Project idea: Solar Power Generation and Storage in Country A

Project objective:

The objective of this project is to reduce emissions and reliance on fossil fuels in Country A by facilitating a shift from diesel power generation to renewable energy. This project will establish two 4MWp solar PV plants and a 5MWh battery energy storage system (BESS). Additionally, the project will provide technical training for solar engineers and technicians to build capacity in the operation and maintenance of solar PV plans and BESS.

The context:

Country A is a Small Island Developing State (SIDS) located in the Pacific and has a population of 100,000 people. Country A's GDP per capita is USD 5,000. The country is highly dependent on diesel energy and fuel imports and as a result, the power sector is its highest emitting sector. Currently, 15% of Country A's national power generation comes from renewable energy sources. Despite this, Country A is keen to increase the share of renewables in its energy mix. In its NDC, Country A outlined its goal of generating 100% of its electricity from renewable sources by 2030.

Despite Country A's ambition, it faces several obstacles to achieving its renewable energy targets and the solar sector remains in a nascent stage. Previously, Country A has had difficulty achieving the level of investment needed to install solar PV plants and particularly BESS, which is expensive. The private sector in Country A is small and wary of making investment in expensive new technologies. Additionally, the operation of the plant and BESS require considerable technical knowledge and experience. Given the small size of Country A, there is limited technical capacity to undertake the installation, operation and maintenance of the plant and BESS. Because Country A's solar sector is underdeveloped, policymakers at the Ministry of Energy is at the very early stage of creating an enabling environment to encourage investment and regulate the sector.

Project description:

The project includes three key components:

Component 1: Procurement and Installation of Solar PV Plant and BESS

The project will finance the bulk of the technology investment to de-risk local operators' participation in funding the PV plants and BESS. The proposed financing package offers a solution to incentivize participation of the private sector by increasing investor confidence. The project will offer concessional finance to the private sector in the form of loans and guarantees to cover technology procurement and installation costs.

Component 2: Building Capacity of National Engineers and Technicians

Component 1 will focus on building the capacity of national engineers and technicians. Together with the Public School of Engineering and Technologies and Professional Electrician Association of Country A, the project will develop a comprehensive, technical training for engineers and technicians. The training will include both classroom and field components to ensure that students are well prepared with practical experience. Additionally, through a train the trainers component, engineers and technicians participating in the project will be prepared to train others in what they have learned,

ensuring that the technical expertise of Country A's workforce grows beyond the scope of this project.

Component 3: Institutional capacity building
The project will work with policy makers and relevant government actors in Country A's Ministry of Energy to build their knowledge of solar PV plants and BESS. This support will include information on standards, compliance and case studies of regulatory frameworks that incentivize private sector investment.