

REQUEST FOR TENDERS

RFT: 2021/016
File: AP_3/1/13
Date: 4 March, 2021
To: Interested Consultants
From: Vanda Faasoa Chan-Ting, NDC Hub Technical Adviser

Subject: Request for Tenders: Procurement, Supply, Installation and Commissioning of 80kWp Rooftop Solar System for the Pacific Climate Change Centre (PCCC) Building.

1. Background

- 1.1. The Secretariat of the Pacific Regional Environment Programme (SPREP) is an intergovernmental organisation charged with promoting cooperation among Pacific islands countries and territories to protect and improve their environment and ensure sustainable development.
- 1.2. SPREP approaches the environmental challenges faced by the Pacific guided by four simple Values. These values guide all aspects of our work.
 - We value the Environment
 - We value our People
 - We value high quality and targeted Service Delivery
 - We value Integrity
- 1.3. For more information, see: www.sprep.org.

2. Specifications: statement of requirement

- 2.1. SPREP is seeking to recruit qualified personnel to work on a part-time basis for a period of 5 months to procure, supply, install and commission 80kWp of rooftop solar panel for the Pacific Climate Change Centre.
- 2.2. The Terms of Reference for the consultancy are set out in Annex 1.

3. Conditions: information for applicants

- 3.1. To be considered for this tender, interested consultants must meet the following conditions:
 - i. Must provide proof of operations, i.e., provide a valid business license in the proposed line of work.
 - ii. Be available to do the work in the timeframe proposed.
 - iii. Must attend the pre-bid meeting on **Thursday 11th March 2021 at 10:00am** and show their basic tools during this meeting; tools such as power tester (multi-meter) and live wire tester. **Failure to attend the pre-bid meeting will result in your application not being considered.**

- iv. Must be able to procure and supply the solar panels according to the “**Solar Panel**” and “**Inverter**” specifications outlined in the Terms of Reference; applicant should also be able to install and commission the panels.
- v. Must provide details of the *manufacturer* and *solar panel model* to be procured and supplied.
- vi. Demonstrated value for money.
- vii. Completed **tender application form** – *(Please note you are required to complete all areas in full as requested on the form, particularly the Statements to demonstrate you meet the selection criteria – **DO NOT** refer us to your CV or your Technical Proposal. Failure to do this will result in the application **NOT** being considered);*
- viii. Sign the conflict-of-interest form.

4. Submission guidelines

- 4.1 Tender documentation should demonstrate that the interested consultant satisfies the conditions stated above and is capable of meeting the specifications and timeframes. Documentation must also include supporting examples to address the evaluation criteria.
- 4.2 Tender documentation should outline the interested consultant’s complete proposal including:
 - i. CV to demonstrate that they have the requisite skills and experience to carry out this contract successfully;
 - ii. Provide three references from past similar assignments (within the last five (5) years) in installation of similar solar systems.
 - iii. Electrical engineer certification with EPC and/or IPES.
 - iv. Valid business license in the proposed line of work.
 - v. A detailed technical proposal/workplan and methodology.
 - vi. A Financial Proposal to be priced based on a work plan on when and how the assistance will be provided. The proposal should be for consultancy fees inclusive of all costs, including taxes, facilities, insurance, travel, and associated costs, should be included in the financial proposal.
- 4.3 Tender submission must be in United States Dollars (USD)
- 4.4 Completed **tender application form** – *(Please note you are required to complete all areas in full as requested on the form, particularly the Statements to demonstrate you meet the selection criteria – **DO NOT** refer us to your CV or your Technical Proposal. Failure to do this will result in the application **NOT** being considered) and sign the conflict of interest form.*
- 4.5 Subcontracting of tasks under the contract is permitted but the consultant will retain full liability towards SPREP for performance tasks of the contract as a whole.
- 4.6 Tenderers/Bidders must insist on an acknowledgement of receipt of tenders/proposals/bids

5. Tender Clarification

- 5.1. Any clarification questions from applicants must be submitted by email to procurement@sprep.org before 15 March 2021. A summary of all questions received with an associated response will be posted on the SPREP website www.sprep.org/tender by 17 March 2021.

6. Evaluation criteria

- 6.1. SPREP will select a preferred supplier on the basis of SPREP's evaluation of the extent to which the documentation demonstrates that the tenderer offers the best value for money, and that the tenderer satisfies the following criteria:
- i. At least one consultant to have a minimum qualification of a Certificate in the areas of Electrical Wiring, Electrical Engineering, Power systems, Renewable Energy Systems/Technologies, or any other related field; be a certified electrical engineer with EPC and/or IPES; minimum of 5 years' experience working and handling electronic controllers, solar system controllers, electrical wiring, etc. (15%)
 - ii. Experience in the installation of similar solar systems within the last five (5) years prior to the tender deadline; list a minimum of three (3) past similar assignments undertaken in Samoa and references from the property owners; provide details of proposed system for SPREP and how much energy SPREP will receive from the system; provide a technical configuration of the proposed system for SPREP including the following: list of equipment and specifications, installation standards (wind speed, etc.), system performance estimates/guarantees, operating instructions for system and components, perceived maintenance procedure and timetable. The consultant should also have the appropriate set of tools for this assignment; evidence of basic tools – power tester (multi-meter) and live wire tester – to be shown during the pre-bid meeting on Wednesday 10th March 2021; familiarity, knowledge & experience with developing capacity of local personnel by sharing technical expertise through trainings, at least one (1) training report with Training Manual of previous experience (20%)
 - iii. Detailed technical proposal/workplan and methodology (35%)
 - iv. Detailed financial proposal (30%)

7. Deadline

- 7.1. **The due date for submission of the tender is: 25th March 2021, midnight (Apia, Samoa local time).**
- 7.2. Late submissions will be returned unopened to the sender.
- 7.3 Please send all tenders clearly marked '**RFT 2021/016: Procurement, Supply, Installation and Commissioning of 80kWp Rooftop Solar System for the PCCC Building**' to one of the following methods:
- Mail: SPREP
Attention: Procurement Officer
PO Box 240
Apia, SAMOA
- Email: tenders@sprep.org (MOST PREFERRED OPTION)
- Fax: 685 20231
- Person: Submit by hand in the tender's box at SPREP reception,
Vailima, Samoa.



SPREP reserves the right to reject any or all tenders and the lowest or any tender will not necessarily be accepted.

For any complaints regarding the Secretariat's tenders please refer to the Complaints section on the SPREP website <http://www.sprep.org/accountability/complaints>

Terms of Reference

Procurement, Supply, Installation and Commissioning of 80kWp Rooftop Solar System for the PCCC Building

Assignment Information:

Assignment Title:	Procurement, Supply, Installation and Commissioning of 80kWp Rooftop Solar System for the Pacific Climate Change Centre (PCCC) Building
Post Level:	Local Consultant
Contract Type:	Individual Contractor or Consultancy Firm
Duty Station:	Samoa
Expected Place of Travel:	N/A
Contract Duration:	5 months

Project Description:

The Pacific Climate Change Centre (PCCC) was officially opened in September 2019 as the regional Centre of Excellence, a hub for climate change information, research and innovation. Hosted by SPREP, the PCCC is a partnership between the Japanese government and the government of Samoa. PCCC is a shared resource for Pacific Island countries and territories as it aims to provide practical tools, knowledge, support and training to address the adaptation and mitigation priorities of Pacific Island people. Funding for the centre was provided by the Government of Japan through grant aid to the government of Samoa, and financial support provided by the government of New Zealand assisted in the resourcing of the Centre.

The design and construction of the PCCC building was in accordance with the green guidelines which includes the installation of energy and water saving technologies with 50% of the energy demand to be provided by rooftop solar panels. This building is a showcase of sustainable building technology in the Pacific, and it is hoped that the Centre will run on 100% renewable energy in the future.

SPREP through this tender, aims to demonstrate that with small steps locally, everyone can collectively and collaboratively achieve a significant amount of greenhouse gas emission reductions regionally in our Pacific region.

SPREP has successfully installed and commissioned 20kWp of rooftop solar panels. In order to increase the renewable energy contribution to the Centre's electricity generation, SPREP invites eligible and qualified Bidders to submit proposals

(technical and financial) for the procurement, supply, installation and commissioning of an additional 80kWp of rooftop solar panels for the PCCC building.

Scope of Work:

In working closely with the following SPREP key personnel – Pacific Climate Change Centre (PCCC) Manager, NDC Hub Technical Advisor, Properties Services Officer (PSO), the contractor is responsible for providing the following services:

1. Provide a workplan and procurement plan to inform the key SPREP personnel listed above.
2. Procure and supply 80kWp rooftop solar system (and mounting frames), compatible with the existing 20kWp solar panel / inverter system, to be installed atop the PCCC building. Specifications of the panels and inverter given below:

SOLAR PANELS:

- Mechanical Properties

Cell Properties (Material/Type)	Monocrystalline / N-type
Cell Configuration	60 cells (6 x 10)
Number of Busbars	12EA
Module Dimensions (LxWxH)	1686mm x 1016mm x 40 mm
Weight	17.1 kg
Glass (Material)	Tempered glass with AR coating
Backsheet (Color)	White
Frame (Material)	Anodized Aluminum
Junction Box (Protection Degree)	IP 68 with 3 bypass diodes
Length of Cables	1000 mm x 2EA
Connector (Type/Maker)	MC 4/MC

- Electrical Properties [*Standard Test Conditions – irradiance 1000W/m², cell temperatures 25°C, Spectrum AM 1.5*]

Maximum Power (P _{max})	335 W
MPP Voltage (V _{mpp})	34.1 V
MPP Current (I _{mpp})	9.83 A
Open Circuit Voltage (V _{oc} , 5%)	41.0 V
Short Circuit Current (I _{sc} , 5%)	10.49 A
Module Efficiency	19.6%
Bifaciality Coefficient of Power	10%
Power Tolerance	0 ~ +3 %

- Electrical Properties [*Nominal Module Operating Temperature – irradiance 800W/m², ambient temperature 20°C, wind speed 1m/s, Spectrum AM 1.5*]

Maximum Power (P_{max})	250 W
MPP Voltage (V_{mpp})	31.9 V
MPP Current (I_{mpp})	7.84 A
Open Circuit Voltage (V_{oc})	38.5 V
Short Circuit Current (I_{sc})	8.43 A

INVERTER:

Below is the current inverter system, with related electrical properties, employed by SPREP for the existing 20kWp solar system:

- SMA Sunny Tripower
- SMA Speedwire / Webconnect Data Module

- Electrical Properties

DC nominal output	20,440 W
AC power rating	20,000 W
Max. DC power	20,440 W
Max. AC power	20,000 VA
AC Output Voltage	3 Phase, 415V
Standby consumption	12.5 W
Night consumption	1 W
Feed-in from	84 W
Max. input current	66 A
Max. input voltage	1,000 V
Nom. DC Voltage	600 V
Number of Feed-in faces	3
Number of DC inlets	6
With transformer	No (transformerless)
Change in Efficiency when Input Voltage deviates from Rated Voltage	-0.49% / 100V
MPP Tracker	
Output Range < 20% of Power Rating	97%
Output Range < 20% of Power Rating	100%
No. of MPP Trackers	2
Max. Input Current per MPP Tracker	33 A
Max. Input Power per MPP Tracker	20,440 W
Min. MPP Voltage	150 V
Max. MPP Voltage	800 V



3. Install and commission the solar panels to ensure they are compatible with all existing electrical infrastructure. Below is Samoa's Electric Power Corporation (EPC) power rating:

- Low Voltage Single Phase – 240V
- Low Voltage Three Phase – 415V

PLANT METERING / DATA LOGGER:

4. Install and commission Plant Metering / Data Logging:

- i. Solar Irradiance should be provided with sensors mounted in the plane of array;
- ii. Readout should be integrated with Data Logging system;
- iii. Wind Speed: An integrated wind speed unit to be provided;
- iv. Temperature sensor: Integrated temperature sensors for measuring surface temperature complete with readouts integrated data logging system;
- v. A **data logging** system & GSM Modem (Hardware and Software).

All major parameters should be available on the digital bus and logging facility for energy auditing. The following parameters should be accessible via the interface display or a dedicated laptop:

- ✓ AC Voltage, AC Output current, Output Power, DC Input voltage, DC Input current, Temperature, Inverter Status, Battery Status, Irradiation, etc.

OPERATION MANUALS, SPECIAL TOOLS AND SPARE PARTS:

5. Two copies of Engineering, electrical drawings and Installation and O&M manuals are to be provided. Bidders shall provide complete technical data sheets for each equipment giving details of the specifications along with Manufacturers.
6. Necessary special tools are to be provided free of cost by the bidder for maintenance purposes.
7. A list of requisite spare parts in case of faulty **inverter** which can easily compromise an existing set of control logic cards, driver cards, fuses, MOVs (metal oxide varistors), arrestors etc.. A minimum set of spares shall be maintained in the plant itself for the entire period of warranty and Operation & Maintenance.
8. Post-commissioning assistance for six (6) months from the day of system commissioning.
9. Provide training for the SPREP PSO (plus other SPREP personnel responsible for the PCCC building) during the installation and commissioning phases.



Expected Outcomes and Deliverables:

Based on the scope of works outlined above, the consultant will deliver the following outputs:

Output 1: Inception Report

The inception report should include a detailed technical approach, detailed workplan with specific dates of the deliverables as well as a detailed procurement plan for the additional 80kWp solar system. The contractor should also identify any foreseeable challenges which may hinder the successful completion of this assignment with proposed solutions.

Part of the technical approach should include the list below, but not limited to these:

- ✓ Provide details of proposed system for SPREP and how much energy SPREP will receive from the system.
- ✓ Provide a technical configuration of the proposed system for SPREP including the following:
 - 1) list of equipment and specifications;
 - 2) installation standards (wind speed, etc);
 - 3) system performance estimates / guarantees;
 - 4) operating instructions for system and components;
 - 5) perceived maintenance procedure and timetable;

Output 2: Installation Report

This report should outline the system components and specifications especially in terms of their compatibility with the EPC electricity grid. In addition, all installations should conform to Samoan national standards as outlined in the EPC Grid Code, Samoa National Building Code, Electricity Wiring Regulations, etc. To be included in this report should also be all the recommendations by equipment manufacturers which were followed in detail when undertaking the installation of this additional 80kWp system. All the consultations with the relevant SPREP personnel (plus EPC for grid-connection purposes) shall be summarised and presented as part of this report.

Output 3: Commissioning Report

To be included in this report are details of all tests carried out which should include the assessment of the conditions of all the equipment and accessories as well as determining the operational conditions of the PV grid-connected systems. All individual components to have been tested according to the manufacturers' recommendations where the test method is logged and the resulting data recorded and presented as part of this report.

Based on the tests and inspection results which are to be included in this commissioning report, advise SPREP CCR Director that the system is approved and ready to be generating electricity for the PCCC building.

Output 4: Training Report

Training to be provided to the SPREP PSO and other relevant SPREP personnel on basic day-to-day operation, maintenance and fault finding. As part of the training, undertake needed tests to assess the condition of all equipment and accessories and determine operational conditions including reliability of individual components as well as the system as a whole. As part of the Training Report, compile and supply the following to the SPREP CCR Director:

- 1) list of equipment provided;
- 2) system performance estimates / guarantees;
- 3) operating instructions for system and components;
- 4) maintenance procedure and timetable;
- 5) Commissioning records and installation checklist;
- 6) warranty information;
- 7) system connection diagram;
- 8) equipment manufacturers' documentation and handbooks;
- 9) maintenance logbooks.

Output 5: Operation & Maintenance Manual

This should provide photos of the system and captions in both Samoan and English on basic day-to-day operation, maintenance and fault finding of the additional 80kWp solar system. The system connection diagram is also to be included.

Institutional Arrangement:

The winning bidder(s) will be under the supervision of the Climate Change Resilience Programme (Pacific NDC Hub) and will work closely with the PCCC Manager and the SPREP PSO.

Reports and documentation will be shared with CCR Director, PCCC Manager, all Advisers and all other relevant SPREP personnel.

Duty Station:

Samoa-based

Deliverables/Timeline:

All deliverables must be completed within the number of days set out in the table below within five (5) months from the effective date (signing) of the contract.

No.	Deliverables	Estimated Duration to Complete	Review Required	Approval Required
1	Inception Report	1 week	Pacific NDC Hub Technical Advisor (TA)	SPREP Director of Climate Change Resilience (CCR)
2	Installation Report	3 months	Pacific NDC Hub TA	SPREP Director CCR
3	Commissioning Report	1 month	Pacific NDC Hub TA	SPREP Director CCR
4	Training Report	2 weeks	Pacific NDC Hub TA	SPREP Director CCR
5	Operation & Maintenance Manual	1 week	Pacific NDC Hub TA	SPREP Director CCR
Total		5 months		

Evaluation criteria & Scoring Method:

A proposal will be rejected if it fails to achieve 70% or more in the technical criteria and its accompanying financial proposal shall not be evaluated.

i. Technical Score – 70%

Detailed technical evaluation criteria and possible scores for each are as follows:

Major Criteria	Details & sub-criteria	Maximum %
CVs & Qualification	At least one consultant to: <ul style="list-style-type: none"> have a minimum qualification of a Certificate in the following areas: Electrical Wiring, Electrical Engineering, Power systems, Renewable Energy Systems / Technologies or any other related field; be a certified electrical engineer with EPC and/or IPES minimum of 5 years' experience working and handling electronic controllers, solar system controllers, electrical wiring, etc. 	15
General expertise in similar assignments	<ul style="list-style-type: none"> Experience in the installation of similar solar systems within the last five (5) years prior to the tender deadline: <ul style="list-style-type: none"> ✓ List a minimum of three (3) past similar 	

	<p>assignments undertaken in Samoa and references from the property owners;</p> <ul style="list-style-type: none"> ✓ Provide details of proposed system for SPREP and how much energy SPREP will receive from the system. ✓ Provide a technical configuration of the proposed system for SPREP including the following: <ol style="list-style-type: none"> 1) list of equipment and specifications; 2) installation standards (wind speed, etc); 3) system performance estimates / guarantees; 4) operating instructions for system and components; 5) perceived maintenance procedure and timetable; • Appropriate set of tools for this assignment. Evidence of basic tools – power tester (multi-meter) and live wire tester – to be shown during the pre-bid meeting on Thursday 11th March 2021 • Familiarity, knowledge & experience with developing capacity of local personnel by sharing technical expertise through trainings. At least one (1) training report with Training Manual of previous experience 	20
Methodology	<ul style="list-style-type: none"> • General approach – step by step methodology on how this assignment will be carried out; • Timeline – a Gantt chart of work activities including the starting date, dates of consultations, procurement, construction, etc; • Clear presentation of potential difficulties in carrying out this assignment to deliver, install and commission 80kWp solar system for PCCC; • Workplan to include total number of person-days and appropriate allocation of person-days with respect to each task; • A procurement plan is also to be included as part of the workplan; • CVs of all team members should also be presented; • Demonstration of Occupational Health & Safety (OHS) compliance (safety gear for staff, etc); • Provide proof of workers' insurance; • Include a waste management plan on the safe disposal of waste generated from this assignment. 	35



Financial Score – 30 %

A detailed budget is to be provided by the bidder(s) for each of the activities to be implemented.

The following formula shall be used to calculate the financial score for ONLY the proposals which score 70% or more in the technical criteria:

$$\text{Financial Score} = 30 \times \frac{\text{Lowest Bid Amount}}{\text{Total Bidding Amount of the Proposal}}$$

Reporting Relationships:

The consultant will report primarily to the CCR Director through the Pacific NDC Hub Technical Advisor based at SPREP.

The successful consultant must supply the services to the extent applicable, in compliance with SPREP's Values and Code of Conduct

https://www.sprep.org/attachments/Publications/Corporate_Documents/sprep-organisational-values-code-of-conduct.pdf