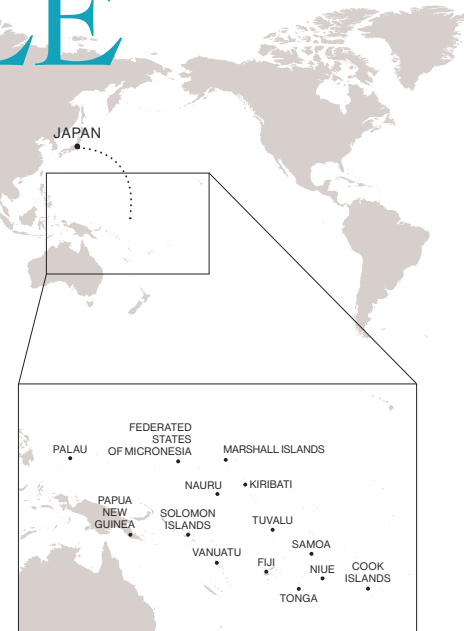




Left: Staff inspect a photovoltaic power generation facility in the Cook Islands. Solar power is an efficient way to generate electricity for the countries of Oceania located near the equator.
Bottom: Fiji installed a retractable wind power generation system similar to the one on Okinawa's Hateruma Island.



JAPAN AND THE PACIFIC: GENERATING SECURE AND SUSTAINABLE ENERGY SOLUTIONS



The shift to renewable energy in the Pacific island countries has progressed, with the support of Japan, in order to reduce greenhouse gas emissions and secure a stable supply of energy.

With climate change posing a huge threat to sustainable development worldwide, countries around the globe are now advancing efforts towards decarbonization through the introduction of renewable energy. However, various challenges are faced in its adoption. The Pacific island countries have long relied on diesel generation, which incurs high fuel transportation costs and causes a substantial environmental impact. Although those countries have also been striving to introduce renewable energy, they

have been unable to stabilize the amount of power generated given its vulnerability to the effects of fluctuating seasonality and weather conditions.

In 2017, the Japan International Cooperation Agency (JICA) launched the Project for Introduction of Hybrid Power Generation System in the Pacific Island Countries to find solutions to this region's problems. The project aims to reduce emissions and secure a stable supply of electricity by introducing renewable energy

systems matching the climate and environment of each area, while operating existing diesel generators efficiently and at the minimum level necessary. The project is part of the Hybrid Islands Initiative proposed by Japan at the 7th Pacific Islands Leaders Meeting (PALM7) held in 2015, and was initiated

with the participation of Fiji, Tuvalu, Kiribati, the Federated States of Micronesia (FSM), and the Marshall Islands. "We place the highest importance on the capacity development of local personnel, enabling them to design plans themselves and advance the project while verifying its appropriateness," says OGAWA Tadayuki, JICA Senior Advisor and the project's chief advisor. "The situations of each country, along with the issues they face, are diverse. The project has progressed from the perspective of those local personnel who best understand the circumstances."

The project utilizes the technology and expertise cultivated in Japan's Okinawa Prefecture, which is made up of nearly 160 islands situated in a subtropical climate zone. The shift to renewable energy on the islands has been advanced using the surplus solar energy generated during the daytime to power heat-pump water heaters, as well as groundwater pumping systems. Okinawa has also adapted a wind power generation system that allows the wind turbine to be folded to the ground to prevent it

from collapsing or being damaged by typhoons. By combining this system with motor generators and storage batteries, Okinawa's Hateruma Island succeeded in meeting its entire power demand through wind-generated electricity alone for about 10 days last year.

The Pacific island countries project shares Okinawa's efforts and knowledge through lectures and hands-on instruction. At the same time, the project provides support for the planning of hybrid power generation systems tailored to each country's particular power facility situation and environment. As both the proper maintenance and operation of the power facilities significantly affect their efficiency, the project emphasizes on-site and online guidance in that area. According to Ogawa, "After participating in study tours in Okinawa and seeing how carefully the equipment was maintained, many said that they wanted to learn how to carry out the same careful maintenance." The Marshall Islands reduced its annual consumption of diesel fuel in 2020 by 360,000 liters compared to that of 2016, through such improvements in maintenance. A plan is also underway to establish a regional training center—located within an existing training facility in Fiji—for people across the Pacific to study, helping them overcome the shortage of engineers who can operate and manage the systems.

"Securing a stable supply of sustainable energy is a prolonged and daunting challenge. That's



Amid the coronavirus pandemic, online training was conducted in the technologies necessary for the management and operation of power generation facilities with the cooperation of companies that had introduced hybrid power generation systems in Okinawa.

why we want to support the people of the Pacific islands in building a fully sustainable energy system that they can maintain by themselves. We also would like to learn creative new approaches from their initiatives, building a win-win relationship," says Ogawa. "The share of power generated from renewable energy sources is already increasing in some other island nations, such as Tuvalu and FSM. In Samoa, at the request of the government, JICA has started to provide technological support for the efforts towards realizing 100% renewable energy. Going forward, we would like to focus on such initiatives as well."

At PALM9, held online in July 2021, Japan and the other participating nations announced a policy of promoting technology and innovation to further reduce greenhouse gases. As part of a joint action plan, Japan has pledged to help achieve a stable and low-carbon supply of power by providing technical cooperation, building renewable energy facilities, and developing energy-efficient power grids, among other activities. As partners forging the path to sustainable growth, Japan and the Pacific island countries will continue to take on challenges together.



JICA's OGAWA Tadayuki (far right) holds a training session for government officials and electric power corporation staff. The focus is placed on not only classroom study, but hands-on training as well.