

# Facility Administration Manual

Project Number: 41504

Loan Number(s):

October 2010

## Papua New Guinea: Town Electrification Investment Program

(Facility and Tranche 1)

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### **Facility Administration Manual Purpose and Process**

The facility administration manual (FAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with Government and Asian Development Bank (ADB) policies and procedures. The FAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the FAM.

The Department of Petroleum and Energy (DPE) through PNG Power Ltd (PPL) are responsible for the implementation of ADB financed Town Electrification Investment Program, as agreed jointly between the Independent State of Papua New Guinea (PNG) and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by DPE and PPL of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Negotiations PNG and ADB shall agree to the FAM and ensure consistency with the Framework Financing Agreement (FFA), and the Loan and Project Agreements for the first project. Such agreement shall be reflected in the minutes of the Negotiations. In the event of any discrepancy or contradiction between the FAM and the FFA and the Loan Agreement, the provisions of the FFA and the Loan Agreement shall prevail.

After ADB Board approval of the program's report and recommendations of the President (RRP) changes in implementation arrangements are subject to agreement and approval pursuant to relevant Government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval they will be subsequently incorporated in the FAM.

## ABBREVIATIONS

ADB	=	Asian Development Bank
ADF	=	Asian Development Fund
AFS	=	audited financial statements
CQS	=	consultant qualification selection
DMF	=	design and monitoring framework
EARF	=	environmental assessment and review framework
EIA	=	environmental impact assessment
EMP	=	environmental management plan
ESMS	=	environmental and social management system
GACAP	=	governance and anticorruption action plan
GDP	=	gross domestic product
ICB	=	international competitive bidding
IEE	=	initial environmental examination
IPP	=	indigenous people plan
IPPF	=	indigenous people planning framework
LAR	=	land acquisition and resettlement
LIBOR	=	London interbank offered rate
NCB	=	national competitive bidding
NGOs	=	nongovernment organizations
PAI	=	project administration instruction
PAM	=	project administration manual
PIU	=	project implementation unit
QBS	=	quality based selection
QCBS	=	quality- and cost-based selection
RRP	=	report and recommendation of the President to the Board
SBD	=	standard bidding documents
SGIA	=	second generation imprest accounts
SOE	=	statement of expenditure
SPS	=	Safeguard Policy Statement
SPRSS	=	summary poverty reduction and social strategy
TOR	=	terms of reference

## I. INVESTMENT PROGRAM DESCRIPTION

1. The Town Electrification Investment Program (TEIP) will improve power supply in provincial urban centers through replacement of high cost diesel power generation with sustainable renewable energy power generation. The TEIP will include (i) construction of about 6 hydropower plants<sup>1</sup> to supply provincial centers, (ii) construction of transmission systems to connect provincial centers to generation sources, and (ii) capacity building within the power utility and communities. In addition, separate grant assistance will be provided to trial implementation models for improving energy access for communities adjacent to the projects.

2. In Papua New Guinea (PNG), grid connected power supply is largely restricted to the main urban areas. Less than 10% of the population has access to electricity<sup>2</sup>. In provincial urban centers not connected to the main power grids, a relatively low percentage of urban residents are connected<sup>3</sup> and distributed power outside the provincial urban centers is rare. Power supply to business and industry in the provincial urban centers is unreliable with regular power outages<sup>4</sup> and generation cannot always meet demand. As a result, many of the large businesses in the provinces are not connected to the power grid and self generate by diesel generation at high cost. Lack of access to affordable, reliable power contributed to limiting economic growth in provincial centers. Due to the increasing population base and limited expansion of power infrastructure, national electrification access rates have been declining in recent decades<sup>5</sup>.

3. PNG has a total of 580 MW installed generation capacity. PNG Power Limited (PPL), the national state-owned corporatized power utility, manages installed generation capacity of approximately 300 MW, including the two main grids (Port Moresby and Ramu grids) and 19 independent power grids servicing provincial centers. The remaining 280 MW is (i) self-generation by industrial facilities, including mines, and (ii) private sector generators. The 19 independent power grids supplying provincial urban centers are not able to be connected to the central grids due to difficult geography. The majority of power grids servicing provincial urban centers are 100% dependent on diesel generation, resulting in high generation costs due to high fuel transportation costs<sup>6</sup>.

4. The poor development of the provincial power systems is due to (i) difficult geographical conditions resulting in isolated load centers with relatively low demand<sup>7</sup>, (ii) operational issues related to maintenance, (iii) high initial investment costs for hydropower resulting in reliance on diesel generation which has low upfront investment costs but substantially higher life cycle costs, and (v) investment disincentive from the single national tariff structure for the corporatized PPL to invest in high cost provincial centers. The Government has recognized the investment disincentive provided by the single national power tariff and proposes to address the issue through (i) establishing a Community Service Obligation (CSO) Policy<sup>8</sup> to support Government

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<sup>1</sup> Initial assessments have indicated that hydropower will most likely be the least-cost renewable energy alternative, however, other renewable energy sources may be suitable for subsequent tranches.

<sup>2</sup> Provinces not connected to the main power grids have an average access rate of 2.9%.

<sup>3</sup> In the provincial centers assessed under PPTA 7113, the urban electrification rate was 24% to 57%.

<sup>4</sup> For example, PPL estimate load shedding in West New Britain is currently around 50%.

<sup>5</sup> PNG electrification rate was 22% in 1994 (<http://www.forumsec.org.fj/pages.cfm/economic-growth/energy/>)

<sup>6</sup> Power generation costs in some provincial centers exceeds \$0.8/kWh.

<sup>7</sup> Peak demand for the PPL grids assessed under PPTA 7113 is 1.2 MW to 3.0 MW, however these peak loads are supply constrained. Local industry self generation capacity often exceeds installed capacity of the PPL generation.

<sup>8</sup> ADB is assisting the establishment of the CSO Policy through (i) TA-7430 REG: Pacific Private Sector Development Initiative (PSDI) Phase 2.

financing of non-financially viable power infrastructure, and (ii) establishing an Electricity Trust Fund (ETF) under the Draft Electricity Industry Policy (EIP) to finance such investments.

5. PNG has significant underutilized indigenous renewable energy sources, particularly hydropower. Each target Province has sufficient identified hydropower potential in close proximity to demand centers to largely or completely replace diesel generation. The Investment Program will support development of renewable energy sources, including hydropower plants in about 6 target provincial centers to (i) improve reliability and quality of power supply in order to stimulate economic growth, and (ii) replace diesel generation, thereby reducing power generation costs and creating incentives to improve access rates.

6. The proposed Investment Program supports the PNG Government strategic priorities in the energy sector. Activities in the PNG power sector are currently governed by the Electricity Industry Act 2002 and the Government has recently prepared the Draft Electricity Industry Policy (EIP).<sup>9</sup> The Draft EIP, which is expected to be approved in 2010, recognizes the (i) low level of electricity access, (ii) unreliability of electricity supply and subsequent economic impacts, (iii) high costs for private sector in terms of cost of power as well as unreliability of service, and (iv) difficulties faced by PPL in raising capital for infrastructure investments. The EIP proposes a range of policy measures including (i) facilitating competition/contestability in the electricity industry, including private sector, (ii) up-scaling rural electrification through Government assistance through CSOs, (iii) enhancing technical regulation, and (iv) bringing certainty to investors in the sector by developing a clearly defined access regime. The Draft EIP aligns with the rural development agenda of the national Medium Term Development Strategy<sup>10</sup> (MTDS) of economic growth, rural development and poverty reduction. The proposed development of the power sector in each province is detailed in the PNG Power 10 year Power Development Plan<sup>11</sup> (Power Development Plan). The Power Development Plan lists the status of current infrastructure and proposed investments over a 10-year timeframe. The Power Development Plan provides a road map of priority hydropower developments in the Provinces to reduce reliance on diesel generation and improve service delivery. The Investment Program will support implementation of the Power Development Plan.

7. The Government has recognized a number of key policy constraints in the power sector and with support from development partners are currently undertaking a number of reforms. The Investment Program will support these efforts. Details of the proposed reforms and linkages with the Investment Program, including a timetable for the policy reform targets are provided in the Sector Road Map and Policy Framework accessible from the list of linked documents in Appendix 2. The Investment Program will provide specific assistance focusing on (i) supporting Government in assessing and delivering CSO obligations for power infrastructure in Provincial centers, and (ii) trialing private sector engagement in the provincial power sector.

8. The proposed Investment Program supports the ADB Country Strategy and Program (CSP) for PNG. The ADB CSP for PNG 2006–2010 seeks to assist PNG to deliver the following MDTs goals (i) good governance; (ii) economic growth; (iii) fostering rural development, poverty reduction, and human resource development; and (iv) improved aid effectiveness. The Investment Program directly supports the second and third goal. The Investment Program will assist in fostering economic growth through improving access to reliable power, and improving

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<sup>9</sup> The Government has also prepared an initial Draft Rural Electrification Policy, however, broad endorsement by key stakeholders has yet to be achieved.

<sup>10</sup> Papua New Guinea Department of National Planning and Monitoring, *The Medium Term Development Strategy 2005-2010: Our Plan for Economic and Social Advancement*, November 2004.

<sup>11</sup> PNG Power National and Provincial Ten Year Power Development Plan<sup>11</sup> 2009-2018, July 2009.

energy efficiency of the economy. The power sector was identified as a key strategic area of support in the ADB Country Program and Strategy Midterm Review, 2009. In particular, the Investment Program (i) supports the national program of priority hydropower developments listed in the Power Development Plan, and (ii) supports the Papua New Guinea Development Strategic Plan 2010-2030<sup>12</sup> priority of phasing out diesel generation and replacement with hydropower generation.

9. **Impact and Outcome.** The impact of the Program will be improved economic conditions in target provincial centers. The outcome of the Program will be improved supply of reliable, clean power by PPL to about 6 provincial urban centers.

10. **Outputs.** The outputs of TEIP will be (i) about six renewable energy projects, including hydropower plants, put into operation by PPL, (ii) transmission systems constructed and operated by PPL, (iii) capacity building undertaken for the implementing agency and project beneficiaries, and (iv) the Project Management Unit (PMU) rendering efficient project management services. The projects for Tranche 1 include (i) Divune Hydropower Plant, Northern Province, (ii) Lake Hargy Hydropower Interconnection, West New Britain, and (iii) Ramazon Hydropower Plant, Autonomous Region of Bougainville.

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<sup>12</sup> Department of National Planning and Monitoring, Papua New Guinea Development Strategic Plan 2010-2030, March 2010.

## II. IMPLEMENTATION PLANS

### A. Readiness Activities

Activities	2010						2011			Who responsible
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
1. Advance contracting actions										ADB and PPL
2. Establish project implementation arrangements										ADB and PPL
3. ADB Board approval										ADB
4. Loan signing										ADB and Treasury
5. Government legal opinion provided										Treasury, State Solicitors
6. Loan effectiveness										Treasury

## B. Overall Program Implementation Plan

Indicative Activities	2011 (Qtr)	2012 (Qtr)	2013 (Qtr)	2014 (Qtr)	2015 (Qtr)	2016 (Qtr)
<b>A. DMF</b>						
Output 1: Construction of power plants						
1.1. Finalize land acquisition	■			■		
1.2. Finalize project detailed design		■			■	
1.3. Award civil works contracts & equipment packages			■		■	
1.4. Construct power and water connections to villages			■		■	
1.5. Establish village power/water committees			■		■	
1.6. Commission renewable energy power plants				■		■
Output 2: Construction of transmission systems						
2.1. Finalize project detailed design	■			■		
2.2. Award civil works contracts & equipment packages		■			■	
2.3. Commission transmission lines			■			■
Output 3: Undertake Capacity Building Activities						
3.1. Conduct procurement training workshop	■			■		
3.2. Conduct financial management training		■			■	
3.3. Conduct training for villages			■			■
Output 4: Establish Project Management Unit						
4.1. Establish operational Project Management Unit	■			■		
4.2. Finalize recruitment of PMU staff		■		■		
4.3. Establish gender action plan baseline data			■		■	
<b>B. Management Activities</b>						
Consultant selection procedures	■	■				
Annual/Mid-term review		■	■	■	■	■
Project completion report						■

### III. PROGRAM MANAGEMENT ARRANGEMENTS

#### A. Program Implementation Organizations – Roles and Responsibilities

##### Project implementation Management Roles and Responsibilities Organizations

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<ul style="list-style-type: none"><li>• Treasury</li></ul>	<ul style="list-style-type: none"><li>➤ Receive and review withdrawal applications from the PMU and submit to ADB.</li><li>➤ Receive and review financial reports, including the annual audit report and financial statements, from the PMU and submit to ADB.</li></ul>
<hr/>	
<ul style="list-style-type: none"><li>• Executing Agency: Department of Petroleum and Energy (DPE)</li></ul>	<ul style="list-style-type: none"><li>➤ Oversee implementation of the investment program.</li><li>➤ Support institutional strengthening and capacity building programs under the investment program.</li><li>➤ Coordination of steering committee meetings.</li></ul>
<hr/>	
<ul style="list-style-type: none"><li>• Project Steering Committee (PSC)</li></ul>	<ul style="list-style-type: none"><li>➤ The PSC will be chaired by DNPM and will have the following members; (i) Department of Treasury, (ii) Department of Environment Conservation, (iii) PNG Power Ltd, (iv) Department of Petroleum and Energy, (v) Department of Public Enterprises, and (vi) Independent Public Business Corporation.</li><li>➤ Oversee implementation of the investment program.</li><li>➤ Monitor progress of the investment program.</li><li>➤ Rectify issues hindering progress of the investment program.</li><li>➤ Guide the executing agency and the implementing agencies.</li><li>➤ Meet at least once each quarter.</li></ul>
<hr/>	
<ul style="list-style-type: none"><li>• Implementing Agency: PNG Power Ltd</li></ul>	<ul style="list-style-type: none"><li>➤ Implement the sector policy and infrastructure components of the investment program.</li><li>➤ Hire implementation consultants, as required</li><li>➤ Establish a Project Management Unit which will be responsible for day to day implementation of the projects, including<ul style="list-style-type: none"><li>○ preparation of an overall implementation plan and annual budgets;</li><li>○ overall interagency coordination;</li><li>○ recruitment of the Project Management Consultants and award procurement and consulting contracts,</li><li>○ management of the bidding process,</li><li>○ management of capacity development activities,</li><li>○ planning and appraisal for Tranche 2 projects, including collection of stream flow data from potential sites;</li><li>○ project safeguards document preparation and safeguard plans implementation;</li></ul></li></ul>

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- project financial management;
  - consolidation, review, and submission of regular progress and financial reports to DPE and Treasury, including the annual audit report and financial statements;
  - preparation of periodic financing requests for Tranche 2;
  - monitoring and evaluation of project outputs and results; and
  - preparation of withdrawal applications for submittal to Treasury.

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- ADB
    - Conduct regular loan review missions.
    - Review draft tender documents in accordance with Procurement Plan.
    - Overall coordination and advisory support.
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## B. Key Persons Involved in Implementation

### Implementing Agency

PNG Power Ltd

Officer's Name: John Yanis  
 Position: General Manager, Operations  
 Telephone: +675 324 3513  
 Email address: jyanis@pngpower.com.pg

Office Address: PO Box 1105  
 Boroko. N.C.D  
 Papua New Guinea

### ADB

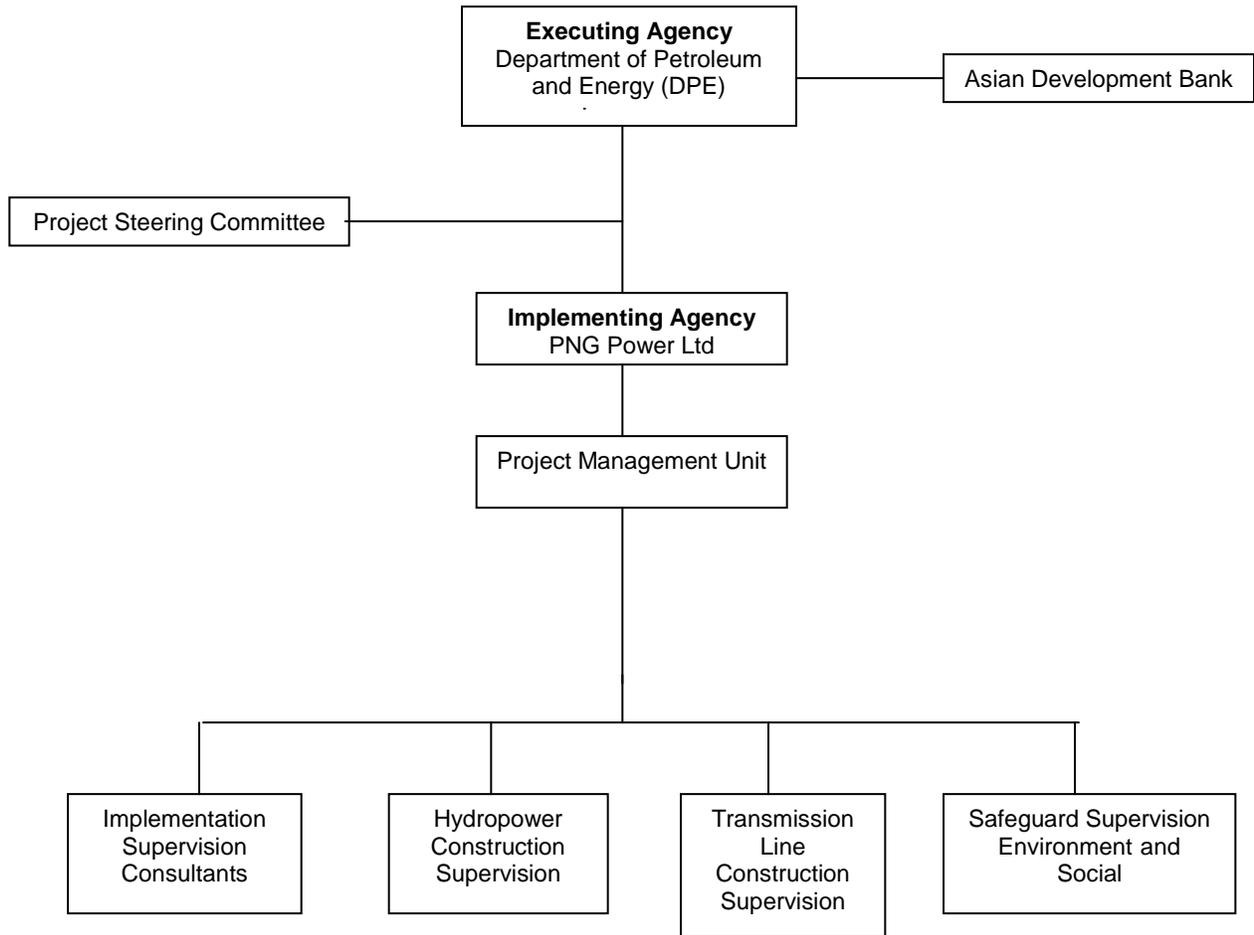
Mission Leader

Staff Name: Anthony Maxwell  
 Position: Energy Specialist  
 Telephone No. +63 2 632 4444  
 Email address: amaxwell@adb.org

## C. Program Organization Structure

1. DPE will be the executing agency (EA) with overall responsibility for execution of the Investment Program. PNG Power Ltd will be the Implementing Agency (IA). A Project Management Unit (PMU) will be established within PNG Power Ltd to coordinate implementation of the projects under the Investment Program. The Project Management Unit (PMU) will be responsible for implementation of the proposed Investment Program. The PMU will be responsible for engaging all consulting services and contracts under the Program. The implementation organization chart is as follows.

### Organizational Structure



#### IV. COSTS AND FINANCING

1. The total cost of the Investment Program is \$150 million equivalent, inclusive of physical and price contingencies, financial charges during development, and taxes and duties.

2. The Government has requested a Multitranche financing facility for the amount of \$120 million equivalent from ADB's ordinary capital resources and Special Funds resources to help finance part of the Investment Program. The MFF will be extended in two tranches subject to the submission of a related periodic financing request (PFR) by the Government and execution of the related loan and project agreements. The Government has entered into a Financing Framework Agreement (FFA) with ADB. The Government has submitted to ADB the first PFR for the projects with estimate cost of \$71.6 million.

<b>Program Investment Plan</b>	
(\$ million)	
<b>Item</b>	<b>Amounts</b>
<b>Investment Program</b>	
<b>A. Base Cost <sup>a</sup></b>	
1. Renewable Energy Generation	78.2
2. Transmission	39.6
3. Capacity Development	0.3
4. Project Management	11.5
<b>Subtotal (A)</b>	<b>129.6</b>
<b>B. Contingencies <sup>b</sup></b>	
<b>Subtotal (B)</b>	<b>15.1</b>
<b>C. Financing Charges During Implementation <sup>c</sup></b>	
<b>Total (A+B+C)</b>	<b>5.3</b>
<b>Total (A+B+C)</b>	
<b>150.0</b>	
<b>First Tranche</b>	
<b>A. Base Cost</b>	
1. Renewable Energy Generation	31.7
2. Transmission	24.0
3. Capacity Development	0.3
4. Project Management	5.3
<b>Subtotal (A)</b>	<b>61.3</b>
<b>B. Contingencies</b>	
<b>Subtotal (B)</b>	<b>7.4</b>
<b>C. Financing Charges During Implementation</b>	
<b>Total (A+B+C)</b>	<b>2.9</b>
<b>Total (A+B+C)</b>	<b>71.6</b>

<sup>a</sup> In May 2010 prices.

<sup>b</sup> Physical contingencies computed at 15% for civil works; and 5% for transmission lines. Price contingencies computed by year and expenditure based on cumulative domestic and foreign price inflation.

<sup>c</sup> Includes interest and commitment charges. Interest during construction for ADB loan(s) has been computed for OCR loan component at the 5-year forward London interbank offered rate plus a spread of 0.3% and for the ADF loan component at 1% per annum. Table 1 is based on current estimates and financing terms may vary for subsequent tranches. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed OCR loan amount.

Source: Asian Development Bank estimates.

3. The Government will be responsible for financing 20% of the cost of both tranches. The financing Plan for the Investment Program is shown below.

**Financing Plan**  
(\$ million)

Source	Total	%
<b>Investment Program</b>		
Asian Development Bank (ADF and OCR)	120.0	80%
Government of PNG	30.0	20%
<b>Total</b>	<b>150.0</b>	<b>100%</b>
<b>First Tranche</b>		
Asian Development Bank (ADF)	16.4	23%
Asian Development Bank (OCR)	40.9	57%
Government of PNG	14.3	20%
<b>Total</b>	<b>71.6</b>	<b>100%</b>

Source: Asian Development Bank estimates.

4. The Borrower of the ADB loan for each tranche under the Investment Program, will be the Government of Papua New Guinea, and the loan proceeds will be on-lent from the Department of Treasury to PPL through subsidiary loan agreements at the same terms and conditions as those of the individual loan. The foreign exchange and interest variation risks will be borne by the Government.

## A. Detailed Cost Estimates by Expenditure Category

Item	(Kina Million)			(US\$ Million)			% Total Base Costs
	Foreign	Local	Total	Foreign	Local	Total	
<b>A. Investment Costs</b>							
1. Civil Works	90.7	38.8	129.5	34.8	14.9	49.7	38%
2. Goods and Materials	122.6	52.6	175.2	47.2	20.3	67.5	52%
3. Land Acquisition	0.0	0.7	0.7		0.3	0.3	0%
4. Environmental Monitoring	1.2	0.5	1.7	0.5	0.2	0.7	1%
5. Project Management	21.0	9.0	30.0	8.1	3.4	11.5	9%
<b>Subtotal (A)</b>	<b>235.5</b>	<b>101.6</b>	<b>337.1</b>	<b>90.6</b>	<b>39.1</b>	<b>129.7</b>	<b>100%</b>
<b>B. Contingencies</b>							
1. Physical	22.6	9.6	32.2	8.6	3.7	12.3	10%
2. Price	4.9	2.1	7.0	1.9	0.8	2.7	2%
<b>Subtotal (B)</b>	<b>27.5</b>	<b>11.7</b>	<b>39.2</b>	<b>10.5</b>	<b>4.5</b>	<b>15.0</b>	<b>12%</b>
<b>C. Financing Charges During Implementation</b>							
1. Interest During Implementation	13.3	0.0	13.3	5.1	0.0	5.1	4%
2. Commitment Charges	0.4	0.0	0.4	0.2	0.0	0.2	0%
<b>Subtotal (C)</b>	<b>13.7</b>	<b>0.0</b>	<b>13.7</b>	<b>5.3</b>	<b>0.0</b>	<b>5.3</b>	<b>4%</b>
<b>Total Project Cost (A+B+C)</b>	<b>276.7</b>	<b>113.3</b>	<b>390.0</b>	<b>106.4</b>	<b>43.6</b>	<b>150.0</b>	<b>116%</b>

**B. Allocation and Withdrawal of Loan Proceeds**

<b>ADF</b>			
<b>Town Electrification Investment Program – Tranche 1</b>			
<b>CATEGORY</b>			<b>ADB FINANCING</b>
Number	Item	Total Amount Allocated for ADB Financing (SDR) Category	Percentage and Basis for Withdrawal from the Loan Account
1	<b>Works</b>	3,221,000	23% of total expenditure claimed
2	<b>Goods and Materials</b>	4,832,000	23% of total expenditure claimed
3	<b>Project Management and Capacity Development</b>	773,000	23% of total expenditure claimed
4	<b>Interest</b>	773,000	100% of amounts due
5	<b>Unallocated</b>	966,000	
<b>Total</b>		10,565,000	

<b>OCR</b>			
<b>Town Electrification Investment Program – Tranche 1</b>			
<b>CATEGORY</b>			<b>ADB FINANCING</b>
Number	Item	Total Amount Allocated for ADB Financing (\$) Category	Percentage and Basis for Withdrawal from the Loan Account
1	<b>Works</b>	12,900,000	57% of total expenditure claimed
2	<b>Goods and Materials</b>	18,900,000	57% of total expenditure claimed
3	<b>Project Management and Capacity Development</b>	3,200,000	57% of total expenditure claimed
4	<b>Interest and Commitment Charge</b>	1,700,000	100% of amounts due
5	<b>Unallocated</b>	4,200,000	
<b>Total</b>		40,900,000	

**C. Detailed Cost Estimates by Financier (\$ million)**

**Detailed Cost Estimates by Financier (\$ million): Town Electrification Investment Program<sup>a</sup>**

Item	ADB	% of Cost Category	PNG	% of Cost Category	Total
<b>A. Investment Costs</b>					
1. Civil Works	39.8	80%	10.0	20%	49.8
2. Goods and Materials	53.6	80%	13.7	20%	67.4
3. Land Acquisition	0.0	0%	0.3	100%	0.3
4. Environmental Monitoring	0.0	0%	0.7	100%	0.7
5. Project Management	9.2	80%	2.3	20%	11.5
<b>Subtotal (A)</b>	<b>102.6</b>	<b>79%</b>	<b>27.0</b>	<b>21%</b>	<b>129.6</b>
<b>B. Contingencies</b>					
1. Physical	9.9	80%	2.5	20%	12.4
2. Price	2.2	81%	0.5	19%	2.7
<b>Subtotal (B)</b>	<b>12.1</b>	<b>80%</b>	<b>3.0</b>	<b>20%</b>	<b>15.1</b>
<b>C. Financing Charges During Implementation</b>					
1. Interest During Implementation	5.1	100%	0.0	0%	5.1
2. Commitment Charges	0.2	100%	0.0	0%	0.2
<b>Subtotal (C)</b>	<b>5.3</b>	<b>100%</b>	<b>0.0</b>	<b>0%</b>	<b>5.3</b>
<b>Total Project Cost (A+B+C)</b>	<b>120.0</b>	<b>80%</b>	<b>30.0</b>	<b>20%</b>	<b>150.0</b>

<sup>a</sup> Amounts within the table are inclusive of all taxes and duties to be financed by Government Resources.

Note: There may be minor differences in the above table due to rounding errors.

Detailed Cost Estimates by Financier (\$ million): Tranche 1<sup>a</sup>

Item	ADB				PNG	% of Cost Category	Total
	OCR	% of Cost Category	ADF	% of Cost Category			
<b>A. Investment Costs</b>							
1. Civil Works	12.9	57%	5.0	22%	4.8	21%	22.7
2. Goods and Materials	18.9	57%	7.5	23%	6.3	20%	32.7
3. Land Acquisition	0.0	0%	0.0	0%	0.1	100%	0.1
4. Environmental Monitoring	0.0	0%	0.0	0%	0.1	100%	0.1
5. Project Management	3.1	57%	1.1	23%	1.2	20%	5.4
6. Capacity Development	0.1	57%	0.1	23%	0.1	20%	0.3
<b>Subtotal (A)</b>	<b>35.0</b>	<b>57%</b>	<b>13.7</b>	<b>22%</b>	<b>12.6</b>	<b>21%</b>	<b>61.3</b>
<b>B. Contingencies</b>							
1. Physical	3.5	57%	1.2	23%	1.4	20%	6.1
2. Price	0.7	57%	0.3	23%	0.3	20%	1.3
<b>Subtotal (B)</b>	<b>4.2</b>	<b>57%</b>	<b>1.5</b>	<b>20%</b>	<b>1.7</b>	<b>23%</b>	<b>7.4</b>
<b>C. Financing Charges During Implementation</b>							
1. Interest During Implementation	1.6	57%	1.2	43%	0.0	0%	2.8
2. Commitment Charges	0.1	58%	0.0	0%	0.0	0%	0.1
<b>Subtotal (C)</b>	<b>1.7</b>	<b>58%</b>	<b>1.2</b>	<b>42%</b>	<b>0.0</b>	<b>0%</b>	<b>2.9</b>
<b>Total Project Cost (A+B+C)</b>	<b>40.9</b>	<b>57%</b>	<b>16.4</b>	<b>23%</b>	<b>14.3</b>	<b>20%</b>	<b>71.6</b>

<sup>a</sup> Amounts within the table are inclusive of all taxes and duties of \$5.9 million, to be financed by Government Resources.

Note: There may be minor differences in the above table due to rounding errors.

**D. Detailed Cost Estimates by Outputs/Components (\$ million)**

**Detailed Cost Estimates by Outputs/Components (\$ million): Town Electrification Investment Program<sup>a</sup>**

Item	Total Cost	Renewable Energy Generation	% of Cost Category	Transmission	% of Cost Category	Capacity Dev't	% of Cost Category	Project Management	% of Cost Category
		Amount		Amount		Amount		Amount	
<b>A. Investment Costs</b>									
1. Civil Works	49.8	49.5	99%	0.0	0.0	0.3	1%	0.0	0%
2. Goods and Materials	67.3	27.9	41%	39.4	59%	0.0	0%	0.0	0%
3. Land Acquisition	0.3	0.2	67%	0.1	33%	0.0	0%	0.0	0%
4. Environmental Monitoring	0.7	0.6	86%	0.1	14%	0.0	0%	0.0	0%
5. Project Management	11.5	0.0	0%	0.0	0%	0.0	0%	11.5	100%
<b>Subtotal (A)</b>	<b>129.6</b>	<b>78.2</b>	<b>60%</b>	<b>39.6</b>	<b>31%</b>	<b>0.3</b>	<b>0%</b>	<b>11.5</b>	<b>9%</b>
<b>B. Contingencies</b>									
1. Physical	12.4	9.4	76%	2.0	16%	0.0	0%	1.0	8%
2. Price	2.7	1.6	59%	0.8	30%	0.0	0%	0.3	11%
<b>Subtotal (B)</b>	<b>15.1</b>	<b>11.0</b>	<b>73%</b>	<b>2.8</b>	<b>19%</b>	<b>0.0</b>	<b>0%</b>	<b>1.3</b>	<b>8%</b>
<b>C. Financing Charges During Implementation</b>									
1. Interest During Implementation	5.1	3.2	63%	1.5	29%	0.0	0%	0.4	8%
2. Commitment Charges	0.2	0.2	100%	0.0	0.0	0.0	0%	0.0	0%
<b>Subtotal (C)</b>	<b>5.3</b>	<b>3.4</b>	<b>64%</b>	<b>1.5</b>	<b>28%</b>	<b>0.0</b>	<b>0%</b>	<b>0.4</b>	<b>8%</b>
<b>Total Project Cost (A+B+C)</b>	<b>150.0</b>	<b>92.6</b>	<b>62%</b>	<b>43.9</b>	<b>29%</b>	<b>0.3</b>	<b>0%</b>	<b>13.2</b>	<b>9%</b>

<sup>a</sup> Amounts within the table are inclusive of all taxes and duties, to be financed by Government Resources.

**Detailed Cost Estimates by Outputs/Components (\$ million): Tranche<sup>a</sup>**

Item	Total Cost	Renewable Energy Generation	% of Cost Cat.	Transmission	% of Cost Cat.	Capacity Development	% of Cost Cat.	Project Management	% of Cost Cat.
	Amount	Amount	Amount	Amount	Amount	Amount	Amount		
<b>A. Investment Costs</b>									
1. Civil Works	22.3	22.3	100%	0.0	0%	0.0	0%	0.0	0%
2. Goods and Materials	33.2	9.2	28%	24.0	72%	0.0	0%	0.0	0%
3. Land Acquisition	0.1	0.1	100%	0.0	0%	0.0	0%	0.0	0%
4. Environmental Monitoring	0.1	0.1	100%	0.0	0%	0.0	0%	0.0	0%
5. Project Management	5.3	0.0	0%	0.0	0%	0.0	0%	5.3	0%
6. Capacity Development	0.3	0.0	0%	0.0	0%	0.3	100%	0.0	0%
<b>Subtotal (A)</b>	<b>61.3</b>	<b>31.7</b>	<b>52%</b>	<b>24.0</b>	<b>39%</b>	<b>0.3</b>	<b>0%</b>	<b>5.3</b>	<b>9%</b>
<b>B. Contingencies</b>									
1. Physical	6.1	4.0	66%	2.1	34%	0.0	0%	0.0	0%
2. Price	1.3	0.8	62%	0.5	38%	0.0	0%	0.0	0%
<b>Subtotal (B)</b>	<b>7.4</b>	<b>4.8</b>	<b>65%</b>	<b>2.6</b>	<b>35%</b>	<b>0.0</b>	<b>0%</b>	<b>0.0</b>	<b>0%</b>
<b>C. Financing Charges During Implementation</b>									
1. Interest During Implementation	2.8	1.5	54%	1.3	46%	0.0	0%	0.0	0%
2. Commitment Charges	0.1	0.1	100%	0.0	0%	0.0	0%	0.0	0%
<b>Subtotal (C)</b>	<b>2.9</b>	<b>1.6</b>	<b>55%</b>	<b>1.3</b>	<b>45%</b>	<b>0.0</b>	<b>0%</b>	<b>0.0</b>	<b>0%</b>
<b>Total Project Cost (A+B+C)</b>	<b>71.6</b>	<b>38.1</b>	<b>53%</b>	<b>27.9</b>	<b>39%</b>	<b>0.3</b>	<b>0%</b>	<b>5.3</b>	<b>8%</b>

<sup>a</sup> Amounts within the table are inclusive of all taxes and duties, to be financed by Government Resources.

**E. Detailed Cost Estimates by Year (\$ million)**

**Detailed Cost Estimates by Year (\$ million): Town Electrification Investment Program<sup>a</sup>**

Item	Total Cost	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>A. Investment Costs</b>							
1. Civil Works	49.7	14.9	9.9	7.5	7.5	5.0	5.0
2. Goods and Materials	67.4	20.2	13.5	10.1	10.1	6.7	6.7
3. Land Acquisition	0.3	0.1	0.1	0.0	0.0	0.0	0.0
4. Environmental Monitoring	0.7	0.2	0.1	0.1	0.1	0.1	0.1
5. Project Management	11.5	3.5	2.3	1.7	1.7	1.2	1.2
<b>Subtotal (A)</b>	<b>129.6</b>	<b>38.9</b>	<b>25.9</b>	<b>19.4</b>	<b>19.4</b>	<b>13.0</b>	<b>13.0</b>
<b>B. Contingencies</b>							
1. Physical	12.4	3.7	2.5	1.9	1.9	1.2	1.2
2. Price	2.7	0.8	0.5	0.4	0.4	0.3	0.3
<b>Subtotal (B)</b>	<b>15.1</b>	<b>4.5</b>	<b>3.0</b>	<b>2.3</b>	<b>2.3</b>	<b>1.5</b>	<b>1.5</b>
<b>C. Financing Charges During Implementation</b>							
1. Interest During Implementation	5.2	1.5	1.0	0.8	0.8	0.5	0.5
2. Commitment Charges	0.2	0.0	0.0	0.0	0.0	0.0	0.0
<b>Subtotal (C)</b>	<b>5.3</b>	<b>1.6</b>	<b>1.1</b>	<b>0.8</b>	<b>0.8</b>	<b>0.5</b>	<b>0.5</b>
<b>Total Project Cost (A+B+C)</b>	<b>150.0</b>	<b>45.0</b>	<b>30.0</b>	<b>22.5</b>	<b>22.5</b>	<b>15.0</b>	<b>15.0</b>
<b>% of the Total Project Cost</b>	100%	30%	20%	15%	15%	10%	10%

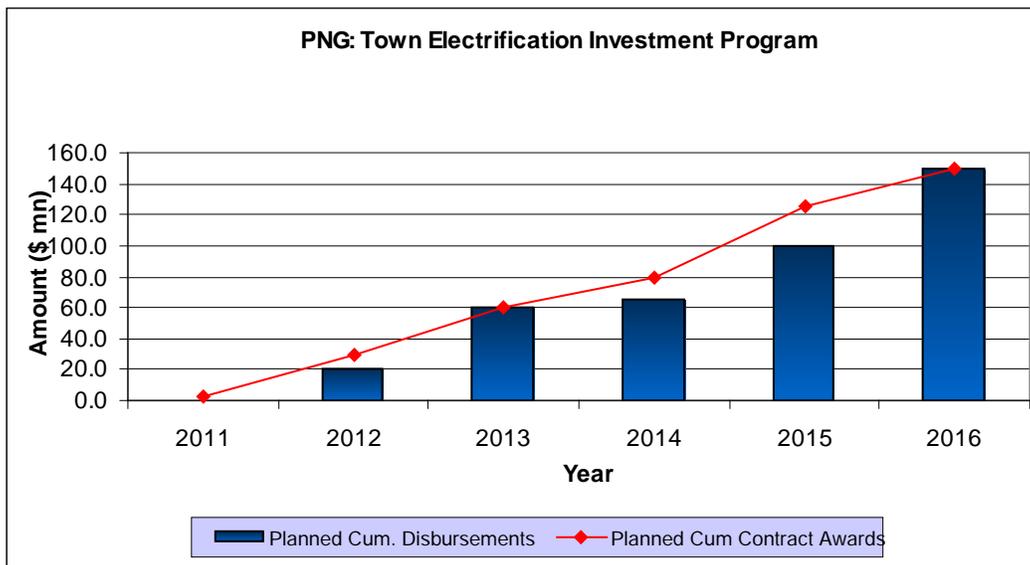
<sup>a</sup> Amounts within the table are inclusive of all taxes and duties, to be financed by Government Resources.

**Detailed Cost Estimates by Year (\$ million): Tranche 1<sup>a</sup>**

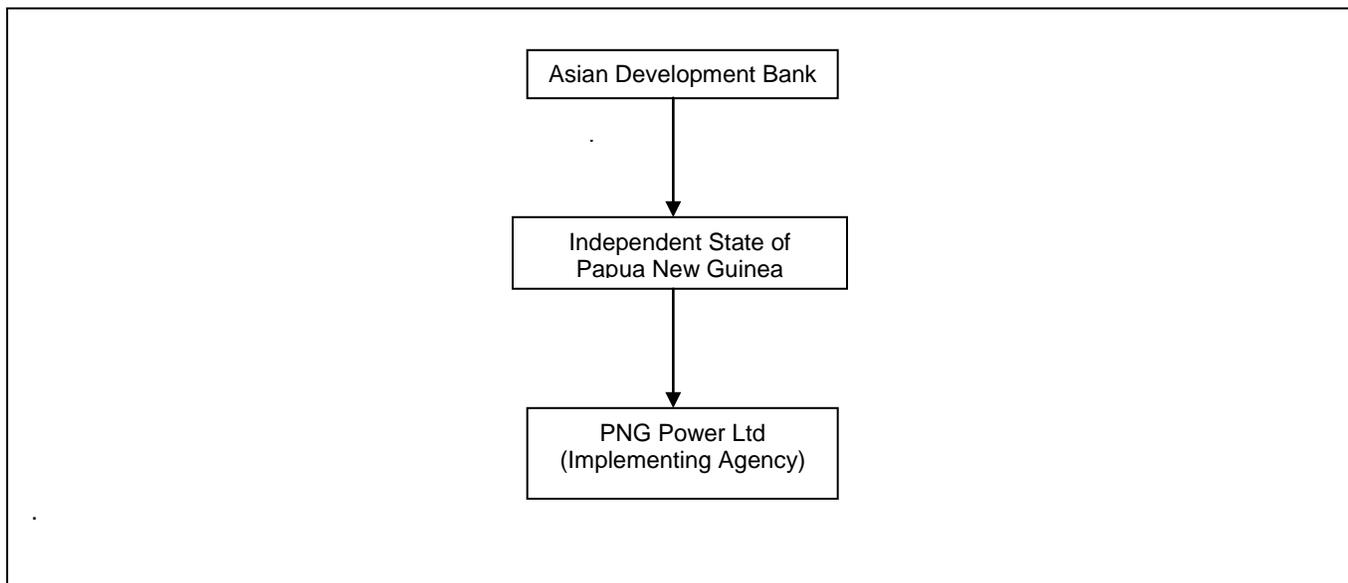
Item	Total Cost	Year 1	Year 2	Year 3
<b>A. Investment Costs</b>				
1. Civil Works	22.2	4.4	8.9	8.9
2. Goods and Materials	33.3	6.7	13.3	13.3
3. Land Acquisition	0.1	0.0	0.0	0.0
4. Environmental Monitoring	0.1	0.0	0.0	0.0
5. Project Management	5.3	1.1	2.1	2.1
6. Capacity Development	0.3	0.1	0.1	0.1
<b>Subtotal (A)</b>	<b>61.3</b>	<b>12.3</b>	<b>24.5</b>	<b>24.5</b>
<b>B. Contingencies</b>				
1. Physical	6.1	1.2	2.4	2.4
2. Price	1.3	0.3	0.5	0.5
<b>Subtotal (B)</b>	<b>7.4</b>	<b>1.5</b>	<b>3.0</b>	<b>3.0</b>
<b>C. Financing Charges During Implementation</b>				
1. Interest During Implementation	2.8	0.6	1.1	1.1
2. Commitment Charges	0.1	0.0	0.0	0.0
<b>Subtotal (C)</b>	<b>2.9</b>	<b>0.6</b>	<b>1.2</b>	<b>1.2</b>
<b>Total Project Cost (A+B+C)</b>	<b>71.6</b>	<b>14.3</b>	<b>28.6</b>	<b>28.6</b>
<b>% of the Total Project Cost</b>		20%	40%	40%

<sup>a</sup> Amounts within the table are inclusive of all taxes and duties, to be financed by Government Resources.

**F. Contract and Disbursement S-curve**



**G. Fund Flow Diagram**



Source: Asian Development Bank.

## V. FINANCIAL MANAGEMENT

### A. Financial Management Assessment

1. ADB conducted a Financial Management Assessment (FMA) of the proposed Town Electrification Investment Program (the Investment Program) financial management arrangements in accordance with ADB's Guidelines for the *Financial Management and Analysis of Projects*<sup>13</sup> and the publication *Financial Due Diligence A Methodology Note*.<sup>14</sup> The FMA considers PNG Power Limited (PPL), a state owned entity, in its role as the Implementing Agency (IA) for the proposed Investment Program. The FMA includes review of the accounting and reporting system, internal and external auditing, fund disbursement, and information system. The instrument used for the assessment was Asian Development Bank's (ADB) financial management assessment questionnaire (FMAQ).

#### 1. Country-level Issues

2. Country issues that potentially impact program and project financial management include a weak public financial management (PFM) environment, management and skills capacity issues, and ADB country portfolio issues.

3. Country PFM arrangements were assessed in 2008 using the Public Expenditure Financial Accountability (PEFA) PFM Performance Measurement Framework<sup>15</sup>. The assessment identified overall PFM improvements between 2006 and 2008.<sup>16</sup> Despite these improvements, PFM remains weak, which impedes the Government's ability to control expenditures, disburse the budget as approved, and provide essential services. Fundamental arrangements are in place, but implementation weaknesses mean that the systems and procedures cannot be relied upon to ensure appropriate accountability. Oversight has been weakened by delays in preparing and releasing public accounts and audit reports.

4. In common with many DMCs, PNG has a shortage of skills in general management, financial management, financial analysis, and management accounting. In particular, few accounts staff possess practical skills beyond basic bookkeeping. The impact of these skill shortages on Government operations is amplified by high demand for financial skills from the private sector, which pay higher remuneration and, in most cases, provide better conditions. State-owned entities are not immune from this issue.

5. Recent Country Portfolio Review Missions (CPRM) have concluded that ADB projects in PNG in recent years have performed poorly, relative to other ADB DMCs in terms of both implementation and development outcomes. Historically, the major portfolio implementation issues have included: (i) delays in endorsement of contracts by the National Executive Council (NEC); (ii) counterpart funds not being provided in a timely manner; and (iii) delays in the submission of audited annual project accounts. Particular issues involved the submission of supporting documentation to substantiate the liquidation of imprest funds and difficulties in

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<sup>13</sup> *Financial Management and Analysis of Projects*. ADB. 2005.

<sup>14</sup> *Financial Due Diligence A Methodology Note*. ADB. 2009.

<sup>15</sup> Under the PEFA framework, performance is assessed in relation to seven dimensions of public financial management: credibility of the budget; comprehensiveness and transparency; degree to which the budget is prepared with due regard to government policy; predictability and control in budget execution; accounting, recording and reporting; external scrutiny and audit operations; appropriateness of development partner practices in country; and intergovernmental fiscal relationships.

<sup>16</sup> *Papua New Guinea: Public Financial Management Performance Report*. Department of Finance. 2008.

auditing annual project accounts in part due to poor project record-keeping, unreconciled bank accounts and ledger accounts, and lengthy delays in receiving responses to audit queries.

## 2. Risk Analysis

6. A Financial Management Internal Control and Risk Management Assessment was conducted.<sup>17</sup> The risk-assessment approach is based largely on International Standard on Auditing 400: Risk Assessment and Internal Control. Inherent risk<sup>18</sup> was assessed as substantial in large part due to country-level risks and past ADB experiences.

7. Control risk<sup>19</sup> was also rated as substantial and has been partly informed by a recent report published by the Public Accounts Committee<sup>20</sup>, which reviewed PPL's audited accounts for 2002 and 2003. This reported significant weaknesses in PPL's accounting systems and record-keeping practices. It also noted that poor management systems resulted in limited budgetary control, inadequate financial reporting structure and undue delay in the preparation and audit of the financial statements. The FMAQ revealed that a number of these deficiencies have been addressed since 2003 and that PPL's current financial management system is adequate to (i) record required financial transactions and balances; (ii) prepare financial statements and monitoring reports during project implementation; (iii) safeguard financial assets; and (iv) provide the required financial documents to audit acceptable to ADB. It has been over 20 years since PPL received the last ADB-funded loan project and particular risks concern timeliness of financial reporting, internal controls, financial management training program, and adherence to ADB financial management policies and procedures.

## 3. Risk Mitigation

8. The completed Financial Management Assessment Questionnaire (FMAQ) identifies that technical assistance could be provided in the following areas: (i) budget preparation and oversight; (ii) preparation of an annual training program on financial management and skills upgrading; (iii) strengthening the internal audit function; (iv) putting in place systems to ensure data is safeguarded; and (v) development of a financial policies and procedures manual to cover financial management, reporting and related administrative activities.

## B. Disbursement

9. The Loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2007, as amended from time to time),<sup>21</sup> and detailed arrangements agreed upon between the Government and ADB. Pursuant to ADB's Safeguard Policy Statement (2009) (SPS),<sup>22</sup> ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS. All financial institutions will ensure that their investments are in compliance with applicable national laws and regulations and will apply the prohibited investment activities list (Appendix 5) to subprojects financed by ADB.

<sup>17</sup> Refer page 24 of *Financial Management and Analysis of Projects*. ADB. 2005.

<sup>18</sup> Inherent risk is the susceptibility of the financial management system to factors arising from the environment in which it operates, such as country rules and regulations and entity working environment (assuming absence of any counter checks or internal controls).

<sup>19</sup> Control Risk is the risk that the accounting and internal control framework is inadequate to ensure funds are used economically and efficiently and for the purpose intended, and that the use of funds is properly reported.

<sup>20</sup> Report to Parliament on the Inquiry into the Public Accounts of the Government of Papua New Guinea for the Financial Year 2004. Parliamentary Accounts Committee Report, tabled in Parliament March 2010.

<sup>21</sup> Available at: [http://www.adb.org/Documents/Handbooks/Loan\\_Disbursement/loan-disbursement-final.pdf](http://www.adb.org/Documents/Handbooks/Loan_Disbursement/loan-disbursement-final.pdf).

<sup>22</sup> Available at: <http://www.adb.org/Documents/Policies/Safeguards/Safeguard-Policy-Statement-June2009.pdf>.

10. Only reimbursement and direct payment procedures will be used under the Investment Program. Imprest Account and Statement of Expenditures will not be used. The Project Management Unit (PMU) will be responsible for preparing disbursement projections. PPL will maintain project accounts. Reimbursement will be forwarded to PPL maintained project accounts. The PMU will coordinate internally within PPL to arrange allocation of counterpart funds for individual projects. The PMU will be responsible for collecting supporting documents, preparing withdrawal applications and submitting to Treasury. Treasury will be responsible for screening withdrawal applications and submitting to ADB.

11. Before the submission of the first withdrawal application, the borrower should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the borrower, together with the authenticated specimen signatures of each authorized person. The Borrower is to consolidate claims to a minimum value per withdrawal application of US\$100,000 for reimbursement claims, unless otherwise approved by ADB. Withdrawal applications and supporting documents will demonstrate, among other things that the goods, and/or services were produced in or from ADB members, and are eligible for ADB financing.

### **C. Accounting**

12. PNG Power Ltd will maintain separate project accounts and records by funding source for all expenditures incurred on the Project. Project accounts will follow international accounting principles and practices.

13. PPL will be required to adhere to sound financial management requirements during the implementation of the proposed Program. The PMU, supported by an Accountant and a Finance Clerk, will be required to maintain separate project records and accounts adequate to identify the: (i) goods and services financed from loan proceeds; (ii) financing resources received; (iii) expenditures incurred on the components of each project; and (iv) counterpart and cofinancier funds received and expended.

### **D. Auditing**

14. The Project Management Unit (PMU) will cause the detailed consolidated project accounts to be audited in accordance with International Standards on Auditing by an auditor acceptable to ADB. The audited accounts will be submitted in the English language to ADB within 6 months of the end of the fiscal year by the PMU to ADB through Treasury. The Government and PPL have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited accounts. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

15. PPL will prepare and submit to ADB quarterly progress reports for individual projects, which will include: (i) a narrative description of progress made during the reporting period; (ii) changes in the implementation schedule; (iii) problems or difficulties encountered; and (iv) activities to be undertaken in the next reporting period. The PMU will prepare and submit to ADB a project completion report within 3 months of the completion of each project, and an investment project completion report after completion of all projects under the proposed investment program.

## VI. PROCUREMENT AND CONSULTING SERVICES

### A. Advance Contracting

1. PNG Power Ltd. will undertake advance recruitment of implementation consultants to support the activities of the PMU. All advance contracting will be undertaken in conformity with ADB's *Procurement Guidelines* (2010, as amended from time to time)<sup>1</sup> and ADB's *Guidelines on the Use of Consultants* (2010, as amended from time to time).<sup>2</sup> The issuance of invitations to bid under advance contracting will be subject to ADB approval. The Government, Department of Petroleum and Energy, and PNG Power Ltd have been advised that approval of advance contracting does not commit ADB to finance the Project.

### B. Procurement Plan

#### 1. Process Thresholds, Review and 18-Month Procurement Plan

2. **Project Procurement Thresholds.** Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and Works	
Method	Threshold
International Competitive Bidding (ICB) for Works	>\$3,000,000
International Competitive Bidding for Goods	>\$500,000
National Competitive Bidding (NCB) for Works	≤\$3,000,000
National Competitive Bidding for Goods	≤\$500,000
Shopping for Works	<\$100,000
Shopping for Goods	<\$100,000

3. **ADB Prior or Post Review.** Except as ADB may otherwise agree, the following prior or post review requirements apply to the various procurement and consultant recruitment methods used for the project.

Procurement Method	Prior or Post	Comments
<b>Procurement of Goods and Works</b>		
ICB Works	Prior	
ICB Goods	Prior	
NCB Works	Prior	
NCB Goods	Prior	
Shopping for Works	Post	
Shopping for Goods	Post	
<b>Recruitment of Consulting Firms</b>		
Quality- and Cost-Based Selection (QCBS)	Prior	(80:20)
<b>Recruitment of Individual Consultants</b>		
Individual Consultants	Prior	

4. **Goods and Works Contracts Estimated to Cost More Than \$1 Million.** The following table lists goods and works contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Contract	Procurement	Prequal.	Advertisement
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<sup>1</sup> Available at: <http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf>.

<sup>2</sup> Available at: <http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf>.

	Value	Method	of Bidders (y/n)	Date (quarter/year)
Lake Hargy Transmission – Equipment	\$7,711,566	ICB	N	Q4 2011
Divune Power Station – Civil Works	\$10,041,718	ICB	N	Q4 2011
Ramazon Power Station – Civil Works	\$17,537,027	ICB	N	Q4 2011
Lake Hargy Transmission – Civil Works	\$4,614,382	ICB	N	Q4 2011

QCBS – Quality and Cost Based Selection

5. **Consulting Services Contracts Estimated to Cost More than \$100,000.** The following table lists consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Contract Value	Recruitment Method	Advertisement Date (quarter/year)	International or National Assignment	Comments
Tranche 1 Implementation Consultants (3 projects)	\$4,948,406	Competitive QCBS	Q4, 2010	Both	

6. **Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000.** The following table groups smaller-value goods, works and consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Value of Contracts (cumulative)	Number of Contracts	Procurement / Recruitment Method	Comments
Access Road Construction	\$1,726,161	2	NCB	
Land Survey	\$76,000	3	Shopping	
Site Preparation	\$95,000	3	Shopping	

## 2. Indicative List of Packages Required Under the Project

7. The following table provides an indicative list of all procurement (goods, works and consulting services) over the life of the project. Contracts financed by the Borrower and others should also be indicated, with an appropriate notation in the comments section.

General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Domestic Preference Applicable	Comments
<b>Equipment</b>					
1. Divune Transmission	\$4,035,281	1	ICB Goods	Nil	
2. Ramazon Transmission	\$3,208,818	1	ICB Goods	Nil	
3. Lake Hargy Transmission	\$6,019,796	1	ICB Goods	Nil	
<b>Civil Works</b>					
4. Divune Power Station	\$10,041,718	1	ICB Works	Nil	EPC Contract
5. Divune Transmission	\$2,172,844	1	PPL, Self funded	Nil	
6. Ramazon Power Station	\$14,357,927	1	ICB Works	Nil	EPC Contract
7. Ramazon Transmission	\$1,727,825	1	PPL, Self Funded	Nil	
8. Hargy Transmission	\$3,703,429	1	PPL, Self Funded	Nil	
<b>Consulting Services</b>					
9. Consulting Services	\$4,948,406	1	QCBS		

EPC = Engineering, Procurement and Construction, ICB = International Competitive Bidding, PPL = PNG Power Ltd.  
Note: Civil Works contracts 4 and 6 include construction camp and of power and water supply to local villages.

### 3. National Competitive Bidding

8. General. National competitive bidding (NCB) shall conform to the provisions set in the Public Financial Management Act (PFMA) as issued in 1995 and amended in 2003, and the specific procedures prescribed in the Financial Instructions (FIs) issued in 2005, with the clarifications and modifications described in the following paragraphs required for compliance with the provisions of ADB Procurement Guidelines.

#### 9. Participation in Bidding

- (i) State-owned enterprises in Papua New Guinea shall be eligible to bid only if they can establish that they are legally and financially autonomous, operate under commercial law, and are not a dependent agency of the Government/Executing Agency/Implementing Agency.
- (ii) Foreign bidders shall be eligible to participate in bidding under the same conditions as national bidders.
- (iii) Bidding shall not be restricted to preregistered firms and such registration shall not be stated in the bidding documents as a condition for the submission of bids. Where registration is required prior to award of contract, bidders: (i) shall be allowed a reasonable time to complete the registration process; and (ii) shall not be denied registration for reasons unrelated to their capability and resources to successfully perform the contract, which shall be verified through post-qualification.

#### 10. Classification of Contractors; Qualification; Post-qualification

- (i) Post qualification shall be used unless prequalification is explicitly provided for in the loan agreement/procurement plan.
- (ii) Bidding shall not be restricted to any particular class of contractors, and non-classified contractors shall also be eligible to bid. Qualification criteria (in case prequalification was not carried out) shall be stated in the bidding documents, and before contract award, the bidder having submitted the lowest evaluated responsive bid shall be subject to post-qualification.

11. **Conflict of Interest.** Bidders may be considered to be in conflict of interest with one or more parties in this bidding process if, including but not limited to:

- (i) they have controlling shareholders in common, or
- (ii) they receive or have received any direct or indirect subsidy from any of them; or
- (iii) they have the same legal representative for purposes of this bid; or
- (iv) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bid or another Bidder, or influence the decisions of the Employer regarding this bidding process; or
- (v) a Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which the party is involved. However, this does not limit the inclusion of the same subcontractor in more than one bid; or
- (vi) a Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract is the subject of the Bid; or
- (vii) a Bidder or any of its affiliates has been hired (or is proposed to be hired) by the Employer or Borrower as Engineer for the contract.

12. **Preferences.** No preference shall be given for domestic bidders and for domestically manufactured goods.

13. **Advertising, time for bid preparation**

- (i) Invitations to bid shall be advertised in at least one newspaper of national circulation or freely accessible and well-known website, allowing a minimum of 4 weeks for the preparation and submission of bids, such 4 weeks period to begin with the availability of the bid documents or the advertisement, whichever is later.
- (ii) Bidding of NCB contracts estimated at \$500,000 or more for goods and related services, or \$1,000,000 or more for civil works, shall be advertised on ADB's website via the posting of the Procurement Plan.

14. **Standard Bidding Documents.** Until national standard bidding documents approved by ADB are available, bidding documents acceptable to ADB should be used.

15. **Bid Security.** If required by the bidding documents, bid security shall be in the form of a bank guarantee from a reputable bank. A bidder's bid security shall apply only to a specific bid.

16. **Bid Opening and Bid Evaluation.**

- (i) Bidders may deliver bids, at their option, either in person or by courier service or by mail.
- (ii) Bidders shall not be allowed to amend their tenders after the closing date and time for submission of bids.
- (iii) Bids shall be opened in public, immediately after the deadline for submission of bids. No bid shall be rejected during bid opening. The name of the bidder, the total amount of each bid, and any discounts shall be read aloud and recorded in the minutes of the public bid opening.
- (iv) Evaluation of bids shall be made in strict adherence to the Qualifications and Evaluation Criteria stipulated in the bidding documents.
- (v) No bidder shall be rejected merely on the basis of a comparison with the employer's estimate and budget ceiling without ADB's prior concurrence.
- (vi) The Contract shall be awarded to the technically responsive bidder that offers the lowest evaluated price, and meets the qualifying criteria. In determining the lowest evaluated price, the following are to be considered: (i) bid price, as offered, (ii) arithmetical corrections on the bid price, if any, and (iii) monetary value of the evaluation criteria that are stated in the bidding document.

17. **Rejection of Bids.** Bids shall not be rejected and new bids solicited without ADB's prior concurrence.

18. **Extension of the Validity of Bids.** In exceptional circumstances and with prior ADB approval, the procuring entity may, before the expiration of bid validity, request all bidders in writing to extend the validity of their bids. In such a case, bidders shall not be requested nor permitted to amend the price or any other condition of their bid. Bidders shall have the right to refuse to grant such an extension without forfeiting their bid security, but bidders granting such an extension shall be required to provide a corresponding extension of their bid security.

19. **Disclosure on Contract Awards.** At the same time that notification on award of contract is given, the Borrower/Executing Agency/Implementing Agency shall publish the following information on contract award on a free and open access website or other means of publication acceptable to ADB: (i) name of each bidder who submitted a bid; (ii) bid prices as read out at bid opening; (iii) name and evaluated price of each bid that was evaluated; (iv) names of bidders whose bids were rejected and the reasons for the rejection; and (v) name of the winning bidder, price it offered as well as the duration and summary scope of the contract awarded. The Executing/Implementing Agency shall respond in writing to unsuccessful bidders who seek explanations on the grounds on which their bids are not selected.

20. **No Negotiations.** There shall be no negotiations, even with the lowest evaluated bidder, without ADB's prior concurrence. A bidder shall not be required, as a condition of award, to undertake obligations not specified in the bidding documents, or otherwise, to modify the bid as originally submitted.

21. **Inspection and Auditing.** Each contract financed from the proceeds of a Loan/Grant shall provide that the contractor/supplier shall permit ADB, at its request, to inspect their accounts and records relating to the performance of the contract and to have said accounts and records audited by auditors appointed by ADB.

22. **Member Country Restriction.** Bidders must be nationals of member countries of ADB, and offered goods must be produced in and supplied from member countries of ADB.

### **C. Procurement Capacity Assessment Report**

23. **Expected Procurement.** The anticipated procurement consists of international competitive bidding (ICB) and national competitive bidding (NCB) for construction of hydropower plants and transmission lines. This will be supported by the recruitment of consulting services using quality- and cost-based selection (QCBS) procedures.

24. **Assessment of the National Environment.** The public procurement environment in PNG has improved in recent years. However, the overall procurement environment remains weak. The Central Supply and Tenders Board (CSTB) is the main entity responsible for carrying out public procurement on behalf of government departments for goods, works and services that exceed 300,000 kina (US\$103,000), which must, under law be put to public tender. Provincial authorities wishing to undertake procurement which exceeds 3 million kina must also go through the CSTB. Although the CSTB is intended to be an independent body, it falls under the Finance Department and reports to the Minister of Finance. With increasing amounts of public funds being channeled through provincial governments, there is a critical need to improve procurement capacity at this level. Training programs that are now offered to CSTB staff, and other central, provincial and district-level government procurement staff, which has had some impact in improving overall capacity. The CSTB is also developing standard bidding documents which should improve overall document quality; however, the quality of specifications is often low, especially when standard specifications cannot be copied, and evaluation and award criteria tend to be poorly defined. Also the CSTB currently lacks the capacity to carry out procurement audits and compliance checks. A draft procurement assessment report was prepared in early 2010 on behalf of CSTB, which identified a number of measures that could be taken to strengthen procurement, which included the following:

- Strengthening existing procurement laws (there is currently no separate procurement law in PNG)

- Strengthening rules on minor procurement
- Extending the legal framework to cover all procurement using public funds (public bodies such as state-owned enterprises are currently exempt for public procurement laws)
- Increasing compliance with existing laws
- Consolidating and updating existing procurement manuals
- Improving the quality of technical specifications
- Improving transparency on bid award decisions
- Improving the complaints process
- Ensuring completeness of procurement records
- Providing better support the development of competitive procurement markets
- Improving the procurement control mechanism
- Increasing independence of CSTB
- Improving legal provisions for targeting corruption

25. **General Agency Resource Assessment.** PNG Power Limited (PPL) has significant experience procuring goods and services required for the generation, transmission and distribution of power around the country, including the preparation of bidding documents and evaluation of technical proposals and monitoring contract performance. Procurement of goods and services has recently been carried out by PPL for three large projects including the Yonki Toe of Dam Hydropower Project (K90 million), and the Erap to Hidden Valley Project (K60 million) which involves the construction of a 105 km transmission line and a substation upgrade program (K50 million).

26. PPL's procurement section does not currently face any critical human resource or physical resource constraints. Procurement activities are carried out by 27 full-time and 2-3 part-time staff in the procurement section located in the PPL's main office and 20 additional staff at PPL's regional warehouses around the country. The manager of procurement holds a degree in business and accounting and has 15 years of direct procurement experience. Other senior procurement staff hold diplomas in procurement-related fields. Several other staff are currently undertaking diploma programs. Although, there are plans to introduce a comprehensive on-the-job procurement training program for staff, no program exists at the moment. The procurement section has adequate facilities (IT systems and other office equipment) which allow them to efficiently manage procurement processes.

27. **Agency Procurement Processes: Goods and Works/Consulting Services.** PPL's procurement processes for goods, works and consulting services are outlined in manuals on purchasing policy and procedures, and tendering policy and procedures which were last updated in 2006.

28. Procurement policies require that in most cases, competitive tendering processes be used for purchase of goods, works and services that exceed K300,000 in value. PPL's tendering processes generally follow international best practices. However, one of the policy's major weaknesses is that the public opening of bids is not required. Also, although the details of bids opened are recorded in PPL's tender register, detailed meeting minutes are not taken. In addition, cases, where single source or restricted tendering is used, could be reduced under PPL's procurement policies.

29. Single source and restricted tendering may be used in certain circumstances such as cases of extreme urgency, where goods and works to be purchased must meet requirements of compatibility or interchangeability with existing equipment or services, and for tenders under K300,000 to save on administration costs where contractor is determined to be suitable and cost-effective. Depending on the value of goods, works or services, prior approval of the department manager, Chief Operating Officer (COO) or Board of Management is required before single source or restricted tendering can be used to procure goods, works or services.

30. Selective tendering may be used where there is a need to invite tenders for frequently used goods, services and works, and there is good justification for using this type of procurement method. The COO, General Manager of Finance and Chairman of the Tenders and Capital Works Committee must approve the list of qualified contractors and suppliers included on selective tendering list.

31. Prequalification tendering may be used in certain circumstances such as with projects of a highly complex nature, large value or subject to rigid completion programs, or for projects that require a high level of coordination, technical expertise or non-standard contracts such as design-and-build contracts.

32. The Board of Management is responsible for appointing qualified members to the tenders and capital works committee which is responsible for considering and approving tenders. The COO and General Manager of Finance are responsible for appointing qualified members to the bid opening committee which is responsible for opening and registering tenders received. Evaluation committees also exist to evaluate bids, and report directly to the tenders and capital works committee. Standard bidding documents are used to invite tenders, and tender notices for large projects are commonly advertised in Australia and New Zealand as well as locally. Quality and value for money are generally used to evaluate tenders, as well as past performance record. Although two stage bidding is commonly used for procurement where complete technical specifications cannot be prepared in advance, it is not required under procurement policy.

33. In their current form, PPL's procurement policies do not conform with international best practices. Transparency could be substantially improved by requiring all bids submitted through competitive tendering processes to be opened in public, with meeting minutes taken and made available upon request. A complaints process could also be introduced, since currently none exist. Also, competitiveness among potential suppliers and contractors could be increased by reducing the number of cases where selective and restrictive tendering can be used under procurement guidelines.

34. **Process Control and Oversight, Records Keeping and Audit.** All staff are required to comply with PPL's code of ethics and standard of conduct, and are required to sign a conflict of interest statement. Any member of staff with a potential conflict of interest is required to remove themselves from the procurement process. Procurement needs are identified on the basis of business papers prepared by each department. Justification for procuring good/works/services are included in the business paper, which is used to obtain the initial approval of purchase. Once business paper has been approved, the procurement process can be initiated.

35. Established thresholds for financial delegation exist, where purchases up to K250,000 can be approved by the COO, purchases between K250,000-500,000 can be approved by the CEO, and if the value exceeds K500,000, Board approval must be received. General managers have the authority to approve purchases up to K150,000, and Divisional Managers can approve

up to K10,000 in purchases. An established reporting and approval structure also exists for tendering processes as described in the previous section. Tendering committees are responsible for all decisions on contract evaluation and award, where payments authorization is approved by the CEO according to financial delegation thresholds.

36. Detailed records on tenders are required to be kept for up to 5 years. Records include the tenders register, which contains details on all tenders received in response to expressions of interest issued by PPL, evaluation committee reports on reasons for recommending tenders for contract award, and written records on communication with tenders. For restricted or single-source procurement, records include written justification and approvals received for not using competitive tendering processes.

37. Another weakness associated with PPL's current procurement policies is that they do not include complaints procedures since all decisions on contract award made by tendering committees are final. Contract award transparency could significantly be improved by developing a complaints process.

## 1. Summary Assessment and Recommendations

38. Overall, sufficient resources and capacity exist within PPL to efficiently carry out procurement activities. In addition, adequate control processes and oversight are in place. However, current procurement practices carried out according to PPL's procurement policies do not fully conform to international best practices, resulting in reduced transparency and level of competition between suppliers and contractors in supplying goods, works and services to PPL. This creates an average risk procurement environment. In order to reduce existing procurement risks, it is recommended that the project management unit develops and adheres to separate, procurement guidelines which have been adapted to meet international best practices and ADB procurement requirements, rather than carrying out procurement activities according to PPL's existing procurement procedures. PPL should consider reviewing and adopting strengthened procedures for all of its procurement activities.

## 2. Specific Recommendations: Project Implementation

Capacity Constraint	Recommended Action	Responsibility and comment
<ul style="list-style-type: none"> <li>• <b>Unacceptable procurement practices:</b> these include opening of bids behind closed doors and not maintaining meeting minutes, and over-reliance on selective tendering practice</li> <li>• <b>Lack of existing complaints mechanisms:</b> currently all decisions made by tender committees are final, and there are no procedures in place to review decisions or lodge complaints</li> </ul>	<p>Strengthen existing procurement policies and procedures to meet international best practices</p> <p>Introduce mechanisms for handling complaints to improve transparency of contract award process</p>	<p>PPL Management is responsible for approving any changes to current procurement policies and procedures</p> <p>PPL Board of Directors are responsible for changes to financial delegation</p>
<b>General Recommendations, EA Capacity</b>		
Capacity Constraint	Recommended Action	Responsibility and Comment
<ul style="list-style-type: none"> <li>• <b>Lack of training opportunities:</b> comprehensive procurement training program is not currently available to all relevant PPL staff</li> </ul>	<p>Expedite plans to introduce planned comprehensive training program under new corporate strategy</p>	<p>Manager of Procurement is responsible for organizing procurement training program</p>

#### D. Outline Terms of Reference for Implementation Consultants

39. An estimated 180 person-months (60 international, 120 national) of consulting services are required to (i) facilitate project management and implementation, and (ii) strengthen the institutional and operational capacity of the EA/IA. Consulting firms will be engaged using the quality- and cost-based selection (QCBS) method with a standard quality:cost ratio of 80:20.

	Months
<b>International Specialists</b>	
Team Leader	24
Transmission Specialist	8
Geologist	4
Hydrologist	4
Civil Engineer	8
Environment Specialist	4
Community Development/Gender Specialist	4
Land Acquisition/Resettlement Specialist	4
<b>Total</b>	<b>60</b>
<b>National Specialists</b>	
Project Manager	24
Hydropower Specialist	12
Financial Controller	12
Transmission Specialist	12
Civil Engineer	12
Environment Specialist	12
Resettlement Specialist	12
Community Development/Gender Specialist	12
Legal Specialist	12
<b>Total</b>	<b>120</b>

40. **Team Leader (international) – 24 person-months.** The Team Leader (TL) shall have held significant project management roles in Engineering projects, preferably with involvement in hydropower projects. In addition to project management skills, the TL shall have specific skills in hydropower and procurement disciplines. The TL will work with the Project Management Unit (PMU) Project Manager and with the PPL Liaison Engineer to ensure that the project outcomes are achieved within the specified time and budget. The TL of the International Specialists shall undertake the following activities:

- (i) Prepare the detailed work program and implementation schedule for the Project and coordinate the activities of the International Specialists.
- (ii) Ensure that the international specialists coordinate with their local counterparts.
- (iii) Review available studies relating to the Town Electrification Investigation and power sector in Papua New Guinea (PNG).
- (iv) In conjunction with the Project Manager establish and support the planning objectives for the PMU.
- (v) Provide high level advice to the Project Manager regarding management issues.
- (vi) As hydropower specialist provide skilled input to the design and documentation of the various hydro sub-projects including assessment of Tenders and recommendation for award of Contract.
- (vii) Undertake the optimization of hydropower resources. Prepare a summary of the current status of resources and the energy sector requirements.
- (viii) Prepare the project design. Recommend pro-poor components.
- (ix) Assess the project cost estimates, including unit costs and estimates of quantities for project components, identification of local and foreign cost components, and physical and price contingencies. Determine the financing

- requirements of the plan, identify options for cofinancing, and evaluate the possibility of private sector participation.
- (x) Identify cofinancing opportunities on renewable energy and energy efficiency components by the Global Environment Facility, clean development mechanism, and other funding sources.
  - (xi) Identify the goods to be procured and civil works to be undertaken, and prepare indicative procurement packages for the ensuing projects in the plan.
  - (xii) Draft bid documents for the procurement of the core projects and associated components. Prepare a preliminary procurement plan in accordance with ADB *Procurement Guidelines* (2010, as amended from time to time).
  - (xiii) Evaluate the adequacy of the government policy and regulatory framework, and identify measures ADB could take to facilitate participation.
  - (xiv) Prepare the project implementation schedule, a Gantt chart showing the schedule, and a procurement schedule. Assess the plan's technical risks and carry out sensitivity analysis to check project viability under these risks. Prepare terms of reference, expertise requirements, and person-month and cost estimates for implementation consulting services.
  - (xv) Coordinate the activities of the International Specialists.
  - (xvi) Ensure that the international specialists coordinate with their local counterparts.
  - (xvii) In conjunction with the Project Manager establish and support the planning objectives for the PMU.
  - (xviii) Provide high level advice to the Project Manager regarding management issues.
  - (xix) As hydropower specialist, provide skilled input to the design and documentation of the various hydro subprojects including assessment of Tenders and recommendation for award of Contract.
  - (xx) As hydropower specialist assist in the supervision of Construction and Commissioning.
  - (xxi) As Procurement Specialist, ensure that the procurement processes adhere to the ADB guidelines in all aspects.
  - (xxii) Assist PMU/PPL in strengthening the technical and safeguard management of the Project by undertaking the necessary training for the PPL/PMU's national specialists in technical assessment procedure and techniques, construction supervision and monitoring, and reporting. Involve the national specialists through on-the-job training, effecting transfer of knowledge and skills, in project management and monitoring of the projects, and develop staff capability in handling the technical management of the projects.
  - (xxiii) Prepare monitoring assessment procedures within PMU/PPL and the necessary guidelines for staff guidance during project preparation and implementation.
  - (xxiv) Assist the Project Manager in developing detailed budgets for the Project and sub-projects. Assist in controlling sub-project budgets.
  - (xxv) Based on experience with developing Tranche 1 projects, develop public private partnership (PPP) models for Tranche 2. Discuss potential models with all relevant stakeholders and reach consensus regarding implementation of models for Tranche 2. Conduct outreach activities to potential private sector parties.
  - (xxvi) Provide advice to the Project Manager to mitigate the effects of cost overruns.
  - (xxvii) Assist in the development and monitoring of the project and sub-project programs;
  - (xxviii) Provide high level advice to the international specialists as required to ensure adequate coordination occurs between all disciplines and with the national specialists.

- (xxix) Undertake the management functions for international specialists including scheduling of visits, local travel/accommodation, and the like.

41. **Project Manager (national) – 24 person-months.** The Project Manager (PM) shall have held significant project management roles in engineering projects, preferably with involvement in hydropower projects. The PM will have significant experience in procurement procedures. The PM shall have a suitable engineering tertiary qualification from an internationally recognized institution and have Chartered status in a recognized engineering body. The PM will work with the International Team Leader (TL) and with the PPL Liaison Engineer to ensure that the project outcomes are achieved within the specified time and budget. The PM shall undertake the following activities:

- (i) Comply with the policies and directions of the Project Steering Committee.
- (ii) Coordinate the activities of the PMU.
- (iii) Ensure that the national specialists coordinate with their international counterparts.
- (iv) Establish and implement the planning objectives for the PMU.
- (v) Provide high level advice to the Project Steering Committee and PPL regarding management issues.
- (vi) Ensure that the design and documentation of the various sub-projects including assessment of Tenders and recommendation for award of Contract is technically of international best practice and complies with ADB guidelines.
- (vii) Coordinate the supervision of Construction and Commissioning.
- (viii) Assist PPL in strengthening the technical and safeguard management of the Project by undertaking the necessary training for the PPL/PMU's national specialists in technical assessment procedure and techniques, construction supervision and monitoring, and reporting. Involve the international specialists through on-the-job training, effecting transfer of knowledge and skills, in project management and monitoring of the projects, and develop staff capability in handling the technical management of the projects.
- (ix) Prepare monitoring assessment procedures within PMU/PPL and the necessary guidelines for staff guidance during project preparation and implementation.
- (x) Develop detailed budgets for the Project and sub-projects. Control sub-project budgets.
- (xi) Obtain advice from the PMU Specialists to mitigate the effects of cost over-runs.
- (xii) Develop and monitor the project and sub-project programs.
- (xiii) Provide high level advice to the TL as required to ensure adequate coordination occurs between all disciplines and with the International Specialists.
- (xiv) Undertake the Management Functions for the PMU.

42. **Transmission/Distribution Specialist (international) – 8 person-months.** The Transmission/Distribution Specialist (TDS) shall have held significant project Transmission/Distribution Engineering roles in Power projects. In addition to Project Management skills the TDS shall have skills in Procurement disciplines. The TDS will work with the Project Management Unit (PMU) Team Leader and with the PPL TDS Engineer to ensure that the project outcomes are achieved within the specified time and budget. The TDS shall undertake the following:

- (i) Assist with the detailed design of the transmission and distribution systems for the sub-projects and ensure that they meet international best practice. Undertake load-flow analysis of the various transmission and distribution lines to minimise

- losses and optimise performance. Liaise with the hydropower specialists with the interface of the generating equipment with the transmission system.
- (ii) Liaise with other international specialists and coordinate with their local counterparts to ensure that the overall design of the subprojects are cost effective, practical and meet the overall requirements of PPL.
  - (iii) Provide high level advice to the TL regarding management and technical issues.
  - (iv) As T&D specialist, provide skilled input to the design and documentation of the various sub-projects including assessment of Tenders, selection of equipment and recommendation for award of Contract.
  - (v) As T&D specialist, assist in the supervision of Construction and Commissioning.
  - (vi) Follow the procurement processes as detailed in the ADB guidelines in all respects;
  - (vii) Assist PMU/PPL in strengthening the technical and safeguard management of the Project by undertaking the necessary training for the PPL/PMU's national specialists in technical assessment procedure and techniques, construction supervision and monitoring, and reporting. Involve the national specialists through on-the-job training, affecting transfer of knowledge and skills, in project management and monitoring of the projects, and develop staff capability in handling the technical management of the projects.
  - (viii) Prepare monitoring assessment procedures within PMU/PPL and the necessary guidelines for staff guidance during project preparation and implementation.
  - (ix) Assist the Team Leader in developing detailed budgets for the project and subprojects. Assist in controlling sub-project budgets.
  - (x) Provide advice to the Team Leader to mitigate the effects of cost over-runs.
  - (xi) Assist in the development and monitoring of the project and sub-project programs.
  - (xii) Assist with the development of maintenance regimes and strategies.
  - (xiii) Prepare regular design and progress reports as required by the Team Leader and a final As-Built report.

43. **Geologist (international) – 4 person-months.** The geologist shall have held significant project geologist roles in power projects particularly in small hydrodevelopments. In addition, it would be advantageous for the geologist to be familiar with the geology of the Pacific Islands and of PNG in particular. The geologist will work with the Team Leader and with the PPL Geologist to ensure that the project outcomes are achieved within the specified time and budget. The Geologist shall undertake the following activities:

- (i) Provide detailed geological advice to the Civil Engineer to enable optimal design of all structures associated with the sub-project development.
- (ii) Liaise with other international specialists and coordinate with their local counterparts to ensure that the overall design of the sub-projects are cost effective, practical and meet the overall requirements of PPL.
- (iii) Provide high level advice to the TL regarding management and technical issues.
- (iv) Manage all aspects of the site geotechnical investigation, including but not limited to conducting initial site assessment, supervising geotechnical fieldwork, and geotechnical analysis (such as foundation design, embankment design and slope stability analysis). Incorporate geotechnical assessment into detail design.
- (v) As geological specialist, provide skilled input to the design and documentation of the various sub-projects including assessment of Tenders, selection of construction methods and recommendation for award of Contract.

- (vi) Assist the Team Leader to determine solutions in the event of unsuitable geotechnical conditions found during the preparation and construction phases.
- (vii) Assist PMU/PPL in strengthening the technical and safeguard management of the Project by undertaking the necessary training for the PPL/PMU's national specialists in technical assessment procedure and techniques, construction methods and monitoring, and reporting. Involve the national specialists through on-the-job training, affecting transfer of knowledge and skills, in project management and monitoring of the projects, and develop staff capability in handling the technical management of the projects.
- (viii) Prepare monitoring assessment procedures within PMU/PPL and the necessary guidelines for staff guidance during project preparation and implementation.
- (ix) Assist the Team Leader in developing detailed budgets for the Project and sub-projects.
- (x) Provide advice to the TL to mitigate the effects of cost over-runs.
- (xi) Assist in the development and monitoring of the project and sub-project programs.
- (xii) Prepare regular analysis and progress reports as required by the Team Leader and a final As-Built report.

44. **Hydrologist (international) – 4 person-months.** The hydrologist shall have held significant project hydrologist roles in power projects particularly in run-of-river hydrodevelopments. The hydrologist will work with the Project Management Unit (PMU) Team Leader and with the PPL hydrologist to ensure that the project outcomes are achieved within the specified time and budget. The hydrologist shall undertake the following activities:

- (i) Review all available hydrological and metrological data for the sub-Projects.
- (ii) Liaise with other international specialists and coordinate with their local counterparts to ensure that the overall design of the sub-projects are cost effective, practical and meet the overall requirements of PPL.
- (iii) Provide high level advice to the Team Leader regarding management and technical issues.
- (iv) As hydrologist provide skilled input to the design and documentation of the various sub-projects including assessment of Tenders, selection of construction methods and recommendation for award of Contract.
- (v) Undertake all relevant hydrological design of the projects.
- (vi) Where applicable, follow the procurement processes as detailed in the ADB guidelines in all respects.
- (vii) Assist PMU/PPL in strengthening the technical and safeguard management of the Project by undertaking the necessary training for the PPL/PMU's national specialists in technical assessment procedure and techniques, construction methods and monitoring, and reporting. Involve the national specialists through on-the-job training, affecting transfer of knowledge and skills, in project management and monitoring of the projects, and develop staff capability in handling the technical management of the projects.
- (viii) Prepare monitoring assessment procedures within PMU/PPL and the necessary guidelines for staff guidance during project preparation and implementation.
- (ix) Assist the Team Leader in developing detailed budgets for the Project and sub-projects.
- (x) Install stream flow monitoring equipment at the following sites (i) Divune Hydropower, (ii) Lake Hargy Hydropower, and (iii) Ru Creek 2 Hydropower site.

- (xi) Identify at least 10 priority hydropower sites for development under Tranche 2. Conduct hydrological desk top studies of all sites to determine suitability for development, including collation of all historical data. Select 6 priority sites and install stream flow monitoring equipment. Establish monitoring schedules.
- (xii) Provide advice to the Team Leader to mitigate the effects of cost over-runs.
- (xiii) Prepare regular analysis and progress reports as required by the Team Leader and a final As-Built report.

45. **Civil Engineer (international) – 8 person-months.** The civil engineer shall have a minimum of 10 years experience in civil engineering and preferably with small hydropower projects. The civil engineer will work with the Project Management Unit (PMU) Team Leader and with the national civil engineer to ensure that the project outcomes are achieved within the specified time and budget. The civil engineer shall undertake the following activities:

- (i) Undertake the detailed design of all civil and structural systems for the sub-projects and ensure that they meet international best practice. The designs shall be suitable for conditions at the sub-project sites and shall allow for any limitations imposed by construction in the site locations. Liaise with the hydropower specialists and geologist as part of the design process.
- (ii) Review Contractor's drawings as required.
- (iii) Liaise with other international specialists and coordinate with their local counterparts to ensure that the overall design of the sub-projects are cost effective, practical and meet the overall requirements of PPL.
- (iv) Provide high level advice to the TL regarding management and technical issues.
- (v) As the civil specialist, provide skilled input to the design and documentation of the various sub-projects including assessment of Tenders, selection of equipment and recommendation for award of Contract.
- (vi) As civil specialist, assist in the supervision of Construction and Commissioning.
- (vii) Follow the procurement processes as detailed in the ADB guidelines in all respects.
- (viii) Assist PMU/PPL in strengthening the technical and safeguard management of the Project by undertaking the necessary training for the PPL/PMU's national specialists in technical assessment procedure and techniques, construction supervision and monitoring, and reporting. Involve the National Specialists through on-the-job training, effecting transfer of knowledge and skills, in project management and monitoring of the projects, and develop staff capability in handling the technical management of the projects.
- (ix) Prepare monitoring assessment procedures within PMU/PPL and the necessary guidelines for staff guidance during project preparation and implementation.
- (x) Assist the Team Leader in developing detailed budgets for the Project and sub-projects. Assist in controlling sub-project budgets.
- (xi) Provide advice to the TL to mitigate the effects of cost overruns.
- (xii) Provide advice to the TL in the event that the geotechnical findings require an amendment to design and assist with alternative designs and reasonable cost estimates for any variations resulting from any such design amendments.
- (xiii) Assist in the development and monitoring of the project and sub-project programs.
- (xiv) Assist with the development of maintenance regimes and strategies.
- (xv) Prepare regular design and progress reports as required by the TL and a final As-Built report.

46. **Environment Specialist (international) – 4 person-months.** The environment specialist shall have a minimum of 10 years experience in environmental assessment of infrastructure projects and preferably with small hydro power projects. The Environment Specialist will work intermittently with the Project Management Unit (PMU) Team Leader and with the national environment specialist to ensure that the project outcomes are achieved within the specified time and budget. The environment specialist shall undertake the following activities:

- (i) Coordinate all aspects of environmental management of the Project.
- (ii) The environment specialist will initially focus on assisting the PMU to raise awareness in the PMU and Contractors on all aspects of the statutory and guideline requirements for environmental assessment and management of the government and ADB.
- (iii) The environment specialist will work with the Environment Officer to ensure the requirements of the IEEs, EMPs and EARF are fully integrated into the bidding documents and are carried through in the contract requirements.
- (iv) Ensure compliance with the ADB's Safeguard Policy Statement, 2009, and environmental assessment review framework (EARF) of the Project; and ensure compliance of project implementation with the Government's environmental policy and procedures, including prepare and submit a notification of each proposed projects under the first and subsequent tranches to the Department of Environment and Conservation (DEC) in accordance with the prescribed format, and other requirements as directed by DEC.
- (v) Update the environmental management plan (EMP) of each project based on detailed engineering design, and incorporate the environmental mitigation measures recommended in the EMP into the bidding documents, and subsequently in the civil work contracts, and assist in bid evaluation and contract negotiation stages.
- (vi) In coordination with the project engineer, set up detailed monitoring plan and supervise EMP implementation and undertake regular compliance monitoring to ensure the civil works implemented in accordance with the EMP; make recommendations for certification of payment to be made to the contractor for the Engineer's consideration.
- (vii) In accordance with the EARF, assess the potential environmental impacts of road projects under the subsequent tranches, and determine the environmental categorization in accordance with ADB safeguard policy rules that are in place at the time a financing tranche is provided. Prepare the necessary environmental assessment report of the projects for submission to and clearance by ADB. The report should be prepared following the ADB's Safeguard Policy Statement, 2009, taking into consideration direct and indirect impacts during pre-construction, construction, and operation, their induced and cumulative impacts, and costs of mitigation measures and monitoring plan. The Project should also be implemented in compliance with the government environmental requirements and procedures as directed by DEC. Ensure that the civil works will only commence once the environmental assessment report of projects are approved by ADB and receive DEC permit for activities specify by the Environment (Prescribed Activities) Regulations (2002).
- (viii) Prepare evaluation reports on the result of EMP implementation particularly on environmental impact mitigations and compliance monitoring, and submit the reports to the Engineer for incorporation in quarterly report to be submitted to the Government and ADB.

- (ix) Assist PMU/PPL in strengthening the environmental management of the Project by undertaking the necessary training for the PPL/PMU's environment officer in environmental assessment procedure and techniques, mitigation planning, environmental supervision and monitoring, and reporting. Involve the environment officer through on-the-job training, affecting transfer of knowledge and skills, in environmental management and monitoring of road projects, and ensure staff capability in handling environmental management of the projects under the subsequent tranches.
- (x) Prepare environmental assessment procedures within PMU/PPL and the necessary guidelines for staff guidance during project preparation and implementation.

47. **Community Development/Gender Specialist (international) – 4 person-months.** The community development/gender specialist shall undertake the following activities:

- (i) Review and analyze relevant available data and PPTA reports, and undertake field visits to the selected project sites.
- (ii) Together with other team members, prepare and implement a consultation and participation plan, targeting women participation in all activities.
- (iii) Conduct interviews, focus group discussions or other meetings with stakeholders to update Indigenous Peoples Plan (IPP) and Gender Action Plan (GAP) and prepare detailed action plan and schedule to implement activities in these plans.
- (iv) Facilitate implementation and monitoring of IPP and GAP, including identified community development projects during project construction. In particular, update and facilitate implementation of the power and water connection schemes for beneficiary households in the project sites.
- (v) Work with local government officials, including gender officer under the provincial community development office, to finalize and implement identified community development activities and ensure accomplishment of gender and other targets for project communities.
- (vi) Develop action plan for design, procurement and delivery of water supply and power connection.
- (vii) Develop HIV/AIDS training program for villagers near the project construction sites, who may be impacted by temporary influx of construction workers. Ensure adequate HIV/AIDS clauses are inserted into construction contracts.
- (viii) Conduct gender and social awareness seminar for PPL management and PMU staff prior to and during project implementation.
- (ix) Provide progress status on implementation of GAP and IPP in the PMU quarterly reports as per PPL and ADB requirement during project implementation.

48. **Land Acquisition/Resettlement Specialist (international) – 4 person-months.** The land acquisition/resettlement specialist shall undertake the following activities:

- (i) Based on the issues identified in the social analysis during the PPTA, review and analyze relevant available data and reports, review draft resettlement plan (RP) prepared for each project sites, and undertake field visits to the project sites.
- (ii) Together with other team members, conduct interviews, focus group discussions or other meetings with stakeholders to update information on land acquisition impacts (e.g., number of affected people (AP), type and extent of losses, etc.).

- (iii) Facilitate disclosure of the RP to affected communities, including providing a summary of its contents to APs in local language on eligibility, entitlement, grievance mechanism, timeline of land acquisition and compensation payment.
- (iv) Prepare/update the RPs for projects based on detailed land investigation report and in coordination with PPL Lands Officers, Provincial Lands Officers, and community leaders.
- (v) Prepare and submit updated RPs to PPL and ADB for approval.
- (vi) Together with PPL and Land Officer counterparts, supervise and monitor implementation of the RP in each of the project sites.
- (vii) Conduct a workshop to provide guidance to PPL and PMU on project-related resettlement issues and ADB's policy and procedural requirements on resettlement safeguards during project implementation.
- (viii) Take overall responsibility in implementation and monitoring of the project's social safeguard activities in compliance with ADB's Safeguard Policy Statement (2009).
- (ix) Provide progress in the quarterly reports and submit reports as per PPL and ADB requirement during project implementation.

49. **Project Management Unit (PMU).** The PMU will include the following national specialists, (i) Hydropower Specialist, (ii) Transmission Specialist, (iii) Civil Engineer, (iv) Environment Specialist, (v) Resettlement Specialist, (vi) Community Development/Gender Specialist, (vii) Legal Specialist, and (viii) Financial Controller. The national specialists will be assigned to the PMU on a full time/part time as needs basis.

## VII. SAFEGUARDS

1. Framework documents have been prepared to describe the safeguard requirements for the Investment Program, including:

- (i) an environmental assessment review framework (EARF),
- (ii) a resettlement framework (RF), and
- (iii) an indigenous peoples planning framework (IPPF).

2. Tranche 1 has been classified as Category B for environment, involuntary resettlement, and indigenous peoples. All safeguard documents for Tranche 1 projects have been disclosed on PPL's website. The program will provide support to PPL to strengthen its capacity to effectively manage environmental and social impacts, including (i) training program for relevant PPL staff, and (ii) three full-time national staff and two part-time international staff in the PMU to implement and monitor the project's safeguard activities.

### A. Environment

3. Initial environmental examinations (IEEs) have been prepared for each of the three projects under Tranche 1. The main potential impacts identified include (i) sedimentation of waterways, (ii) impacts of construction workforce on local fauna during construction, and (iii) reduced streamflow impacting aquatic flora and fauna. Adequate mitigation measures have been designed into the projects, as outlined in the environmental management plans (EMPs). An environmental assessment review framework (EARF) presents the general anticipated environmental impacts of the investment, selection criteria, and environmental procedures for subsequent projects. The estimated cost of management of environmental impacts by the PMU, i.e., recruiting Environment Officer and an international specialist, together with their support costs for the first three years of the tranche is \$220,000. This cost will be spread over all of the three sub-projects under the first tranche.

### B. Involuntary Resettlement

4. Tranche 1 does not involve physical displacement of people and structures. It will, however, require acquisition of land for two hydropower sites. The landowners in one site will lose part of their land, crops and trees.<sup>1</sup> A resettlement plan (RP) has been prepared for Tranche 1 project involving acquisition of customary land. The RP includes adequate measures to compensate for affected land and assets and to assist affected people to restore and improve their livelihoods. A resettlement framework (RF) for the program provides guidelines to prepare RP for subsequent projects.

### C. Indigenous Peoples

5. One of the Tranche 1 hydropower sites is located on customary land. The customary landowners will lose part of their customary land and trees, but are not expected to experience other adverse impacts. The landowners are also expected to benefit from power connection and employment opportunities. An indigenous people's plan (IPP) has been prepared for Tranche 1 project involving customary land to provide benefits to and enhance participation of affected customary landowners. The leaders of the affected landowner clans have signed a

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<sup>1</sup> The other site is owned by a private company and land will be obtained through negotiation.

memorandum of agreement on the use of customary land. An indigenous peoples planning framework (IPPF) provides guidelines to prepare IPP for subsequent projects.

## VIII. GENDER AND SOCIAL DIMENSIONS

1. **Gender.** The Project's Gender Action Plan will be implemented by the PMU which will include a national gender officer (who will also work on community development) in the project team. The officer will be responsible for incorporating the gender mainstreaming measures into project planning and implementation, including awareness activities and establishment of sex-disaggregated indicators for project performance and monitoring. The PMU will report the progress of GAP activities in its quarterly progress reports on overall project activities to the ADB and the Government.

### GENDER ACTION PLAN (GAP) Tranche 1

Outputs	Performance Targets and Activities	Responsibilities
<b>Output 1. Construction of Renewable Energy Power Plants and Transmission Lines</b>		
1. Improved services to villages	<ul style="list-style-type: none"> <li>• PPL will provide power and water connections to villages adjacent to subproject hydropower sites to reduce women's household burdens</li> <li>• The location and design of water connections will incorporate an assessment of women's needs.</li> </ul>	<p>PPL</p> <p>PMU</p>
2. Engage women during subproject detailed design	<ul style="list-style-type: none"> <li>• Ensure all community consultation to include women participants (at least 30%) during subproject design and implementation.</li> </ul>	<p>PMU gender/community specialist</p>
3. Incorporate gender into construction activities	<ul style="list-style-type: none"> <li>• Contractors will be encouraged to include women in their labor-based work (at least 20% women workers).</li> <li>• Provide necessary support for female workers such as separate resting areas and sanitation facilities. The bidding/contract documents will require contractors to provide such facilities.</li> <li>• Ensure equal pay for equal work between male and female workers.</li> <li>• Provide HIV/AIDS awareness and gender training to main contractors.</li> </ul>	<p>PPL will be responsible for specifying contract terms</p> <p>PPL will be responsible for specifying contract terms</p> <p>PPL will be responsible for specifying contract terms</p> <p>PMU's gender/community specialist will provide training programs before commencement of construction</p>
<b>Output 2. Capacity Development</b>		

<p>1. Enhance PPL capacity for management of gender issues</p> <p>2. Enhance capacity for maintenance and implementation of water supply and power connection in the villages of subproject sites</p> <p>3. Increase awareness of men and women in the subproject communities on STI/HIV/AIDS.</p>	<ul style="list-style-type: none"> <li>• Conduct gender awareness training for PPL management to enhance their capacity to include gender aspects into PPL operations.</li> <li>• Include at least one female member in the PMU subproject assessment team for community consultation activities</li> <li>• Establish a village power and water committee (at least 50% women participants) at each subproject site for design, implementation, and maintenance of water and power connections.</li> <li>• Provide maintenance skills training for village power and water supply maintenance committees at Divune and Ramazon hydropower sites (at least 4 persons per village including at least 50% women participants).</li> <li>• Provide training on power safety, household utility budget, and business skills for each village at the subproject sites (including 50% women participation).</li> <li>• Ensure all contractors provide awareness training on HIV/AIDS and gender issues for construction workers and nearby community members.</li> </ul>	<p>PMU gender/community specialist</p> <p>PMU</p> <p>PMU</p> <p>PMU</p> <p>PMU</p> <p>PMU</p>
<b>Output 3. Project Management Unit</b>		
<p>Project management services for efficient and effective project implementation</p>	<ul style="list-style-type: none"> <li>• Ensure employment of community development/gender specialist(s) in the PMU who will manage implementation of gender action plans, awareness activities, and organize village power and water committees (at least 50% members are women).</li> <li>• Provide gender awareness training to all PMU/project staff.</li> <li>• Ensure participation of women in community consultations and meetings (at least 30% of participants are women).</li> <li>• Collect sex-disaggregated data in the baseline, progress, monitoring, and evaluation reports.</li> <li>• Develop a project performance system that includes indicators measuring implementation and progress of the gender action plan.</li> </ul>	<p>PMU</p> <p>Gender/community specialist, PMU</p> <p>PMU</p> <p>PMU</p> <p>PMU</p>

<b>Implementation Arrangements</b>		
<p>The Project's GAP will be implemented by the PMU which will include a national gender officer (who will also work on community development) in the project team. The officer will be responsible for incorporating the gender mainstreaming measures into project planning and implementation, including awareness activities and establishment of sex-disaggregated indicators for project performance and monitoring. To provide awareness training and other skills training required for the project, this gender/community specialist will hire specialists or NGOs for the provision of training, if necessary. The PMU will report the progress of GAP activities in its quarterly progress reports on overall project activities to the ADB and the Government.</p>		

2. **Social.** The project documents include pro-poor or poverty reduction measures to address poverty issues. The project's measures on poverty reduction measures include: (i) provision of power supply to landowners at project sites; (ii) provision of village water supply to project communities; (iii) provision of skills training; (iv) and, formation of power and water supply committees in the project sites. Provision of power and water supply will reduce connected households' reliance on inefficient and costly power source (kerosene) and minimize reliance on creeks and streams for drinking water. In addition, the contractors will be encouraged to employ local men and women in the project activities. It is expected that mostly poor households will be engaged in un-skilled labor during construction. The project employment is expected to generate substantial income among households in the hydropower sites. The poverty reduction measures will be implemented by the PMU, which will include a social specialist. The draft terms of reference of the social specialist are included in Section D.

## IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

### A. Project Design and Monitoring Framework

#### Investment Program

Design Summary	Performance Targets and Indicators	Data Sources and Reporting Mechanisms	Assumptions and Risks
<p><b>Impact</b> The economic condition of the population in the targeted provincial centers has improved.</p>	<ul style="list-style-type: none"> <li>• Increase in PPL customers (business and industrial) by 20% in target provinces by end 2016</li> <li>• Reduced self power generation by customers (business and industrial) by 20% in target provincial centers by end 2016 (measured in MWh)</li> </ul>	<ul style="list-style-type: none"> <li>• PPL management system</li> <li>• Chamber of Commerce member reports</li> </ul>	<p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>• Improved power supply will encourage private sector and improve economic conditions</li> </ul> <p><b>Risks</b></p> <ul style="list-style-type: none"> <li>• Private sector will distrust grid power supply and continue to self-generate</li> <li>• Other external factors will act to prevent private sector expanding to benefit from improved power supply</li> </ul>
<p><b>Outcome</b> PPL provides improved supply of reliable, clean power to 6 provincial urban centers</p>	<p><i>All indicators are relative to baseline of January 2010</i></p> <ul style="list-style-type: none"> <li>• Installation of 15 MW additional hydropower capacity in target provincial areas by end 2016</li> <li>• Avoid additional 15,000 tonnes CO<sub>2</sub> equivalent per annum by end 2016</li> <li>• Reduced power outages by 20% in target provincial urban areas by end 2016</li> <li>• Reduced fuel costs for PPL power generation by 60% in target provincial areas by end 2016</li> </ul>	<ul style="list-style-type: none"> <li>• As-built drawings</li> <li>• PPL fuel consumption records</li> <li>• PPL monitoring database</li> <li>• PPL financial reports</li> </ul>	<p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>• Provincial Governments continue to support projects</li> <li>• Sufficient resources are allocated to operation of the hydropower sites</li> </ul> <p><b>Risks</b></p> <ul style="list-style-type: none"> <li>• Landowner disputes delay implementation</li> <li>• PPL reallocate human resources to alternative projects</li> </ul>

Design Summary	Performance Targets and Indicators	Data Sources and Reporting Mechanisms	Assumptions and Risks
<p><b>Outputs</b></p> <p>1. Six renewable energy power plants put into operation by PPL</p> <p>2. Transmission lines constructed and operated by PPL</p> <p>3. Capacity building undertaken for implementing agency and project beneficiaries</p> <p>4. The Project Management Unit (PMU) renders efficient project management services</p>	<p><i>All indicators are relative to baseline of January 2010</i></p> <p>Generation of 60 GWh per annum of renewable energy by end 2016</p> <p>Provide power and water connection to villages adjacent to power generation project sites</p> <p>Transmission of 60 GWh power per annum to provincial urban areas by end 2016</p> <p>Conduct capacity building training for PPL in procurement and financial management by June 2011</p> <p>Conduct training for villages adjacent to project sites, including (i) maintenance skills for power and water supply (at least 4 volunteers per village including at least 50% women), (ii) power safety, household utility budget and business skills training for each village at the project sites (including 50% women participation).</p> <p>PMU meets annual target contract awards and disbursements</p> <p>Conduct training activities for PMU staff and PPL management, including gender awareness training</p>	<ul style="list-style-type: none"> <li>• PPL operational records</li> <li>• PPL operational records</li> <li>• As-built drawings.</li> <li>• PPL GIS database</li> <li>• PPL customer database</li> <li>• PPL customer database</li> <li>• Facility Administration Manual (FAM)</li> </ul>	<p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>• PMU can locate sufficient qualified staff to implement projects</li> <li>• The government properly implements safeguard frameworks and plans.</li> </ul> <p><b>Risks</b></p> <ul style="list-style-type: none"> <li>• Construction companies may be reluctant to bid for projects in the provincial areas, given political risks, mobilization issues and high demand from other projects</li> <li>• Landowners block construction</li> <li>• Access to sites are cut by natural disaster such as floods or landslides</li> </ul>

<b>Activities with Milestones</b>	<b>Inputs</b>
<i>All target performance dates are from loan effectiveness of each tranche.</i>	
1. Construction of renewable energy power plants	ADB: \$120 million
1.1 Finalize land acquisition of each project by end month 10, including community consultation for project design comprising a target of 30% female participation. The community consultation team will include at least one female member.	Government: \$30 million
1.2 Finalize project detailed design by end month 10.	
1.3 Award civil works contracts and equipment packages by end month 13. Civil works contracts will include requirements for (i) HIV/AIDS training for all contractors, and (ii) equal pay for equal work between male and female workers. Contractors will be encouraged to have increased women participation in labor force.	
1.4 Construct power and water connections to villages adjacent to power generation project sites by end month 18.	
1.5 Establish a village power and water committee at each village connected to power and water for project design consultation, training and ongoing maintenance (at least 50% women participation) by end month 20.	
1.6 Commission renewable energy power plant by end month 30.	
2. Construction of transmission systems	
2.1 Finalize project detailed design by end month 10.	
2.2 Award civil works contracts and equipment packages by end month 13.	
2.3 Commission transmission lines by end month 30.	
3. Undertake Capacity Building Activities	
3.1 Conduct procurement training workshop for PMU and PPL by end month 5.	
3.2 Conduct financial management training for PMU and PPL by end month 5.	
3.3 Conduct training for villages adjacent to project generation sites by end month 22, including (i) maintenance skills training for power and water supply at project sites, and (ii) power safety, household utility budget training and business skills training. All training will include at least 50% women participants.	
4. Establish Project Management Unit	
4.1 Establish operational Project Management Unit by end month 3.	
4.2 Finalize recruitment of PMU staff by end month 5, including community development/gender specialist.	
4.3 Establish sex disaggregated baseline data and monitoring plan for implementation of the gender action plan by end month 10.	

Source: ADB estimates.

## B. Monitoring

11. **Project performance monitoring.** ADB, the EA and the IA will conduct semiannual reviews throughout the implementation of the Investment Program as well as a mid-term loan review for each tranche. The review will monitor (i) project output quality, (ii) implementation arrangements, (iii) implementation progress, and (iv) disbursements. The PMU will prepare quarterly monitoring reports, including disaggregated baseline data for output and outcome

indicators. The quarterly reports will provide information necessary to update ADB's project performance reporting system. The semiannual loan reviews and the quarterly monitoring reports will include environmental and social safeguard monitoring reports.

12. **Compliance monitoring:** In addition to the standard assurances, compliance with the specific assurances will be monitored. They will be based on the Framework Financing Agreement and the periodic Financing Request for each Tranche. All consultants will be recruited according to ADB's *Guidelines on the Use of Consultants* (2010, as amended from time to time), The procurement of goods, related services and works financed by the Investment Program will follow procedures outlined in the ADB's *Procurement Guidelines* (2010, as amended from time to time). The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2007, as amended from time to time). Implementation of covenants will be (i) summarized in the PMU quarterly progress reports, (ii) discussed during PSC meetings, and (iii) reviewed during biannually loan review missions.

13. PNG Power Ltd will cause the detailed consolidated project accounts to be audited in accordance with International Standards on Auditing by an auditor acceptable to ADB. The audited accounts will be submitted in the English language to ADB within 6 months of the end of the fiscal year by the executing agency. The Government and PNG Power Ltd. have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited accounts. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures. For revenue generating projects only, ADB requires audited financial statements (AFS) for each executing and/or implementation agency associated with the project.

### C. Reporting

14. PPL will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system, including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions; (c) updated procurement plan, and (d) updated implementation plan for next 12 months; and (ii) a project completion report within 6 months of physical completion of the Project. To ensure projects continue to be both viable and sustainable, project accounts and the executing agency AFSs, together with the associated auditor's report, should be adequately reviewed.

### D. Stakeholder Communication Strategy

15. The PMU will prepare a stakeholder communication strategy and submit to ADB for review by the end of Month 3 after loan effectiveness. All communication will be in language suitable for the specific audience and will follow the ADB Public Communication Policy.<sup>1</sup> The stakeholder strategy will incorporate the following components:

- (i) Compilation of stakeholder communication activities already undertaken.
- (ii) Role of Project Steering Committee in coordinating and communicating with relevant Government stakeholders.
- (iii) Public communication plan for disseminating information regarding project development to the public who may be impacted by the proposed projects.
- (iv) Project landowner consultation activities.

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<sup>1</sup> Available at <http://www.adb.org/PCP-Review/keyfeatures.asp>.

## **X. ANTICORRUPTION POLICY**

16. Anticorruption. The Government and PPL will (a) comply with ADB's Anticorruption Policy (1998, as amended to date), and cooperate fully with any investigation by ADB and extend all necessary assistance, including providing access to all relevant books and records for the satisfactory completion of such investigation; (b) ensure that relevant PPL staff are trained in PNG's anticorruption regulations and ADB's Anticorruption Policy; (c) ensure that the audited annual project accounts under the MFF, project progress, and procurement activities are disclosed on the PPL website; (d) ensure that the anticorruption provisions acceptable to ADB are included in all bidding documents and contracts, including provisions specifying the right of ADB to audit and examine the records and accounts of the executing and implementing agencies and all contractors, suppliers, consultants, and other service providers as they relate to the projects under the MFF; and (e) allow and facilitate ADB's representatives to conduct spot and random checks on (i) flow of funds, and their use for the projects in accordance with the legal agreements; (ii) work-in-progress; and (iii) project implementation under the MFF.

## **XI. ACCOUNTABILITY MECHANISM**

17. People who are, or may in the future be, adversely affected by the project may address complaints to ADB, or request the review of ADB's compliance under the Accountability Mechanism.<sup>1</sup>

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<sup>1</sup> For further information see: <http://compliance.adb.org/>.

**XII. RECORD OF FAM CHANGES**

<b>Date Changed</b>	<b>Section Changed</b>	<b>Changes made</b>
1.		
2.		
3.		
4.		
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6.		