METI
Ministry of Economy, Trade and Industry

Recent Developments of the Joint Crediting Mechanism (JCM)

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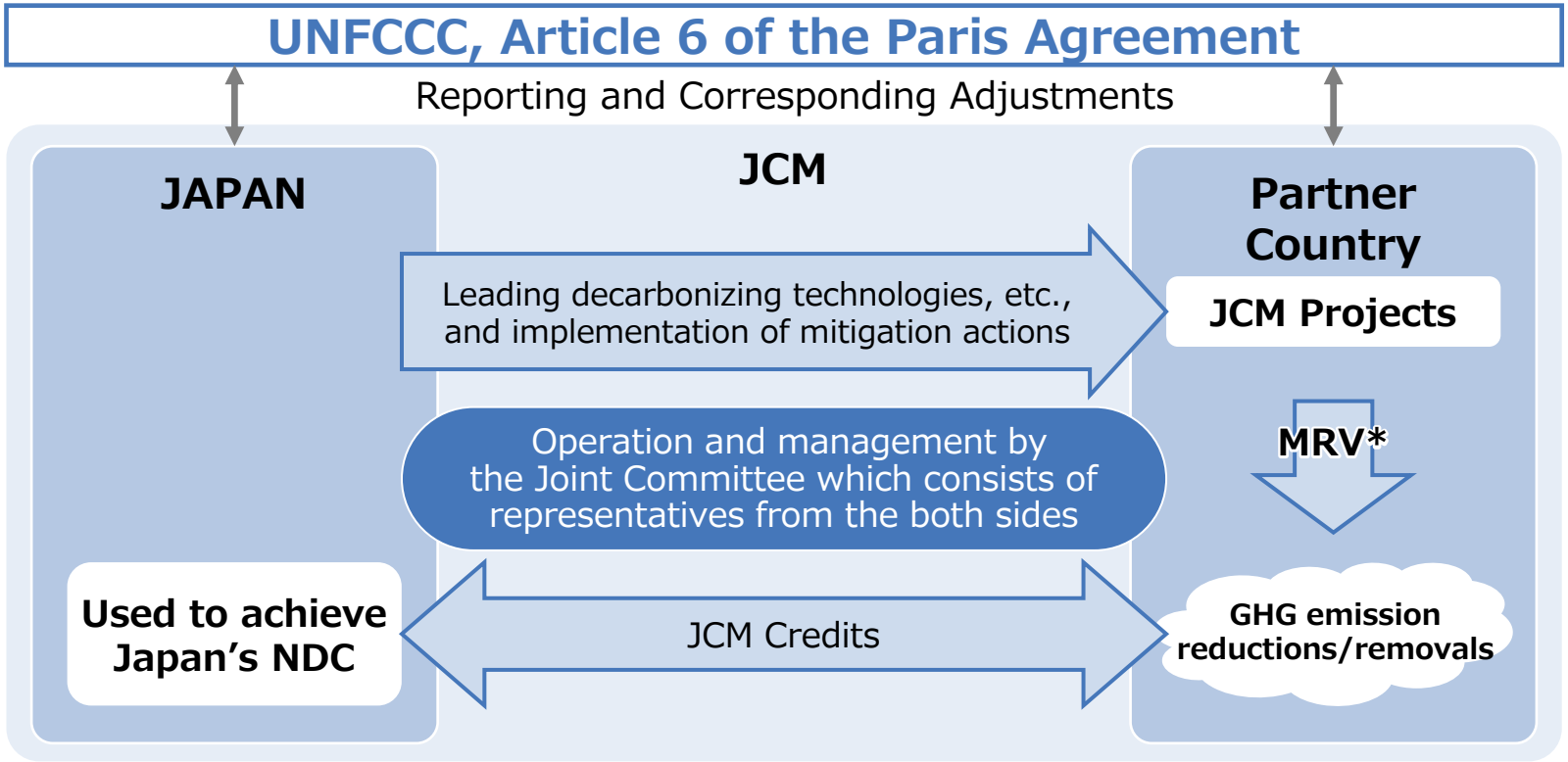
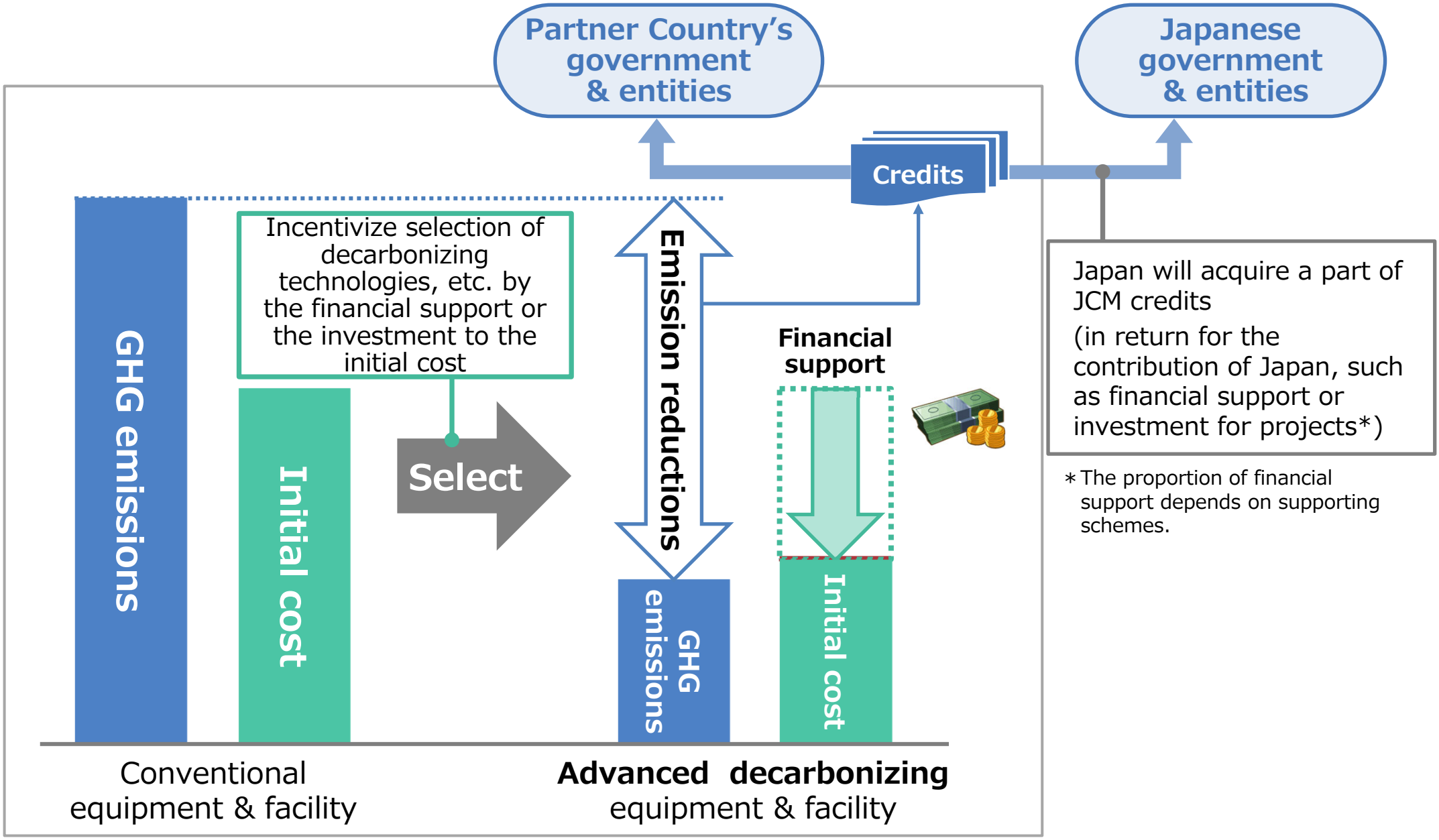
Basic Concept of the JCM

- Facilitate diffusion of leading decarbonizing technologies and infrastructure, etc., through investment by Japanese entities, 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.



*measurement, reporting and verification

Contribution from Japan (example)



JCM Partner Countries（28 countries）

Mongolia
Jan. 8, 201（Ulaanbaatar）

Bangladesh
Mar. 19, 2013 (Dhaka)

Ethiopia
May. 27, 2013 (Addis Ababa)

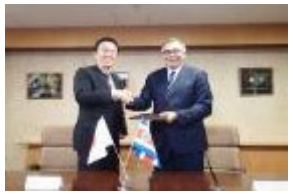
Kenya
Jun. 12, 2013 (Nairobi)

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
Aug. 25, 2022 (Dakar)

Tunisia
Aug. 26, 2022 (Tunis)

Azerbaijan
Sept. 5, 2022 (Baku)

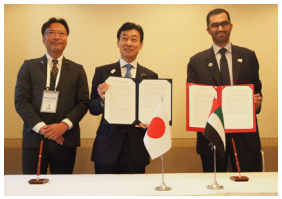
Moldova
Sept. 6, 2022 (Chisinau)

Georgia
Sept. 13, 2022 (Tbilisi)

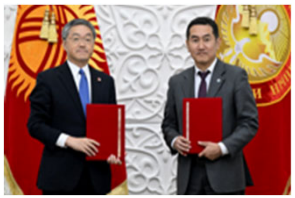
Sri Lanka
Oct. 10, 2022 (Colombo)

Uzbekistan
Oct. 25, 2022 (Tashkent)

Papua New Guinea
Nov. 18, 2022 (Sharm-el-Sheikh)



United Arab Emirates
Apr. 16, 2023 (Sapporo)



Kyrgyz Republic
July. 6, 2023 (Bishkek)

Kazakhstan
October. 30, 2023 (Astana)

Projects supported by the JCM financing programmes

Renewable Energy

Solar power, FARMLAND Co., Ltd., Chile

Floating Solar PV,TSB Co., Ltd.,Thailand

Hydro Power Plant, Toyo Energy Farm Co., Ltd., Indonesia

Biomass Co-Generation System, Fuji-Foods Coporation, Thailand

Binary Power Generation Project at Geothermal Power Plant, MHI, Ltd., Philippines

Energy efficiency [Consumer sector]

High-efficiency refrigerator, Mayekawa MFG, Indonesia

Energy saving at convenience stores, Panasonic, Indonesia

High-efficiency air-conditioning system, Hitachi, Daikin, Vietnam

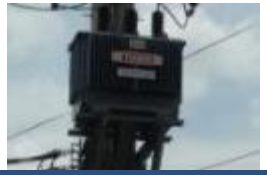
Energy efficiency [Industrial sector]

Optimization in petroleum refining plant, Yokogawa Electric Corp. Indonesia

Energy-saving of mobile communications base transceiver stations, KDDI Corp. Indonesia

Energy efficiency [Urban sector]

LED street lighting system with wireless network control, MinebeaMitsumi, Cambodia



Amorphous transformers in power distribution, Hitachi Materials, Vietnam

Waste

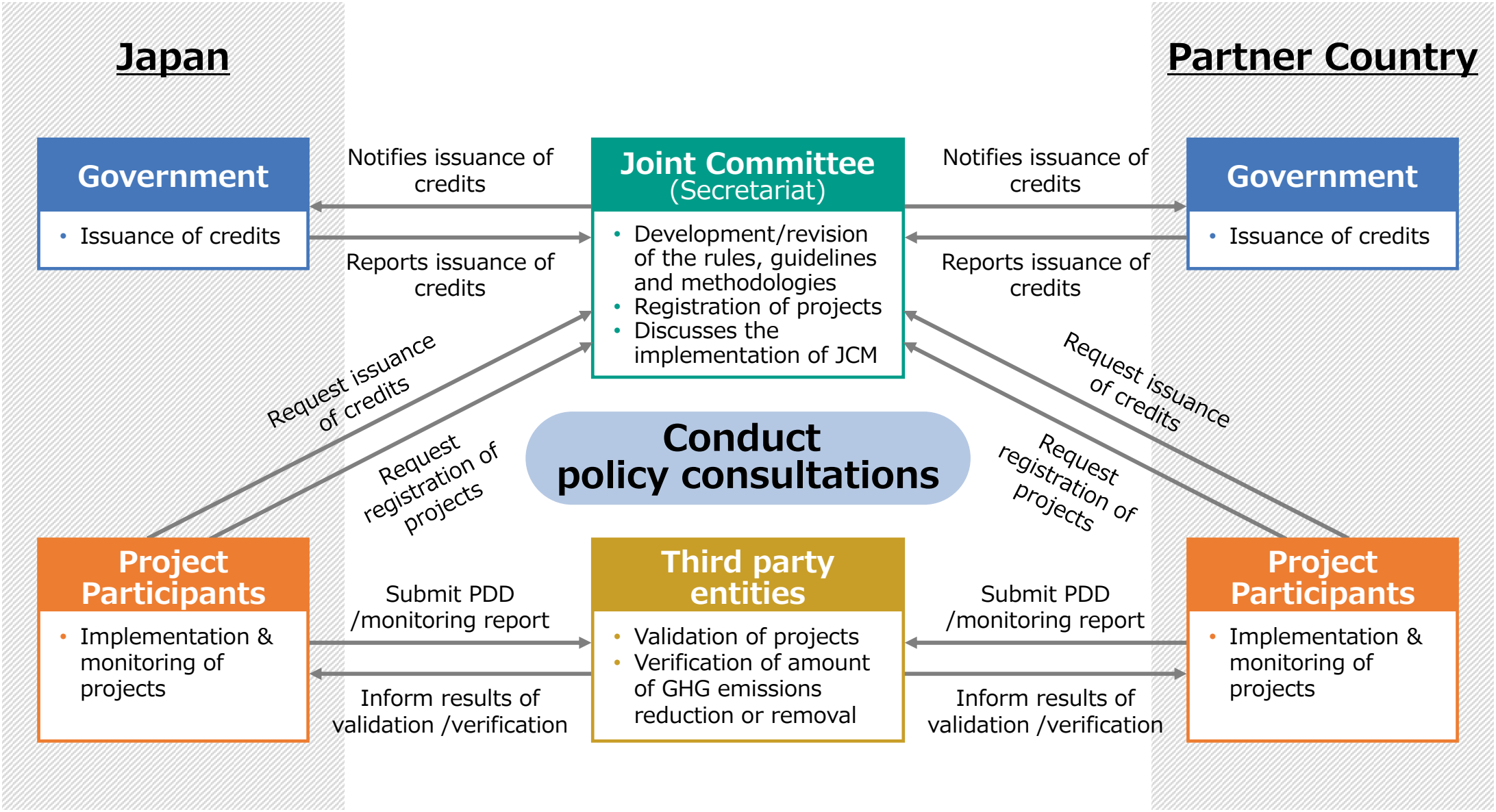
Power Generation with Methane Gas Recovery System, NTTDATA, Mexico

Waste to Energy Plant, JFE engineering, Myanmar

Transport

CNG-Diesel Hybrid Public Bus, Hokusan Co., Ltd., Indonesia

Scheme of the JCM



The role of the Joint Committee and each Government

1. The Joint Committee (JC) consists of representatives from both Governments.
2. The JC develops rules and guidelines necessary for the implementation of the JCM.
3. The JC confirms no objection or objection to a project idea note (PIN).

   ＊ Under consultation with partner countries. Please refer to the next page.
4. The JC determines either to approve or reject the proposed methodologies, as well as develops JCM methodologies.
5. The JC designates the third-party entities (TPEs).
6. The JC decides on whether to register JCM projects and the percentage of JCM credit allocation.
7. Each Government establishes and maintains a registry.
8. Each Government issues the notified amount of JCM credits to its registry on the basis of notification for issuance of JCM credits by the JC.

Project Cycle of the JCM

<Terminology>

- **PIN (Project Idea Note)**: A document used to explain the outline of the project to the partner country and confirm whether there is an objection.
- **PDD (Project Design Document)**: A document that includes monitoring methods and estimated emission reductions. Required for project registration.

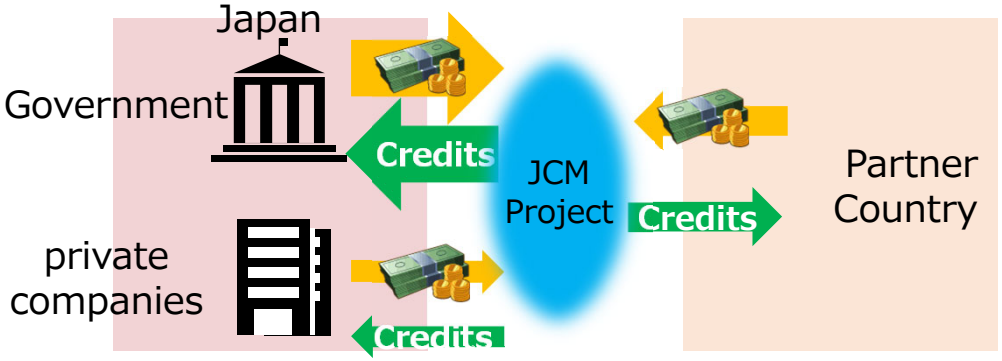
<Note>

For the latest information on JCM rules and guidelines, including the PIN procedures adopted with each Partner Country, please refer to each partner country page on the JCM website.

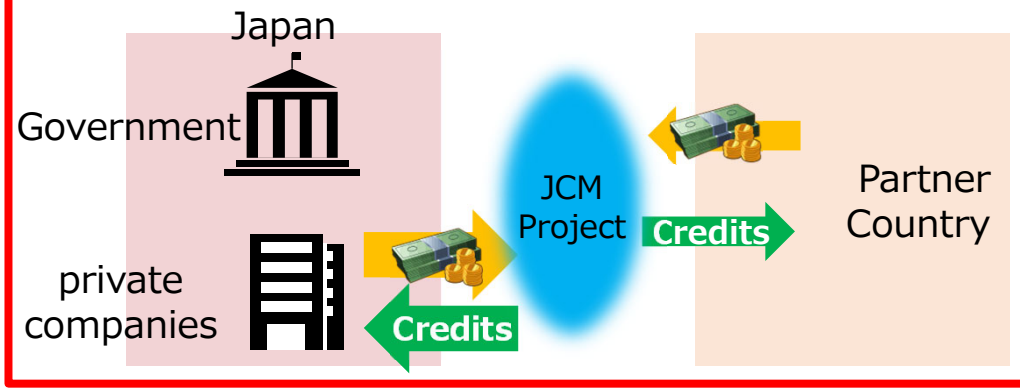
Private-Sector JCM projects

- **There is a need to promote the formation of JCM projects invested and implemented by private companies without any governmental financial supports for the purpose of obtaining JCM credits (private sector JCM)**, in light of the growing interest in the use of JCM credits for private-sector companies' own purposes.
- Formulated **"Guidance on the development of Private-Sector JCM"** in March 2023
- In the guidance, the following two processes were introduced:
  - **Making an advance inquiry to the partner countries on the "Project Idea Note (PIN)"** which includes the project contents and credit allocation plan
  - Confirming whether **there are any objections on the PIN at the Joint Committee** prior to the implementation of a JCM project.

<JCM projects with Japanese governmental support>



<Private-Sector JCM projects>



METI's support for the JCM partner countries

- METI supports the introduction of **advanced decarbonizing technologies though Demonstration Projects** which contribute to the decarbonization of the JCM partner countries.
- The project cost burdened by Japanese side is **100% supported by Japanese government (METI/NEDO).**

Examples of past projects

Optimization in petroleum refining plant, Yokogawa Electric Corp. Indonesia

Energy-saving of mobile communications base transceiver stations, KDDI Corp. Indonesia

Total: 11 projects in 6 countries (As of July 2023)

JCM Feasibility Study by METI

METI Ministry of Economy, Trade and Industry

Scope:

- Consider basic elements of the demonstration (technology, project site, stakeholders, etc.)
- Establish the basis of JCM methodology for quantification of the GHG emission reduction
- Study the possibility of dissemination of the introduced technology
- Project cost: 15 million JPY (approx.116 thousand USD) per study

Project period: Up to 1 year

Assumed technical areas: Energy efficiency with IoT, EMS, Renewable energy, CCS/CCUS, Hydrogen/Ammonia, etc.

JCM Demonstration Program by NEDO (*)

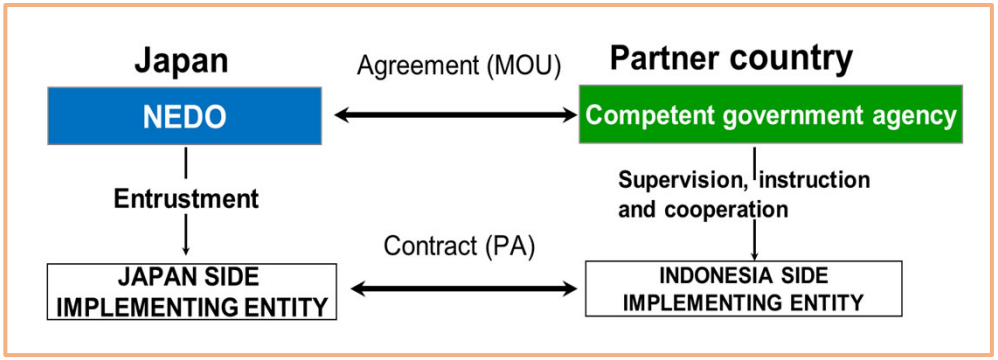
NEDO

Scope:

Demonstrate and verify the effectiveness of advanced decarbonizing technology:

- Introduction of relevant facilities and systems, and conduct demonstration
- Quantification of GHG emission reduction effectiveness
- JCM procedure toward issuance of JCM credits
- Budget for FY 2023: 1.1 billion JPY (approx. 8.5million USD)

Project period: Pre-demonstration stage: up to 1 year
Demonstration stage: up to 3 year
Follow-Up Project stage: up to 2 year



* NEDO = New Energy and Industrial Technology Development Organization

Feasibility Studies by METI (as of November 2023)

Moldova:
- Bio-gasification using ethanol distillation residues in the Republic of Moldova (SDG Impact Japan Inc.)

Uzbekistan:
- Introduction of solar power generation and storage batteries, and boiler fuel conversion in public hospitals in Uzbekistan (Hanwa Co., Ltd.)

United Arab Emirates:
- Introduction electric, hydrogen, and other low-carbon vehicles for public transportation mobility and an operation monitoring and efficiency system (SMOC) (Zenmov Inc)

Thailand:
- Utilization of highly efficient dyeing technology in textile dyeing process (Asahi Kasei Corp.)
- Biomass boiler introduction using private financing (Tepia Corporation Japan)
- ★FC Truck Manufacturing and Operation Technology for Transport in Thailand (TOYOTA TSUSHO CORPORATION)

Indonesia:
- Improvement of biodiesel yield from palm oil by utilizing AI (Kanematsu Corporation)
- Investigation of Water Storage Peatland Management Technology for Stable Supply of Woody Biomass (Sumitomo Forestry Co., Ltd.)
- ★Technology Demonstration Project on Tundish Plasma Heater for GHG Emission Reduction in Electric Furnace Steel Mills (NIPPON STEEL ENGINEERING CO., LTD.)

Mongolia:
- Switching fuel for heating boilers to biochar in Ulaanbaatar (PEAR Carbon Offset Initiative, Ltd.)

Lao PDR:
- Decarbonization of steam by systemization of hydrogen generators and hydrogen boilers in Lao PDR (Hitachi Zosen Corporation)

Vietnam:
- Integrated energy management and data platform in industrial parks (Sojitz Corporation)
- Fuel Conversion in Vietnam (eREX Co.,Ltd.)
- ★Introduction of wastewater heat recovery technology and geothermal heat utilization technology using heat exchanger G-HEX (ASANO TAISEIKISO ENGINEERING Co.,Ltd)

Brazil:
- Conversion of production process of caustic soda and chlorine in Federative Republic of Brazil (AGC Inc.)

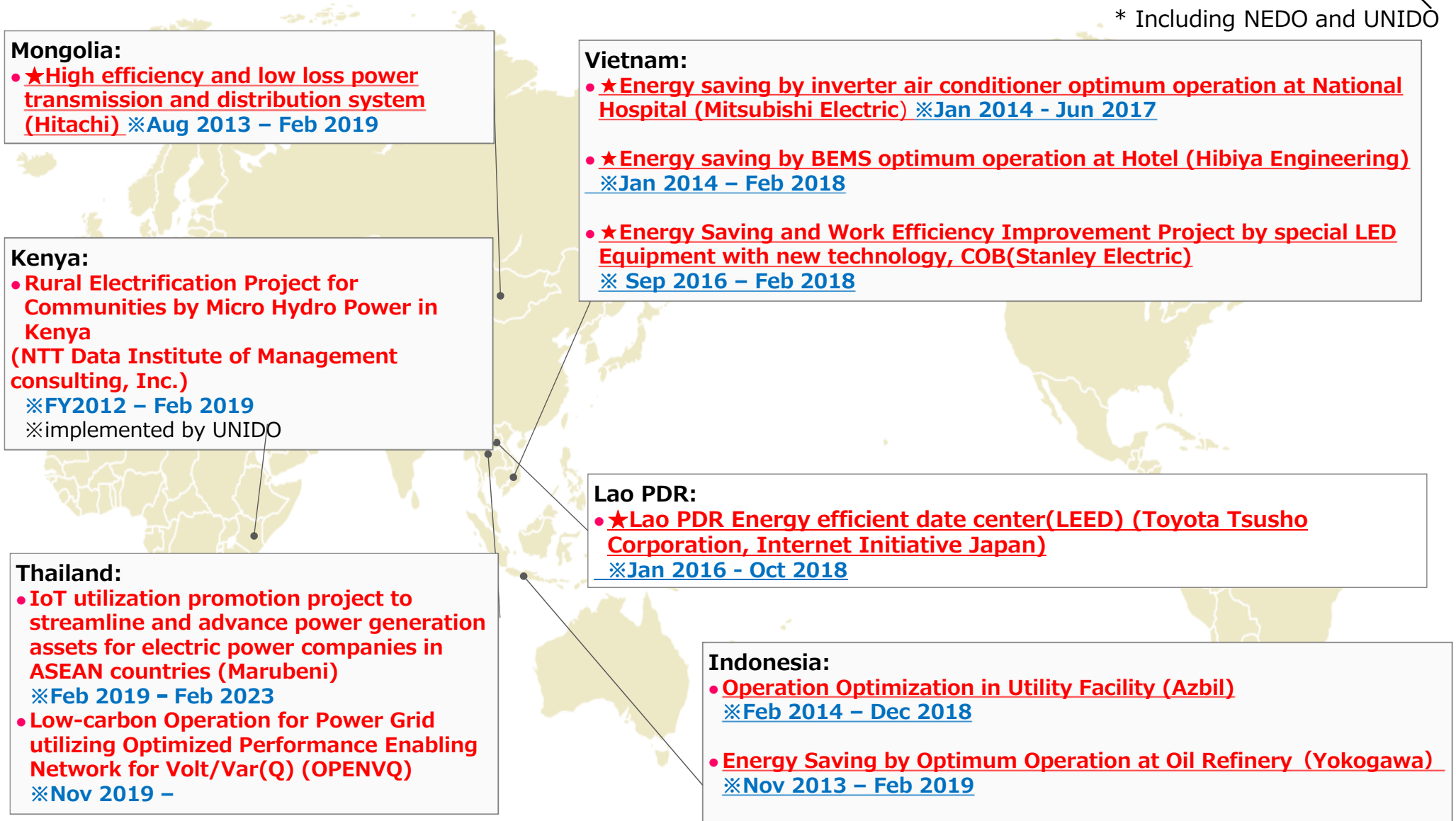
Chile:
- Chemical goods/synthetic fuel production using CO2 emitted from pulp mill as a raw material (Toyo Engineering Corporation)

Philippines:
- Distributed Combined Renewable Energy Installation in a Poultry Farm Regional Cooperative (J-POWER)

Total as of 2023: **17 projects** (11 countries)
Projects with "●" are Feasibility Studies by METI
Projects with "●★" are Pre-Demonstration Projects by NEDO

Demonstration Projects by METI* (as of November 2023)

* Including NEDO and UNIDO



Mongolia:
- ★High efficiency and low loss power transmission and distribution system (Hitachi) ※Aug 2013 – Feb 2019

Vietnam:
- ★Energy saving by inverter air conditioner optimum operation at National Hospital (Mitsubishi Electric) ※Jan 2014 - Jun 2017
- ★Energy saving by BEMS optimum operation at Hotel (Hibiya Engineering) ※Jan 2014 – Feb 2018
- ★Energy Saving and Work Efficiency Improvement Project by special LED Equipment with new technology, COB(Stanley Electric) ※ Sep 2016 – Feb 2018

Kenya:
- Rural Electrification Project for Communities by Micro Hydro Power in Kenya (NTT Data Institute of Management consulting, Inc.) ※FY2012 – Feb 2019 ※implemented by UNIDO

Lao PDR:
- ★Lao PDR Energy efficient date center(LEED) (Toyota Tsusho Corporation, Internet Initiative Japan) ※Jan 2016 - Oct 2018

Thailand:
- IoT utilization promotion project to streamline and advance power generation assets for electric power companies in ASEAN countries (Marubeni) ※Feb 2019 – Feb 2023
- Low-carbon Operation for Power Grid utilizing Optimized Performance Enabling Network for Volt/Var(Q) (OPENVQ) ※Nov 2019 –

Indonesia:
- Operation Optimization in Utility Facility (Azbil) ※Feb 2014 – Dec 2018
- Energy Saving by Optimum Operation at Oil Refinery (Yokogawa) ※Nov 2013 – Feb 2019
- The low carbonization of mobile communication's BTS (Base Transceiver Station) by the Introduction of "TRIBRID system" (KDDI) ※Apr 2017 – Feb 2019

Total：11 projects (6 countries)

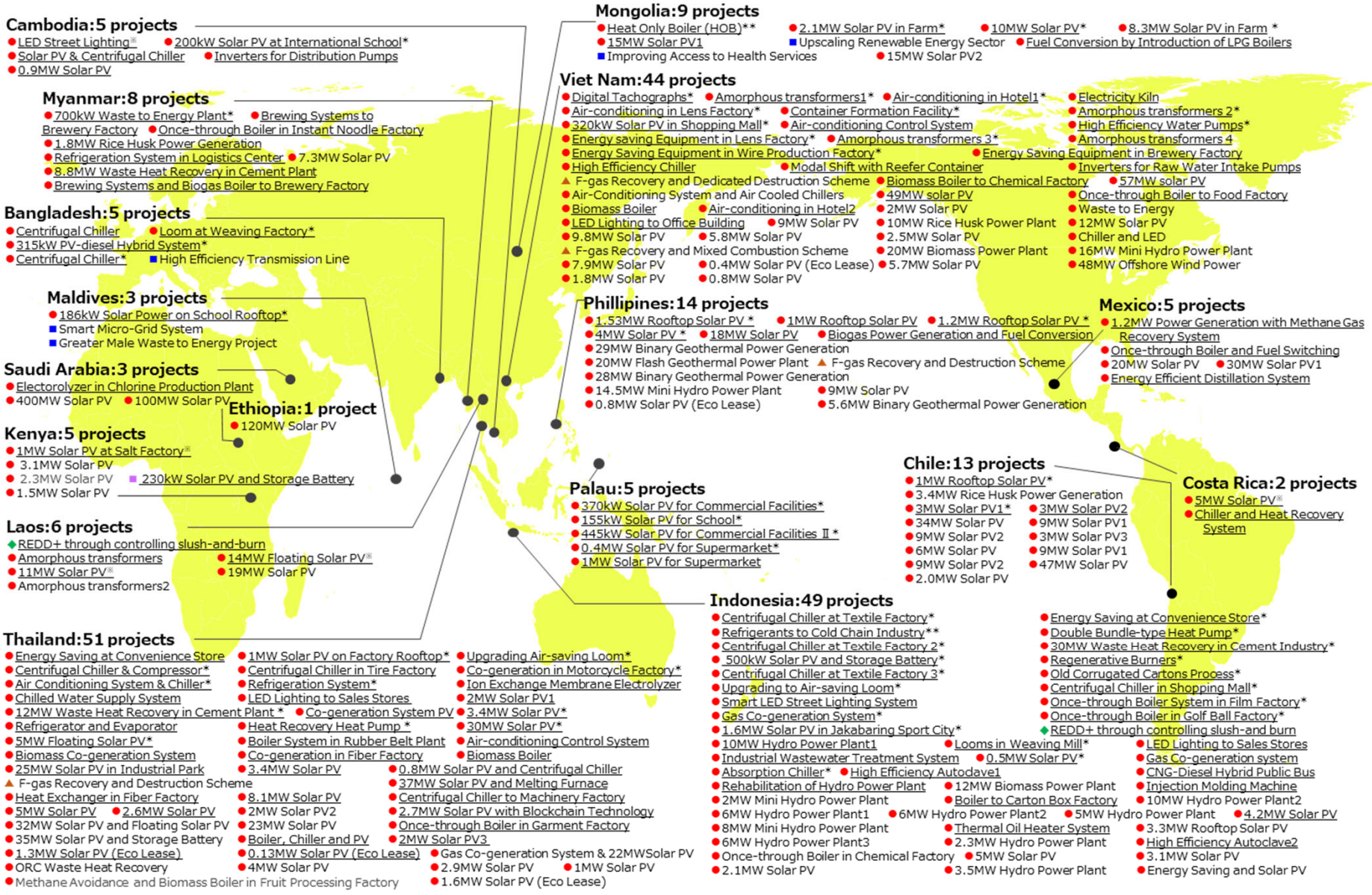
- Underlined projects, one in Mongolia, three in Vietnam, one in Lao PDR, three in Indonesia, one in Kenya were registered as JCM projects.
- Projects with "★" are those which JCM credits have been issued.

JCM Financing Programme by MOEJ (FY2013～2022) as of July 2023

Total 228projects (27 partner countries)

(●Model Project: 216 projects(including Eco Lease: 5projects), ■ADB: 5 projects, ■UNIDO: 1 project, ◆ REDD+: 2 projects, ▲F-gas: 4 projects) Other 1 project in Malaysia

145underlined projects have been started operation. **68 projects with *** have been registered as JCM projects.



Cambodia:5 projects
- LED Street Lighting※
- 200kW Solar PV at International School*
- Solar PV & Centrifugal Chiller
- Inverters for Distribution Pumps
- 0.9MW Solar PV

Myanmar:8 projects
- 700kW Waste to Energy Plant*
- Brewing Systems to Brewery Factory
- Once-through Boiler in Instant Noodle Factory
- 1.8MW Rice Husk Power Generation
- Refrigeration System in Logistics Center
- 7.3MW Solar PV
- 8.8MW Waste Heat Recovery in Cement Plant
- Brewing Systems and Biogas Boiler to Brewery Factory

Bangladesh:5 projects
- Centrifugal Chiller
- Loom at Weaving Factory*
- 315kW PV-diesel Hybrid System*
- Centrifugal Chiller*
- High Efficiency Transmission Line

Maldives:3 projects
- 186kW Solar Power on School Rooftop*
- Smart Micro-Grid System
- Greater Male Waste to Energy Project

Saudi Arabia:3 projects
- Electorolyzer in Chlorine Production Plant
- 400MW Solar PV
- 100MW Solar PV

Ethiopia:1 project
- 120MW Solar PV

Kenya:5 projects
- 1MW Solar PV at Salt Factory※
- 3.1MW Solar PV
- 2.3MW Solar PV
- 230kW Solar PV and Storage Battery
- 1.5MW Solar PV

Laos:6 projects
- ◆REDD+ through controlling slush-and-burn
- Amorphous transformers
- 14MW Floating Solar PV※
- 11MW Solar PV※
- 19MW Solar PV
- Amorphous transformers2

Thailand:51 projects
- Energy Saving at Convenience Store
- 1MW Solar PV on Factory Rooftop*
- Upgrading Air-saving Loom*
- Centrifugal Chiller & Compressor*
- Centrifugal Chiller in Tire Factory
- Co-generation in Motorcycle Factory*
- Air Conditioning System & Chiller*
- Refrigeration System*
- Ion Exchange Membrane Electrolyzer
- Chilled Water Supply System
- LED Lighting to Sales Stores
- 2MW Solar PV1
- 12MW Waste Heat Recovery in Cement Plant *
- Co-generation System PV
- 3.4MW Solar PV*
- Refrigerator and Evaporator
- Heat Recovery Heat Pump *
- 30MW Solar PV*
- 5MW Floating Solar PV*
- Boiler System in Rubber Belt Plant
- Air-conditioning Control System
- Biomass Co-generation System
- Co-generation in Fiber Factory
- Biomass Boiler
- 25MW Solar PV in Industrial Park
- 3.4MW Solar PV
- 0.8MW Solar PV and Centrifugal Chiller
- ▲F-gas Recovery and Destruction Scheme
- 37MW Solar PV and Melting Furnace
- Heat Exchanger in Fiber Factory
- 8.1MW Solar PV
- Centrifugal Chiller to Machinery Factory
- 5MW Solar PV
- 2.6MW Solar PV
- 2MW Solar PV2
- 2.7MW Solar PV with Blockchain Technology
- 32MW Solar PV and Floating Solar PV
- 23MW Solar PV
- Once-through Boiler in Garment Factory
- 35MW Solar PV and Storage Battery
- Boiler, Chiller and PV
- 2MW Solar PV3
- 1.3MW Solar PV (Eco Lease)
- 0.13MW Solar PV (Eco Lease)
- Gas Co-generation System & 22MWSolar PV
- ORC Waste Heat Recovery
- 4MW Solar PV
- 2.9MW Solar PV
- 1MW Solar PV
- Methane Avoidance and Biomass Boiler in Fruit Processing Factory
- 1.6MW Solar PV (Eco Lease)

Mongolia:9 projects
- Heat Only Boiler (HOB)**
- 2.1MW Solar PV in Farm*
- 10MW Solar PV*
- 8.3MW Solar PV in Farm *
- 15MW Solar PV1
- Upscaling Renewable Energy Sector
- Fuel Conversion by Introduction of LPG Boilers
- Improving Access to Health Services
- 15MW Solar PV2

Viet Nam:44 projects
- Digital Tachographs*
- Amorphous transformers1*
- Air-conditioning in Hotel1*
- Electricity Kiln
- Air-conditioning in Lens Factory*
- Container Formation Facility*
- Amorphous transformers 2*
- 320kW Solar PV in Shopping Mall*
- Air-conditioning Control System
- High Efficiency Water Pumps*
- Energy saving Equipment in Lens Factory*
- Amorphous transformers 3*
- Amorphous transformers 4
- Energy Saving Equipment in Wire Production Factory*
- Energy Saving Equipment in Brewery Factory
- High Efficiency Chiller
- Modal Shift with Reefer Container
- Inverters for Raw Water Intake Pumps
- ▲F-gas Recovery and Dedicated Destruction Scheme
- Biomass Boiler to Chemical Factory
- 57MW solar PV
- Air-Conditioning System and Air Cooled Chillers
- 49MW solar PV
- Once-through Boiler to Food Factory
- Biomass Boiler
- Air-conditioning in Hotel2
- 2MW Solar PV
- Waste to Energy
- LED Lighting to Office Building
- 9MW Solar PV
- 10MW Rice Husk Power Plant
- 12MW Solar PV
- 9.8MW Solar PV
- 5.8MW Solar PV
- 2.5MW Solar PV
- Chiller and LED
- ▲F-gas Recovery and Mixed Combustion Scheme
- 20MW Biomass Power Plant
- 16MW Mini Hydro Power Plant
- 7.9MW Solar PV
- 0.4MW Solar PV (Eco Lease)
- 5.7MW Solar PV
- 48MW Offshore Wind Power
- 1.8MW Solar PV
- 0.8MW Solar PV

Phillipines:14 projects
- 1.53MW Rooftop Solar PV *
- 1MW Rooftop Solar PV
- 1.2MW Rooftop Solar PV *
- 4MW Solar PV *
- 18MW Solar PV
- Biogas Power Generation and Fuel Conversion
- 29MW Binary Geothermal Power Generation
- 20MW Flash Geothermal Power Plant
- ▲F-gas Recovery and Destruction Scheme
- 28MW Binary Geothermal Power Generation
- 14.5MW Mini Hydro Power Plant
- 9MW Solar PV
- 0.8MW Solar PV (Eco Lease)
- 5.6MW Binary Geothermal Power Generation

Mexico:5 projects
- 1.2MW Power Generation with Methane Gas Recovery System
- Once-through Boiler and Fuel Switching
- 20MW Solar PV
- 30MW Solar PV1
- Energy Efficient Distillation System

Palau:5 projects
- 370kW Solar PV for Commercial Facilities*
- 155kW Solar PV for School*
- 445kW Solar PV for Commercial Facilities Ⅱ*
- 0.4MW Solar PV for Supermarket*
- 1MW Solar PV for Supermarket

Chile:13 projects
- 1MW Rooftop Solar PV*
- 3.4MW Rice Husk Power Generation
- 3MW Solar PV1*
- 3MW Solar PV2
- 34MW Solar PV
- 9MW Solar PV1
- 9MW Solar PV2
- 3MW Solar PV3
- 6MW Solar PV
- 9MW Solar PV1
- 9MW Solar PV2
- 47MW Solar PV
- 2.0MW Solar PV

Costa Rica:2 projects
- 5MW Solar PV※
- Chiller and Heat Recovery System

Indonesia:49 projects
- Centrifugal Chiller at Textile Factory*
- Energy Saving at Convenience Store*
- Refrigerants to Cold Chain Industry**
- Double Bundle-type Heat Pump*
- Centrifugal Chiller at Textile Factory 2*
- 30MW Waste Heat Recovery in Cement Industry*
- 500kW Solar PV and Storage Battery*
- Regenerative Burners*
- Centrifugal Chiller at Textile Factory 3*
- Old Corrugated Cartons Process*
- Upgrading to Air-saving Loom*
- Centrifugal Chiller in Shopping Mall*
- Smart LED Street Lighting System
- Once-through Boiler System in Film Factory*
- Gas Co-generation System*
- Once-through Boiler in Golf Ball Factory*
- 1.6MW Solar PV in Jakabaring Sport City*
- ◆REDD+ through controlling slush-and burn
- 10MW Hydro Power Plant1
- Looms in Weaving Mill*
- LED Lighting to Sales Stores
- Industrial Wastewater Treatment System
- 0.5MW Solar PV*
- Gas Co-generation system
- Absorption Chiller*
- High Efficiency Autoclave1
- CNG-Diesel Hybrid Public Bus
- Rehabilitation of Hydro Power Plant
- 12MW Biomass Power Plant
- Injection Molding Machine
- 2MW Mini Hydro Power Plant
- Boiler to Carton Box Factory
- 10MW Hydro Power Plant2
- 6MW Hydro Power Plant1
- 6MW Hydro Power Plant2
- 5MW Hydro Power Plant
- 4.2MW Solar PV
- 8MW Mini Hydro Power Plant
- Thermal Oil Heater System
- 3.3MW Rooftop Solar PV
- 6MW Hydro Power Plant3
- 2.3MW Hydro Power Plant
- High Efficiency Autoclave2
- Once-through Boiler in Chemical Factory
- 5MW Solar PV
- 3.1MW Solar PV
- 2.1MW Solar PV
- 3.5MW Hydro Power Plant
- Energy Saving and Solar PV