

Clean Energy Transitions in the Pacific Islands Present Opportunities for Strategic US Economic Partnerships

By Dr. Kalim U. Shah

The Pacific islands face unique energy challenges including a limited supply of domestic fossil fuel resources. These constraints have led to a historical dependence on imported fuels for power generation, and a corresponding vulnerability to fluctuating energy prices. Moreover, challenges such as outdated power infrastructure, geographical dispersion, small economies of scale, and limited generation capacity lead to transmission and distribution losses, low electrification rates in some areas, and high electricity costs (or subsidies). The region exhibits varying levels of energy insecurity in terms of energy availability, accessibility, affordability, and acceptability. Energy resilience is also high on the agenda given the increasing frequency and intensity of extreme weather events due to climate change. The cost of rebuilding and replacing critical energy infrastructure when it is destroyed in extreme weather events is a palpable impact of climate change in the Pacific Islands.

Throughout the region, there are pending or ongoing structural shifts toward renewable energy (RE). In addition to increased access to electricity and more resilient infrastructure, some locales are targeting as much as 100% renewables for their energy mix. The modernization of the Pacific Islands' energy sector promises to strengthen local economies and enhance the quality of life for residents. To bring about this reality, several puzzle pieces must come together, the most essential being: adequate financing for solar, wind, hydropower, and battery storage projects; more efficient power transmission and distribution lines; technical assistance that streamlines the operation of utility companies; and advisory services to improve financial management and corporate governance—through legal, policy, regulatory, and institutional reforms.

The Framework for Energy Security and Resilience in the Pacific (FESRIP) 2021-2030, launched at the 51st Pacific Islands Forum Leaders' Summit, is a vehicle for accelerated progress on the Sustainable Development Goals (SDGs), the Small Island Developing States Accelerated Modalities of Action (SAMOA) Pathway, [Nationally Determined Contributions \(NDCs\)](#) as mandated by the Paris Agreement, and national energy roadmaps. FESRIP will also support regional efforts related to the 2050 Strategy for the Blue Pacific Continent. However, successful implementation of this ambitious agenda on energy access, security, and resilience at the country level requires a coordinated plan of action. These efforts present significant opportunities for collaboration with US government and private actors in the areas of technical capacity building, institutional and governance strengthening, and finance and investment.

Technical Capacity Assistance

In the region, renewable energy targets range from 90% to 100% by 2025-2035, which presents grid operators with considerable challenges. Nations with the lowest access to electricity—Papua New Guinea (PNG), Solomon Islands, and Vanuatu—require significant grid improvements, including capacity augmentation of the existing infrastructure for energy production, transmission, and distribution. The range of RE options varies greatly across the region. The potential for wind power is limited on some islands by seasonality and land capacity. Larger islands have the potential to generate hydro power—Fiji, PNG, Solomon Islands, New Caledonia, Samoa, and Vanuatu. The viability of solar power is limited on smaller islands due to land scarcity. However, an uptake of rooftop solar and/or offshore wind could be feasible. Wave energy is still out of reach for small island nations;

Dr. Kalim U. Shah, Professor of Energy and Environmental Policy and Director of the Island Policy Lab, Joseph R. Biden Jr. School of Public Policy and Administration, University of Delaware, explains that with some locales "targeting as much as 100% renewables for their energy mix... [t]he modernization of the Pacific Islands' energy sector promises to strengthen local economies and enhance the quality of life for residents"

ocean thermal energy conversion (OTEC) is a potential power source for some islands, but the economics are still risky. The deployment of offshore solar is still experimental and small scale but could be a future option. Energy efficiency and demand-side management are required to reduce the gap between capacity and demand. To date, not enough has been invested in training the local workforce in RE installation and maintenance. In Fiji, for example, the bulk of firms are engineering procurement and construction companies which rely on tenders put out by governments and larger companies. These firms do not approach projects as independent power producers in that they are not prepared to carry out the maintenance and operation required over the projects' lifetime.

Institutional and Governance Strengthening

Pacific Island countries and territories (PICTs) are at different stages regarding energy security and resilience. Fourteen PICTs have policies or roadmaps, some of which require updating. Six PICTs—the Cook Islands, Federated States of Micronesia, Samoa, the Republic of the Marshall Islands (RMI), and Tonga—have energy acts. Thirteen PICTs have electricity acts. Only Tonga has a renewable energy act. Four PICTs—Samoa, Solomon Islands, Tuvalu, and Vanuatu—have energy efficiency acts. Five PICTs—Kiribati, Niue, RMI, Samoa, Tonga—have an energy balance. Only four PICTs employed dedicated energy database officers. All fourteen PICTs are working to reduce emissions through [NDCs](#) and four PICTs—PNG, RMI, Samoa, Tonga—have submitted 2nd NDCs. Only Tonga and Fiji are in the process of completing their national [SDG 7 \(affordable and clean energy\)](#) Roadmaps. Again, this presents avenues for cooperation through improved energy sector governance, strengthened institutional, legislative, regulatory, and coordination frameworks and evidence-based policies, plans, and roadmaps. The immediate term priorities of such efforts need to be expanding capacity, workforce training, and improving the quality of technical assessments, data, and information. There is also a need to strengthen PICT energy agencies' private sector assistance in generating proof of concept for early-stage business models. The lack of national databases and data management systems have created a dearth of information on project scalability.

Financing and Investment

While most RE projects in islands continue to be donor funded, both donors and financial institutions alike, are more aware of climate risk. Concerns about project resilience to external shocks is becoming a major preoccupation for these investors. Allaying these concerns through regional harmonization of procedures and standards, especially risk requirements, is gaining steam in the Pacific. The harmonization of risk requirement standards makes it easier for donors/developers to commit to projects on a regional scale. The lack of commercial financing for utilities in the Pacific is typical for countries reaching out to sovereign lenders. The challenge is not the lack of lenders but that only about six Pacific nations such as Fiji and Papua New Guinea can lend from banks, whereas the others rely on grant services that are not large enough to provide sufficient capital. Sovereign financing is based on the country's current debt, and utilities must compete for it. Of the loans provided, roughly half are for RE generation, and the remainder are for the transmission infrastructure needed to bring new RE projects online. One of the primary challenges of funding a project is the lack of planning and security, such as having solid power purchasing agreements in place.

The US Administration's launch of Build Back Better World is dubbed as "an initiative for meeting the tremendous infrastructure needs of low and middle-income countries". Undoubtedly, Pacific leaders must be negotiating with the Biden Administration, and allied implementation agencies, including USAID and the Millennium Challenge Corporation, on this bold values-driven, high-standard, and transparent infrastructure partnership. Given the necessity of energy and climate infrastructure transition in the post-covid context, this is a diplomatic imperative.

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