

**Programme of Activities
(PoA) for Sustainable
Renewable Energy Power in
Papua New Guinea (PNG)**

The RE CDM PoA in PNG

- Programme of Activities (PoA) for Sustainable RE Power in Papua New Guinea (PNG)
- envisages to assist development of new small-scale RE plants (Solar/Hydro/Biomass/Geothermal) across Papua New Guinea (PNG).
- Each CPA under the PoA will comprise of one or more RE plants and have a combined installed capacity of no more than 15 MW
- is a voluntary action being coordinated and managed by PNG Power Ltd, the coordinating entity.

Policy/measure or stated goal of the PoA

- The penetration of the supply of electric power to the population of Papua New Guinea is very limited.
- The national electrification rate in PNG is **less than 10% and falling**.
- There is presently **no national or regional power grid** in PNG - Smaller **mini- grids** mainly powered by **diesel generators** do exist and are isolated and clustered around the main population (**provincial centres**)

Policy/measure or stated goal of the PoA

- PNG has adequate RE resources such as Hydro (around 15,000 MW), Geothermal (21.92Twh), Wind and Solar
- The development and distribution of power from these resources is difficult due to the **low population densities**, the **rugged topography** and **low ability to pay**.
- The objective of the PoA is to **support development and implementation of small RE projects** in PNG in order to **improve power supply** to provinces through **less GHG intensive** sources as compared to fossil fuel.

Description of the PoA

- A typical CPA under this PoA comprises one or more small RE plants with an installed capacity not exceeding 15MW.
- The RE plants are newly constructed by one or more project owners and generate electricity from RE source.
- The technologies employed in each CPA may differ from one CPA to the next.
- The CPA's will displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit

Eligibility Criteria for Inclusion of CPAs in PoA

- Be RE plant generating electricity.
- Not be a capacity addition/retrofit/replacement activity at an existing hydropower plant.
- Have an installed capacity of ≤ 15 MW
- Supply the renewable electricity generated to the relevant and clearly identified electricity distribution system or mini-grid
- Have a cooperation agreement with PPL that governs the SSC-CPA's participation in the PoA.
- In case of hydro, not result in the construction of new reservoirs or in an increase in the capacity of existing reservoirs

Assessment and Demonstration of Additionality

- The additionality will be demonstrated at CPA level.
- “Guidelines for demonstrating additionality of renewable energy projects =< 5 MW - project activities up to 5 MW that employ renewable energy as their primary technology are additional if the geographic location of the project activity is in **LDCs/SIDs** or in a special underdeveloped zone of the host country identified by the Government before 28 May 2010.

Assessment and Demonstration of Additionality

- According to the UN, PNG is classified as Small Island Developing State (SIDS). Hence under the proposed PoA, RE CPAs having up to 5 MW installed capacity are considered to be additional as per the above EB guidelines and further demonstration of the additionality with investment analysis or barrier analysis or both is deemed not necessary.
- Further for CPAs in the capacity range of 5-15MW, the project proponent will follow the current SSC guidelines as per the Attachment A to Appendix B of 4/CMP.1 Annex II – Information on Additionality

Operational and Management Plan

- The managing entity PPL will maintain an electronic database of all the CPAs under the PoA which will include the below details:
 - Name of the CPA
 - Implementing entity of the CPA
 - Contact Details of Implementing entity (Phone/e-mail/fax)
 - Installed capacity of the CPA
 - Location of the CPA (GPS coordinates of the power house and the water intake)
 - The record of technical specification of each RE plant participating in the PoA

Monitoring Plan

- Monitoring will be carried out for each individual CPA.
- For each CPA, all parameters will be monitored by the implementing entity of the CPA according to the procedures and monitoring framework established and will be submitted to the managing entity (PPL)
- The managing entity (PPL) will store the data in an electronic database. All primary data with regards to monitoring of individual CPAs will be stored by the respective implementing agencies

Environmental Analysis

- **Environmental Analysis is done at CPA level:**
 - Local and focalized impacts of each hydropower project (depending on the location, capacity, and construction or not of dam among others) justify a separate environmental assessment for each SSC-CPA.
 - Environmental impact assessments will be conducted for each CPA according to the applicable laws and regulations in PNG.

Stakeholder Comments

- Local stakeholder consultation is done at PoA level
 - to provide a forum for stakeholders at the national and local level to present and discuss the aims and the goals of this initiative.
- Participants will include from: Representatives from PPL, DNA, Relevant Government Ministries & Departments, Academics,, local communities, as well as NGOs
 - comments from stakeholders and appropriate mitigation measures suggested will be documented in the PoA-DD

**Divune Hydro Power
Project – First Small Hydro
CPA under the Programme
of Activities (PoA)**

ADB Town Electrification Investment Programme

- Under TA-7113-PNG - Multi-tranche Financing Facility
- This consists of six potential hydropower station sites at various locations in Papua New Guinea
 - Subproject 1 – Divune Hydropower Project, Popondetta;
 - Subproject 2 – Ru Creek 2 Hydropower with Subproject 3 - Lake Hargy Hydropower, both at Kimbe, West New Britain Province;
 - Subproject 4 – Ramazon River Hydropower, Buka, Autonomous Region of Bougainville;
 - Subproject 5 – Gumini River Hydropower, Alotau, Milne Bay Province; and
 - Subproject 6 – Kimadan River Hydropower, Kavieng, New Ireland Province

Divune Hydropower Project - Overview

- Site is located on the Luwini Creek in the Oro Province. It is approximately located 65 km from the Popenetta (Provincial Capital) and 20 km from the historic town of Kokoda
- Existing power supply at Popenetta is generated at a diesel power station on a 24 hour basis and at Kokoda for limited hours each day



Luwini Creek

Divune Hydropower Project - Overview

- It is estimated that less than 40% urban households are connected to the main grid.
- The local Provincial Government is supportive of the proposed scheme and in general the local villagers are keen for the project to proceed.
- The power from Divune will be transmitted at 33 kV to both Kokoda and Popenetta with the transmission lines following existing road routes.

Divune – Technical Data

Unit	Details
River	25 km long; 5-10 m wide; perennial
Terrain/river basin	Hilly, forested; elevation varies from 240 – 3,300 msl; population of several clusters/hamlets
Type of project	run-of-river
Weir Height	5 m
Penstock length	1605 m
Net head	84 m
Installed capacity	3.0 MW
Firm annual energy	25.03 GWh/yr
Voltage	33 kV

Source: PPTA Study

Environmental Analysis

- An Initial Environmental Evaluation (IEE) study of the Divune hydropower project (HPP) was carried out which was based on secondary data and limited field work in flora, fauna, land use and sociology.
- The IEE report has reviewed the environmental impacts associated with the subproject and has developed a comprehensive EMP to address these activities. Overall there are few impacts associated with the development of the power station.
- The IEE concludes that the project has few adverse impacts and all can be satisfactorily managed and that an EIA is not required. The HPP will need to be approved by the DEC who will issue an Environmental Permit for the subproject to proceed.

CDM Assessment

- ❑ CDM sectoral scope
 - Type I – Renewable Energy Projects
- ❑ Scale of project
 - Small Scale
- ❑ Source of emission reductions
 - Displacement of GHG intensive electricity generation
- ❑ Baseline scenario
 - Electricity generation using diesel/fossil fuel
- ❑ Approved baseline methodology
 - Type I.F - Renewable electricity generation for captive use and mini-grid (Version 1)
- ❑ Estimated annual CERs
 - 14,717 tCO₂e

**Thank You &
Questions Please**