Government of the Republic of VANUATU

## VANUATU ENERGY UNIT

Ministry of Lands & Natural Resources

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**Request for Proposals**

**Introduction:**

The Government of Vanuatu through its Energy Unit in collaboration with the Secretariat of the Pacific Regional Environment Programme (SPREP) through its Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project (PIGGAREP) and the International Union for the Conservation of Nature Oceania Regional Office (IUCN ORO) is planning to install six wind monitoring equipment on each of the six provinces in Vanuatu. This joint exercise is in line with the Government of Vanuatu’s commitment under its National Energy Policy to assess the potential of all its indigenous sources of energy. The wind monitoring exercise is expected to last for a period of three years and the result will be the basis for determining whether the wind regime in Vanuatu is viable for commercial exploitation.

**Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project (PIGGAREP)**

The Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project (PIGGAREP) is a continuation of the close collaboration between the Secretariat of the Pacific Regional Environment Programme (SPREP), UNDP and the Global Environment Facility (GEF) to build the capacity of the PICs to deal with the challenges of Climate Change

The global environment and development goal of PIGGAREP is the reduction of the growth rate of GHG emissions from fossil fuel use in the Pacific Island Countries (PICs) through the removal of the barriers to the widespread and cost effective use of feasible renewable energy (RE) technologies. The specific objective of the project is the promotion of the productive use of RE to reduce GHG emission by removing the major barriers to the widespread and cost-effective use of commercially viable RE technologies (RETs). PIGGAREP consists of various activities whose outputs will contribute to the removal of the major barriers to the widespread utilization of RE technologies (RETs). The project is expected to bring about in the PICs: (1) Increased number of successful commercial RE applications; (2) Expanded market for RET applications; (3) Enhanced institutional capacity to design, implement and monitor RE projects; (4) Availability and accessibility of financing to existing and new RE projects; (5) Strengthened legal and regulatory structures in the energy and environmental sectors; and, (6) Increased awareness and knowledge on RE and RETs among key stakeholders.

**Pacific Energy, Ecosystem and Sustainable Livelihoods Initiative (EESLI) Programme**

The IUCN Energy Programme, referred to as the Pacific Islands EESLI places emphasis in promoting energy systems that are ecologically efficient, sustainable and socially equitable by:

1. Supporting beneficiary countries in the development and implementation of environmentally sound, sustainable energy policies; and
2. Implementing a number of renewable energy and energy efficiency projects (pilot) focusing on ecosystem conservation and livelihood enhancement.

The Vanuatu Government through its Energy Unit in partnership with PIGGAREP and IUCN ORO is hereby putting out this Request for Proposals (RFP) for qualified and experienced wind monitoring tower installation firms.

**Instructions to Offerors:**

* The Proposal must cover all the objectives, outputs and activities specified in the ToR (Term of Reference)
* The Proposals must cover costs for professional fees and logistics including
* Pricing of tenders shall be expressed in USD$ only
* The Proposals must include:

a) A summary of recent installations completed (including client and project description)

b) Information on availability

c) Total person days proposed for the work on the tower supply, installation, commissioning, consultancy and daily rate in USD$

d) Two Government technicians at standard Government DSA allowance of 105 USD$ per night each for the first week and all local travelling costs as part of the tower installation team (Govt. DSA allowance rate reduces to 53 USD$ after staffs exceed 6 nights in the field)

e) Mast details, all hardware & software Instrumentation details, breakdown of all costs for plant, labour and material required to design, supply and install the tower systems in Vanuatu, payment terms, Mast structure & Mast foundation drawings, Mast parts list and quote from structural engineering & technical rigging firms engaged as part of the project.

f) Pricing of the tender proposal is to be done on a Duty & VAT exclusive basis

g A methodology and work plan (maximum 5 pages)

h) The proposal should **not be more** than 10 pages. All other information is to be placed in Annexes.

* Bidders are encouraged to include local Vanuatu labour/expertise.
* The Proposal must specify position, experience, and qualification of individual(s) assigned to the project;
* Installations works preferably shall commence before the end of November 2010;
* The language of the proposal, its documentation and correspondence shall be in English
* Bidders shall submit all documents, information and requirements mentioned above to form a complete tender. An offer will be rejected unless it is substantially responsive;
* If the Proposal is received prior to the formal submission date corrections or modifications can be made up to that date;
* The Proposals must be submitted in electronic format only (Word and PDF format, 1 MB max) by email to the e-mail address specified below.

The final work plan will be determined subsequently between the successful Contractor, the Vanuatu Energy Unit, the PIGGAREP PMO and the IUCN ORO Energy Programme Coordinator. Acknowledgements of the receipt of quotations will be provided by e-mail. Successful as well as unsuccessful bidders will be informed by e-mail once the evaluation and selection process are completed.

**Award of Contract and Evaluation Criteria:**

Quotations will be evaluated according to the following criteria:

* + Price - (40%)
  + Specific Experiences in installing reliable and good quality Wind Resource Monitoring Systems - (35%)
  + Experiences in the operating in the Pacific Region or similar environment - (15%)
  + Methodology/Work Plan - (10%)

Please note that quotes must be realistic and based on typical rural/remote conditions of Vanuatu or pacific island environment. Tenderer are advised to access various websites of businesses operating in the Vanuatu’s tourism & cargo handling industry for domestic flight costs, accommodation rates in local bungalows, domestic cargo transportation & handling rates,…..etc.

**All quotations must be addressed to:**

The Director,

SPREP

P.O Box 240, Apia, Samoa.

Email: [sprep@sprep.org](mailto:sprep@sprep.org)

**And copied to the following email addresses:**

1. kkaltavara@gmail.com
2. [nixonk@sprep.org](mailto:nixonk@sprep.org)
3. anare.matakiviti@iucn.org

**Request for more information regarding this RFQ can be directed to the following:**

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| --- | --- |
| Vanuatu Energy Unit Mr Kennedy Kaltavara  Renewable Energy Officer  Private Mail Bag 9067  Port Vila, Vanuatu  Telephone: +678 25201  Facsimile: +678 23586  Mobile : +678 7741320  E-mail: kkaltavara@gmail.com | **PIGGAREP PMO**  Mr Nixon Kua  Project Manager – PIGGAREP/ SPREP  PO Box 240  Apia, Samoa  Telephone: +685 21929 Ext 274  Facsimile: +685 20231  E-mail:  [nixonk@sprep.org](mailto:%20nixonk@sprep.org)  Internet: <http://www.sprep.org> |

**Deadline for the submission of quotations will be 5 pm 13th October 2010, Samoa Time.**

**Terms of Reference**

**Wind Development Project in Vanuatu**

1. **Introduction**

The PIGGAREP is a continuation of the close collaboration between SPREP, UNDP and the GEF to build the capacity of the PICs to deal with the challenges of Climate Change. The global environment and development goal of PIGGAREP is the reduction of the growth rate of GHG emissions from fossil fuel use in the Pacific Island Countries (PICs) through the removal of the barriers to the widespread and cost effective use of feasible renewable energy (RE) technologies. The specific objective of the project is the promotion of the productive use of RE to reduce GHG emission by removing the major barriers to the widespread and cost-effective use of commercially viable RE technologies (RETs).

PIGGAREP consists of various activities whose outputs will contribute to the removal of the major barriers to the widespread utilization of RE technologies (RETs). The project is expected to bring about in the PICs; (1) Increased number of successful commercial RE applications; (2) Expanded market for RET applications; (3) Enhanced institutional capacity to design, implement and monitor RE projects; (4) Availability and accessibility of financing to existing and new RE projects; (5) Strengthened legal and regulatory structures in the energy and environmental sectors; and, (6) Increased awareness and knowledge on RE and RETs among key stakeholders.

Vanuatu is one of the participating PICs in the PIGGAREP and one of the activities in its 2009 Work Plan and Budget is a Wind Power Development Project.

1. **Objectives**

The objective is to install Wind Monitoring MET Tower Systems in each six (6) provinces of the Republic of Vanuatu to determine the Wind Resource in the region.

1. **Scope of Works**

The scope of works generally comprises but not necessarily limited to the following;

* 1. Tower installation – Commissioning the design, supply & installation of six (6) Wind Monitoring MET Tower Systems. They must comply with the AS/NZS ISO 9001: 2008 for "The Design, Manufacture and Installation of Communication Towers and Masts”

1. Engineering analysis, design and supply six (6) Wind Monitoring MET Tower Systems
2. Packaging, ship cargoes, equipment and tools to Port Vila, storage/customs clearance/distribution and final shipment to the six local sites
3. Cut/remove vegetation to required footprint, attend to landscaping works where necessary. Remove trees that prevent free flow of air near the site.

(Note: vegetation is 90% brush and 10% trees, existing landscapes are relatively flat)

1. Set out tower layout and measure anchor points
2. Install concrete base and concrete footing anchors
3. Layout main tower mast
4. Assemble tower and install the monitoring systems/equipment
5. Erect and straighten tower mast
6. Attach, wire and configure the data logger
7. Program the vane offset and other works required to bring the system to proper operating condition
8. Test the systems to make sure all items pass the test in the presence of the Government technicians. All parties shall sign off the Inspection checklist
9. Install a perimeter chain-link fence 1.8m high and 5m x 5m square.
10. Clean up and do final check of site
11. Issue a Commission report of each six (6) wind monitoring systems
12. Issue a completion certificate stating that all works were substantially completed in accordance with the contract, all six (6) systems have passed the systems tests and are functioning correctly on site on the test date.
13. Issue six (6) standard logbooks for each monitoring system and log-in (with name of operator/time/date) first entries of exact position of towers, location, height and orientation of all sensors, record observations onsite during final testing and de-mobilisation phase and record final anemometer mounting configuration details (in particular, describe the distance the anemometer was located from the tower structure). The logbooks must be issued with the twelve sector/360⁰ photos around the new tower sites. (these entries & photos will be used as part of the future wind data analysis.).
    1. Other activities as part of the project;

* Management of all work required in co-operation with local people and Energy Unit technicians.
* Train Energy Unit Technicians on basic operation & maintenance of the systems; reading, collecting and downloading wind data.
* Provide operation & maintenance manuals for the stations, including manuals for specific equipment, drawings and technical specifications.
* Warranty on all sensors and data loggers.
* Provide as‑built drawings for the Masts.
* Provide Documentation; Manuals for all equipment, Wind Monitoring system & performance evaluation system, maintenance guide & schedule, failure analysis & service action guide, inventory list of spare parts stock, standard forms for ordering replacement, maintenance guide for the wind monitoring system, drawings of all mounting structures & installed equipment, training documentation and software application programs and operating systems on CD‑R/DVD-R.

1. **Locations**

The six (6) wind tower monitoring systems are as follows;

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Province | Island | Site location | UTM Coordinates | Equipment used |
| 1 | TORBA | Vanua-Lava | Sola | 776867 E, 8463901 N | Handheld GPS measurement |
| 2 | PENAMA | Pentecost | Lavusi village | 195749 E, 8288624 N | Handheld GPS measurement |
| 3 | SANMA | Santo | Port Olry | 721624 E, 8335309 N | Handheld GPS measurement |
| 4 | MALAMPA | Malekula | Teteras, LitzLitz | 761165 E, 8216599 N | Handheld GPS measurement |
| 5 | SHEFA | Tongoa | Mount Lingiman | 240644 E, 8127936 N | Handheld GPS measurement |
| 6 | TAFEA | Tanna | Lautolokai Point | 335145 E, 7845687 N | Handheld GPS measurement |

1. **Hardware Equipment and Specifications**

The successful bidder will be required to provide standard calibration certificates for cup anemometers to be used.

|  |  |  |
| --- | --- | --- |
| **No** | **Components** | **Descriptions** |
| 1 | Tower Quantity | 6 |
| 2 | Tower Height | 30 to 35 metres |
| 3 | Tower Type | Guyed tower |
| 4 | Tower Installation Kit | 1 |
| 5 | Anemometer calibrated | 14 (anemometers mounted at 20 and 30 meter heights) |
| 6 | Wind director sensor | 6 |
| 7 | Air temperature sensor | 6 |
| 8 | Barometric air pressure sensor | 6 |
| 9 | Solar irradiation sensor | 6. Should be mounted so that they are never shaded by the masts. |
| 10 | Data logger | Quantity 6. Giving minimum 10 min average wind speed data, between 1-5 second wind gust and wind direction to be specified in degrees with accuracy of +/-5 degrees. Logger equipment must be powered by battery. Battery must have a life time of at least a few months, preferably kept at nominal voltage with a small PV module. |
| 11 | Memory cards | Two (2) separate memory cards must be provided for each system. Each memory card must be able to store data 6 months. |
| 12 | Protection class | The specific location has a mix of: a) very high humidity and b) high ambient temperatures. Therefore appropriate protection for data logger, instruments, mast and guys are required. For guys and mast in particular this includes anti-corrosion materials and coatings. In addition lightning protection for the tower and data logger must be provided. |

In addition to above requirements the quotation must included all other components needed for a complete wind resource monitoring system such as base plate and anchors for the mast, equipment and instructions on how to erect/take down mast, booms, data logger shelter box, data logger software, cables for the required sensors (i.e. 1) anemometer, 2) wind direction, 3) air temperature, 4) air pressure and 5) solar irradiation), ready to use with limited knowledge of wind data acquisition systems.

The structure of the wind monitoring systems must be able to withstand wind gusts up to 160 km/hour without damage.

All sensor mounting arrangements must meet or exceed IEC 61400-12-1 recommendations for tower and boom offset distances.

**Warranties**

1. The Mast and Instrumentation and the system as a whole must be warranted against manufacturing defects for a period of twelve (12) months from the date of Installation.
2. The Warranty shall be a return to factory warranty.

3. The Data loggers and wind instruments must undergo field tests prior to shipment to the site.

**Documentation**

For a smooth operation, maintenance, servicing, eventual system extensions and a good understanding of the installed systems, clear and understandable documentation must be prepared. All documents must be provided in English both in hardcopy and electronic copy on CD or DVD. All required documents are listed below:

a) Directory of submitted documents.

b) Contact list including telephone number(s), email addresses and internet links.

c) Detailed documentation of the wind monitoring system design.

d) Copies of the completed shipping papers.

e) Copies of completed component ordering forms

f) Manuals for all supplied electrical equipment .

h) Manual for the complete Wind Monitoring system and the performance evaluation system.

i) Maintenance guide for the monitoring system including a maintenance schedule.

j) Failure analysis and service action guide.

k) An inventory list for the spare parts stock and prepared forms for ordering replacement.

l) Maintenance guide for the experimental Wind monitoring system.

m) All as‑built documentation, drawings of the mounting structure and the installed equipment.

n) Training documentation.

o) Software (application programs and operating system) on CD-R/DVD-R.

1. **Design Factors to Promote Sustainability**

Preference will be given to proposals that focus on the following to ensure value for money;

* low cost of installation
* Masts that use concrete base blocks and anchors (screw-in)
* good quality wind data prospecting equipment
* can be installed repeatedly a number of times
* ease of take down/erect
* Tilting Masts for Region C (cyclonic)
* Incur minimum losses (wear & tear) due to repeated breakdown-erecting work activities
* Sustainable and durable
* Integrate light and durable construction materials
* Shipped in parts, transported and re-assembled on site
* Utilize locally available ironmongery
* requires minimum lifting equipment (ie. heavy lifting equipment will be difficult to access in underdeveloped rural/remote sites)
* Minimum ongoing maintenance
* Survive harsh operating environment

The Vanuatu Government (Vanuatu Energy Unit) will assist the installation team in ground operations during the installation phase in any area required by the successful bidder to ensure the project is carried out according to the objectives and goals set out for this project.