

Feasibility Studies with the Aim of Developing
Joint Crediting Mechanism FY2014

A Study of SEZ Solar-Diesel Hybrid System Power Generation Project in Cambodia

New Energy and Industrial Technology Development Organization (NEDO)

RENOVA, Inc.

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Implementing Agency: RENOVA, Inc.

Power generation by a solar-diesel hybrid system will be an alternative to the grid power and can reduce GHG emissions derived from energy sources. Additionally, high profit from selling electricity could be expected in this solar project due to abundant insolation in Cambodia.

Summary

A study will be conducted on a project supplying electricity generated from solar-diesel hybrid system.

Survey Items

- 1) Policies (Incentives and others)
- 2) Technology Review (Control system and others)
- 3) Feasibility Assessment (Verification of initial cost and others)
- 4) MRV Methodology (Preparation of Methodology and others)

Partner/Site

- Cambodia (Pact Consulting & Tourism Co., Ltd.)
- Cambodia (Phnom Penh, Sihanoukville)

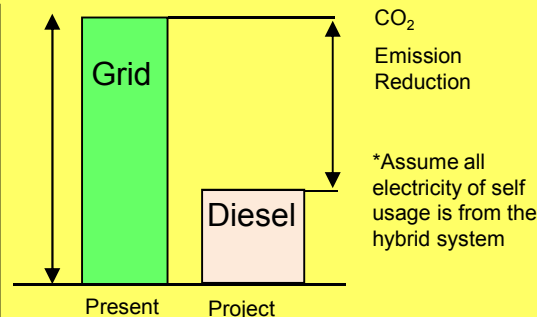


Estimated Reduction Amount

13,568 tCO₂/y (assumption)

Reference Emission

Assuming the present power supply will continue to be used, Phnom Penh's emission factor of 0.6723t-CO₂/MWh is applied



Project Emission

- 1) CO₂ emission reduced by solar power generation: 16,750t-CO₂
- 2) CO₂ emission increased by diesel power generation : 3,182t-CO₂
- 3) (1)-2))CO₂ emission reduced by hybrid power generation 13,568t-CO₂

Technology Outline

Solar Power Modules



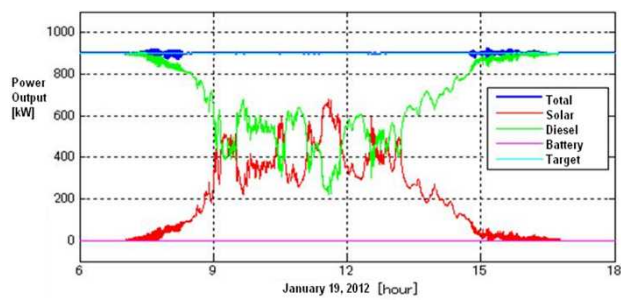
Power generation efficiencies typically drop at high temperatures. Therefore, solar panels made in Japan with strength of achieving high efficiency and durability under high temperature environment are being considered. Also, the knowledge and skills that RENOVA has from its wide experiences in mega-solar projects within Japan will be utilized.

Low-Load Corresponding Diesel Power Generator



A diesel power generator capable of continuous operation at low load is optimal for stabilizing the output fluctuation of the solar power generation. Hitachi Zosen can procure Wärtsilä Corp. engine operational under low load state of 10% or above the total power output

Hybrid Power Generation Control System



This is a power generation system that stabilizes the total output by combining solar power generation equipment and diesel power generator and controlling the diesel power generated electricity using Hitachi Zosen's original controlling software which adjusts the solar power generation output fluctuations.