Financing Programme for JCM Model Projects in FY2018 in Indonesia

2018/07/24

Global Environment Centre Foundation (GEC) as the implementing organization of the JCM Financing Programme
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1. Status of JCM Model Projects in FY2018 in Indonesia

JCM pamphlet published in July 2018
The budget for projects starting from FY 2018 is 6.9 billion JPY (approx. USD 69 million) in total by FY 2020. (1 USD = 100 JPY)

Finance part of an investment cost (less than half)

Government of Japan

Conduct MRV and expected to deliver at least half of JCM credits issued

*Includes collaboration with projects supported by JICA and other governmental-affiliated financial institute

International consortiums (which include Japanese entities)

➢ Scope of the financing: facilities, equipment, vehicles, etc. which reduce CO₂ from fossil fuel combustion as well as construction cost for installing those facilities, etc.

➢ Eligible Projects: starting installation after the adoption of the financing and finishing installation within three years.
Call for Proposals for JCM Model Projects in FY2018 (1)

➢ Schedule

➢ First call
Call for Proposal: April 6th 2018
Deadline for submitting Proposals: May 14th 2018
Announcement of selected model projects: June 25th 2018
Adopted 17 projects (4 projects in Indonesia)

➢ Second call
Call for Proposal: August 27th 2018
Deadline for submitting Proposals: November 30th 2018
Budget: approx. 2.0 billion JPY (approx. USD 20 million)
Announcement of selected model projects is sequentially

➢ Maximum Percentage of Financial Support (plan)

<table>
<thead>
<tr>
<th>Number of already selected project(s) using a similar technology in each partner country</th>
<th>Percentage of financial support</th>
</tr>
</thead>
<tbody>
<tr>
<td>None (0)</td>
<td>Up to 50%</td>
</tr>
<tr>
<td>Up to 3 (1 – 3)</td>
<td>Up to 40%</td>
</tr>
<tr>
<td>More than 3 (&gt;3)</td>
<td>Up to 30%</td>
</tr>
</tbody>
</table>
Call for Proposals for JCM Model Projects in FY2018 (2)

- **Countries of Priority**
  The model project shall prioritize the following countries that have already established or decided to establish the JCM (as of 13 January 2017): Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Vietnam, Lao PDR, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand and Philippines (*If other countries establishes JCM subsequently, they shall be included.)*

- **Cost-effectiveness** of emission reductions of GHG is expected to satisfy the standard below;
  - 4,000 JPY/tCO2equivalent
    
    \[
    \text{Amount of financial support (JPY)} = \frac{\text{Emission reductions of GHG (tCO2equivalent/y) } \times \text{legal durable years (y)}}{}
    \]
    
    - 3,000 JPY/tCO2equivalent:
      
      In case the number of PV JCM Model Projects by each country is more than 5 projects. (Mongolia and Thailand)

- **Payback period** is preferred to be 3 years or longer with the financial support.
Project Cycle of JCM Model Project

First Call Phase

First Call From Apr6

Submitting Proposal
Proposal Review
Preparation of application documents
Review of application documents
Project Implementation
Inspection
Disbursement of Financial Support

Second Call Phase

Second Call from Aug27

Consulting for Capacity Building of JCM model Projects

Activity of participants
Activity of GEC

FY2018
Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec  Jan  Feb  Mar

Max. 90 days

FY2019
Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec  Jan  Feb  Mar  Apr

Preliminary Selection of model projects
Notice of Contract of Finance issued to participants
Project Start
Project Completion (in case of 1-year project)

FY2018
FY2019
Number of JCM Model Projects by Country/Year

**Top 3 Countries by the number of projects**

- Indonesia: 28
- Thailand: 26
- Vietnam: 18

<table>
<thead>
<tr>
<th>Country</th>
<th>FY2016</th>
<th>FY2017</th>
<th>FY2018</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>28</td>
<td></td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Thailand</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Colombia</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Mexico</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Palau</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Vietnam</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Maldives</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>7</td>
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<tr>
<td>Kenya</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Mongolia</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>82</td>
</tr>
<tr>
<td>Partner Country</td>
<td>Representative Participant</td>
<td>Project Title</td>
<td>Expected CO2 Emission Reductions (tCO₂/year)</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------</td>
<td>---------------</td>
<td>---------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Mongolia</td>
<td>Sharp Energy Solutions Corporation</td>
<td>21MW Solar Power Project in Bayanchandmani</td>
<td>27,008</td>
<td></td>
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<tr>
<td>Vietnam</td>
<td>Nihon Crant Co. Ltd.</td>
<td>Modal Shift from Truck to Cargo Ship with Freshness Preservation Reefer Container</td>
<td>11,025</td>
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<tr>
<td>Vietnam</td>
<td>Yokohama Water Co., Ltd.</td>
<td>Energy Saving by Introduction of Inverters for Raw Water Intake Pumps</td>
<td>1,043</td>
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<tr>
<td>Indonesia</td>
<td>Takasago Thermal Engineering Co., Ltd.</td>
<td>Introduction of 2.8MW Solar Power System in Healthcare and Food Factories</td>
<td>2,446</td>
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<tr>
<td>Indonesia</td>
<td>Otsuka Pharmaceutical Factory, Inc.</td>
<td>Energy Saving by Introducing High Efficiency Autoclave to Infusion Manufacturing Factory</td>
<td>1,950</td>
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<tr>
<td>Indonesia</td>
<td>Hokusan Co., Ltd.</td>
<td>Introduction of CNG-Diesel Hybrid Equipment to Public Bus in Semarang</td>
<td>1,870</td>
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<tr>
<td>Indonesia</td>
<td>iFORCOM Co., Ltd.</td>
<td>Energy Saving for Air-conditioning System of Shopping Mall by High Efficiency Centrifugal Chiller and Air-conditioning Control System</td>
<td>1,501</td>
<td></td>
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<tr>
<td>Palau</td>
<td>Sharp Energy Solutions Corporation</td>
<td>Introduction of 0.4MW Rooftop Solar Power System in Supermarket</td>
<td>296</td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>Asian Gateway Corporation</td>
<td>1.5MW Solar Power Project in Kampong Thom</td>
<td>831</td>
<td></td>
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<tr>
<td>Mexico</td>
<td>Sharp Energy Solutions Corporation</td>
<td>30MW Solar Park Project in Guanajuato</td>
<td>36,037</td>
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<tr>
<td>Thailand</td>
<td>The Kansai Electric Power Company, Incorporated</td>
<td>Introduction of Gas Co-generation System and Absorption Chiller to Fiber Factory</td>
<td>17,851</td>
<td></td>
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<tr>
<td>Thailand</td>
<td>Tokyo Century Corporation</td>
<td>25MW Rooftop and Floating Solar Power Project in Industrial Park</td>
<td>10,620</td>
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<tr>
<td>Thailand</td>
<td>Toyota Motor Corporation</td>
<td>Introduction of 3.4 MW Rooftop Solar Power System in Technical Center and Office Buildings</td>
<td>1,617</td>
<td></td>
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<tr>
<td>Philippines</td>
<td>Chodai Co., Ltd.</td>
<td>2.5MW Rice Husk Power Generation Project in Butuan City, Mindanao</td>
<td>※CO₂ only 5,118</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>Chodai Co., Ltd.</td>
<td>0.16MW Micro Hydro Power System in Taguibo Water Supply Facility, Mindanao</td>
<td>682</td>
<td></td>
</tr>
</tbody>
</table>
2. Trend and Consideration of JCM Model Projects in Indonesia
Relatively small number of projects compared with other countries - 4 PVs - 2 Mini Hydro Power Plants

Newly selected 1 project in Transport Sector

Steadily increasing

Cumulative Number of JCM Model Projects by Sector

Energy Efficiency   Renewable Energy   Transport
Typical Example of International Consortium

Representative Participant
(Shall be Japanese entity)
Main Role: Overall project management

Joint Implementation

Partner Participant(s)
(At least one local entity shall be a partner)
Main Role: Installation and management of facilities

Order
Construction
Order
Supply

Contractor
Manufacturer
JCM Model Projects in Indonesia Categorized by Business Form

- Model 1: Manufacturer (25%)
- Model 2: Trading CO. / Engineering CO. (54%)
- Model 3: Parent and Subsidiary (14%)
- Model 4: SPC (7%)
- Model 5: Leasing (4%)

Increasing because of lower initial cost

Major Business Form
# List of JCM Model Projects in Indonesia (2013~2018: 28 projects)

As of July 24th, 2018

<table>
<thead>
<tr>
<th>No.</th>
<th>Year</th>
<th>Project Title</th>
<th>Entity</th>
<th>Sector</th>
<th>Business Form</th>
<th>Model No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2016</td>
<td>Introduction of 0.5MW Solar Power System to Aroma and Food Ingredients Factory</td>
<td>Next Energy &amp; Resources Co., Ltd.</td>
<td>Renewable Energy</td>
<td>4, 5</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2013</td>
<td>Energy Efficient Refrigerants to Cold Chain Industry</td>
<td>Mayekawa Manufacturing Co., Ltd.</td>
<td>Energy Efficiency</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>2018</td>
<td>Introduction of CNG-Diesel Hybrid Equipment to Public Bus in Semarang</td>
<td>Hokusou Co., Ltd.</td>
<td>Transport</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>2017</td>
<td>10MW Mini Hydro Power Plant Project in Lao Ordi River in North Sumatra</td>
<td>CHODAI Co., Ltd.</td>
<td>Renewable Energy</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>2016</td>
<td>Energy Saving in Industrial Wastewater Treatment System for Rubber Industry</td>
<td>EMATEC</td>
<td>Energy Efficiency</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>2016</td>
<td>10MW Mini Hydro Power Plant Project in North Sumatra</td>
<td>Toyo Energy Farm Co., Ltd.</td>
<td>Renewable Energy</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>2015</td>
<td>Energy Saving for Industrial Park with Smart LED Street Lighting System</td>
<td>NTT FACILITIES, INC.</td>
<td>Energy Efficiency</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>2015</td>
<td>Energy Saving for Air-Conditioning at Shopping Mall with High Efficiency Centrifugal Chiller</td>
<td>NTT FACILITIES, INC.</td>
<td>Energy Efficiency</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>2015</td>
<td>Installation of Gas Co-generation System for Automobile Manufacturing Plant</td>
<td>Toyota Tsusho Corporation</td>
<td>Energy Efficiency</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>2014</td>
<td>Energy Saving through Introduction of Regenerative Burners to the Aluminum Holding Furnace of the Automotive Components Manufacturer</td>
<td>Toyotsu Machinery Corporation</td>
<td>Energy Efficiency</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>2013</td>
<td>Energy Saving by Installation of Double Bundle-type Heat Pump</td>
<td>Toyota Tsusho Corporation</td>
<td>Energy Efficiency</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>2016</td>
<td>Introduction of LED Lighting to Sales Stores</td>
<td>FAST RETAILING CO., LTD.</td>
<td>Energy Efficiency</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>2015</td>
<td>Introduction of High-efficiency Once-through Boiler System in Film Factory</td>
<td>Mitsubishi Chemical Corporation</td>
<td>Energy Efficiency</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>2013</td>
<td>Installation of Inverter-type Air Conditioning System, LED Lighting and Separate Type Fridge Freezer Showcase to Grocery Stores in Republic of Indonesia</td>
<td>Lawson, Inc.</td>
<td>Energy Efficiency</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
Indonesia would keep the top position in JCM Model Projects by:

1. Focusing on City-to-City Collaboration based on Environment Infrastructure Strategy of MOEJ.

2. Scaling up to larger projects through active partnership between Indonesian and Japanese business partners.

MOEJ and GEC will be happy to provide support in planning and implementation phases of JCM Model Projects.
3. Outreach Activities of GEC

- GEC’s JCM Twitter [https://twitter.com/GEC_JCM_Info](https://twitter.com/GEC_JCM_Info)
Terima Kasih!
Thank you for your attention!

Please enjoy through the end of this seminar!
Any questions or discussions are quite welcome in any time !!!

GEC members in this seminar
Ms. Maiko Uga (宇賀 まい子) uga@gec.jp
Ms. Konomi Jikihara (直原 好) jikihara@gec.jp
Mr. Takeshi Inada (稲田 健志) inada@gec.jp
Mr. Satoru Tango (反後 暁) tango@gec.jp
Reference Materials

1. Overview of JCM Model Projects in FY2018 in Indonesia

2. Business Form Models in Indonesia
1. Project Overview of JCM Model Projects in FY2018 in Indonesia

1. Takasago Thermal Engineering Co., Ltd
2. Otsuka Pharmaceutical Factory, Inc
3. Hokusan Co., Ltd
4. iFORCOM Co., Ltd.
This project will introduce 2.8MW Solar Power System in Healthcare and Food Factories near Jakarta. Electricity generated by Solar Power System replaces grid electricity to reduce GHG emission.

Site 1: PT. Indolakto
Electric-generating capacity: 0.8MW
Installation location: Roof top of the factory

Site 2: P&G Indonesia
Electric-generating capacity: 2.0MW
Installation location: Idle land next to the factory

**Expected GHG Emission Reductions**

\[ \text{ER} = \text{RE} - \text{PE} \]

ER: Emission reductions [tCO2/year]
RE: Reference emissions [tCO2/year]
PE: Project emissions [tCO2/year]

Site 1: PT. Indolakto
590tCO2/year

Site 2: P&G Indonesia
1,856tCO2/year

**Projects Site**

1. PT. Indolakto
About 73km South from Central Jakarta

2. P&G Indonesia
About 60km Southeast from Central Jakarta
Energy Saving by Introducing High Efficiency Autoclave to Infusion Manufacturing Factory

At an infusion manufacturing factory of PT. Otsuka Indonesia under the Otsuka Group, a new type of high efficiency autoclave, which fulfills the Good Manufacturing Practice (GMP) and realizes energy and resource saving, is introduced to contribute for CO₂ emission as well as to assure safety of pharmaceutical products.

Since the hot water to be injected into the autoclave is maintained at a high temperature, both the amount of steam charged in a batch unit and consumption of natural gas (CNG) required for steam generation are reduced. In addition, pure water used in the sterilization process is reused without being discharged, the amount of pure water is also greatly saved.

Expected GHG Emission Reductions

1,950 tCO₂/year

(Reference CNG consumption volume – project CNG consumption volume) X Emission factor of CNG.

- CNG consumption volume = temp. rising cycle X theoretical required steam X coef. of theoretical required steam X coef. of CNG/steam.
- temp. rising cycle = annual production volume / max volume of batch.
- theoretical required steam = heat required for heating pure water at each cycle / evaporation latent heat.
- coef. of theoretical required steam = steam generation volume in boiler / theoretical required steam.
- coef. of CNG/steam = input volume of CNG / steam generation in boiler.
Toyama City has concluded a cooperation agreement between Semarang City to realize a low carbon society under inter-city cooperation. Based on the cooperation agreement, this project aims to reduce GHG emissions through fuel switch from diesel to CNG. In the project, 72 diesel bases owned by Trans Semarang, including 25 large-sized buses and 47 mid-sized buses, are retrofitted from diesel engine to hybrid engine with CNG system available. These buses are considered more cost-effective through fuel switching.

**Expected GHG emission reduction**

1,870 tCO₂/year

Reference GHG emission – Project GHG emission

= Reference fuel consumption x Fuel-based emission factor - Project fuel consumption x Fuel-based emission factor

Reference fuel consumption

= Diesel fuel consumption based for bus operation x emission factor of Diesel fuel

Project fuel consumption

= CNG fuel consumption for bus operation x emission factor of CNG + Diesel fuel consumption for bus operation x emission factor of Diesel fuel

**Outline of GHG Mitigation Activity**

- Regulator: To reduce the pressure of gas
- Injector: To provide the gas to the engine
- Torttle Position Sensor: To adjust the proportion of air and gas according to the order by acceleration pedal
- Turbo charge: To provide air more
- *The different between Map and Turbo Boost Sensor: It depends on the place to equip

**Sites of Project**

Semarang City
Energy saving for Air-conditioning System of Shopping Mall by High Efficiency Centrifugal Chiller and Air-conditioning Control System

PP(Japan): iFORCOM Co., Ltd., PP (Indonesia): PT Federal Investindo

Outline of GHG Mitigation Activity

This project will improve facilities and operation of air conditioning utility system in a shopping mall in Batam, called Mega Mall Batam Centre, and reduce electricity consumption as well as CO2 emissions.

This project will introduce an energy-saving air-conditioning utility system with automatic control utilizing information technology, based on appropriate environmental construction in the shopping mall with large space. An optimal energy saving promotion platform will be established through the project.

Expected GHG Emission Reduction

1,501 tCO₂/year

(reference power consumption - project power consumption) x emission factor of grid electric power

Site of Project

Batam island is located about 20 km from the southern coast of Singapore.
2. Business Form Models in Indonesia

Model 1. Manufacturer

Model 2. Trading Co./Engineering Co.

Model 3. Parent and Subsidiary

Model 4. SPC

Model 5. Leasing
Model 1. Manufacturer

A Japanese manufacturer acts as the Representative Participant (RP) and supplies its own products to the Indonesian Partner Participant (PP).
Model 2. Trading Co./Engineering Co.

A Japanese trading company or engineering company acts as the RP. The Indonesian PP procures through the RP or directly from a third party.

International Consortium

Representative Participant
(Japanese Trading Company or Engineering Company)
Company-A
Facilities Intermediation

Partner Participant
(Indonesian Company or Any Japanese-Affiliated-Company)
Company-B
Direct Facilities Introduction

Facility Manufacturer
Company-C
Facilities production & Sales
Model 3. Parent and Subsidiary

The Japanese parent company (that is RP) procures facilities and supplies to its Indonesian subsidiary (that is PP), or intermediates facilities.

**International Consortium**

**Representative Participant**
(Japanese Company)
Company-A
Facilities Supply or Intermediation

**Partner Participant**
(Company-A’s Subsidiary)
Company-B
Facilities Introduction in Factory

**Facility Manufacturer**
Company-C
Facilities Production & Sales

Supplies or Intermediates Facilities

Facilities
The Japanese RP and Indonesian PP make investment to establish a Special Purpose Company (SPC). SPC procures facilities and implements the project.

※SPC：Special Purpose Company
Model 5. Leasing

A Japanese leasing company acts as RP, and its Indonesian subsidiary owns and leases facilities to the Indonesian PP, reducing the initial cost.