

JCM Webinar in Mexico

Financing Programme for JCM Model Projects and JCM Global Match

19th January 2021

Global Environment Centre Foundation (GEC)



1. Financing Programme for JCM Model Projects

- **Overview and Recent trend of JCM Model Projects**
- JCM Model Projects in Mexico

2. Promotion / “JCM Global Match”

Outline of JCM Model Projects



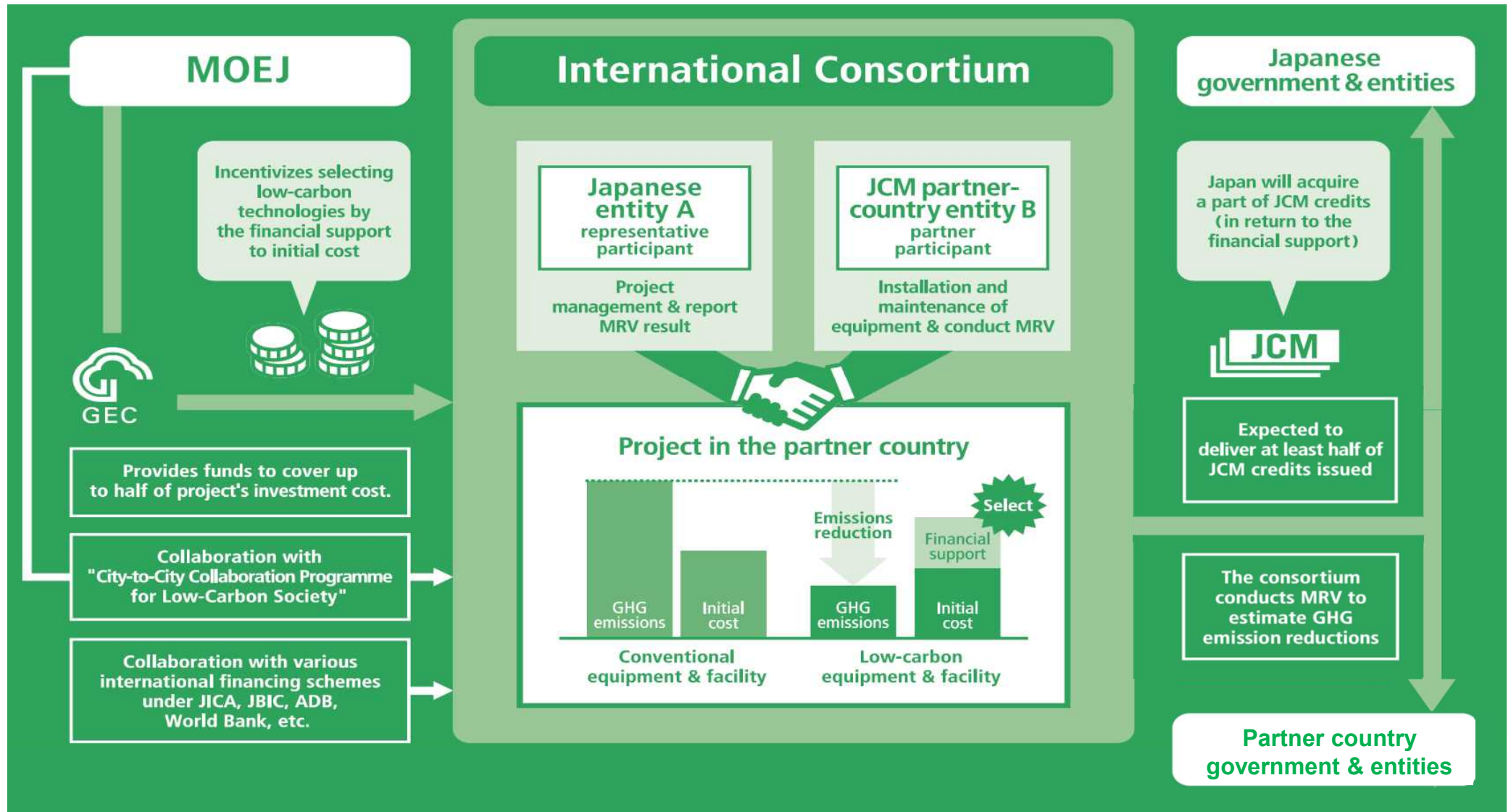
Global Environment Centre Foundation

Budget	Approx. USD90million
Executing Entity	International Consortium that consists of a Japanese entity and a JCM partner-country entity(ies)
Scope of Financing	Facilities, equipment, vehicles, etc. which reduce CO2 from fossil fuel combustion as well as construction cost for installing those facilities, etc.
Eligible Projects	Start installation after the Contract of Finance is concluded and finish installation within 3 years.
Maximum percentage of Financial Support	Maximum of 50% and reduce the percentage according to the number of already selected project(s) using a similar technology in each partner country. ※ Number of already selected project(s) using a similar technology in each partner country : none (0) = up to 50%, up to 3 (1-3) = up to 40%, more than 3 (>3) = up to 30%. The percentage of financial support will be determined by GEC.
Cost-effectiveness	Cost-effectiveness of GHG emission reductions is expected to be JPY4,000/tCO2eq or better. ※ If the number of PV projects in a partner country is 5 or more, cost-effectiveness is expected to be JPY3,000/tCO2eq or better.

Guideline

for Submitting
JCM model project proposal

Basic Concept of JCM Model Projects



What kind of projects are supported by this financing programme?



- Reduce energy-related CO2 emissions with leading low carbon or decarbonizing technologies in partner countries.
- Contribute to the sustainable development in partner countries.
- Reduction of GHG emissions achieved by the projects can be quantitatively calculated and verified.
- Facilities installed by the projects do not receive any other subsidy by the Government of Japan.

International consortium

Jointly implement a JCM model project

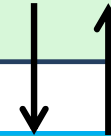
**Representative participant
(Shall be a Japanese entity)**

Main role : Overall project management



**Partner participant(s)
(At least one local entity
shall be a partner)**

Main role : Installation & management of
facilities



EPC contractor

- Consortium must include both an owner and user of facility installed by the model project.

Guideline

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What is the criteria of cost-effectiveness?

JPY4,000/tCO₂equivalent

$$= \frac{\text{Amount of financial support[JPY]}}{\text{Emission reductions of GHG [tCO}_2\text{equivalent/y]} \times \text{legal durable years[y]}}$$

※ Legal durable years of the facilities is stipulated by the Japanese law, and are dependent on the industry classification.

JPY3,000/tCO₂equivalent

In case the number of similar technological Projects in each country is 5 to 9.

JPY2,500/tCO₂equivalent

In case the number of similar technological Projects in each country is 10 or more.

Categorization by applied technology type

Sector	Technology	Mongolia MN	Bangladesh BD	Ethiopia ET	Kenya KE	Maldives MV	Vietnam VN	Lao PDR LA	Indonesia ID	Costa Rica CR	Palau PW	Cambodia KH	Mexico MX	Saudi Arabia SA	Chile CL	Myanmar MM	Thailand TH	Philippines PH	Total
1. Energy Efficiency	Air Conditioning System						3		1								1		5
	Chiller		2				4		4	1		1					3		15
	Refrigerator								1							2	4		7
	Absorption Chiller Using Waste Heat								2								2		4
	Swirling Induction Type Air-conditioning System																1		1
	Double Bundle-type Heat Pump						1		1								1		3
	Fridge and Freezer Showcase								1								1		2
	Boiler	2					1		3				1			2	1		10
	Water Heater Using Waste Heat									1									1
	Waste Heat Recovery System															2	1		3
	Heat Exchanger																1		1
	Transformer						4	1											5
	LED Lighting								2								2		4
	LED Street Lighting with Dimming System								1			1							2
	Pump						1												1
	Air Compressor						1										1		2
	Aeration System								1										1
	Regenerative Burners								1										1
	Gas Fired Furnace						1												1
	Gas Fired Melting Furnace																1		1
	Air Conditioning Control System						1										1		2
	Frequency Inverter for Pump						1					1							2
	Loom		1						2								1		4
	Old Corrugated Cartons Process								1										1
	Battery Case Forming Device						1												1
	Electrolyzer in Chlorine Production													1			1		2
	Wire Stranding Machines						1												1
	Gantry crane																1		1
	Electric Forklift																1		1
	Autoclave								1										1
	Multi-effect Distillation System												1						1
	Injection Molding Machine								1										1
2. Renewable Energy	Solar Power Plant	6	1	1	2	2	2	2	2	1	5	4	3		2		10	5	48
	Solar Power Plant with Battery								1						1				2
	Small Hydropower Plant								5									4	9
	Wind Power Plant																	1	1
	Biomass Power Plant								1			1			1	1	1		6
	Biogas Power Plant																	1	1
	Biomass boiler						1										1		2
	Biogas boiler															1		1	2
	Biomass Co-generation																1		1
	Power Generation by Waste Heat Recovery								1							1	1		3
3. Effective Use of Energy	Gas Co-generation								2								3		5
	Waste-to-Energy Plant															1			1
4. Waste Handling and Disposal	Power Generation by Methane Recovery												1						1
	Digital Tachograph System						1												1
5. Transportation	CNG-Diesel Hybrid Bus								1										1
	Reefer Container						1												1
Total	Number of technology : 48	8	4	1	2	2	25	3	36	3	5	8	6	1	4	10	42	13	173

White 0 project = Up to 50% Yellow 1-3 project(s) = Up to 40% Orange more than 4 projects = Up to 30%

JCM ECO Lease Scheme

In the fiscal year 2020, “JCM Eco Lease Scheme” is newly introduced to JCM Model Project to cover leasing charges and interests. This scheme has an advantage in reducing the reporting burden of representative participants with shorter monitoring period and simple proposal document.

Representative Participant	Japanese leasing company
Amount of Financial Support	Up to JPY500 million for 3 years in principal
Percentage of Financial Support	Uniformly 10% of total leasing charges including leasing interests
Period of MRV	Equal to leasing period
Leasing Period	At least 5 years
Costs Eligible for Financing	Leasing charges of the costs of facilities/equipment and relevant lease interests
Eligible Type of Technologies	In principle, technologies with JCM methodology (ies) that have been either approved or proposed
Financial Statement for Application	Only financial statements of Representative Participant need to be submitted.

Guideline

for Submitting
JCM model project proposal

Infrastructure through JCM

- 1 Thailand / P&T RETAIL INC. CO., LTD.
High Efficiency LED Lighting
- 2 Cambodia / AEON MALL Co., Ltd.
Solar Power System and High Efficiency Centrifugal Oil Filter
- 3 Bangladesh / Nippon Refrigeration Equipment & Systems Co., Ltd.
High Efficiency Centrifugal Chiller
- 4 Mexico / Sanyo Sales Limited
On-to-through Roller and Fuel Switching



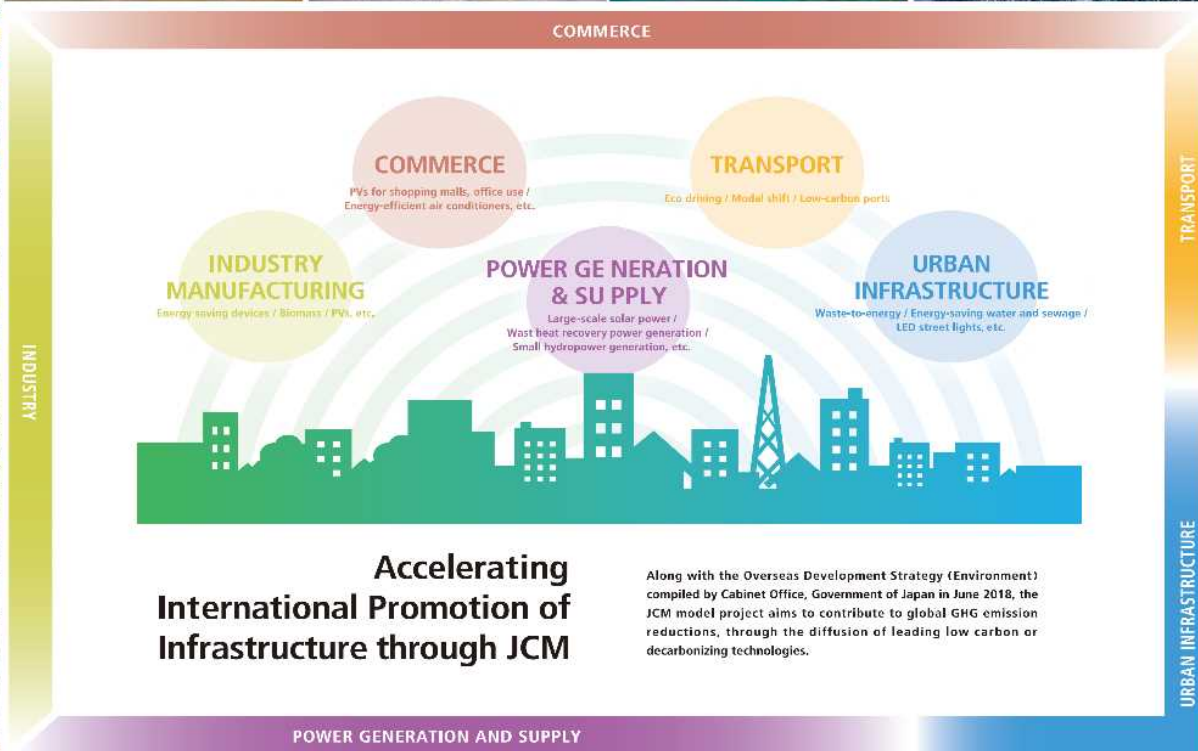
- 5 India / Pacific Consultants Co., Ltd.
Solar Power Plant for Commercial Facilities
- 6 Indonesia / Toyota Tsusho Corporation
Double-Bundle type Heat Pump
- 7 Indonesia / Hokuetsu Co., Ltd.
On-to-through Equipment for Public Bus
- 8 Thailand / Yokohama Port Corporation
Energy Efficient equipment to Bangkok Port

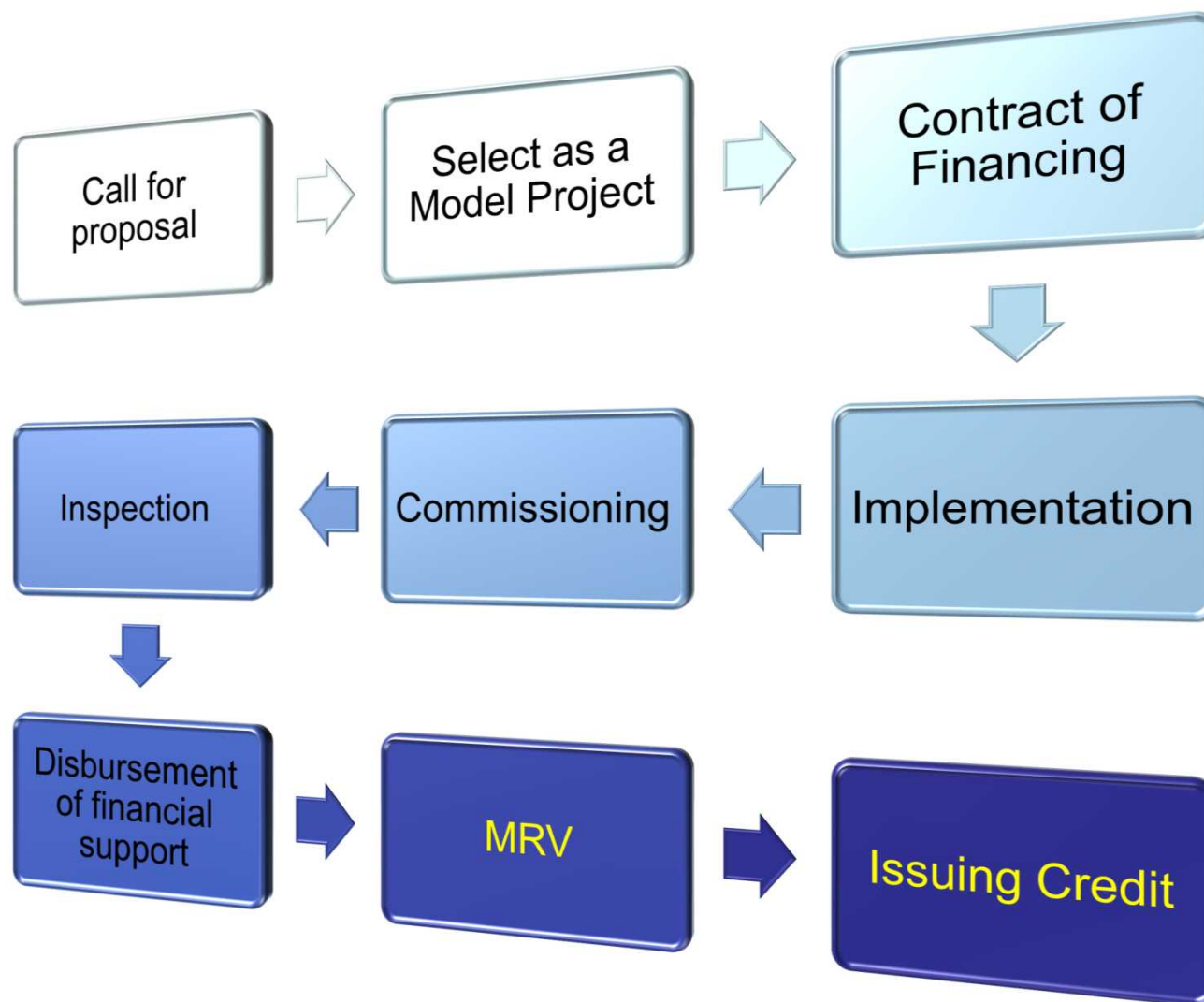


- 1 Indonesia / Environmental Management and Technology Center
Energy Saving in Industrial Wastewater Treatment System
- 2 Myanmar / Kain Holdings Company, Limited
Energy Saving Heating System
- 3 Thailand / TSD Co., Ltd.
Floating Solar Power System
- 4 Korea / KILU S&P Co., Ltd. / HANJANGHWA / COMBITEK, Inc.
Power Generation with Methane Gas Recovery System

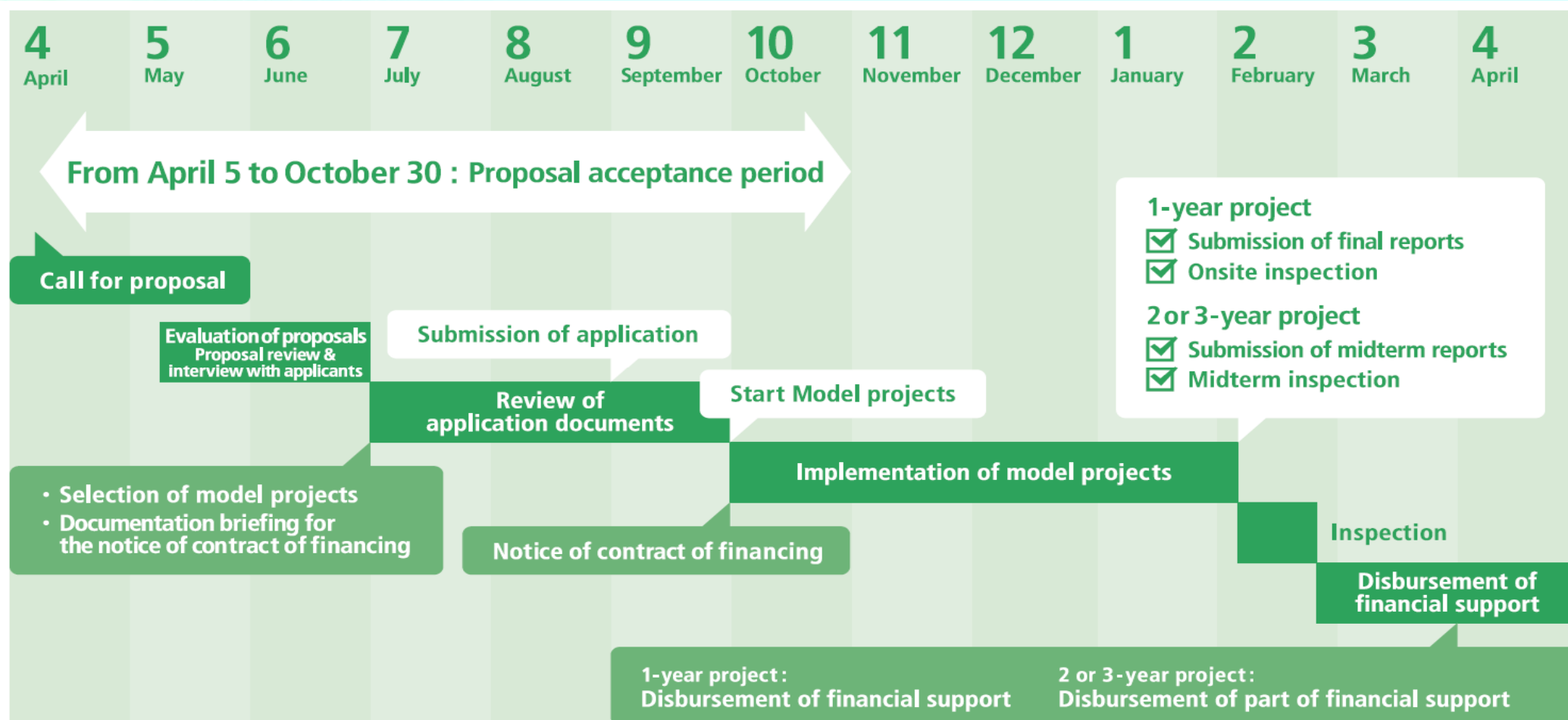


- 1 Viet Nam / Yaku Kasei Co., Ltd.
Amorphous High Efficiency Transformers in power grid
- 2 Viet Nam / Yokohama Water Co., Ltd.
High Efficiency Water Pumps
- 3 Myanmar / JTC Engineering Corporation
Waste to Energy Plant in Yangon City
- 4 Myanmar / Kyuta Corporation
Rice Husk Power Generation





JCM Model Projects Schedule in FY2020



Guideline

for Submitting
JCM model project proposal in FY2020

Selection of Projects in FY2020 (as of Jan.2021)

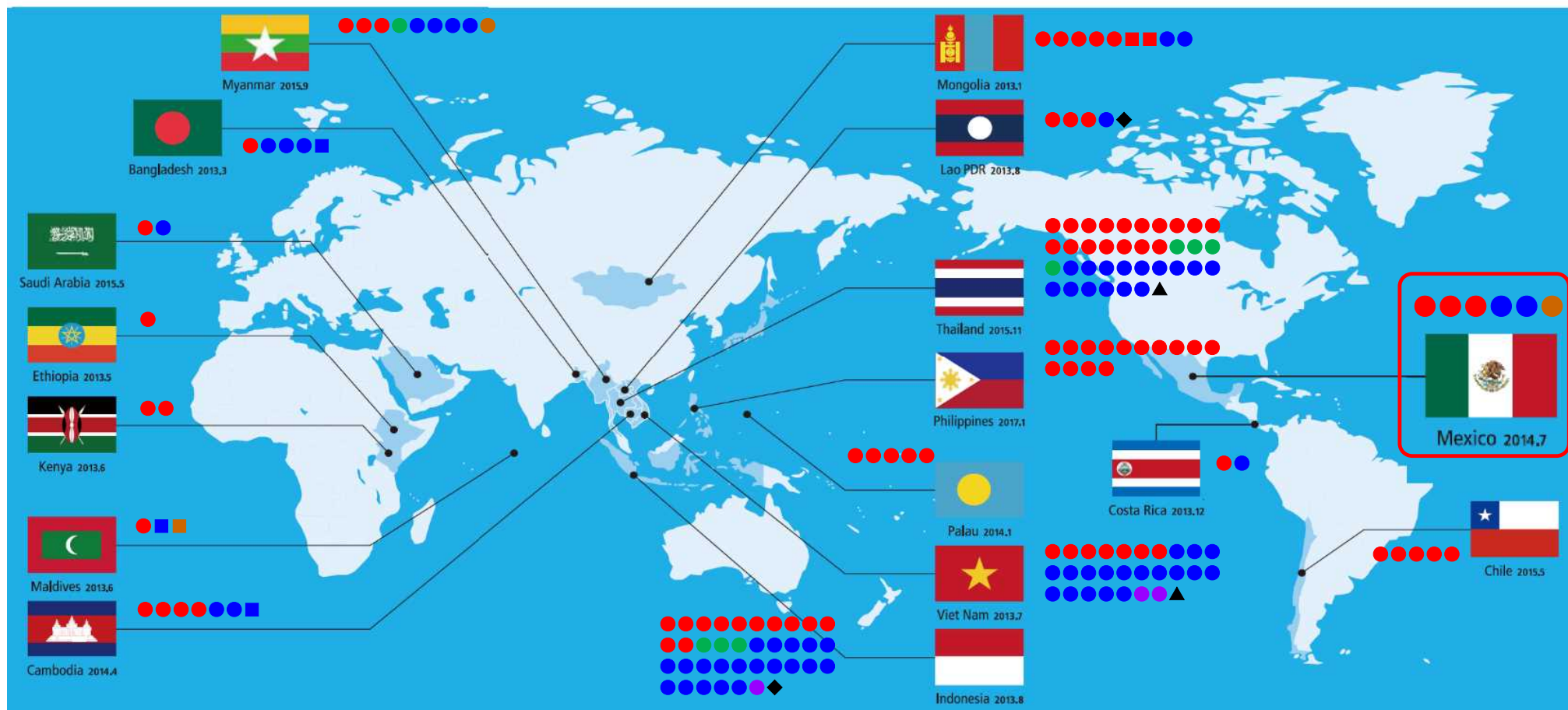
Partner Country	Entity	Project Title	Sector	Expected GHG Reductions (tCO ₂ /y)
Vietnam	Kanematsu KGK Corp.	57MW Solar Power Project in An Giang Province	Renewable Energy	28,208
Vietnam	DAIICHI JITSUGYO CO., LTD.	Introduction of Biomass Co-generation system to Food Factory	Renewable Energy	24,115
Vietnam	Marubeni Corporation	Introduction of Biomass Boiler to Soluble Coffee Manufacturing Plant	Renewable Energy	19,498
Vietnam	Acecook Co., Ltd.	Introduction of High Efficiency Boiler System to Food Factory	Energy Efficiency Improvement	7,631
Vietnam	Hitachi-Johnson Controls Air Conditioning, Inc	Introduction of High Efficiency Air-conditioning System to Hotel in Ho Chi Minh City	Energy Efficiency Improvement	184
Lao PDR	Kayama Kogyo Co., Ltd.	14MW Solar Power Project in Vientiane Province and Borikhamxay Province	Renewable Energy	8,104
Indonesia	NiX Co., Ltd.	6MW Mini Hydro Power Plant Project in West Pasaman, West Sumatra	Renewable Energy	18,319
Thailand	The Kansai Electric Power Company, Incorporated	Introduction of 8.1MW Rooftop Solar Power System in Motorcycle Factory and Fiber Factory	Renewable Energy	3,797
Thailand	The Kansai Electric Power Company, Incorporated	Introduction of Energy Saving Centrifugal Chillers to Machinery Factory	Energy Efficiency Improvement	225
Philippines	Mitsubishi Heavy Industries, Ltd.	29MW Binary Power Generation Project at Palayan Geothermal Power Plant	Renewable Energy	72,200
Saudi Arabia	Marubeni Corporation	400MW Solar Power Project in Rabigh Region	Renewable Energy	477,129
Chile	FARMLAND Co., Ltd.	3MW Solar Power Project Utilizing Farmland in Valparaiso Region	Renewable Energy	2,632
Myanmar	Tokyo Century Corporation	7.3MW Solar Power Project in Mandalay International Airport and Yangon City	Renewable Energy	3,276
Thailand	Sumitomo Mitsui Finance and Leasing Company, Limited	Introduction of 5MW Rooftop Solar Power System to Aluminum Building Materials Factory	Renewable Energy	2,116
Thailand	The Kansai Electric Power Company, Incorporated	Introduction of 2.6MW Rooftop Solar Power System to Semiconductor Factory	Renewable Energy	1,188
Thailand	Inabata Co., Ltd.	2.5MW Solar Power Project with Blockchain Technology in Chiang Mai University Town Community	Renewable Energy	1,093
Philippines	Tokyo Century Corporation	Introduction of 2MW Solar Power System to Shopping Mall (JCM Eco Lease Scheme)	Renewable Energy	1,476
Indonesia	Voith Fuji Hydro K.K.	5MW Hydro Power Project in Bengkulu Province	Renewable Energy	15,299
Myanmar	Yuko Keiso Co., Ltd.	Introduction of Energy Saving Equipment to Complex Buildings of Smart Urban Development Project in Yangon	Energy Efficiency Improvement	1,544
Vietnam	Idemitsu Kosan Co., Ltd.	Introduction of 2MW Solar Power System for Pellet Factory	Renewable Energy	1,024
Indonesia	Alamport Inc.	4.2MW Rooftop Solar Power Project to Pharmaceutical Factories, Vehicles Dealers, and Timber Factories	Renewable Energy	3,961
Thailand	SHIZUOKA GAS CO., LTD.	Introduction of 2MW Rooftop Solar Power System to University	Renewable Energy	868

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- **JCM Model Projects in Mexico**

2. Promotion / “JCM Global Match”

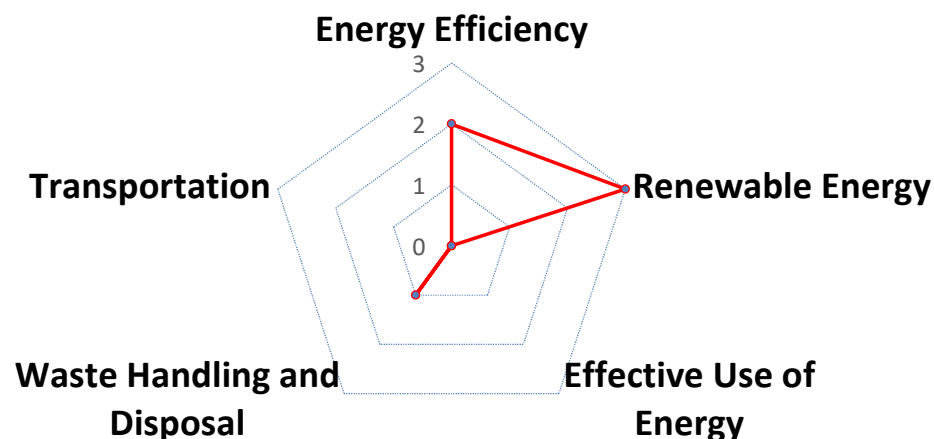
Project Map of JCM Financing Programme, as of Jan.2021 Global Environment Centre Foundation



Total 177 projects / 17 countries

(● Model Project:167, ■ ADB:6, ◆ REDD+:2, ▲ F-gas:2)

- Renewable Energy
- Effective Use of Energy
- Energy Efficiency Improvement
- Transport
- Waste Handling and Disposal



Year	Entity	Project Title	Sector	Expected GHG Emission Reductions (tCO ₂ /y)
2016	NTT Data Institute of Management Consulting, Inc.	Introduction of 1.2MW Power Generation with Methane Gas Recovery System	Waste handling and disposal	43,435
2016	Suntory Spirits Limited	Introduction of Once-through Boiler and Fuel Switching to Tequila Plant	Energy Efficiency Improvement	3,435
2017	Sharp Corporation	20MW Solar Power Project in Guanajuato	Renewable Energy	14,682
2018	Sharp Energy Solutions Corporation	30MW Solar Park Project in Guanajuato	Renewable Energy	36,416
2018	Suntory Spirits Limited	Introduction of Energy Efficient Distillation System to Tequila Plant	Energy Efficiency Improvement	1,493
2019	Sharp Energy Solutions Corporation	30MW Solar Power Project in La Paz city	Renewable Energy	36,807

Introduction of 1.2MW Power Generation with Methane Gas Recovery System

PP (Japan): NTT DATA INSTITUTE OF MANAGEMENT CONSULTING, Inc., / PP (Mexico): MGM Metano Mexicano, S. de R.L. de C.V., Energreen Holdings, S.A.P.I. de C.V.

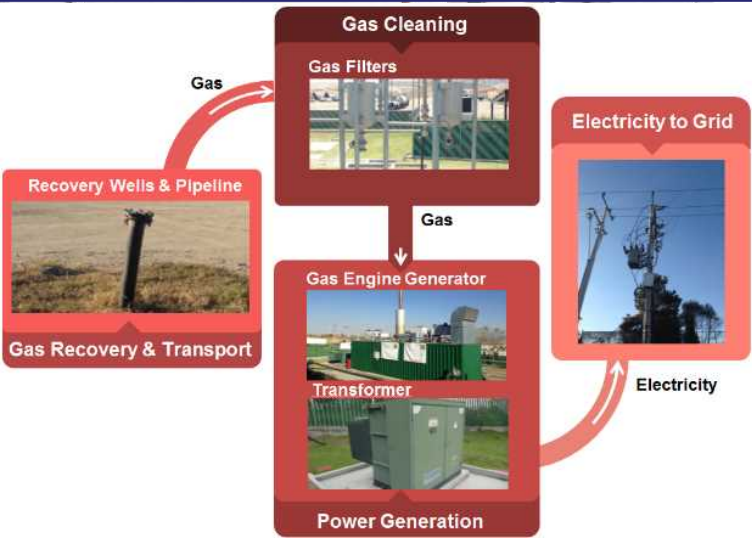
Outline of GHG Mitigation Activity

This project is power generation by gas engine using collected methane gas from landfill at a landfill sites in Mexico.

The methane gas recovery system consists of recovery wells, pipelines, gas filters, gas engine generator and transformer. Captured methane gas is transported to the gas engine power generation facilities through pipelines and filters.

Electricity generated from the gas engine generator will be sold under long-term PPAs with regional power companies.

GHG emission reductions are achieved by replacement of grid electricity and avoidance of methane emission from landfill site.



Expected GHG Emission Reductions

43,435 [tCO₂/year]

= Emission reductions by electricity generation
+ Emission reductions by methane recovery

Emission reductions by electricity generation = 4,106[tCO₂/year]

≡ electricity generation 18,921.5 [MWh/year] × grid emission factor 0.454 [tCO₂/MWh]

Emission reductions by methane recovery = 39,329 [tCO₂e/year]

Sites of JCM Model Project



Introduction of Once-through Boiler and Fuel Switching to Tequila Plant

PP (Japan): Suntory Spirits Limited, PP (Mexico): Tequila Sauza S. de R.L. de C.V.

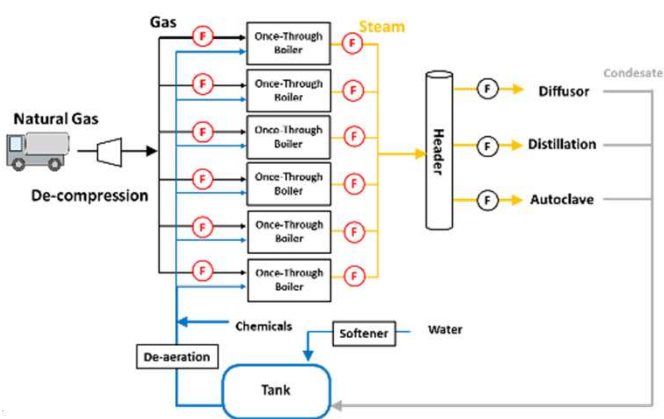
Outline of GHG Mitigation Activity

In this project, Once-through boilers will be installed instead of the existing flue boilers at Tequila Plant in Mexico. This project aims to improve boiler efficiency itself and to reduce the loss when the boilers startup and are low loading.

This project also aims to reduce about 30% CO₂ emission by fuel switching from oil to natural gas.



Boiler system



【System image to be introduced】

Expected GHG Emission Reductions

3,435 tCO₂/year

CO₂ Emission reductions

= Reference CO₂ emissions (RE) – Project CO₂ emissions (PE)

➢ RE: 11,238 tCO₂e/年

➢ PE: 7,803 tCO₂e/年

※Improvement of efficiency and fuel switching

CO₂ emission coefficient(oil) : 2.8 ton-CO₂/kL

CO₂ emission coefficient(gas) : 2.2 ton-CO₂/km³

Sites of JCM Model Project



Map data©2016Google

Introduction of Energy Efficient Distillation System to Tequila Plant

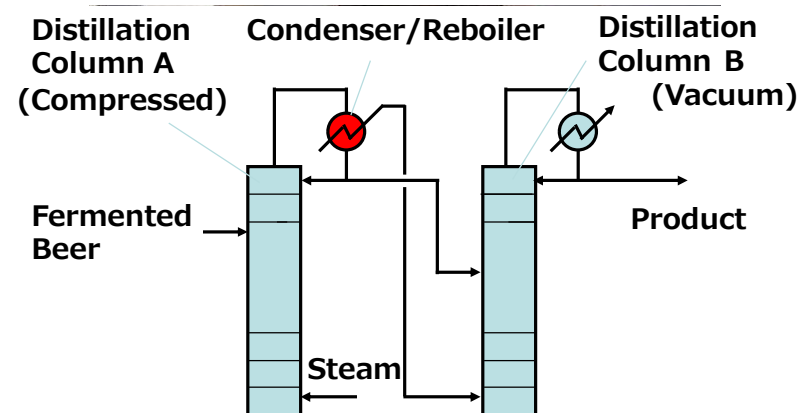
PP (Japan): Suntory Spirits Ltd., PP (Mexico): Tequila Sauza

Outline of GHG Mitigation Activity

Tequila Sauza joined Suntory group in 2014, introduces energy saving distillation system to reduce the steam in distillation process.

Distillation of tequila needs large amount of steam.

In this project, half of steam reduction is estimated.



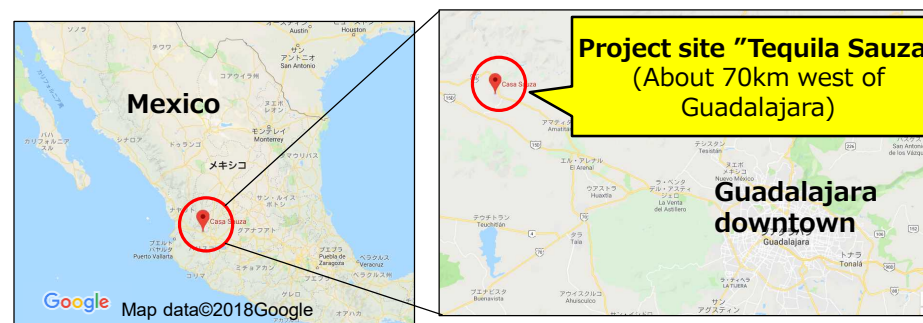
Steam can be reduced by recovering heat from next column

Expected GHG Emission Reductions

1,493tCO₂/year

- = Reference CO₂ Emissions [tCO₂/year]
- Project CO₂ Emissions[tCO₂/year]
- = (Reference Fuel Usage [m³/year]
- Project Fuel Usage [m³/year])
- × Emission Factor [tCO₂/m³]

Sites of Project



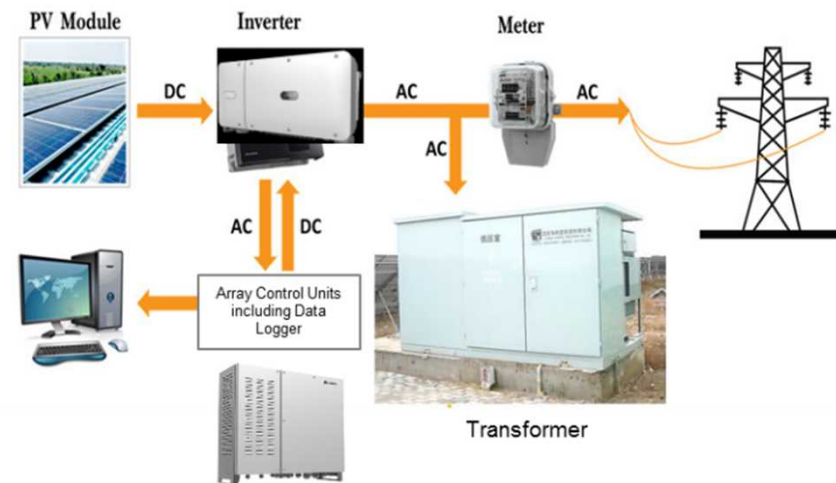
20MW Solar Power Project in Guanajuato

PP (Japan): Sharp Energy Solutions Corporation , PP (Mexico): Prana Power SAPI de CV/ Pilba Generación SAPI de CV

Outline of GHG Mitigation Activity

Introduction of a 20MWdc solar PV system in San Luis de la Paz, Guanajuato State, Mexico.

This project contributes to the achievement of the clean energies (transitory) national goal of 35% by 2024



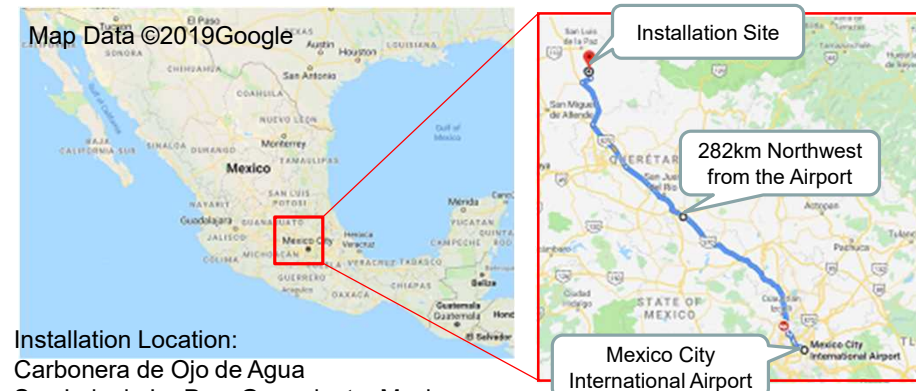
Expected GHG Emission Reductions

14,682 t-CO₂ /year

$$= (\text{Reference CO}_2 \text{ emissions}) [\text{tCO}_2/\text{year}] \\ - (\text{Project CO}_2 \text{ Emission}) [\text{tCO}_2/\text{year}]$$

$$= ((\text{Reference Power consumption}) [\text{MWh/year}] \\ - 0 [\text{MWh/year}]) \times \text{Emission Factor} [\text{tCO}_2/\text{MWh}]$$

Sites of Project



Installation Location:
Carbonera de Ojo de Agua
San Luis de La Paz, Guanajuato, Mexico

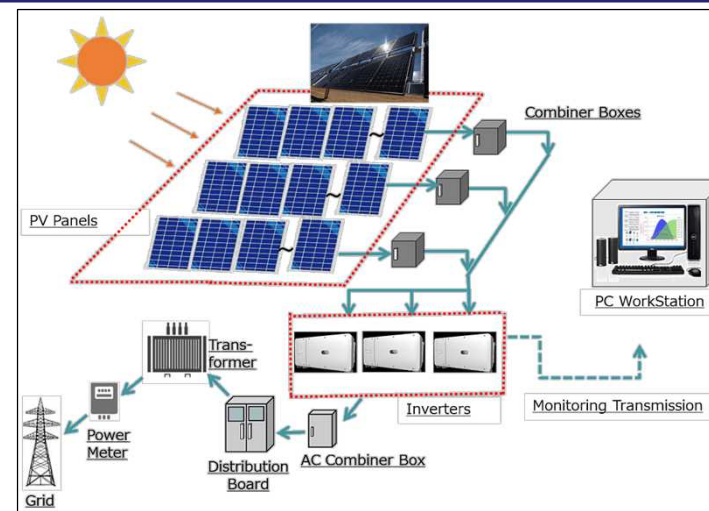
30MW Solar Park Project in Guanajuato

PP (Japan): Sharp Energy Solutions Corporation , PP (Mexico): Prana Power SAPI de CV, Tampico Solar SA de CV

Outline of GHG Mitigation Activity

In this project, Sharp, Prana and Tampico introduce a 30MWac ground-mount solar PV system in Guanajuato, Mexico, for the sale of power.

This project contributes to the achievement of Mexico's policy for a Clean Energy ratio target of 35% by 2024



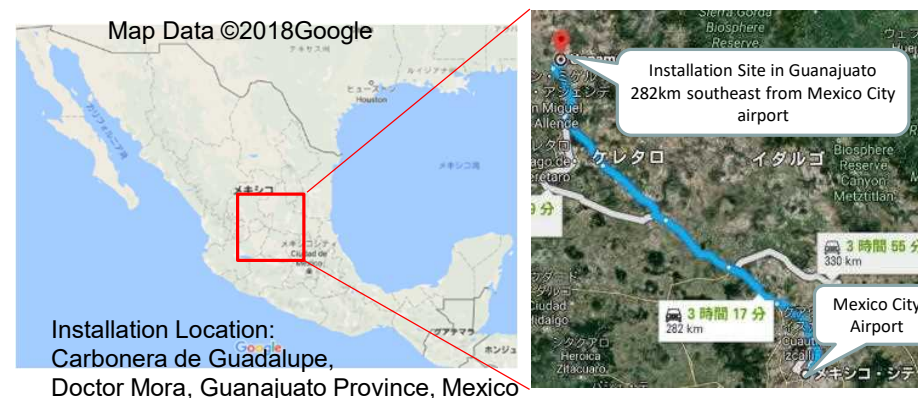
Expected GHG Emission Reductions

36,416 t-CO₂ /year

$$= (\text{Reference CO}_2 \text{ emissions}) [\text{tCO}_2/\text{year}] \\ - (\text{Project CO}_2 \text{ Emission}) [\text{tCO}_2/\text{year}]$$

$$= ((\text{Reference Power consumption}) [\text{MWh/year}] \\ - 0 [\text{MWh/year}]) \times \text{Emission Factor} [\text{tCO}_2/\text{MWh}]$$

Sites of Project



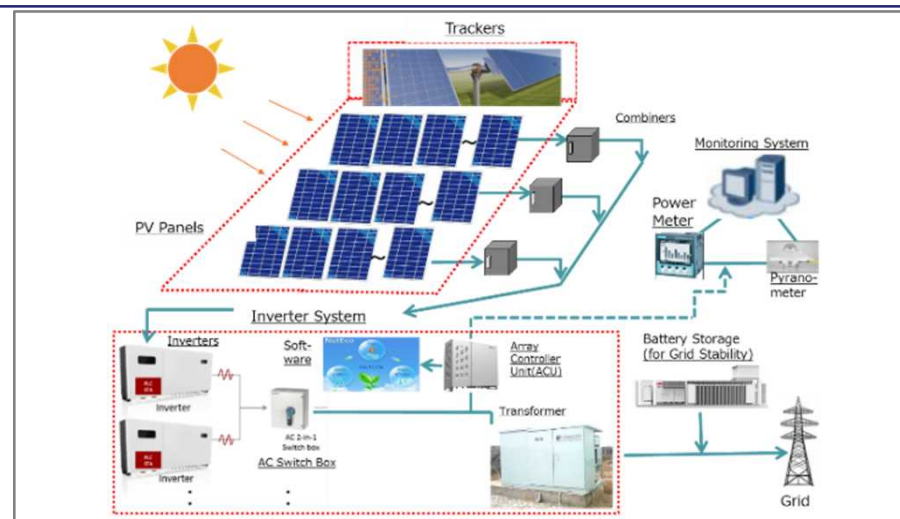
30MW Solar Power Project in La Paz city

PP (Japan): Sharp Energy Solutions Corporation , PP (Mexico): Prana Power SAPI de CV, Saferay Solar SAPI de CV

Outline of GHG Mitigation Activity

A 30MW ground-mount solar PV system is installed in Baja California Sur, Mexico, to sell power through the grid. To maximize the power generation, solar trackers are used.

This project contributes to the achievement of Mexico's policy for a Clean Energy ratio target of 35% by 2024.



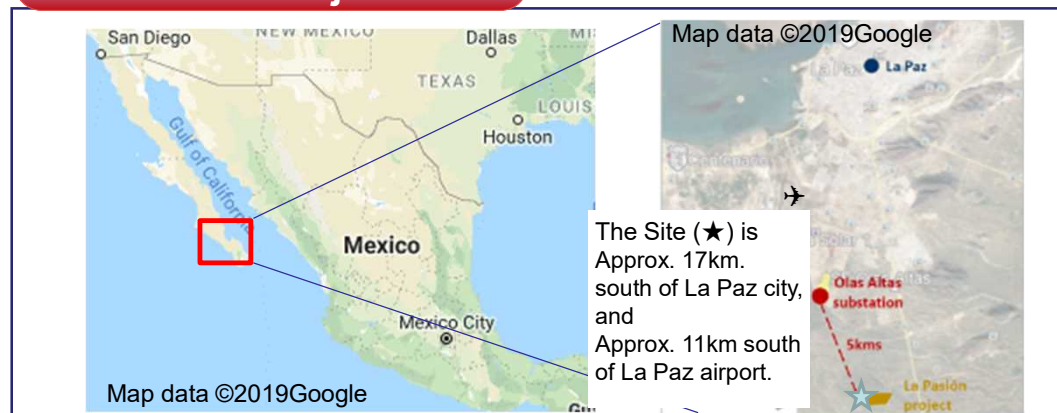
Expected GHG Emission Reductions

36,807 tCO₂/year

$$= (\text{Reference CO}_2 \text{ emissions}) [\text{tCO}_2/\text{year}] \\ - (\text{Project CO}_2 \text{ emissions}) [\text{tCO}_2/\text{year}]$$

$$= ((\text{Reference power consumption}) [\text{MWh/year}] \\ - 0 [\text{MWh/year}]) \times \text{Emission factor} [\text{tCO}_2/\text{MWh}]$$

Site of Project



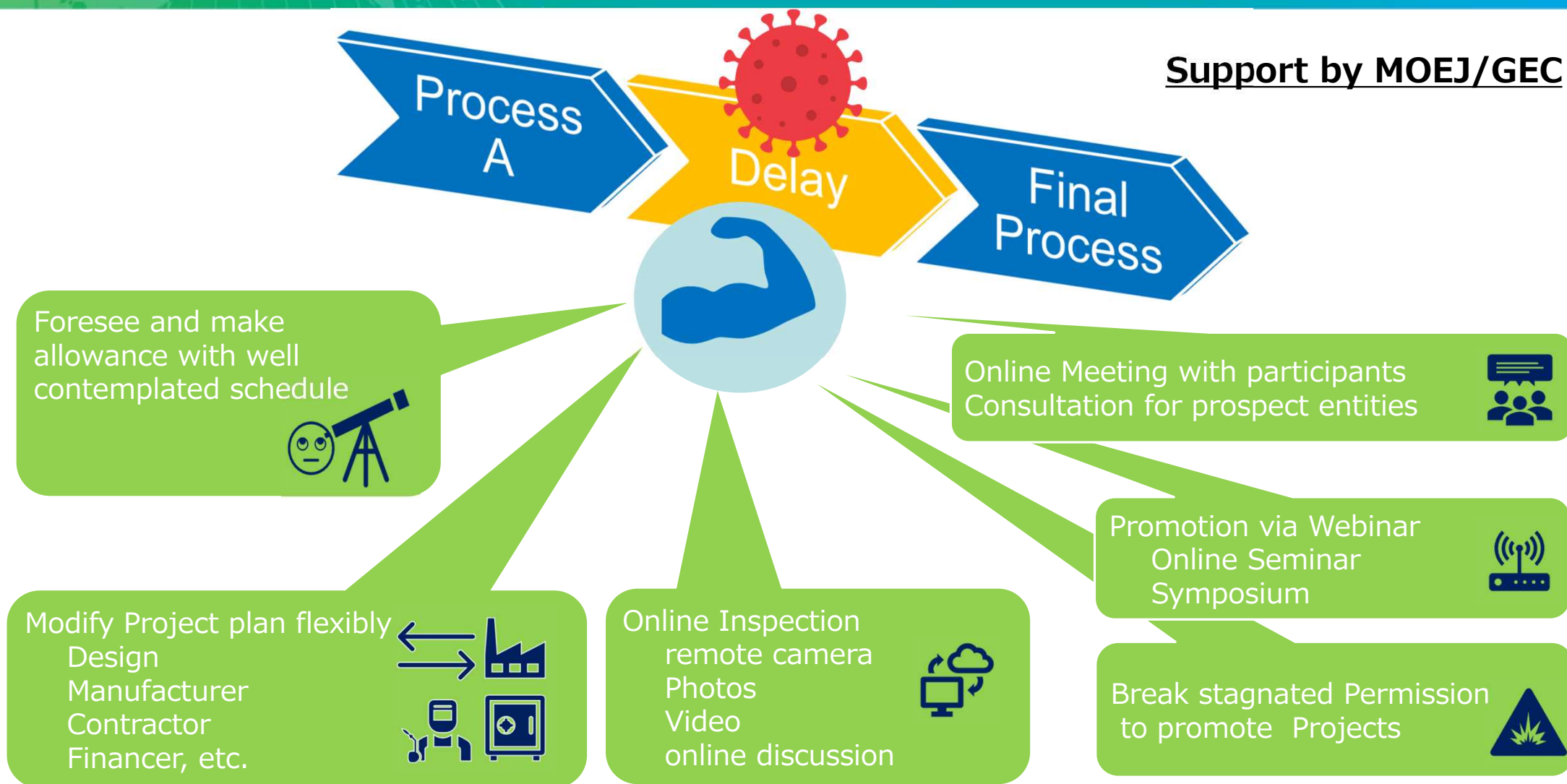
Impact on Projects

- Government services stall, licenses and permits delay
- Design work delay / supply delay due to suspension of factory operation
- Installation work delay due to difficulty in securing labor for construction / engineers unable to enter the project site.
- Deterioration of cash flow of the project partner / reduction of investment budget, difficulty in raising funds
- Suspension of banking operations (delay on loan contracts, remittances)
- Reassessment of the project feasibility / change or reduction of project plan (especially in tourism and transportation)

Impact on Operation for JCM Model Projects

- Restricted face to face meeting:
 - Evaluation interviews
 - Meeting with participants
 - Consultation for prospect entities

Support by MOEJ/GEC



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- JCM Model Projects in Mexico

2. Promotion / “JCM Global Match”

Muchas Gracias !
ありがとうございました。

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Appendix

Basic Concept of JCM Model Projects



Global Environment Centre Foundation

Facilitating diffusion of advanced low-carbon or decarbonizing technologies, products, system, services and infrastructure as well as implementation of mitigation actions, and contributing to sustainable development of developing country.

Appropriately evaluating contributions from Japan to GHG emission reductions or removals in a quantitative manner and use them to achieve Japan's emission reduction target.

Contributing to the ultimate objective of the UNFCCC by facilitating global actions for GHG emission reductions or removals.

