Building Energy Security in Pacific Island States: Governance, Innovation, and the Blue Continent Approach

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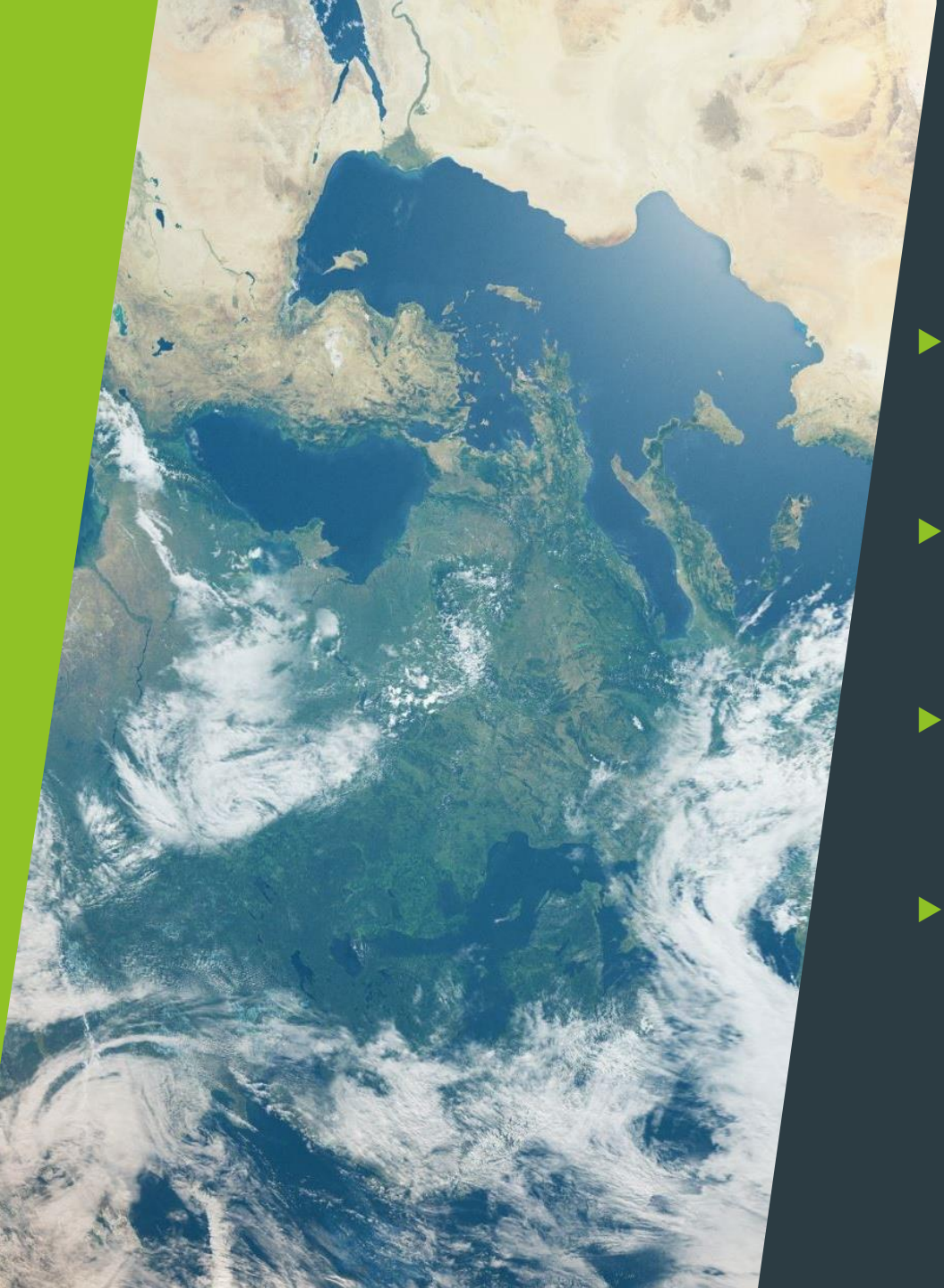


Big Ocean States- Blue Continent Paradigm

- Pacific Island States and island economies face persistent energy security risks due to import dependence, limited system scale, and exposure to climate-related disruptions
- Leverage the Big Ocean States Blue Continent paradigm to build governance models suited to the unique geographic challenges of islands and to support regional frameworks that strengthen resilience
- Integrated policy and regulatory frameworks enhance infrastructure resilience, support diversification of energy sources, and improve electricity system reliability
- Policy and regulations can facilitate aligning frameworks to mobilize investment, strengthen institutional capacity, and support secure, affordable, and sustainable energy systems which ultimately supports economic security

Regional Convening and Alliances for Energy Security and Economic Security

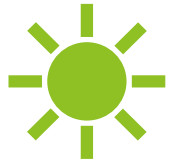
- The Pacific Agenda: Investment, Security, and Shared Prosperity Summit (Pacific Agenda Summit) in February, 2026 was convened by the East-West Center in Hawaii
- Designed to advance viable investment across the Pacific Islands region, the groundbreaking three-day conference brought together nearly 300 delegates, including the heads of state of 16 Pacific Island nations, U.S. officials, and private sector executives for practical discussions on translating shared economic objectives into concrete outcomes for long-term regional stability and economic progress

- Hawaii Natural Energy Institute, University of Hawaii, GridSTART Program
- Asia Pacific Regulatory Centre, Regional Energy Security and Regulatory Dialogue, collaboration with African Forum for Utility Regulators (AFUR)
- Office of Pacific Energy Regulators Alliance (OPERA)

Pacific Island Insights and Implementation

- Pacific Islands demonstrate how regulatory innovation and coordinated financial and technical support mitigate risks and increase energy resilience
- Specifics include implementation of smart grid digital solutions, utilizing AI, broadband, real-time data systems, energy storage and distributed energy resources
- Policy and regulations can facilitate aligning frameworks to mobilize investment, strengthen institutional capacity, and support secure, affordable, and sustainable energy systems which ultimately supports economic security
- Hawaii's best practices and lessons learned for grid modernization and renewable energy integration on island grid systems shared with island countries in the Asia Pacific region and the Caribbean

Hawaii's Role: Envisioning An Integrated Grid of the Future



Hawaii is the living laboratory for the integrated grid of the future to achieve the 100% renewable energy portfolio standard and 100% decarbonization

Implementing distributed energy resource actions and combining the tools of both traditional central plant, large utility scale renewable generation and decentralized distribution generation models
Utilizing energy storage technology, microgrid services and demand side management resources to support a 100% renewable energy grid

Achieving an integrated energy network through grid modernization and a shared integrated grid with water, telecommunications and electrification of transportation

Investing in smart grid infrastructure and grid edge technologies

Regulating in a time of innovation includes empowered customers, dynamic markets and sustainable infrastructure

System Stability for Island Grids: Challenges and Opportunities

- Hawaii's electric system is comprised of 6 separate island grids with no interconnection and transmission capability between islands
- Each island grid operates independently for energy generation and system balancing
- Mandate of 100% renewable energy on Hawaii electric grids by 2045
- Increasing levels of variable intermittent energy generation from utility scale solar and wind and distributed rooftop PV
- Need for distribution circuit monitoring and demand side management tools at the sub-transmission level
- Integrated Grid Planning and modern grid infrastructure are critical given the impacts from distribution circuits on transmission system
- Increased utilization of smart grid technology including advanced meters and smart inverters in PV and energy storage systems

Pacific Island Collaboration and Regional Initiatives

- The Asia Pacific Regional Energy Assessment Program (APRESA) to develop comprehensive energy system assessments regarding energy transition strategies, policy, regulation, technology options, demonstrations, implementation plans and training for specific requirements of the participant islands and strategic alliances – included Cook Islands, Republic of the Marshall Islands (RMI), Federated States of Micronesia (FSM), Republic of Fiji, Republic of Palau, Philippines, Cambodia, Laos, Vietnam, and Thailand

- Development of battery energy storage systems (BESS) in eleven Pacific Island countries (Fiji, Kiribati, RMI, FSM, Nauru, Palau, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu) including design of a regional BESS policy framework and guidelines, with technical/commercial assessments for each country to support private sector participation in BESS development

Pacific Island Collaboration and Regional Initiatives

- Energy Regulatory and Technical Support for Fiji's national utility Energy Fiji Limited (EFL) through the partnership of UH HNEI and the Pacific Power Association. Drawing on lessons learned from Hawaii and leveraging regional expertise supported EFL's effort to plan, procure and operate new solar projects and BESS in Fiji

- Energy Regulatory and Technical Support for Palau's energy transition and national energy priorities, focusing on system planning, grid operations and interconnection requirements for increased integration of high amounts of renewable energy resources, distributed rooftop PV and BESS

- Papa New Guinea (PNG) Electrification Partnership Activity to advance the PNG government goal of achieving 70% population access to electricity by 2030 through reliable and affordable energy and thereby promoting economic growth and community development throughout PNG

Cook Islands – Best Practices Example

Power system value participation and OPERA regional coordination

- Te Aponga Uira (Rarotonga SOE electricity utility) PPA from an IPP – international partner with Government asset owner to access education roof space for significant solar contribution to electricity needs
- Remote outer islands have governance partnership between Central Government and Local Government – capital development centrally held, operational matters locally. Tariffing local, central subsidization.

- OPERA Regional regulation co-ordination
  - OPERA is a group of 13 Pacific based electricity/energy regulators.
  - Leverages scale of many regulators despite individual small size
  - Continual capacity building and regulation development