



United Nations Climate Summit

Nature Based Solutions – Renewable Energy

Title

The scaling up of hydropower/solar energy in Papua New Guinea

Context and rationale

There are abundant renewable energy resources available in Papua New Guinea (PNG) yet only 15% of Papua New Guinea's total population has access to power. Hydropower has the potential for more than 15, 000MW yet has only an installed capacity of around 165MW. Solar Energy has the potential for 1,244TWh per year yet utilises way less than this. Wind Energy, geothermal, biomass, biogas, ocean thermal energy, tidal energy and energy runs the same race¹.

PNG's commitment to have 70% of its households have access to electricity by 2030 and to use 100% renewable energy by 2050² seems a long way off. Current players in the electricity market have set high tariffs that subsistence farmers or rural dwellers can't seem to afford. The current tariff rate is at 0.69 toea for on grid users which is set by the Independent Consumer and Competition Commission. Off grid users have unfortunately been charged more hence access to affordable and reliable power have thus far been a struggle.

An overview of the contribution.

PNG has entered into public private partnership deals with various private sector bodies to utilise the renewable energy sources in the country. Furthermore, PNG has also had the opportunity for donors like the World Bank (WB) and the Global Environment Facility (GEF) venture into hydro and solar power projects. Bilateral assistance from Australia, China, New Zealand and United States of America (USA) have one way or another contributed to the power sector (on-grid and off-grid power).

¹ FREAGER Project Document, pg: 10

² National Energy Policy, pg: vii

How the contribution leverages living natural systems as a solution to avert climate change?

About 93% of PNG's population live in the rural areas. For energy use (cooking, lighting, boiling, heating, cooling), they use firewood hence this contributes to deforestation and forest degradation therefore the issue of emissions of greenhouse gases (GHGs) when firewood is burnt. The use of renewable energy sources are the better alternative sources to address the reduction of GHGs from forest related activities such as subsistence use of wood as firewood.

How might the contribution support both climate, mitigation and adaptation as well as other important co-benefits and social, economic and environmental outcomes in coming years. They may include

Reduction in carbon emission and carbon capture (GTonnes)

Papua New Guinea went from a net sink in 2000 (-0.0142 GT) to a net source in 2015 (0.0152 GT). The initiative will assist in reducing emissions from electricity generation so that PNG can achieve its target of being Carbon Neutral by 2030. Increasing climate resilience

Social impact (job increase; poverty reduction; Just transition, etc.)

This initiative will improve the country's Human Development Index which currently ranks 158th out of 186 countries.

Net economic impact (total in US\$; how was it achieved?)

This initiative will cut annual cost on fossil fuel which is currently more than 50% of operational cost of PNG Power Limited. Impact on realization of the 2030 Agenda for Sustainable Development (in particular SDGs 1,2,6,12,13,14,15,16)

SDG1 No Poverty and SDG 13 Food security

Projects through hydropower and solar power have somewhat initiates small-scale economy in rural communities. Poultry farming can rely on solar panels and lighting systems to keep the chicks/chickens warm in the night. Women in the rural areas can use clean water for cooking and drinking and sell at their local markets.

Minimising species extinction and ecological losses and fostering an increase of biodiversity.

The use of hydropower and solar lessens the burden of chopping down trees for firewood hence serves as a better alternative and minimises species extinction and ecological losses and fostering an increase of biodiversity.

Which countries and organisations are involved in the contribution?

Different countries have played a different role in the contribution which is based on capacity building, technical support, technology transfer and so on. The private sector, the banks, donors, bilateral and multilateral partners have contributed in one way or another.

How have stakeholders (for example local communities, youth and indigenous peoples, where applicable) been consulted in developing the contribution?

Through wider audience consultations, one-on-one meetings, Technical Workings Committee Meetings.

Where can the contribution be put into action?

PNG has its electrification targets for 2030 and 2050 hence public and private partners, donors, bilateral and multilateral assistance can help in achieving these set targets through the use of renewable energy sources. PPL's 15 Year Development Plan is a way forward in putting into action the contributions. How the contribution will be delivered? How will different stakeholders be engaged in its implementation?

What are the potential transformational impacts?

PNGs most utilised renewable energy sources are hydro and solar and these are highlighted in various developments plans throughout PNG. PNG Power Limited for instance has its 15 Year Development Plan where the focus is towards upscaling existing hydropower dams and stations throughout PNG and possibly to upscale the other renewable energy technologies.

Is this initiative contributing to other Climate Action Summit workstreams (industry transition; energy transition; climate finance and carbon pricing; infrastructure, cities and local action; resilience and adaptation; youth and citizen mobilization; social and political drivers; mitigation strategy)?

This initiative supports a transformational change in the way that the country approaches economic development to enable PNG to achieve a low emission, green development pathway.

How does this contribution build upon examples of experience to date? How does the contribution link with different ongoing initiatives?

The exponential growth in PNG's population and the growing of business houses and the likes have over time put stress on the current power supplies hence scaling up existing power stations and the installation of solar panels are the better options to implement.

What are the mechanisms for funding (with specific emphasis on potential for partnerships)?

Through the public private partnership, initial establishments of power facilities will be the responsibility of the private sector. The tariff rates are negotiable depending on power purchase agreements. GEF together with UNDP and the Government of PNG co-finances the "Facilitating Renewable Energy and Energy Efficiency Applications for Greenhouse Gas Emission Reduction" (FREAGER) Project. The World Bank and Asia Development Bank, the Chinese Government supports the establishments and scaling up of hydro dams in various provinces of PNG as per the Plans of PPL.

What are the means of stewardship, metrics for monitoring?

The initiative will be monitored by three different agencies depending on their functions, the annual electricity generation will be monitored by the Independent Consumer and Competition Commission, the accessibility will be monitored by PNG Power Limited and the GHG emissions will be monitored by the Climate Change and Development Authority (CCDA).

What is the communication strategy?

Communication at the National Level is coordinated by the CCDA to Stakeholders and Provincial Stakeholders of the Project Provinces. A Technical Working Group has been set up and all communications are made using the group.

What are the details of proponents (indicating the degree of commitment among the countries and organizations that are named)?

FREAGER Project

GEF committed USD2,840,640

UNDP committed USD 300,000³

³ FREAGER Project Document, pg: 2