

Document of
The World Bank

FOR OFFICIAL USE ONLY

Report No: 92977

PROJECT PAPER

FOR

SMALL RETF GRANT

(US\$ 4.85 MILLION EQUIVALENT)

TO THE

REPUBLIC OF VANUATU

FOR A

GPOBA IMPROVED ELECTRICITY ACCESS PROJECT

MARCH 12, 2014

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.

CURRENCY EQUIVALENTS

(Exchange Rate Effective February 2014)

Currency Unit = Vatu (VUV)

VUV 97.70 = US\$ 1

US\$1 = SDR 1

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

A	Amps
AusAID	Australian Aid
COM	Council of Ministers
CPS	Country Partnership Strategy
DA	Designated Account
DLIs	Disbursement Linked Indicators
DoE	Department of Energy
ERR	Economic Rate of Return
ESMF	Environmental and Social Management Framework
FM	Financial Management
GDP	Gross Domestic Product
GoV	Government of Vanuatu
GPOBA	Global Partnership on Output Based Aid
HIES	Household Income and Expenditure Survey
IRR	Internal Rate of Return
IVA	Independent Verification Agent
MFEM	Ministry of Finance and Economic Management
MW	Megawatts
NERM	National Vanuatu Energy Roadmap
NPV	Net Present Value
OBA	Output Based Aid
O&M	Operations and Maintenance
OVR	Output Verification Report
PAA	Priority and Action Agenda
PMU	Project Management Unit
PoE	Panel of Experts
PPP	Purchasing Power Parity
RPF	Resettlement Policy Framework
UNELCO	Union Electrique du Vanuatu Ltd
URA	Utilities Regulatory Authority of Vanuatu
VERD	Vanuatu Electricity for Rural Development
VMGD	Vanuatu Meteorology and Geo-Hazards Department
VUI	Vanuatu Utilities and Infrastructure Limited
VUV	Vatu
WTP	Willingness to Pay

Regional Vice President:	Axel van Trotsenburg
Country Director:	Franz R. Drees-Gross
Sector Director:	John A. Roome
Sector Manager:	Michel Kerf
Task Team Leader:	Kamleshwar Khelawan

VANUATU
GPOBA Improved Electricity Access Project

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	ii
I. STRATEGIC CONTEXT	12
A. Country Context.....	12
B. Sectoral and Institutional Context.....	12
C. Higher Level Objectives to which the Project Contributes	15
D. Rationale for GPOBA involvement.....	15
II. PROJECT DEVELOPMENT OBJECTIVES	16
A. PDO.....	16
B. Project Beneficiaries	16
C. PDO Level Results Indicators.....	16
III. PROJECT DESCRIPTION	17
A. Project Components	17
B. Subsidy Design and Eligibility Criteria	19
C. Project Financing	26
D. Economic Analysis	26
E. Financial Analysis.....	28
F. Technical Analysis.....	28
G. Lessons Learned and Reflected in the Project Design.....	29
IV. IMPLEMENTATION	29
A. Institutional and Implementation Arrangements	29
B. Results Monitoring and Evaluation	32
C. Sustainability.....	32
V. KEY RISKS AND MITIGATION MEASURES	33
A. Risk Ratings Summary Table	33
B. Overall Risk Rating Explanation	33

VI. APPRAISAL SUMMARY	34
A. Financial Management.....	34
B. Procurement	34
C. Social (including Safeguards).....	34
D. Environmental (including Safeguards)	35
E. Other Safeguards Policies Triggered	35
F. Gender.....	35
Annex 1: Results Framework and Monitoring	37
Annex 2: Implementation Arrangements	40
Annex 3: Economic and Financial Analysis	44
Annex 4: Environmental and Social (including Safeguards).....	48
Annex 5: Copy of Government Letter of Support	57
Annex 6: Implementation Schedule	59

PROJECT DATA SHEET

Basic Information	
Date: October 15, 2013	Sectors: Energy
Country Director: Franz R. Drees-Gross	Themes: Urban services and housing for the poor, Rural services and infrastructure, and Social inclusion
Sector Manager/Director: Michel Kerf/John A. Roome	EA Category: B
Project ID: P133701	
Instrument: GPOBA Grant - SIL	
Team Leader(s): Kamleshwar Khelawan Renee Walmsley (Co-TTL)	
Recipient: Republic of Vanuatu	
Executing Agency: Department of Energy, Ministry of Climate Change and Natural Disaster	
Contact: Jesse Benjamin	Title: Director
Telephone: +678 25 201	Email: jbenjamin@vanuatu.com.vu
No.:	
Project Implementation Period:	Start Date: 1 July 2014 End Date: 30 June, 2018
Expected Effectiveness Date:	1 July, 2014
Expected Closing Date:	30 June, 2018
Project Financing Data(US\$M)	
<input type="checkbox"/> Loan	<input checked="" type="checkbox"/> Grant
<input type="checkbox"/> Credit	<input type="checkbox"/> Guarantee
<input type="checkbox"/> Other	
For Loans/Credits/Others	
Total Project Cost : \$4.85m	Total Bank Financing : \$4.85m
Total Co-financing \$0.00m	Financing Gap : \$ 0.00m
Financing Source	Amount(US\$M)
BORROWER/RECIPIENT	0.0
IBRD	0.0
IDA: New	0.0
IDA: Recommitted	0.0
Others: Global Partnership for Output Based Aid	4.85
Others:	0.0
Financing Gap	0.0
Total	4.85

Expected Disbursements (in USD Million)								
Fiscal Year	2014	2015	2016	2017	2018			
Annual	700,000	900,000	1,200,000	1,200,000	850,000			
Cumulative	700,000	1,600,000	2,800,000	4,000,000	4,850,000			
Project Development Objective(s)								
The Project Development Objective for this operation is to increase sustainable access ¹ to formal grid-based electricity services within Vanuatu's electricity concession service areas for low income customers through targeted subsidies.								
Components								
Component Name						Cost (USD Millions)		
OBA Subsidies for new electricity connections for low income households						2.20		
OBA Subsidies for household wiring for low income households accessing electricity services under this project						2.10		
Implementation support for project management, communications and outreach, and training						0.35		
Independent Verification						0.20		
Compliance								
Policy								
Does the project depart from the CAS in content or in other significant respects?						Yes []	No [x]	
Does the project require any exceptions from Bank policies?						Yes [x]	No []	
Have these been approved by Bank management?						Yes [x]	No []	
Is approval for any policy exception sought from the Board?						Yes []	No [x]	
Does the project meet the Regional criteria for readiness for implementation?						Yes [x]	No []	
Safeguard Policies Triggered by the Project						Yes	No	
Environmental Assessment OP/BP 4.01						x		
Natural Habitats OP/BP 4.04							x	
Forests OP/BP 4.36							x	
Pest Management OP 4.09							x	
Physical Cultural Resources OP/BP 4.11							x	
Indigenous Peoples OP/BP 4.10						x		
Involuntary Resettlement OP/BP 4.12						x		
Safety of Dams OP/BP 4.37							x	
Projects on International Waters OP/BP 7.50							x	
Projects in Disputed Areas OP/BP 7.60							x	

¹ Access in this context means a direct consumer connection to the electricity grid, as opposed to a shared connection or no connection to the electricity grid due to affordability.

Legal Covenants				
Name	Recurrent	Due Date	Frequency	
Article IV, Clause 4.01		Effectiveness		
Description of Covenant The Subsidy Implementation Agreement has been executed on behalf of the Recipient and the Service Providers, in form and substance satisfactory to the World Bank.				
Name	Recurrent	Due Date	Frequency	
Article IV, Clause 4.02		Effectiveness		
Description of Covenant The recipient shall furnish to the World Bank an opinion or opinion satisfactory to the World Bank of counsel acceptable to the World Bank showing that the Subsidy Implementation Agreements has been duly authorized or ratified by the Recipient and the Service Providers and is legally binding upon each such party in accordance with its terms.				
Name	Recurrent	Due Date	Frequency	
Schedule 2, Section I, Part C, Clause 1		Effectiveness		
Description of Covenant The Project Operations Manual, Manual, setting forth detailed arrangements for implementation of the Project, including arrangements for financial management, procurement, disbursement and flow of funds, indicators for monitoring and evaluation of the Project and arrangements for implementation of OBA subsidies, has been executed on behalf of the Recipient and the Service Providers, in form and substance satisfactory to the World Bank.				
Name	Recurrent	Due Date	Frequency	
Schedule 2, Section I, Part D		Two months after the Effectiveness Date		
Description of Covenant The Recipient shall, by not later than two months after Effective Date, appoint and thereafter maintain at all times during implementation of the Project, an Independent Verification Agent to be responsible for verification of eligible outputs submitted by each Service Providers under the Project and preparation of an Output Verification Report as a basis of OBA Subsidy payments, in accordance with the provisions of the Project Operations Manual and the Subsidy Implementation Agreement.				
Name	Recurrent	Due Date	Frequency	
Schedule 2, Section IV, Part B		Prior to Disbursement under Category (1)		
Description of Covenant No withdrawal shall be made for payment under Category (1), excluding payments for consultants' Services for the Independent Verification Agent under Part 4 of the Project, unless and until, the Recipient has submitted the audit reports for the World Bank financed Increasing Resilient to Climate Change and Natural Hazards in Vanuatu Project (TF95486) AND Vanuatu Forest Partnership Facility Readiness Plan Preparation (TF96103) to the World Bank, in form and substance satisfactory to the World Bank.				
Team Composition				
Bank Staff				
Name	Title	Specialization	Unit	UPI
Jinan Shi	Senior Procurement Specialist	Procurement	EASR1	95542
Isabella Micali-Drossos	Senior Counsel	Legal	LEGAM	191270
Marjorie Mpundu	Senior Counsel	Legal	LEGES	289323
David B. Whitehead	Financial Management Specialist	Financial Management	EASFM	320696
Beverly Ann Mclean	Consultant	Social Specialist	EASNS	322830
Rajesh K. Advani	Infrastructure Specialist	GPOBA	GPOBA	329615
Kamleshwar Khelawan	Senior Energy Specialist	TTL	EASNS	392699
Renee Walmsley	E T Consultant	Co-TTL	EASNS	397654

Kim Dagmar Baverstock	Program Assistant	Program Support	EACNF	404841	
Penelope Ferguson	Consultant	Environment Specialist	EASIS	405193	
MacKenzie Fallow	Consultant	Legal	EACNF	443880	
Non Bank Staff					
Name	Title	Office Phone	City		
Locations					
Country	First Administrative Division	Location	Planned	Actual	Comments
Vanuatu	Port Vila, Efaté; Tanna; Malekula; Luganville	Utility Concession Areas	x		The exact site of households participating under the project will not become known until project implementation.



PROJECT COMMITMENT PAPER

Project Name	GPOBA Improved Electricity Access Project (P133701)
Sector	Energy
Location	Republic of Vanuatu
Task Team Leader	Kamleshwar Khelawan (EASNS)
GPOBA Transaction Adviser	Rajesh Advani
Funding Request	Window 3: US\$4,850,000
Date	October 15, 2013

EXECUTIVE SUMMARY

1. **The Republic of Vanuatu is an archipelago of 82 islands situated in the Pacific with a population of approximately 294,000.** The economy has experienced strong and sustained growth mainly driven by tourism, construction, and aid inflows. The per capita Gross Domestic Product (GDP) is estimated at USD3,039 (USD 4,939 at Purchasing Power Parity (PPP)). Yet, the cost of basic infrastructure services is high and affects the business environment in the country. Access to energy is low, with an estimated 27 percent of the population having formal access to electricity from the national grid. Grid electricity supply is restricted to the main urban centers of Port Vila and Luganville, where access is around 75 percent, as well as small parts the islands of Malekula and Tanna.

2. **The private sector is responsible for generating and supplying electricity under concession agreements with the Government of Vanuatu (GoV).** There are currently two energy services providers: Union Electrique du Vanuatu Ltd. (UNELCO), a subsidiary of GDF Suez, which supplies the Port Vila, Malekula and Tanna concession areas; and, Vanuatu Utilities and Infrastructure Ltd (VUI), a subsidiary of Pernix Group, which supplies Luganville concession area. Consumption tariffs are regulated by the Utilities Regulatory Authority (URA) and set across five consumer categories, with low consumption domestic consumers, considered to be ‘low income consumers’, benefiting from lower tariffs at 34 percent of the base tariff, no fixed charged and a flat rate security deposit. The cost of service connections is not regulated, and utilities charge consumers for new connections based on the actual costs of installing a connection, which averages US\$700 (VUV 66,393). The high connection costs are a significant barrier for low income consumers to connect to the electricity grid, thus denying them the potential social and economic benefits of electricity.

3. **The objective of this proposed Output Based Aid (OBA) project is to increase sustainable access to formal grid-based electricity services within Vanuatu’s electricity concession service areas for low income customers through targeted subsidies.** The project will subsidize the cost of connections for “small domestic consumers” limited to a 5 Ampere household connection, and provide household wiring for low-income households accessing electricity services under the project. A summary of the project components follows:

Component 1: US\$2.2 million to cover up to 80 percent of the cost of connecting 4,375 households to the national grid through post-paid and pre-paid (where available) metered connections.

Component 2: US\$2.1 million for household wiring for the targeted consumers, including a Ready Board with two light sockets with switches, two power outlets and two energy saving light bulbs. No additional cash user contribution will be paid for standard household wiring; however, consumers will organize the digging of cable trenches and where required a hole for a pole to facilitate the service connection which will be at the consumers’ cost or completed as works in kind.

Component 3: US\$0.35 million for implementation support for project management, communications and outreach, and training.

Component 4: US\$0.2 million for independent verification of outputs.

4. **The unit connection subsidy cost** is estimated at US\$917 (VUV 86,975), including the cost of a metered service connection and household wiring with Ready Board. The user contribution is estimated at US\$117 (VUV 11,097) and is based on an assessment of Willingness to Pay (WTP) in the feasibility study conducted by the Consulting Firm, Castalia. The average monthly tariff for consumers connected under the project is expected to be approximately US\$6 (VUV 560) based on an expected monthly consumption of 30 kWh at current tariffs. The amount is affordable to the target consumers who will have continuous access to electricity once connected. The service providers are well run subsidiaries of multinational companies and continuity of supply is not envisaged as a risk; hence, the project is expected to be sustainable over the long term. The project is expected to have a net economic benefit, with an Economic Rate of Return (ERR) of 15 percent and a Net Present Value (NPV) of US\$1.7 million (VUV 161 million).

5. **The project will be implemented by the Government's Department of Energy (DoE), which will oversee the activities of the service providers and authorize subsidy payments under the project.** The service providers will make the service connections and contract private companies to carry out the household wiring. An Independent Verification Agent (IVA) will be contracted by the DoE to verify the outputs in accordance with OBA principles and the project design as set out in this paper and further detailed in the Project Operations Manual (POM). Since the DoE is independent of the private sector service providers there is no conflict of interest. The mitigation actions proposed under this project in relation to capacity risk will ensure that the DoE is able to discharge this responsibility adequately.

I. STRATEGIC CONTEXT

A. Country Context

1. **The Republic of Vanuatu** is an archipelago of 82 volcanic islands covering a total area of about 12,200 square km, of which land surface area is very limited (approximately 4,700 square kilometers). The country has been a democratic republic since gaining independence from the United Kingdom and France in 1980. Vanuatu's population is approximately 249,000 people; almost evenly distributed among the six administrative provinces. The national household count stands at an estimated 50,740, of which about 12,470 households (25 percent) are located in urban areas and the remainder 38,270 (75 percent) are dispersed in rural areas². The average household monthly income in Vanuatu is VUV 83,800 (US\$ 892.00), with an average household monthly income of VUV 97,500 (US\$1,037.00) reported in urban areas³.

2. **Vanuatu has become one of the fastest growing economies of the Pacific region.** The economy has experienced strong and sustained growth mainly driven by tourism, construction, and aid inflows. The per capita Gross Domestic Product (GDP) is estimated at US\$3,124 (US\$4,916 at Purchasing Power Parity (PPP))⁴. Yet, the cost of basic infrastructure services is high and affects the business environment in the country. For instance, although Vanuatu ranks 80 in the "ease of doing business" indicator reported by the World Bank⁵, which analyzes a total of 183 economies, it ranks only 124 in the "getting electricity" indicator⁶ mainly due to the high cost associated with obtaining a new connection to the electricity grids.

B. Sectoral and Institutional Context

3. **Electricity access in Vanuatu.** An estimated 27 percent of the Vanuatu population has access to electricity. Access rates in the main urban centers - Port Vila and Luganville - are about 75 percent, dropping off considerably in rural areas with much smaller loads per customer and a far lower population density. Around 20 percent of the rural population has access to electricity. Peri-urban and rural connections are less common due to the lower population density and large distances between customers, lower electricity loads and high connection costs. Thus, even within the concession areas, around one in five households does not have access to electricity.

4. **Electricity services in Vanuatu are delivered through three types of models.** The three models are: (a) independent "main grid systems" in the two main urban centres; (b) isolated "mini-grids" in lesser population concentrations but where a grid supply system is still a technically and economically competitive option, and (c) decentralized energy service

² Vanuatu Household Income and Expenditure Survey 2010. Vanuatu National Statistics Office, Government of Vanuatu. December 2012.

³ Vanuatu Household Income and Expenditure Survey 2010. Vanuatu National Statistics Office, Government of Vanuatu. December 2012.

⁴ IMF World Economic Outlook Database, April 2013 <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/index.aspx>

⁵ Ease of doing business, The World Bank group as ranked at June 2012. <http://www.doingbusiness.org/rankings>

⁶ 'Getting Electricity', The World Bank group as ranked at June 2012. <http://www.doingbusiness.org/data/exploretopics/getting-electricity>

systems. Grid electricity supply in Vanuatu is largely restricted to Port Vila and Luganville, as well as small parts of the islands of Malekula and Tanna.

5. **Role of the private sector in the delivery of electricity services.** The private sector is responsible for generating and supplying electricity under concession agreements with the Government of Vanuatu (GoV). There are currently four concession areas in Vanuatu – Port Vila, Tanna and Malekula and Luganville– operated by two existing private sector utilities. Union Electrique du Vanuatu Ltd. (UNELCO), a subsidiary of GDF Suez, has been operating in Vanuatu since 1939 and supplies the Port Vila, Malekula and Tanna concession areas. In Port Vila, the concession is in force until the year 2031 and provides UNELCO exclusive rights to generate and supply electricity within a 15 km radius of the city boundaries. Vanuatu Utilities and Infrastructure Ltd (VUI), a subsidiary of Pernix Group, has supplied the Luganville concession area since January 1, 2011, after signing an Operations and Maintenance (O&M) agreement with the Government of Vanuatu for the Luganville electricity concession.

6. **Installed generation capacity and supply to the national grid.** The total installed capacity in Vanuatu is 30.7 Megawatts (MW). Of this capacity 26.0MW is in Port Vila (peak demand 11.3MW), 4.1MW in Luganville (peak demand 1.5MW), 0.34MW in Malekula (peak demand 0.12MW) and 0.27MW in Tanna (peak demand 0.12MW). Around 20 percent of electricity is produced using renewable energy (10 percent from the Sarakata hydro plant, which serves Luganville, and the rest from wind and coconut oil on UNELCO’s grid system). Recent indications are that UNELCO is scaling up the use of biodiesel in its power plants including investment in copra plantations to increase security of supply of biodiesel. The remaining 80 percent of electricity is generated from diesel powered plants using imported fuel.

7. **There are two key legislative acts pertaining to electricity supply in Vanuatu.** The two acts are the *Electricity Supply Act* (Chapter 65, 1972) and the *Utilities Regulatory Authority Act* (Act No. 11 of 2007). The *Electricity Supply Act* provides the GoV authority to enter into concession contracts with private sector partners for the purpose of granting electricity supply and distribution exclusivity to the contracted Concessionaire. The *Utilities Regulatory Authority Act* establishes the Utilities Regulatory Authority of Vanuatu. The URA regulates prices, service standards and market behavior in the electricity sector and it is also tasked with protecting the long-term consumer interest. URA oversees and applies the provisions established in both the Electricity Supply Act and the concession agreements. The GoV is responsible for energy policy for establishing the enabling framework (through legislation, regulations and concession contracts) for the participants to operate in the sector to service the people of Vanuatu. Currently there are no wiring standards or licensing of electricians in Vanuatu, however the concession holders work to either the Australian and New Zealand or the French standards.

8. **The URA regulates electricity tariffs.** The current pricing arrangements involve the determination of a base tariff level which varies with fuel, labor and material prices. Fuel prices are passed through to consumer tariffs. Electricity retail tariff levels are high across the concession areas, in part due to high costs of imported diesel fuel. Electricity base tariff is

around VUV 54.20 (US\$ 0.59 per kWh).⁷ Retail tariffs are set across five consumer categories. Low consumption domestic consumers, considered to be ‘low income consumers’ benefit from a lower tariff (34 percent of the base tariff), no fixed charge and a flat rate security deposit.⁸ The cost of service connections is not regulated, and utilities charge consumers for new connections based on the actual costs of installing a connection.

9. The installation and use of prepayment meter system in the Port Vila Concession area was approved by the URA. In 2009, UNELCO requested the URA to consider and approve the implementation of a prepayment meter trial within the Port Vila concession area. UNELCO commenced implementation of a trial project at Mele Maat, Port Vila, in January 2010, and in September 2010, UNELCO provided the URA with a report setting out its assessment and findings from the trial. Following various public consultations and draft decisions, the URA approved the use of pre-payment meters for the Port Vila concession on August 16, 2013.⁹

10. The GoV has made the development of the electricity sector a priority. The Vanuatu National Energy Roadmap (NERM), which was developed with support from the World Bank, lays the foundation for future energy sector policy and investment in Vanuatu.¹⁰ The NERM was approved by the Council of Ministers (COM) on June 27, 2013. It seeks to address key constraints that have prevented the energy sector from delivering affordable modern energy access in an efficient and sustainable manner to the vast majority of the population. The NERM sets out three strategic directions (three pillars) for the sector: i) *Government leadership and commitment* – establishing a comprehensive and consistent set of enabling policies, a strengthened legislative and regulatory framework, and targeted financing mechanisms; ii) *Empowering and holding accountable key energy institutions* – ensuring that the DoE and the URA are effective energy sector institutions, and iii) *Implementing a sector-wide approach under the principle of "Many Partners, One Team, One Plan"* – implementing a programmatic framework for coordinated implementation and sector development, which involves identifying and financing alternative sources of energy, including renewables, and working with the private sector to improve energy distribution and access.

11. The NERM identifies five priority areas and targets for Vanuatu’s energy sector. The NERM focuses on five energy sector priorities: (i) *Access* – access to secure, reliable and affordable electricity for all citizens by 2030; (ii) *Petroleum Supply* – reliable, secure and affordable petroleum supply throughout Vanuatu; (iii) *Affordability* – lower cost energy services in Vanuatu; (iv) *Energy Security* – an energy secure Vanuatu at all times, and (v) *Climate Change* – mitigating climate change through renewable energy and energy efficiency. The project will contribute to increased access and affordability of electricity in Vanuatu.

⁷Base tariff of 53.99Vatu/kWh (exchange rate \$1 USD = 96 Vatu) at August 2013. Utilities Regulatory Authority. August 2013. http://www.ura.gov.vu/index.php?option=com_content&view=article&id=68&Itemid=98&lang=en

⁸ Small Domestic Consumer tariff is divided into three blocks: 1st block up to 60 kWh per month at 18,43 VUV/kWh; 2nd block from 61 to 120 kWh per month at 65,58 VUV/kWh, and 3rd block over 120 kWh per month at 162,60 VUV/kWh.

⁹ The use of pre-paid was approved for Port Vila by the URA. Final Report: Pre-payment meters – Final Decision. Utilities Regulatory Authority. August 2013

¹⁰ Vanuatu National Energy Road Map 2013-2020, published March 2013.

C. Higher Level Objectives to which the Project Contributes

14. **Country Partnership Strategy and alignment with Government plans for the sector.** There is no Country Partnership Strategy (CPS) for Vanuatu, at present. This project supports the Government's Priority and Action Agenda (PAA) 2006-2015¹¹, which aims to (i) reduce the cost of services, (ii) extend the coverage of rural electrification; and (iii) promote the use of renewable energy. The project is consistent with the Government's current vision for a more diversified economy and more equitable social and economic development in Vanuatu¹². The project supports the Government's energy sector development program under the NERM, and directly supports the increased access targets; specifically to increase household electricity access within concession areas from 27 percent to 75 percent by 2015, 90 percent by 2020 and 100 percent by 2030.

D. Rationale for GPOBA involvement

12. **High connection costs to grid based electricity are a barrier for low income households.** The utilities, UNELCO and VUI are required to connect any customer who requests a connection, provided they pay the costs associated with the connection. The average cost of connection is around VUV 65,800 (US\$ 700), excluding household wiring¹³. A feasibility study for the project carried out by Castalia noted that low income households typically earn between VUV 18,400 and VUV 45,400 (US\$204 and US\$ 504) per month. The high connection costs are a significant barrier for low income consumers to connect to the electricity grid, thus denying them the potential social and economic benefits of electricity – access to lighting, refrigeration, water pumps, and access to communications and potential for income generating activities. Access to finance is difficult for low income households who do not have regular income, may not own land, and cannot demonstrate a credit history. Additionally, the project will also target approximately 2,000 households in the target area currently share connections through informal arrangements with their neighbors. Shared connection compromises safety and increases the unit consumption cost of electricity, as consumers fall into higher tariff brackets due to group consumption.

13. **The OBA project will contribute to access to and affordability of electricity for low income households.** The project replicates OBA approaches used successfully in the energy sector in other countries and introduces an output-based financing approach to improve access to energy in the Pacific Islands, an important target region for the World Bank and AusAID. The project will assist low income households to help meet the connection cost to connect to the grid by providing a subsidy for service connections and basic household wiring, where household wiring is not to standard or is not in place. The project adheres to core OBA

¹¹ Priorities and Action Agenda 2006-2015, "An Educated, Healthy and Wealthy Vanuatu", Department of Economic and Sector Planning, Ministry of Finance and Economic Management, June 2006

¹² Priorities and Action Agenda 2006-2015, "An Educated, Healthy and Wealthy Vanuatu", Department of Economic and Sector Planning, Ministry of Finance and Economic Management, June 2006

¹³ Global Partnership on Output-Based Aid: Improved Electricity Access in Vanuatu. Castalia Strategic advisors. Final Report: September 2012.

principles by enabling low income households to access basic energy services and disburses subsidies to the service providers only after the access related outputs have been achieved and independently verified. Furthermore, the project will support low income consumers to access prepayment meters (where available), which are an attractive option as they enable consumers to spread the costs of electricity use rather than be faced with a large bill at the end of a billing period.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

14. **The Project Development Objective (PDO)** is to increase sustainable access¹⁴ to formal grid-based electricity services within Vanuatu's electricity concession service areas for low income customers through targeted subsidies.

15. The objective will be achieved by subsidizing the cost of grid-based household service connections for approximately 4,375 households that will be eligible to connect as "small domestic consumers". The project will also contribute to improving household safety standards by subsidizing the cost of household wiring, where wiring is not to standard or in place, for eligible households and provide energy saving light bulbs.

B. Project Beneficiaries

16. **The beneficiaries of the project will be low-income households.** The project will target low income consumers in the existing concession areas who currently have no formal connection or individual connection to the grid. The consumers will be connected as "small domestic consumers" with access to a tariff charge approximately 34 percent of the base tariff cost. The project aims to provide connections to approximately 4,375 consumers, which equates to around 21,440 people with access to electricity¹⁵.

C. PDO Level Results Indicators

17. **There are four PDO level results indicators for this operation as follows:**

- (a) PDO-1: People provided with access to electricity under the project by household connections (Number);
- (b) PDO-2: People continuing to utilize electricity connections three months after connection (Percentage of GPOBA household connections disaggregated by gender of account holder);

¹⁴ Access in this context means a direct consumer connection to the electricity grid, as opposed to a shared connection or no connection to the electricity grid due to lack of affordability.

¹⁵ The total number of people is derived from the number of new household connections by the average household size in Vanuatu (4.9 people per household). Vanuatu Household Income and Expenditure Survey 2010. Vanuatu National Statistics Office, Government of Vanuatu. December 2012.

- (c) PDO-3: Community contributions (customer co-contribution) in the total project cost (Percentage);and
- (d) PDO-4: Wiring rules (Standards) adopted and a certification regime in place.

18. **PDO-1** will measure the project’s ability to bridge upfront barriers to accessing grid-based and safe electricity including by female headed households who have lower average incomes. **PDO-2** will measure the sustainability of these new connections. Grant disbursements under Component 1 will be a function of intermediate indicators (specifically, ‘Disbursement Linked Indicators’ or DLIs) corresponding to PDO-1 and PDO-2. **PDO-3** will measure beneficiaries’ contribution to the project and **PDO-4** will ensure adequate regulations are in place in the medium term for household wiring the licensing of electricians to ensure safe installations. Refer to Annex 1 for annual PDO level results indicators and the results framework.

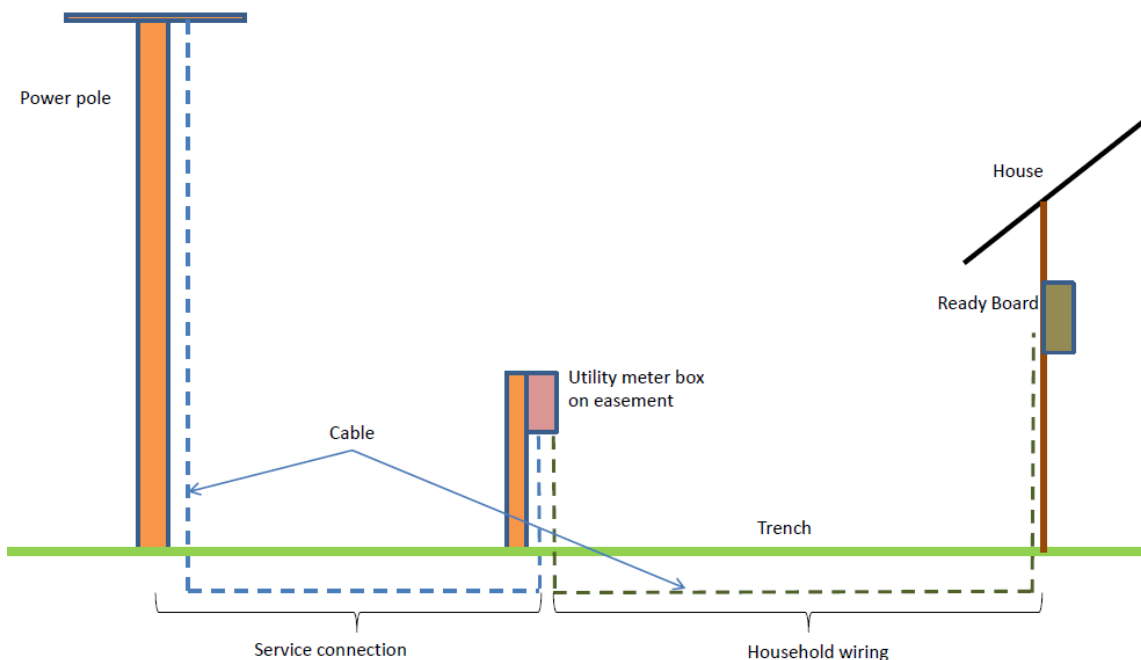
III. PROJECT DESCRIPTION

A. Project Components

19. **The project has four components.** These are: 1) OBA subsidies for new electricity service connections for low income households; 2) OBA subsidies for household wiring for low-income households accessing electricity services under the project; 3) Implementation support to the DoE for project management, communications and outreach, and training, and 4) Independent verification of outputs. The proposed activities under each component are presented below.

20. The figure below illustrates the service connection with a household wiring component where no additional pole is required.

Schematic diagram service connection and household wiring with “no pole”



21. **Component 1: OBA subsidies for new electricity connections for low-income households (US\$2.2 million).** This component provides one-off OBA subsidy to cover up to 80 percent of the cost of connecting low-income households to grid-based electricity services in Vanuatu. The subsidy will be available for both post-paid electricity meters and pre-paid meters (where available).The component will be implemented through existing private sector utilities - UNELCO and VUI, and will be subject to verification by the DoE.

22. **Component 2: OBA subsidies for household wiring for low-income households accessing electricity services under the project (US\$ 2.1 million).** This component provides one-off OBA subsidies to cover the cost (up to a predefined limit) of household wiring for low-income households accessing grid-based electricity services under the project, where wiring is not to standard or not in place. The households will be wired according to a standard design for the project in accordance with Australian and New Zealand standards (AS/NZS 3000). Household wiring will include cabling and backfilling (in a trench prepared by the consumer) from the utility meter box to a Ready Board in the consumer's premises. The Ready Board will include necessary protection, two light sockets with switches, two power outlets and two energy saving light bulbs. For safety reasons, the wiring will be carried out and/or certified by qualified (Grade A, Australian Electrical/Mechanical Fitters license or equivalent) electrical contractors contracted or electrical contractors authorized by UNELCO or VUI to carry out the works. The utilities will supervise the electrical contractors and on completion, provide verification that the internal wiring has been completed to standard.

23. **Component 3 – Implementation support for project management, communications and outreach, and training (US\$0.35 million)** as per the approved budget and procurement plan. The DoE will require support throughout the project's life to oversee implementation and develop longer-term institutional capacity for managing energy-related subsidies. Funding from this component supports the DoE with the following:

- (a) Development and adoption of technical standards and licensing for household wiring in technical project implementation, monitoring and evaluation and financial management of OBA subsidies;
- (b) Outreach and education to raise beneficiaries' awareness of the project, outreach to raise consumer awareness on electrical safety;
- (c) Technical training and technical related support for DoE staff, if required;
- (d) Services from an independent auditor, if required;
- (e) Outreach activities and project implementation will include some incremental operating costs/expenses by the DoE, such as hiring training facilities, printing of training and awareness raising material, travel to outer islands for implementation of key project activities; and
- (f) Implementation of the project will include some goods to be purchased by the DoE, such as project related office equipment and supplies.

24. **Component 4 – Independent Verification (US\$ 0.2 million).** This component will fund a suitably qualified consultant or firm as an Independent Verification Agent (IVA) to undertake the verification of outputs under the project.

25. More detail for each of these activities will be included in the Project Operations Manual and the GPOBA and World Bank will provide input and/or approval to any terms of reference for hiring of related consultants.

B. Subsidy Design and Eligibility Criteria

26. **Eligibility for subsidies under the project.** Consumers will be eligible to receive an OBA subsidy under the project if they have no formal or individual connection to the electricity grid and are eligible to connect as a “small domestic consumer”. The consumer will be supplied on the “small domestic consumer” tariff and the connection will be limited to a 5A single phase connection.

27. **Self-selection targeting.** The project will use current utility practices to determine eligibility for subsidized connections. The utilities have a category for low-consumption users which are charged subsidized tariffs (equivalent to 34 percent of the base tariff) for consumption of up to 120 kWh of energy consumption per month. Consumers will self-select for the OBA subsidy and request a connection from their utility, as per current processes. The connection will be technically constrained to 5A for a period of 12 months. This means that higher-consumption users, such as higher-income households and businesses would not be eligible to receive a subsidy, because the technical constraint would not be sufficient to meet their electricity requirements. This targeting mechanism is consistent with current practices and avoids the need for more administratively complex and costly alternatives, such as income tests.

28. **Limiting the potential for “gaming”.** Gaming is defined as a non-eligible customer seeking a connection as an eligible customer and then upgrading the connection. The risk of gaming will be mitigated by requiring the customer to refund the full amount of the subsidy for that customer to the utility if an upgrade of the physical connection is sought within the first 12 months of connecting under the project, except in the final year of the project when the restriction to upgrade of the physical connection will be from the date of connection until the closing date of the project. Additionally, customers that are already connected to the grid will not be eligible for the subsidies for service connections or household wiring. Consumers will be made aware of the eligibility criteria at the time of connection that they will need to remain on the 5A connection for 12 months, or refund the service connection and household wiring subsidy if an upgrade is sought. Any ineligible subsidy resulting from an upgrade will be recorded and the utilities will adjust future claims and/or refund monies to reflect any such refunds due.

29. **Household eligibility criteria.** The following criteria will be used to determine household eligibility benefit from OBA subsidies under the project:

- (a) Beneficiaries fall under the “small domestic consumer” category;
- (b) Beneficiaries will be entitled to a maximum 5A connection;
- (c) Beneficiaries must use 5A connection for a minimum of 12 months – if they want to upgrade the physical connection within 12 months, they must refund the subsidy to the utility; and

- (d) Both postpaid and pre-paid (where available) connections are eligible under the project.

30. **Subsidized inputs and user contribution.** The OBA subsidy will cover the cost of the following inputs:

- (a) Connecting a household to the utility network, including cables, fittings, fuses and labour – referred to as service connection; and
- (b) Household wiring to agreed standard and a Ready Board to cover basic lighting and power outlets commensurate with a 5A connection –referred to as household wiring. The Ready Board will consist of two light sockets with switches, two power outlets and two energy saving light bulbs provided at the time of installation.

31. The subsidy will be¹⁶:

- (a) **UNELCO’s grid areas:** 80 percent of the actual cost of a service connection and the cost of household wiring up to VUV 40,000 (US\$ 421); and
- (b) **VUI’s grid areas:** on average VUV 45,000¹⁷(US\$ 476) subsidy toward the cost of a service connection with postpaid meter (VUV 39,600 (US\$ 413) subsidy for a prepaid meter, where available) and the cost of household wiring up to VUV 40,000 (US\$ 421).

32. The consumer contribution will be:

- (a) **UNELCO’ grid areas:** 20 percent of the actual cost of a service connection and the actual cost of household wiring in excess of VUV40,000 (US\$ 421); and
- (b) **VUI’s grid areas:** the amount in excess of a VUV45,000 (US\$ 476) subsidy towards the cost of service connection with postpaid meter (in excess of VUV39,600 (US\$ 413) for prepaid meter, where available) and in excess of VUV40,000 (US\$ 421) subsidy towards actual costs of household wiring.

33. In addition to the above, the consumer will be responsible for the preparation of the trench for laying the wiring for the household wiring, and in Luganville for arranging the preparation of the hole for a pole for the service connection if one is required.

34. **Process for connecting customers and reimbursing service providers.** The following steps will be followed to provide eligible households with electricity under the project:

- (a) Consumer applies to the utility for a connection under “small domestic consumer” category, completes the necessary application form or agreement, and pays for the consumer contribution to service connection;
- (b) Utility arranges inspection of the site and the wiring at the premises, and agrees to the scope of work with the applicant and any other affected party;

¹⁶ The Project Operations Manual will provide further details of the subsidy structure and arrangement.

¹⁷ This is based on a 50:50 ratio of connection that requires a pole and connection that does not require a pole. The Project Operations Manual will provide further details.

- (c) Applicant organizes the access from the street boundary to the property boundary as well as from property boundary to the house, clearing vegetation, arranging the digging a hole for a pole (if required by the utility), and arranging the digging cable trenches from the property boundary to the house as required;
- (d) When the above work is completed, the utility or its contractor arranges cabling from the nearest distribution pole or box to the utility meter box on the boundary of the property and installation of an additional pole, if required;
- (e) Utility contractor arranges basic household wiring from the utility meter box to a Ready Board in the house where current wiring does not meet standards or is not in place;
- (f) Following an inspection to confirm wiring standards have been met, applicant can sign the consumer agreement to have access to the electricity service¹⁸;
- (g) Utility submits request for reimbursement of eligible costs of the subsidy, including adjustments for any refunds due for non-eligible customers to DoE with a minimum request as outlined in the Project Operations Manual¹⁹;
- (h) DoE requests its Independent Verification Agent (IVA) to carry out verification of utility reimbursement request, as per the disbursement schedule;
- (i) IVA carries out assessment and recommends DoE to authorize payment of subsidy to utilities on the basis of its findings, documented in the Output Verification Report (OVR);
- (j) DoE process payment of the invoice to the utility on the basis of the OVR and cleared by the IVA. Direct Payment²⁰ will be one of three disbursement methods allowed to DoE, and the method recommended to be used for all subsidy payments. Direct payment request would need the OVR cleared by the IVA as part of the supporting documentation submitted with disbursement request from the DoE.

35. **Basis for setting the subsidy amount and user contribution.** The proposed subsidy is based on the average cost of inputs needed to connect and provide household wiring to low income households. The affordability of the user contribution has been determined on the basis of the WTP analysis carried out by Castalia in the feasibility study for the project. According to the study, consumers can afford between VUV 10,466 (US\$ 110) and VUV 16,175 (US\$ 170), which is approximately 31 – 48 percent of the average monthly income. The customer contribution will be around VUV 11,097 (US\$ 117) for the service connection. The user contribution is equivalent to approximately 20 percent of the average cost of a service connection cost and about 33 percent of the average monthly income. The table below shows

¹⁸ Following the service connection, the utilities will be responsible for maintaining the service connections. The complaints mechanism administered by the URA provides for an avenue for consumers to have any faulty connections rectified. The household wiring is a “static” asset with life in excess of 15 years (except for consumables such as light bulbs) and will be maintained by the consumer.

¹⁹ Subject to agreement with the service providers this is expected to be VUV 2,500,000 (USD\$ 25,000).

²⁰ Under Direct Payment method following the necessary clearance and documentation, the World Bank will make the payment (for the eligible subsidies) directly to the utilities. Direct payment will be made in Vatu

the total costs of service connections household wiring (on average) as a percentage of average monthly household incomes of the lowest two quintiles in the grid areas.²¹

Average Monthly household incomes lower two quintiles by grid area

Grid Area	1st Quintile				2nd Quintile			
	VUV	USD*	Cost	Cont.	VUV	USD	Cost	Cont.
Luganville	21,500	239	247%	49%	45,400	504	117%	23%
Port Vila	18,400	204	288%	57%	42,600	473	125%	25%
Tafea (Tanna)	24,200	269	219%	44%	43,100	479	123%	24%
Malampa (Malakula)	20,711	230	256%	51%	39,000	433	136%	27%
cost = cost of service connection plus household wiring as a percentage of average monthly income								
cont. = consumer monetary contribution as a percentage of average monthly income								
* = 1 VUV = 0.01 USD (1 USD = 94.84 VUV) on September 24, 2013.								

36. **Overall level of costs and subsidies.** UNELCO currently sources its connections services (except for materials) through a competitive bidding process. Materials for connections are sourced competitively and procured in bulk through the parent company. The approach will be continued in the future. VUI makes the service connections “in house” as Luganville does not have a competitive market for such services. Both UNELCO and VUI have agreed to source the household wiring on a competitive basis. The cost of service connections and household wiring despite being assessed as efficient are higher in Vanuatu. The reasons for these are that (i) Vanuatu is a remote island state with number of dispersed island grids, (ii) all of the equipment and majority of qualified labour is international, and (iii) the sector does not have economies of scale due to the size of the sector.

37. **Cost of Service Connection.** The cost of services connections has been established by the consultants for the GPOBA study. These costs have been validated against UNELCO’s actual average costs of connections. For the purposes of the estimates below, UNELCO’s actual historical costs have been used with an upward adjustment. These costs for service connections have been used to “fix” the subsidy levels (80 percent of the costs) for VUI as it does not use a competitive process. The subsidy for service connections in UNELCO’s areas will be based on actual costs achieved from the competitive bidding process. These costs are expected to be well within the estimates.

38. **Cost of household wiring.** The household wiring costs are based on the Consultants’ assessment of the costs adjusted for distance from the utility meter box to inside the house and the requirement to backfill the cable trench to international standards for safety reasons. These costs have been further validated through discussions with local electricians. As a further measure the ensure costs are efficient the utilities will source the household wiring on a competitive basis with an overall cap of US\$444 (VUV40,000). Whilst no financial contribution is made be to the household wiring costs, consumers will organize the digging cable trenches and where required a hole for a pole to facilitate the service connection which will be at the

²¹ Average monthly household income is taken from the Household Income and Expenditure Survey, 2010. Vanuatu Household Income and Expenditure Survey 2010. Vanuatu National Statistics Office, Government of Vanuatu. December 2012.

consumer's cost or completed as works in kind. To simplify project administration, the entire user cash contribution is being collected by the utilities and put towards household connections whether or not wiring is sought by the consumer. The utilities will contract the licensed wiring contractors and will be reimbursed for the expenses through subsidies.

39. **Rationale for household wiring.** The reason for including household wiring as part of this project is twofold (i) sustainability of connections, and (ii) safety. The cost of compliant household wiring (> US\$400) in Vanuatu is not affordable for low income consumers as shown above. For safety reasons it is important that the houses are wired to international standards. If the project does not provide household wiring then (i) consumers will not be able to use electricity because they cannot afford the wiring; or (ii) install unsafe wiring that is not undertaken by a qualified or authorized electrician.

Overall cost and subsidy estimates:

Subsidy design (average cost basis in USD)	
Cost of connection	\$590
Household wiring	\$444
Total cost of connection and household wiring	\$1034
Customer co-contribution	\$117
Subsidy payments	
Service connection subsidy – 80% of average costs	\$472
Household wiring (100% of costs)	\$444
Total GPOBA subsidy	\$917

40. **The subsidy payments (estimates for UNELCO and fixed amounts for VUI) will vary by whether:** (i) a pole is required or not required, and (ii) the meter is postpaid or prepaid. The distance from the distribution line and whether the service connection is above ground or underground will also impact on the actual costs. These costs will be detailed further in the schedules to the Project Operations Manual for UNELCO and VUI areas as applicable. The total subsidy funding requirement has been developed on the basis of the estimates and will be monitored during project implementation and adjusted if necessary:

41. Total subsidy contribution:

Item	Subsidy	Total number under the project	Total subsidy funding ²²
Service connection	US\$472	4,375	US\$2,065,000
Household wiring & Ready Board	US\$444	4,375	US\$1,942,500

²² The total figures have been rounded and include a 7.5 percent allowance for cost increases in subsidies over the life of the project.

Allowance for cost increases over the life of the project	US\$ 292,500
	US\$ 4,300,000

42. Total user contribution:

Item	User Contributions	Total number under the project	Total User Contributions ²³
Service connection	US\$117	4,375	US\$511,875
Household wiring & Ready Board	US\$0	4,375	US\$0
Allowance for cost increases over the life of the project			US\$ 53,125
			US\$ 565,000

43. The subsidy accounts for 89 percent of the total cost of a household connection and wiring, and the user contribution accounts for 11 percent of the total cost of electricity connection (service connection and household wiring).

44. **Payment schedule for OBA subsidy.** The payment schedule is:

For Prepaid connections:

The OBA subsidy will be paid in one payment as follows:

Subsidy Payment/Installment	Size	Criteria
First	100% of cost of internal HH wiring. + 100% of subsidized connection cost. -100% of subsidized costs for subsequently determined non-eligible customers	Output verification report (OVR) from IVA against the verification criteria.

²³ The total figures have been rounded and include a 10 percent allowance for cost increases in user contributions over the life of the project.

45. **Project closing date and Implementation period.** The project closing date will be June 30, 2018; 6 months before the closing date of the parent AusAID Trust Fund.

46. **The project will connect low income consumers in the concession areas where pre-payment meters are available.** The use of prepayment meters better suit the needs of the potential new consumers who have irregular income. It will also give the consumers control over the usage and budgeting for electricity, while addressing the utilities revenue collection and loss reduction. Consumers with pre-payment meters are not likely to be disconnected from the services for non-payment and for this reason all of the subsidy payments will be made following the independent verification of a connection, and where applicable household wiring.

For Postpaid connections:

The OBA subsidy will be paid in two tranches as follows:

Subsidy Payment/Installment	Size	Criteria
First	100% of cost of internal HH wiring + 80% of subsidized connection cost. -100% of subsidized costs for subsequently determined non-eligible customers	Output verification report (OVR) from IVA against the verification criteria.
Second	20% of subsidized connection cost -100% of subsidized costs for subsequently determined non-eligible customers	Against invoice and acceptable output verification report (OVR) from IVA that at least 80% the new postpaid connections are still active ²⁴ after 3 months, in which case the remaining 20% of the costs will be paid in full for all connections. In the event that less than 80% of these connections are active, the remaining 20% of the subsidy will be paid on a proportional basis calculated as: the number of active connections / total connections made under the claim x funds outstanding.

²⁴An “active” connection refers to one that has not been disconnected from the utility service for non-payment only. For clarification, a service connection that has been disabled for any other reason, such as consumer relocation, safety etc. will not be counted a non-active connection.

C. Project Financing

47. The project uses an output-based grant from the GPOBA. The table following summarizes the estimated costs for each project component and the corresponding grant financing amount.

Project Components	Project cost	Grant Financing	%Project Costs
1. Service connection subsidies	2.200	2.20	45%
2. Household wiring	2.100	2.10	43%
3. Project management and Others	0.350	0.35	7%
4. Independent verification	0.200	0.20	4%

D. Economic Analysis

48. **Electricity price regulation in Vanuatu.** The supply of electricity is regulated in Vanuatu by an independent regulator. The electricity prices charged by the utilities are determined based on:

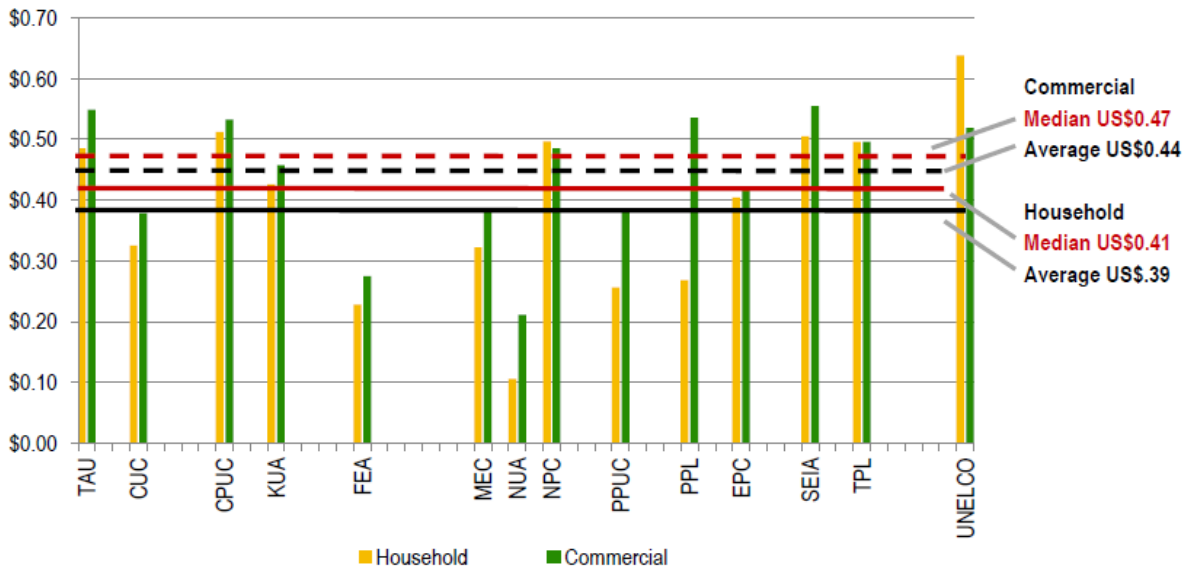
- (a) The regulated asset base for each utility on which the utility earns a return determined as being reasonable by the regulator (11 percent);
- (b) The asset base is depreciated as determined by the regulator;
- (c) Fuel costs are passed through; and
- (d) Other efficient operating costs are allowed to be recovered.

49. Based on the above, and the forecast demand for electricity, the regulator determines a base tariff for electricity. Small Domestic Consumers who use less than 120kWh per month and use a 5-10A single phase connection have access to a subsidized tariff which is set at about 34% of the base tariff. The subsidized tariff does not recover full cost of supply.

50. The connection charges (for service connections) are not regulated, and utilities charge consumers for new connections based on the actual costs of installing a connection, which averages US\$700 (VUV 66,393).

51. This project targets connection for low income consumers with estimated consumption of 30kWh per month. Under the current tariff structure, each consumer connected on a subsidized tariff pays US\$140 (VUV13,278) per annum less than the amount that would be payable under a fully cost recovery tariff structure i.e. the consumer currently pays US\$ 74 per annum whereas US\$ 214 would be payable for the equivalent consumption under a full cost recovery tariff. The tariff reset occurs on a 4 yearly cycle. At the next tariff review, this under recovery will be eliminated through a cross subsidy from other users.

52. A further point to note is that electricity tariffs in Vanuatu are relatively high compared to other Pacific Island States (refer to figure below – UNELCO represents Vanuatu). The capacity for consumers to support additional cross subsidies is limited. This point is relevant because it supports the need for connection and household wiring subsidies to be externally (grant) funded rather than being an additional impose on the existing electricity consumers.



53. **Economic Rate of Return (ERR).**The ERR is calculated based on the incremental benefit of the project to the target group relative to the economic costs of the project.

54. The target group of low income consumers’ use about 30kWh of electricity (or equivalent from other energy sources) per month. Based on how much consumers already pay for other fuel sources, WTP analysis shows that the benefit to the average low income consumer of a grid connection is around US\$19 (VUV 1,802) to US\$23 (VUV 2,182) per month.²⁵ This figure has been further validated against the amount consumers pay when using a shared connection (about US\$24 per month (VUV 2,276)). This benefit does not include any non-monetary benefits such as, such better lighting for education and health and improved household productivity. To estimate the ERR, the economic benefit is assumed to be US\$ 24 per connection per month or US\$ 288 per annum in year 1.

55. The economic costs of the project include the cost of the service connection and the cost of basic household wiring estimated at US\$1,034 (VUV 98,072) on average. In addition, to the cost of connection there are incremental costs of fuel (estimated at cost of diesel fuel) and incremental operating costs of the utility associated servicing the additional consumers connected under the program (estimated at US\$ 147 per annum in year 1 based on the average operating cost). As outlined in earlier sections the additional consumers connected will not require additional power plant to be built or any incremental network costs. There is sufficient generation capacity to meet the additional demand from the consumers to be connected under this project. The consumption is expected to increase by 2 percent, which is well within current reserves.

²⁵ Global Partnership on Output-Based Aid: Improved Electricity Access in Vanuatu. Castalia Strategic advisors. Final Report: September 2012.

56. Based on the above benefits and cost assumptions, the ERR for the project is estimated at 15 percent. Using a discount rate of 10 percent, the economic NPV of the project is around US\$1.7 million (VUV 161 million) for the estimated number of connections (4,375) over a 20-year period. Hence, there is a net economic benefit from connecting consumers to the electricity grid.

E. Financial Analysis

57. **Financial impact on the consumer and the utility.** The financial analysis needs to consider the impact on the target consumer segment (low income consumers) and the services providers separately.

58. **Consumer impact.** The consumer benefits are estimated as per the economic analysis at the consumers “willingness to pay”. The cost to the consumer is based on the consumer’s financial contribution to a service connection (US\$117 on average) and the tariff charge by the electricity utility which as discussed above is less than the cost of supply used for the economic analysis. There is a net financial benefit to the consumer to connect to the electricity grid, as the WTP of US\$ 24 per month exceeds the monthly consumption tariff of US\$6 - the problem however, is the consumer’s ability to pay for the upfront costs for service connection and household wiring. Subsidies are therefore required to close this gap.

59. **Utility impact.** As outlined above, every low income consumer connected by the utility will result in the utility receiving US\$140 per annum (VUV 13,278) less revenue than the regulated base tariff until the next tariff reset (loss to the utility). If the cost of service connection and household wiring were to be subsidized by the utility instead of GPOBA, the IRR for the utility would be -2 percent (based on full cost recovery from next tariff reset). The connection and household wiring will add another 2 percent cross subsidy to the market (prices will need to increase by an additional 2 percent - to allow for regulated rate of return depreciation of incremental assets). This does not take into account the administrative difficulty with requiring a private sector utility to fund the wiring of consumers’ homes. If the service connections and the household wiring are subsidized by the GPOBA the IRR for the utility is 13.9 percent. This is in line with the regulated rate of return allowed for electricity utilities in Vanuatu. Annex 3 provides details on the economic and financial analysis.

F. Technical Analysis

60. **UNELCO and VUI have the technical capacity to implement the project and make the household connections and oversee the household wiring.** Under the project, the utilities will make service the household electricity connections. This is part of the utilities’ core business and hence no technical risks are envisaged. UNELCO sources its materials on a competitive basis but outsources the task of making service connections to qualified contractors that meet its quality standards. VUI sources its material competitively, but undertakes service connections in house for which it has in house expertise because there are a limited number of qualified electricians on Luganville. Both UNELCO and VUI will source household wiring on a competitive basis. In the case of Luganville, where there are a limited number of qualified electricians, VUI proposes to train and authorize electricians to undertake the work. The

household wiring design is also going to be prepared to the Australian and New Zealand standard (AS/NZS 3000) and approved by the DoE and the utilities.

61. The demand arising from the additional consumers connections under the program will not require additional generation capacity or distribution systems upgrades.

G. Lessons Learned and Reflected in the Project Design

62. **This is the first OBA project in the energy sector in Vanuatu.** The project has been designed by drawing lessons from the Castalia feasibility study and from successful OBA energy projects in other countries. Key in the design are:

- (a) Estimating subsidy amounts that render final costs related to connection affordable to households that can pay the ongoing tariff;
- (b) Ensuring value for money in relation to the subsidy amount;
- (c) Energy efficiency – including a Compact Fluorescent Lamps “give away” or similar program into the OBA scheme as an incentive mechanism for energy efficiency and cost saving
- (d) Develop targeting mechanism to reach any household within concession boundaries that the utility can connect as small domestic consumers
- (e) Targeted consultation program to reach vulnerable groups, especially women.

63. **Subsidy design.** The design also recognizes that wiring costs are an essential element to be incorporated into any low income consumer electrification scheme. The design seeks to remain as simple as possible, in order to be replicated across the country, and applicable to an OBA program.

64. **Targeted consultation.** The project will provide targeted consultation to reach vulnerable groups. The project will provide communication material and information of the safe use of electricity under the DoE project management component to encourage women to apply for the subsidy. Information dissemination, consultation and monitoring will also occur through women’s groups where feasible.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

65. **The DoE will be the implementing agency for the project.** The Ministry of Finance and Economic Management (MFEM) will be the Recipient and would enter into a Grant Agreement with the World Bank. The DoE will have overall responsibility for project management and will be the official implementing agency for the Project. The Project Management Unit (PMU) in the Ministry of Climate Change Adaptation, Geo-Hazards, Meteorology, Energy and Environment will provide fiduciary support to the DoE. The PMU currently supports four other current World Bank projects, including the recently signed Energy Sector Development Project (P145311). The PMU comprises two financial management officers and one procurement

officer overseen by a project management advisor. The project will contribute funding for the DoE's and PMU's activities (under Component 3) to support this project.

66. The process of making household connections and installing household wiring will be managed by the utilities (UNELCO and VUI). The utilities (UNELCO and VUI) will be responsible for receiving customer requests for services (service connection and household wiring) and assessment of eligibility of each customer request. The utilities will assess the current standard of wiring prior to connecting an eligible customer. If the standard of wiring not to standard or is not in place, a contractor employed by the utility will install household wiring to compliance standard (Australian and New Zealand standard). When the contractors have "certified" the wiring, the utilities will make the household connection. The utilities will be responsible for submitting subsidy payment requests to the DoE for verification.

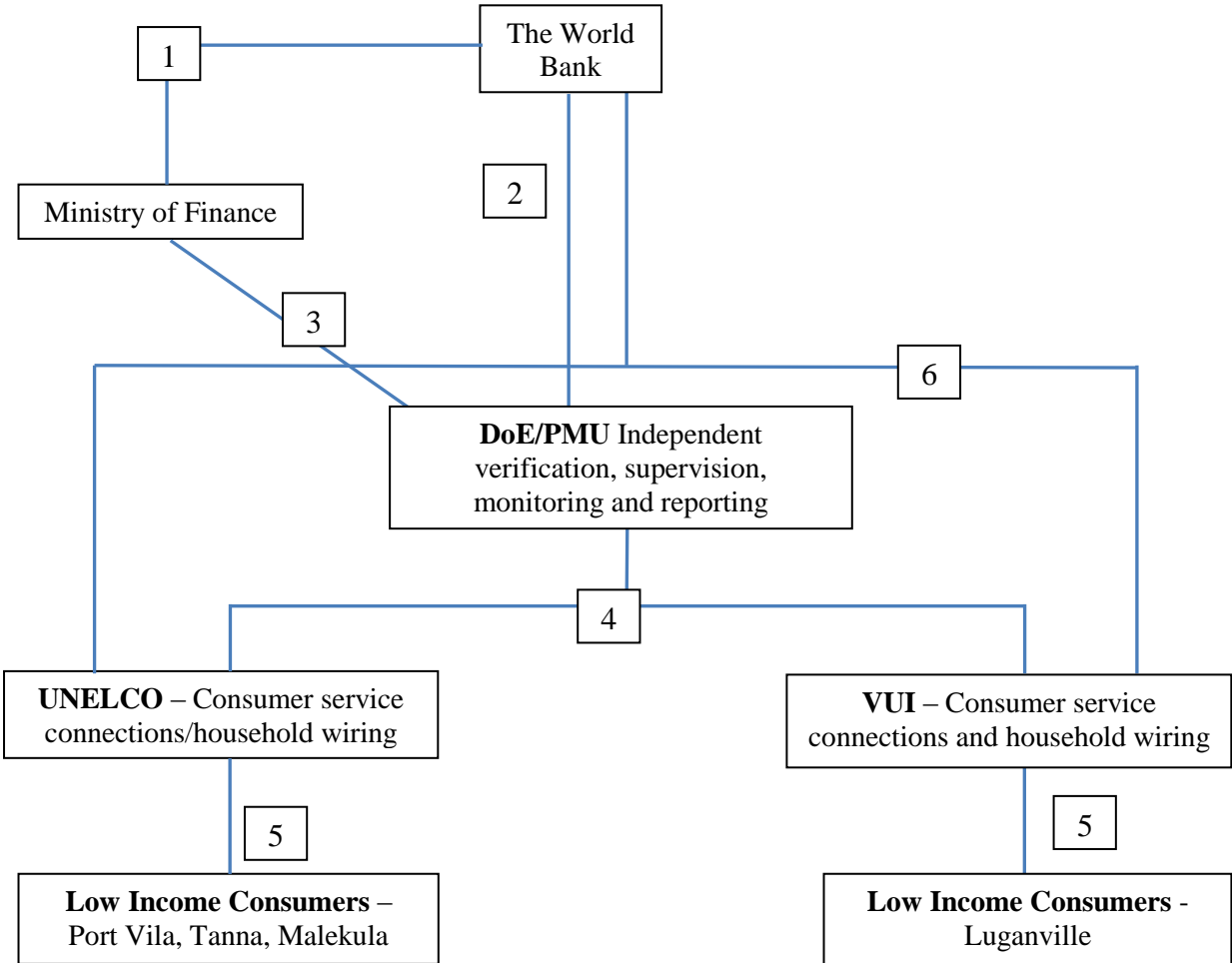
67. Role of the Independent Verification Agent. A reputable company or person(s) with relevant expertise will be contracted as the IVA to verify the delivery of outputs against which the OBA subsidy will be disbursed. The IVA will be requested to perform the verification of connections. The IVA will be required to complete:

- (a) Desk based verification of all connections installed by the service providers (utilities) under the project;
- (b) Physical inspection and verification of a random sample of 20 percent in the first year and 10 percent in subsequent years of the service connections and household wiring; and
- (c) Desk/Physical verification 12 months later that no one has upgraded.

68. The service providers (utilities) shall provide detailed information about the connections they have been carried out to DoE, which shall be cross-checked by the IVA before payment of the OBA subsidy. The Verification Criteria shall be:

- (a) Compliance with the Household Eligibility Criteria;
- (b) Compliance with the Output-Based Specifications;
- (c) Compliance with the agreed specifications for household wiring; and
- (d) Report on upgrades within 12 months.

69. The implementation arrangements are presented below.



1. Grant Agreement between World Bank and MFEM/GoV
2. DoE as lead GoV agency for implementation of the project – Implementing Agency
3. DoE implements the project in accordance with the Grant Agreement
4. Implementation Agreement between DoE/MFEM/GoV and UNELCO and VUI
5. Consumer application for connection and connections
6. Direct World Bank payments to utilities after DoE verification

B. Results Monitoring and Evaluation

70. A series of reports from the DoE, PMU/VMGD and the utilities will allow for the specific monitoring and evaluation of the implementation of the project and achievement of its objectives.

- (a) DoE will submit semi-annual performance reports to the World Bank and GPOBA in accordance with the reporting requirement set out in the Project Operations Manual;
- (b) The PMU, through the DoE, will provide Interim Financial Reports on a quarterly basis to the World Bank;
- (c) The Utilities will provide connections reports each quarter to the DoE for a output verification report to be prepared and prior to the invoicing for payment of subsidies;
- (d) The Independent Verification Agent/DoE will prepare an output verification report. Subsidies may only be paid against output verification reports (format to be included in the Project Operations Manual); and
- (e) The DoE will provide audited project financial statements annually.

C. Sustainability

71. Once low income consumers are connected, they will continue to have access to electricity services. The project is sustainable for the following reasons (i) for consumers who were accessing shared connections or alternative sources of energy in accordance with the WTP analysis, the energy costs for these consumers connected through the Project will be less; (ii) access to electricity will provide consumers with the means to increase their income levels through increased productive activities, (iii) Once connected, the utilities will continue to supply electricity and provide the service on receipt of prompt payment. The amount is affordable to the targeted consumers who will have continuous access to electricity once connected. The use of prepaid meters (where available) will mitigate the risk of consumers being disconnected for lack of payment.

72. Utility perspective. Although utilities will incur an operating loss on supplying electricity to the small domestic consumers targeted under the project, this is expected to be remedied through a cross subsidy mechanism introduced when the next tariff review occurs. Under the current concession contracts, the utilities are obligated to connect households that request connections on payment of the connection fees, and both UNELCO and VUI have shown commitment towards connecting consumers with the help of subsidies under the project. The service providers are well run subsidiaries of multinational companies and continuity of supply is not envisaged as a risk; hence, the project is expected to be sustainable over the long term.

V. KEY RISKS AND MITIGATION MEASURES

A. Risk Ratings Summary Table

Stakeholder Risk	Risk Rating	Mitigation measures
Implementing Agency Risk		
- Capacity	- Substantial	<ul style="list-style-type: none"> - Funding for technical assistance and financial management. - Streamlined project implementation arrangements with private sector utilities delivering a significant component of the program. - Support with fiduciary staff through existing PMU and another energy sector project (Vanuatu Energy Sector Development Project).
Project Risk		
- Design	- Moderate	<ul style="list-style-type: none"> - Subsidy levels designed to offer adequate financial support to low income customers. - Project design aligns with existing concession contracts and support utilities' obligations. - Simplified design and delivery in light of low implementation capacity at the DoE.
- Social and Environmental	- Low	<ul style="list-style-type: none"> - Communications and outreach component - ESMF and Code of Practice to strengthen business-as-usual procedures. - Existing URA mechanism for customer grievances. - Targeting mechanism developed to avoid risk of ineligible applications for subsidy.
- Program and Donor	- Low	<ul style="list-style-type: none"> - Program dependent on utility commitment and participation. The utilities have indicated support for the program. - Design incorporates lessons from previous GPOBA electrification projects. - Task team members based in region.
- Delivery Monitoring and Sustainability	- Moderate	<ul style="list-style-type: none"> - Verification process incorporated into design to mitigate delivery risk. - Partial disbursement of funds based on financial sustainability of connections (i.e. the provider will receive all funds for post pay connections only after connection has been made and active for three months. - Subsidy design to ensure that target beneficiaries are accurately identified and subsequently serviced.
Overall Implementation Risk	Substantial	

B. Overall Risk Rating Explanation

73. The overall risk rating for this project is ‘substantial’ primarily because of the limited capacity within DoE and the governance risk. Although the project includes strong mitigations, there will inevitably be residual risks due to the project’s innovative approach. DoE has no previous experience of managing OBA subsidy interventions and may face a learning curve during the project’s initial period of mobilization. Risk mitigation measures will

include (i) embedded technical and financial management advisors within DoE/PMU; (ii) output-based disbursement; (iii) output verification; and (iv) independent auditing, can significantly reduce governance risks.

VI. APPRAISAL SUMMARY

A. Financial Management

74. The financial management (FM) risk for this Project before mitigation is assessed as “substantial” in view of moderately unsatisfactory performance of the DoE PMU in managing the various FM elements (budgeting, accounting, internal controls and internal audit, flow of funds, financial reporting and external audit) of the 4 other World Bank funded projects it is currently managing. The DoE will use the same FM arrangements already in place for the four projects being implemented by the PMU. Refer to Annex 2 for details of the Financial Management and Disbursement agreements. A financial management assessment was carried out in accordance with the “Financial Management Practices in World Bank-Financed Investment Operations”, issued by the Financial Management Sector Board on November 3, 2005 and further rationalized in the “Principles Based Financial Management Practice Manual” issued by the Board on March 1 2010. Overall, the financial management arrangements satisfy the financial management requirement as stipulated in OP/BP 10.00 subject to implementation of agreed actions and mitigating measures.

B. Procurement

75. A preliminary procurement assessment of DoE and the private sector utilities was conducted. The assessment has concluded that DoE as implementing agency has limited capacity and experience, and therefore the procurement related risk is substantial for DoE. To supplement its capacity and minimize the risk, it is agreed that DoE will use the procurement services of the PMU established in VMGD for the ongoing Bank-financed projects. The available capacity in the PMU will be regularly re-assessed, as it continues to manage several Bank-financed projects simultaneously. The review of the private sector utilities' capacity (UNELCO and VUI) has confirmed that they have adequate staff and experience in carrying out procurement, and current practices followed by the utilities are acceptable to the Bank. Procurement under the subsidy implementation agreements will be carried out in accordance with paragraphs 3.14 (b) and 3.15 of the Bank’s Procurement Guidelines relating to Public Private Partnership Arrangements. An independent verification agent will be hired by DoE to conduct verification and technical audits of the service connections and household wiring. The procurement related risk for the utilities is assessed as moderate. The overall project procurement related risk is substantial.

C. Social (including Safeguards)

76. **Key findings from project preparation social safeguards activities.** Approximately 4,375 households that have not previously connected to the grid will have access to a fixed cost subsidy for a “small domestic consumer” (low consumption/low voltage) connection. Beneficiaries will also be assisted with installation of safe wiring in their home, where household wiring is not to standard or not in place. The monthly energy costs for lighting for

these consumers will reduce. Quality of light and air quality in homes will improve, especially where households have utilized alternative cooking fuels. Access to media and communications services will be facilitated. Opportunities for home-based study and income generation will improve. Though these facilities benefit both sexes, they represent a larger positive change for women, who are more disadvantaged in their absence by the traditional division of household labour.

77. **Consultation mechanisms.** The consultation process in the Environmental Social Management Framework (ESMF) will achieve outreach and awareness of the project particularly amongst women and vulnerable groups. Current Utility policies ensure that there will be no involuntary impacts on land or assets of applicants and other affected parties (landlords, neighbors). The Utilities' existing complaints mechanisms are backed by an appeal mechanism through URA. Compensation claims that are upheld are calculated at current market value. The Indigenous Peoples Policy (OP 4.10) is triggered and a social assessment undertaken during project preparation is included at Annex 3. A Resettlement Policy Framework is included in the ESMF to outline Bank policies for management of involuntary impacts. These align with current law and practice.

D. Environmental (including Safeguards)

78. **Key findings from project preparation environmental safeguards activities.** There are very few environmental issues relating to the connection of electricity to households within the existing concession areas. There is a potential for minor environmental impacts from digging holes and trenches and clearing vegetation from easements. For this reason the project is a Category B and requires an environmental assessment under OP/BP4.01.

79. The ESMF contains an impact assessment matrix and a Code of Practice for Electrical Connections, which provides straight forward mitigation measures for noise, waste management, and worker health and safety and vegetation clearance.

80. There are no natural habitats (OP/BP 4.04), physical cultural resources (OP4.10) or forests (OP/BP 4.36) within the concession areas that will be affected by this project. There is no requirement for pest management (OP 4.09).

E. Other Safeguards Policies Triggered

81. No other safeguards policies are triggered

F. Gender

82. **Around 13 percent of households in Vanuatu are 'lone head' households.** According to the 2010 Household Income and expenditure survey, there are 50,740 households of Vanuatu. Households comprising of a head and his or her spouse and their children (the so-called 'nuclear family') made up 51 percent of all households and extended families 24 percent of households. Almost one in three households (31 percent) consisted of an extended family where the head and spouse live with children, grandchildren and/or other relatives. Overall 13 percent of all households were headed by someone without a spouse or partner – so called 'lone head' households. The HIES highlighted the fundamentally different structure of female- and male-

headed households, where female heads were far more likely to be living alone or as a solo parent with her children and other relations (lone head with children and extended family).

83. **About 13 percent of households are headed by females.** Average number of occupants in a male-headed household is 5.1, and in a female-headed household is 3.9 (overall average per household at 4.9 of which 50 percent are males and 50 percent are females). Average monthly household income in Vanuatu is VUV83,800. Average monthly household income for male-headed household in urban areas is VUV99,200 and rural areas is VUV83,600 (combined average VUV87,400). Average monthly household income for female-headed household in urban areas is VUV85,200 and rural areas is VUV51,200 (combined average VUV59,300). Average monthly income for female headed households is lower than the national average. Average monthly household expenditure for male headed households is VUV 79,600 and for female headed households is 64,600. Based on national averages the female headed households do not have sufficient income to meet expenditure.

84. **Furthermore, access and affordability of services will also result in greater benefits for the female population.** The World Bank publication, “One Goal, Two Paths” notes that improved access to modern cooking solutions promotes gender equality and empowers women. Improved access to electricity and modern fuels reduces the physical burden (women and children are more likely to suffer the drudgery of gathering wood and other biomass) associated with carrying wood. Access also frees valuable time, especially for women, widening their employment opportunities. In addition, street lighting improves the safety of women and girls at night. Access to modern energy can go a long way in improving health and reducing premature mortality, especially among women and children.

85. **Women and children can be more exposed to pollution from dirty cooking fuels.** In households who rely significantly on biomass for cooking using traditional methods, women and children are exposed to air pollution levels in the form of small particulates from smoke that can reach 20 times the maximum recommended levels. Indoor smoke pollution from inefficient use of biomass for cooking is estimated to cause over 600,000 premature deaths annually in East Asia and Pacific. In the absence of a suitable policy framework that sustains market-based solutions, these numbers are expected to rise in keeping with trends in developing countries worldwide. This trend contrasts with other leading causes of premature deaths (HIV/AIDS). Access to modern forms of energy has a direct bearing on the achievement of the United Nations’ Millennium Development Goals (MDGs). The MDGs seek to reduce poverty while increasing education, empowering women, and improving child and maternal health to agreed levels by 2015. Access to modern energy is a crucial input to meeting the MDGs, and requires progress on both paths: electricity and modern cooking solutions.

86. **National Women’s groups.** Women’s groups are active across the country and will be engaged throughout the project in consultation and information dissemination, and if willing, monitoring and evaluation.

Annex 1: Results Framework and Monitoring

VANUATU: GPOBA IMPROVED ELECTRICITY ACCESS PROJECT

Project Development Objective (PDO): to increase sustainable access to formal grid-based electricity services within Vanuatu's electricity concession service areas for low income consumers through targeted subsidies											
PDO Level Results Indicators*	Core	Unit of Measure	Baseline	Cumulative Target Values**				Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR 1	YR 2	YR3	YR 4				
Indicator One: People provided with access to electricity under the project by household connections	<input type="checkbox"/>	number	0	2,940	7,350	13,230	21,437	Annually	Utilities' project spreadsheets or annual reports	Utilities	No. of people provided with access to electricity under the project by household connections
Indicator Two: People continuing to utilize electricity connections three months after connection	<input type="checkbox"/>	number	0	2,940	7,350	13,230	21,437	Annually	Utilities' project spreadsheets or annual reports	Utilities	No. of people continuing to utilize electricity connections three months after connection
Indicator Three: Community contributions (customer co-contribution) in the total project cost	<input type="checkbox"/>	USD	0	70,200	175,500	315,900	511,875	Six monthly	Utilities' project spreadsheets	Utilities	No. of community contributions (customer co-contribution) in the total project cost
Indicator Four: Wiring rules (Standards) adopted and a training regime in place	<input type="checkbox"/>	Standards	0					Annually	Utilities' project spreadsheets	Utilities	No. of wiring rules (Standards) adopted and a training regime in place
INTERMEDIATE RESULTS											
Intermediate Result (Component One): Subsidy funding for new connections											
	Core	Unit of Measure	Baseline	Cumulative Target Values**				Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
Intermediate Result indicator One:	<input type="checkbox"/>	number	0	2,940	7,350	13,230	21,437	Annually	Utilities' project	Utilities	No. of Low Income

People qualifying for a new household connection to the utility network under the project									spreadsheets or annual reports		Households connected under the project
Intermediate Result indicator Two: Annual volume of electricity (kWh) sold to all Low Income Households connected under the project	<input type="checkbox"/>	kWh	0	432,000	1,080,000	1,944,000	3,024,000	Annually	Utilities' project spreadsheets or annual reports	Utilities	Volume of electricity sold to all low income households connected under the project
Intermediate Result indicator Three: Annual revenue generated from electricity sales to Low Income Households connected under the project	<input type="checkbox"/>	USD	0	85,285.00	213,212.00	383,783.00	596,996.00	Annually	Utilities' project spreadsheets or annual reports	Utilities	Total annual revenue generated from electricity sales under the project
Intermediate Result (Component Two): Household wiring – compliance assessment and wiring where required											
Intermediate Result indicator One: Low Income Households receive household wiring to standard design under the project	<input type="checkbox"/>	number	0	600	1,500	2,700	4,375	Annually	Utilities' project spreadsheets or annual reports	Utilities	No. of Low Income Households installed with project standard household wiring
Intermediate Result indicator Two: Number of electricians employed and receive training to install project design standard household wiring	<input type="checkbox"/>	number	0	3	7	11	15	Annually	Company employment register	Utilities through Electrical subcontractor	No. of electricians employed and received training under the project
Intermediate Result (Component Three): Capacity building, training, outreach and independent verification											
Intermediate Result indicator One: Low Income Households received an information bulletin on household electricity safety under the project	<input type="checkbox"/>	number	0					Annually	Communications strategy	DoE	
Intermediate Result indicator Two: Community groups who received an information bulletin about the GPOBA subsidy available under the project	<input type="checkbox"/>	number	0					Annually	Communications strategy	DoE	

<p>Intermediate Result indicator Three: Women's groups who received an information bulletin about the GPOBA subsidy available under the project</p>	<input type="checkbox"/>	number	0					Annually	Communications strategy	DoE	
---	--------------------------	--------	---	--	--	--	--	----------	-------------------------	-----	--

***Please indicate whether the indicator is a Core Sector Indicator (see further <http://coreindicators>)**

****Target values should be entered for the years data will be available, not necessarily annually**

Annex 2: Implementation Arrangements

VANUATU: GPOBA IMPROVED ELECTRICITY ACCESS PROJECT

Financial Management

- Risks and Mitigating Strategies:** The FM risk associated with the grant is Substantial, and even with the mitigation strategy would remain Substantial. A recent PEFA assessment of the GoV PFM system was generally favorable with regards to cash management and accounting records but raised some concerns over internal controls across government. Given the size and nature of the project, mitigation strategy is that the PMU be required to appoint and maintain for the duration of the project a financial accountant/finance officer.
- Budgeting:** The DoE will develop a total project budget and break this down into annual budgets. The DoE will review this document either quarterly, six-monthly or annually, with analysis of budget vs. actual expenditure.
- Funds flow:** The Ministry of Finance and Economic Management (MFEM) will manage execution of the project will be implemented through the DoE. The Grant will be signed with the Government of Vanuatu in US dollars and a designated account will be established for the project under the Government of Vanuatu Development Fund in the Central Treasury Account, and will be maintained in the local currency (Vatu) and managed by the MFEM. Under the MFEM it creates sub codes for the project in the various government departments. The Bank proceeds will flow from the Bank into the Designated Account (DA). DoE will be directly responsible for the management, maintenance and reconciliation of DA activities for the project components, including preparation of withdrawal applications and supporting documents for Bank disbursements. It is envisaged that direct payments be used where possible to pay subsidies to the utility companies.
- Accounting and internal controls:** The Government of Vanuatu financial management systems and processes will be used for the processing of payments and the recording of transactions. The accounting software package used within the agency and all other government agencies is Smart stream financials. This will be supplemented by the implementing agency with spreadsheet based systems to keep track of payments against contracts, budgets and expenditures by activity – this supplemental information is used in the preparation of withdrawal applications by the implementing agency, which are then approved in the MFEM.
- Accounting and financial reporting:** DoE will be responsible for managing, monitoring and maintaining project accounting records for the project. Original supporting documents will be retained by the DoE. Unaudited interim financial reports (IFRs) will be prepared by DOE for the project on a quarterly basis. The financial reports will include an analysis of actual for the quarter, year to date and project to date, compared to total project budget, and commitments. The format will be developed by the DoE and agreed to by the World Bank, prior to submission of the first IFRs. The IFRs will be forwarded to the World Bank within 45 days of the end of each calendar quarter.

6. **Audit:** Annual audits of the Project Financial Statements will be required. The Auditor General approves the audits of government agencies and projects.

Disbursement Arrangements

7. **Disbursement Methods** - Three disbursement methods are all available for the project: advance, reimbursement, and direct payment. Supporting documents required for Bank disbursement under different disbursement methods will be documented in the Disbursement Letter issued by the Bank, and will include reference to the requirement for an Output Verification Report (OVR) from the Independent Verification Advisor (IVA) for any and all disbursements of subsidies.

8. **Designated Account** - One DA for the implementing agency in local currency will be set up in the MFEM as a sub ledger for the project to manage the funds advanced to the Central Treasury Account, and will be managed by DoE. The ceiling of the DA will be determined and documented in the Disbursement Letter. The project funds will be disbursed against eligible expenditures as set out in the legal agreements. No retroactive financing is expected for this project.

9. **Disbursement Categories** – At least two disbursement Categories will be required, one for Subsidies, and one for Consultants, Goods, Training and Operating Costs. All categories can be funded inclusive of taxes as allowed by the Country Financing Parameters.

Procurement

10. **Procurement Arrangements:** Procurement for the proposed project will be carried out in accordance with the World Bank’s “Guidelines: Procurement under IBRD Loans and IDA Credits,” dated January 2011 (Procurement Guidelines); and “Guidelines: Selection and Employment of Consultants by World Bank Borrowers,” dated January 2011 (Consultant Guidelines); and the provisions stipulated in the Financing Agreement.

11. **Procurement Implementation and Procedures:** The proposed project will include a subsidy component for new service connections and household wiring and technical assistance for the preparation, implementation and verification of the project. The new electricity connections and household wiring will be implemented by the two existing utilities, i.e., UNELCO and VUI. The technical assistance component will be implemented by DoE.

12. Connection services are the two utilities’ normal business operations, under concession agreements with the GoV, for the generation and supply of electric power, which have been in operation since 1986. Separate agreements will be signed with the utilities for the provision of the subsidized electricity connections and household wiring. Procurement under the subsidy implementation agreements will be carried out in accordance with paragraphs 3.14 (b) and 3.15 of the Bank’s Procurement Guidelines relating to Public Private Partnership Arrangements. The agreements will include eligibility and transparency requirements in line with the provisions in paragraph 3.15 of the Bank’s Procurement Guidelines, and technical standards and specifications. Goods and works for the subsidized connections will be procured by the utilities

under competitive procedures (which have been found acceptable to the Bank), or under direct contracting with existing suppliers and contractors for the purpose of standardization and maintenance of quality. UNELCO has established procurement procedures and practices in subcontracting contractors to undertake connection services. Their established procurement procedures and practices will be used for the provision of new electricity connection and household wiring. VUI carries out all service connections using its in-house workforce. An independent verification agent, design of household wiring standards, and other consultants will be selected in accordance with the Bank’s selection procedures and process set out in the Consultants Guidelines.

13. Procurement method and review requirement for the project are shown below.

Procurement Methods	Procurement Thresholds	Review Requirement
A. Procurement by DoE		
I. Goods:		
International Competitive Bidding	≥US\$500,000.	Prior Review
Shopping	<US\$500,000.	First one contract
Direct Contracting	Meet the criteria set out in para. 3.7 of Procurement Guidelines	Prior Review
II. Works:		
Shopping	<US\$1, 000,000.	First one contract
III. Selection of Consultants:		
Firms (QCBS, QBS, LCS, CQS and SSS)	In accordance with the Bank’s Consultants Guidelines	≥US\$100,000, all SSS contracts.
Individual Consultants		≥US\$50,000 (exception made to SSS, legal and procurement related assignments, where all contracts are subject to prior review)
B. Procurement by Utilities		
I. Goods		
International or National Competitive Bidding, or Limited International Bidding, or Shopping	In accordance with paragraph 3.15 of Bank’s Procurement Guidelines	Post Review
Direct Contracting with previous or existing suppliers under standardization		Post Review
II. Works		
Shopping	In accordance with paragraph 3.15 of Bank’s Procurement Guidelines	Post Review
Direct Contracting with existing or previously contracted well-performing contractors		Post Review

14. **Frequency of Procurement Supervision:** In addition to the prior review to be carried out by the Bank, the capacity assessment has recommended that procurement supervision

missions visit the field once a year to carry out post review of procurement. The sampling ratio of procurement post review is one out of 5 contracts.

16. **Procurement Plan:** A procurement plan covering items to be procured by DOE has been prepared and agreed with the Bank. The Plan will be available in the Project's database and in the Bank's external website. The Procurement Plan will be updated in agreement with the Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

Annex 3: Economic and Financial Analysis

VANUATU: GPOBA IMPROVED ELECTRICITY ACCESS PROJECT

Background

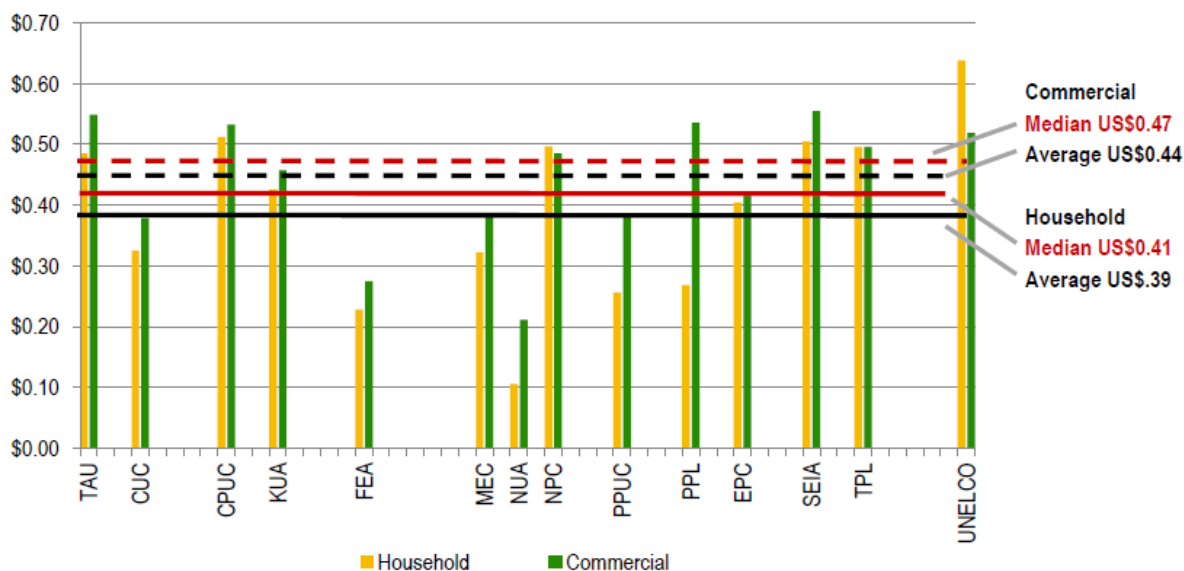
1. The purpose of this section is to evaluate (i) whether it makes economic sense to connect the low income consumers to the electricity grid; and, if it does (ii) to examine the barriers to achieving those connections (from a financial perspective) and demonstrating why grant funded subsidies are necessary.
2. For this analysis it is necessary to examine the consumers capacity to pay upfront costs, the current electricity price regulation arrangements and the impact a non-grant funded subsidy will have on the electricity prices.
3. **Consumers' capacity to pay for connections.** The study by consultants Castalia found that the upfront cost of service connections is a key constrain for low income consumers. According to Castalia costs of service connections vary between US\$550 to US\$1000 per connection depending on whether or not a pole is required and if the service connection is underground. The average cost of service connection used for this project is US\$590 per connection. The consumer contribution to service connection is to be set at 20 percent of the connection costs.
4. In addition to the service connection the consumers need to install household wiring. The average cost of basic household wiring is in the order of US\$444. This is based on a Ready Board design. The project will fund household wiring to a maximum of US\$444.
5. The monetary contribution by a consumer on average will be \$117. Castalia found that consumer contribution of between \$111- \$170 is likely to be affordable in the Vanuatu context. This estimate has been examined against the results of the most recent household income and expenditure survey shows that average household incomes for consumers in the lowest two quintiles are as the table below. The average cost of connection is also shown as a percentage of the average monthly household income.
6. **Electricity price regulation in Vanuatu.** The supply of electricity is regulated in Vanuatu by an independent regulator. The electricity prices charged by the utilities are determined based on:
 - (a) The regulated asset base for each utility on which the utility earns a return determined as being reasonable by the regulator (11%);
 - (b) The asset base is depreciated as determined by the regulator;
 - (c) Fuel costs are passed through; and
 - (d) Other efficient operating costs are allowed to be recovered.
7. Based on the above, and the forecast demand for electricity, the regulator determines a base tariff which is then "recovered" by the utilities from its different classes of customers. Small Domestic Consumers who use less than 120kWh per month and use a 5-10A single phase

connection have access to a subsidized tariff which is set at about 34 percent of the base tariff. The subsidized tariff does not recover cost.

8. The connection charges (for service connections) are not regulated.

9. This project targets connection for low income consumers with estimated consumption of 30kWh per month. Each consumer connected by the utility on a subsidized tariff under recovers the regulated revenue by US\$140 per annum until the next tariff reset which occurs on a 4 yearly cycle i.e. the consumer currently pays US\$ 74 per annum for 30 kWh per month whereas US\$ 214 would be payable for the equivalent consumption under a full cost recovery tariff.

10. Furthermore, electricity tariffs in Vanuatu are relatively high compared to other Pacific Island States, that the capacity for consumers to support cross subsidies is limited. The figure below illustrates the relative tariffs (UNELCO is indicative of Vanuatu).



Economic Analysis

11. **Economic Rate of Return.** The ERR is based on the basis of the target consumer segment that is the low income consumers.

12. These consumers use around 30kWh hours per month of electricity (or electricity equivalent of energy). The consumer benefits based on willingness to pay for this amount of electricity equivalent (candles, kerosene etc.) is between \$19 to \$23 per month. This figure has been further validated against the amount the consumers pay when using a shared connection (about \$24 per month). This benefit does not include any non-monetary benefits such as, such better lighting for education and health and improved productivity. As outlined in earlier sections the additional consumers connected will not require additional power plant to be built or any incremental network costs.

13. The costs include the cost of the service connection and the cost of basis household wiring estimated at US\$1,034 for a postpaid meter. The consumer will bear 20 percent of the cost of the service connection, estimated on average at US\$117. In addition, to the cost of connection there are incremental costs of fuel (estimated at cost of diesel fuel) and incremental operating costs of the utility associated servicing the additional consumers connected under the program (this has been estimated based on the average operating cost of US\$ 147 per annum in year 1).

14. Based on the above benefits and cost assumptions, the ERR for the project is estimated at 15 percent and a NPV of around \$1.7 million for estimated number of connections over a 20-year period. The ERR does not change significantly with significant variation to costs of service connection and household wiring. There is a net benefit from connecting consumer to the electricity grid. The assumptions and results for estimating the ERR are summarized below.

Financial Analysis

15. **Financial impact on the consumer and the utility.** The financial analysis needs to consider the impact on the target consumer segment (low income) and the utilities.

16. **Consumer impact.** The consumer benefits are estimated as per the economic analysis at the consumers “willingness to pay”. The cost to the consumer is based on the consumer’s financial contribution to a service connection (\$117 on average) and the tariff charge by the electricity utility which as discussed above is less than the cost of supply used for the economic analysis. There is a net financial benefit to the consumer to connect to the electricity grid, as the WTP of US\$ 24 per month exceeds the monthly consumption tariff of US\$6 - the problem however, is the consumer’s ability to pay for the upfront costs for service connection and household wiring. Subsidies are therefore required to make to close this gap.

17. **Utility impact.** Every low income consumer connected by the utility will result in the utility receiving US\$ 140 per annum (VUV 13,278) less revenue than the regulated base tariff until the next tariff reset (loss to the utility) i.e. the consumer currently pays US\$ 74 per annum whereas US\$ 214 would be payable for the equivalent consumption under a full cost recovery tariff. If the cost of service connection and household wiring were to be subsidized by the utility instead of GPOBA, the IRR for the utility would be -2 percent (based on full cost recovery from next tariff reset). The connection and household wiring will add another 2 percent cross subsidy to the market (prices will need to increase by an additional 2 percent - to allow for regulated rate of return depreciation of incremental assets). This does not take into account the administrative difficulty with requiring a private sector utility to fund the wiring of consumers’ homes. If the service connections and the household wiring are subsidized by the GPOBA the IRR for the utility is 13.9 percent. This is in line with the regulated rate of return allowed for electricity utilities in Vanuatu. The assumptions and results for estimating the IRR are summarized below.

Economic Analysis – per target consumer

Assumptions:																					
Willingness to pay	24	\$ per month																			
Connection/wiring costs	1034	\$																			
Variable costs	0.41	\$0.30/kWh for fuel and \$0.11 kWh incremental operating costs																			
Inflation	3%																				
Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Current costs (WTP)		288	297	306	315	324	334	344	354	365	376	387	399	411	423	436	449	462	476	490	505
Costs - electricity																					
Connection costs average	590																				
Wiring costs maximum	444																				
Variable costs		147	151	156	161	165	170	175	181	186	192	197	203	209	216	222	229	236	243	250	258
Net benefit	-1034	141	145	150	154	159	164	168	174	179	184	190	195	201	207	213	220	226	233	240	247
EIRR	15%																				
NPV at 10%	\$400																				
NPV target consumers	\$1,751,951																				

Financial Analysis – per target consumer

Assumptions:																					
Income	\$0.20/kWh	for 4 years (subsidized tariff) then base tariff																			
Connections costs	1034	where funded by the utility																			
Variable costs	0.41	\$0.30/kWh for fuel and \$0.11 kWh incremental operating costs																			
Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Utility - Utility funds connections and household wiring - No GPOBA subsidy																					
Current costs (WTP) - Income		74	76	78	81	217	223	230	237	244	251	259	267	275	283	291	300	309	318	328	338
Variable costs		147	151	156	161	165	170	175	181	186	192	197	203	209	216	222	229	236	243	250	258
Connection investment	-1034																				
Net cash flow	-1034	-73	-75	-78	-80	51	53	55	56	58	60	61	63	65	67	69	71	73	75	78	80
FIRR	-2.0%																				
Utility - GPOBA and consumer fund connections and household wiring as per project design																					
Current costs (WTP) - Income		74	76	78	81	217	223	230	237	244	251	259	267	275	283	291	300	309	318	328	338
Variable costs		147	151	156	161	165	170	175	181	186	192	197	203	209	216	222	229	236	243	250	258
Connection investment	-1																				
Net cash flow	-1	-73	-75	-78	-80	51	53	55	56	58	60	61	63	65	67	69	71	73	75	78	80
FIRR	13.9%																				

Annex 4: Environmental and Social (including Safeguards)

VANUATU: GPOBA IMPROVED ELECTRICITY ACCESS PROJECT

A. Background

1. The Vanuatu GPOBA Grid Based Electricity Access Project will subsidize the costs of a low voltage grid electricity connection for unconnected consumer households in concession areas in Vanuatu.
2. The Project Development Objective (PDO) is to increase sustainable access²⁶ to formal grid-based electricity services within Vanuatu's electricity concession service areas for low income customers through targeted subsidies.
3. The project targets approximately 4,375 households within Vanuatu's electricity concession areas that do not have formal access to electricity. Within the concession areas, the feasibility study prepared by Castalia assessed that there are approximately 6,000 households that lack access to electricity entirely and a further 2,000 that have informal connections, for example shared with a neighbor. Many of these potential beneficiaries live beyond the reach of the existing electricity distribution network.
4. The information in this assessment supplements socioeconomic information on households and electrification status contained in Appendix A: Background to the Consultant's final report *Global Partnership on Output-Based Aid: Improved Electricity Access in Vanuatu*, Castalia Strategic Advisors, and September 2012. Statistical data is drawn from the Vanuatu Statistics Office Survey of Household Income and Expenditure (HIES) 2006, the 2009 National Census of Population and Housing, the 2009 National Census of Population and Housing Gender Monograph and the Survey of Household Income and Expenditure 2010.

B. Objective of the Social Assessment

5. The objective of this social assessment is to ensure that socio-economic considerations and in particular any relevant policy elements of the Bank's Operational Policies 4.10, Indigenous Peoples, and 4.12, Involuntary Resettlement, are incorporated in project design and delivery of the project, and appropriate safeguards documents are identified and prepared to guide discussions and preparation of supporting documentation during implementation.
6. Adverse impacts on indigenous peoples' resources, culture or livelihoods are not foreseen, since the project has minimal impacts, the indigenous people are the vast majority, and the project is entirely for their benefit, in particular for the benefit of the poor amongst them. Beneficiaries will self-identify by application for connection. The project will involve only voluntary donation of affected land and assets made in accordance with the Bank's criteria for voluntary land donation and the operating rules of the two Utilities, Union Electrique du Vanuatu

²⁶ Access in this context means a direct consumer connection to the electricity grid, as opposed to a shared connection or no grid connection.

Limited (UNELCO) and Vanuatu Utilities and Infrastructure Limited (VUI), in whose exclusive concession areas the project will be delivered.

C. Social Development Outcome

7. The outcome of the Social Assessment is to strengthen the socio-economic integration of the beneficiaries through giving them the opportunity to participate in access to clean modern energy with its attendant positive impacts on access to education, the media, income generating opportunities and reduction in domestic drudgery, especially for women.

D. Project Impacts

8. The project has three components. These are: 1) OBA subsidies for new electricity service connections for low income households; 2) OBA subsidies for household wiring for low-income households accessing electricity services under the project; and, 3) Implementation support to the DoE for project management, communications and outreach, training, and independent verification of outputs. The proposed activities under each component are presented below.

9. Component 1, subsidy funding for new connections, will fund capital costs incurred by Utilities to connect eligible²⁷ customers with grid-based electricity services in existing concession areas through the provision of the GPOBA subsidy, which will cover the majority of the connection costs. This component will be implemented by the Utilities. The associated impacts will be installation of a meter and internal wiring in the homes of up to 4,375 applicants for low voltage connection, connection of wires from the distribution line to the meter, installing a pole to carry the wire across roads if necessary.

10. Component 2 comprises compliance assessment of household wiring, and installation of standards-compliant wiring where required. This will be achieved through installation of household wiring that meets appropriate international standards by authorized contractors working for the utilities.

11. Action under these components may entail some removal of obstacles such as trees or shrubs, minor traffic and earth disturbance for installation of poles and guy wires in road reserve or on easements. These actions will be undertaken at the request of applicants, and with the informed consent of applicants and any affected neighbors.

E. Legislative Framework

12. Vanuatu is a parliamentary democracy whose constitution dates from its independence from France and the United Kingdom in 1980. The rights and duties of all citizens are articulated in the 1980 Constitution. These include equal treatment under law, and allowance for special treatment for the benefit of females, children and youth members of underprivileged

²⁷ Eligible consumers are applicants for low voltage connections who are currently not directly connected to the grid.

groups or inhabitants of less developed areas. Vanuatu has also ratified the relevant international conventions in the table following, which together with the provisions of the Constitution ensure that there is no legal discrimination against any citizen or group in the nation except positive discrimination to address vulnerability.

Table 1: Government of Vanuatu Human Rights Conventions Ratifications

Title	Act
Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (Ratification) Act No. 14 of 2010	14 of 2010
Convention on Biological Diversity (Ratification) Act No.23 of 1992	23 of 1992
Convention on Elimination of All Forms of Discrimination Against Women (Ratification) Act No.3 of 1995 (CEDAW)	3 of 1995
Convention on Rights of the Child (Ratification) Act No.26 of 1992	26 of 1992
Convention on the Rights of People with Disability (Ratification) Act No. 25 of 2008	25 of 2008
Convention For The Safeguarding of Intangible Cultural Heritage (Ratification) Act No. 26 of 2009	26 of 2009

13. Land law in Vanuatu derives from the Constitution and numerous subsequent Acts. While the Constitution asserts that all land belongs to the custom owners, the Government may own land that it has acquired in the public interest. It is not clear whether the customary ownership concept refers to group or individual ownership. A subsequent communiqué identified three kinds of land – rural land under customary ownership, urban and public land. These latter are held by government under perpetual lease, with rental revenue accruing to the custom owners. In some cases it has been difficult to identify undisputed custom owners to whom rental should be paid, and who should participate in ongoing management of the land. ‘Public’ land includes much of the urban land owned at Independence by the British or French Governments, the Condominium, or by a Municipality. A Land Summit held in September 2006 passed twenty resolutions intended to inform a new consolidated land law. This is still under development. Meanwhile land administration continues to be confusing and inconsistent.

14. The Electricity Act, 2000 permits the Utilities, with notice, to use (though not acquire) land for purposes of electricity supply and distribution; to enter land to survey, to dig and install poles and wires and to remove vegetation within 100 feet of a distribution line. There is provision at law for compensation for damage or loss. A Compensation Commission comprising three officials and two area residents settles the rate of compensation for damage. There is no right of appeal.

15. In this project, impacts will be very minor, mostly within road reserve, and will only be incurred upon application of the beneficiary. The applicant will be responsible for giving or obtaining consent to clearance of any obstructions for easements required to make the connection. Compensation will not be paid, in view of the voluntary nature of participation, and the substantial value of the subsidized connection to the applicant. Given the minimal impacts and the value of the subsidy, it is considered that this will not impose hardship on the applicant.

F. Stakeholders

16. Institutional stakeholders in the project include the utilities and service providers, UNELCO and VUI, the Utilities Regulatory Authority (URA), the Ministry of Finance and Economic Management, the Department of Energy as supervisor of safeguards of behalf of the Government of Vanuatu, and interested civil society groups such as the Vanuatu Women's Council and National Council of Women.

17. The intended beneficiaries are the low income households with no individual electricity connection in the Utilities' existing concession areas in Luganville operated by VUI; Port Vila, and the islands of Tanna and Malekula operated by UNELCO.

G. Population and Ethnicity

18. Vanuatu's population of 257,000 is scattered across 65 of its 80 islands, with generally low population densities overall, from 11 per km² in Sanma Province to 55.6 per km² on Efate Island in Shefa Province, which includes the capital Port Vila. The population has grown by 200 percent in the past 50 years. It is 95.5 percent Melanesian²⁸, who identify themselves as Ni-Vanuatu, with 4 percent European and the remaining population Asian or of other Pacific Island origin. Official census and household income and expenditure statistics are not disaggregated by ethnic group.

19. English, French and Bislama are official languages. Bislama is the common language, and the first language of most urban ni-Vanuatu, that is, the residents of Port Vila and Luganville. It is the most common second language elsewhere in the Vanuatu islands, where 113 additional separate languages are spoken. English and French are the main languages of instruction in schools.

20. As beneficiaries for the connection subsidy will self-identify, access to benefits by ethnicity is not predictable; rather, because of eligibility conditions which limit the voltage of the connection and the time within which upgrade would be permitted, it is safe to assume that in the main, poorer households in the concession areas will benefit, and that the majority will be ni-Vanuatu.

H. Religion

21. Ni Vanuatu are predominantly Christian, with fewer than 2 percent in the 2009 census stating either that they had no religion, or not answering the question. No other religion was reported in the census.

I. Poverty

22. Vanuatu is a lower middle income country, with a per capita GNI of \$US 3,960 in 2012 on a purchasing power parity basis. Based on the most recent complete data, though below-

²⁸2009 Census

income poverty is not recorded, 30.1 percent of the population lives in multi-dimensional poverty²⁹, which takes into account education, health and standard of living, and an additional 33.5 percent is assessed as vulnerable to multi-dimensional poverty (UNDP Human Development Report 2013). A partial analysis of data from the 2010 Household Income and Expenditure Survey in a Millennium Challenge Account (MCA) Report indicates that the populations below five poverty lines from \$US 1.08 to \$US 4 per person per day have all fallen markedly on East Coast Santo and in rural Efate between 2006 and 2010. This is correlated with improvements in roads and infrastructure.

J. Incomes in the Project Areas

23. The table below shows household monthly incomes in the urban areas, Malampa and Tafea, the Provinces where the Utilities' concessions are located as reported in the 2006 HIES³⁰.

Table 2: Income in the Project Areas, Total and Percentage Cash

Location	Income – Vatu	US\$ (\$= 91 Vatu)	Of which cash %
National average	60,700	667.03	55
Port Vila	93,400	1,026.37	83
Luganville	64,200	705.49	74
Malampa Province	49,200	540.66	36
Tafea Province	43,700	480.22	37

24. Urban incomes in Port Vila and Luganville, and the percentage of that income derived from cash resources are higher than national averages. In Malampa and Tafea Provinces (the respective locations of the concessions in Malekula and Tanna), incomes are well below national averages, and dependence on subsistence is substantially higher than national average levels, at around 48 percent, compared with an urban average 6 percent, and 31 percent overall. (Key Results HIES 2006). These two Provinces also have the lowest population growth and amongst the highest dependency ratios in the country (Census of Population 2009 Figs 6 and 8).

25. With a lower percentage of economically active people, lower incomes and higher in-kind percentage of incomes than for the country as a whole, populations in these two concession areas may face greater difficulties in meeting large cash expenses than the potential urban beneficiaries.

K. Gender

26. Women account for 49 percent of the population. In the main urban areas they are outnumbered 107:100. Only in Tafea Province do women outnumber men 100:99³¹. Women do not suffer legal discrimination, and under the Constitution are eligible for special treatment to

²⁹Ni-Vanuatu avoids the term 'poverty' preferring 'low income.' The word 'poverty' in this section reflects the provenance of the data

³⁰The 2010 HIES did not undertake this analysis, hence the 2006 data is the most recent

³¹Vanuatu Statistics Office 2009 National Census of Population and Housing

address disadvantage, but generally have lower social status. Domestic violence is recognised as an issue, though is believed to be substantially under-reported.

27. Nationwide, 24 percent of private households are female-headed³². Rural women earn 61.5 percent of rural men's income, while in urban areas, they earn 89.6 percent of male income³³. Female headed households will therefore generally face higher financial barriers to participation in the project in potentially more limited ability to afford appliances that maximize benefits.

28. Overall, lone male headed households own more consumer durables such as motor vehicles, boats and household whiteware than lone female headed households, but the latter (over 65 percent) own more cash crops. This is an indicator of dependence on subsistence generally associated with low income in sole woman headed households. In urban areas however, lone female headed households own more household appliances than lone male headed households, indicating the value they place on use of electricity.

29. Women's groups are active across the country and will be engaged throughout the project in consultation and information dissemination, and if willing, monitoring and evaluation.

L. Households and Housing

30. Nationwide, 56.8 percent of households are nuclear families and 15.5 percent are extended families.

31. The table below shows the populations and numbers of households in the administrative areas where the Utilities' concessions are located.

Table 3: Population and Households in Concession Areas

Area	Population 2009	Private Households
Port Vila urban	44,040	9,055
Luganville urban	13,167	2,554
Malekula	22,934	4,950
Tanna	28,779	5,153

32. Rural households comprise 79 percent of the total households. Only 24 percent of rural houses nationwide are of permanent building materials, compared with almost 80 percent in urban areas. The commonest non-permanent materials are thatch and bamboo.

33. Permanent house construction materials are strongly associated with use of electricity as a lighting source. Overall, 27 percent of households have an electricity connection. The low penetration ratio is partly due to absence of an accessible grid in many rural areas, but it is notable that 56 percent of permanent houses and 75 percent of flats use electricity for lighting. Only 5 percent cent of traditional and 14 percent of mixed-material houses use electric lighting.

³²Vanuatu Statistics Office 2009 National Census of Population and Housing Gender Monograph:16

³³Data source Vanuatu Statistics Office National Household and Expenditure Survey 2006, Table 2.6

Non-permanent construction materials are not a barrier to connection, but the project will take care to ensure that requirements for safe wiring and connection for all households are met.

M. Education and Health

34. Of the adult population (aged 15 and over) in the areas that are potential beneficiaries of the project, 89 percent of men and 86 percent of women are literate in at least one language, with illiteracy higher in the older age groups. By language, 74 percent of men and 73 percent of women are literate in Bislama, 65 percent and 63 percent respectively in English, and 51 percent and 49 percent in French. Well over half, 58 percent of men and 56 percent of women, are bilingual in Bislama and English.

35. The 2009 Population Census Gender Monograph indicates that overall, 85 percent of the population has access to improved drinking water supplies, 95 percent in urban, and 82 percent in rural areas. Access to improved sanitation shows a similar urban/rural divide, at 34 percent overall, but 52 percent urban as compared with 28 percent rural households. Lone male headed households have slightly lower access to safe drinking water than households headed by lone females, 88 percent versus 87 percent. A similar small difference applies to access to improved sanitation, but with the gender access reversed; 36 percent for lone male headed households to 34 percent for lone female headed households.

36. Women have significantly lower rates of lifestyle related health risks such as smoking, consuming alcohol and kava, but suffer more from sight and mobility disabilities than men. Electrification can make a valuable contribution to management of such conditions.

N. Differential Access to Project Benefits

37. There will be no discrimination in access to benefits on grounds of the gender, cultural, ethnic or linguistic group of the applicant. The major benefit of the project will be a subsidized electricity connection. Of the 21,700 households in the urban areas of Port Vila and Luganville, Tanna and Malekula, around 6,000 in the concession areas lack electricity access, and 5,508 are estimated to be connectable and eligible for the low consumption subsidy.

38. Those households within physical reach of a distribution line that can guarantee any access required, will be eligible to apply.

39. Differential access to project benefits relates to its pro-poor objectives, to be exercised primarily through the type of connection for which applicants may be eligible, which will apply to a 5A single-phase connection.

40. For practical reasons, those applicants who can be connected without any additional poles or access permissions are likely to be first served. Those whose connection requires additional infrastructure (poles, guy wires, transformers) and who need to provide assurance of voluntary land donation and waiver of compensation for affected land-based assets may face longer waiting times while the consultation, documentation and preparatory physical works are undertaken.

41. Applicant's access to a mobile telephone will assist the connection verification process. In the 2009 census, 76 percent of households reported having a mobile phone; those without access to mobile telephony will be at a disadvantage.

42. Factors extrinsic to the project may influence access to project benefits.

43. Under Vanuatu law, an application for connection must have the consent of the landowner. In Port Vila, 44 percent of households are in rental accommodation. In Luganville, 22 percent, in Malekula over 5 percent and in Tanna almost 3 percent of households are in rental accommodation. Low income households in rental accommodation may be at some disadvantage in applying for subsidized connections due to the difficulties that can arise in identifying property owners or obtaining consent. Local leaders and subdivision owners are traditional and generally effective mediators between property owners and tenants in such cases. Applicants in rental accommodation should have security of tenure to avoid benefit capture by landlords in whose property connections are made.

44. Though there will be no form of restriction or discrimination against any type of applicant, active efforts will be made to inform eligible women and encourage them to apply.

O. Implications for Analysis of Alternatives

45. Findings in the foregoing sections do not suggest alternative approaches. They reinforce the need for vigilance that:

- (a) Homes of applicants are safely wired; and
- (b) Minimum impact alternatives are sought to avoid loss of productive assets of applicants, and informed consent is obtained for any unavoidable impacts on property.

P. Strategy to Achieve Social Outcomes

46. The strategies to ensure social outcomes include:
- a. Information dissemination and consultation to ensure that eligible groups and individuals are aware of the project, in particular low income women;
 - b. Assistance with household wiring where required to ensure that wiring is safe;
 - c. Participatory monitoring of progress of connections for:
 - i. timeliness;
 - ii. freedom from dispute; and
 - iii. impacts on household energy costs.

Q. Participation and Consultation

47. A participation and consultation plan is included in the ESMF. It includes consultations to ensure awareness and understanding of the project. The ESMF includes relevant elements of a Resettlement Policy Framework and voluntary land donation protocols that describe the alignment of Safeguards principles and the Utilities' rules of operation, which ensure that applicants for connection act with informed consent.

R. Data Collection, Monitoring and Evaluation Plan

48. The Utilities will maintain a discrete record of connections made under the project. For each connection, the Utilities will compile a completion report and an independent verification agent will certify that conditions have been met for the Utility to collect the subsidy. Utilities' summary record of connections made under the project will include the name and sex of the applicant, their address, contact mobile phone number and their connection history, to enable monitoring under the ESMF against project PDOs 1, 2 and 3:

- a. PDO-1: People provided with access to electricity under the project by household connections (Number);
- b. PDO-2: People continuing to utilize electricity connections six months after connection (Percentage of GPOBA connections);
- c. PDO-3: Community contributions (consumer co-contribution) in the total project cost (Percentage).
- d. PD-4: Wiring rules (Standards) adopted and a training regime in place.

The last PDO will have no direct impact on consumers.

Annex 5: Copy of Government Letter of Support
VANUATU: GPOBA IMPROVED ELECTRICITY ACCESS PROJECT



Office of the Director General

17 January 2011

Ms. Patricia Veevers-
Carter, GPOBA- Program
Manager World Bank,
Washington,
on.

Dear
Madam,

Subject: GPOBA : Grant application

Please find attached a duly completed GPOBA grant application document which is fully endorsed by both the Office of the Prime Minister, the Ministry of lands and energy and of course the Ministry of Finance and Economic Management as the sponsoring Ministry.

The matter has been discussed internally and the current document has the full support of the Government. We hope that you will consider this favourably.

Yours Sincerely

A handwritten signature in black ink, appearing to be 'Benjamin Shing', written over a circular stamp.

Benjamin Shing
Acting Director General



Cc: Prime Minister – Hon Sato Kilman
Minister of Lands- Hon. Iaris Iauko
Minister MFEM – Hon. Moana
Carcasses DO's- MOL, PMO, MFEM

Annex 6: Implementation Schedule

VANUATU: GPOBA IMPROVED ELECTRICITY ACCESS PROJECT

Implementation Schedule

Milestone	Expected completion
GPOBA, IDA, GoV provide subsidy commitment	October 31, 2013
GPOBA Grant Agreement signed	May 1, 2014
Grant effectiveness after conditions met	July 1, 2014
Roll-out begins	July 1, 2014
GPOBA disbursement begins	August 1, 2014
GPOBA disbursement ends	October 31, 2018 – 4 months after the grant closing date (June 30, 2014)