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## REQUEST FOR PROPOSAL

RFP Number & Title: RFP-24-003 Comprehensive Auxiliary Power Solution for Cellular Sites  
Date of Issue: June 12, 2024  
Closing Date: July 24, 2024 at 4:00 PM (Palau Time)  
Opening Date: July 26, 2024

The Palau National Communications Corporation (PNCC) is seeking proposals from qualified businesses/companies to develop and supply a comprehensive auxiliary power solution for its cellular sites. This project will be procured through a Competitive Negotiated Contract method in accordance with PNCC's Procurement Policy and Regulations. The initiative is fully funded by a \$150,000 grant from the Asia Pacific Network Information Centre (APNIC).

### Project Overview:

PNCC aims to enhance the reliability and sustainability of power supply to its cellular sites across Palau. The solution should integrate diesel generators, solar power systems, wind turbines, battery banks, and rectifiers, ensuring seamless operation and minimal environmental impact.

### Contact Information:

For inquiries regarding this project, please contact:  
Mr. Hung-Wei Tomas Tseng, Chief Technical Officer  
Email: [hwtseng@pnccpalau.com](mailto:hwtseng@pnccpalau.com)  
Cell: +680-775-9900

Detailed project scope and additional information are available on the PNCC RFP webpage:  
<https://www.pnccpalau.com/about-us/rfp>.

### Proposal Submission:

Proposals must be submitted to the PNCC Procurement Office at its headquarters in Airai by 4:00 PM (Palau Time) on July 24, 2024. Electronic submissions are accepted via email to [pncc.rfp@pnccpalau.com](mailto:pncc.rfp@pnccpalau.com) with the RFP number as the subject line. Please ensure that the envelope or email clearly indicates the RFP Number, Company Name and Address, and Point of Contact.

### Evaluation and Selection:

Proposals will undergo review and evaluation by authorized PNCC personnel on July 26, 2024 at 10:00 AM (Palau Time) in the PNCC Conference Room. PNCC reserves the right to extend the opening date, modify or cancel this notice, and reject non-conforming offers as necessary.

### Chief Executive Officer's Authorization:

Simon Fraser, Chief Executive Officer

19th June 2024

Date

## Specifications and Requirements

### 1. Detailed Project Scope:

- Specifications for diesel generators, solar power systems, wind turbines, battery banks, and rectifiers to meet PNCC's operational needs.

#### 1.1. Diesel Generator Specifications:

- Power Output: Prime Power (PRP) rating required. 20KW output at 100% load and average load factor of 70% for 14KW output.
- Fuel Tank: Sub-base fuel tank with 65-gallon capacity.
- Fuel Efficiency: Maximum fuel consumption rate specified, considering Palau's available diesel types (Blue Bay: 10PPM/Ultra Low Sulfur Diesel, Shell: Ultra Low Sulfur Diesel Fuel).
- Emissions: Compliance with US EPA Tier 4 Final emissions standards. Preference for Diesel Particulate Filters (DPFs), Selective Catalytic Reduction (SCR), and Diesel Oxidation Catalysts (DOC).
- Noise Level: Maximum permissible noise level of 60 to 75 dB at 10 meters. Compliance with ISO 3744 and ISO 8528-10. Separate housing for noise reduction must be supplied if necessary.
- Maintenance and Durability: Expected maintenance intervals and minimum 10,000 operating hours lifespan. Vendor-provided training and maintenance plan required.
- Generator Testing: Testing for fuel efficiency and emissions compliance before delivery.
- Remote Monitoring and Control: Remote start-controller, local exerciser, and optional transfer switch. Advanced remote management capabilities supporting real-time KPI tracking and SNMP protocols.

#### 1.2. Solar Power System Specifications:

- Panel Efficiency: Minimum efficiency rating of 17% to 22%.
- Durability and Warranty: Minimum 25-year warranty with environmental durability certifications suitable for marine installations.
- Inverter Efficiency: Minimum efficiency above 95%.
- Energy Storage Integration: Smart charge controllers for seamless battery storage integration. Automatic switching mechanisms for power source transitions.
- Scalability: Modular design facilitating easy future expansion.
- Installation and Maintenance: Comprehensive installation plan minimizing operational disruption. Annual maintenance checks and detailed maintenance guide.

### 1.3. Battery Bank Specifications:

- Type and Technology: VRLA AGM, Li-ion, or LiFePO4.
- Specifications: 48V DC system, 4-6 hours of operation. AGM: 800-1,000 cycles at 80% DoD, Li-ion: 2,000 cycles at 80% DoD, LiFePO4: 4000+ cycles at 90% DoD. Max continuous discharge current 100A, nominal voltage 51.2V.
- Temperature Tolerance: Suitable for Palau's climate with storage environment humidity up to 95% and storage temperature of 86°F or better.
- Durability: Waterproof IP43, corrosion-resistant. IP67 rating preferred.
- Safety and Compliance: Compliance with US & international safety standards.
- End-of-Life Management: Strategies for environmentally responsible disposal and recycling.

### 1.4. Rectifiers:

- Specification: Low-power 48VDC rectifiers rated for 3KW. Hot-swappable with AC input voltage range of 85VAC to above 250VAC.
- Frequency Operating Range: Below 50 Hz, capable of current limit adjustments above 100%.
- Surge Protection: AC surge protection meeting or exceeding IEC 61000-4-4, IEC 61000-4-5, and IEC 61000-4-6.
- Operating Temperatures: To meet or exceed 130°F. Humidity specification of 100% relative, condensing.
- Monitoring: Optional battery monitor system desirable. Remote access and real-time data display with open interfaces to NMS preferred.

### 1.5. Wind Turbine Specifications:

- Power Output: Suitable for local wind conditions and cellular site demands.
- Energy Efficiency: High conversion efficiency operational across various wind speeds.
- Durability and Warranty: Robust design for Palau's climate with a long-term warranty (around 20 years).
- Noise Level: Compliance with US and internationally acceptable noise levels, considering local environmental sensitivity.
- System Integration: Compatible with PNCC auxiliary power systems including solar, diesel generators, and battery storage.
- Environmental Considerations: Design features to minimize impact on wildlife, particularly birds and bats.
- Installation and Maintenance: Streamlined installation process with regular maintenance requirements and safety protocols.
- Remote Monitoring: Capability for remote monitoring and control aligning with generator and solar system standards.

#### 1.6. Comprehensive Training:

- Virtual Training Session: Conduct a virtual training session to review project plans and provide initial training on generator, solar, and wind power equipment solution design, operations, and maintenance.
- Onsite Field Training: Provide onsite training for power support systems operations and maintenance at all PNCC cell sites (50+ locations). Additional training at 5 selected project cell sites to demonstrate hybrid power support solution installation.
- Development of Maintenance Schedules: Create operations and improvement maintenance schedules for each site based on provided training.

#### 2. Proposal Requirements:

- Detailed technical specifications, implementation plan, budget breakdown within the \$150,000 grant, maintenance and support plan, compliance with regulations, sustainability considerations, and evidence of previous successful implementations.

#### 3. Evaluation Criteria:

- Technical merit, cost-effectiveness, vendor experience, sustainability practices, and regulatory compliance.

#### 4. Submission Guidelines:

- Proposals must be submitted in English by July 24, 2024 at 4:00 PM (Palau time).
- Submit to:  
Email: [pncc.rfp@pnccpalau.com](mailto:pncc.rfp@pnccpalau.com)  
Address:  
PALAU NATIONAL COMMUNICATIONS CORPORATION  
PROCUREMENT OFFICE  
ATTN: MS. TEONGEL NGIRKELAU  
PO BOX 99, KOROR, PW 96940  
Phone: +680-587-9000
- Clearly mark the RFP Number, Company Name and Address, and Point of Contact on the envelope or email subject line.

#### 5. Terms and Conditions:

- PNCC reserves the right to accept or reject any proposals.
- The decision of the selection committee is final.
- Proposals must remain valid for 120 days.
- All costs must be in US Dollars.

PNCC is committed to advancing innovative, resilient, and environmentally-friendly power solutions.

For further details, visit the PNCC RFP webpage or contact Mr. Hung-Wei Tomas Tseng.

Thank you for your interest in partnering with PNCC on this significant initiative.