society organizations to identify issues, propose measures for addressing them through consultations. Conduct specific conflict-sensitive consultations in all relevant project areas.

13. Climate impacts and risk assessment. Conduct accounting of GHGs emissions associated with the project, which can arise from generation emissions due to increase demand and emissions saved owing to electricity replaces other fuels used. Calculate net GHGs emission associated with this project. Conduct climate risk assessment for transmission component of the project to propose measures to ensure design specifications for T&D infrastructure withstand more extreme conditions (such as higher wind velocity) and to provide them with the ability to cope with higher air temperatures, wind, corrosion, and flooding. Propose adaptation measures including engineering and non-engineering adaptation measures for the project design.

14. Procurement and bidding. Propose appropriate procurement plan. Prepare complete set of bidding documents in accordance with procurement plan and ADB guidelines.

15. **Qualification requirements**

- The international consultants should have a university degree in desired fields, preferably at post-graduate degree and with at least seven years of relevant professional experience in the power sector including transmission and substation system;
- The national consultants shall have a bachelor's and preferably a university degree and at least 5 years of relevant professional experience. They should have a good knowledge of power transmission and substation sector in Myanmar;
- The Team Leader, the 230 kV substation engineer, the Deputy Team Leader and the distribution line specialist should all have, in their respective responsibilities, demonstrated working experience in design and/or construction of transmission and distribution lines and substations. They should have working experience as team leader team member of PPTA consultant in at least one ADB-financed project, evidenced by the past records;
- The international environment specialist should have master's degree or PhD in the environmental or biological sciences or natural resource management, with preferably 10 years or more of experience in environmental assessment as an environment specialist as part of ADB PPTA team;

- The international ornithologist should have master's degree or PhD in the environmental or biological sciences with preferably 10 years or more of experience in conservation, protected areas management or related areas. S/he must have extensive experience in conducting field surveys and should be able to identify species. Experience or knowledge of the target species for the survey is highly desirable. It is also preferable for the candidate to have knowledge of environment policies and biodiversity regulations, regulatory framework, legislation on environmental impact assessments;
- The international financial specialist should have a degree in accounting, finance, or related field, a recognized professional accountancy qualification (CA, CPA CFA), at least 10 years (8 years for national specialist) experience, including in financial due diligence (FDD);

## E. Implementation Arrangements

16. The TA will be implemented from 1 March 2017 to 1 September 2018. The MOEE will be the TA executing agency (EA) and both DPTSC and ESE will serve as project implementing agencies (IAs). The TA proceeds will be disbursed in accordance with ADB's *Technical Assistance Disbursement Handbook* (2010, as amended from time to time).

17. The EA and IAs will assist the consultant in data gathering, including all available reports, studies, transmission and distribution plans, standards, rules and regulations, and other pertinent data. The IAs will provide and make available to the consultants, free of charge, the following: counterpart staff/technical support; office space, sufficient office space for the consultant team, and has national and international telephone lines, electricity and air conditioning/heating and internet connections; office furniture, desks, office chairs, book shelves/cabinets adequate to accommodate the full complement of international and local consultants; and assistance in arrangement for workshops, meetings, and field visits and access to required data, maps and other relevant information. The consultant will be responsible for personal computer and other facilities for producing reports. The consultant, with support of the IAs, will organize and administer the training, consultation workshops.

18. The proposed TA processing and implementation schedule is listed in Table A3.4.

**Table A3.4: Technical Assistance Processing and Implementation Schedule**

Milestones	Expected Completion Date
Approval of concept paper and PPTA	Sep 2016
Mobilization of PPTA consultant	Mar 2017
Submission of draft report (technical design, cost estimate)	Jun 2017
Submission of draft reports (financial, economic due diligence)	Aug 2017
Submission of draft due diligence reports (poverty and social impact assessment); submission of safeguard reports and plans	Aug 2017
Loan Fact-Finding Mission	Oct 2017
Submission of draft final reports	Jan 2018
Submission of draft bidding documents	Feb 2018
Submission of final environmental and social resettlement reports and plans	Mar 2018
Management Review Meeting	Mar 2018
Support of implementing agencies for preparation for government approval	Apr–Aug 2018
Board consideration	Sep 2018

PPTA = project preparatory technical assistance.

Source: Asian Development Bank staff estimates.