COMMONWEALTH UTILITIES CORPORATION

UTILITY CONSTRUCTION SERVICES OF THE CUC POWER DISTRIBUTION SYSTEM FOR THE ISLAND OF SAIPAN, CNMI

EMERGENCY REQUEST FOR PROPOSAL

CONTRACT NUMBER

I. INTRODUCTION

A category 5 typhoon known as Super Typhoon Yutu passed over the island of Saipan, in the Commonwealth of the Northern Mariana Islands, a United States territory in the western Pacific Ocean. Winds exceeded 200 mph and resulted in a major destruction to the island's electric power distribution system. A preliminary assessment of Saipan's power distribution system indicates that approximately 10% of the island's power pole field inventory is permanently damaged leaving more than four-thousand (4,000) electric customers without power or water.

II. BACKGROUND

The electric power grid in Saipan is comprised of three power generation facilities with total generating capacity of 109 MW. However it is only able to supply 51% of its generating capacity at 56 MW. The island's peak load is limited to 42 MW during its highest demand of the year. The island contains an underground power transmission system with a voltage rating of 35 kV that spans 5.3 miles from the main Power Plant Generation facility known as Power Plant 1 (PP1) to a step down power distribution substation. The grid on the island of Saipan consists of nine (9) distribution circuits. Five (5) of the nine (9) distribution circuits are radially fed from the PP1 and the remaining four (4) distribution circuits are radially fed from the Water Look Substation. Saipan's distribution system is a 15 kV voltage class system that spans approximately two-hundred (200) miles of overhead primary and secondary distribution lines.

III. PROBLEM STATEMENT

The power restoration effort in Saipan is managed by the Commonwealth Utilities Corporation (CUC). CUC serves as the sole provider of electric power, water and sewer services for Saipan. The restoration effort is driven by CUC's logistics team consisting of the corporation's Executive Director, Deputy Director, Legal Counsel and the corporation's Procurement Officer.

A successful solicitation of resource assistance from regional and federal partners has quickened the restoration progress for Saipan. However, due to the competitive demand for utility resources and the immediate need for the restoration, CUC's logistics team is unable to provide the needed utility resources required to expeditiously restore Saipan's electric power grid. CUC's essential mission challenge is to restore all power. There are three power generation facilities that produce an energy output of a total 109 MW that is currently producing at 51% at 56 MW which will need to be restored to 100% within a very short timeframe. CCU intends to award a competitive contract that will encompass the requirements for procuring all materials and supplies; provide all labor support to manage the delivery of total power restoration; and have sole responsibility to meet the delivery of the islands power restorations within a short timeframe to assure the public health and safety of the island citizens.

IV. GOAL OF THE AGREEMENT

The Goal of the Agreement is to restore power to the island of Saipan. To accomplish this goal, the CUC requests proposals to select a qualified contractor to perform the rebuild of a 15 kV electric power distribution system in the island of Saipan to pre-disaster conditions in sixty (60) calendar days at a reasonable price. Proposals shall be made on a fixed price basis with no payment due until 30 days following confirmation that all KPIs have been met.

The contractor shall implement a construction scheme based on the immediate availability of electrical hardware and materials needed for the design and construction of either an overhead or underground power distribution system build. CUC acknowledges the scarcity of materials such as poles, pole mounted transformers and the like. It is CUC's goal to solicit proposals that overcome the scarcity of materials through innovation and implementation of cost-effective resilient materials where necessary.

Performance of the contractor shall be measured based on the project objectives and its corresponding key performance indicators as shown in Table 1.

Table 1. Objectives and KPI

Priority	Objective	Key Performance Indicator (KPI)
1	Reconstruct power distribution system feeder circuit	Electric power is restored to critical infrastructures such as water tank service areas and port

		of entries in twenty (20) calendar days of the performance period
2	Reconstruct power distribution system lateral circuits	Electric power is restored to 75% of the total length of feeder lateral circuits on all project sites in thirty (30) calendar days of the performance period
3	Provide electric power to electric power customers from the electric power grid	Electric power is restored to 95% of electric power customers in fifty (50) calendar days
4	Sustained electric power distribution performance of the restored project sites	Absence of any forced outages on the electric power grid for thirty (30) continuous days following the performance period

V. PROJECT DESCRIPTION

The contractor will source and provide all labor, equipment and materials for the reconstruction of CUC's electric power distribution system comprising Saipan's southern distribution circuits. The restoration of this electrical power distribution system will involve the construction of feeder and lateral distribution circuits. Electrical connections from the utility grid to service locations shall originate from the distribution power transformer up to the weather head component of the point of interconnection between the utility and its electric power customers.

Contract timelines will require the immediate availability of utility materials used for either an overhead or underground power system build. Material selection shall be made in the most cost effective manner from the limited options available at this time.

The areas identified for the project scope include three independent power distribution circuits comprising of feeder and lateral lines. The three power distribution circuits are radially fed from a step-down substation rated at 34.5 kV / 13.8 kV. The step-down substation is part of a power zone that connects from PP1 through the island's only underground transmission line rated that is rated at 34.5 kV. A more detailed description of the affected distribution circuits identified as Site 1, 2 and 3.

An illustration of the areas of interest is provided in the attachment section of the Request for Proposal.

SITE 1

Site 1 is part of an electrical power distribution circuit locally named Kiya 1; it is the longest of the three electric power distribution circuits identified for reconstruction. Site 1 is a 13.8 kV electric power distribution system that provides electrical power to roughly 30% of CUC's electric power customer base. In addition, the distribution circuit is responsible for providing power to critical infrastructures such as the island's only airport facility as well as the island's largest water tank service area which sources, transmit and distributes potable water to more than 60% of the island's water customer base.

Electric customers are serviced through a pole mounted distribution transformer with primary voltage rated at 13.8 kV and secondary voltages to match standard U.S. voltages for Wye and Delta voltage requirements. The point of interconnection for all service connections originates from the pole mounted transformer up to a customer's weather head. It shall be Contractor's obligation to insure all connections are in compliance to all NEC requirements to all customers ready for connection during the term of the Contract.

Table 2 provides a general profile of Site 1 during pre-storm conductions.

Table 2. Site 1 (Kiya 1) distribution circuit profile at pre-storm conditions

Parameter	Megawatt (MW)	Primary Voltage Rating (kV)	Secondary Voltage Rating (V)	Length (feet)
Peak Demand	5.3	---	---	---
Base Load	3.9	---	---	---
Primary Lines	---	13.8	---	1,052,524
Secondary lines	---	13.8	---	225,444
Pole Mounted Transformers	---	13.8	120, 240, 208, 277, 480	---

SITE 2

Site 2 is part of a distribution circuit that is locally named Kiya 2, it is the second longest of the three electric power distribution circuits identified for reconstruction. Site 2 is a 13.8 kV electric power distribution system that provides electrical power to roughly 30% of CUC's electric power customer base. The electric customers serviced from this distribution circuit are comprised of a majority of residential customers and a small group of commercial customers.

Electric customers are serviced through a pole mounted distribution transformer with primary voltage rated at 13.8 kV and secondary voltages to match standard U.S. voltages for Wye and Delta voltage requirements. The point of interconnection for all service connections originates from the pole mounted transformer up to a customer's weather head. It shall be Contractor's obligation to insure all connections are in compliance to all NEC requirements to all customers ready for connection during the term of the Contract.

Table 3 provides a general profile of Site 1 during pre-storm conductions.

Table 3. Site 2 (Kiya 2) distribution circuit profile at pre-storm conditions

Parameter	Megawatt (MW)	Primary Voltage Rating (kV)	Secondary Voltage Rating (V)	Length (feet)
Peak Demand	5.3	---	---	---
Base Load	3.6	---	---	---
Primary Lines	---	13.8	---	675,860
Secondary lines	---	13.8	---	145,631
Pole Mounted Transformers	---	13.8	120, 240, 208, 277, 480	---

SITE 3

Site 3 is part of a distribution circuit locally named Kiya 4; it is the smallest of the three electric power distribution circuits identified for reconstruction. Site 3 is a 13.8 kV electric power distribution system that provides electrical power to roughly 12% of CUC's electric power customer base. The electric customers serviced from this distribution circuit are comprised of large commercial customers such as hotels, department and wholesale stores. The residential customer base on Site 3 is limited a smaller percentage of CUC's entire residential customers.

Electric customers are serviced through a pole mounted distribution transformer with primary voltage rated at 13.8 kV and secondary voltages to match standard U.S. voltages for Wye and Delta voltage requirements. The point of interconnection for all service connections originates originate from the pole mounted transformer up to a customer's weather head. It shall be Contractor's obligation to insure all connections are in compliance to all NEC requirements to all customers ready for connection during the term of the Contract.

Table 4 provides a general profile of Site 1 during pre-storm conductions.

Table 4. Site 3 (Kiya 4) distribution circuit profile at pre-storm conditions

Parameter	Megawatt (MW)	Primary Voltage Rating (kV)	Secondary Voltage Rating (V)	Length (feet)
Peak Demand	6.1	---	---	---
Base Load	3.4	---	---	---
Primary Lines	---	13.8	---	237,980
Secondary lines	---	13.8	---	85,596
Pole Mounted Transformers	---	13.8	120, 240, 208, 277, 480	---

VI. RATINGS

All electric hardware, equipment and systems installed by the Contractor on the electric power distribution system shall be applicable to the electric power specifications for Site 1, Site 2 and Site 3. The electric power distribution system operates at 60 Hertz and utilizes a 15 kV primary voltage specification with secondary voltages to match levels rated for U.S. residential class systems.

The Contractor may consult with CUC engineers on all material specifications installed during pre-storm conditions prior to implementing the system build of the electric power distribution system.

Table 5 outlines the voltage specifications of primary and secondary systems of the electric power distribution system for Site 1, Site 2 and Site 3.

Table 5. Voltage specification for electric power distribution system

Parameter	Primary Voltage Rating	Secondary Voltage Rating	Frequency (Hz)
Voltage Line-to-Ground	7.96 kV	120V, 208V	60
Voltage Line-to-Line	13.8kV	240V, 277, 480	60

VII. REQUIREMENTS

All work completed in the rebuild of the power distribution system shall be designed and assembled in accordance with the following standards: REA (Rural Electrification Act), UL (Underwriters Laboratories), and National Electric Code (NEC).

VIII. RESOURCES

In order to meet the goal of the RFP, a list of desired labor personnel and equipment is provided to convey the resources needed to complete the rebuild of Site 1, Site 2 and Site 3. The Contractor is to consist of labor personnel knowledgeable in the construction of either an overhead or underground power distribution system in accordance with the electrical utility standards under the Rural Electrification Act.

CUC will require that each individual comprising the working group possess work experience in journeyman work directly related in the construction of an overhead power distribution system (or for buried segments, journeyman work directly related to construction of buried power distribution systems). The remaining working personnel will be assigned to operate project equipment utilized in the construction work. As part of the working qualifications, the CUC will only require that an individual operating a type of project equipment have multiple years of work experience in operating the equipment they will be assigned to operate during the project performance.

In addition to labor personnel, the CUC makes the recommendation to the Contractor to provide project equipment that will be used in the management and handling of utility materials during the project performance. In the event the Contractor may not be able to provide the exact model listed, the CUC may allow the Contractor to utilize an alternative model if and only if the alternate is within the prescribed working specifications of listed for the equipment item. For those equipment models listed as optional, the CUC will allow the Contractor to select the model type of their choosing provided the equipment model is meets the prescribed working specifications listed. The Contractor will deliver the required equipment and workers to Saipan at its own expense, including without limitation. all costs for insurance, freight, and transportation to Saipan.

Table 6 provides a breakdown recommended labor personnel and equipment needed for the project performance.

Table 6. CUC recommendation of project personnel and equipment

Item	Component	Role
Labor	Journeyman, Journeyman Foreman, Safety Officer and Equipment Operator	Perform the design and reconstruction of Site 1, Site 2 and Site 3 according to their system specifications during pre-storm conditions
Equipment	Crane, Low Boy, Bucket Truck, Derrick Digger, Boom Truck and Utility Truck	Handle project materials used in the reconstruction of the electric power distribution system

IX. CONTINGENCY

In event that the Contractor cannot implement a design and construction plan to match pre-storm conditions for Site 1, Site 2 and Site 3 as a result of resource constraints on labor, equipment or material, the Contractor must develop an alternative design and construction plan that is applicable and conducive to the specification demands of the island's electric rate payers. In addition, the alternative design and construction plan must contain resilient components to its implementation scheme. The resilient implementation scheme shall encompass hardening and strengthening of feeder lines that connect from the power generation source facility to the location of the critical infrastructure listed in Table 7.

The execution and implementation of alternative resilient designs must be in compliance with local and federal rules and regulations for electrical construction on high voltage equipment and systems. Use of steel or concrete poles or underground cables must be justified on the basis of availability, must be cost effective and if different than the existing items, shall have a cost benefit analysis showing a no more than a hundred percent (100%) increase over the costs of replacing the original item(s) with like materials. The distribution system shall be designed and built to maximum survivability of similar future disasters including automatic transfers of power to other parts of the system and automatic shut downs to prevent equipment damage due to overloads or other contingencies.

Table 7. Priority list of infrastructures

Order	Infrastructure/Facility	Power Generation Source	Distribution Circuit	Critical Service
1	Commonwealth Health Care Corporation	PP1	Feeder 1	Oversee public health care services to the residents of Saipan
2	Saipan International Airport	Water Loo Substation	Kiya 1	Oversee aerial services for local and international flights
3	CNMI Department of Homeland Security	PP1	Feeder 4	Oversee security logistics during terrorist threats and environmental catastrophes

X. TIMELINE FOR ADVERTISEMENT

The Request for Proposal shall not exceed seven (7) calendar days. A site visit shall be scheduled on the 4th day of the advertisement timeline.

XI. ATTACHMENTS TO RFP

A. CUC Saipan Grid Layout
B. CUC Saipan Single Line Diagram
C. Site 1 Map
D. Site 2 Map
E. Site 3 Map

** END OF SECTION **