






Asian Development Bank

Memorandum

Pacific Department
Energy Division (PAEN)

5 September 2019

To: Ma. Carmela D. Locsin, Director General, PARD 
Through: Olly Norojono, Director, PAEN 
From: Woo Yul Lee, Senior Energy Specialist, PAEN 
Subject: **49177-004-TIM: Energy System Strengthening and Sustainability Project—Approval of Small-Scale Transaction Technical Assistance**

SEP 05 2019

A. Request for Approval

1. In line with the Staff Instruction on Business Processes for Transaction Technical Assistance (TA), para. 21, we request approval of the proposed small-scale transaction TA (SSTA) amounting to \$225,000 to be financed on a grant basis by ADB's Technical Assistance Special Fund (TASF-Others). This TA will become effective upon approval; such approval will be reported to the Board in the Quarterly Summary Report on Approved Small-Scale Technical Assistance Projects. The TA at a glance is in Attachment 1.

B. Rationale and Justification

2. The Asian Development Bank (ADB) approved on 29 January 2016 a project concept paper (Attachment 2) for a multi-tranche financing facility (MFF) to improve the reliability of electricity services, increase access to modern energy services, and improve performance of *Electricidade de Timor-Leste* (EDTL, Timor-Leste's state-run electric utility) management, maintenance, and revenue collection systems throughout Timor-Leste. ADB also approved the transaction technical assistance (TRTA) on 29 January 2016 for \$1,000,000 from TASF-Others to prepare the facility and the proposed projects under the facility (TA 9075-TIM).¹ A contract for consulting services was awarded on 16 March 2017, and the inception mission was fielded in May 2017. The TRTA's final presentation was presented to the Government of Timor-Leste in January 2019. TA 9075-TIM was financially closed on 31 May 2019.

3. Based on comprehensive discussions during the consultation mission held on 8–12 April 2019, ADB and the Government of Timor-Leste have agreed to revise the outputs as described in para. 7. To more effectively deliver the revised outputs, the financing modality has been changed from MFF to a stand-alone project loan, and the project title has been changed to Energy System Strengthening and Sustainability Project through a memorandum.²

4. Due diligence for the intended MFF was originally undertaken as part of TA 9075-TIM. The project team has identified the following aspects of due diligence, which need to be updated based

¹ ADB. *Technical Assistance to Timor-Leste for Electricity System Strengthening and Sustainability Program*. Manila. 2016.

² The Memo on the change in financing modality was approved on 20 August 2019.

on the revised outputs and locations of the project, and which are proposed to be done under the SSTA:³

- (i) **Technical.** The technical due diligence will be updated for the newly proposed rehabilitation of the existing power distribution network as necessary.
- (ii) **Economic and Financial Analyses and Financial Management Assessment (FMA).** Both economic and financial analyses will be updated as necessary based on the revised outputs of the project following ADB guidelines.⁴ The FMA will also be updated as necessary, for the implementing agency following *Financial Management and Analysis of Projects*.⁵
- (iii) **Environmental and Social Safeguards.** An environmental assessment and review framework, initial environment examinations, and social (due diligence and resettlement plan) safeguard documents were prepared under TA 9075-TIM. These safeguard documents will be updated and revised, as necessary, based on the revised financing modality, scope, and locations of the project following ADB's Safeguard Policy Statement (2009).
- (iv) **Summary Poverty Reduction and Social Strategy (SPRSS).** The SPRSS report will be updated, based on the revised outputs and locations of the project, as necessary.

5. The SSTA will also include the following due diligence requirements that had not been undertaken under TA 9075-TIM (footnote 3):

- (i) Procurement capacity assessment of EDTL;
- (ii) Gender action plan (if necessary);
- (iii) Climate change assessment; and
- (iv) Risk assessment and risk management plan.

6. The SSTA will help the government to prepare the ensuing project. It will update and conduct a feasibility study and develop the relevant project documents following ADB's requirements for approval of the ensuing project by ADB and the government.

C. Outputs and Activities

7. The TA will produce the following outputs: (i) an updated feasibility study for the proposed project that includes project scope and rationale, technical due diligence, economic and financial appraisal, environmental and social safeguards; and (ii) project implementation arrangement and financing plan.

D. Cost and Financing

8. The SSTA is estimated to cost \$ 225,000, which will be financed on a grant basis by ADB's Technical Assistance Special Fund (TASF-Others). The cost estimates and financing plan is in Attachment 3.

³ ADB shall recruit several individual consultants that will conduct additional due diligence and assist EDTL in procurement under advance procurement actions, as necessary.

⁴ ADB. 2017. *Guidelines for the Economic Analysis of Projects*. Manila; and ADB. 2005. *Financial Management and Analysis of Projects*. Manila

⁵ ADB. 2005. *Financial Management and Analysis of Projects*. Manila.

E. Implementation Arrangements

9. ADB will administer the TA. The executing agency will be the Ministry of Finance. The implementing agency is EDTL. The TA resources will be disbursed following ADB's *Technical Assistance Disbursement Handbook* (2010, as amended from time to time). The TA does not require logistical support and undertaking from neither EA nor IA.

F. Consulting Services

10. Individual consultants will be recruited through framework agreements wherein shortlisted candidates may be hired as needed for the duration of the agreement to provide services. ADB will engage the consultants following the ADB Procurement Policy (2017, as amended from time to time) and its associated project administration instructions and/or staff instructions. The terms of reference for consultants are in Attachment 4.

Attachments:

- (i) Technical Assistance at a Glance
- (ii) Approved Concept Paper for TIM (49177-001)
- (iii) Cost Estimates and Financing Plan
- (iv) Terms of Reference for Consultants

cc: Directors General, PPF/D/SERD; Deputy Directors General, PARD/SERD; Assistant General Counsel (K. Emzita), Assistant Controller (Y. Tatewaki); Directors, PFP2/SEEN; Country Director, TLRM; M. Pradhananga, ERCD; R. Ouseph, OGC; T. Ahmad, PFFM; K. Nam, SDSC-ENE; R. Yngson, OAI; J. Sardona, CTLA-TA; Advisor and Head, PAOD-PRQ; P. Curry/ F. Asistin/ M. C. Cruz/ J. Gabriel, PAOD; C. Tiangco/ T. Leono/ J. Fantilanan, PAEN; C. Jung/ D. Miller; SEEN.

TECHNICAL ASSISTANCE AT A GLANCE

TRANSACTION TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data		Project Number: 49177-004	
Project Name	Energy System Strengthening and Sustainability Project	Department/Division	PARD/PAEN
Nature of Activity	Project Preparation	Executing Agency	Ministry of Finance
Modality	Small-Scale		
Country	Timor-Leste, The Democratic Republic of		
2. Sector	Subsector(s)	ADB Financing (\$ million)	
✓ Energy	Electricity transmission and distribution		0.23
		Total	0.23
3. Strategic Agenda	Subcomponents	Climate Change Information¹	
Inclusive economic growth (IEG)	Pillar 1: Economic opportunities, including jobs, created and expanded	Climate Change impact on the Project	Low
Environmentally sustainable growth (ESG)	Environmental policy and legislation		
4. Drivers of Change	Components	Gender Equity and Mainstreaming	
Governance and capacity development (GCD)	Client relations, network, and partnership development to partnership driver of change	No gender elements (NGE)	✓
Knowledge solutions (KNS)	Application and use of new knowledge solutions in key operational areas		
Partnerships (PAR)	Civil society organizations		
Private sector development (PSD)	Implementation		
	Conducive policy and institutional environment		
5. Poverty and SDG Targeting		Location Impact	
Geographic Targeting	No	Nation-wide	High
Household Targeting	No		
General Intervention on Poverty	No		
SDG Targeting	Yes		
SDG Goals	SDG7		
6. Risk Categorization	Risk Categorization does not apply		
7. Safeguard Categorization	Safeguard Policy Statement does not apply		
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		0.23	
Transaction technical assistance: Technical Assistance Special Fund		0.23	
Cofinancing		0.00	
None		0.00	
Counterpart		0.00	
None		0.00	
Total		0.23	
Currency of ADB Financing: USD			

¹ The project reduces greenhouse gas emissions. However, it does not fall under the eligibility criteria for climate mitigation finance as defined by the joint multilateral development bank methodology on tracking climate finance, which notes that not all activities that reduce greenhouse gases in the short term are eligible to be counted towards climate mitigation finance. Accordingly, greenfield fossil fuel projects are excluded, and climate mitigation finance is considered zero.



Concept Paper

Project Number: 49177-001
January 2016

Proposed Multitranche Financing Facility Timor-Leste: Electricity System Strengthening and Sustainability Program

Asian Development Bank

CURRENCY EQUIVALENTS

Currency - United States Dollar

ABBREVIATIONS

ADB	-	Asian Development Bank
AP3F	-	Asia Pacific Project Preparation Facility
BPR	-	business process reengineering
CIS	-	customer information system
EA	-	executing agency
EDTL	-	Electricidade de Timor-Leste
EARF	-	environmental assessment and review framework
ERP	-	enterprise resource planning
GIS	-	geographic information system
GWh	-	gigawatt-hour
HFO	-	heavy fuel oil
IA	-	implementing agency
ICB	-	international competitive bidding
IEE	-	initial environmental evaluation
IT	-	information technology
kV	-	kilovolt
MFF	-	multitranche financing facility
MPWTC	-	Ministry of Public Works, Transport, and Communication
MW	-	megawatt
NCB	-	national competitive bidding
OPPP	-	office of public-private partnerships
PSA	-	poverty and social assessment
PMU	-	project management unit
PPTA	-	project preparatory technical assistance
PPP	-	public-private partnership
RRP	-	report and recommendation of the president
RP	-	resettlement plan
SDP	-	Strategic Development Plan
SPRSS	-	Summary Poverty Reduction and Social Strategy
TA	-	technical assistance
TASF	-	Technical Assistance Special Fund

NOTE

In this report, "\$" refers to US dollars.

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In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

CONTENTS

	Page
PROJECT AT A GLANCE	
I. THE INVESTMENT PROGRAM	1
A. Rationale	1
B. Impacts, Outcome, and Outputs	3
C. Investment and Financing Plans	4
D. Indicative Implementation Arrangements	4
II. TECHNICAL ASSISTANCE	5
III. DUE DILIGENCE REQUIRED	5
IV. PROCESSING PLAN	6
A. Risk Categorization	6
B. Resource Requirements	6
C. Processing Schedule	6
V. KEY ISSUES	7
APPENDIXES	
1. Design and Monitoring Framework	8
2. Problem Tree	10
3. Project Preparatory Technical Assistance	11
4. Initial Poverty and Social Analysis	18

PROJECT PREPARATORY TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data		Project Number: 49177-001	
Project Name	Electricity System Strengthening and Sustainability Program	Department /Division	PARD/PATE
Country	Timor-Leste, The Democratic Republic of	Executing Agency	Ministry of Public Works
2. Sector	Subsector(s)	ADB Financing (\$ million)	
✓ Energy	Electricity transmission and distribution	Total	1.00
			1.00
3. Strategic Agenda	Subcomponents	Climate Change Information	
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Climate Change impact on the Project	Low
4. Drivers of Change	Components	Gender Equity and Mainstreaming	
Governance and capacity development (GCD)	Client relations, network, and partnership development to partnership driver of change	No gender elements (NGE)	✓
Knowledge solutions (KNS)	Application and use of new knowledge solutions in key operational areas		
Partnerships (PAR)	Knowledge sharing activities		
Private sector development (PSD)	Bilateral institutions (not client government) Implementation		
	Conducive policy and institutional environment		
5. Poverty Targeting		Location Impact	
Project directly targets poverty	Yes	Nation-wide	High
Geographic targeting (TI-G)	Yes		
6. TA Category:	B		
7. Safeguard Categorization	Not Applicable		
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		1.00	
Project preparatory technical assistance: Technical Assistance Special Fund		1.00	
Cofinancing		0.00	
None		0.00	
Counterpart		0.00	
None		0.00	
Total		1.00	
9. Effective Development Cooperation			
Use of country procurement systems		Yes	
Use of country public financial management systems		Yes	

INVESTMENT PROGRAM^a AT A GLANCE

1. Basic Data		Project Number: 49177-002	
Project Name	Multitranchise Financing Facility - Electricity System Strengthening and Sustainability Program	Department /Division	PARD/PATE
Country Borrower	Timor-Leste, The Democratic Republic of Timor-Leste, The Democratic Republic of	Executing Agency	Ministry of Public Works
2. Sector		ADB Financing (\$ million)	
✓ Energy	Subsector(s) Electricity transmission and distribution		30.00
		Total	30.00
3. Strategic Agenda		Climate Change Information	
Inclusive economic growth (IEG)	Subcomponents Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Climate Change impact on the Project	Low
4. Drivers of Change		Gender Equity and Mainstreaming	
Governance and capacity development (GCD)	Components Client relations, network, and partnership development to partnership driver of change	No gender elements (NGE)	✓
Knowledge solutions (KNS)	Application and use of new knowledge solutions in key operational areas		
Partnerships (PAR)	Bilateral institutions (not client government) Implementation		
Private sector development (PSD)	Conducive policy and institutional environment		
5. Poverty Targeting		Location Impact	
Project directly targets poverty	Yes	Nation-wide	High
Geographic targeting (TI-G)	Yes		
6. Risk Categorization:		Complex	
7. Safeguards Categorization [Tranche 1]		Environment: B Involuntary Resettlement: B Indigenous Peoples: C	
8. Financing			
Modality and Sources	Indicative Tranches (\$million)		Amount (\$million)
ADB	I		30.00
Sovereign MFF-Tranche (Loan): Ordinary capital resources	30.00		30.00
Cofinancing			0.00
None			
Counterpart			20.00
Government	20.00		20.00
Total	50.00		50.00
9. Effective Development Cooperation			
Use of country procurement systems	Yes		
Use of country public financial management systems	Yes		

INVESTMENT PROGRAM^a AT A GLANCE

10. Country Operations Business Plan		
CPS		XXX
COBP		XXX
11. Investment Program Summary		
<p>The proposed investment program will finance targeted investments, consistent with the Government of Timor-Leste's priorities and the objectives of the country partnership strategy. The Government of Timor-Leste has indicated its intention to attract a suitably qualified and experienced utility operator to assume management responsibility for EDTL under a public-private partnership (PPP) arrangement[?]; likely a lease or concession arrangement, but similar in essence to a performance-based management contract. The accompanying parallel technical assistance to be provided and managed by ADB's Office of Public-Private Partnerships (OPPP) will support the government's objective of leveraging private-sector innovation and capacity to improve EDTL's commercial performance and further reduce costs.</p> <p>A Multitranche Financing Facility (MFF) is proposed. The use of the MFF modality is considered appropriate, as: (i) the proposed facility will support a sequenced program of investment in distribution assets and systems, and investment in generation assets to reduce Timor-Leste's reliance on diesel fuel; (ii) the project supports Timor-Leste's Strategic Development Plan 2011-2030; and (iii) due to capacity constraints, the investments must be sequenced to focus on priority investments in distribution assets and systems and then on generation investments.</p> <p>Impact and Outcome: The impact (of the facility) is Reduced constraints on economic growth The outcome (of the facility) is Improved level of service and fiscal performance of EDTL</p> <p>Outputs: (i)PR program and CIS and ERP system implementation, (ii)Distribution networks modernized and service extended, (iii)Meter installation at customer and feeder level completed, and (iv)Generation investments completed to reduce diesel generation to less than 80% of total generation</p> <p>Implementation Arrangements: Ministry of Public Works will be the executing agency.</p> <p>Project Readiness: Some packages under tranche 1 of the proposed investment program might lend themselves to immediate release of invitations for bid upon loan effectiveness, such as the proposed IT-related packages if released as ?design-build? procurements. Whether to proceed in this fashion will need to be determined at the time loan effectiveness in the context of the envisaged PPP operator's assumption of operational responsibilities, considering the value of benefiting from the operator's input on the scope of the IFB.</p>		
12. Milestones		
Modality	Estimated Approval	Estimated Completion^b
Multitranche financing facility	15 December 2016	30 September 2022
13. Project Data Sheet (PDS)		
PDS^c	Not posted yet	

^a Multitranche Financing Facility (MFF).

^b For MFF, this refers to the end of the availability period; for tranches, this refers to the tranche closing date.

^c Safeguard documents can be viewed by clicking the Document's hyperlink in the Project Data Sheet (PDS) page.

I. THE INVESTMENT PROGRAM

A. Rationale

1. The proposed investment program¹ will finance investments in *Electricidade de Timor-Leste* (EDTL), Timor-Leste's state-run electric utility) to improve electricity service reliability, expand access to modern energy services, and improve performance of EDTL's management, maintenance, and revenue-collection systems throughout Timor-Leste.² Achievement of these objectives will substantially reduce the fiscal drain of the power sector on Timor-Leste's budget. Investments will be financed consistent with a sector development strategy and investment roadmap, to be prepared as a key output of project preparatory technical assistance (PPTA).

2. The principal weaknesses in the power sector are the high cost of generation (\$80 million in 2015, or roughly \$0.22 per kWh, *in fuel costs alone*)³; high physical losses in transmission and distribution; low level of revenue generation (\$22.5 million collected from end users in 2015); ongoing need for substantial fiscal subsidies (\$101.5 million allocated from state budget in 2015)⁴; and excessive non-technical network losses (including 60% of power delivered to end-users without consumption meters). These problems are, by and large, the consequence of weaknesses in the institutional, legal and regulatory environment; namely, the absence of proper commercial practices within EDTL and poor implementation of the legal and regulatory frameworks for the sector.

3. Timor-Leste has made tremendous progress in the power sector in recent years. The government has emphasized power sector development as a key driver of inclusive economic growth and poverty reduction. Since 2008, the government, through EDTL, has invested nearly \$1 billion to replace old, inefficient diesel generation and create a single transmission and distribution system from a collection of isolated systems. The results of the investment have been impressive. Network-supplied electricity coverage increased from 21% in 2003 to roughly 70% of the population in 2014, and installed generating capacity more than tripled, giving EDTL enough capacity to connect all households and easily meet peak demand for the next decade. Notwithstanding these achievements, the consequences of the rapid (and sub-standard quality) extension of distribution networks are constantly evident: power outages and voltage drops are common, and must be addressed.

4. In 2013, the government commissioned a new and modern 715 km transmission ring around the country consisting of high voltage lines (150 kV), 9 substations to serve major load centers, and a control center in Dili that connects to existing distribution networks. Two newly constructed power plants (commissioned in 2011 and 2013), with a combined capacity of over 250 MW supply most of Timor-Leste's electricity. Both plants are capable of running on diesel or heavy fuel oil (HFO), and can also be modified to run on natural gas. However, no HFO or gas handling and storage facilities currently exist at the site of these power plants. (Conversion of

¹ The proposed investment program was discussed with the Government of Timor-Leste in July 2015, and was agreed in principle in a Memorandum of Understanding signed on 08 July 2015 by the Minister of Public Works, Transport, and Communications.

² This program is included in the draft ADB Country Operations Business Plan: Timor-Leste, 2016-2018. Manila. The program will require project preparatory technical assistance as described in Section II and Appendix 3.

³ ADB calculations based on official government budget data and power-plant performance and revenue data provided by EDTL (January 2016)

⁴ In 2015, the Timor-Leste budget allocated \$101.5 million to EDTL, of which approximately \$80.0 million was spent for fuel purchases alone

the plants to run on natural gas would undoubtedly be cost-effective if gas were available at the plants.)

5. Timor-Leste's generation capacity is more than sufficient to serve current and forecasted load and meet daily and seasonal peaks in the medium-to long-term. Even under the highest demand scenarios, Timor-Leste will have ample generating capacity for at least the next 10 years. Reductions in network losses will extend this horizon by several years. However, the high cost of the existing diesel-fired generation represents a constraint on the Timor-Leste economy (and on the state budget in the form of high subsidy requirement).

6. Substantial challenges remain beyond the high cost of diesel generation. Roughly 60% of generated electricity is not billed to customers. Network losses are high, and the installation of meters has not kept pace with new connections. Substantial investment needs also remain, especially at the distribution level (20 kV and lower voltages) to extend service to populations that still lack access to modern energy services. The government's Strategic Development Plan 2011-2030 (SDP)⁵ target for 100% electrification by 2015 has not been met, which implies the need for additional investment in new distribution assets.⁶ Existing legacy networks also need investment in modernization and replacement of ageing assets. This is a particularly acute need in Dili and Baucau, where networks are several decades old and service interruptions are frequent.

7. To sustain progress in the sector and promote expanded economic opportunity throughout Timor-Leste, EDTL must begin to operate on a more commercial basis: the government currently subsidizes roughly 85% of operating costs in the sector (over \$100 million per year). The amount of subsidy required will grow unless technical and non-technical losses decline and generation costs can be reduced. The government also recognizes that the solution may lie in changes to the institutional, legal and regulatory arrangements in the sector. EDTL remains a department within the Ministry of Public Works, Transport, and Communications (MPWTC) and has never operated on a commercial basis. It lacks the human capacity and business systems and processes to operate efficiently and cope with the myriad operational and developmental challenges it faces.

8. Addressing the sector's identified shortcomings and facilitating its sustained development will require further targeted investments to reduce physical and commercial losses, improve service quality, and improve financial performance of EDTL as a commercial enterprise. Investments are also required to provide for: (i) expansion of service coverage to population not currently served by formal network electricity service; (ii) lowering the cost of power generation through public and private investments in fuel-switching and development of Timor-Leste's renewable energy resources; and (iii) the introduction of new management systems and practices, and new commercial and contractual arrangements within EDTL.

9. The proposed investment program will finance targeted investments, consistent with the Government of Timor-Leste's priorities and the objectives of the country partnership strategy.⁷ The Government of Timor-Leste has indicated its intention to attract a suitably qualified and experienced utility operator to assume management responsibility for EDTL under a public-

⁵ Government of Timor-Leste, *Strategic Development Plan 2011-2030*. Dili.

⁶ Providing grid-based electric service to Timor-Leste's most remotely located populations may not be economically viable, implying that off-grid alternatives will form part of the solution to pursuit of the 100% access target.

⁷ ADB. *Country Partnership Strategy: Timor-Leste. 2016-2020*. Manila (draft).

private partnership (PPP) arrangement—likely a lease or concession arrangement, but similar in essence to a performance-based management contract. The accompanying parallel technical assistance⁸ (described in Section II) to be provided and managed by ADB's Office of Public-Private Partnerships (OPPP) will support the government's objective of leveraging private-sector innovation and capacity to improve EDTL's commercial performance and further reduce costs. The outputs of the project preparatory technical assistance (PPTA) will provide crucial information for the parallel OPPP-provided Technical Assistance and preparation of the terms of the envisaged PPP, as described in Section II—Technical Assistance.

10. A Multitranche Financing Facility (MFF) is proposed⁹. The use of the MFF modality is considered appropriate, as: (i) the proposed facility will support a sequenced program of investment in network assets, revenue management systems, and generation assets to reduce Timor-Leste's reliance on diesel fuel and lower generation costs; (ii) the project supports Timor-Leste's Strategic Development Plan 2011-2030;¹⁰ and (iii) due to capacity constraints, the investments must be sequenced to focus on priority investments in network assets and systems and then on generation investments.

11. The choice of MFF modality was discussed and tentatively agreed with the Government of Timor-Leste during a programming mission in June 2015, and was captured in the MOU that was concluded with the government in July. An attractive salient feature of an MFF is its creation of a long-term program and partnership between ADB and the Government of Timor-Leste for the energy sector's development, which will help to ensure that successive investments are cohesive and strategic.

12. The bulk of capital investments to be financed under Tranche 1 may be implemented by EDTL within the framework of the proposed PPP arrangement. The Government of Timor-Leste is expected to retain ownership of EDTL and most of its assets. Tranche 2 investments in any *new* generation assets (i.e. other than conversion of existing generation from diesel to natural gas) are expected to be complemented by private-sector investment. (For example, the public-sector contribution to a greenfield generation investment could come in the form of land acquisition.)

B. Impact, Outcome, and Outputs

13. The impact of the proposed investment program will be access to reliable electricity supplies¹¹. Outcome of the investment program will be an improved level of service and fiscal performance of EDTL. Outputs will be: (i) business-process reengineering (BPR) program and customer information system (CIS), and enterprise resource planning (ERP) systems implementation; (ii) distribution networks modernized and service extended; (iii) meter installation at customer and feeder level completed; and (iv) generation investments completed to reduce diesel generation to below 80% of total electricity generated.

14. The program will also facilitate the achievement of a PPP arrangement for a private-sector operator to assume operational responsibility for EDTL. Outputs of the PPTA, including a

⁸ OPPP intends to draw upon the Asia Pacific Project Preparation Facility (AP3F), a multi-donor umbrella facility that will encourage private sector participation in infrastructure to support the financial, legal, and technical advisory services required to prepare and structure transactions. OPPP has other technical assistance resources at their disposal should AP3F not be available.

⁹ The choice of modality may be revisited depending on the investment requirements identified during the PPTA.

¹⁰ Government of Timor-Leste, *Strategic Development Plan 2011-2030*. Dili.

¹¹ Government of Timor-Leste, *Strategic Development Plan 2011-2030*, page 87. Dili.

management audit of EDTL and thorough inventory and assessment of EDTL's physical and institutional infrastructures, will be crucial information for the preparation of a PPP framework for EDTL¹², while capital made available under the MFF to finance investments in improvement of EDTL service (and fulfilment of contractual performance obligations under any PPP arrangement) will be an additional enticement for a prospective PPP operator.

C. Investment and Financing Plans

15. The cost of the proposed investment program is \$50 million, with \$30 million equivalent to be financed by the MFF. The program will tentatively consist of Tranche 1: \$30 million, and Tranche 2: \$20 million. Tranche 1 costs will include: (i) consultant services (design and supervision consultants)—\$2.00 million; (ii) distribution investment and re-investment—\$18.00 million; (iii) metering investments—\$6 million; and (iv) CIS and ERP system investments—\$4 million.

Table 1: Cost Estimates

Scope	Tranche 1 (\$ million)	Tranche 2 (\$ million)
Power generation	0.00	20.00
Distribution network	18.00	0.00
Metering equipment	6.00	0.00
CIS and ERP system investments	4.00	0.00
Consultant services	2.00	0.00
Total	30.00	20.00

CIS = Customer Information System, ERP = Enterprise Resource Planning

Source: Asian Development Bank.

Table 2: Tentative Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank	30.00	60.0
Ordinary capital resources (loan)	30.00	60.0
Government	20.0	40.0
Total	50.00	100.0

Source: Asian Development Bank

D. Indicative Implementation Arrangements

16. MPWTC will be the executing agency (EA) for the investment program and will be responsible for overall implementation. Electricidade de Timor-Leste (EDTL), a department within MPWTC, will be the implementing agency (IA). A project management unit (PMU) will be established within EDTL, and will: (i) manage the progress of day-to-day program implementation; (ii) prepare withdrawal applications; (iii) prepare quarterly progress reports and annual consolidated reports (for submittal to ADB through the executing agency); and (iv) maintain program accounts and complete financial records for the program. A project steering committee, consisting of representatives from key government departments and other stakeholders will be established to review project progress, coordinate inter-ministerial activities and guide PMU activities. The PMU will provide secretariat service to the committee. A bid

¹² Social and environmental safeguards frameworks prepared under the PPTA will also inform the design of the PPP framework and corresponding obligations of the prospective PPP operator.

evaluation committee will be established to ensure the process procurement methods are transparent and conform to ADB requirements.

17. Procurements will be conducted in accordance with ADB's *Procurement Guidelines* (2015, as amended from time to time). Procurement methods will be international competitive bidding (ICB), national competitive bidding (NCB), and shopping. Advance contracting action may be considered for consultant services. Retroactive financing is not envisaged.

18. The scale of financing requirements and a detailed financing plan will be prepared under the PPTA. If capital investment needs for projects identified and developed for financing under the program exceed the original financing amount, additional financing may be considered.

II. TECHNICAL ASSISTANCE

19. The PPTA is described below and in Appendix 3. The PPTA cost will be \$1 million.

20. Additionally, to support the government's objective of putting in place a long-term lease or concession PPP for EDTL, ADB's Office of Public Private Partnerships will provide technical assistance to advise the government on the terms of the envisaged PPP contract, and to support the government in identifying and concluding a contract with the selected prospective PPP operator for EDTL. The estimated cost of this parallel technical assistance is \$1.00 million. It is envisaged that a PPP operator will assume management of EDTL from 2018, and that capital investments under the program will be implemented during the PPP operator's period of performance. The PPP operator will enhance the value of public-sector investments financed under the proposed investment program by informing investment decisions to direct investment towards projects that accelerate achievement of EDTL performance targets (synonymous with key performance targets under the PPP contract).

III. DUE DILIGENCE REQUIRED

21. The PPTA will consist of various due diligence activities including the following:

- (i) Preparation of an energy-sector strategy and investment road map¹³ (physical and non-physical), identifying: (i) the strategic directions for the sector; (ii) its importance to economic growth and poverty reduction; and (iii) the factors that will enable (or impede) the strategy's success.
- (ii) Management audit of EDTL's performance to establish baseline performance data and develop key performance indicator targets for EDTL's management (current or successive, e.g. PPP operator).
- (iii) Technical analysis will confirm the technical viability of subprojects, develop cost estimates, and propose tranche distribution and financing plan.
- (iv) Economic and financial analysis will confirm that the investments are economically justified, financially viable, and that the proposed implementing agency has suitable capacity to construct, operate, and maintain project assets, and to service the on-lending arrangements.

¹³ The strategy will include, inter alia: (i) a cursory cost-of-service study for the power sector and determination of EDTL's revenue requirements; (ii) an assessment of residential customers' ability to pay and options for rationalized and targeted subsidies to support low-income households; and (iii) other aspects of the legal and regulatory framework, e.g. sector governance, licensing, quality-of-service regulation, regulatory and public reporting requirements, etc.

- (v) Governance analysis will assess the capacity of the proposed implementing agency to manage the project, including financial management capacity. The PPTA team will assess specific fund flow/disbursement mechanisms and assess the executing and implementing agencies' capacity to manage the proposed mechanism.
- (vi) A Procurement Capacity Assessment will be undertaken by the team leader during the loan fact finding mission to assess the executing and implementing agencies' capacity to manage procurement in accordance with ADB guidelines.
- (vii) Poverty, social and gender analysis will assess potential impacts from subprojects. The analysis will also include an involuntary resettlement and indigenous peoples safeguard assessment. Subject to the results of these analyses, a resettlement framework and indigenous people planning framework will be prepared for the MFF following applicable ADB guidelines.
- (viii) Climate Change analysis will assess mitigation benefits from the investments and required adaptation responses which will be incorporated into project design.
- (ix) Environmental safeguards due diligence and preparation of an environmental safeguards framework.

IV. PROCESSING PLAN

A. Risk Categorization

22. The proposed program is inherently complex due to the envisaged PPP arrangement and the preparation of the same that will occur concurrently with project preparation. Additionally, ADB has little previous experience and lending operations in the energy sector in Timor-Leste. Accordingly, the program is classified as *complex*.

B. Resource Requirements

23. The proposed investment program's preparation will require three months of a Pacific Department energy specialist's time in overseeing the PPTA and preparing the Report and Recommendation of the President (RRP).

C. Processing Schedule

Table 3: Proposed Processing Schedule

Milestones	Expected Completion Date
PPTA Mid-Term Review	July 2016
PPTA Completion	August 2016
Loan Fact-Finding	September 2016
MRM	October 2016
Loan Negotiations	November 2016
Board Consideration	December 2016
Loan Effectiveness	April 2017

Source: Asian Development Bank.

V. KEY ISSUES

24. The following are key design issues and proposed approaches:

- (i) The proposed investment program will likely (and preferably) be implemented concurrently with the period of performance of a PPP operator for EDTL. The successful engagement of a suitably qualified and experienced PPP operator, under properly-constructed contractual incentive structures, will affect the impact and success of the program. The support of the Office of Public Private Partnerships will significantly improve the likelihood of a timely conclusion of a PPP contract, and likewise improve the quality of outcome substantially.
- (ii) Project readiness: some packages under Tranche 1 of the proposed investment program may be ready for bid upon loan effectiveness, such as the proposed IT-related packages if released as "design-build" procurements. Whether to proceed in this fashion will be determined at the time of loan effectiveness in the context of the envisaged PPP operator's assumption of operational responsibilities, considering the value of benefitting from the operator's input on the scope of the IFB.
- (iii) The indicated processing timeline and lending envelope are drawn from the draft country operations business plan 2016–2018. The project team anticipates that processing will require longer than indicated, and that the scale and duration of the proposed program will be expanded and extended beyond figures contained herein.

DESIGN AND MONITORING FRAMEWORK FOR THE INVESTMENT PROGRAM

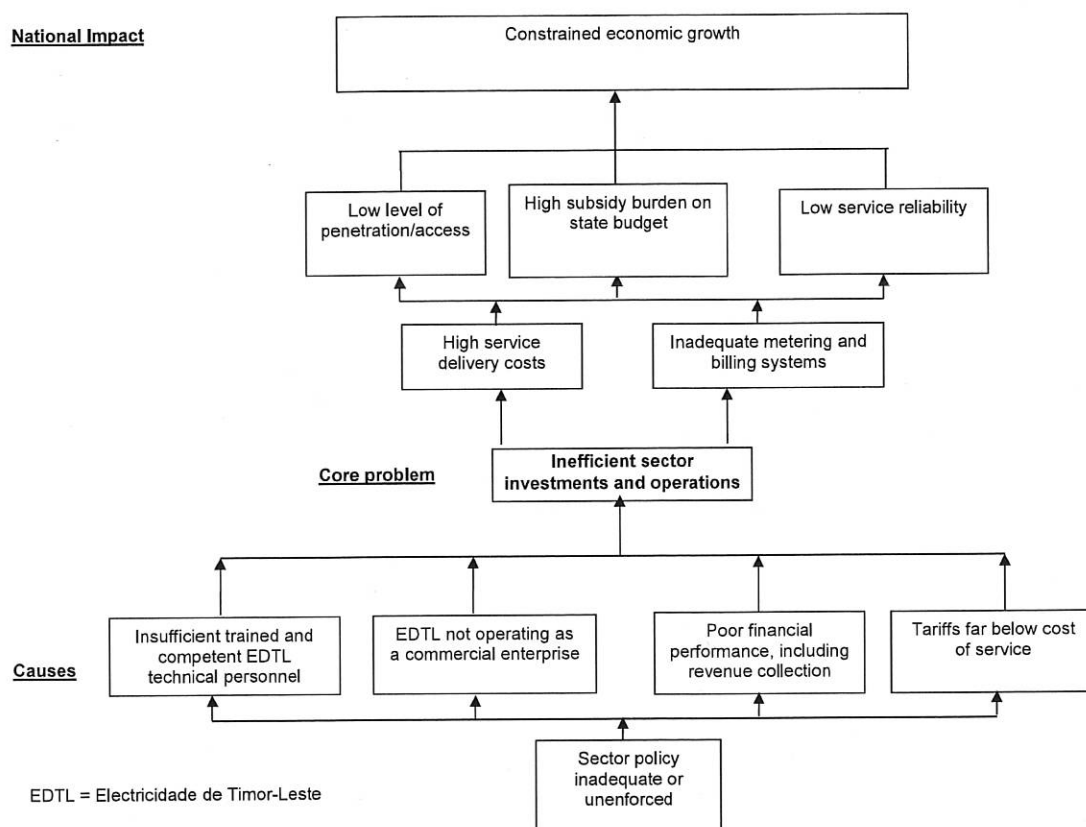
Impact the Program is Aligned with Access to reliable electricity supplies ¹			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
Outcome Improved level of service and fiscal performance of EDTL	By 2020: a. Penetration of network electricity service to reach 90% of population (2015 baseline: 71%) b. Improved billing and revenue collection performance (2015 baseline: TBC) By 2025: c. Reduction in use of diesel fuel for power generation to 80% (2015 baseline: >99%)	a. EDTL customer database; census information. b. EDTL financial reporting c. EDTL reporting	Dispersed population make expansion of network penetration uneconomic Collection enforcement measures constrained by popular discontent. Development of alternative primary energy sources hampered by environmental concerns
Outputs 1. BPR program and CIS and ERP system implementation 2. Distribution networks modernized and service extended 3. Meter installation at customer and feeder level completed 4. Generation investments completed to reduce	By 2020: 1a. New business processes supported CIS and ERP investments. 1b. 100% of end-users are registered in customer information system (2015 baseline: none) 1c. Enterprise-resource-planning system installed (2015 baseline: none) 2a. Physical losses and service outages in established distribution networks reduced (2015 baseline: TBC) 2b. 90% of households connected to distribution service (2015 baseline: 71%) 3. 100% of end-users are metered (2015 baseline: TBC) By 2025: 4a. Fuel switching from diesel to natural gas or	1. PMU quarterly reports 2a. EDTL performance and repair logs 2b. customer database; census information 3 PMU quarterly reports 4a. PMU quarterly reports	Insufficient source data available from EDTL; Inadequate facilitation by EDTL staff. Dispersed population make expansion of network penetration uneconomic Currently unmetered customers resist installation of meters, registration in customer information system (billing system)

¹ Government of Timor-Leste, *Strategic Development Plan 2011-2030*, page 87. Dili.

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
diesel generation to less than 80% of total generation	heavy fuel oil at Hera and/or Betano power plants (2015 baseline: entirely diesel-fired) and/or 4b. Installation of renewable generation sufficient to generate 77 GWh per year	4b. PMU quarterly reports.	Natural gas delivery proves uneconomic Development of alternative primary energy sources hampered by environmental concerns; depressed diesel, fuel oil, or natural gas prices render renewable generation uneconomic
Key Activities with Milestones 1. BPR, CIS and ERP investments 1.1 Confirm inventory of business processes (Jan – Mar 2017) 1.2 Confirm review of staffing structure, policies, job descriptions and functions (Jan – Mar 2017) 1.3 Confirm review of existing information management systems, record-keeping, etc. (Jan – Mar 2017) 1.4 Prepare comprehensive business-process-re-engineering (BPR) program. (Apr – Oct 2017) 1.5 Prepare CIS and ERP investments (Apr – Oct 2017) 1.6 Implement BPR, CIS and ERP investments (2018 – 2020) 2. Distribution network service extended 2.1 Confirm inventory of existing distribution networks (Jan – Jun 2017) 2.2 Confirm physical performance analysis (Jan – Jun 2017) 2.3 Identification of economically-reachable population centers for network expansion (Jul – Sep 2017) 2.4 Prepare detailed network re-investment and expansion-investment program (Sep – Dec 2018) 3. Meter installation 3.1 Confirm inventory and assessment of existing metering systems (Jan – Mar 2017) 3.2 Identification of needed investment for completion of metering, integration with IT (ERP, CIS) systems (Apr – Oct 2017) 3.3 Prepare detailed metering investment program at end-user and bulk level (Apr – Oct 2017) 4. Generation Investments Completed 4.1 Prepare detailed Terms of Reference for Design & Supervision Consultants' (DSC) for preparing generation investments, per ADB requirements (NB: generation investments will take place under Tranche 2) (2018-2020)			
Inputs ADB: \$30.00 million loan Government: \$20.00 million			
Assumptions for Partner Financing Not Applicable			

BPR = Business Process Re-engineering, CIS = Customer Information System, EDTL = Electricidade de Timor-Leste, ERP = Enterprise Resource Planning, PMU = Project Management Unit
 Source: Asian Development Bank

PROBLEM TREE

National Impact

PROJECT PREPARATORY TECHNICAL ASSISTANCE

A. Justification

1. PPTA is needed to provide due diligence on all investments to be financed under the proposed investment program.

B. Major Outputs and Activities

2. Outputs will be: (i) a management audit of EDTL and recommended business-process reengineering program and business-systems investments; (ii) distribution networks modernized and service extended; (iii) meter installation at customer and feeder level completed; (iv) customer information (CIS) and enterprise resource planning (ERP) systems installed; and (v) generation investments completed to reduce diesel generation to 80% of total generation.

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

Table A3.1: Summary of Major Outputs and Activities

Major Activities	Expected Completion Date	Major Outputs	Expected Completion Date
Preparation of Sector Strategy and Investment Roadmap	July 2016	Report and Presentation to Stakeholders	July 2016
Management Audit of EDTL	July 2016	Audit report and recommendations	July 2016
Inventory and assessment of EDTL distribution infrastructure	July 2016	Preliminary design of network expansion investments	July 2016
Inventory and assessment of metering, CIS and other IT systems	July 2016	Preliminary design specifications for metering, CIS and ERP investments	July 2016
Financial and economic evaluation and analyses for all investment projects	July 2016	Component chapters of investment project preliminary designs	July 2016
Preparation of cost estimates, tranche distribution, and financing plan	July 2016	Component chapters of investment project preliminary designs	July 2016
Poverty, social, and gender assessments	July 2016	Component chapters of investment project preliminary designs	July 2016
Governance, financial management, and procurement capacity assessments	July 2016	Report on EA and IA capacities	July 2016
Climate change analysis to assess mitigation impact and climate-resilience requirements	July 2016	Component chapters of investment project preliminary designs	July 2016

CIS = Customer Information System, EA = executing agency, EDTL = Electricidade de Timor-Leste, IA = implementing agency, IT = information technology.

Source: Asian Development Bank

C. Cost Estimate and Proposed Financing Arrangement

4. The TA is estimated to cost \$1.00 million equivalent, of which \$1.00 million equivalent will be financed on a grant basis by TASF-other sources. The government will provide counterpart support in the form of counterpart staff 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
Asian Development Bank^a	
1. Consultants	
a. Remuneration and per diem	
i. International consultants (33 person-months)	690.0
ii. National consultants (12 person-months)	60.0
b. International and local travel	160.0
c. Reports and communications	10.0
3. Representative for contract negotiations	5.0
4. Contingencies	75.0
Total	1,000.0

^a Financed by the TASF-other sources

Source(s): Asian Development Bank

D. Consulting Services

5. The TA will require 12 international consultants (33 person-months) and 2 national consultants (12 person-months) to be hired through a consulting firm. Consultants will be engaged by ADB in accordance with the Guidelines on the Use of Consultants (2013, as amended from time to time). The consulting firm will be engaged through quality and cost based selection method (quality-cost ratio of 90:10) using simplified technical proposal. The procurement of equipment by consultants under the TA, will follow ADB's Procurement Guidelines (2015, as amended from time to time). The proceeds of the TA will be disbursed in line with ADB's Technical Assistance Disbursement Handbook (2010, as amended from time to time).

Table A3.3: Summary of Consulting Services Requirement

Positions	Person-Months Required
International	33
Electrical Engineer and Team Leader	6
Electrical Engineer – Distribution	3
Energy Policy Expert	3
Metering Expert	3
Utility IT Systems Expert	3
Business-process reengineering Expert	3
GIS Expert	3
Financial Specialist	2
Economic Specialist	2
Social Safeguards/Gender Specialist	1
Environmental Safeguards Specialist	2
Procurement Specialist	2
National	12
Electrical Engineer – Distribution (two positions)	12

Source: Asian Development Bank

6. The outline terms of reference for PPTA consultants are described in paragraphs (i) to (xii):

- (i) **Electrical Engineer – Team Leader** (International, 6 person-months). The electrical engineer and team leader should have a minimum of 15 years' demonstrated experience in implementation of distribution network investments and maintenance, including in developing countries. The team leader will be responsible for managing the Consultant team as well as all reporting activities, and liaison with stakeholders. As team leader, the electrical engineer will: (i) review background data of the proposed program's development; (ii) carry out analyses of government policy objectives; (iii) liaise closely with main stakeholders; (iv) prepare the detailed work program and implementation schedule for the PPTA; (v) coordinate preparation of the deliverables, including management audit, Feasibility Studies, and detailed designs for investments to be proposed; (vi) prepare the proposed investment program's detailed design and monitoring framework (DMF); (vii) prepare a project procurement plan; (viii) prepare the project implementation schedule; and (ix) prepare terms of reference for design and supervision consultants. As electrical engineer, the tasks will include, inter alia: (i) assessment of EDTL's existing distribution assets and re-investment or modernization requirements; (ii) identification of priority network extension investments to expand service coverage; (iii) prepare the technical design and feasibility study for proposed network extension investments; (iv) in coordination with other team experts, preparation of technical, financial and economic feasibility analyses for all investments proposed for the investment program.
- (ii) **Energy Policy Expert** (International, 3 person-months). The energy policy expert will hold an advanced degree (Master of Arts or Master of Science or

equivalent) in energy policy, law, or other relevant discipline, and possess at least 15 years' experience in advising governments on sector development policy and strategy. The energy policy expert will be primarily responsible for the preparation of an energy-sector strategy and investment road map, identifying (i) the strategic directions for the sector; (ii) its importance to economic growth and poverty reduction; and (iii) the factors that will enable (or impede) the strategy's success. It should consider (i) policy, institutional, legal, and regulatory frameworks; (ii) institutional capacity; (iii) recent trends in current and capital expenditures; (iv) the type and composition of expenditures; (v) roles of the public and private sectors; (vi) pricing policy; (vii) sustainability of investments; and (viii) the possibility of resource allocation with the sector. It should also address poverty and social dimensions, environmental considerations, safeguards, and governance issues in sector management. The strategy and investment road map will form part of the RRP, and will include, *inter alia*, (i) a cursory cost-of-service study for the power sector and determination of EDTL's revenue requirements, (ii) an assessment of residential customers' ability to pay and options for rationalized and targeted subsidies to support low-income households, and (iii) other aspects of the legal and regulatory framework, e.g. sector governance, licensing, quality-of-service regulation, regulatory and public reporting requirements, etc. Additionally, the energy policy expert will support the business-process re-engineering expert in preparing the management audit of EDTL and identification of appropriate key performance indicators and targets.

- (iii) **Electrical Engineers – Distribution** (1 International, 3 person-months; 2 national, 6 person-months each). The electrical engineer – distribution should have a minimum of 10 years demonstrated experience in implementation of distribution network investments and maintenance, including in developing countries. Taking direction from and sharing responsibilities with the team leader, the electrical engineers – distribution will, *inter alia*: (i) assess EDTL's existing distribution assets and re-investment or modernization requirements; (ii) identification of priority network extension investments to expand service coverage; (iii) prepare the technical design and feasibility study for proposed network extension investments; and (iv) in coordination with other team experts, support financial and economic feasibility analyses for all proposed network investments.
- (iv) **Metering Expert** (International, 3 person-months). The metering expert will have substantial experience in the power industry, including experience with metering investments and integration of meter systems (bulk and retail) with power companies' IT systems. The metering expert's tasks will include, *inter alia*: (i) inventory of EDTL's existing meters; (ii) assessment of existing metering program's functionality; (iii) identification of shortcomings and gaps of existing metering in EDTL's networks, (iv) coordination with Utility IT Systems Expert on design of metering investment program and integration of metering with proposed EDTL IT investments (customer information system and enterprise-resource planning systems).
- (v) **Utility IT Systems Expert** (International, 3 person-months). The Utility IT Systems Expert will have substantial experience in design and implementation of IT systems investments in electric power utilities, including customer information/billing systems, enterprise-resource planning, and financial

management/accounting systems integration. Tasks will include, inter alia: (i) assessment of EDTL's existing IT systems and their functionality; (ii) identification of EDTL's IT requirements for asset management and maintenance, human-resource management, customer-information system and databases, billing and collection, financial management, asset inventory, etc.; (iii) close coordination with the Business-process Re-engineering Expert in evaluating EDTL's business processes (current and proposed optimized) to align proposed IT systems investments with EDTL's needs.

- (vi) **Business-process Re-engineering (BPR) Expert** (International, 3 person-months). The BPR expert will have extensive experience in a management and executive capacity in the electric power industry, including at the retail distribution level, and will have overseen the implementation of business-process reforms within an electric utility. The BPR expert will have primary responsibility for the preparation of a management audit of EDTL. Tasks will include, inter alia: (i) mapping EDTL's current business-process landscape; (ii) identification and evaluation of appropriate key performance indicators for EDTL, (iii) assessment of current process inefficiencies and redundancies; (iv) proposed re-design of EDTL business processes and corresponding changes organizational hierarchy and staffing assignments, (v) assessment of adequacy of human-resource capacity to existing and proposed business-process requirements, (vi) close coordination with Utility IT Systems Expert in re-design of EDTL business processes and IT investments.
- (vii) **Geographic Information Systems (GIS) Expert** (International, 3 person-months) The GIS Expert will have substantial experience in design and application of GIS systems to record the location of network-utility assets and planning of network-extension investments. The GIS expert's tasks will include, inter alia, (i) assessment of EDTL's existing (if any) GIS system's capabilities, and completeness and accuracy of data, (ii) inventory of GIS-adequate information contained outside an existing GIS system database on EDTL's assets' identification, location, condition, (iii) superimposition and analysis of EDTL's existing networks and rights of way with other infrastructure (e.g. road) and population centers (both served and unserved) to identify priority network extension investments, (iv) close coordination with the Utility IT Systems Expert in specification of requirements for GIS integration with proposed ERP system.
- (viii) **Financial Specialist** (International, 2 person-months). The specialist will hold a relevant academic and/or professional qualification (e.g. CPA) and have a minimum of 10 years background in financial evaluation and analysis of infrastructure projects in developing countries, including in the Pacific. The specialist will be experienced in ADB financial evaluation and analysis procedures. The specialist will undertake the following, (i) conduct financial evaluation of the project, including calculation of the financial internal rate of return and weighted average cost of capital, (ii) identify project revenue and commercial risks, conduct relevant sensitivity analyses, (iii) prepare a financing plan, (iv) review financial statements and conduct financial analysis and financial management assessment for EDTL, (v) prepare projected financial statements for the IA for 10 years, including a sensitivity analysis, and (vi) complete relevant sections of the RRP, including a flow-of-funds diagram and disbursement

mechanism, and assessment of EDTL's capacity to manage an imprest fund, if relevant.

- (ix) **Economic Specialist** (International, 2 person-months). The specialist will hold a relevant academic qualification (e.g. BA/BSc or higher degree in economics) and have a minimum of 10 years background in economic analysis of infrastructure projects in developing countries, including in the Pacific. The specialist will be experienced in the application of economic analysis methodologies outlined in *ADB Handbook on Economic Analysis of Projects*. The economic specialist will carry out an economic analysis for the project (including power demand analysis, least-cost analysis, economic viability analysis, economic internal rate of return, sensitivity analyses) and prepare relevant sections of the RRP.
- (x) **Social Safeguards/Gender Specialist** (international 2 person months) will have 10 years of experience in conducting social assessments and preparing resettlement plans (RP) in developing countries. The specialist will undertake due diligence/assessment on involuntary resettlement and indigenous peoples for the proposed investment program, according to ADB's Safeguard Policy Statement. If proposed investments require land acquisition/resettlement, the specialists will: (a) review the country systems on land acquisition/ resettlement, and identify any gaps and gap-filling measures between ADB requirements and the country systems; (b) assess land acquisition/resettlement impacts including census of affected persons, inventory of losses, socio-economic survey; and (c) develop RP following ADB's outline. If the project impacts indigenous peoples, the specialists will also prepare an indigenous peoples plan following ADB's format. The specialist will (i) collect available background data, (ii) organize and conduct surveys, (iii) develop and implement a stakeholder and community consultation plan, (iv) assess the indigenous-peoples impacts of proposed investments, (v) assess the pro-poor impacts of proposed investments, (vi) assess the gender impact of the proposed investments, (vii) prepare Poverty and Social Assessments (PSA) and Summary Poverty Reduction and Social Strategy (SPRSS), (viii) prepare socioeconomic monitoring and management plans, (ix) prepare a gender action plan, (x) prepare relevant social safeguards frameworks, and (xi) assist the EA and IA in undertaking consultations with affected communities.
- (xi) **Environmental Safeguards Specialist** (International 2 person-months). The international environment specialist will have at least 10 years' experience in environmental assessment of infrastructure projects, preferably in the power sector. The specialist will (i) prepare the environmental assessment for investment projects, (ii) consult with stakeholders, (iii) incorporate appropriate mitigation measures into project design, (iv) quantify the project environmental impacts and benefits, (v) develop a grievance redress mechanism, (vi) identify and manage environmental surveys, including flora and fauna surveys, (vii) assess climate and disaster-related risks, (viii) prepare an initial environmental examination (IEE) and environmental assessment and review framework (EARF) for the MFF.
- (xii) **Procurement Specialist** (international, 2 person-months). The procurement specialist will have a minimum of 10 years demonstrated experience in preparation of procurement documents and will be familiar with ADB

procurement systems. The specialist will be responsible for carrying out a procurement capacity assessment of EDTL, and preparation of standard bidding documents which will be reviewed and cleared by ADB.

E. Implementation Arrangements

7. The PPTA will be implemented by ADB. MPWTC and EDTL will provide support to the consultants, including (i) counterpart staff, (ii) arranging meetings with relevant Government stakeholders, (iii) coordinating meetings with affected communities and stakeholders, (iv) providing access to all relevant data. The TA will be implemented over a 6-month period and is expected to commence in March 2014 and be completed in August 2016.

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

Table A3.4: Technical Assistance Processing and Implementation Schedule

Major Milestones	Expected Completion Date
Reconnaissance Mission	January 2016
Consultant Recruitment	December 2015 - February 2016
Consultant Mobilization	March 2016
Inception Report	March 2016
Mid-term Report	June 2016
Draft Final Report	July 2016
Final Report	July 2016
Physical Completion	August 2016
Financial Closure	December 2016

Source: Asian Development Bank

INITIAL POVERTY AND SOCIAL ANALYSIS

Country:	Timor-Leste	Project Title:	Electricity System Strengthening and Sustainability Program
Lending/Financing Modality:	Multitranché Financing Facility	Department/ Division:	PARD/PATE

I. POVERTY IMPACT AND SOCIAL DIMENSIONS

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

The high cost, limited availability, and poor reliability of electric power service is a constraint to economic growth. The proposed investment program will reduce this constraint to economic growth by addressing these shortcomings. The country partnership strategy includes support to energy infrastructure development as fundamental to inclusive growth and economic competitiveness, and for its direct contribution to higher living standards. Expansion of access to electric power service will improve quality of life of the Timorese population and provide greater economic opportunity.

B. Poverty Targeting (Select one):

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

The proposed investment program is inherently pro-poor in its focus on extension of electric power service to rural and un-served households, who are primarily poor.

C. Poverty and Social Analysis

1. Key issues and potential beneficiaries.

The investment program will help to free government budget resources for other uses by reducing the public subsidies that are required for electricity production and distribution. The entire population will benefit from improved service quality and reliability, and expansion to access to modern energy services although households in very remote areas may not derive direct benefits from the proposed investment program inasmuch as extension of power service to them will remain uneconomic.

The last comprehensive poverty assessment was completed in 2007 and found a national poverty rate of 50%. Analysis of a range of data sources suggests that poverty has fallen moderately since then with results from a new national poverty survey due in 2016.

In 2015, 71% of Timor-Leste's population had access to network electricity supply. Improved metering will mean that many households begin to pay for electricity for the first time. Electricity tariffs will need to be designed to ensure that a minimum service level is affordable to poor and low income households and that the roll-out of metering does not exacerbate poverty. There is a small chance that the implementation of metering and user charges could contribute to social unrest.

2. Impact channels and expected systemic changes. Beneficiaries will derive benefit from expanded access to electric power service at lower economic cost than at present, with concomitant improvements in quality of life and increased economic opportunity. During implementation of network-extension investments, some local employment may be generated.

3. Focus of (and resources allocated in) the PPTA or due diligence. Involuntary resettlement and land acquisition issues will be reviewed under the PPTA.

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?
There is likely to be a positive pro-female impact in the extension of electric power service to rural households, most of which are run by female members of household.

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. See #1 above.

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

☐ Yes ☒ No Please explain. See #1 above.

4. Indicate the intended gender mainstreaming category:

☐ GEN (gender equity) ☐ 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.

The main stakeholders are the Government of Timor-Leste, the electric power utility and its employees, and the population of Timor-Leste that will benefit from improved, lower-cost, and expanded electric power service. Potentially negatively-impacted persons will be those subjected to involuntary resettlement (if such occurs). Stakeholder consultations and appropriate compensation frameworks will be included in project design.

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?

There is no immediately apparent systemic way to identify and engage poor, vulnerable, or excluded groups, except as described under #4 below.

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?

No relevant civil society organizations are identified.

☐ 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

Rural communities that are not among the first identified for extension of electric power service may voice objections. Stakeholder consultations will address these communities' objections.

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 NOT CURRENTLY KNOWN

Please explain, and provide information on the extent of land and assets acquisition and the estimated number of affected persons. Also describe actions/measures to be conducted during due diligence to address involuntary resettlement.

We do not anticipate significant involuntary resettlement under the MFF, especially under Tranche 1 investments (confined to network re-investment and extension).

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
3. Will the project require broad community support of affected indigenous communities? ☐ Yes ☒ No
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 ☐ Adhering to core labor standards ☐ Labor retrenchment
☐ Spread of communicable diseases, including HIV/AIDS ☐ 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?

The transition of Electricidade de Timor-Leste (EDTL) to commercially-oriented operations, and the installment of a private-sector operator under a PPP lease or concession, both of which the proposed program supports, may lead to a reduction in EDTL workforce.

The installation of end-use meters in households who currently use electricity on an un-metered basis, and the consequential imposition of fiscal discipline on such households, may prove unpopular.

Support to the Government of Timor-Leste in explaining the necessity and rationale of these measures in stakeholder consultations will be a necessary part of their implementation.

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; and (v) other social risks. Are the relevant specialists identified?
☒ Yes ☐ No If no, please explain why.

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? A social safeguards and gender specialist is included in the PPTA consultant roster.

COST ESTIMATES AND FINANCING PLAN

Item	Amount (\$'000)
Asian Development Bank^a	
1. Consultants	
a. Remuneration and per diem	
i. International consultants	153.4
ii. National consultants	12.0
b. Out-of-pocket expenditures	
i. International and local travel	50.0
ii. Reports and communications	1.5
2. Surveys	2.0
3. Training, seminars, workshops, forums, and conferences	1.5
4. Miscellaneous administration and support costs	1.5
5. Contingencies	3.1
Total	225.0

^a Financed by the Asian Development Bank's Technical Assistance Special Fund (TASF-Others).
Source: Asian Development Bank estimates.

TERMS OF REFERENCE FOR CONSULTANTS

1. **Power Distribution Expert and Team Leader** (international, 2.5 person-months, intermittent). The expert is the team leader of a team of individual consultants (the team members) and coordinate activities of the team members and related government agencies. The expert's task is to (i) conduct technical due diligence of EDTL's power grid system and (ii) prepare and update the project appraisal documents for loan approval by ADB management and supervise the team members to deliver their outputs in time. The expert should have a bachelor's degree or higher degree in engineering or other relevant fields, and at least 15 years of experience in the areas of power system planning, system loss reduction, distribution management system, and electrical engineering with the design, specification, and implementation of middle and low voltage systems. Experience with ADB (or other multilateral development banks) funded projects is preferable. The activities to be undertaken will include but not limited to, the following:

- (i) Review existing feasibility study reports prepared by ADB previously, and in coordination with the EDTL, re-assess and update the reports especially project priorities, investment costs, project implementation schedule, and recommendations;
- (ii) Carry out technical due diligence, together with the team members, on (a) rehabilitation of power distribution network where needed; (b) building a new distribution dispatch/control center in Dili City, and (c) establishment of a distribution management information system (DMIS);
- (iii) Review the configuration of EDTL's distribution network focusing on protections mechanism of 20kV medium voltage lines and blow 400 voltage lines especially, and recommend the best solution for distribution network configuration to EDTL;
- (iv) Conduct site assessments to identify EDTL's power distribution sections to be rehabilitated and to check requirements and the site conditions for the construction of a new dispatch/control center under the project including topography, access roads, and climate conditions;
- (v) Organize the site survey for the environment specialist and social safeguard specialist and explain how rehabilitation and construction works will be done so that they can determine the extent of potential impacts and to prepare the initial environmental evaluation, land acquisition and resettlement plans, indigenous peoples plan, and mitigation plans, if necessary;
- (vi) Carry out technical engineering designs and cost estimates including bill of quantities, technical specifications, and implementation/construction period for each subproject under the project;
- (vii) Together with the procurement specialist, propose suitable contract packaging, the procurement plan, and draft bidding documents (especially Section 3 and 6 in the ADB standard bidding documents), taking into account the availability of foreign and local funds and other local regulations or local practices that might have an impact on procurement;
- (viii) Consult with EDTL and obtain their concurrence on engineering designs, bidding packages, procurement plan, and draft bidding documents in coordination with the procurement specialist;
- (ix) Together with the financial specialist and the project economist, prepare the detailed cost estimates and financing plans, and prepare necessary documents for co-financing, if any to satisfy the requirement of government's investment scheme for the project;
- (x) Propose a realistic and detailed project implementation schedule taking into account the time period required for procurement of goods and works, and implementation of needed civil works, construction, installation, and commissioning;
- (xi) Conduct a risk analysis of all subprojects and propose mitigation measures;

- (xii) Prepare, in coordination with the team members, the due diligence reports for subprojects incorporating technical, financial and economic, and safeguard feasibility assessments, which will be part of the report and recommendation of the President (RRP) for ADB approval;
- (xiii) Attend the fact-finding mission to present the critical outcome of the consultancy works; and
- (xiv) Lead the team members to deliver their assigned outputs in time.

2. **Smart Meter Expert** (international, 1.5 person-months, intermittent). The expert should have a bachelor's degree or higher degree in electrical engineering or other relevant fields, and at least 8 years of experience in electrical revenue meters including automatic meter reading (AMR), advanced meter infrastructure (AMI), and pre-paid meters with the design, specification, and implementation of these meter systems. The activities to be undertaken will include but not limited to, the following:

- (i) Review existing feasibility study reports prepared by ADB previously, and in coordination with the EDTL, re-assess and update the reports on revenue meters, deployment of AMR and pre-paid meter, investment costs, project implementation schedule, and recommendations;
- (ii) Carry out technical due diligence for the proposed project on the deployment of smart meters component including communication methods/conditions in Timor-Leste to determine the best smart meter solution for EDTL;
- (iii) Carry out technical engineering designs and cost estimates including bill of quantities, technical specifications, and deployment period for each type of meters under the project;
- (iv) Consult with EDTL and obtain their concurrence on type of smart meters, engineering designs, and draft bidding documents in coordination with the team leader and procurement specialist;
- (v) Prepare, in coordination with the team leader, the necessary part of the due diligence reports for this subproject incorporating technical, financial and economic, and safeguard feasibility assessments, which will be part of the report and recommendation of the President (RRP) for ADB approval;
- (vi) Attend the fact-finding mission to present the critical outcome of the consultancy works; and
- (vii) Assist the team leader in delivering the assigned output in time.

3. **Project Engineer** (national, 3.0 person-months, intermittent). The expert should have a bachelor's degree in engineering, science, or other relevant fields, and at least five years of working experience, with strong familiarity in international procurement procedures. The expert will assist the team leader in performing all tasks, particularly in the following activities:

- (i) Visit the project sites; collect the updated information; and guide and support the other international specialists to prepare all the deliverables below in ADB formats; and
- (ii) Assist the team leader to deliver his or her assigned outputs as described in para. 1 of the TOR.

4. **Financial Expert** (international, 1.5 person-months). The expert will have a degree in accounting, finance, or a related field, and will have a recognized professional accountancy qualification. The expert should have at least 15 years' experience, including in financial due diligence (FDD). Professional qualification such as CA or CPA is an advantage. The expert will

conduct FDD following ADB's requirements.¹ Relevant guidance is available at <http://www.adb.org/projects/operations/financial-management-resources>. The FDD will include:

- (i) Conducting a financial management assessment of the executing and implementing agencies, including (a) assessing whether previous financial management assessments have been undertaken by ADB or other agencies and, if so, reviewing the results and ascertaining whether these can be used as input, (b) assessing capacity for planning and budgeting, management and financial accounting, reporting, auditing, internal controls, and information systems (c) reviewing proposed disbursement and funds-flow arrangements, and (d) concluding on the financial management risk rating and identifying and confirming measures for addressing identified deficiencies;
- (ii) Supporting the preparation and agreement of cost estimates and a financing plan, which are based on valid data and are sufficient to support project implementation;
- (iii) Preparing financial projections and conducting financial analyses of the executing and implementing agencies, and incremental recurrent costs, to determine financial sustainability, and reviewing proposed cost-recovery and tariff policies, including affordability;
- (iv) Conducting financial evaluations (financial cost-benefit analyses) including sensitivity analyses of project components that have a cost-recovery objective;
- (v) where significant risks are identified to project financial sustainability or viability, proposing relevant financial performance indicators to be incorporated in financial covenants; and
- (v) Assessing and reaching agreement on financial reporting, auditing and public disclosure arrangements for the project, and, as appropriate, identifying and agreeing on methods for receiving financial statements from executing and/or implementing agencies.

5. **Economic Expert** (international, 1.0 person-months each). The expert should have a bachelor's or higher degree in economics or related field, and with at least 8 years of relevant working experience. Extensive experience in cost-benefit analysis of projects is required, as well in the power sector and projects financed by multilateral development banks like ADB and World Bank. An expert with experience in one or more of ADB's Pacific countries is preferred. The key tasks are to:

- (i) Perform the economic analysis for the proposed project, guided by ADB's *Guidelines for the Economic Analysis of Projects* (2017) explicitly including (a) electricity demand analysis, (b) least-cost and equalizing discount rate analysis, (c) economic viability analysis including least-cost analysis, and (d) risk analysis;
- (ii) Undertake least-cost analysis for power generation by comparing alternative investments and measures within the current country and sector context;
- (iii) Undertake an economic evaluation of the project by providing the project's economic rationale and determining the key economic costs and benefits and the economic rate of return of the project following ADB guidelines. Also, identify the project's direct and indirect costs and benefits that are not used in the quantitative model;
- (iv) Estimate the greenhouse gas emission reduction (ton equivalent CO₂ per year);
- (v) Undertake sensitivity and risk analysis of key variables and identify the switching values and assess the likelihood of key risks;

¹ ADB. 2014. *Financial Management, Cost Estimates, Financial Analysis, and Financial Performance Indicators*. Operations Manual. OMG2/BP. Manila

- (vi) Incorporate into the economic analysis an economic quantification of environmental impact following ADB's *Economic Valuation of Environmental Impacts: A Workbook* (1996), and *Environmental Assessment Guidelines* (2003);
- (vii) Provide inputs to reports and relevant sections of RRP, including an economic analysis linked document; and
- (viii) Assist ADB missions and provide inputs as required.

6. **Environment Expert** (international, 1.0 person-month). The expert should have a bachelor's or higher degree in environmental sciences, environmental engineering or related fields, and has at least 10 years of relevant working experience, including working experience with an international financing institute like ADB, etc. The key task is below:

- (i) Review the existing IEE and update, if necessary, based on the updated project outputs as described in paras. 7–8 of the main text following ADB's Safeguard Policy Statement (2009).

7. **Social Safeguards Expert** (international, 1.5 person-months). The expert should have a bachelor's or higher degree in social development or related area and at least 10 years of relevant working experience, including working experience with an international financing institute like ADB, etc. The key tasks are to:

- (i) Review the existing resettlement plan and/or DDR and update, if necessary, based on the updated project outputs as described in paras. 7–8 of the main text following ADB's Safeguard Policy Statement (2009);
- (ii) Assess potential poverty and social impacts of the proposed project and prepare a brief social and poverty report as the basis of summary poverty reduction and social strategy (SPRSS) and inputs to the environmental assessment;
- (iii) Conduct a gender analysis, including differentiated impacts on women and other vulnerable groups and recommend gender-related action plan in the project design if feasible or gender measures to satisfy the proposed some gender elements category of the project; and
- (iv) Prepare a gender action plan, if necessary.

8. **Procurement Expert** (international, 1.5 person-months). The expert with a bachelor's or higher degree in engineering or business and at least 10 years of relevant experience in procurement roles of energy projects. The expert shall have advance knowledge of international organizations/agencies and national public procurement regulations and procedures, especially associated knowledge of ADB procurement. The specialist should also have previous work experience in procurement and should have worked on projects financed by the international financial organization, primarily ADB funded projects. Direct experience of public sector procurement (legislation, institutional framework, systems, and training) and e-procurement systems are added advantages. Previous experience in developing countries in the region is desirable. The specialist will undertake the following tasks:

- (i) Prepare and update procurement capacity assessment and procurement risk assessment report for the National Procurement Commission, executing agency and implementing agency;
- (ii) Assist the executing agency and implementing agency in creating procurement committee, evaluating bid and preparing bid evaluation report, and in monitoring and assessing procurement progress, and procedures compliance with ADB procurement guideline and negotiation of the contract;
- (iii) Ensure that due diligence is conducted on potential contractors and subcontractors.

- (iv) Prepare bidding documents for the procurement of goods, equipment, and works contracts for the project; and
- (v) Prepare the logistics plan and schedule for imported key equipment.