Rehabilitation of Hydroelectric Power Plants and Distribution Network Using New Clean Technology Permanent Magnet Generator (PMG) Solution in Lao PDR

Project Objective

The overall objective is to prepare and present a bankable Feasibility Study report to financial institutions for the financing of the Project. It should present accurate and relevant data needed to compare and select the site for further development as pilot project.

The specific objective is to update the inventory of hydroelectric resources and determine their technical and economic viability. The objective fits into the country’s least cost energy expansion plan to meet the demand for electricity. This will create a high social impact and reduce poverty in the remote areas.

Description

The project covers three provinces namely, Luang Prabang, Champasak and Saravanh comprising five small hydropower plants. Two of these are for rehabilitation while three are new small-scale plants with total installed capacity of 19,000 kw.

The project will be implemented as follows:

- 4 MW Houay Kapheu Small Hydropower plant in Lao Ngam District, Saravanh Province
- 4 MW Houay Champy Small Hydropower plant in Bachtiengchaleunsuk, Champasak Province
- 5 MW downstream Xeset Small Hydropower Project in Lao Ngam, Saravanh Province
- Nam Dong Small Hydropower Plant of 1 MW in Luang Prabang District, Luang Prabang Province
- 5 MW Selabam Small Scheme Hydropower Plant in Champasak Province

The study will be undertaken over a period of 18 months from the date of signing the project financing contract with the Ministry for Foreign Affairs (MFA).

This project is in line with the national strategy on renewable energy of the government of Lao PDR.

The main activities of the Project are to conduct the following:

- Macro-level investigations according to accepted norms of safety (in particular geological, seismological and flooding) to establish the technical feasibility and economic viability of constructing the pilot project regardless of which alternative plant is selected.
- Micro-level geotechnical investigations for each alternative plant to establish the basis of the design for major components like reservoir, dam, power house, etc. and to assure that their comparative costs are determined with a reasonable degree of confidence.
- Comparative assessments of capacity (MW) and energy (GWh/year) of each alternative plant as optimized for the power development plan.
- Comparison of capital costs of each alternative plant.
- Comparison of the benefit of each selected plant for further development as pilot project.

Project Highlights

<table>
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<tr>
<th>Project ID</th>
<th>L-PPF-23120907</th>
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<tbody>
<tr>
<td>Country</td>
<td>Lao PDR</td>
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<tr>
<td>Lead Partner</td>
<td>National Consulting Group (NCG)</td>
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<td>Partners</td>
<td>ABB Oy</td>
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<td>Total Project Cost</td>
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<tr>
<td>EEP Financing</td>
<td>€ 239,248 (50%)</td>
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<td>Technical Focus</td>
<td>Hydro</td>
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<td>Activity</td>
<td>Feasibility Study</td>
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<td>Duration</td>
<td>18 months</td>
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Relevance to Country’s Energy and Environment Policies

The Government of Lao PDR has a policy to achieve energy self-reliance, and to maintain energy security throughout the country by promoting investments on survey, exploration and development of renewable energy resources and by cooperating internationally especially with neighbouring countries.

The Government of Lao PDR defines the following priorities:

- Promote sustainable development of renewable energy as an important part of ensuring energy supply for socio-economic development.
- Facilitate project financing such as custom-tax policies and other regulations for investors.
- Establish and elaborate laws and acts to facilitate renewable energy development for rural electrification, such as:
  a) Promote the development of renewable energy promotion policies including financial and credit support to encourage the private sector to invest in rural electrification.
  b) Develop small power systems to supply remote, mountainous and island communities with solar energy for lighting, communication and entertainment (radio and television).
  c) Consider Biogas, hydropower or diesel generators for the production of energy for small industries as well as for agricultural uses, depending on their availability.
  d) Encourage people to use renewable energy and/or to own renewable energy power plants

Innovation and Knowledge Transfer

The Project will introduce an innovative hydropower technology (Permanent Magnetic Generator system) to Lao PDR and at the same time will conduct hands-on training for existing and new employees in the site.

This project is included in the National Climate Change Program on Renewable Energy (Energy Sector Action Plan) that enables it to contribute directly to mitigate climate change.

For more information:

Name of contact person: Dr. Somdet MUNSAVENG
E-mail: sdncclaos157@yahoo.com