

WB-KIAT Collaboration Project Proposal

Project Overview

Project Title	Enhancing energy climate resilience in the Pacific Island Countries (PICs)		
Sector (sub-topics)	Distribution Information System based on GIS (DIS) Distribution Automation System (DAS) Advanced Metering Infrastructure (AMI) Supervisory Control and Data Acquisition (SCADA) Micro-grid (MG)		
Country	Pacific Island Countries (PICs)	Location	Federated States of Micronesia (FSM), Republic of the Marshall Islands (RMI)
Project Duration	48 months	Budget	USD 10 million
Association with Other Projects	Pacific Regional Energy Resilience Project (Pipeline) KGGTF grant (Year 7) “Regional E-mobility and Battery Storage Programmatic Technical Assistance (TA) for Pacific Island Countries and Territories”		

Submitter's Information

WB (country office)	
Name	(details to be provided when selected)
Position	
E-mail	
Telephone	

Client country's Implementing Organization(s)

Client country Contact 1 (ministerial level)	
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Position	
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Position	
Organization	National Energy Office (NEO), Republic of Marshall Islands (RMI)
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Client country Contact 3 (implementing agency)	
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Organization	Pacific Power Association (PPA)
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Client country Contact 4 (implementing agency)	
Name	

Position	(details to be provided when selected)
Organization	Marshall Energy Company (MEC), RMI
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Client country Contact 5 (implementing agency)	
Name	(details to be provided when selected)
Position	
Organization	Pohnpei Utilities Corporation, FSM
E-mail	

1. Project Background

Current Situation

The eleven Pacific Island Countries (PICs) in East Asia and the Pacific (EAP) have a combined population of about 2.3 million people, a combined GDP of USD 10.64 billion, and an average GNI per capita of USD 4,306. Seven PICs have populations well below 200,000 (e.g. Tuvalu with approximately 10,000 people, the smallest member of the World Bank Group [WBG]). They consist of hundreds of islands stretching between North and South Pacific Ocean, scattered in such a way that they cover an equivalent of 15 percent of the globe's surface.

The PICs are all relatively small, with open but narrowly based economies and limited institutional capacity. They are vulnerable to external economic and environmental shocks and have limited access to global markets. Size and remoteness are strong defining characteristics of the 10 island members, with a total land area of only some 64,000 square kilometers (Km²), while the exclusive economic zones they control are over 14 million Km², roughly twice the land of Australia.

These countries are also some of those most vulnerable to the impacts of climate change and natural disasters. According to a 2018 WBG study, of the 20 countries in the world with the highest average annual disaster losses scaled by gross domestic product (GDP), 8 are PICs. They are highly exposed to adverse effects from climate change and natural hazards, which can result in disasters that affect their entire economies and their human and physical capital and impact their long-term development agenda.

The major issues that PICs face in relation to the power sector include: i) high dependency on costly imported fossil fuels; ii) lack of adequate capacity and reliable data for energy planning and management; iii) the need for capital to finance battery storage and other facilities that can properly absorb variable renewable energy (VRE) in isolated systems; iv) insufficient revenue from tariffs to meet operation and maintenance (O&M) costs; and, v) the high maintenance cost of generation and distribution systems close to a marine environment. Those specific issues are in urgent need to be resolved through this proposed project.

Relevant National Development Plans, Policies, and Strategies

The WB identifies the Pacific as a core region to its long-term energy development portfolio. The Energy Engagement Strategy for PICs prioritizes: i) strengthening energy planning and enabling policy, and institutional and regulatory development, including private sector involvement in Pacific countries; ii)

improving utilities performance/capacity; and iii) scaling up renewable energy to promote sustainable development.

Association with Other Projects/Programs

This proposed project is aligned with the *Framework for Action on Energy Security in the Pacific* adopted at the Pacific Islands Forum meeting, with a focus on building the capacity of utilities to improve their performance and supporting them in encouraging private sector involvement in RE investment. The project is also in line with the *Sendai Framework for Disaster Risk Reduction 2015-2030*, as well as *Framework for Resilient Development in the Pacific* that identify needs and priorities for responding to the PIC's extreme vulnerability to the effects of climate change and natural hazards.

2. Project Objectives

The proposed project is part of multi-phase Regional Energy Resilience Project which is in pipeline stage. The Project's development objective (PDO) is to (i) enhance energy resilience and sector planning tools; (ii) promote a regional assistance program and emergency response readiness, and (iii) create a regional energy database. The first phase of the project is anticipated to target FSM and RMI for PDO (i) while PDO (ii) and (iii) will include PPA member country that have joined the Pacific Disaster Assistance Program (PDAP). The PDAP is a mutual disaster recovery and assistance program which will enable PPA members to quicken response and recovery efforts after disasters through the sharing of human resources and equipment between utilities.

The Bank team requests for the KIAT support on activities under objective (i). The project is still in the early stage and the Bank board approval is expected in late 2023. The Bank project will be implemented by the Pacific Power Association (PPA), whose executive director will serve as a project manager, and dedicated implementing units with FSM and RMI utilities. Under the understanding that KIAT funding is parallel financing focusing on advanced technology applications and follows Korean ODA procurement rules, the procurement rules and procedures need to be harmonized between the Bank and KIAT.

The project is linked to existing KGGTF grant (Year 7) "Regional E-mobility and Battery Storage Programmatic Technical Assistance (TA) for Pacific Island Countries and Territories".

3. Project Components

The proposed regional project will enhance PICs power system climate resilience by minimizing damages and service disruptions and enabling rapid response and recovery from the damage incurred by climate disasters. The estimated cost is US\$ 10 million and it will include the following two components to be implemented by PPA.

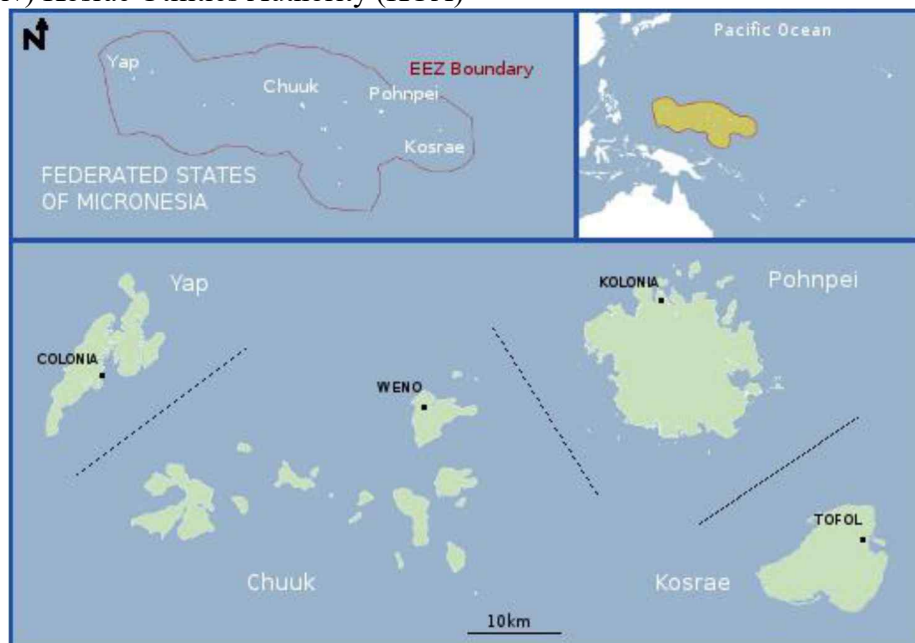
Component 1. Power system reinforcement: Demonstration of design/engineering techniques and investments to strengthen resiliency of energy system. This component will undertake priority activities that will strengthen the resiliency of energy infrastructure. It will select urgent priority interventions and investments that will introduce and incorporate state-of-art designs and techniques such as smart grid including Distribution Information System based on GIS (DIS), Distribution Automation System (DAS), Micro-grid (MG), advanced metering infrastructure (AMI), supervisory control and data acquisition (SCADA), etc.) that, along with the introduction

of climate resilient equipment, standards and codes, will enhance the resiliency of new and existing energy infrastructure to better withstand impacts of adverse weather events and minimize the possibilities of costly damages. The entire energy system value chain including power generation, transmission, and distribution infrastructure will be screened using infrastructure life-cycle approach for opportunities for resilience enhancement.

Component 2. Capacity building: Strengthening utility’s implementation capacity for rapid response and recovery. This component will carry out activities designed to enhance the PPA and selected utilities’ capacity for rapid response and recovery. One critical aspect is to take actions to ensure vital power services remain operational in the face of unavoidable damages caused by extreme weather related events, in order to provide multi-sectoral emergency services (such as the availability of electricity for key hospital and medical facilities, or for operating pumps to relieve flooding). The other area of focus will be to ensure there is adequate knowledge and capacity for rapid recovery and restoration of energy services when damage is sustained due to adverse weather related events (such as developing redundancies, emergency procedures, or restoration capabilities). These activities include regional capacity building targeting PPA member utilities such as enhancing understanding of smart grid and strengthening utility’s implementation capacity for rapid response and recovery under Pacific Disaster Assistance Program (PDAP), a mutual disaster recovery and assistance program through the sharing of human resources and equipment between utilities.

4. Project Location, Period and Estimated Cost

- a) Location: Federated States of Micronesia (FSM) and Republic of Marshall Islands
 - Service areas of following FSM utilities:
 - i) Pohnpei Utilities Corporation (PUC),
 - ii) Chuuk Public Utility Corporation (CPUC),
 - iii) Yap State Public Service Corporation (YSPSC),
 - iv) Kosrae Utilities Authority (KUA)



- Service areas of following RMI utilities:

- Marshalls Energy Company (MEC)
- Kwajalein Atoll Joint Utilities Resources (KAJUR).



- Period: 48 months: January 2024-December 2027

- Cost:

Component	Amount (US\$)
Procurement, Engineering and Construction for power system reinforcement which includes building smart grid (DIS, DAS, MG, etc.) and rapid response and recovery system in selected power systems of FSM and RMI	9,000,000
Regional capacity building targeting PPA member utilities, which includes enhancing understanding of smart grid and strengthening utility's implementation capacity for rapid response and recovery under Pacific Disaster Assistance Program (PDAP), a mutual disaster recovery and assistance program through the sharing of human resources and equipment between utilities	1,000,000
Total	10,000,000

5. Project Implementing Organization

The implementing agencies is the PPA, associated with dedicated units of FSM and RMI utilities. PPA is the key regional organization that provides support to power utilities in Pacific Island Countries and Territories (PICT). The PPA is a nongovernmental regional organization, established in 1992 under the *Companies Act of Fiji* as a company limited by guarantee. The PPA's main objective is to create an environment of "cooperative partnership" with the private sector, funding institutions, and others with interest in the development of the power industry, and to enhance the role of power sector in the PICs. The PPA aims to improve the quality of power in the region through a cooperative effort among the region's utilities. It has a mandate to assist the utilities in resolving problems, including the integration of renewable energy, and to encourage them to be efficient and accountable in their operations.

6. Required Coordination at National/Regional Level

Collaboration with the Pacific Community (SPC): The team will collaborate with SPC on technical, policy, and information areas. *The SPC is a key regional development organization owned and governed by 26 country and territory members.*

Existing Coordination with Pacific Regional Infrastructure Facility (PRIF) Energy Sector Working Group: The task team will coordinate with the Pacific energy focal point on engaging the PRIF Energy Sector Working Group to provide contacts and guidance on dissemination.

Potential Collaboration: Facilitate a useful collaboration between the regional energy resilience project and UNESCAP, The Asia Pacific Energy Portal and *Statistical Institute for Asia and the Pacific (SIAP)*, the International Energy Agency (IEA), UN Sustainable Energy for All (SE4ALL) Global Tracking Framework (GTF), the International Renewable Energy Agency (IRENA), other UN statistical organizations, Asian Development Bank (ADB), and other relevant partners.

Annex. FSM and RMI utilities' network maps

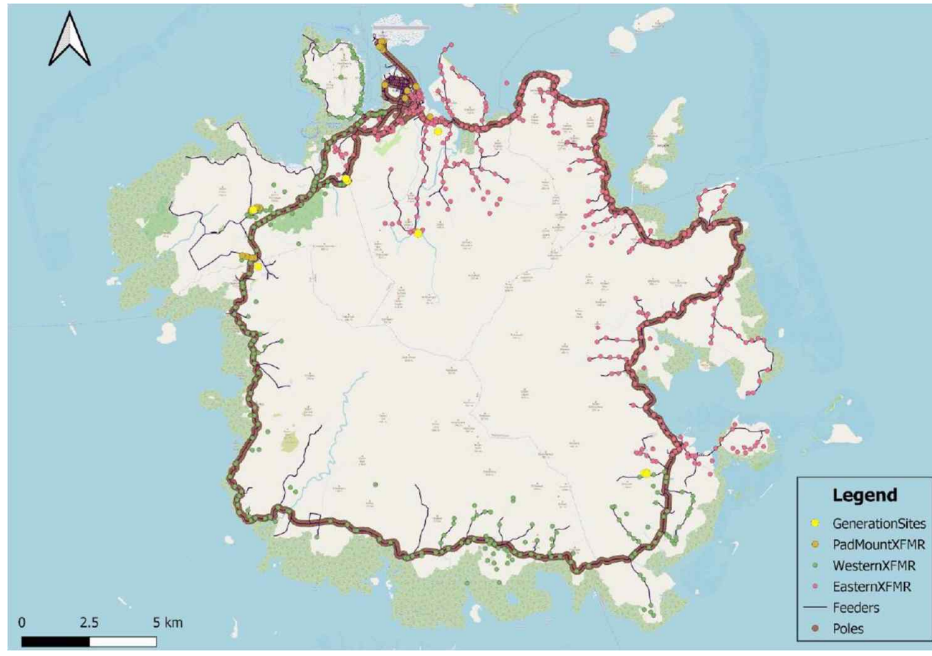


Figure 1. Pohnpei Utilities Corporation (PUC) Network Map

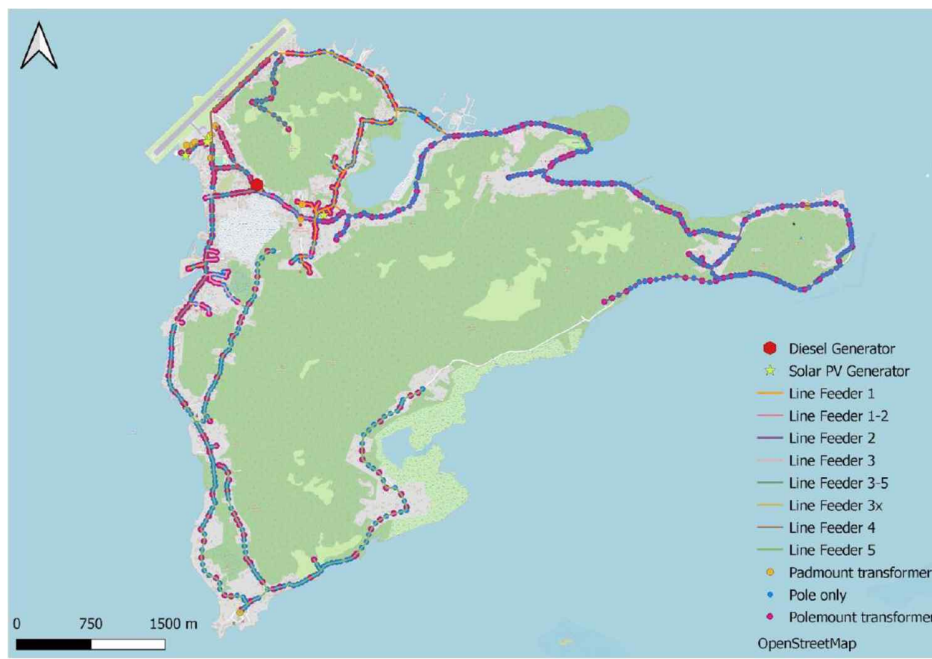


Figure 2. Chuuk Public Utility Corporation (CPUC) Network Map

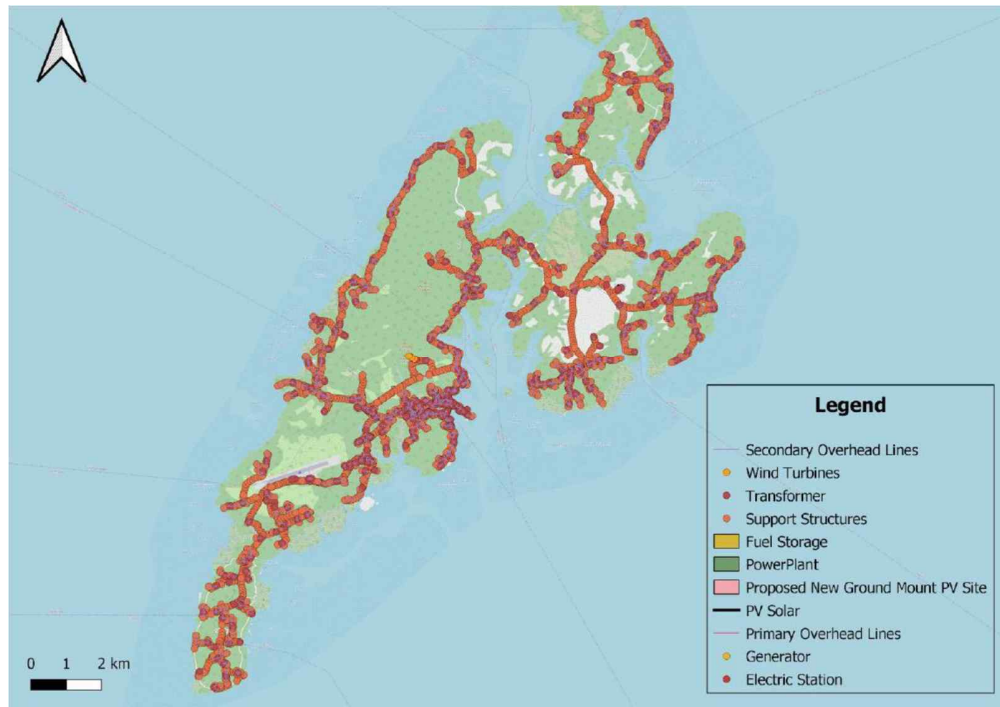


Figure 3. Yap State Public Service Corporation (YSPSC) Network Map

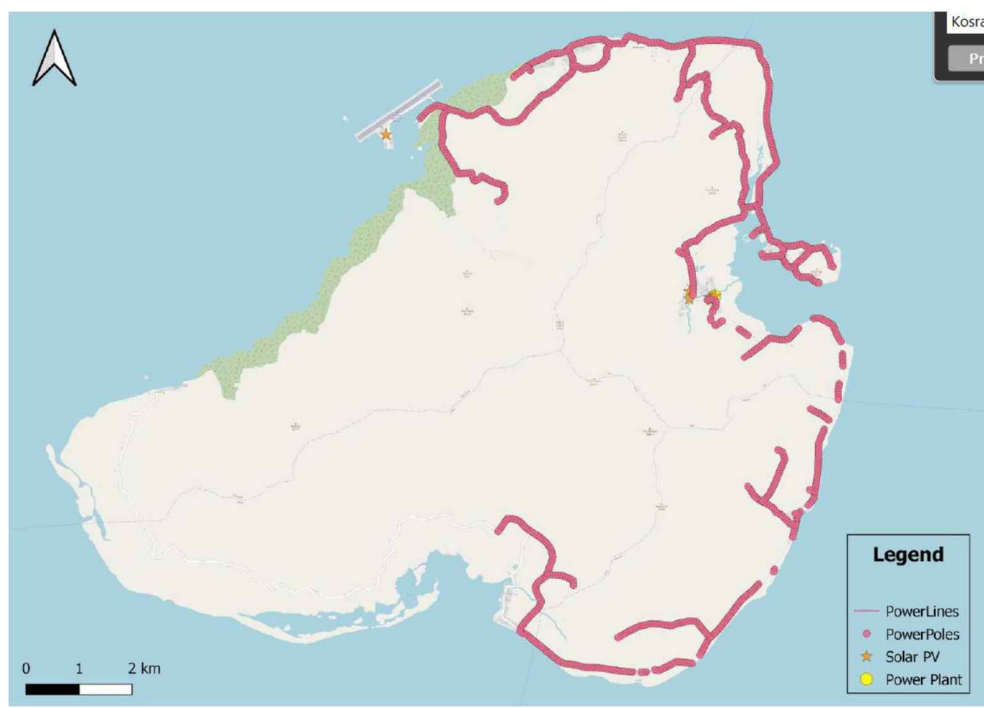


Figure 4. Kosrae Utilities Authority (KUA) Network Map



Figure 5. Marshalls Energy Company (MEC) Network Map



Figure 6. Kwajalein Atoll Joint Utilities Resources (KAJUR) Network Map