

VANUATU

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This brief is the fourth-in-line contribution to mapping the renewable energy sources (RES) regulatory framework on the South Pacific Ocean archipelago of Vanuatu and providing policy recommendations, with a particular focus on electricity generation.

It builds upon the Onshore Renewable Energy Potential Introductory Brief (D01), the Legal and Regulatory Brief (D02) and the Regulatory Challenges Brief (D03). There are three regulatory challenges hampering a more effective uptake of renewable energy generation in Vanuatu were identified. These include:

recommended by the IRENA Renewable Readiness Assessment on neighboring Fiji.⁹

Second, with respect to any prospective review of power purchase agreement (PPA) guidelines, it may be useful to maintain and even expand the involvement of key potential buyers in PPAs, especially local communities, but also government buildings, industries and stakeholders in the tourism sector. For instance, the Marshall Islands considered that the risk associated with investment into an Ocean Thermal Energy Conversion (OTEC) plant on Kwajalein Atoll be hedged by concluding a long-term PPA with the United States Army, the prospective primary consumer of energy from such an OTEC plant, so as to provide a guarantee of return on investment.¹⁰ The long-term security of income provided to prospective investors by such a PPA could accelerate the uptake of renewable energy technologies also in off-grid, rural areas of Vanuatu, which are capital-constrained. In particular, the exploitation of the geothermal energy potential highlighted in rural areas of Efate, Vanua Lava, Tanna and Gaua islands could be realized in this way.

Moreover, the experience of Papua New Guinea also proves instructive for a longer-term evolution of the responsibilities of the URA. It is recommended that, as renewable energy generation becomes more mainstream in Vanuatu, both in concession and off-grid areas, a separate department is developed within the URA dealing specifically with renewable energy matters.¹¹ In Papua New Guinea, a separate regulatory agency exists for the regulation of the hydrocarbon industry. The Papuan Petroleum Resources Authority has the goal of maximizing commercial development of hydrocarbon resources within Papua New Guinea. Subordinate to the overarching Papuan energy regulator, this Authority allows for a more efficient allocation of resources in one area of energy regulation. The same organization could be adopted on Vanuatu for renewable energy sources. However, it is not necessary that an entirely new regulatory agency is created. Given the characteristics of the Vanuatu electricity market, even only a new department within the URA would suffice. This department would also coordinate the renewable energy policy with the DoE more generally.

Finally, regarding the inability of URA to implement and enforce its decisions, empowering URA vis-à-vis concessionaires is highly recommended. In this

context, the Nauru island's policy framework establishes extended reporting obligations for agencies and utilities to the regulatory authority for activities listed in the Climate Change Adaptation (CCA) and the Disaster Risk Reduction Postrlstre1U9a

At national level, the Cook Islands are promoting improved coordination among the institutions involved in the energy sector by enabling efficient and effective planning, increased transparency and building support amongst agencies.¹⁵ Similarly, Tonga's policy framework targets full coordination across relevant government ministries, with all ministries having actionable plans that incorporate the objectives of achieving sustainability in the region.¹⁶ On the other hand, Fiji, Kiribati, Marshall Islands, Solomon Islands and Samoa have all established a centralized body – usually a committee or an agency – that coordinates renewable energy deployment and key stakeholders' initiatives, oversees the development of programs and projects, reviews any national design standards for renewable energy installations and develops training programs.

Another good practice identified, which may facilitate inter-ministerial communication and the coordination of renewable energy policies to avoid redundancies in Vanuatu, is the creation of a central platform accessible by various stakeholders and enabling them to exchange information. More specifically, such a practice has been developed in the Cook Islands and includes the development of a national forum in which various stakeholders involved in the energy sector have the opportunity to collaborate by sharing data and to align their efforts towards common action plans. The aim is to advance the nation's sustainability goals and effectively implement renewable energy targets, ensu 11 itctice has

descriptions applied to the permanent secretaries in all the Ministries, aims to create highly-skilled domestic labor.³² In its National Energy Policy, Papua New Guinea also aims to enhance the institutional capacity and recruit adequately trained workers, in order to ensure that the energy sector is increasingly equipped with relevant specialist skills to support the integration of renewables.³³ In Tuvalu, the creation of a knowledge base for all available renewable energy sources and technologies is promoted, aiming to develop local expertise in the installation, operation, technical and economic management of renewable energy

Renewable Electricity and Energy Efficiency in Tuvalu, energy efficiency measures are expected to yield favorable cost-benefit outcomes and ensure the affordability of electricity for the people of Tuvalu.³⁹ To achieve these objectives, a review and development of a tailor-made legislation was promoted.⁴⁰

The enhancement of competition in the energy sector is also considered a means of achieving the long-term affordability of the electricity prices. To increase competition, economic incentives and implementing third-party access (TPA) are classic options. Regarding the former, in Fiji and Kiribati, the establishment of a favorable tax regime aims to promote investments by the private sector, strengthen competition and a greater customer participation through renewable energy technologies.⁴¹ Similarly, Papua New Guinea aims to provide tax and duty incentives for the involvement of the private sector in the energy market, additionally introducing net and smart metering policies to encourage a competitive electricity market environment through the expansion of independent power production and distribution.⁴² Finally, Papua New Guinea's policy documents provide that the government will maintain its regulatory role in retail competition, ensuring fair pricing and market ownership in the energy industry. It will also implement lower tariffs for rural electricity users based on the Long Run Marginal Cost (LRMC) principle. Many of these incentives were already mentioned above and may be of interest to Vanuatu to ensure affordability of electricity. Yet, the LRMC principle may represent a targeted, fairness-oriented instrument particularly adapted to its situation, acknowledging

Due to the geographical circumstances of Vanuatu, consisting of dispersed islands and with low customer density in rural areas, the need for extension of grid infrastructure is high, but the marginal costs of providing access beyond urban areas increase significantly. The least cost approach to overcome such a barrier would be to incentivize distributed generation and off-grid solutions, such as microgrids.⁴⁷ These technologies could help bypass the need for extensive grid-extension. Kiribati has designed a Rural Electrification Implementation Plan to improve and expand solar energy systems for rural households and communal buildings.⁴⁸ This plan is based on comprehensive surveys that monitor not only the energy needs of the rural population and households, but also the willingness and capacity of these residents to afford these services in order to meet their needs.

3.3. Bespoke Legislation for Operational Support

Deliverable D03 clarified a tailor-made regulation for operational support of the electricity system is lacking in Vanuatu. Consequently, a customized set of laws is required to support the reliable and efficient operation of the electricity system. The Marshall Islands have provided some guidelines for establishing a bespoke O&M framework.⁴⁹ These guidelines encompass conducting a thorough examination of the factors that contribute to the failure of adequate O&M, devising a plan to address these issues and establishing an institutional setup for rural electrification tailored to each specific installation. It is also important to implement training programs in local languages and use local traditional structures, in order to enhance credibility. Moreover, installation standards for off-grid installations should be developed and enforced. This approach would ensure that local community members gain the necessary knowledge and skills to independently perform basic O&M tasks over the long-run.⁵⁰ It is also suggested that the College of the Marshall Islands and/or University of the South Pacific support such an attempt and provide specialized courses in installation and O&M for standard modular mini-grids.

Following the example of the Marshall Islands, Vanuatu could also establish a regulatory regime governing the O&M of renewable energy projects beyond a project-basis. Overall, this set of laws should reinforce the stability and effectiveness of

the electricity grid and provide targeted support and incentives to renewable energy projects aiming to overcome the particularities and operational needs of Vanuatu.

3.4. Investor Income Guarantees

A primary cost-based challenge that may impede and prevent private investors from investing in renewable energy sources is the lack of an enabling environment for their participation in the electricity sector. More specifically, as it has already been stressed, in Vanuatu there is no bespoke legislation dedicated to economic support

in most Pacific Islands and their policy documents and laws, where present, provide some useful insights into possible recommendations aimed at overcoming regulatory barriers which constrain the uptake of renewable energy sources. A comprehensive review of such policies and laws leads to the conclusion that there is a host of potential measures of interest to Vanuatu. These include reinforcing the role and powers of its regulatory authority, reshaping the legislation for a coherent RES regime with streamlined procedures and interconnected institutions, increasing incentives for private investments and energy market competition, and ensuring the adequate training of local workers for the RES sector. Yet,

any such reform must be carefully considered in order not to undermine Vanuatu's biodiversity and local communities. Indeed, decarbonization of the energy system cannot be met at the expense of nature and local populations.

REFERENCES

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²⁹ International Renewable Energy Agency, *The Republic of Marshall Islands Renewable Readiness Assessment* (International Renewable Energy Agency 2015), available at <<https://www.irena.org/publications/2015/Jul/Renewables-Readiness-Assessment-Republic-of-the-Marshall-Islands>> 24.