GEC's contribution to the JCM

COP21 Japan Pavilion Side Event

Advanced Technologies to Tackle Climate Change:

Application of the JCM and Project Development

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Global Environment Centre Foundation (GEC)

GEC

Background

JCM Promotion Scheme by MOEJ

1. Financing Programme for JCM Model Projects;
2. Support Programme Enabling “Leapfrog” Development (Finance/ADB)
3. JCM REDD+ Model Projects
4. Feasibility Studies for JCM projects;
5. Feasibility studies for city to city collaboration project

Global Environment Centre Foundation (GEC):

- The Secretariat of the JCM promotion scheme No.1 to No.4, (not include “ADB Trust Fund”)
- Implementing secretariat of city to city collaboration project:
  - “Ho Chi Minh City (HCMC) - Osaka City Cooperation Programme for Developing Low Carbon City”
  - “Programme for the Establishment of Low-Carbon Historic City in Vientiane, based on City-to-City Cooperation between Vientiane Capital and Kyoto City”

Study Programme for JCM Project

Objectives:

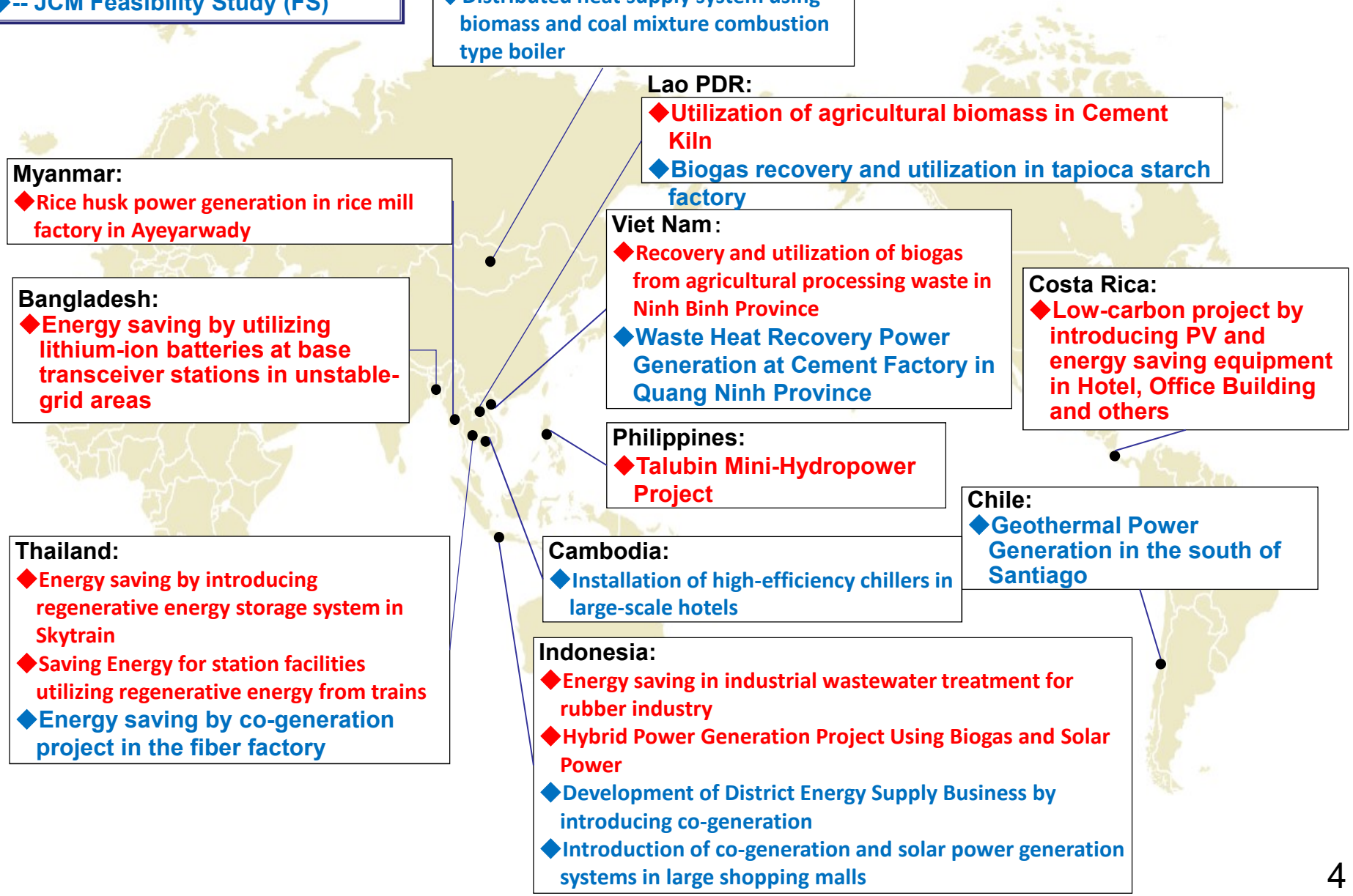
- To elaborate investment plan on JCM projects, and investigate feasibility on potential JCM projects

Type of studies

- JCM Project Planning Study (PS)
  - ➔To develop a JCM Project for the next fiscal year
- JCM Feasibility Study (FS)
  - ➔To survey feasibility of potential JCM projects

Overview of JCM Planning/Feasibility Studies in 2015 by MOEJ

◆-- JCM Project Planning Study (PS)
◆-- JCM Feasibility Study (FS)



Mongolia:
◆Distributed heat supply system using biomass and coal mixture combustion type boiler

Lao PDR:
◆Utilization of agricultural biomass in Cement Kiln
◆Biogas recovery and utilization in tapioca starch factory

Myanmar:
◆Rice husk power generation in rice mill factory in Ayeyarwady

Viet Nam:
◆Recovery and utilization of biogas from agricultural processing waste in Ninh Binh Province
◆Waste Heat Recovery Power Generation at Cement Factory in Quang Ninh Province

Costa Rica:
◆Low-carbon project by introducing PV and energy saving equipment in Hotel, Office Building and others

Bangladesh:
◆Energy saving by utilizing lithium-ion batteries at base transceiver stations in unstable-grid areas

Philippines:
◆Talubin Mini-Hydropower Project

Chile:
◆Geothermal Power Generation in the south of Santiago

Thailand:
◆Energy saving by introducing regenerative energy storage system in Skytrain
◆Saving Energy for station facilities utilizing regenerative energy from trains
◆Energy saving by co-generation project in the fiber factory

Cambodia:
◆Installation of high-efficiency chillers in large-scale hotels

Indonesia:
◆Energy saving in industrial wastewater treatment for rubber industry
◆Hybrid Power Generation Project Using Biogas and Solar Power
◆Development of District Energy Supply Business by introducing co-generation
◆Introduction of co-generation and solar power generation systems in large shopping malls

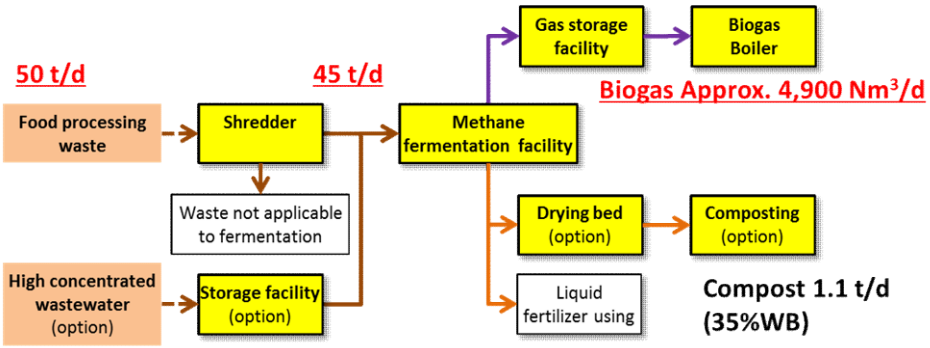
JCM Planning Study (JCM PS) Host Country：Vietnam

Recovery and utilization of biogas from agricultural processing waste in Ninh Binh Province

Implementing Entity ： Kubota Environmental Service Co., Ltd

Outline of GHG Mitigation Activity

The fruits and vegetables processing to make canned food and juice of food processing factory in Ninh Binh, Vietnam causes a lot of waste.
This project intends to introduce a “methane fermentation system” to treat agricultural processing waste and reduce the fossil fuel by supplying the biogas to the facility in the same premise.



Expected GHG Emission Reductions

997 tCO_2/year (1,355 tCO_2/year – 358 tCO_2/year)

- Reference CO2 emissions： 1,355 tCO_2/year

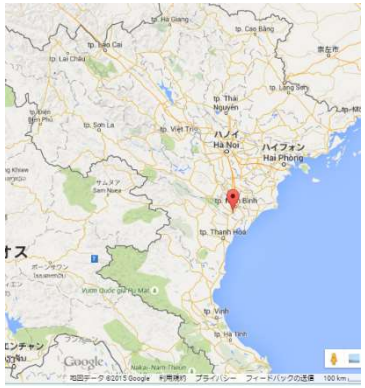
  CO2 emissions of fossil fuel usage: 989 tCO_2/year
  CO2 emissions of methane gas generation: 366 tCO_2/year

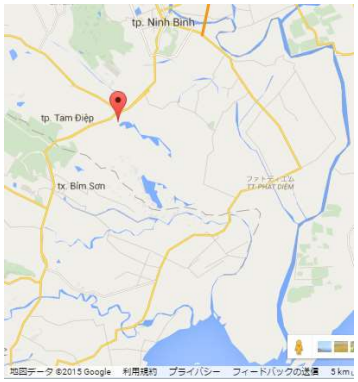
- Project CO_2 emissions： 358 tCO_2/year

  CO2 emissions of electricity: 358 tCO_2/year

Site of JCM Study

Ninh Binh, Vietnam





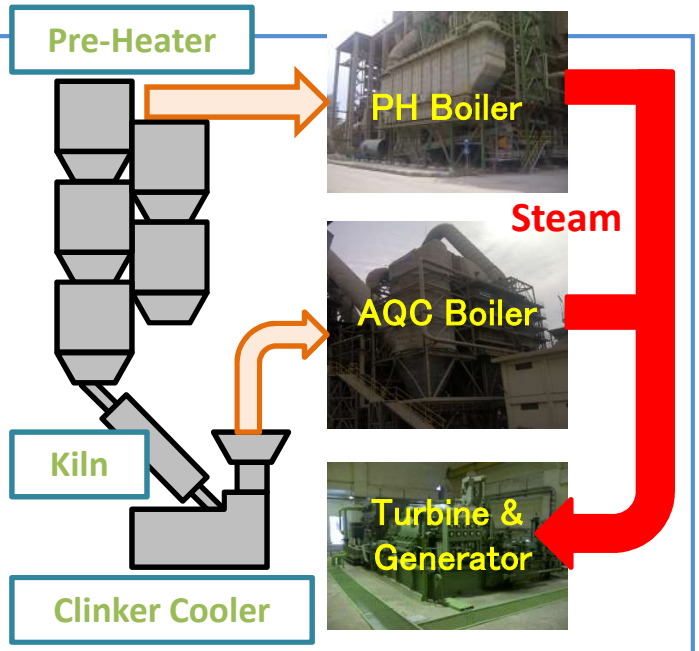
JCM Feasibility Study (JCM FS) Host Country：Vietnam

Waste Heat Recovery Power Generation at Cement Factory in Quang Ninh Province

Implementing Entity： JFE Engineering Corporation

Outline of GHG Mitigation Activity

By introducing Waste Heat Recovery Power Generation System to Thang Long Cement in Quang Ninh Province, the reduction of CO2 and power generation as a substitution of buying grid electric power will be materialized.



Expected GHG Reductions

29,415t-CO2/year

- Reference CO2 emission： 29,415t-CO2/year

  0.5603t-CO2/MWh x 7MW x 7,500hrs. = 29,415t-CO2/year

- Project CO2 emission： 0 t-CO2/year

Site for JCM Study

Thang Long Cement in Quang Ninh Province

Ho Chi Minh City – Osaka City Cooperation Programme for Developing Low Carbon City

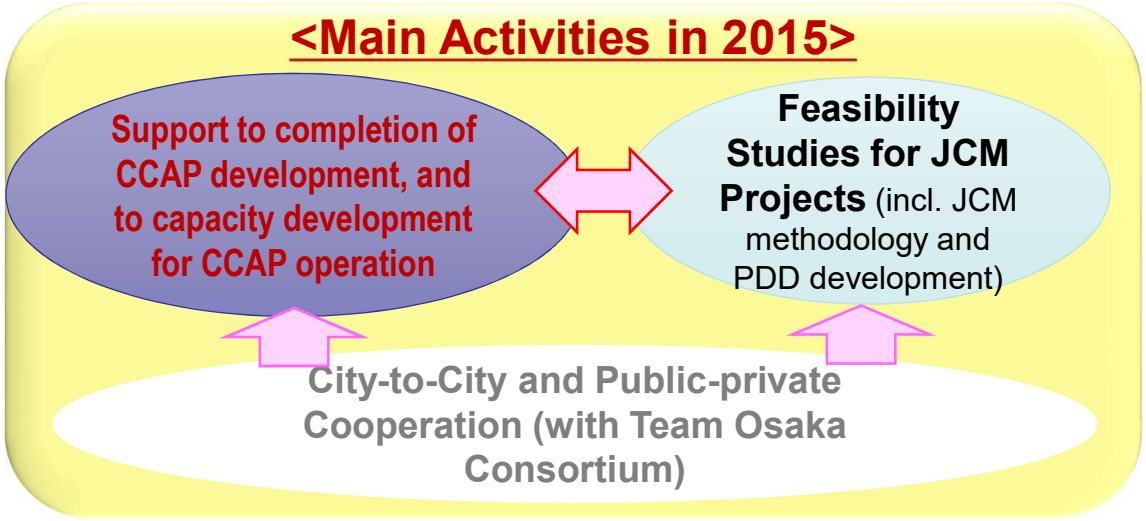
(Global Environment Centre Foundation (GEC), Osaka City,
Tepia Corporation Japan, Panasonic Corporation, Ogawa Denki, and NextEnergy & Resources)

Background

[2013] Started for this programme focusing on the development of low carbon city under the city-to-city cooperation between Osaka and Ho Chi Minh, and concluded MoU for Low Carbon City in HCMC with the utilization of JCM by both mayors

[2014] Made substantial steps to develop "HCMC Climate Change Action Plan (CCAP) 2016-2020" to promote the development of further possible JCM projects, and completed FS of 2 possible JCM projects which are expected to apply Japanese "JCM project Financing Programme" in 2015.

<Main Activities in 2015>



4 Possible JCM projects to start in 2016

Project	Proponent	GHG Emission Reduction (t-CO2/year)
Energy efficiency improvement in factories	Tepia Corporation Japan, Panasonic Corporation	276
LED lumps for road lighting	Ogawa Electric Corporation	651
Photovoltaic power generation at industrial facilities	Next Energy & Resources Co., Ltd.	1,604

- Finding the JCM projects which can contribute to developing low carbon city in HCMC.
- Supporting the development of "HCMC Climate Change Action Plan (CCAP) 2016-2020", in order to promote the mid- and long-term climate change countermeasures including mitigation and adaptation in HCMC, to be **officially approved by Vietnamese Central Government**.
- Supporting comprehensive policy making especially for CCAP implementation, through capacity development.

Modeled Low-Carbon Mega-City in Asia

Feasibility Study project for the JCM — Category: Energy Saving

Verification Survey of Energy Reduction Potentiality, Using Energy-Conservation Check-ups ("Energy SHINDAN") for Factories in Ho-Chi-Minh City

Proponent：Tepia Corporation Japan

Due to a rapid growth of industrial cluster and increase of electricity consumption, there is an urgent need of energy-conservation efforts especially in Ho-Chi-Minh area, Vietnam. To encourage diffusion of energy saving technology in this area, we believe 'Energy SHINDAN' business can resolve the lack of Total Solution Provider in Energy issues in this area.

Overview of Study

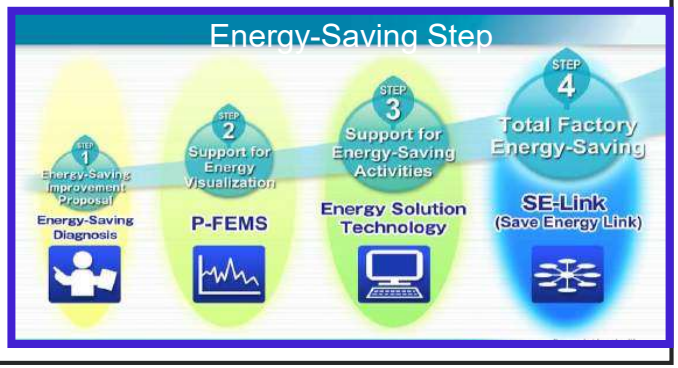
Conduct Energy-SHINDAN in general factories of 3 companies to find most suitable technologies to be installed. Furthermore, based on the result obtained, calculate the emission reduction volume and establish JCM methodology.

Study Items

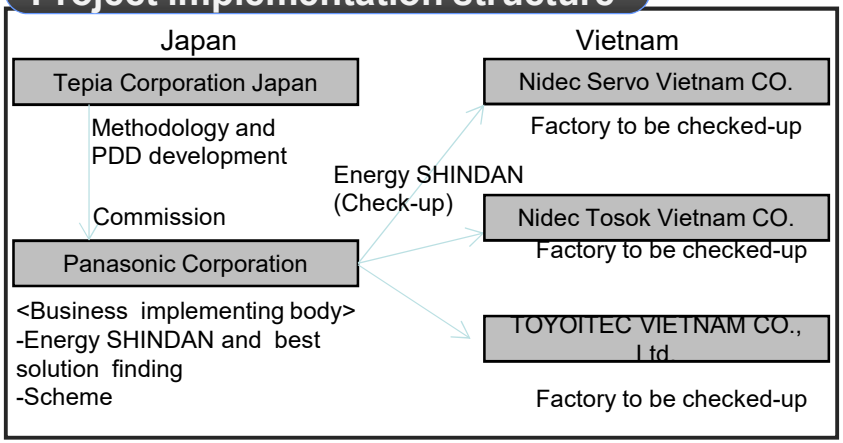
1. Conduct energy-conservation check-ups in 2 companies, find most suitable to be installed and establish a methodology of JCM
2. Establish JCM Methodology and PDD
3. Study implementation structure and financial plan.
4. Make Presentations in Work Shop in Ho-Chi-Minh City.

Technologies

Energy SHINDAN examines energy usage in the entire factory as the first step and proposes the solutions for the client to improve energy-efficiency based on the concept of "total optimization" by understanding a whole picture of energy consumption in the factory. Though the suitable technologies would be different factory by factory, such technology as Control Device for air conditioner outside unit, Control unit of number of compressors in operation, or Heat recovery System.



Project implementation structure



GHG Emission Reduction

GHG reduction per factory: 275.5 t-CO2/year

Potential reduction volume: 58,525 t-CO2/Year

year	2016	2017	2018	2019	2020	total
GHG emission reduction volume (t-CO2/year)	551	1,781	4,793	14,508	36,892	58,525
Number of factory	2	5	10	30	62	109

In case Control Device for air conditioner outside unit, Control unit of number of compressors in operation, and Heat recovery System are installed in each factory.

LED street light project in HCM city

06/03/2015
OGAWA DENKI CO.,LTD.
Manager Takehiro Ogawa

JAPAN

OSAKA City

公益財団法人 地球環境センター GEC Global Environment Centre Foundation

Human Network OGAWA

MUFG 三菱UFJモルガン・スタンレー証券

STANLEY

Corporation

Vietnam

HCM City

GIA GIA

ecc HCMC

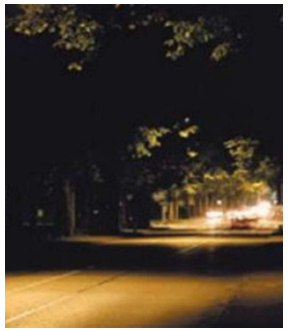
ETES

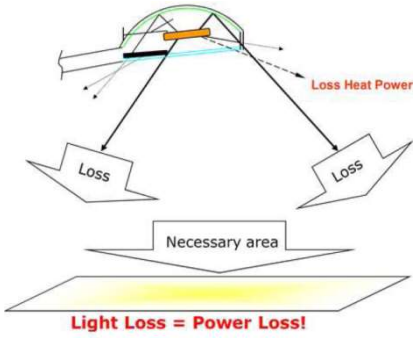
Conventional Lighting : Sodium Light

Life Time : 24,000h

Visibility of Sodium Light: Unclear

Zebra Vision : UncleaLight Loss : Power Loss





1,SavingEnergy : More than48%

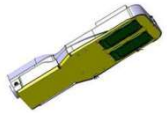
2,LowMaintenance : Long Life 2.5Times

3,Safety for driver : Clear Vision

※Quantity of street light in HCM
Pilot:2,500pcs
Potential:
147,000pcs

Saving Energy Lighting: LED Light

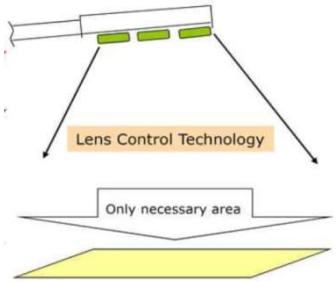
Life Time : 60,000h



Visibility of LED Light : Clear

Smooth Vision :Clear

High Lens Control Technology : No loss



Ho Chi Minh City – Osaka City Cooperation Programme for Developing Low Carbon City
<Feasibility Study for JCM Project>

Photovoltaic(PV) power plant for industry use promotion project

(Survey Next Energy & Resources Co.,Ltd.)

- Stringency of power situation in Vietnam.
  → The purpose of business are contribution to the power situation, and expansion of PV market in Vietnam.
- Off-Grid PV system will be planed to install for factories and shopping center.
  - For Stable power supply to the factory and shopping center, compact Off-Grid PV system will be installed to roof top or small space for space utilization.

- Estimated GHG reduction in the project : **1,604tCO2/Year**

→ The PV market will be maintained in the near future, and it is assumed that is provided step by step.

→ Estimated amount of CO2 reduction is 13,056tCO2/Year in 2020.

(Condition of the calculation ; 60 potential companies will install 150kw PV system till 2020.)