



Report and Recommendation of the President to the Board of Directors

Project Number: 43414
September 2015

Proposed Loan and Grant, and Administration of a
Grant
Republic of Vanuatu: Energy Access Project

CURRENCY EQUIVALENTS

(as of 1 January 2015)

Currency unit	–	Vatu (Vt)
Vt1.00	=	\$0.01
\$1.00	=	Vt96.50

ABBREVIATIONS

ADB	=	Asian Development Bank
ADF	=	Asian Development Fund
AFS	=	audited financial statements
DMF	=	design and monitoring framework
EIA	=	environmental impact assessment
EMP	=	environmental management plan
ICB	=	international competitive bidding
IEE	=	initial environmental examination
LAR	=	land acquisition and resettlement
LIBOR	=	London interbank offered rate
MFEM	=	Ministry of Finance and Economic Management
MOCC	=	Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Environment, Energy and Disaster Management
PAI	=	project administration instructions
PAM	=	project administration manual
PIU	=	project implementation unit
QCBS	=	quality- and cost based selection
RRP	=	report and recommendation of the President to the Board
SBD	=	standard bidding documents
SOE	=	statement of expenditure
SCF	=	Strategic Climate Fund
SPS	=	Safeguard Policy Statement
SPRSS	=	summary poverty reduction and social strategy
TOR	=	terms of reference
VPMU	=	Vanuatu Project Management Unit

WEIGHTS AND MEASURES

km – kilometer
kW – kilowatt
kWh – kilowatt hour
MW - megawatt
MWh – megawatt hour

NOTE

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

Vice-President	S. Groff, Operations 2
Director General	X. Yao, Pacific Department (PARD)
Director	R. Guild, Transport, Energy and Natural Resources Division, PARD
Team leader	A. Maxwell, Senior Energy Specialist, PARD
Team members	S. Lee, Principal Social Development Specialist (Gender & Dev't), PARD T. Morita, Office of the General Counsel (OGC) E. Rustamova, Operations Officer, PARD N. Sapkota, Social Safeguard Specialist, PARD J. Williams, Senior Environment Specialist, PARD
Peer reviewers	J. Acharya, Senior Energy Specialist, Regional and Sustainable Development Department (RSDD)

DRAFT

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PROJECT AT A GLANCE

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on (i) a proposed loan, (ii) a proposed grant, and (iii) the proposed administration of a grant to be provided by Strategic Climate Fund (SCF)¹, all to the Republic of Vanuatu for the Energy Access Project².

2. The project will increase energy access and renewable energy generation in the two islands of Espiritu Santo and Malekula, being second and third largest population centers after Efate. The project will assist Vanuatu install hydropower generation to replace diesel generation in Malekula and will extend the distribution grid in both Malekula and Espiritu Santo. Project preparatory technical assistance was used in project preparation.³

II. THE PROJECT

A. Rationale

3. Vanuatu has a population of 234,000 (2009) which is geographically dispersed over more than 80 islands. 75.6% of the population is rural. Economic development is largely focused within urban areas. Access to electricity nationwide is low (33%), however drops even further in rural areas. Low access to reliable, affordable electricity has negative impact on the livelihoods of households, particularly rural households. Where electricity is available in the provinces, it is largely diesel generated. While cost of electricity is high, quality of supply is also high which is partially due to the electricity grids being operated by the private sector⁴. High cost and limited access to electricity is having a negative impact on economic development, particularly in the provinces. Over-reliance on imported fossil fuels (diesel) also has a negative macro-economic impact. In order to address these issues, the Government of Vanuatu has requested ADB to support development of least-cost renewable energy (hydropower) and grid extensions in targeted provincial centers.

4. Access to electricity is low. While the national electricity access rate is 33% of households, there is wide variation, from 82% access in urban areas to 17% access in rural areas. Of the 33% households who have access 64% are connected to the grid, while the remainder rely on solar systems or diesel generators. Household access to grid-connected electricity is 21.5% in Espiritu Santo and 8.2% in Malekula. The main reasons for the low access rates are (i) lack of government community service obligation funding for grid extensions; (ii) difficult geography and small, dispersed pockets of population, (iii) low capacity to pay in some

¹ Under the Scaling Up Renewable Energy Program in Low-Income Countries.

² The design and monitoring framework is in Appendix 1.

³ The Asian Development Bank (ADB) provided project preparatory technical assistance, including (i) ADB. 2012. *Technical Assistance to Vanuatu for Preparation of the Energy Access Project*. Manila, and (ii) ADB. 2009. *Technical Assistance for the Promotion of Renewable Energy in the Pacific*. Manila. The latter assisted with screening the provincial centers for priority renewable energy projects.

⁴ The Espiritu Santo grid is the second largest grid in Vanuatu with a peak demand of 1.7MW and installed capacity of 4.09 MW consisting of (i) 1.2 MW Sarakata Hydropower Plant; (ii) 2.85 MW diesel generators, and (iii) 40 kW grid-connected solar. The Malekula grid is the third largest grid in Vanuatu with 429 kW installed diesel generation and peak demand of 140kW.

areas, and (iv) the high cost of diesel power generation in the provincial centers due to difficult supply chains and small size of grids, which provides a disincentive to increase customers (where generation and supply costs exceed the tariff) particularly given the low lifeline tariff. Significant unmet demand means that people resort to self-generation but would connect to the grid if sufficient capacity were available. The limited reach of the distribution grid is slowing economic growth, particularly in the agriculture and tourism sectors. There is significant opportunity to increase the access rate through extensions of the existing distribution grid to peri-urban areas and establishing sustainable household solar system rollout models⁵.

5. Provision of modern electricity services to communities through distribution extensions (as opposed to household based solar systems) has been demonstrated to support economic growth, particularly where supporting existing infrastructure is in place, such as (i) access roads to markets, (ii) communication systems, and (iii) agricultural produce suitable for value adding. Social benefits of grid extensions include (i) replacing kerosene lighting with a cheaper form of energy, thereby freeing household expenditure; (ii) enabling household income generation; (iii) improving children's education; and (iv) reducing indoor health and safety issues associated with burning kerosene.

6. Over-reliance on imported diesel for power generation has a negative macro-economic impact. The cost of petroleum product imports typically exceeds 17% of total imports and 85% of the total value of Vanuatu's exports⁶. On a macro-economic level, increasing renewable energy in the national energy mix will (i) improve balance of trade by reducing fossil fuel imports, (ii) improve energy security, and (iii) reduce greenhouse gas emissions which contribute to global warming.

7. Electricity tariffs are high which is impeding economic growth.⁷ Over-reliance on diesel power generation has placed upward pressure on electricity tariffs. Diesel power generation is more expensive than renewable energy options such as hydropower. Renewable energy generation will benefit the economy by (i) placing downward pressure on tariffs, (ii) minimizing tariff volatility by partially converting the national grid to renewable energy, (iii) supporting growth of the private sector, and (iv) reducing household expenditure on electricity.

8. In order to address the above barriers, the Project will construct the Brenwe Hydropower Plant which would displace an estimated 90% of the diesel generation in Malekula. The Project will increase the residential customer base in Espiritu Santo by 25% and in Malekula by 90%.⁸ Hydropower has been assessed to be the least-cost baseload generation option for Malekula.

9. Sector policy is managed by the Department of Energy (DOE) within the Ministry of Climate Change, Adaptation, Meteorology & Geohazards, Energy, Environment and Natural Disaster Management (MOCC). Vanuatu is unique amongst ADB Pacific Island Member Countries (PIC's) as electricity is generated and supplied by the private sector. There are four separate private sector contracts which operate standalone island grids. These consist of three concessions in Efate (Port Vila), Malekula and Tanna held by UNELCO EDF Suez (UNELCO)

⁵ Current installed diesel based generation capacity is adequate to supply the existing load.

⁶ National Statistics Office: Quarterly Statistics Indicators, Sept 2013

⁷ In UNELCO's concessions, including Malekula, the average tariff is \$0.59/kWh, however customers consuming less than 60 kWh/month are covered by a lifeline tariff of \$0.16c/kWh while high consumption users above 120 kWh/month are charged \$1.43/kWh. Rates for commercial customers are \$0.41c/kWh.

⁸ The Project is focusing on increased access through grid extensions. Increased access for off-grid households is being supported through the Vanuatu Electricity for Rural Development Program (VERD), financed by the Government of New Zealand and implemented by the World Bank.

and one memorandum of agreement in Espiritu Santo (Luganville) held by Vanuatu Utilities and Infrastructure Limited (VUI). The Utilities Regulatory Authority (URA) sets tariffs under the Luganville agreement, while tariffs are set contractually for the other concessions. UNELCO and VUI operations are financed through the electricity tariff and do not receive direct Government subsidies. Electricity assets are Government owned and private utility operated (under operation and maintenance contracts).

10. ADB is experienced in supporting the development of transport and urban infrastructure in Vanuatu and provision of technical assistance for the energy sector.⁹ The project is included in ADB's *country partnership strategy, 2010–2014*¹⁰ and the *country operations business plan, 2014-2016*.¹¹

11. The Project is integrated into Government long term strategic planning. The project supports the Government's *Priority and Action Agenda (PAA) 2006-2015*,¹² 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 aligned with the Government's action document *Planning Long, Acting Short, 2009-2012*¹³ which aims to: (i) ensure that electricity is more widely available at a fair price; and (ii) encourage investment in renewable electricity. The Project is included in the *Vanuatu National Energy Road Map (NERM) 2014*.

B. Impact and Outcome

12. The impact of the project will be improved livelihoods of households in Malekula and Espiritu Santo have improved. The outcome of the project will be increased supply of clean renewable electricity to households in Malekula and Espiritu Santos.

C. Outputs

13. The outputs of the project are as follows:

- (i) **Brenwe Hydropower Plant.** A 400 kW run-of-river hydropower plant will be constructed, including (a) a total of 2 km of access roads, (b) a 21 km transmission line (20 kilovolts), (c) an intake structure, (d) a 1.0 km headrace canal, (e) a 190-meter steel penstock, and (f) a powerhouse. The Brenwe hydropower plant will provide in excess of 90% of the total generated energy for the Malekula grid through to 2040.¹⁴
- (ii) **Distribution grid extension.** The grid will be extended to an estimated additional 1,050 households. This will increase the grid access rate from 8% to 14% in Malekula and from 22% to 29% in Espiritu Santo. The project will finance 79 km distribution lines, step-down transformers and poles.

⁹ Recent projects include (i) Port Vila Urban Development Project, approved 13 December 2011, and (ii) Interisland Shipping Support Project. Recent technical assistance to the energy sector include (i) TA 7329-REG: Promoting Access to Renewable Energy in the Pacific, and (ii) TA 7798-REG Promoting Energy Efficiency in the Pacific (Phase 2).

¹⁰ ADB. 2009. Country Partnership Strategy: Vanuatu, 2010–2014. Manila.

¹¹ ADB. 2013. Country Operations Business Plan: Vanuatu, 2014-2016. Manila

¹² Vanuatu Ministry of Finance and Economic Management. 2006

¹³ Vanuatu Department of Strategic Policy, Planning and Aid Coordination, 2009

¹⁴ Backup diesel generation will be maintained (in case of disruptions to the hydropower supply or during periods of low river flow), and will also operate periodically for maintenance purposes and unplanned outages.

- (iii) **Capacity building.** Newly connected households will be trained on options for electricity-based income generation, electricity safety, and budget management.
- (iv) **Efficient project management services.** A project management unit (PMU) will be established that will provide design, management, and supervision services.

D. Investment and Financing Plans

14. The project is estimated to cost \$15.1 million (Table 1).

Table 1: Project Investment Plan (\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Distribution grid extension	2.2
2. Brenwe Hydropower	8.1
3. Project management ^d	2.2
Subtotal (A)	12.5
B. Contingencies^c	
1. Physical	1.3
2. Price	1.1
Subtotal (B)	2.4
C. Financing charges during implementation	
1. Interest during implementation	0.2
Subtotal (C)	0.2
Total (A+B+C)	15.1

^a Includes taxes and duties of \$2.0 million to be financed from government resources through exemptions

^b In mid-2014 prices.

^c Physical contingencies computed at 10% for civil works and goods. Price contingencies computed at foreign inflation on foreign exchange costs and local inflation on local currency costs.

^d Taxes and duties related to project management unit office expenses will be reimbursed by government.

Source: Asian Development Bank estimates.

15. The government has requested a loan in various currencies equivalent to SDR XXX (\$2.5 million equivalent) from ADB's Special Funds resources to help finance the project. The loan will have a 32-year term, including a grace period of 8 years, an interest rate of 1.0% per annum during the grace period and 1.5% per annum thereafter, and such other terms and conditions as set forth in the draft loan agreement. The government has also requested a grant not exceeding \$2.5 million from ADB's Special Funds resources to help finance the project. Vanuatu has received in principle approval of \$7.0 million grant from the SCF, to assist in financing the project and to be administered by ADB^{15,16}. Vanuatu will finance the remainder of the total project cost in the amount of \$3.1 million consisting of land acquisition costs, taxes and duties, and distribution civil works contracts. Since ADB is administering cofinancing resources in the form of grants from the SCF for operations financed by the Asian Development Fund (ADF), universal procurement will apply to all procurement packages under the project¹⁷. The financing plan is in Table 2.

¹⁵ Government received clearance from the SREP Sub-committee to proceed with project preparation on the basis of \$7 million grant availability from SREP. The preferred disbursement arrangement for SCF is cost-sharing.

¹⁶ Under the Scaling Up Renewable Energy Program in Low-Income Countries. The loan/grant may finance local transportation and insurance costs. The preferred disbursement arrangement for SCF is cost-sharing.

¹⁷ ADB. 2013. *Blanket Waiver of Member Country Procurement Eligibility Restrictions in Cases of Cofinancing for Operations Financed from Asian Development Fund Resources*. Manila.

Table 2: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank		
Special Funds resources (loan)	2.5	16.6
Special Funds resources (grant)	2.5	16.6
Strategic Climate Fund (grant) ^a	7.0	46.3
Government ^b	3.1	20.5
Total	15.1	100.0

Source: Asian Development Bank

^a Under the Scaling Up Renewable Energy Program in Low-Income Countries financed by the Strategic Climate Fund. Administered by the Asian Development Bank

^b Government financing includes land acquisition costs, taxes and duties, and distribution civil works contracts (financed through concession holders)

E. Implementation Arrangements

16. Ministry of Finance and Economic Management (MFEM) will be the executing agency for the project. MOCC-DOE will be the implementing agency with day-to-day implementation activities delegated to the Vanuatu Project Management Unit (VPMU). MOCC-DOE will provide a project focal point to oversee project implementation. The focal point will work closely with the VPMU. The project will finance design and supervision consultants, equipment, and office furnishings to support the VPMU in implementing the outputs. Consulting firms will be engaged using the quality- and cost-based selection method with a quality–cost ratio of 90:10 (considered justified due to the technical complexity of the power grid upgrades). Individual consultants will be recruited using individual consultant selection (ICS) and Consultants' Qualifications Selection (CQS). All consultants will be recruited in accordance with ADB's *Guidelines on the Use of Consultants* (2013, as amended from time to time).

17. The VPMU will be responsible for procurement of all civil works and goods contracts. Procurement of goods and works will be undertaken in accordance with *ADB's Procurement Guidelines* (2015, as amended from time to time)¹⁸. Vanuatu has requested that ADB select the design and supervision consultants on its behalf. The contract will be signed between the government and the selected consultant. Additional financing for additional sites may be considered if the project is performing well. A project steering committee will oversee implementation, monitor progress, and provide guidance to the executing agency. The VPMU Steering Committee will act as the project steering committee. The VPMU will act as the secretariat.

18. The project will be implemented over seven years with completion estimated by January 2022. To expedite implementation, the government has requested advance contracting for consultant recruitment. ADB has informed the government that approval of advance contracting does not commit ADB to finance the project. The implementation arrangements are summarized

¹⁸ Distribution civil works contracts to be financed by Government counterpart financing will follow procedures acceptable to the Utilities Regulatory Authority.

in Table 3 and described in detail in the project administration manual.¹⁹

Table 3: Implementation Arrangements

Aspects	Arrangements		
Implementation period	December 2015-January 2022		
Estimated completion date	31 January 2022, with loan/grant closing date 30 June 2022		
Management			
(i) Oversight body	VPMU Steering Committee		
(ii) Executing agency	MFEM		
(iii) Key implementing agencies	MOCC-DOE		
(iv) Implementation unit	59 person-months international and 46 person-months national; additional consultants will be mobilized as required.		
Procurement	International competitive bidding	4 contracts	\$7.6 million
	Shopping	1 contracts	\$0.1 million
	Direct Contracting ²⁰	1 contract	\$0.1 million
Consulting services	QCBS	107 person-months	\$1.5 million
	ICS	12 person-months	\$0.4 million
	CQS	Auditor	\$0.05 million
Advance contracting	Advance contracting for Design and Supervision Consultants (DSC)		
Disbursement	The loan and grant proceeds will be disbursed in accordance with ADB's <i>Loan Disbursement Handbook</i> (2015, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.		

ADB = Asian Development Bank, DOE = Department of Energy, ICB = international competitive bidding, ICS = Individual Consultant Selection, MFEM = Ministry of Finance and Economic Management, MOCC = Ministry of Mines, Energy and Rural Electrification Ministry of Climate Change, Adaptation, Meteorology & Geohazards, Energy, Environment and Natural Disaster Management, QCBS = quality- and cost-based selection, VPMU = Vanuatu Project Management Unit.

Source: Asian Development Bank

III. DUE DILIGENCE

A. Technical

19. The proposed hydropower plant and extended distribution grid have been assessed to be technically viable. Analysis has been completed to determine the optimum technical configuration for all components, including analysis of the hydrology of alternative river catchments, hydropower turbine size configurations, penstock arrangements, and distribution configurations to maximize system efficiencies. The design was based on analysis of Vanuatu's conditions to ensure that the proposed systems are suitable for local conditions. Hydrological monitoring is ongoing at the proposed site and will be used to update the analysis during detailed design. The detailed design will incorporate climate change resilience measures.

B. Financial

20. The financial internal rate of return (FIRR) of the Brenwe hydropower plant, not including distribution components, is 8.9%, with a project net present value of \$4.1 million. The financial

¹⁹ Project Administration Manual (accessible from the list of linked documents in Appendix 2).

²⁰ Direct Contracting with Schneider of substation equipment to maintain compatibility with existing equipment.

viability of the hydropower project has been assessed comparing the FIRR with the (real) weighted average cost of capital (WACC). The WACC to the government is 7.6%, which is lower than the FIRR. The FIRR of the distribution components are negative. A sensitivity analysis was conducted to account for potential increases in financial costs, as well as a reduction of financial benefits. The Brenwe Hydropower Plant FIRR exceeds WACC for 20% increase in costs and 20% decrease in revenues, however FIRR is below WACC for combined 20% increase in costs and 20% decrease in revenues. The Brenwe hydropower plant has been assessed as the least-cost generation alternative for the Malekula grid.

C. Economic

21. The economic internal rate of return (EIRR) for the consolidated project is 18.6%. This compares favorably with the economic opportunity cost of capital of 12% recommended in ADB's *Guidelines for the Economic Analysis of Projects*. A sensitivity analysis was conducted to account for potential increases in economic costs, as well as a reduction of economic benefits. The EIRR is robust to 20% increase in cost and 20% reduction in benefits, as well as combined 20% increase in cost and 20% reduction in benefits.

D. Governance

22. **Financial management.** The Project Financial Management Assessment (FMA) was prepared in accordance with the *Technical Guidance Note on ADB Project Financial Management Assessment*. The assessment concludes that the overall project financial management risk is moderate. Country issues assessed included (i) public financial management, (ii) management and skills capacity, and (iii) country environment. An FMA was conducted for MOCC-DOE and the VPMU²¹. The assessment concluded that MOCC-DOE currently has insufficient resources for financial management of the Project. However, the assessment concluded that VPMU has experience in financial management of ADB projects and would be a suitable implementing agency from a financial management perspective. Based on this risk evaluation, it is proposed that the PMU is based within VPMU. Inadequacies in internal auditing were identified. Budget for external auditors has been included to address the issue.

23. **Procurement capacity.** A procurement capacity assessment was completed for the VPMU, and MOCC-DOE. The assessment concluded that the MOCC-DOE has inadequate capacity to manage anticipated project procurement and the VPMU is currently undertaking a range of large-scale procurement. Based on this risk evaluation, it is proposed to (i) embed the Design and Supervision Consultants (DSC) within VPMU, (ii) build capacity of targeted VPMU staff, and (iii) build capacity within MOCC-DOE by attaching relevant staff within the VPMU.

24. **Private sector.** The project considered options to involve the private sector in project development including the independent power provider (IPP) model, operation and maintenance (O&M) contracts, and public private partnerships. It was concluded that the optimum model for engaging private sector expertise would be through O&M contracts, preferably with existing private sector concessionaire holders for the proposed assets. For the Project assets (including hydropower plant, transmission and distribution lines), the Government will retain asset ownership and enter into an operation and maintenance (O&M) contract with the relevant

²¹ In accordance with ADB. 2005. *Financial Management and Analysis of Projects*. Manila; and ADB. 2009. *Financial Due Diligence – A Methodology Note*. Manila.

concession holders.^{22,23} The existing Sarakata Hydropower Plant on Espiritu Santo successfully operates under this model.

25. **Anticorruption measures.** ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with MFEM and MOCC. The specific policy requirements and supplementary measures are described in the project administration manual.²⁴

E. Poverty and Social

26. The project design includes pro-poor or poverty reduction measures to manage poverty issues. The project's poverty reduction measures entail engaging low-income households (including landowners) for construction works, extension of the distribution grid (including to poor households), and training on income-generating activities. The project will comply with applicable national labor laws and core labor standards, including but not limited to equal work for equal pay regardless of gender, race or ethnicity, and exclusion of child labor. The poverty reduction measures will be implemented by the VPMU, which will include a resettlement and gender specialist. The resettlement and gender specialist will establish a monitoring system to track employment opportunities.

27. The project is categorized as effective gender mainstreaming. A gender action plan has been developed based on gender analysis and community consultations, and includes specific measures related to ensure project benefits for women during design and implementation phases. Measures included in the gender action plan cover (i) women's engagement in consultation activities, (ii) extension of power connection to 1,050 households, including at least 100 female-headed households (iii) capacity building training for newly connected households including women on power safety, utility budget management, and potential use for income generation; (iv) encouragement of women's participation in project-related contracts, and (v) collection of sex-disaggregated project-related data for monitoring and reporting requirements.

F. Safeguards

28. **Environment.** The project has been classified as category B for environment following ADB's *Safeguard Policy Statement* (2009). An initial environmental examination has been prepared. The main potential environmental impacts will be created by construction of the access road, removal of vegetation within a modified habitat, plant installation at intake and powerhouse sites, and vegetation trimming along the transmission line corridor. Following detailed design, the environmental management plan will be updated and integrated into the bidding documents. If there are changes to the scope of the works, the PMU will compile an updated initial environmental examination to be approved by ADB. As part of the assessment a climate change adaptation risk evaluation was conducted and considered in the preliminary design of the scheme, and the findings of the assessment will be integrated into the detailed design. The VPMU will be supported by a design and supervision consultant package (DSC) which will include environmental specialists (2 person-months international and 4 person-

²² URA will negotiate the O&M contract with the concession holders following government procurement procedures, however if negotiations cannot be concluded, may consider an independent power provider (IPP) contract with a third party.

²³ URA allows investment by concession holders in asset maintenance, which is then recovered through the tariff. Investment in new generation and distribution can also be recovered by the concession holders through the tariff. Asset investment in the Luganville concession is constrained as the concession is currently being tendered, and UNELCO is reluctant to invest in the Malekula concession as the concession expires in 2020, which leaves insufficient time to recover asset investments.

²⁴ Project Administration Manual (accessible from the list of linked documents in Appendix 2).

months national) to ensure updating, contractor implementation, and monitoring of the environmental management plan.

29. **Involuntary resettlement.** The project has been classified as category B for resettlement. The project will have land acquisition impacts for Brenwe subproject that are not deemed significant; transmission line extension at Santo will follow the existing road corridor without any such impacts. No physical relocation or loss of major income sources is expected from the implementation of the project. The Brenwe hydropower facilities will require acquisition of about 4.41 hectares of customary land that has not been used for any residential or agriculture purpose, and the transmission line will require some tree clearance along existing provincial road. The land at the hydropower site is claimed by 3 separate social groups totaling 7 households (about 36 persons). A draft resettlement plan has been prepared based on impact assessment and consultations with affected persons during project preparatory technical assistance. Affected persons will be consulted during the detailed design and implementation.

30. VPMU will finalize the resettlement plan after the detailed design following determination of the ownership of land at hydropower site and detailed investigation of affected land and assets and ensure that affected persons receive their compensation before the start of civil works that affect land or property. VPMU will (i) appoint a focal person for land issues; (ii) establish environmental and social safeguard capacity within the PMU; and (iii) coordinate with the Ministry of Lands and Natural Resources, provincial government, and other relevant agencies to implement resettlement activities.

31. **Indigenous peoples.** The due diligence concluded that Melanesian Ni-Vanuatu groups constitute the majority population in the project area, their institutions are not separate from mainstream society, and these groups are not vulnerable because of their ethnicity. As sociocultural groups need to be both “distinct” and “vulnerable” to trigger the ADB Safeguard Policy Statement requirements on indigenous peoples, the project has been categorized as category C and an indigenous peoples’ plan is therefore not required.

G. Risks and Mitigating Measures

32. Major risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.²⁵ The risks of the project have been assessed and the benefits are expected to outweigh the costs.

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigating Measures
1. New businesses will not connect to the grid and existing businesses will continue to self-generate.	A communication plan will be implemented by MOCC-DOE to raise awareness of power availability and better service delivery.
2. Delay of DSC recruitment.	Recruitment of DSC has been delegated to ADB.
3. Delays in construction of distribution extensions due to reliance on concessionaires for civil works	Capacity reviews of concession holders has shown they have significant capacity in civil works construction. Implementation will be closely monitored by VPMU.
4. Delays in land acquisition result in delays to construction.	Extensive consultation with landowners will be undertaken in accordance with the resettlement plan. The government will resolve landownership issues through customary land tribunal. International and national land acquisition resettlement specialists will be financed to support VPMU.

²⁵ Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

Risks	Mitigating Measures
5. Extended droughts affect hydropower utilization.	Design will consider historical hydrological patterns and design the infrastructure conservatively.
6. Low capacity of local contractors results in low-quality installations.	Procurement will stipulate adequate experience. VPMU will include capacity to monitor quality of construction. Quality of construction shall be addressed by adequate specifications, supervision and contract management.
7. Insufficient financial management capacity within MOCC-DOE	MOCC will delegate implementation responsibilities to the Vanuatu Project Management Unit (VPMU), with oversight by the Department of Energy (DOE). The VPMU will be responsible for engaging consulting services and contracts.
8. Insufficient financial management capacity within VPMU	The VPMU will receive training, VPMU's financial management will be monitored (including external audits), and the VPMU will include external support.
9. Insufficient procurement capacity in the VPMU	Procurement specialists will be included in the VPMU. VPMU staff will be trained on ADB procurement procedures.
10. URA is unable to negotiate an O&M contract with the concession holders	URA will commence early discussions with the concession holders to establish negotiation procedures.
11. Poor technical specifications leads to technical failure.	The PMU will be adequately staffed to prepare satisfactory technical specifications for tendering.
12. Staffing of the PMU is insufficient to manage project construction.	Sufficient budget will be allocated to ensure that the PMU will be adequately staffed and the PMU will be supported in supervision activities by the DSC.

ADB = Asian Development Bank, DSC = Design and Supervision Consultants, O&M = operation and maintenance, PMU = project management unit, URA = Utilities Regulatory Authority.
Source: Asian Development Bank.

IV. ASSURANCES

33. The government and MFEM have assured ADB that implementation of the project shall conform to all applicable ADB policies including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the project administration manual and financing and grant documents. The government and MFEM have agreed with ADB on covenants for the project, as set forth in the financing and grant agreements.

V. RECOMMENDATION

34. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve:

- (i) the loan in various currencies equivalent to SDRXXX to Republic of Vanuatu for the Energy Access Project, from ADB's Special Funds resources, with an interest charge at the rate of 1% per annum during the grace period and 1.5% per annum thereafter; for a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft financing agreement presented to the Board,
- (i) the grant not exceeding \$2,500,000 to Republic of Vanuatu, from ADB's Special Funds resources, for the Energy Access Project, on terms and conditions that are substantially in accordance with those set forth in the draft financing agreement presented to the Board; and

- (ii) the administration by ADB of the grant not exceeding the equivalent of \$7,000,000 to Republic of Vanuatu for the Energy Access Project, to be provided by the Strategic Climate Fund.

Takehiko Nakao
President

September 2015

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DESIGN AND MONITORING FRAMEWORK

Impact the Project is Aligned with:			
Livelihoods of households in Malekula and Espiritu Santo have improved.			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
Outcome Government has increased supply of clean renewable electricity to households in Malekula and Espiritu Santos	a. Government generates 2.8 GWh/annum hydropower from the Brenwe Hydropower Plant by January 2022 compared to June 2015 baseline b. Access to energy increased from 8% to 14% in Malekula and from 22% to 29% in Espiritu Santo by June 2022 compared to January 2015 baseline c. CO ₂ emissions reduced by 2,900 tCO _{2e} by January 2022 compared to June 2015 baseline	a. Annual corporate report by UNELCO and VUI to URA	Landowner disputes close hydropower plants and utilities revert to diesel generation
Outputs 1. Brenwe hydropower plant put into operation by the Government 2. Government has extended distribution grid and connected additional households	1a. Government installs 400kW hydropower generation by January 2022 All indicators are relative to June 2015 Government connects 1,050 new customers in Malekula and Espiritu Santo by January 2022, including subsidized connections to 100 female headed households Government constructs 21 km transmission line and 79 km distribution line on Malekula and Espiritu Santo by January 2022	Annual corporate report by UNELCO and VUI to URA Annual corporate report by UNELCO and VUI to URA	Risk Land ownership issues delay construction of hydropower Risk Land ownership issues delay construction of grid extension

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
3. Capacity building undertaken for project beneficiaries	Conduct 10 training workshops for newly connected households including power safety, household utility budget and business skills training (including 40% women participation) by Jan 2022	PMU Quarterly Reports	
4. The Project Management Unit (PMU) renders efficient project management services	<p>4a. PMU meets annual target contract awards and disbursements</p> <p>4b. Conduct training activities for PMU staff and Government management, including gender awareness training</p> <p>4c. All project-monitoring data including beneficiaries are sex-disaggregated.</p>	PMU Quarterly Reports	
Key Activities with Milestones			
<u>Government extends electricity distribution</u>			
1.1 VPMU completes detailed design of grid extension by February 2017			
1.2 Government completes land acquisition by August 2017			
1.3 Equipment supply contracts awarded by July 2017			
1.4 Government commissions distribution extensions by April 2020			
1.5			
<u>Brenwe plant put into operation by Government</u>			
2.1 VPMU completes detailed design of hydropower plant by February 2017			
2.2 Government completes land acquisition by August 2017			
2.3 Government commissions hydropower plants by June 2022			
2.4			
<u>Government undertakes capacity building</u>			
3.1 VPMU conducts 10 training workshops for newly connected households including power safety, household utility budget and business training (including 50% women participation) by June 2022			
3.2			
<u>Efficient project management services</u>			
4.1 VPMU established by January 2016			
4.2 Government signs DSC contract by December 2015			
4.3 Fielding of implementation consultants by January 2016			
Inputs			
ADF Loan: \$2.5 million			
ADF Grant: \$2.5 million			
Strategic Climate Fund (Grant): \$7.0 million			
Government: \$3.1 million			

ADB = Asian Development Bank, ADF = Asian Development Fund, DSC = Design and Supervision Consultant, MWh = megawatt-hour, PMU = Project Management Unit, SCF = Strategic Climate Fund, UNELCO = UNELCO GDF Suez, URA = Utilities Regulatory Authority, VUI = Vanuatu Utilities Authority
Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/RRPs/?id=XXXXX-XX-3>

1. Financing Agreement
2. Grant Agreement (Externally Financed)
3. Sector Assessment (Summary): Energy
4. Project Administration Manual
5. Contribution to the ADB Results Framework
6. Development Coordination
7. Financial Analysis
8. Economic Analysis
9. Country Economic Indicators
10. Summary Poverty Reduction and Social Strategy
11. Gender Action Plan
12. Initial Environmental Examination
13. Resettlement Plan
14. Risk Assessment and Risk Management Plan

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