Financing Programme for JCM Model Projects

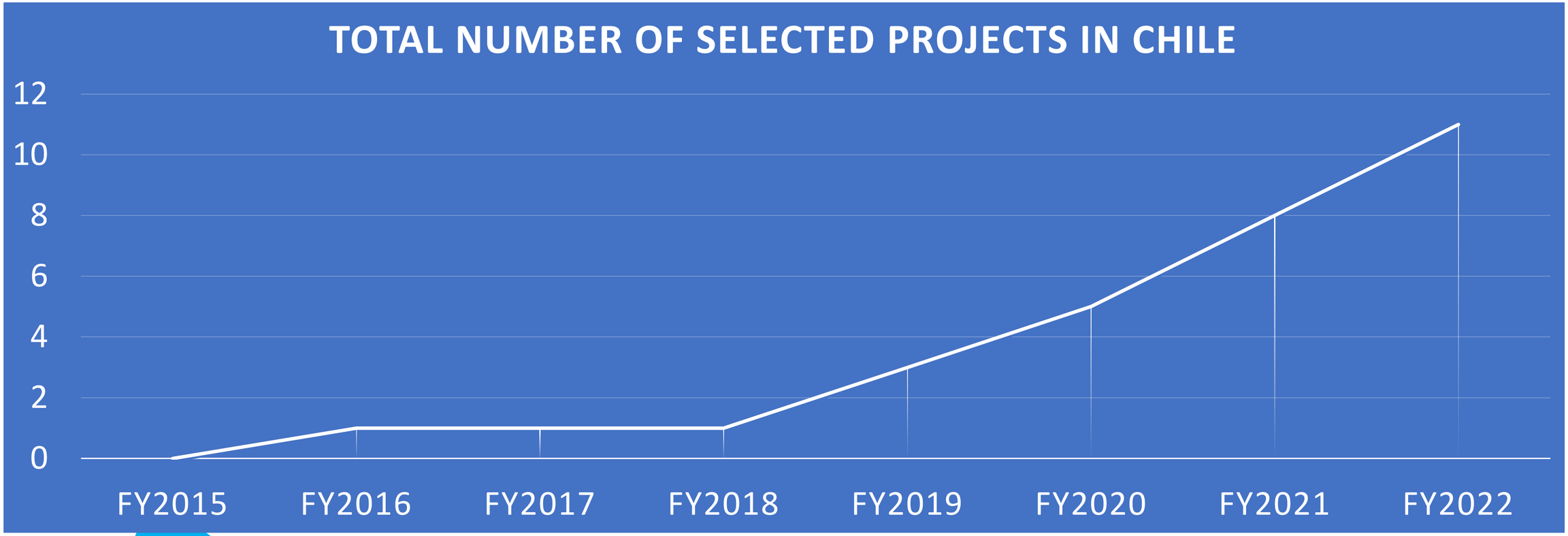
October 28th 2022

Global Environment Centre Foundation (GEC)

Agenda

1. JCM Model Projects Overview
2. Selection in 2022
3. Project Trend
4. Trend in Chile
5. Conclusion

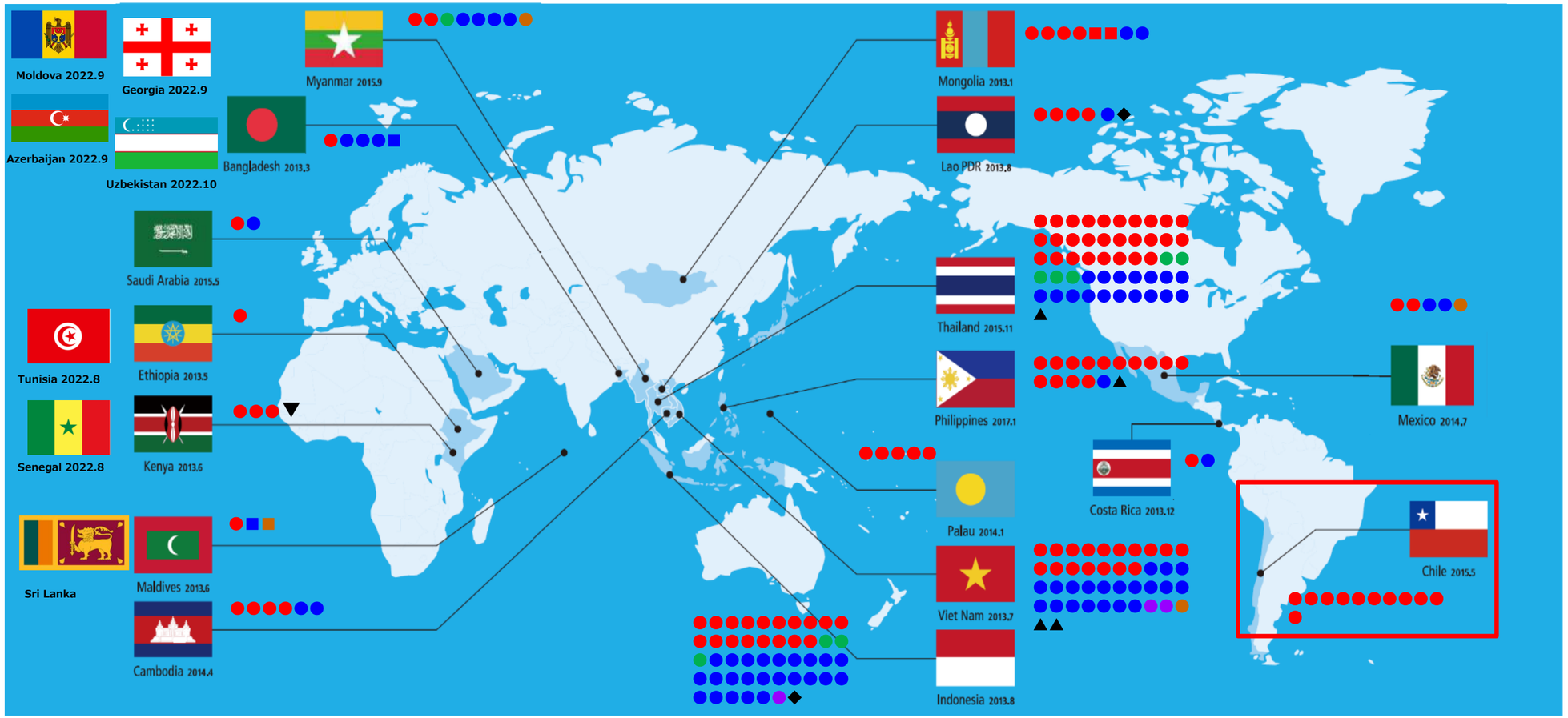
JCM Partnership with Chile



2015.5.26

JCM THE JOINT CREDITING MECHANISM

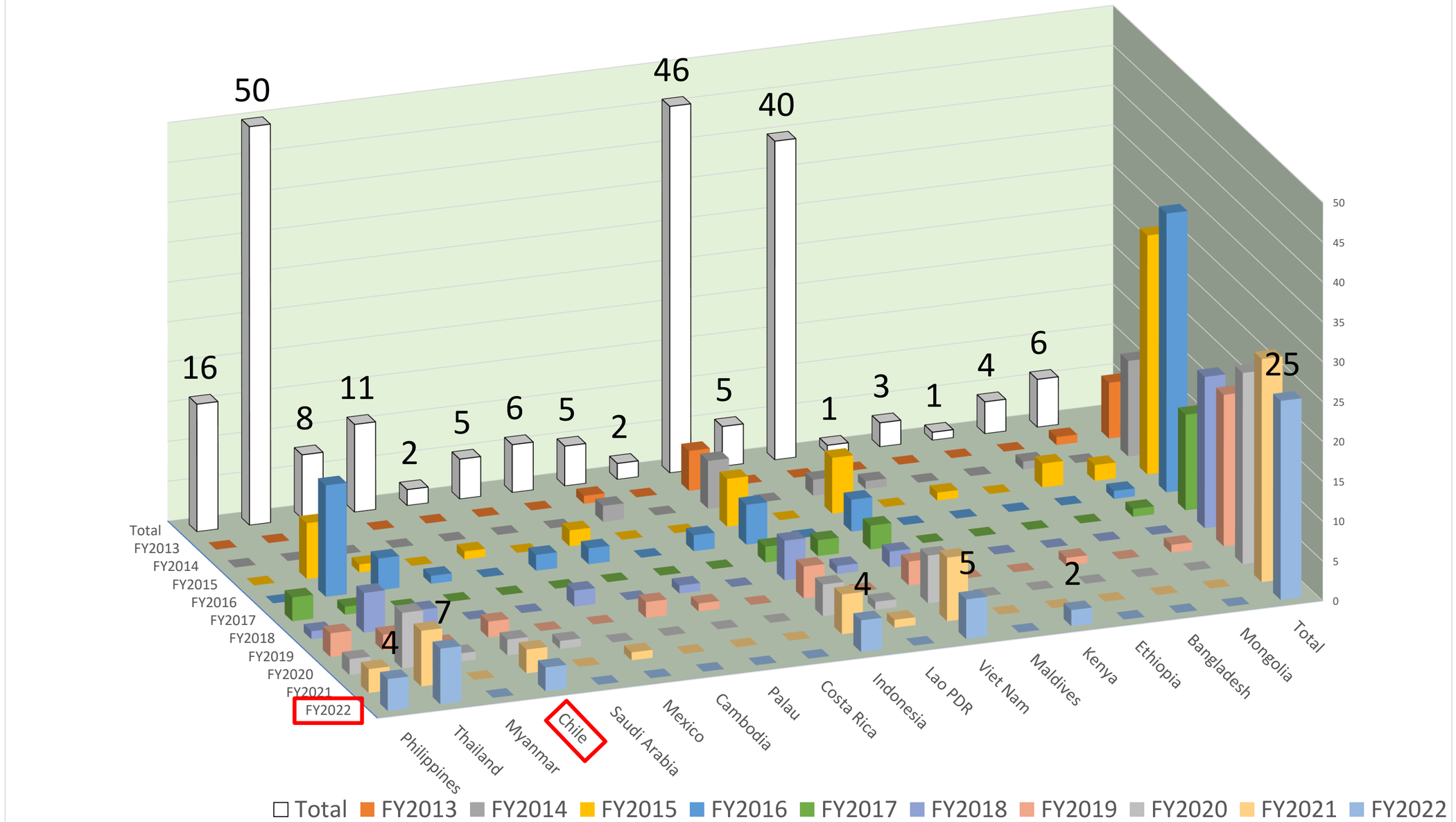
Project Map of JCM Financing Programme : as of Oct. 28



Total 223 projects / 23 countries
(● Model Project:211, ■ ADB:5, ◆ REDD+:2, ▲ F-gas:4, UNIDO▼:1)

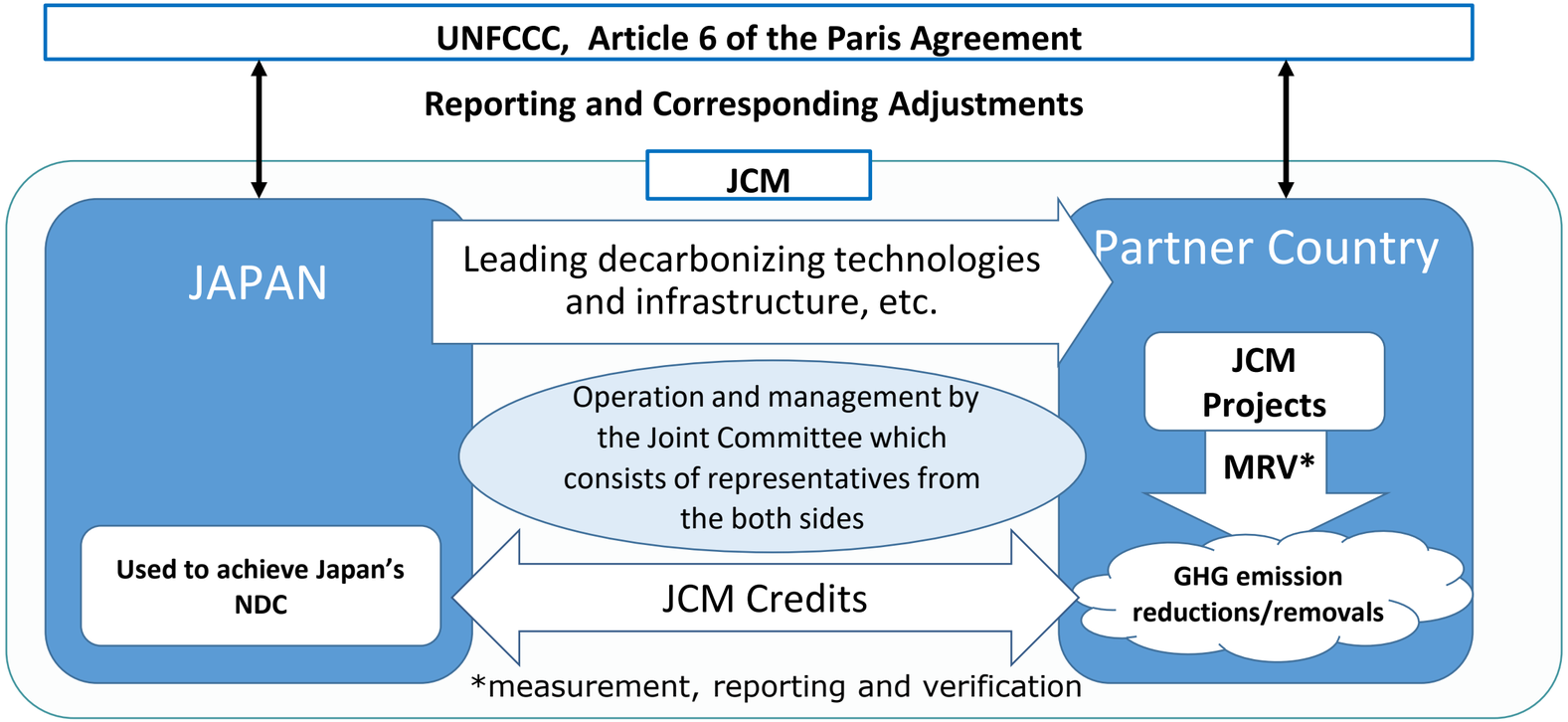
- ● Renewable Energy
- ● Effective Use of Energy
- ● Energy Efficiency
- ● Transport
- ● Waste Handling and Disposal

Model Project by Year and Country



Basic concept of the JCM

- Facilitate diffusion of leading decarbonizing technologies and infrastructure, etc., thereby contributing to GHG emission reductions or removals and sustainable development in partner countries.
- Contribute to the achievement of both countries' NDCs while ensuring the avoidance of double counting through corresponding adjustments.
- Implement the JCM consistent with the guidance on cooperative approaches, referred to in Article 6, paragraph 2 of the Paris Agreement.



Source: The Ministry of Environment, Japan, June 2022

JCM Partner Countries

- Japan has held consultations for the JCM with developing countries since 2011 and has established the JCM with Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Viet Nam, Lao PDR, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand and the Philippines.

Mongolia
Jan. 8, 2013
（Ulaanbaatar）

Bangladesh
Mar. 19, 2013
(Dhaka)

Ethiopia
May 27, 2013
(Addis Ababa)

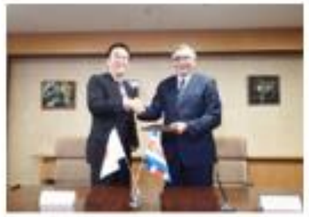
Kenya
Jun. 12, 2013
(Nairobi)

Maldives
Jun. 29, 2013
(Okinawa)

Viet Nam
Jul. 2, 2013
(Hanoi)

Lao PDR
Aug. 7, 2013
(Vientiane)

Indonesia
Aug. 26, 2013
(Jakarta)



Costa Rica
Dec. 9, 2013
(Tokyo)

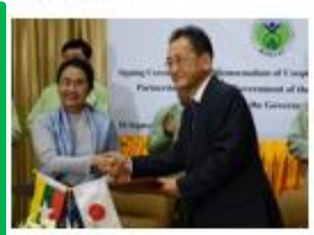
Palau
Jan. 13, 2014
(Ngerulmud)

Cambodia
Apr. 11, 2014
(Phnom Penh)

Mexico
Jul. 25, 2014
(Mexico City)

Saudi Arabia
May 13, 2015

Chile
May 26, 2015
(Santiago)



Myanmar
Sep. 16, 2015
(Nay Pyi Taw)

Thailand
Nov. 19, 2015
(Tokyo)

Philippines
Jan. 12, 2017
(Manila)

Senegal
2022.8.25

Tunisia
2022.8.26

Azerbaijan
2022.9.5

Moldova
2022.9.6

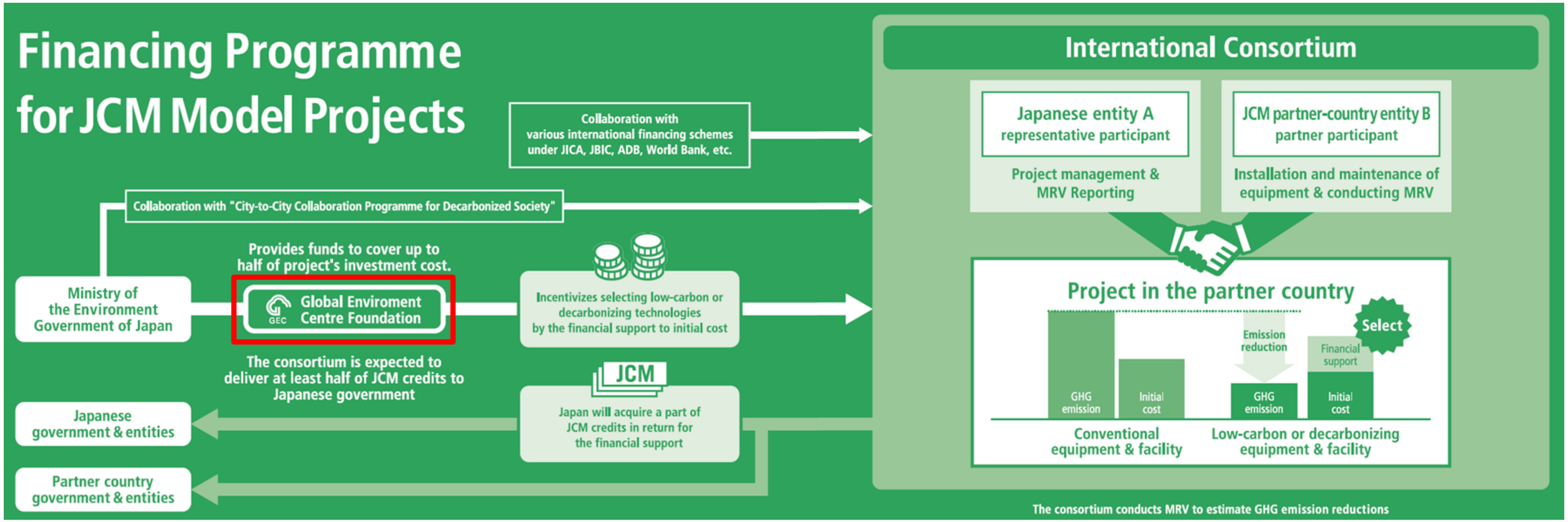
Georgia
2022.9.13

Uzbekistan
2022.10.25

Sri Lanka
2022.10.10

Source: The Ministry of Environment, Japan, February 2022

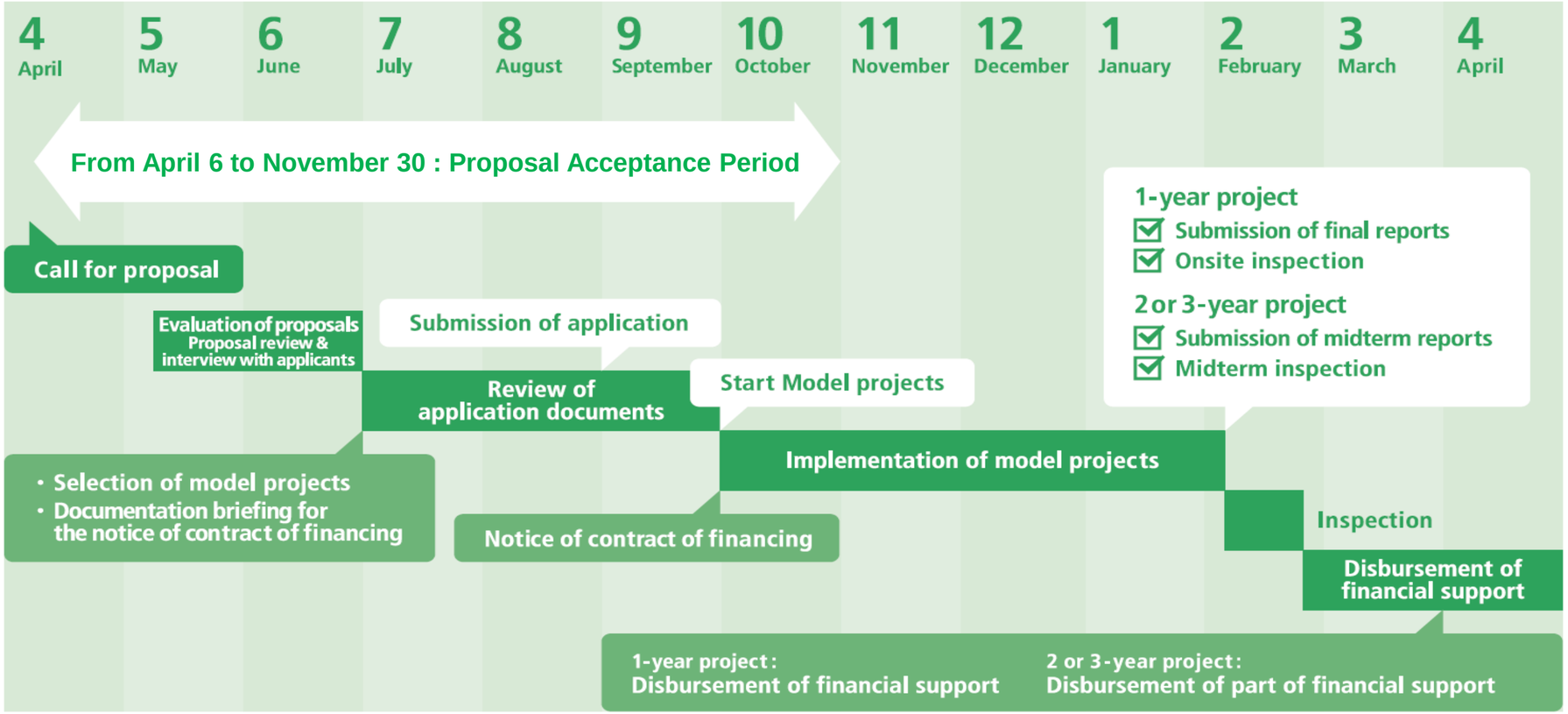
JCM Financing Programme Scheme



Development of JCM Model Projects

Development Step
Matching with a Japanese Partner
↓
Development of proposal and submission to GEC
↓
Announcement of preliminary selection result for financing programme for JCM Model Projects
↓
Development of application documents for contract of finance and submission to GEC
↓
Conclusion of the contract of finance
↓
Starting the JCM Model Project

JCM Model Projects Schedule in FY2022



- Prioritize 23 partner countries that have already established the JCM (as of Oct. 28th 2022).
- Project proposals in other countries are also received.
  - ◆ Adoption is considered in parallel with bilateral negotiations for new partner countries.

Guideline for Submitting JCM model project proposal in FY2022

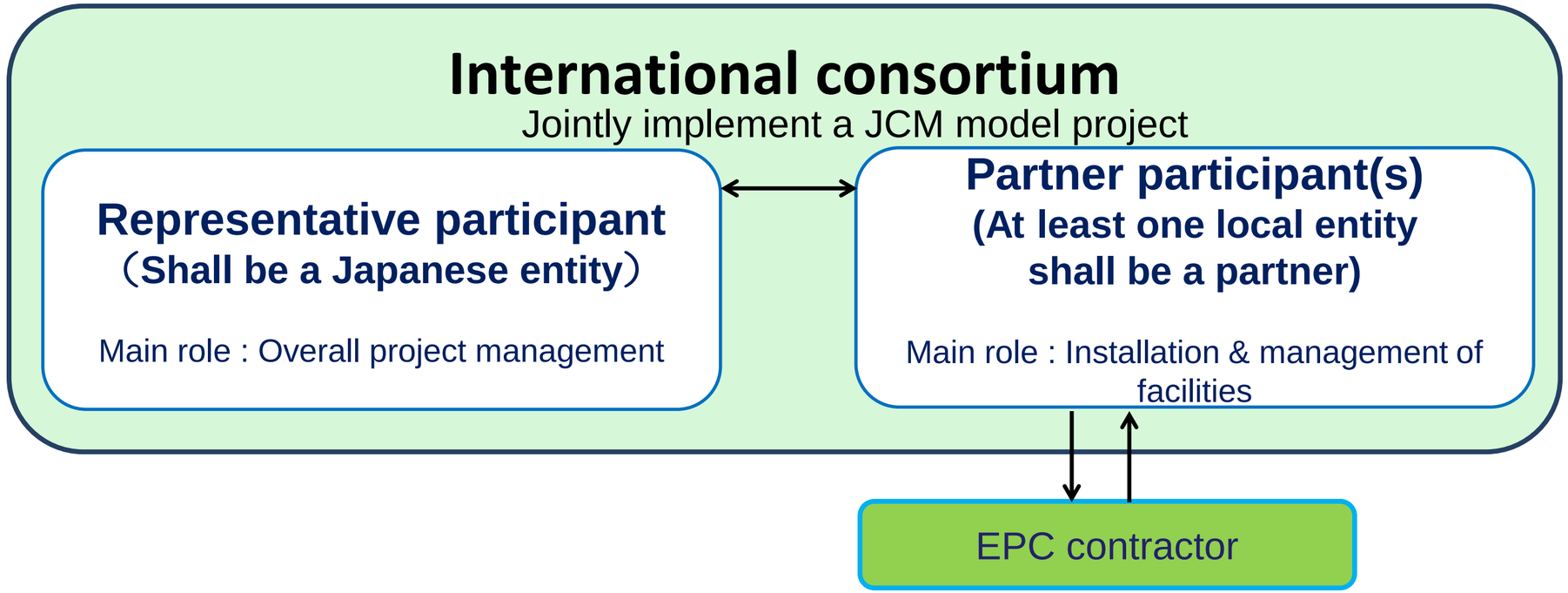
Outline of JCM Model Projects

Budget	**Approx. USD132million for FY2022** *Applied Exchange Rate JPY130/USD
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 JPY 4,000/tCO2eq or lower.** Details are referred in later slide

Suggested size of one model project is within USD1.5 million

Guideline for Submitting JCM model project proposal

International Consortium



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

Guideline for Submitting JCM model project proposal

What kind of projects are supported by Financing Programme?

⇒Excerpt form Guidelines for Submitting Proposals

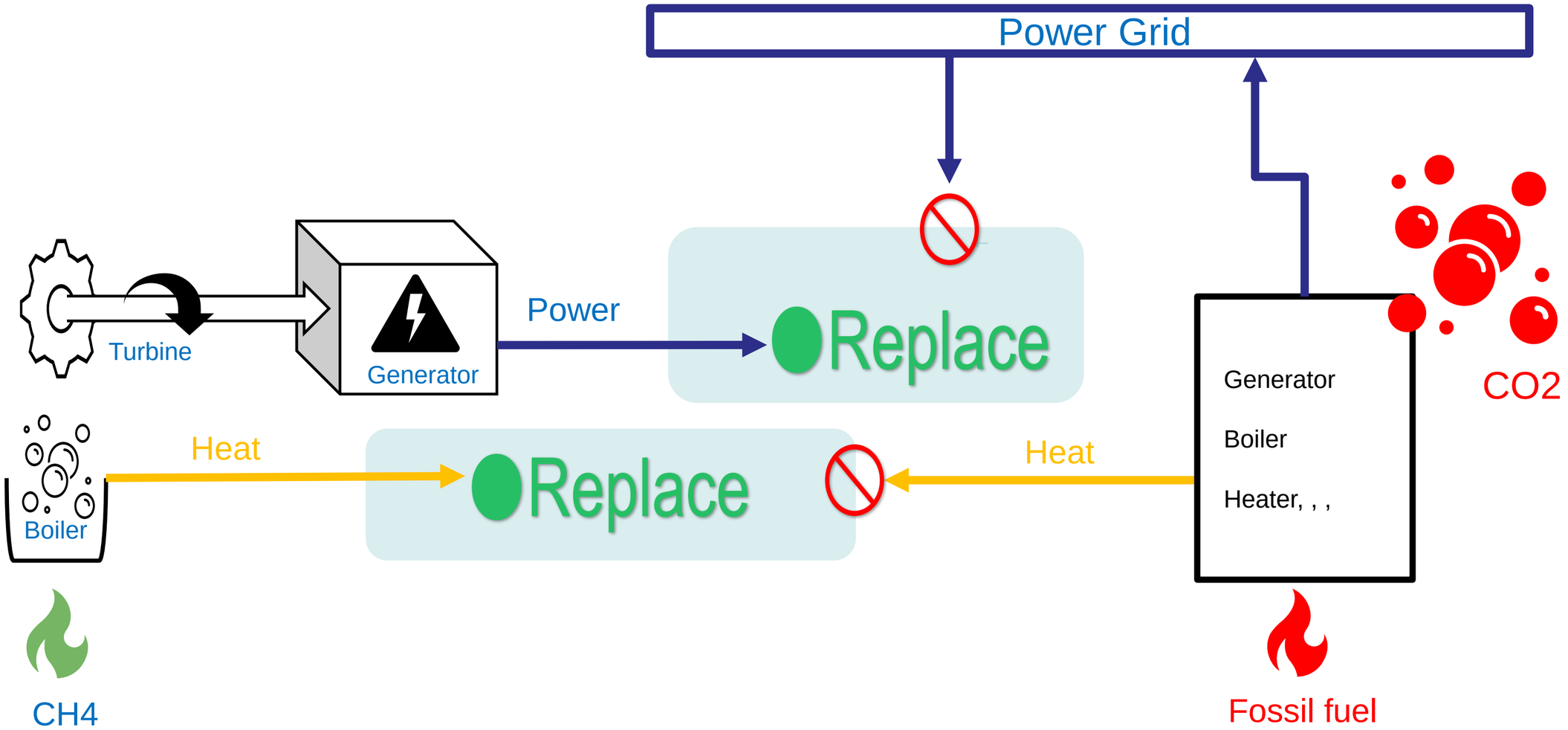
(tentative)2022_Guidelines_for_Submitting_Proposals.pdf (gec.jp)

(a) Projects that reduce energy-related CO2 emissions with leading decarbonizing technologies in developing countries.

(b) Projects contribute to realization of SDGs (Sustainable Development Goals）and shall comply with the relevant laws and regulations of the partner country and international practices regarding the environmental and human rights protection.

(c) Reduction of GHG emissions achieved by the projects can be quantitatively calculated and verified.

Reduce energy-related CO2 emissions



JCM for SDGs

Possible Contribution of Renewable Energy Projects to SDGs

GHG emission reduction can be implemented though renewable energy generation by replacing electric power derived from fossil fuel combustion

- Photovoltaic Generation
- Hydraulic Power Generation
- Wind Power Generation
- Geothermal Generation
- Biomass・Biogas Generation

<Graph Legends>

- Goal to which Renewable Energy Project can contribute
- Common Goal to which JCM Projects can contribute

※The listed goals are no more than recommended examples with high potential to contribute through implementing JCM project. These goals are not limited nor mandatory to contribute.

Planning | **Implementation** | **Operation** | **Decommission**

Consider gender equal access to various benefits from the project such as compensation of land acquisition.

- **Equal rights to basic services (1.4)**
- **・Increase share of renewable energy (7.2)**
- **・Ensure women's participation such as public hearing (5.5)**
- **・Equal rights to ownership and compensation of land acquisition (5.a)**
- **・Reduce air pollution(11.6)**

Reducing consumption of electricity derived from fossil fuel, improve the sustainability of the installed facility such as factory, hotel and hospital.

- **・Increase resource-use efficiency and greater adoption of clean and environmentally sound technologies (9.4)**
- **・Sustainable management and efficient use of natural resources (12.2)**
- **・Environmentally sound management of all wastes throughout their life cycle (12.4)**
- **・Reduce waste generation through prevention, reduction, recycling and reuse (12.5)**

Reduce air and water pollution, noise and vibration by implementing proper disposal and recycling.

- **・Sustainable management of all types of forests (15.2)**

Prevent adverse effects on forestation and biodiversity conducting proper environment assessment according to the laws and regulations in the partner country.

- **・Reduce inequality by procurement with fare price (10.3)**
- **・Publish sustainability reports (12.6)**
- **・Education and training for relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship (4.4)**
- **・Increase employment of women to managerial and technical positions (5.5) and gender sensitive work environment (Guideline on Gender Equality for JCM)**
- **・Full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value. (8.5)**
- **・Adopt supply chain without child labor, exploitation, conflict and corruption. (5.2、8.8、16.2、16.5)**
- **・Take urgent action to combat climate change and its impacts. (13)**
- **・Promote the development, transfer, dissemination and diffusion of environmentally sound technologies (17.7)**
- **・Enhance the global partnership for sustainable development. (17.16)**

MRV for JCM

- Implement a project to reduce GHG emissions utilizing leading decarbonizing technologies
- Conduct Measurement, Reporting and Verification (MRV) of GHG emission reductions.
- Procedures for the issuance of JCM credits;

(a)Registration as JCM Project

Application for registration should be conducted within 1 year from the start of the operation of the facilities/equipment introduced by the project.

(b) Monitoring

Participants shall conduct monitoring to quantitate the effects of the facilities/equipment on GHG emission reductions based on a MRV methodology approved or expected to be approved by the Joint Committee.

(C) Issuance of JCM Credits

Participants shall request for issuance of JCM credits by using the monitoring results. The issuance includes development of a monitoring report, verification by a TPE, and submission of “JCM Credits Issuance Request” to a JCM Joint Committee.

The Participants shall deliver the issued JCM Credits with the percentage decided by the Ministry of the Environment, Japan to the account of Japanese government.

Categorization by applied technology type and Support

Global Environment Centre Foundation

Sector	Technology	Mongolia	Bangladesh	Ethiopia	Kenya	Maldives	Viet Nam	Lao PDR	Indonesia	Costa Rica	Palau	Cambodia	Mexico	Saudi Arabia	Chile	Myanmar	Thailand	Philippine	
		MN	BD	ET	KE	MV	VN	LA	ID	CR	PW	KH	MX	SA	CL	MM	TH	PH	
1. Energy Efficiency	Air Conditioning System						4		1								1	1	7
	Chiller		2				5		4	1		1					5		18
	Refrigerator								1							2	4		7
	Absorption Chiller Using Waste Heat								2								2		4
	Swirling Induction Type Air-conditioning System																1		1
	Fridge and Freezer Showcase								1								1		2
	Boiler	2					2		3				1			2	3		13
	Heat Medium Boiler								1										1
	Double Bundle-type Heat Pump						1		1								1		3
	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								1		3
	LED Lighting with Dimming System						2		1			1							4
	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
	Freaquency 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
	Autoclave								2										2
	Multi-effect Distillation System												1						1
	Injection Modling Machine								1										1
2. Renewable Energy	Solar Power Plant	4	1	1	1	1	9	4	4	1	5	4	2	1	7	1	20	7	73
	Solar Power Plant with Battery								1								1		2
	Small Hydropower Plant								10									2	12
	Wind Power Plant																	1	1
	Geothermal Power (Binary)																	1	1
	Geothermal Power (Flush)																	1	1
	Biomass Power Plant								1			1			1	1			4
	Biogas Power Plant																	1	1
	Biomas boiler						2										1		3
	Biogas boiler															1		1	2
	Biomass Co-generation						1										1		2
3. Effective Use of Energy	Power Generation by Waste Heat Recovery								1							1	1		3
	Gas Co-generation								2								3		5
4. Waste Handling and Disposal	Waste-to-Energy Plant						1									1			2
	Power Generation by Methane Recovery												1						1
5. Transportation	Digital Tachograph System						1												1
	CNG-Diesel Hybrid Bus								1										1
	Reefer Container						1												1
Total	Number of technology : 49	6	4	1	1	1	40	5	45	3	5	8	5	2	8	11	53	15	213

Maximum Percentage of Financial Support

Number of selected project(s) using a similar technology in each country	Percentage of financial support
0	Up to 50%
1 to 3	Up to 40%
More than 3	Up to 30%

- 10% flat for JCM Eco Lease Scheme

Cost-effectiveness of emission reductions

What is the criteria of cost-effectiveness?

JPY4,000/tCO2equivalent

$$= \frac{\text{Amount of financial support[JPY]}}{\text{Emission reductions of GHG [tCO2equivalent/y]} \times \text{legal durable years[y]}}$$

※ 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.

Solar power projects in Viet Nam, Chile, Palau, and Philippine and chiller projects in Viet Nam and Thailand

JPY2,500/tCO2equivalent

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

Hydropower projects in Indonesia

JPY2,000/tCO2equivalent

In case the number of similar technological Projects in each country is 20 or more.

Solar power projects in Thailand

NOTE: Cost effectiveness guide for a solar power project (except Thailand) : 2,500JPY/tCo2eq
Hydropower project : 500JPY/tCo2eq

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.

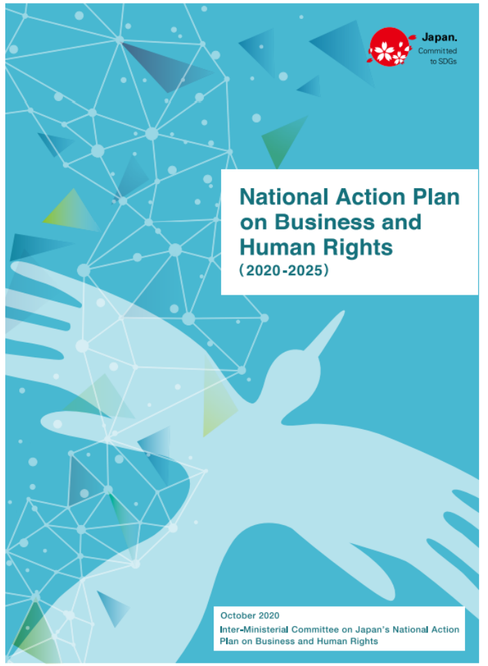
★JCM Eco Lease scheme：Monitoring period is equal to the leasing period（Minimum five years）

Guideline for Submitting JCM model project proposal

Eligibility Criteria #13

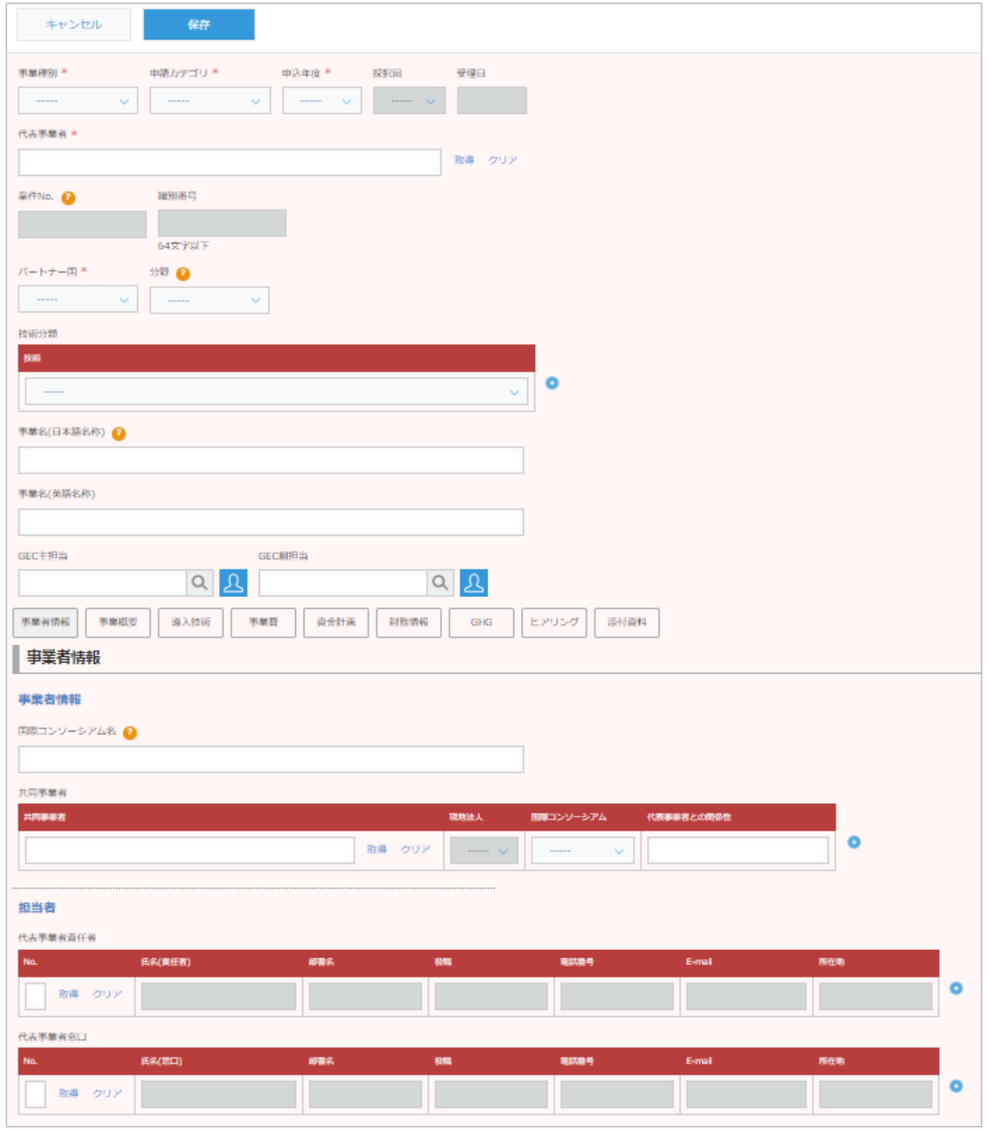
- Is the company taking the best possible measures to respect human rights (introduction of human rights due diligence process, dialogue with stakeholders, etc.) under its own responsibility in accordance with the Action Plan on Business and Human Rights (2020-2025) (the Inter-Ministerial Committee for Japan's National Action Plan on Business and Human Rights in October 2020)?

https://www.mofa.go.jp/files/100173319.pdf



Electronic Application

Paperless → IT Solution → Digital Transformation



Agenda

1. JCM Model Projects Overview
2. **Selection 2022**
3. Project Trend
4. Trend in Chile
5. Conclusion

1st Selection of Projects in FY2022

Global Environment Centre Foundation

Partner Country	Representative Participant	Project Name	Sector	Estimated GHG Reduction tCO2/year)
Kenya	AAIC Japan Co., Ltd.	Introduction of 3.1MW Rooftop Solar Power System to Food Processing Facilities	Renewable Energy	2,454
Kenya	AAIC Japan Co., Ltd.	Introduction of 2.3MW Rooftop Solar Power System to Hatchery, Meat Processing and Battery Facilities	Renewable Energy	1,735
Vietnam	eREX Co.,Ltd.	20MW Biomass Power Plant Project in Hau Giang Province	Renewable Energy	36,814
Vietnam	Kanematsu KGK Corp.	16MW Mini Hydro Power Plant Project in Binh Thuan Province	Renewable Energy	16,910
Vietnam	The Kansai Electric Power Company, Incorporated	Energy Supply Project by 7.9MW Rooftop Solar Power System to Automotive and Garment Factories	Renewable Energy	2,634
Vietnam	Sumitomo Mitsui Trust Panasonic Finance Co., Ltd.	Introduction of 0.4MW Rooftop Solar Power System to Aluminum Wheel Manufacturing Factory (JCM Eco Lease Scheme)	Renewable Energy	156
Indonesia	DIC Corporation	Introduction of High-efficiency Once-through Boiler System to Chemical Factory	Energy Efficiency Improvement	1,652
Thailand	The Kansai Electric Power Company, Incorporated	Introduction of Gas Co-generation System and 22MW Rooftop Solar Power System to Tire Factory	Energy Efficiency Improvement/ Renewable Energy	31,652
Thailand	AGC Inc.	Introduction of ORC Waste Heat Recovery Power Generation System to Flat Glass Factory	Effective Use of Energy	7,845
Thailand	The Kansai Electric Power Company, Incorporated	Energy Supply Project by 4.3MW Rooftop Solar Power System to Parts and Tools Factories	Renewable Energy	1,926
Thailand	Osaka Gas Co., Ltd.	Energy Supply Project by 2.9MW Rooftop Solar Power System to Metal Factories and Refrigerating Warehouse	Renewable Energy	1,150
Thailand	Marubeni Corporation	Energy Supply Project by 1MW Rooftop Solar Power Project for Metal Recycling and Automotive Parts Factories	Renewable Energy	403
Philippines	JGC CORPORATION	28MW Binary Power Generation Project at Mahanagdong Geothermal Power Plant	Renewable Energy	76,220
Philippines	Toyota Tsusho Corporation	14.5MW Mini Hydro Power Plant Project in Siguil River in Mindanao	Renewable Energy	47,349
Philippines	Marubeni Corporation	Energy Supply Project by 9MW Solar Power System to Ceramic Factory and Cement Plant	Renewable Energy	5,957
Philippines	Tokyo Century Corporation	Introduction of 0.8MW Solar Power System to Aluminum Products, Packaging Materials and Automotive Parts Factories (JCM Eco Lease Scheme)	Renewable Energy	544

Newly selected Representative Participant

2nd and 3rd Selection of Projects in FY2022

Partner Country	Representative Participant	Project Name	Sector	Estimated GHG Reduction tCO2/year)
Indonesia	Toyota Motor Corporation	Introduction of 5MW Solar Power System to Vehicle and Engine Plants	Renewable Energy	3,788
Chile	FARMLAND Co., Ltd.	6MW Solar Power Project Utilizing Farmland in Maule and Nuble Region	Renewable Energy	4,400
Thailand	Dole Japan, Inc.	Thermal Energy Supply and Methane Avoidance Project Utilizing Biomass mixed with Biogas from Wastewater in Fruit Processing Factory	Renewable Energy	43,343
Thailand	Tokyo Century Corporation	Introduction of 1.6MW Solar Power System to Plastic Bottles and Cosmetics Factories (JCM Eco Lease Scheme)	Renewable Energy	595
Vietnam	Marubeni Corporation	Introduction of 5.7MW Rooftop Solar Power System to Fastener and Aluminum Factories	Renewable Energy	1,416
Indonesia	Alamport Inc.	Introduction of 3.1MW Rooftop Solar Power System to Fast-Moving Consumer Goods and Printing Factories in Java Island	Renewable Energy	2,658
Indonesia	Tokyo Century Corporation	Introduction of 2.1MW Solar Power System to Steel Wire Products and Aluminum Factories	Renewable Energy	1,747
Chile	Eurus Energy Holdings Corporation	9MW Second Solar Power Project in Yungay, Biobio Region	Renewable Energy	8,342
Chile	Eurus Energy Holdings Corporation	9MW Solar Power Project in Teno, Maule Region	Renewable Energy	8,239

Newly selected Representative Participant

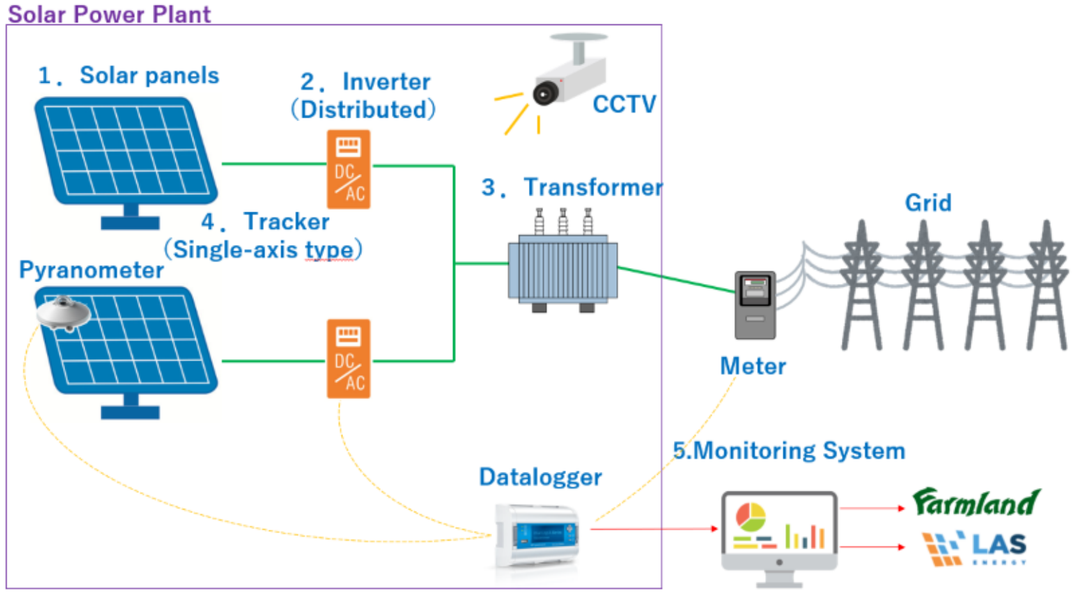
Please wait for the next selection result!

6MW Solar Power Project Utilizing Farmland in Maule and Nuble Region

PP (Japan):Farmland Co., Ltd., PP (Chile): Farmdo Energy Chile SpA., Land and Sea SpA

Outline of GHG Mitigation Activity

This project aims to reduce greenhouse gas (GHG) emissions by replacing power from the grid for that from a 6MW (3MWx2) photovoltaic power generation facility (with single axis trackers) on farmlands in Maule and Nuble Region.
It contributes to the achievement of Chile's policy of 100% decarbonization in 2050 by participating in Pequenos Medios de Generacion Distribuida (PMGD) program established by the Chilean government and selling electricity to a power distribution company.



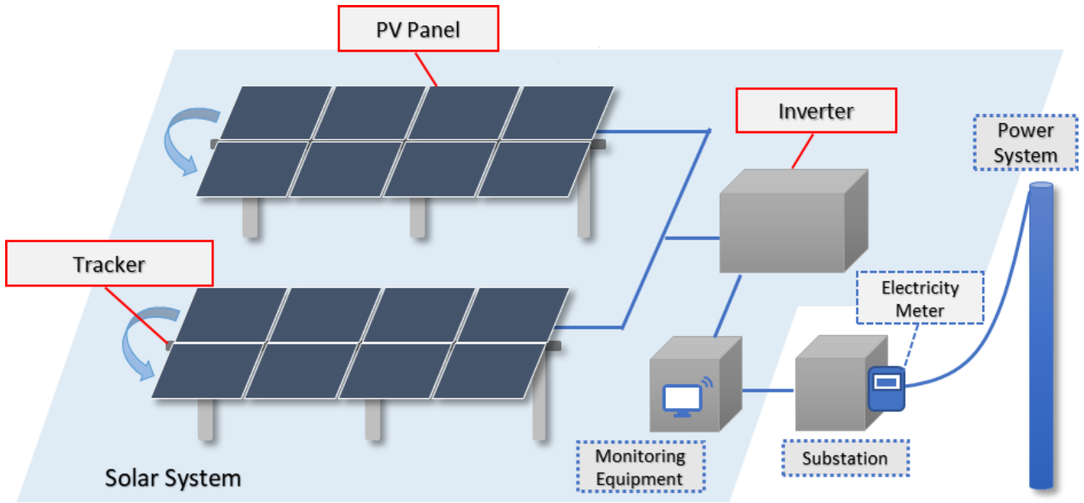
9MW Second Solar Power Project in Yungay, Biobio Region

PP (Japan): Eurus Energy Holdings Corporation, PP (Chile): Eurus Energy Chile SpA, Ravenna Solar SpA

Outline of GHG Mitigation Activity

The second 9 MW solar power system is installed in Yungay, Biobio Region.
The generated electricity replaces a portion of grid electricity with renewable energy and reduces greenhouse gas (GHG) emissions.

This project contributes to the achievement of Chile's policy for a renewable energy ratio target of 70% in 2050.



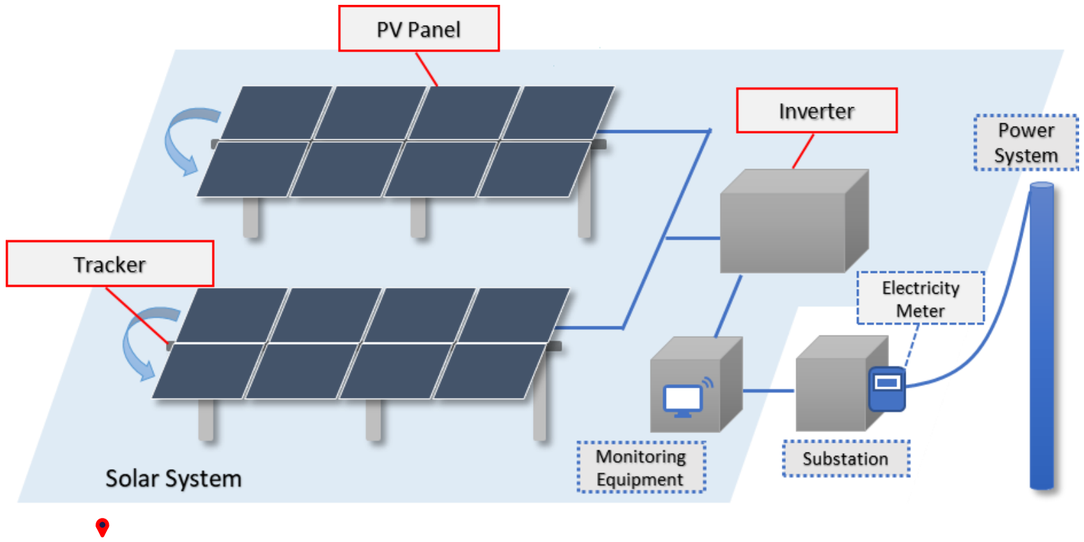
9MW Solar Power Project in Teno, Maule Region

PP (Japan): Eurus Energy Holdings Corporation, PP (Chile): Eurus Energy Chile SpA, Venezia Solar SpA

Outline of GHG Mitigation Activity

9 MW solar power system is installed in Teno, Maule Region. The generated electricity replaces a portion of grid electricity with renewable energy and reduces greenhouse gas (GHG) emissions.

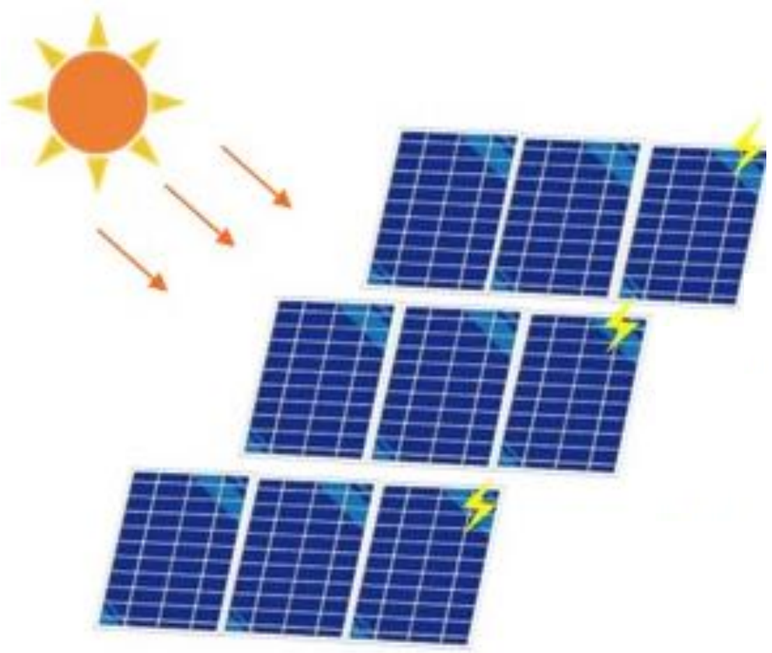
This project contributes to the achievement of Chile's policy for a renewable energy ratio target of 70% in 2050.



Guideline for Solar Power Module

Define selection base for Solar Power technology

- Solar Power Module
- Solar Power Plant with Battery



Photovoltaic module:
Conversion rate of 20% or higher, from optical to electric energy

Technology	JCM Methodology	Mongolia	Bangladesh	Ethiopia	Kenya	Maldives	Viet Nam	Lao PDR	Indonesia	Costa Rica	Palau	Cambodia	Mexico	Saudi Arabia	Chile	Myanmar	Thailand	Philippine	
		MN	BD	ET	KE	MV	VN	LA	ID	CR	PW	KH	MX	SA	CL	MM	TH	PH	
Solar Power Plant	MN_AM003, BD_AM002, KE_AM002, MV_AM001, VN_AM007, LA_AM002, ID_AM013, CR_AM001, PW_AM001, KH_AM002, MX_AM001, CL_AM001, TH_AM001, PH_AM002	4	1	1	1	1	9	4	4	1	5	4	2	1	7	1	20	7	73

Guideline for Submitting JCM model project proposal

Conditions for Adoption by Technology (Solar Power Plant with Battery)

Photovoltaic(PV) module:

Conversion rate of 20% or higher, from optical to electric energy

Battery

(1) Charges only the power generated by PV modules introduced, and the power supplied from the battery is measured.

(2) Necessity

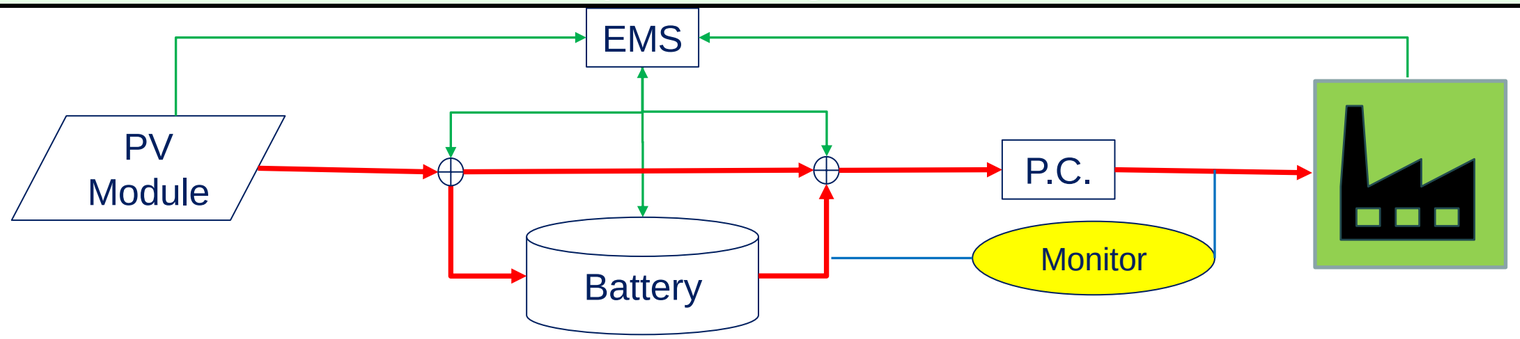
1) Introduction to off-the-grid areas

2) Installation of batteries is required to connect grid by laws or regulations

3) For self-consumption in factories or local power supply business

(a) The battery should be charged and discharged every day

(b) The battery capacity is 20% or larger than wattage of PV module installed, and within maximum daily base chargeable amount



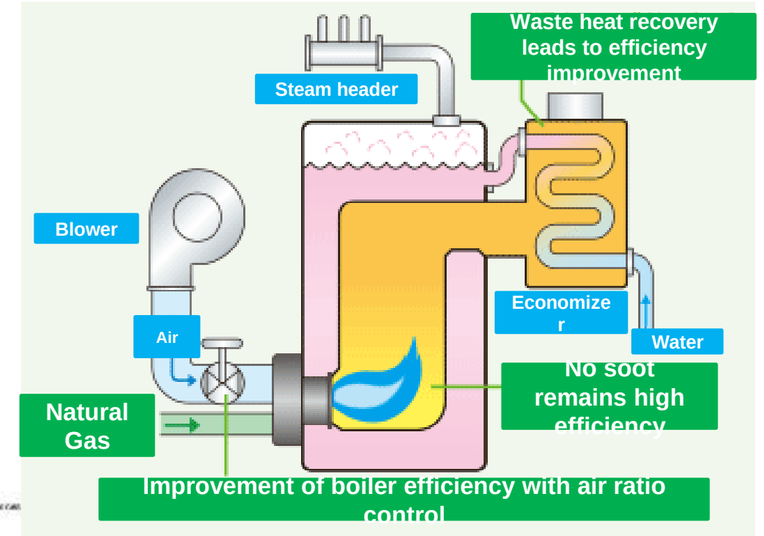
Technology	JCM Methodology	Mongolia	Bangladesh	Ethiopia	Kenya	Maldives	Viet Nam	Lao PDR	Indonesia	Costa Rica	Palau	Cambodia	Mexico	Saudi Arabia	Chile	Myanmar	Thailand	Philippine	
		MN	BD	ET	KE	MV	VN	LA	ID	CR	PW	KH	MX	SA	CL	MM	TH	PH	
Solar Power Plant with Battery	MV_AM002, ID_AM017, CL_AM002								1								1		2

Introduction of High-efficiency Once-through Boiler System to Chemical Factory

PP (Japan): DIC Corporation, PP (Indonesia): PT. DIC GRAPHICS

Outline of GHG Mitigation Activity

This project reduces energy consumption and greenhouse gas (GHG) emissions by installing natural gas-fired high-efficiency once-through boiler system in the factory where coal-fired boiler mainly has been used.

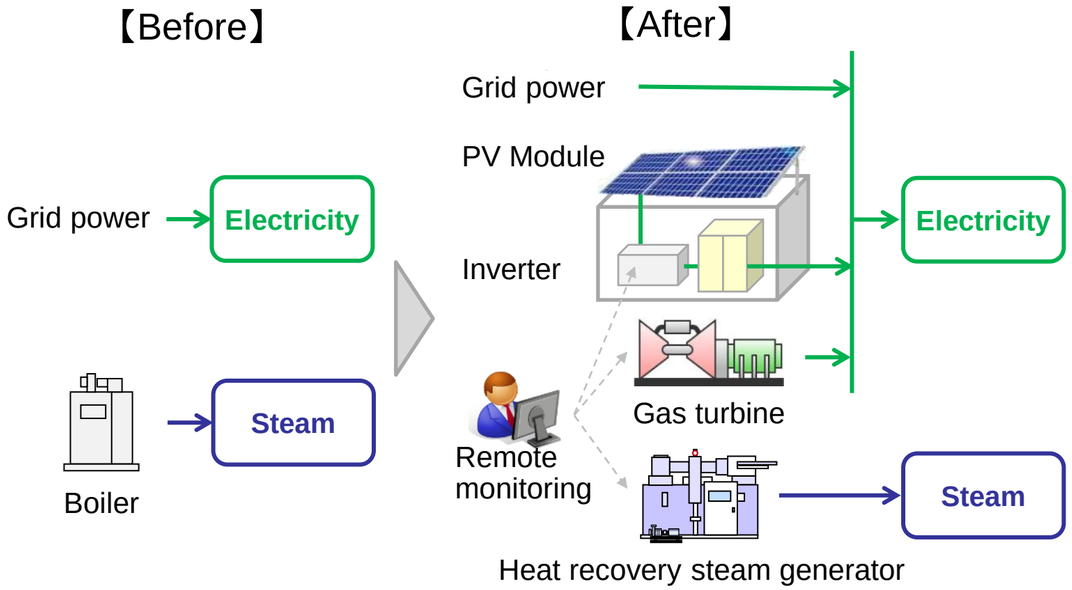


Introduction of Gas Co-generation System and 22MW Rooftop Solar Power System to Tire Factory

PP (Japan): The Kansai Electric Power Company, Incorporated　PP (Thailand): Kansai Energy Solutions (Thailand) Co., Ltd.

Outline of GHG Mitigation Activity

A Gas Co-generation System (6.6MW class × 2 units) and a Rooftop Solar Power System (total of about 22 MW) are installed to the tire factory, and all the generated power and steam are supplied to replace those consumed in the factory.
These high-efficient systems and renewable energy sources realize energy saving, stable energy supply, and reduction in green house gas (GHG) emissions.



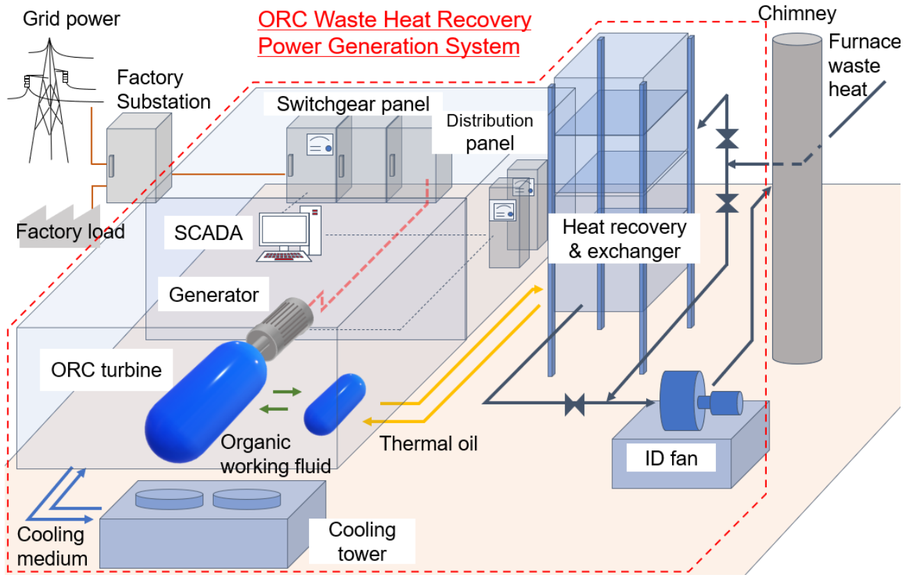
Introduction of ORC Waste Heat Recovery Power Generation System to Flat Glass Factory

PP (Japan): AGC Inc. , PP (Thailand): AGC Flat Glass (Thailand) Plc.

Outline of GHG Mitigation Activity

A 1.8MW class ORC* waste heat recovery power generation system is introduced to the flat glass manufacturing factory located in Samut Prakan province for self-consumption purposes. The system reduces greenhouse gas (GHG) emissions by substituting part of grid power consumption. This project contributes to the achievement of Thailand policy for energy saving and reduction of CO_2 emissions.

* ORC: Organic Rankine Cycle

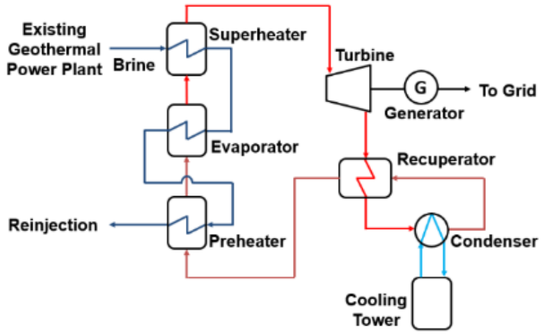


28MW Binary Power Generation Project at Mahanagdong Geothermal Power Plant

PP (Japan): JGC Corporation PP (Philippines): Energy Development Corporation

Outline of GHG Mitigation Activity

The project involves the introduction of a new 28 MW binary geothermal power plant to the existing 120 MW flash geothermal power plant owned and operated by the partner participant in the Mahanagdong district of Leyte Island. As a superior decarbonization technology, Organic Rankine Cycle technology is adopted to enable geothermal power generation at relatively low temperatures, resulting in clean and stable power generation.
This project contributes to the achievement of Philippines' policy for a renewable energy ratio target of 35% in 2030.



Note to the picture:

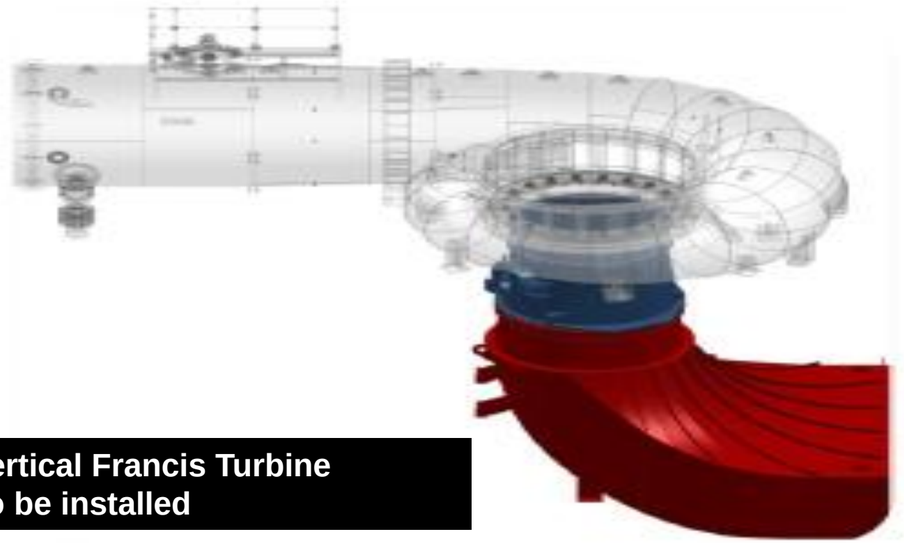
Upper right：Existing flash type geothermal power plant

Red Frame：New binary geothermal power plant

16MW Mini Hydro Power Plant Project in Binh Thuan Province
PP (Japan): Kanematsu KGK Corp. PP (Vietnam): SONG LUY ENERGY JOINT STOCK COMPANY.

Outline of GHG Mitigation Activity

This project installs 16MW (2 of 8MW) mini hydro power plant systems with Vertical Francis Turbines in Binh Thuan Province.
The electricity generated by the hydro power plant is sold to the grid.
The project contributes to Vietnam's target to reduce greenhouse gas (GHG) emissions by replacing grid power for renewable energy.
This project also contributes to growths in energy supply and economy in the region.



Vertical Francis Turbine
To be installed

20MW Biomass Power Plant Project in Hau Giang Province

PP (Japan): eREX Co., Ltd., PP (Vietnam): Hau Giang Bioenergy Joint Stock Company

Outline of GHG Mitigation Activity

In Hau Giang Province, a 20 MW biomass power plant project is to generate power by burning rice husks produced in the adjacencies. The electricity is sold to the Vietnam Electricity to replace the grid power and to reduce greenhouse gas (GHG) emissions.

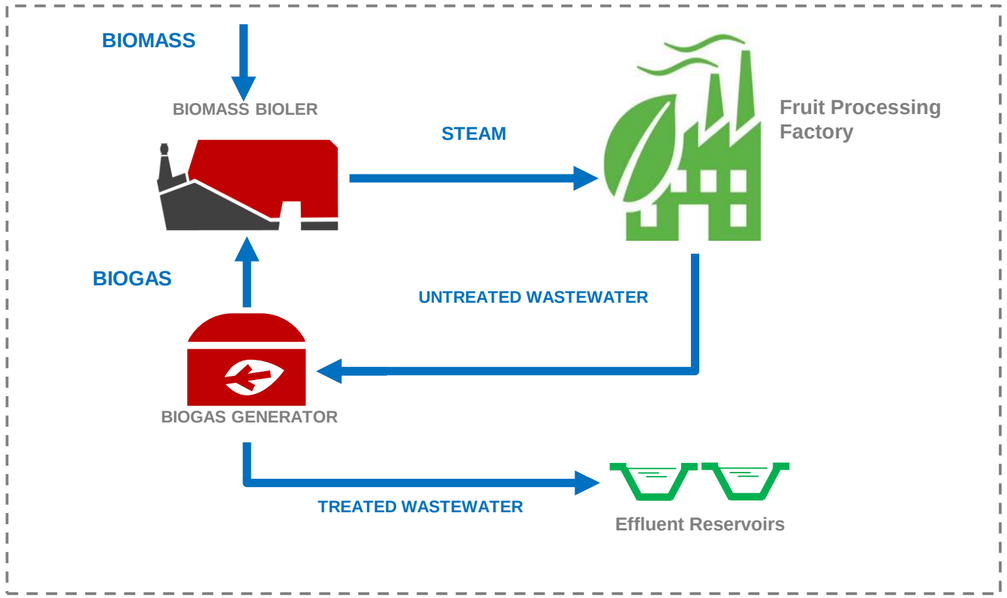
This is the first biomass power plant for commercial use in Vietnam and contributes to the country to achieve its Paris Agreement goal to "reduce greenhouse gas emissions by 9% in 2030 compared to cases where no counter measures are taken."

Thermal Energy Supply and Methane Avoidance Project Utilizing Biomass mixed with Biogas from Wastewater in Fruit Processing Factory

PP (Japan): Dole Japan, Inc., PP (Thailand): BECIS Bioenergy (Thailand) Co., Ltd., Dole Thailand Ltd.

Outline of GHG Mitigation Activity

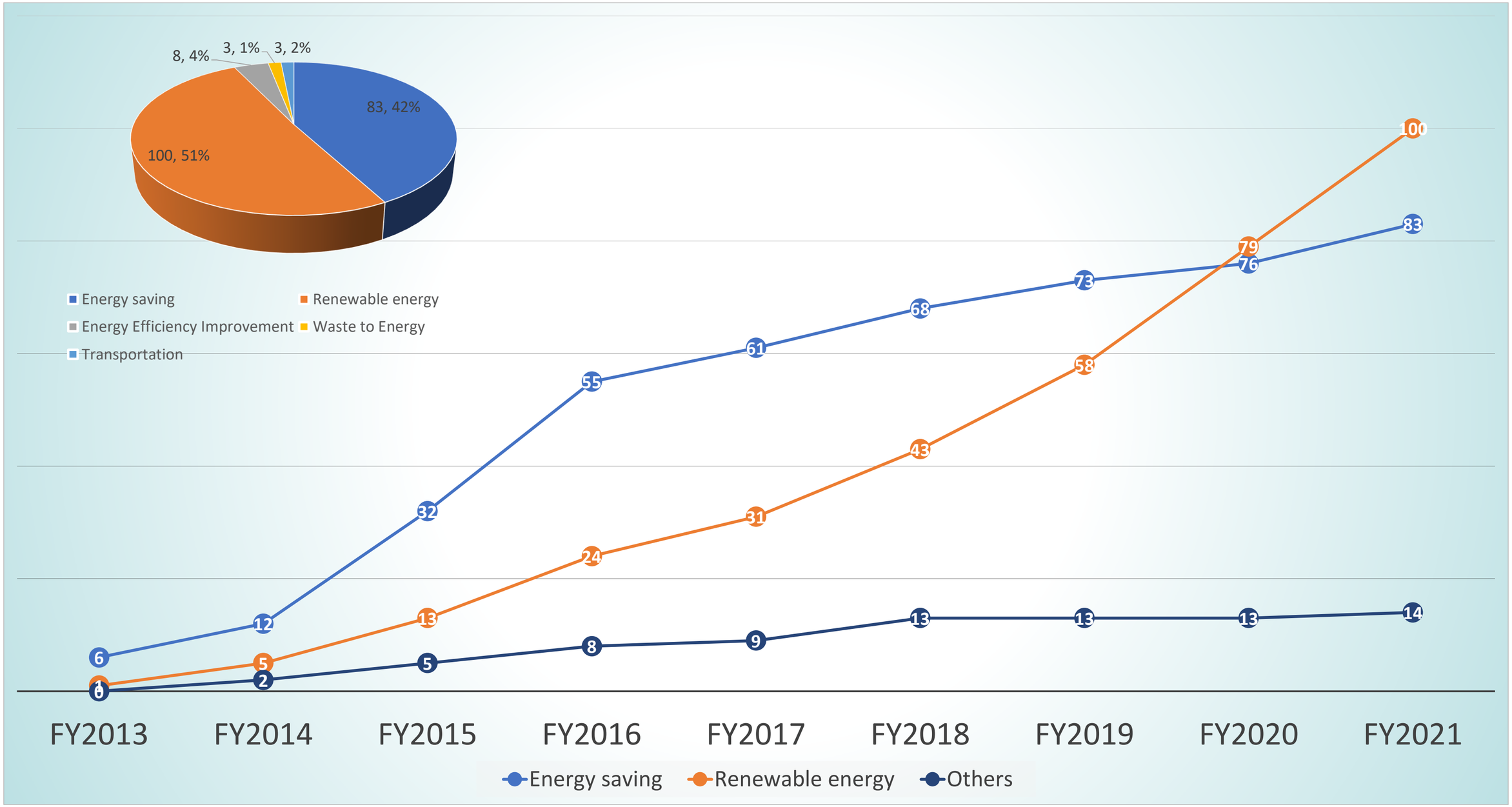
This project aims to reduce greenhouse gas (GHG) emissions by replacing the existing fossil fuel boiler with an alternative heat generation process where biogas generated from wastewater discharged from the fruit processing factory of Dole Thailand in Hua Hin, Prachuap Khiri Khan Province is mixed and burned with coconut husk and other biomass in a newly introduced boiler.
Furthermore, the project avoids methane emission by introducing a new biogas generator to treat wastewater discharged from the factory into the effluent reservoirs at the factory site.



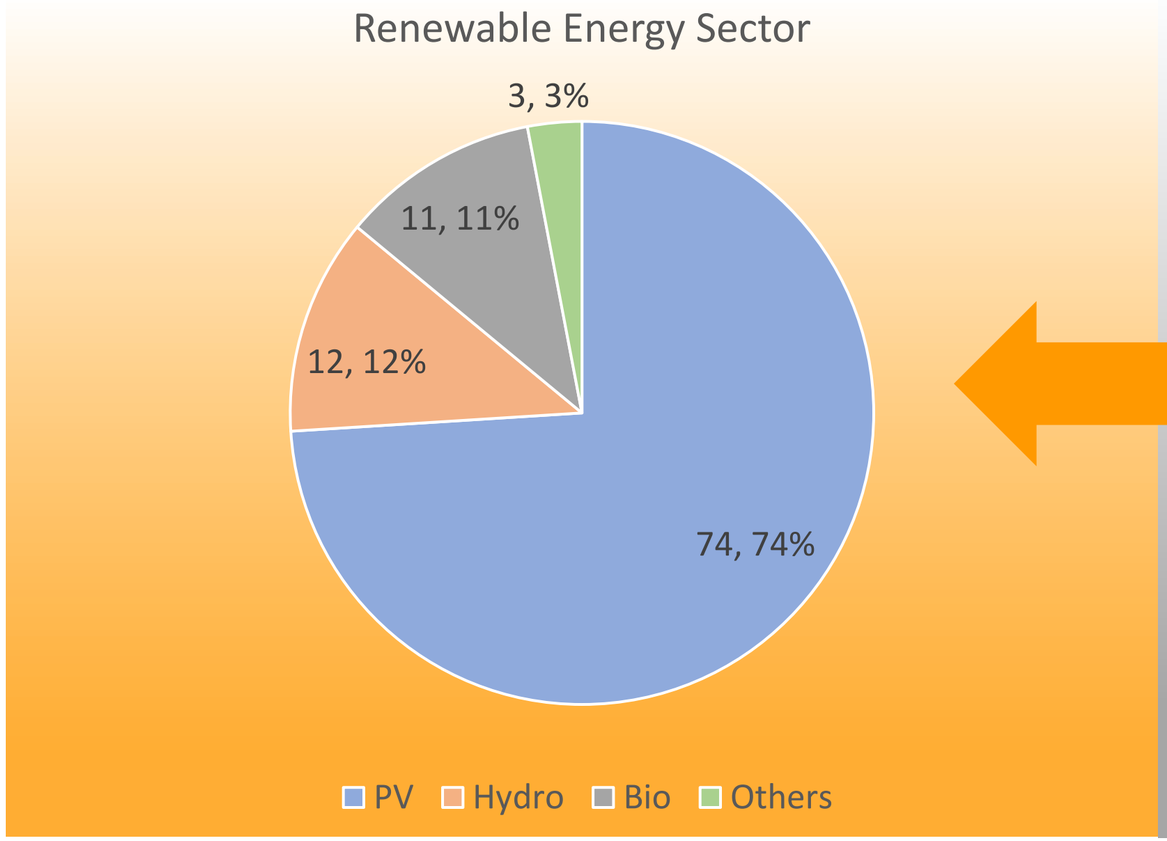
Agenda

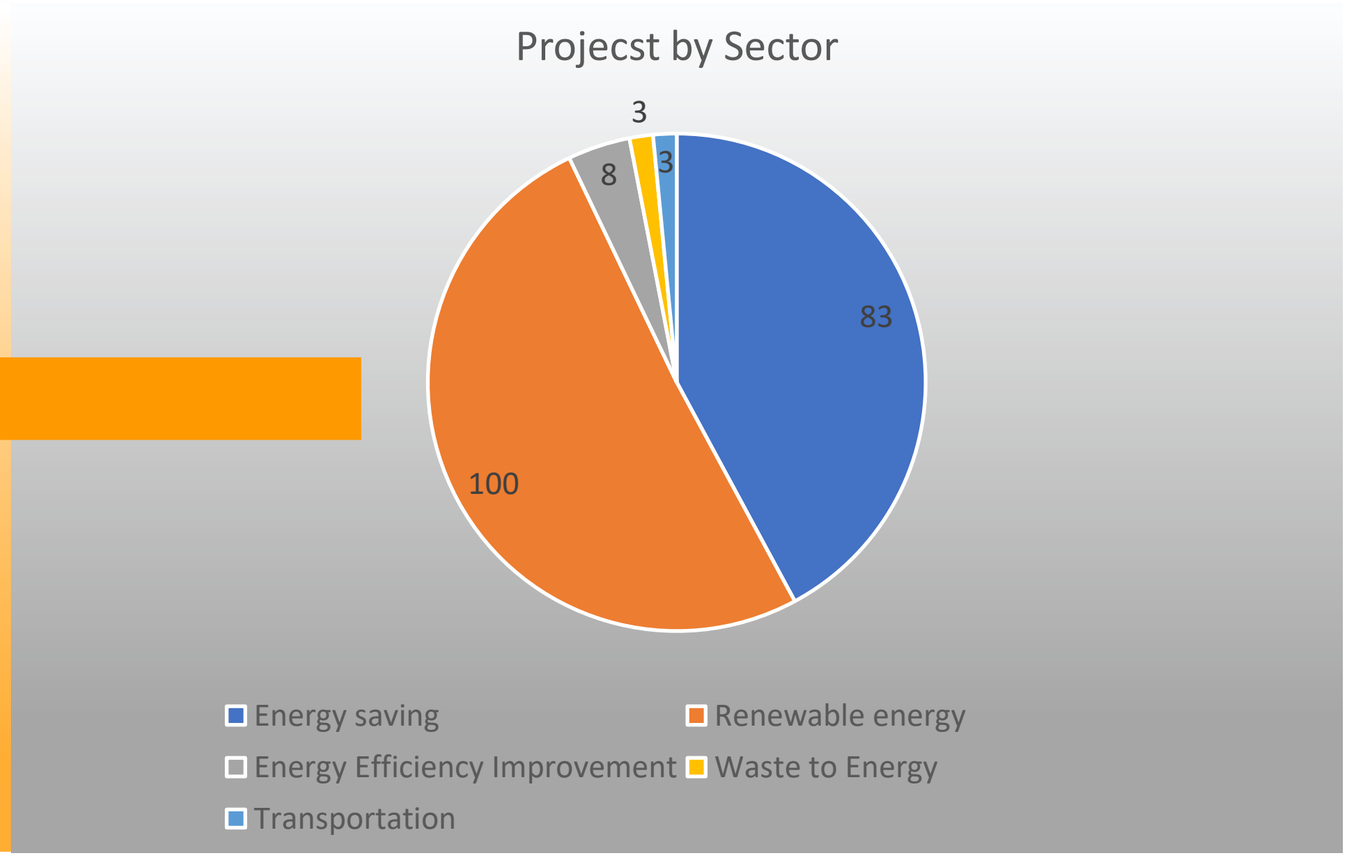
1. JCM Model Projects Overview
2. Selection in 2022
3. **Project Trend**
4. Trend in Chile
5. Conclusion

Projects by Sector

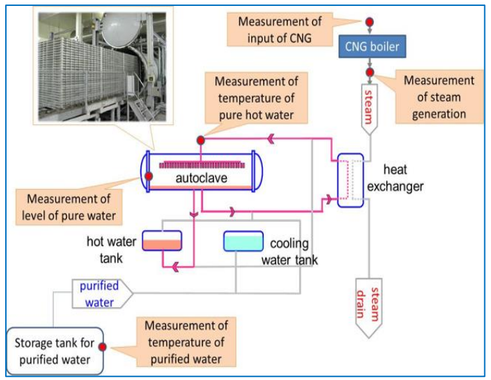


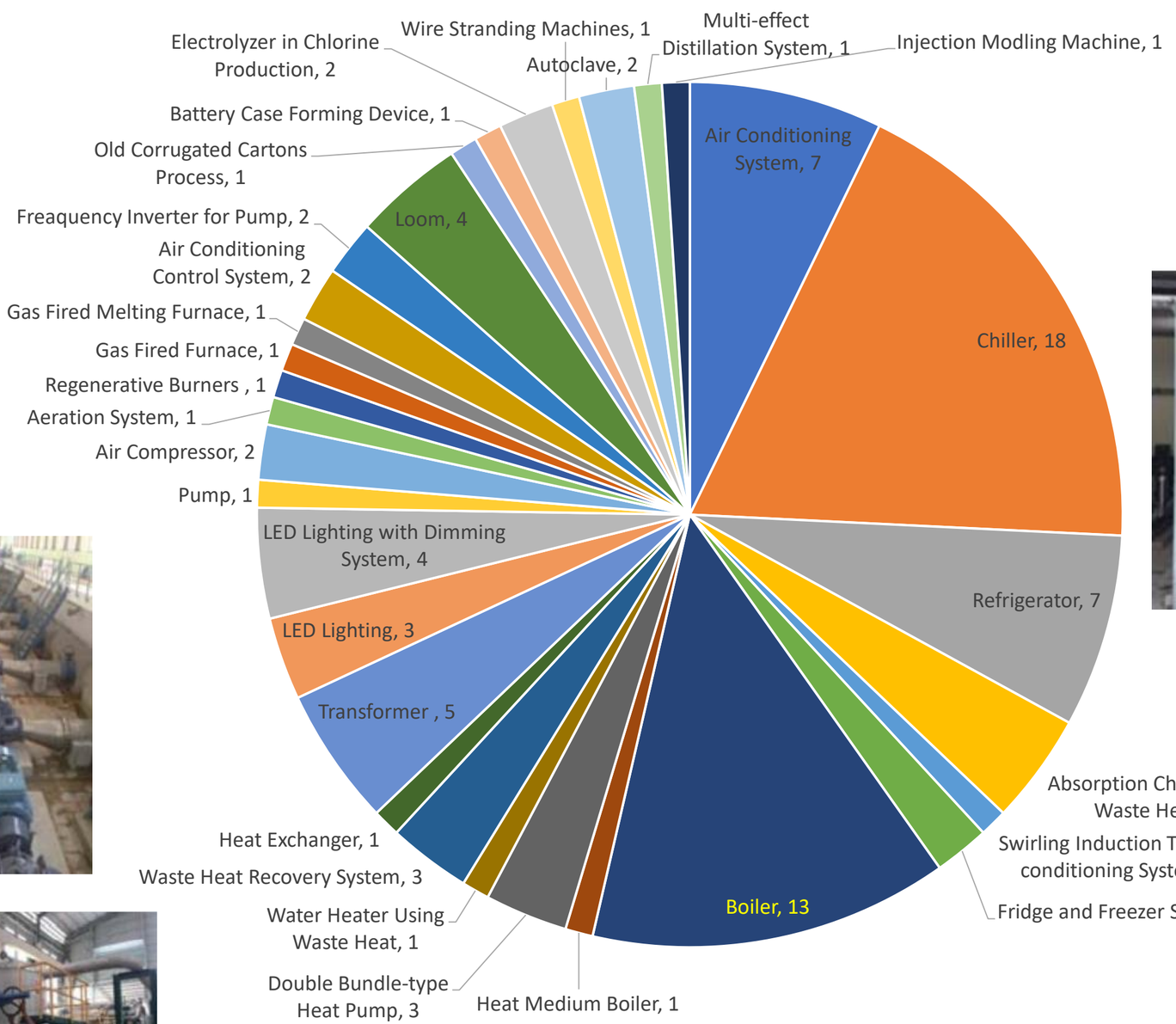
Renewable Energy Projects





Energy Saving Projects





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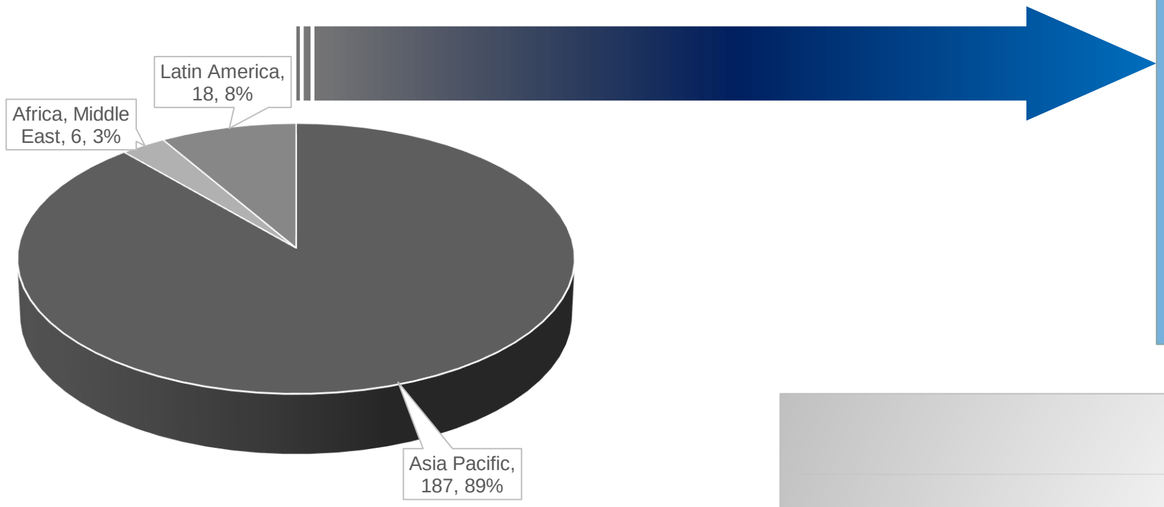
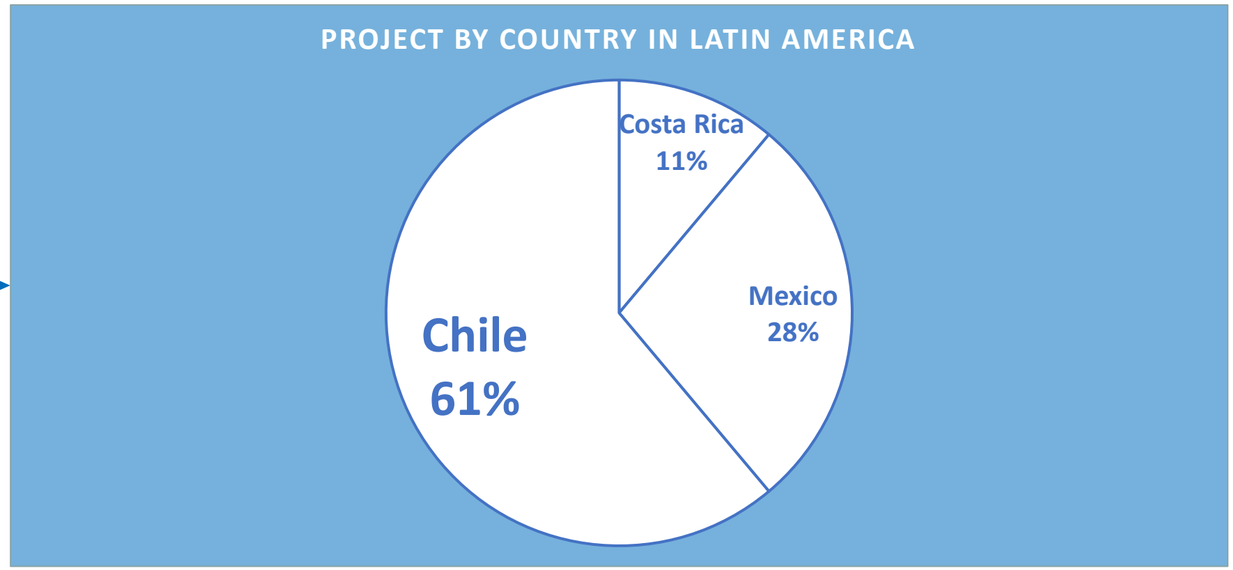
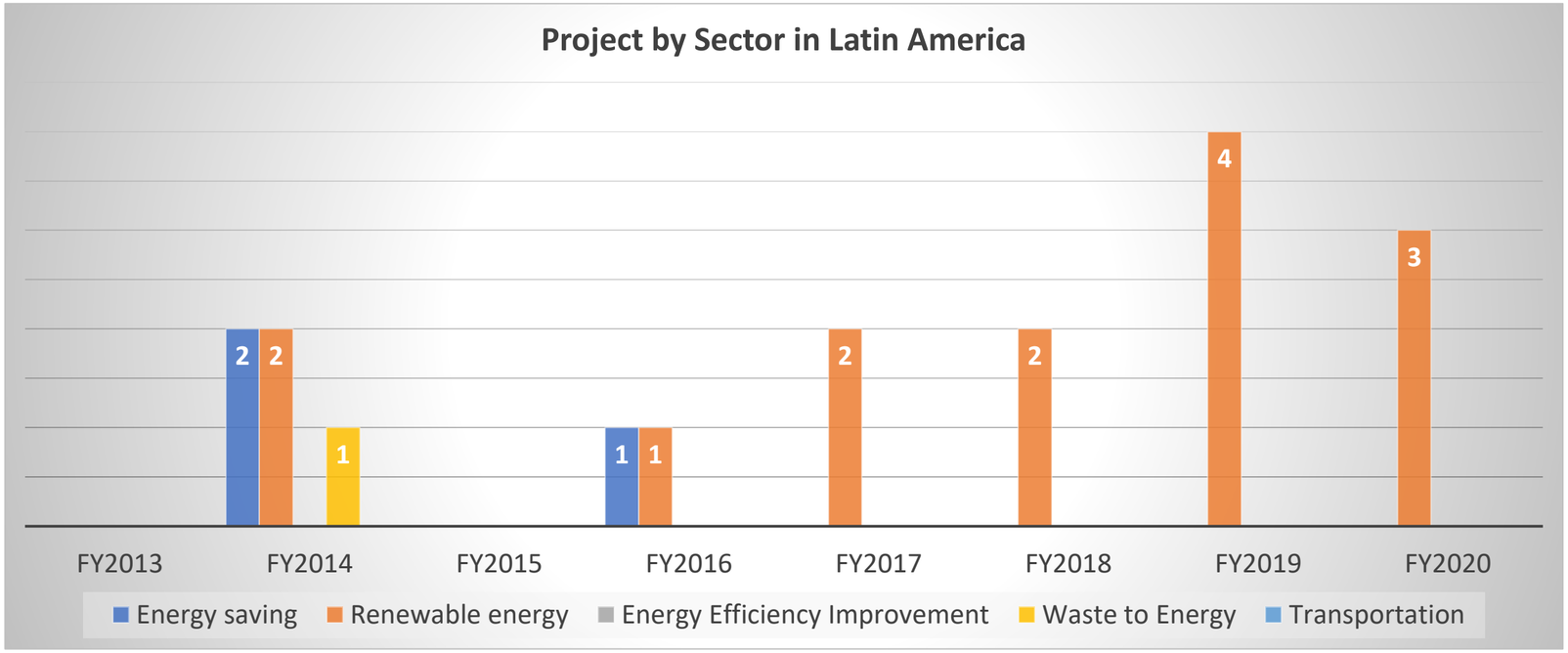
JCM Projects in Latin America

Project by Region

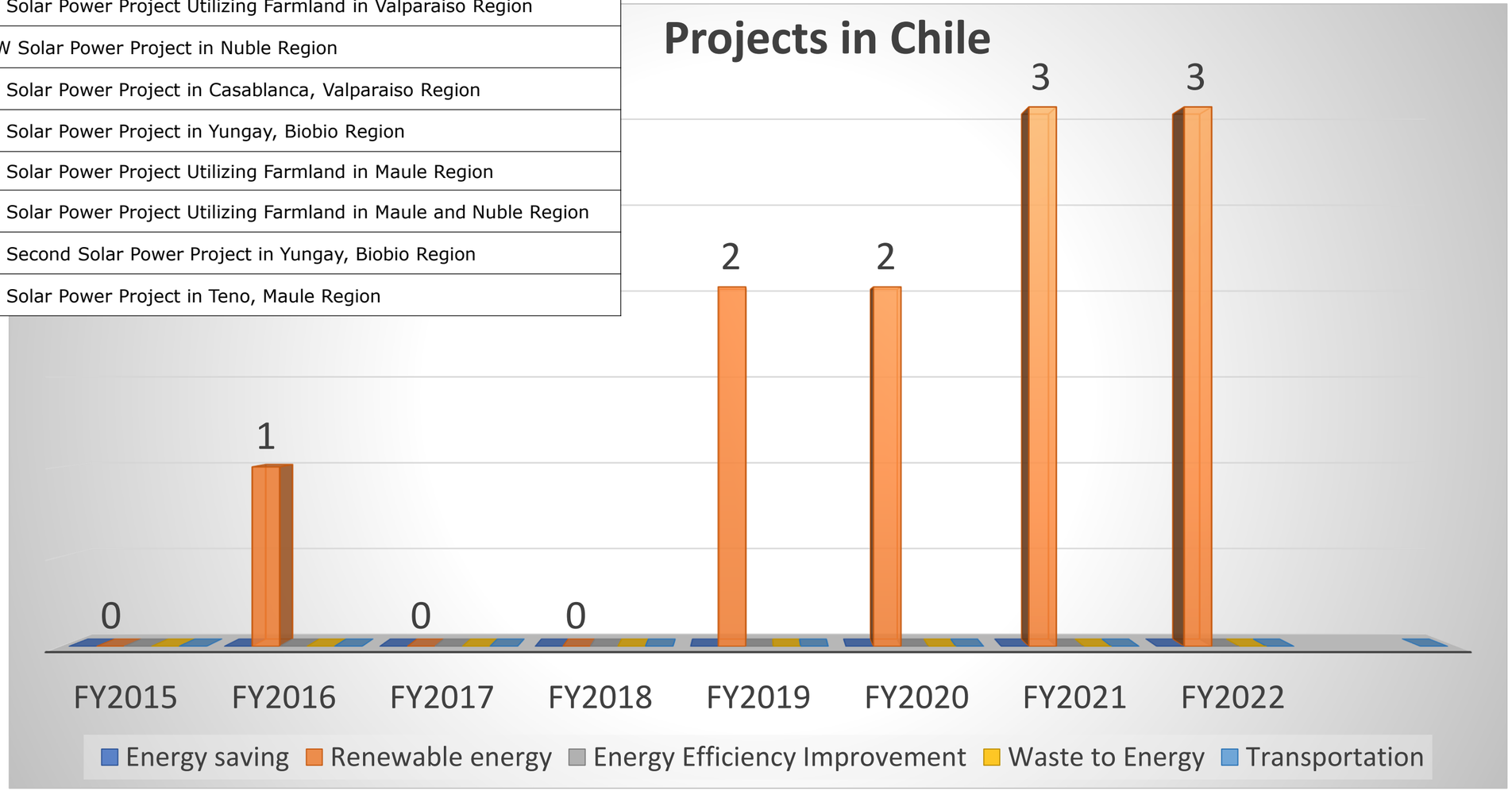






Projects in Chile

Year	Representative Participant	Project Name
2016	Waseda Environmental Institute Co., Ltd.	Introduction of 1MW Rooftop Solar Power System to University
2019	Asian Gateway Corporation	3.4MW Rice Husk Power Generation Project in Maule
2019	FARMLAND Co., Ltd.	3MW Solar Power Project in Chillan, Nuble Region
2020	FARMLAND Co., Ltd.	3MW Solar Power Project Utilizing Farmland in Valparaiso Region
2020	Sharp Energy Solutions Corporation	34MW Solar Power Project in Nuble Region
2021	Eurus Energy Holdings Corporation	9MW Solar Power Project in Casablanca, Valparaiso Region
2021	Eurus Energy Holdings Corporation	9MW Solar Power Project in Yungay, Biobio Region
2021	FARMLAND Co., Ltd.	3MW Solar Power Project Utilizing Farmland in Maule Region
2022	FARMLAND Co., Ltd.	6MW Solar Power Project Utilizing Farmland in Maule and Nuble Region
2022	Eurus Energy Holdings Corporation	9MW Second Solar Power Project in Yungay, Biobio Region
2022	Eurus Energy Holdings Corporation	9MW Solar Power Project in Teno, Maule Region



Agenda

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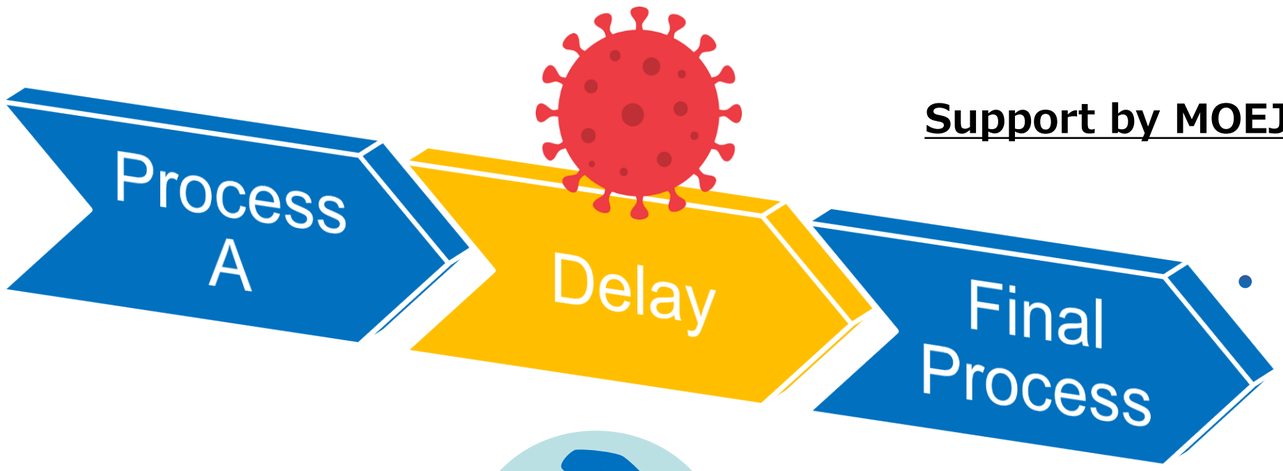
Infrastructure through JCM

Representative Participants by type of Industry

Wholesale Distributors, Trading Companies	ITOCHU Corporation / Inabata Co., Ltd. / Kanematsu Corporation / Toyota Tsusho Corporation / Toyotsu Machinary Corporation / Japan Pulp and Paper Company Limited / Farmdo Co., Ltd.（FARMLAND Co., Ltd.） / Marubeni Corporation / MITSUI & CO., LTD. / YUASA TRADING CO., LTD
Retail	AEON MALL Co., Ltd. / AEON RETAIL Co., Ltd. / FAST RETAILING CO., LTD. / FamilyMart Co., Ltd. / Lawson, Inc.
Foods	Acecook Co., Ltd. / Kirin Holdings Company, Ltd. / Sapporo International Inc. / Suntory Spirits Ltd. / CPF JAPAN CO., LTD. / Fuji Foods Corporation /Dole Japan, Inc.
Chemicals, Rubber	Otsuka Pharmaceutical Factory, Inc. / KYOWA HAKKO BIO CO. LTD. / Showa Denko Materials Co., Ltd. / Sumitomo Rubber Industries, Ltd. / DIC Corporation / Bando Chemical Industries, Ltd. / FUMAKILLA LIMITED / Mitsubishi Chemical Corporation
Textiles, Glass, Ceramics	AGC Inc. / TOTO Ltd. / Toray Industries, Inc. / Nisshinbo Textile Inc.,
Nonferrous Metals	YKK Corporation
Electric Machinery, Precision Instruments	ENDO Lighting Corporation / Sharp Energy Solutions Corporation / Sony Semiconductor Manufacturing Corporation / DAIICHI JITSUGYO CO., LTD. / WWB Corporation / TSB Co., Ltd. / Hitachi-Johnson Controls Air Conditioning, Inc. / Voith Fuji Hydro K.K. / HOYA CORPORATION / MinebeaMitsumi Inc. / YAZAKI PARTS CO., LTD. / RICOH COMPANY, LTD.
Industrial Machinery	Ebara Refrigeration Equipment & Systems Co., Ltd. / Kanematsu KGK Corp. / Mayekawa Manufacturing Co., Ltd. / Mitsubishi Heavy Industries, Ltd.
Automobiles & Auto parts	DENSO CORPORATION / Toyota Motor Corporation
Transportation, Warehousing	Tokyu Corporation / Nippon Express Co., LTD. / RYOBI HOLDINGS Co., Ltd.
Engineering & Construction	JFE Engineering Corporation / Sumitomo Forestry Co., Ltd. / Toyo Energy Farm Co., Ltd. / JGC CORPORATION / NIPPON STEEL & SUMIKIN ENGINEERING CO., LTD. / Nihon Crant Co. Ltd. / Next Energy & Resources Co., Ltd. / Fujita Corporation / Yuko Keiso Co., Ltd.
Power, Gas, Water, Energy Supply	AURA-Green Energy Co., Ltd. / eREX Co.,Ltd. / Idemitsu Kosan Co., Ltd. / Osaka Gas Co., Ltd. / The Kansai Electric Power Company, Incorporated / Saisan Co.,Ltd. / SHIZUOKA GAS CO., LTD. / Shizen Energy Inc. / WWS-JAPAN Co. / Hokusan Co., Ltd. / METAWATER Co., Ltd. / Eurus Energy Holdings Corporation / Yokohama Water Co., Ltd. / Liberal Solution Co., Ltd.
Finance	Tokyo Century Corporation / Mizuho-Toshiba Leasing Company Ltd. / Sumitomo Mitsui Trust Panasonic Finance Co., Ltd. / Sumitomo Mitsui Finance and Leasing Company, Limited
Services and Others	Asian Gateway Corporation / Alamport Inc. / AAIC Japan Co., Ltd. / NTT DATA INSTITUTE OF MANAGEMENT CONSULTING, Inc. / NTT FACILITIES, INC. / Oriental Consultants Co., Ltd. / Kayama Kogyo Co., Ltd. / EMATEC:Environmental Management and Technology Center / Global Engineering Co., Ltd. / NiX Co., Ltd. / SUURI-KEIKAKU Co., Ltd. / Chodai Co., Ltd. / TEPIA Corporation Japan Co.,Ltd. / Pacific Consultants Co., Ltd. / Finetech Co., Ltd. / Waseda Environmental Institute Co., Ltd.

Countermeasures against Covid-19 Impact

Support by MOEJ/GEC



Foresee and make allowance with well contemplated schedule

Modify Project plan flexibly
- Design
- Manufacturer
- Contractor
- Financer, etc.

Online Inspection
- remote camera
- Photos
- Video
- online discussion

Online Meeting with participants
Consultation for prospect entities

Promotion via Webinar
- Online Seminar
- Symposium

Break stagnated Permission to promote Projects

Muchas gracias
ありがとうございました。

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