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Private sector investment in the clean energy sector in the Pacific Islands

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Question

What does the literature say on the main drivers, constraints and solutions to the mobilisation and scale up of private sector investment in the clean energy sector in the Pacific SIDS?

Contents

1. Summary

Most Pacific small island developing states (SIDS) have ambitious renewable energy targets which call for huge investment, a significant part of which is expected to come from the private sector (IFC, 2021). Although there are around 40 renewable energy projects across the Pacific SIDS either already operating, under construction, or planned for commissioning in the next decade, they are still heavily reliant on imported fuel. Given the huge funding gap in achieving the Sustainable Development Goals (SDGs) and climate objectives in developing countries, private financing has been advocated for as the solution for the shortfall, as it has a large pool of capital available and catalytic properties that could effectively scale-up the "reach" and the scope of influence of public financing (Samuwai, 2021). Private sector partners are particularly critical to supporting SIDS as they often struggle to access international capital markets due to their high debt levels, lack of creditworthiness or small market size (UN-OHRLLS, 2022). However, there is still a general lack of private sector financing in the renewable energy sector in the Pacific SIDS (PIFS, 2018; Samuwai, 2021). Whether private finance mobilisation for clean energy is realistic at the scales needed in the Pacific SIDS is not answered clearly in the literature, although much of it is based on the assumption that there is no real alternative to private sector investment. This rapid review hence explores some of the key drivers, constraints and opportunities to the mobilisation and scale-up of this private sector investment.

There is a large and growing literature base on the topic of private sector engagement in the clean energy sector in developing countries more generally, as well as specifically in SIDS and, more particularly, in Pacific SIDS. Multiple policy papers, roadmaps and project preparation notes have been produced. Much analysis and project preparation/scoping reports have been undertaken by (or for) intergovernmental, donor and regional organisations, ranging from a regional perspective to country-level assessments. These often provide an overview of the energy system and regulatory framework for private sector investment, although data can be limited. This rapid review hence draws on a diverse range of sources from academic and grey literature.

The review first provides an overview of the vulnerability and characteristics of Pacific SIDS, and a brief summary of renewable energy in the region. It then draws on the literature to explore financing of clean energy in the Pacific and the mobilisation of private investment. The review concludes with some case studies of Pacific SIDS with more in depth information on specific challenges and opportunities. The Appendix presents a table with brief information on the policies, legislation and institutions relevant to renewable energy in 12 Pacific SIDS. It also provides a list of some key initiatives and websites that are working on encouraging private sector engagement in the renewable energy sector in the Pacific (please refer to these for further publications and more detailed project documents and feasibility studies).

Key findings:

- Data and information gaps: A key consideration in the literature is the lack of current, centralised and verified data and access to information. Data gaps not only make project planning, investment and forecasting difficult but also impede thorough and accurate assessments of private sector engagement and investment in Pacific SIDS (UN-OHRLLS, 2022).

- Barriers: lack of appropriate enabling environment, unfavourable investment climate and regulatory environment; potential negative impact of aid on private investments (Small, Nicholls & Jeffrey, 2020); due to SIDS' small size, renewable energy projects also tend to be small and may not attract ideal developers; the expected pipeline of future renewable energy projects is limited, with most considered to be stand-alone – an assumption reflected in high costs and low sustainability; limited access to financing security or guarantees often poses a risk for renewable energy deployment by the private sector; lack of credible and reliable data on energy or national initiatives for planning and forecasting (IRENA, 2021, p.14); land acquisition can pose a problem for projects in some Pacific SIDS (IFC, 2021).
- Regulatory reform and governance: There is great variation in the current legal, regulatory and institutional environment for renewable energy in the Pacific SIDS; in some cases they are well established, in others they are nascent (TPPA & PRIF, 2018; IFC, 2021 – see also the Appendix).
- Leveraging private financing: Targeted investments that will strengthen the pillars of the enabling environment, such as policy and planning, institutions, public financial management, human capacity, gender, social inclusion, and aid effectiveness, is critical in enhancing the mobilisation of finance in Pacific SIDS (Samuwai, 2021); need for appropriate planning as well as data-gathering on past, present and future projects to identify appropriate financing mechanisms, and standardisation of contracts, regulatory reform and regional approaches to help de-risk projects and demonstrate "readiness" (To et al., 2021); innovative financing mechanisms that can support longer-tenor finance, and support for domestic financial institutions to manage risk to build capacity of domestic finance sectors and investors (To et al., 2021); capacity building of the private sector to effectively mobilise and deliver national initiatives, especially through training, partnerships, funding and business plans to understand and incorporate climate risks (PIFS, 2021).

2. Pacific SIDS – context and background

Vulnerability and characteristics

The Pacific region includes 13 UN member SIDS and a total of 5,019 islands, islets and atolls, with a population of approximately 9.9 million. They are exposed to a number of natural hazards including typhoons, droughts, floods, volcanos, cyclones, earthquakes and tsunamis. Sea-level rise is a particularly acute issue in the region, with three Pacific SIDS (Kiribati, Marshall Islands, Tuvalu) among the top five for percentage of land less than 5 meters above sea level (UN-OHRLLS, 2022, p.18). However, Pacific SIDS are a heterogeneous group culturally and socio-economically, exhibiting large variations in terms of population size and densities, geographical spread and relative development progress (UN-OHRLLS, 2022, p.14). Despite this, they share a number of common challenges amplified by their structural characteristics (e.g. small populations, spatial dispersion, remoteness), including:

- small and undiversified economies with little ability to generate foreign exchange, incomes and tax receipts, which are vulnerable to exogenous shocks such as the tourism collapse driven by COVID-19;

- high perceived risks and little attractiveness for foreign investors;
- large recurrent costs and, for some, large debt and narrow fiscal space for development investments (OECD, 2018, p.3);
- many are remote and have limited connectivity and high transportation costs;
- their fragile ecosystems are more susceptible to the impacts of climate change, extreme weather events, and natural disasters;
- many are heavily dependent on foreign imports, including petroleum for energy – overall, this general dependence translates to high energy costs and vulnerability to spikes and disruptions in the oil market (UN-OHRLLS, 2022, p.14).

Many SIDS are heavily reliant on bilateral and multilateral aid. This is partly as a consequence of the lack of substantial domestic savings in the domestic private sector, "while in other cases local banks tend to accumulate their cash holdings as there are relatively few bankable investment opportunities given the risk profile of the local private sector" (ESCAP, 2021 cited in Samuwai, 2021, p.8).

Overview of renewable energy in the Pacific

A guide to investing in renewable electricity generation in the Pacific by the International Finance Corporation (IFC, 2021) provides a high-level overview of the Pacific region and comprehensive guidelines for the four most populous countries: Papua New Guinea (PNG), Fiji, Solomon Islands, and Vanuatu. It provides the following overview of renewable energy in the Pacific (IFC, 2021, p.7):

- **Retail electricity tariffs are high throughout the Pacific**, mainly due to the large share of diesel generation and low economies of scale.
- **Renewable electricity generation potential is promising**. Fiji and PNG have the largest electricity sectors in the region. Fiji, PNG, and Samoa generate a significant proportion of their electricity using renewables – largely hydro – often exceeding 50% of their share. Given that PNG, Solomon Islands, and Vanuatu have low access rates to electricity, the scope for rural electrification initiatives is significant (IFC, 2021, p.16).
- **Solar potential is good or excellent throughout the Pacific**, often better than in many places where solar photovoltaic (PV) generation is prevalent.
- **Hydro potential in Fiji, PNG, and Solomon Islands is good**, although accessing land can be challenging.
- **Biomass potential in the larger countries looks promising**, there are currently two biomass-based Independent Power Producer (IPP) projects one commissioned in Fiji and another under development in PNG, which will help indicate the potential sustainability of future initiatives.
- **Data gaps** – in general, detailed measurements of renewable resource potential are unavailable throughout the Pacific, with resource assessments conducted only for a few countries and energy sources (IFC, 2021, p.20).
- **While renewable energy Independent Power Producers are already operating in several Pacific SIDS, more opportunities are emerging**. E.g. in Fiji, Kiribati, PNG, Samoa, Solomon Islands, Tonga, etc.

- **Regulatory frameworks and planning for new renewable energy generation can be improved**. By: "(i) directly incentivizing renewable energy generation through gross/net-metering/billing frameworks and subsidy mechanisms for mini-grids; (ii) improving power planning and RE procurement, for example, by regularly updating power development plans, competitive procurement frameworks, solar grid integration studies, and standardized power purchase agreements; and (iii) studying RE resource and project potential, including establishing testing stations and commissioning feasibility studies" (IFC, 2021, p.7).

3. Financing clean energy access in Pacific SIDS

Why private sector funding is needed

A recent report by the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLLS, 2022) explores the private sector's role in the sustainable "blue economy" of SIDS using deep dives into case studies in the Caribbean, Pacific and AIS (Atlantic Ocean, Indian Ocean and South China Sea), expert interviews and a cross-sectoral survey. The report highlights how funding is consistently ranked as the greatest challenge to private sector engagement in sustainable development. Given the huge funding gap in achieving the Sustainable Development Goals (SDGs) and climate objectives in developing countries, private sector partners are even more critical to supporting SIDS. It explains that "Because many SIDS are unable to access international capital markets due to their high debt levels, lack of creditworthiness or small market size, private business and investment is critical to funding their SDG efforts. Partnerships can help businesses and investors pool resources, open doors to new funding opportunities, reduce risk, and expand programs" (UN-OHRLLS, 2022, p.41).

Hence, private financing has been advocated for as the solution for the shortfall and the uncertainty of climate financing (e.g. by IRENA), as the private sector has a large pool of capital available that could be directed towards climate change activities and it has catalytic properties that could effectively scale-up the "reach" and the scope of influence of public financing (UNEP, 2014; Buchner et al., 2017 cited in Samuwai, 2021, p.17). Michalena and Hills (2018, p.349) explain that "stronger private sector interventions can lead to the creation of economies of scale and the absorption of technical and financial risks" in Pacific SIDS.

Many Pacific SIDS' commitments in their Nationally Determined Contributions (NDCs) to the Paris Agreement are contingent on external support (PIFS, 2021). In general, private finance tends to be biased towards the energy sector, specifically renewable energy sources because of the proven track record of return on investments with such initiatives (Samuwai, 2021, p.17). Samuwai (2021, pp.18) also argues that "While foreign private investments flowing to host countries is beneficial in speeding up economic growth and development, the domestic private finance has a much greater multiplier/catalytic effect…, underscoring the need to strengthen the participation of the domestic private sector in climate actions."

Atteridge and Savvidou (2019) present a global mapping of development finance for 37 SIDS' energy sectors using data reported by bilateral and multilateral sources to the Organisation of Economic Cooperation and Development's (OECD's) Development Assistance Committee (DAC) for the period 2002–2016. Overall, they observe an increase in funding since 2009 and a shift

towards renewables, though non-renewables continue to be funded. But energy aid is unevenly spread between SIDS, and there is little correlation between the allocations made to individual countries and either their income or energy access gaps. Furthermore, the results show the scale of development assistance is small compared to SIDS' overall energy financing needs; recognising that other sources of finance will also be critical to future investments. The study highlights how

> "One global study finds private investment for renewable energy has mostly (93%) remained within the country of origin [(IRENA & CPI, 2018)]. For SIDS, this suggests that efforts to mobilise domestic private capital might be needed. Stronger involvement by private capital implies, in turn, an important regulatory role for governments to create enabling environments that can mobilise funding and to manage the distributional costs and benefits of future energy investments" (Atteridge & Savvidou, 2019, p.14).

Challenges to private sector funding of renewable energy

SIDS face a continuous challenge of mobilising the domestic private investments towards national climate actions (especially adaptation) and renewable energy (Samuwai, 2021, p.18), and efforts to strengthen SIDS' abilities to mobilise domestic private finance have had limited success (IRENA, 2015 cited in Samuwai, 2021, p.18). Smaller economies can mean smaller projects, which have been traditionally less attractive for investors who favour a single, large project over several smaller projects with separate transaction costs and requirements – although blended finance is changing this picture (UN-OHRLLS, 2022, p.42). According to Michalena and Hills (2018, p.349) the negligible uptake of incentivised renewable energy installation by private sector suppliers in Fiji is even more lacking than initiation of renewable energy by private sector companies. Although this lack of private investment in the energy sector can be attributed to many causes, they highlight four factors as being key: the unfavourable climate of investment for private investors; the inadequacy of the Independent Power Producer tariffs offered by the state utility (Fiji Electricity Authority); the lack of clear regulatory frameworks for private generation and supply service; and the lack of a coherent, credible publicly available data on investment opportunities (ADB, 2015 cited in Michalena & Hills, 2018, p.349).

The Pacific Power Association (TPPA) and Pacific Region Infrastructure Facility (PRIF) (TPPA & PRIF, 2018) released a report summarising background material that was prepared to consider the private sector opportunities within the electricity sector across the Pacific together with the outcome of the Pacific Energy Investors Forum held in Palau on 3rd August 2018. The background report highlighted that Financing remains a challenge. Specifically:

> "While there is finance available through multilateral sources, and to a lesser extent regional banks, the issue of guarantees is one that is being studied in some detail. While the markets remain relatively immature and the fiscal strength of small utilities is often questioned, IPP developers (and their funders) are reluctant to enter into 20-25 year Power Purchase Agreements (PPA) without security. As utilities gain more experience with IPP contracting and performance, there is evidence that sovereign guarantees are less available. This is a 'push back' by some utilities but also reflects the fact that sovereign guarantee liabilities impact national debt ceilings in countries that typically have limited financial resources of their own." (TPPA & PRIF, 2018, p.ii)

Although there is an undeniable need for international aid, it also has the potential to adversely impact private investments and distort energy markets (Keeley 2017 cited in Small, Nicholls & Jeffrey, 2020, p.21) – as high volumes of aid can erode the commercial characteristics of renewable energy applications and effectively make it harder for the private sector to play a role, thus reinforcing a dependence on public finance in the future (Keeley, 2017 cited in Atteridge & Savvidou, 2019, p.2).

An IMF Staff Climate Note on climate finance mobilisation by Prasad et al. (2022, p.24) highlights several constraints to private sector climate finance for mitigation and adaptation in emerging markets and developing economies. Key constraints and reasons for high investment risks and risk premiums include (1) long investment time frames; (2) high upfront capital and transaction costs; (3) significant project and/or country risk; (4) limited familiarity with specific geographies; (5) lack of formalised and specialised investment channels because of political, regulatory, and macroeconomic instability; (6) physical climate-related financial risks; and (7) an uncertain governance landscape. There are also issues related to scaling up private sector climate finance (Prasad et al., 2022, p.6). The note also highlights evidence that "development institutions that channel subsidized public resources to private sector projects face challenges related to absorption capacity and development finance saturation, particularly in [lower-income countries] and small states, including Small Island Developing States" (Kenny and Morris, 2021; Kenny, 2021 cited in Prasad et al., 2022, p.6). This points to the need to increase the supply of investable projects to avoid generating competition for a scarce pipeline of projects.

The SIDS Lighthouses initiative brings together 36 SIDS from the Caribbean, the Pacific,[1] and the Atlantic, Indian Ocean and South China Sea (AIS) regions, along with 30 other partners (such as developed countries, regional and international organisations, development partners, private companies, etc). The initiative continues to work towards expanding energy transition support, which requires moving from assessment and planning to the implementation of effective, innovative solutions, with continued technical and regulatory advisory services to help SIDS. As part of this the initiative has developed a capacity building programme to strengthen power utilities and regulators in the design and negotiation of bankable power purchase agreements (PPAs) and contracts (IRENA, 2021, p.14). This has kickstarted in the Pacific region, in partnership with the Pacific Power Association, the Pacific Community-Pacific Centre for Renewable Energy and Energy Efficiency, the World Bank and the International Finance Corporation. Establishing bankable PPAs is one of the key components in establishing a robust development of renewable energy projects. Based on the inputs from regional organisations and from partners in the Pacific, it was observed that there is a need for support in developing the capacities of regional stakeholders in the financial aspects of PPAs. Some key highlights from the capacity building programme in the Pacific were (IRENA, 2021, p.14):

- Due to SIDS' small size, renewable energy projects also tend to be small and may not attract ideal developers, presenting challenges associated with screening bidders.

[11] SIDS partners in the Pacific include: Cook Islands; Micronesia (Federated States of); Fiji; Kiribati; Marshall Islands; Nauru; New Caledonia; Niue; Palau; Papua New Guinea; Samoa; Solomon Islands; Tonga; Tuvalu; and Vanuatu.

- The expected pipeline of future renewable energy projects is limited, with most considered to be stand-alone – an assumption reflected in high costs and low sustainability.
- Limited access to financing security or guarantees often poses a risk for renewable energy deployment by the private sector.
- It is imperative to have credible and reliable energy data for planning and forecasting, with this also key to attracting private sector investment and sustainability commitments.

Samuwai (2021, p.17) highlights that co-financing is key for mobilising private finance. However, data gaps and the lack of a harmonised methodology for estimating finance flows means that very little information still exists on the private finance mobilised by multilateral funds (SCF, 2018 cited in Samuwai, 2021, p.17). Small, Nicholls and Jeffrey (2020, pp.20-21) also highlight how unfavourable investment climates and lack of information can hinder investments. In specific cases such as Fiji, investors are further polarised by the low Independent Power Producer tariffs (Michalena & Hills 2018 cited in Small, Nicholls & Jeffrey, 2020, p.20).

The Green Climate Fund (GCF) has approved projects in 11 Pacific SIDS between 2016-2021 amounting to USD 358 million, with the majority of this going towards renewable energy projects. However, the private sector's role as a direct beneficiary of these financial flows is still limited, and the degree to which the private sector is consulted or used in terms of supply of material or services, or what their role is in these investments, is not always clear (PIFS, 2021, p.10). The vast majority of GCF private sector projects have been large scale mitigation projects – primarily solar power installations financed through intermediary banking institutions that blend GCF funds with other funds to amplify impact. The only benefactor in the Pacific of such a project is PNG, which benefitted from a solar installation as part of a broader Asian mitigation project (PIFS, 2020a). There are a number of common barriers to effectively engage the private sector in the discussion and accessing of climate finance in the Pacific, as highlighted in a policy brief from the Pacific Islands Forum Secretariat (PIFS, 2021, p.11):

- Lack of appropriate incentives and an enabling environment to boost private sector climate proofing investments;
- Lack of information on national initiatives and interaction by government with the private sector such as country programmes, pipeline projects, planning and implementation;
- Limited understanding by the private sector of their role and how to maximise this role to access climate change resources;
- Burdensome requirements and fiduciary standards applied by funding agencies regardless of size, capacity or need;
- Limited understanding by the private sector on the available funding sources and how to access them for climate change projects; and
- Limited capacity and ability to prepare bankable projects that contribute to mitigating the impacts of climate change and building resilience to business operations.

4. Mobilising private investment

Regulatory, legal and institutional frameworks

There is great variation in the current legal, regulatory and institutional environment for renewable energy in the Pacific SIDS; in some cases they are well established, in others they are nascent (TPPA & PRIF, 2018; IFC, 2021). For historical reasons, there is often an absence of strong institutions, effective regulation and effective policies. Many utilities, most of which are state owned entities, are receiving donor support in power planning and to upgrade systems and operations; however, the small scale of operations means many have limited capital resources (TPPA & PRIF, 2018, p.4). Given the investment that is now required to install renewable generation facilities, utilities have been working with the private sector to develop Independent Power Producer projects. In most Pacific countries, there is little experience in such an approach and limited engagement with the private sector in the electricity market (TPPA & PRIF, 2018, p.4).

IFC (2021, p.25) summarises the current legal, regulatory and institutional environment for 12 Pacific SIDS (much of the information is from a 2016 report[2]), although cautions that in some countries the policies have not been officially approved by the government and are still in draft form (see Table 1 in the Appendix). Most Pacific SIDS provide tax exemptions and other fiscal incentives for renewables; however, few provide targeted incentive frameworks such as feed-in tariffs or net billing/metering (IFC, 2021, p.29). The paper also provides a list of operating, under construction and planned renewable energy Independent Power Producers for the 12 Pacific SIDS (see Table 3 in IFC, 2021, pp.22-24); most of them are in Fiji, PNG, and Samoa.

What works in private sector partnerships in SIDS

The report by UN-OHRLLS (2022) touches on previous guides about measuring, managing and sustaining partnerships and uses the case studies to articulate 10 Sustainable Partnership Goals (SPGs) for building better collaboration with the private sector, namely:

1. **Find the Funding**: Funding continues to be ranked as the greatest challenge to private sector engagement in sustainable development. Because many SIDS are unable to access international capital markets due to their high debt levels, lack of creditworthiness or small market size, private business and investment is critical to funding their SDG efforts. Partnerships can help businesses and investors pool resources, open doors to new funding opportunities, reduce risk, and expand programmes (p.41).
2. **Change Minds**: Partnerships require an alignment of priorities, achieved through shifting institutional cultures and attitudes about the public and private sectors' roles in sustainable development and in collaboration with one another (p.48).
3. **Build the Framework**: Sensible policy frameworks and streamlined processes allow the private sector to operate in SIDS, and well-developed agreements allow them to engage effectively with SIDS governments and other partners. Although this can be a challenge

[2] The *Stocktake of Energy Sector Institutions, Legislation, Policies and Fiscal Incentives in Fourteen Pacific Island Countries,* published by the Pacific Community (SPC) in 2016, which provides a comprehensive and detailed background to these issues. See: https://prdrse4all.spc.int/sites/default/files/energy_stocktake_report_web.pdf [accessed 02/08/2022]

for SIDS with limited human resources, bureaucratic processes, and inadequate or outdated policies (p.56).

4. **Connect**: Finding potential partners is a universal challenge to moving a project forward. Those connections, often made by chance, are what bring together the right private sector partners and the right organisations, investors and government agencies. Due to their size, many SIDS operate with limited governments and small departments that may not have the capacity to develop these kinds of relationships (p.61).
5. **Communicate**: Connecting to partners starts with effectively communicating problems and solutions; and once a partnership is established, communication helps maintain trust and accountability. But good communication often comes down to human resources, which SIDS are often constrained in (p.66).
6. **Get Market Intelligence**: Before a partnership is initiated, potential private sector partners need a clear picture of the market in SIDS. This is one of the most important forms of communication for attracting partners and understanding where there is a good fit; unfortunately, lack of market information or organised resources for detailed information is often difficult to find for some SIDS (p.69).
7. **Assess & Mitigate Risk**: Reluctance from private business and investment to take on sustainable development in SIDS comes down to risk. Understanding exactly what those risks are, and how to effectively manage them, is key to attracting more private sector engagement in SIDS (p.72).
8. **Get Stakeholder Buy-In**: Truly sustainable development (that is both equitable and inclusive) requires private sector partners to seek out and understand the needs and priorities of relevant communities (p.75).
9. **Access & Build Local Capacity**: Finding inclusive ways to leverage local knowledge and connections make a partnership more durable. Partnerships can be incredibly impactful, helping not only with sustainable development, but capacity development – which is often limited in SIDS (p.79).
10. **Produce & Access Reliable Data**: The need for data continues to grow, with gaps in reliable baselines to measure the impact of efforts or the effectiveness of investments. More collaboration is needed between researchers, SIDS governments and the private sector to be clear about what measures are needed and to make sure they are easily accessible (p.83).

Each goal looks at examples of what works, where there are gaps, and best practices for both public and private sector partners. There are also tools and platforms to assist in achieving that work. The guidance is for broad use, with functional examples and actionable first steps to expand private sector engagement in sustainable ocean development.

What can be done in leveraging private financing

Samuwai (2021, p.57) in a paper exploring the climate finance landscape and how to scale it up in the Pacific SIDS concludes that their ability to attract and sustain financing particularly from the private sector is still limited. The special circumstances of Pacific SIDS, especially their small economies and their weak enabling environment continues to inhibit their ability to enhance the mobilisation of climate finance in their economies. Targeted investments that will strengthen the pillars of the enabling environment, such as policy and planning, institutions, public financial

management, human capacity, gender, social inclusion, and aid effectiveness, is critical in enhancing the mobilisation of climate finance in Pacific SIDS.

Prasad et al. (2022, pp.15-16) puts forth a number of ways for the public sector to reduce investment costs in scaling up climate finance through public-private risk sharing:

- Providing public equity capital in combination with private sector debt investment can reduce the total cost of borrowing and give the public sector control over investment decisions, although this would not necessarily be the case if the public sector holds an equity stake in a private asset.
- Establishing public-private partnership investment can take down the total cost of borrowing to allow the private sector to make better investment decisions and avoid loss-making projects, taking advantage of public sector expertise in project selection, monitoring, evaluation, and capacity development.
- Improving information asymmetry can allow the private sector to have better project evaluation and thus improve project selection and monitoring costs. The public sector could leverage their expertise in these areas, as well as provide capacity development.
- Underwriting specific risks, such as project completion or political instability can ease high-risk premiums for the private sector.
- Providing multi-sovereign guarantees can help achieve higher leverage ratios, for example, through multi-country sovereign-backed guarantee funds.
- Public investment management and procurement policies for supporting private sector climate finance can help to attract additional capital. Wind and solar technologies benefited from early public investments and technology diffusion that enhanced technology maturity. Frontloaded public finance can help minimise risks for future private investment.

A guide to investing in renewable electricity generation in the Pacific by the IFC highlights the need for improved regulatory frameworks and planning in the Pacific SIDS to encourage renewable energy development, using “Targeted incentives and smart subsidies from donors and development institutions, paired with private capital and expertise” (IFC, 2021, p.4).

Although there is an undeniable need for international aid, it also has the potential to adversely impact private investments and distort energy markets (Keeley 2017 cited in Small, Nicholls & Jeffrey, 2020, p.21) – as high volumes of aid can erode the commercial characteristics of renewable energy applications and effectively make it harder for the private sector to play a role, thus reinforcing a dependence on public finance in the future (Keeley, 2017 cited in Atteridge & Savvidou, 2019, p.2).

To et al. (2021) in their article on a research and innovation agenda for energy resilience in Pacific Islands summarise previous findings from the literature on encouraging private sector investment in renewable energy in SIDS. Including the need for appropriate planning as well as data-gathering on past, present and future projects to identify appropriate financing mechanisms, and standardisation of contracts, regulatory reform and regional approaches to help de-risk projects and demonstrate “readiness” to receive financing. However, they also caution that this focus on standardisation and regulatory reform has been criticised “as potentially perpetuating disempowerment and dependence on external agencies” (To et al., 2021, p.1100). Innovative

financing mechanisms that can support longer-tenor finance, and support for domestic financial institutions to manage risk to build capacity of domestic finance sectors and investors have been proposed. To et al. (2021, p.1101) suggest further research and innovation in Pacific SIDS, especially in business models for more resilient energy systems, including the potential for greater private sector involvement, to capitalise on recent developments in the off-grid solar sector. For example, off-grid systems in Tuvalu tend to be larger installations and have been heavily driven by aid donor programmes; whereas, Vanuatu and PNG have been experimenting with pay-as-you-go solar financing systems more reliant on the private sector (with some donor aid and government support) (To et al., 2021, p.1101).

Though there may be some concerns about the possible tension between the roles that the public and private sector fill in a market, TPPA and PRIF (2018, p.5) argue that "the small scale of the Pacific utility sector, and the often modest scale of centralised generation facilities in many countries, has seen what appears to be a successful and balanced sharing of opportunities." Case studies from Cook Islands, Fiji, Samoa and Tonga outline the early influence of aid-based projects in solar PV, particularly as they provide strong proof of concept examples in markets where such developments are still novel. The multi-year performance of these installations has boosted the confidence of the utilities and governments about their ability to rely on solar as a power source. For example, Samoa worked in parallel with grant aid projects to engage the private sector to more than double renewable solar generation facilities in a programme that has seen some US$40 million invested by Independent Power Producer developers.

Overcoming barriers to private sector engagement in the GCF

To overcome many of the common barriers to effectively engage the private sector in accessing climate finance in the Pacific (as discussed earlier), a policy brief from PIFS (PIFS, 2021, p.11) suggests:

- **Policy incentives and regulatory frameworks:** Establishing targeted policy incentives and regulatory frameworks, supported by strong political will, is crucial to attracting climate finance investments. Private sector companies prefer investing in stable economic conditions with lower risks including low transaction costs as this allows them to innovate and improve efficiency. An example is the energy pricing reforms used in Fiji and Vanuatu to promote the development of energy generation from renewable sources. In Vanuatu, the National Green Energy Fund (NGEF) was established to boost household and public institution energy access, providing a pathway for local businesses and industries to invest in clean, climate-resilient energy to meet their economic needs, and create opportunities for rural communities (PIFS, 2021, p.11).
- **Technical support for the private sector:** There is an opportunity for national development banks to set-up a project preparation facility funded annually and blended with other funds, such as the GCF Readiness Support, to assist the private sector and other counterparts with project preparation. An initial mapping of mitigation and adaptation activities in Cook Islands (see PIFS, 2020a), Samoa, Solomon Islands (see

PIFS, 2020b) and Vanuatu has enabled the collation of baseline information that can support the private sector's need for financing (PIFS, 2021, p.12).[3]

- **Stakeholder engagement:** National and sub-national stakeholders play an important role in mobilising climate finance and must reflect the needs and priorities of communities. Such partnerships could be formalised through clear processes, for example, in relevant climate change acts or policies, memoranda of understanding or a private sector strategy specific to climate finance access. A similar approach which supports multi-stakeholder coordination has been implemented in the Solomon Islands under the leadership of the Department of Climate Change and in Vanuatu under the National Advisory Board on Climate Change and Disaster Risk Reduction. There is also a need to continue building the necessary political, institutional and financial frameworks to support the development of public private partnerships (PIFS, 2021, p.12).
- **Capacity building:** Capacity building of the private sector is crucial to effectively mobilise and deliver any national climate finance initiatives. Strengthening capacity, especially through training, partnerships, funding and business plans to understand and incorporate climate risks is important (PIFS, 2021, p.14).

5. Case studies

Fiji

The IFC (2021) guide provides an in-depth case study and step-by-step guide to investing in renewable energy in Fiji. Within this, it highlights that there are significant opportunities for new Independent Power Producer investments in Fiji (IFC, 2021, p.9):

- **The regulatory framework in Fiji provides an environment that is conducive for investors** and the establishment of Independent Power Producers. The recently corporatised national utility, Energy Fiji Limited (EFL), is a consistently high-performing utility in the Pacific. It regularly updates its power development plan and uses it as the basis for preparing and tendering new generation projects.
- **Ongoing sector reform should further encourage private sector investment.** A new Electricity Act (2017), which came into force in October 2019, aims to encourage private sector investment in renewables. EFL will operate under a single buyer model where Independent Power Producers can add and operate generating capacity through competitive tendering, while EFL retains a monopoly in networks and retail. The act also outlines the partial divesture of EFL to private investors.
- **The Fijian Competition and Consumer Commission (FCCC) has been designated as the electricity sector regulator.** The Electricity Act 2017 defined the role of an independent sector regulator. FCCC has taken over most regulatory functions from EFL, such as approving tariffs and issuing licenses. However, EFL has retained some technical regulatory functions under a memorandum of agreement signed with FCCC in

[3] Information on PIFS private sector engagement work can be found here: https://www.forumsec.org/privatesector/.

2019. FCCC issued a new electricity tariff methodology in 2019, which improves the transparency of tariff setting and helps protect EFL from fuel-cost fluctuations.

- **Opportunities for mini-grid investments exist.** The Department of Energy is responsible for building hybrid mini-grids in rural areas not mandated by EFL. Local authorities have been operating these grids, but they need a sustainable operating model. The department is exploring the possibility of the private sector operating mini-grids, either through Build-Operate-Transfer or Build-Own-Operate-Transfer contracts.

PNG

The IFC (2021) guide provides an in-depth case study and step-by-step guide to investing in renewable energy in PNG. Within this, it highlights the key barriers to renewable energy investment opportunities in PNG as being (IFC, 2021, pp.8, 32):

- **Institutional and technical capacity constraints of the state-owned power utility PNG Power Ltd (PPL)**. Overall, it has sufficient installed generation capacity and a robust tariff-setting mechanism, however, operating costs and losses need to be reduced and revenue collection improved. Development partners have been supporting the company to strengthen its financial management and the World Bank led Energy Utility Performance and Reliability Improvement Project (EUPRIP) aims to improve PPL's operational performance and establish a foundation for PPL to become financially sustainable and catalyse private investments.
- **Uncertainty regarding the electricity sector policy and governance**, although significant steps forward were taken in 2021 with the establishment of a new energy sector regulator, the National Energy Authority (NEA).
- **Challenge of land acquisition and access**, as over 97% of land is held in customary title and several projects have been delayed or become costlier because of access disputes.

Solomon Islands

There are a number of reviews and studies undertaken by an array of organisations and donors into private sector engagement in climate change mitigation, adaptation and finance in the Solomon Islands.

A mapping exercise undertaken by the PIFS (2020b) at the request of the Solomon Islands Chamber of Commerce and Industry aimed to provide a foundation for strengthening private sector engagement with the public sector and to provide guidance for its members about international financing opportunities for climate change adaptation and mitigation activities. Research included interviews with 34 businesses in the Solomon Islands and discussions with 10 government ministries and other organisations. It emphasises that the expected role of the private sector in projects need to take into account the generally limited resources of the majority of involved small- and medium-sized enterprises (SMEs) in the Solomon Islands, as most are under-resourced, have limited access to finance and have relatively weak middle management capacities (PIFS, 2020b, p.22).

A study from 2021 by the Government of Japan (JICA et al., 2021) was requested by the Government of Solomon Islands to help "the Project for Formulating Renewable Energy Road

Map." This included a financial analysis and an outline of implementation promotion measures to support the promotion of the Renewable Energy Road Map. Many of these suggestions cross-over with those given by the IFC (2021) guide, which provides an in-depth case study and step-by-step guide to investing in renewable energy in the Solomon Islands. Suggestions from the two reports of opportunities and challenges for investments in renewable energy generation in the Solomon Islands include:

- **Land acquisition is challenging.** Although it is easy for an investor to start a business in Solomon Islands and most steps can be completed online, accessing land can be challenging and time-consuming as about 90% is unregistered (customary) land. Land acquisition is the biggest challenge in the implementation of infrastructure projects in the country (IFC, 2021, p.10; JICA et al., 2021, p.E-13).
- **Introduction of Third Party Ownership (TPO) model for small and medium sized PV installations.** I.e. TPO companies would install roof-mounted solar installations on government buildings, commercial buildings and homes. All initial installation costs would be borne by the TPO operator, who would retain ownership of the equipment. In return, the roof owner would receive a discounted electricity contract and would be given priority to use the equipment for their own consumption in the event of grid failure. By encouraging this business model, it is hoped that new TPO operators would enter the market and increase the share of renewable energy (JICA et al., 2021, pp.E-13).
- **Independent Power Producer investors will have opportunities to sell electricity to the revitalised Solomon Power**, which has improved its financial and operational performance significantly in recent years. It has started to reduce tariffs and has defined a clear process for procuring and connecting new generation. Solomon Power is planning to develop several new mini-grids, which may require private sector participation (IFC, 2021, p.10).
- **Structural reform in the power sector**. In order to create a transparent market environment and attract domestic and foreign private investment, the establishment of an independent regulatory department is recommended. Referring to the examples of neighbouring countries in the Pacific, it is recommended to establish a multi-sectoral regulatory body to regulate not only electricity but also other sectors such as telecommunications and water supply in an integrated manner (JICA et al., 2021, pp.E-15).
- **Development of Independent Power Producer guidelines.** To promote private investment the necessary information on licensing, risk sharing, surrounding infrastructure and applicable laws have been compiled (JICA et al., 2021, pp.E-14; IFC, 2021, p.10).
- **Capacity building.** Recommended to strengthen government institutions, set up university partnership programmes, and develop local suppliers through hybrid projects. Specifically, an Independent Power Producer office should be established directly under the Director of Energy of the Ministry of Mines, Energy and Rural Electrification as a governmental body to be in charge of all procedures related to the installation of renewable energy as Independent Power Producers (JICA et al., 2021, pp.E-14).
- **There is potential scope for private sector investment in mini-grids** as SP's ability to implement priority solar mini-grids in a short time frame is limited. However, there are two main barriers to running privately operated mini-grids in Solomon Islands: (1) the

country's legal framework for electricity supply outside SP's mandated area is not clear; and (2) the poor commercial viability of projects outside the capital, Honiara, due to the low population density and rural nature of the communities (IFC, 2021, p.105).

Vanuatu

The IFC (2021) guide provides an in-depth case study and step-by-step guide to investing in renewable energy in Vanuatu. Within this, it highlights some opportunities for investing in renewable energy in Vanuatu (IFC, 2021, p.11):

- **Private sector involvement in Vanuatu's electricity sector is already significant**. Electricity supply in urban areas is provided by private operators under concession agreements, with the largest agreement being held by UNELCO, which is 51% owned by Engie of France and 49% owned by the Vanuatu National Provident Fund.
- **Comprehensive frameworks are in place to encourage private investment**. Independent regulator, the Utilities Regulatory Association (URA) recently issued several guidelines, including on the procurement of new generation, renewable energy feed-in tariffs, and net-metering. According to the procurement/Independent Power Producer guidelines, the URA approves a least-cost development plan and tenders out new generation projects competitively, with concessionaires (and affiliated parties) free to compete against other prospective investors. The guidelines also set out key power purchase agreement terms. However, these guidelines have been contested by UNELCO and are not being applied fully.
- **There is scope for private sector investment in mini-grids.** The operation of these mini-grids will either be bundled up with existing concession contracts or construction and operation will be tendered out to new private sector investors with the government contributing equity. While the implementation approach and financing mechanisms are yet to be decided, the URA's assistance will strengthen the Department of Energy's ability to meet the electrification target.

6. Appendix

Table 1: Policies, legislation, and regulations relevant to renewable energy in the Pacific SIDS

Country	Policies	Legislation and regulations	Regulator and Government
Fiji	Draft National Energy Policy 2013	Electricity Tariff Methodology 2019 Electricity Act 2017 Commerce Commission Decree 2010	Department of Energy and various specialised units within DoE Fijian Competition and Consumer Commission
Kiribati	Kiribati National Energy Policy 2009 Kiribati Integrated Energy Road Map	Public Utilities (Amendment) Act 2010 Public Utilities (Amendment) Act 1997 Public Utilities (Amendment) Act 1983 Electricity Regulations 1981 Public Utilities Ordinance Cap 83	Energy Planning Unit under the Ministry of Works and Public Utilities Ministry of Commerce, Industry and Cooperatives
Marshall Islands	Draft National Energy Policy and Action Plan 2015-2020	Import Duties (Renewable Energy & Energy Efficiency Equipment Exemption Amendment) Act 2011 Alternative Energy Fund Act 1989	Energy Planning Division under the Ministry of Resources and Development Self/ministry regulated
Micronesia, Federated States	FSM National Energy Policy Volume 1, 2011 Infrastructure Development Plan 2004-2023	Pohnpei Public Utilities 2006 Chuuk Public Utility Corporation Act 1996 Yap State Public Service Corporation 1995 Kosrae Utilities Authority Act 1993	Energy Division under the Department of Resources and Development Self/ministry regulated

Country	Policies	Legislation and regulations	Regulator and Government
		Pohnpei Act to Reform the Power Generation and Distribution Pohnpei Code–L.B. No. 42-12	
Nauru	Nauru Energy Road Map 2018-2020 Nauru National Energy Policy 2009	Nauru Utilities Corporation Regulations 2012 Nauru Utilities Corporation Act 2011	Department of Commerce, Industry and Environment Ministry of Finance
Palau	National Energy Policy 2010-2020 Strategic Action Plan Energy Sector 2009 Energy Efficiency Action Plan 2008	Palau Energy Act 2015 Utilities Consolidation Act 2013 Palau Net Metering Act 2009 Palau Utilities Corporation, Electrical Service Regulations 1995 Palau Utility Corporation 1994 Draft Power Purchase Agreement Template Proposed Guidelines, Standards, and Regulations for Renewable Energy Generation Systems Connecting to the Palau Central Grid Palau Public Utilities Corporation Summary of Electricity Rates	Energy Administration under the Ministry of Resources and Energy Self /ministry regulated
PNG	National Energy Policy 2017 National Electrification Rollout Program 2017	National Energy Authority Act 2021 PPL Electricity Regulatory Contract 2013 Grid Code 2013	National Energy Authority District Development Authorities

Country	Policies	Legislation and regulations	Regulator and Government
	Development Strategic Plan 2010-2030 Papua New Guinea Vision 2010-2050	Third Party Access Code 2013 Environmental Act 2000 Community Service Obligation Policy	
Samoa	Samoa Energy Sector Plan 2017-2022 Strategy for the Development of Samoa 2016-2019 Samoa National Infrastructure Strategic Plan 2011-2020	Electricity Act 2010 Scientific Research Organisation of Samoa Act 2008 Public Bodies (Performance and Accountability) Act 2001 Electric Power Corporation Act 1980	Office of the Regulator Price Control Unit Energy Policy Coordination and Management Division under the Ministry of Finance
Solomon Islands	Solomon Islands National Energy Policy and Strategic Plan 2014 Solomon Islands Renewable Energy Investment Plan 2014 Solomon Islands National Infrastructure Investment Plan 2012-2017	Tariff Regulations 2016 Electricity Act Cap 128	Solomon Power (self-regulating)
Tonga	Tonga Energy Efficiency Master Plan 2018 Renewable Energy Policy Framework 2016 Tonga Strategic Development Framework 2015-2025 Tonga National Infrastructure Investment Plan 2013-2023	Electricity (Amendment) Act 2010 Renewable Energy Act 2008 Electricity Act 2007 Tonga Electric Power Board Act 2007 Tonga Electric Power Board (Repeal) Act 2007 Electrical Wiring By-Laws–Cap 32.12.3	Energy Department under the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications Electricity Commission

Country	Policies	Legislation and regulations	Regulator and Government
	Tonga Energy Roadmap 2010-2020	Electricity Concession Contract: Tonga	
Tuvalu	Tuvalu Renewable Energy and Energy Efficiency 2020 Master Plan Tuvalu Infrastructure Strategy and Investment Plan 2012-2022 Tuvalu National Energy Policy 2009	Public Enterprises (Performance and Accountability) Act 2009 Tuvalu Electricity Corporation Act Cap 32.20 Electricity Regulations 1971	Energy Unit under the Ministry of Works and Energy Price Control Unit under the Ministry of Finance
Vanuatu	Vanuatu National Energy Roadmap 2016-2030	Electricity Supply (Amendment) Act 2010 Utilities Regulatory Authority Act 2007 Geothermal Energy Act 2006 Supply of Electricity (Districts) Act 2000 Various guidelines issued by Utilities Regulatory Authority	Department of Energy under the Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Environment, Energy and Disaster Management Utilities Regulatory Authority

Source: IFC (2021, pp.25-26, 27 – adapted from Pacific Community, Stocktake of Energy Sector Institutions, Legislation, Policies and Fiscal Incentives in Fourteen Pacific Island Countries, 2016).

Key initiatives and websites

- **ADB's Pacific Renewable Energy Programme –** leverages ADB's comparative advantages in implementing renewable energy projects to encourage private sector participation, including through ADB's Private Sector Operations Department: https://www.adb.org/projects/52329-001/main
- **ADB's Preparing the Pacific Regional Financing Facility** – This technical assistance will seek to establish a regional financing facility to distribute about US$15 million in grants to state-owned development banks across the region. The facility will support increased private sector participation in the clean energy sector, alongside resource mobilisation for low-income families and women: https://www.adb.org/projects/55051-001/main

- **The Pacific Regional Data Repository** – A web-based energy portal and database management system intended to support Pacific governments and their development partners working in the energy sector by facilitating access to up-to-date, reliable energy data and project information. It is part of the SE4ALL initiative: https://prdrse4all.spc.int/
- **Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE)** – Hosted at the Pacific Community (SPC), PCREEE is Part of wider SDG-7 multi-stakeholder partnership which aims at the establishment of a network of regional sustainable energy centres for SIDS: https://www.pcreee.org/
- **SIDS DOCK** – Organisation connecting the energy sectors of its member SIDS to finance and technology markets: https://sidsdock.org/
- **SIDS Lighthouses** – An initiative of the International Renewable Energy Agency (IRENA), geared toward sustainable energy and energy resilience in SIDS: https://islands.irena.org/

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