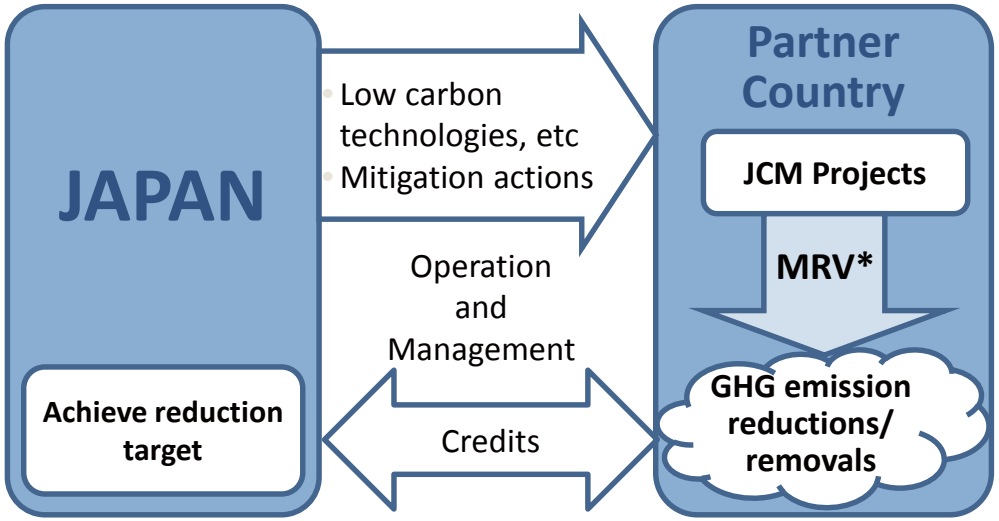
Joint Crediting Mechanism (JCM)

- Facilitating diffusion of leading low carbon technologies
- Evaluating GHG emission reductions to achieve emission reduction target
- Contributing to the ultimate objective of the UNFCCC

Progress:

- 17 partner countries with 137projects in the pipeline
- 11,469 credits issued from 15 projects
- 10 million GHG emission reductions expected to be achieved by 2030



MRV: measurement, reporting and verification

(Example of pipeline projects)

【Waste heat recovery in cement industry】 (Indonesia)

【Waste to Energy plant】 (Myanmar)

【Co-generation system】 (Thailand)

【Low carbon hotel by introducing BEMS】 (Viet Nam)

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)

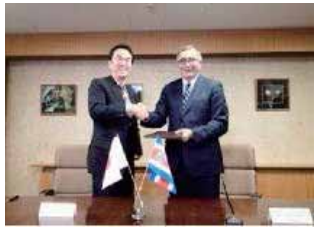
Kenya
Jun. 12,2013
(Nairobi)

Maldives
Jun. 29, 2013
(Okinawa)

Viet Nam
Jul. 2, 2013
(Hanoi)

Lao PDR
Aug. 7, 2013
(Vientiane)

Indonesia
Aug. 26, 2013
(Jakarta)

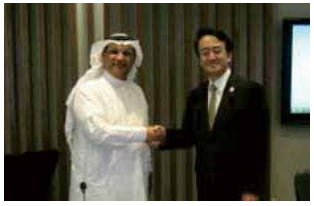


Costa Rica
Dec. 9, 2013
(Tokyo)

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)

the Philippines
Jan. 12, 2017
(Manila)

Technologies Transferred through JCM(FY2013-2018)

- Total of 127 **JCM Model Projects** being developed in 17 partner countries
- 55% are **energy efficiency** and 34% are **renewable energy** while 7% are **co-generation system**
- Transport, waste to energy and REDD+ project shares 4%

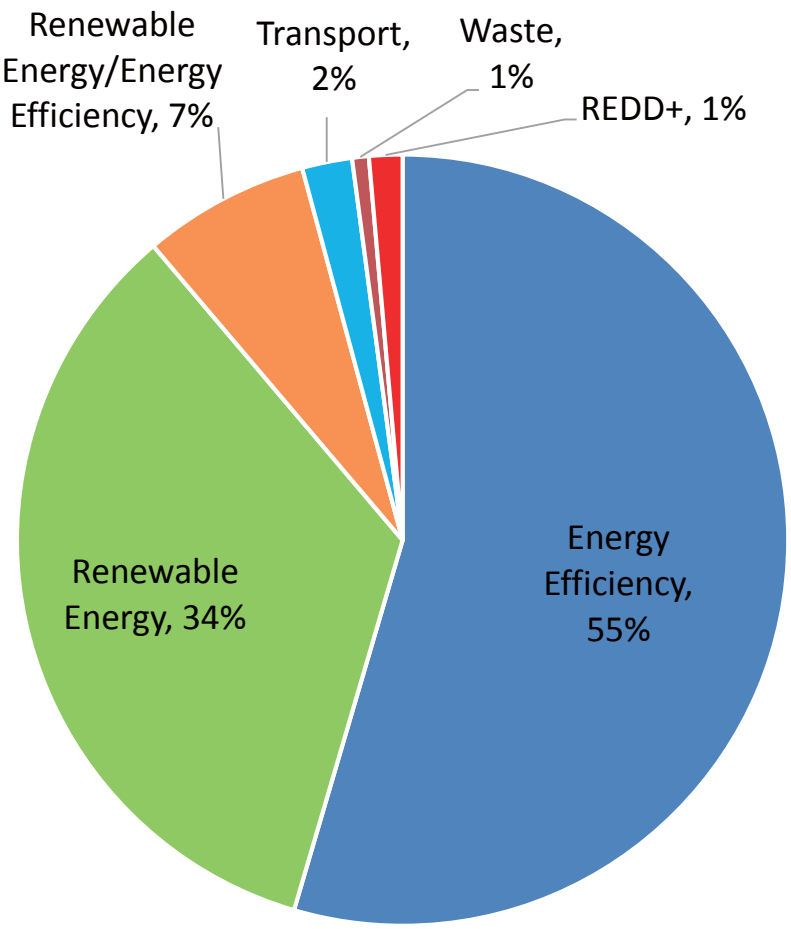
Renewable Energy
Solar
Micro hydro
Biomass
Wind

Renewable Energy/Energy Efficiency
Co-generation System

Transport
Digital Tachographs
Modal Shift
CNG-Diesel Hybrid

Waste
Waste to Energy

REDD+
Controlling Slush and burn



Energy efficiency
Looms
Equipment
Boiler
Burner
Electrolysis tank
LED
Production line
Optimization
Pump
Heat pump/Water heater
Air-conditioning
Refrigerating
Transmission/Transformer
LED Streetlights
Smart Grid

As of June 25, 2018

Issuance of JCM Credits

- Total of 13 projects issued credits under the JCM
- Total amount of credits issued are 11,081 t-CO2

Country	Notification date	Amounts of credits issued（tCO2）		
		Total	Japanese government	Partner government
Indonesia	2016/05/12 2018/07/10	357	186	123
Mongolia	2016/09/29 2017/10/24	9,104	6,372	1,821
VietNam	2017/10/10	439	277	45
Palau	2016/12/19 2018/01/30	881	659	222
Thailand	2018/04/20	300	151	0

Progress of Joint Committee Meeting (Sep. 2017-July. 2018)

Date	Partner Country	Main Topic
2017/09/11	**Mexico**	Methodology approval, TPE additional scope
2017/09/15	**Cambodia**	Project registration, JCM REDD+, TPE additional scope
2017/10/03	**Saudi Arabia**	Methodology approval, TPE designation
2017/10/10	**Vietnam**	Methodology approval, Project registration, Credit issuance
2017/10/24	**Mongolia**	Credit issuance
2017/12/07	**Indonesia**	Methodology approval, Project registration
2017/12/19	**Chile**	Methodology approval, TPE additional scope
2018/01/10	**Bangladesh**	Methodology revision, Project registration, TPE additional scope
2018/01/30	**Palau**	Credit issuance
2018/02/09	**Philippines**	Adoption of rules and guidelines
2018/03/19	**Maldives**	Project Registration
2018/03/21	**Myanmar**	First methodology approval
2018/04/20	**Thailand**	Methodology approval, Project registration, Credit issuance
2018/05/30	**Cambodia**	Project registration, JCM REDD+ Guidelines approved
2018/07/10	**Indonesia**	Methodology approval, Project registration, Credit issuance

Rules and Guidelines for JCM REDD-plus adopted at 4th Joint Committee in Phnom Penh (30 May, 2018)

- New set of rules, guidelines, and forms specifically developed for REDD-plus
- Setting requirements, which are specific to REDD-plus, based on UNFCCC decisions and requirements in other schemes
- Harmonization of national/sub-national REDD-plus policy/program and JCM-REDD-plus

- JCM Project Cycle Procedure for REDD-plus
- JCM Guidelines for Developing Proposed Methodology for REDD-plus
- JCM Guidelines for Developing Project Design Document and Monitoring Report for REDD-plus
- JCM Guidelines for Addressing and Respecting Safeguards for REDD-plus
- JCM Guidelines for Validation and Verification for REDD-plus

Japan's NDC (Excerpt)

Japan's NDC

○ Japan's NDC towards post-2020 GHG emission reductions is at the level of a reduction of **26.0% by fiscal year (FY) 2030 compared to FY 2013** (25.4% reduction compared to FY 2005) (approximately 1.042 billion t-CO_2eq. as 2030 emissions), ensuring consistency with its energy mix, set as a feasible reduction target by bottom-up calculation with concrete policies, measures and individual technologies taking into adequate consideration, *inter alia*, technological and cost constraints, and set based on the amount of domestic emission reductions and removals assumed to be obtained. .

Information to facilitate clarity, transparency and understanding

○ The JCM is not included as a basis of the bottom-up calculation of Japan's emission reduction target, but **the amount of emission reductions and removals acquired by Japan under the JCM will be appropriately counted as Japan's reduction**.

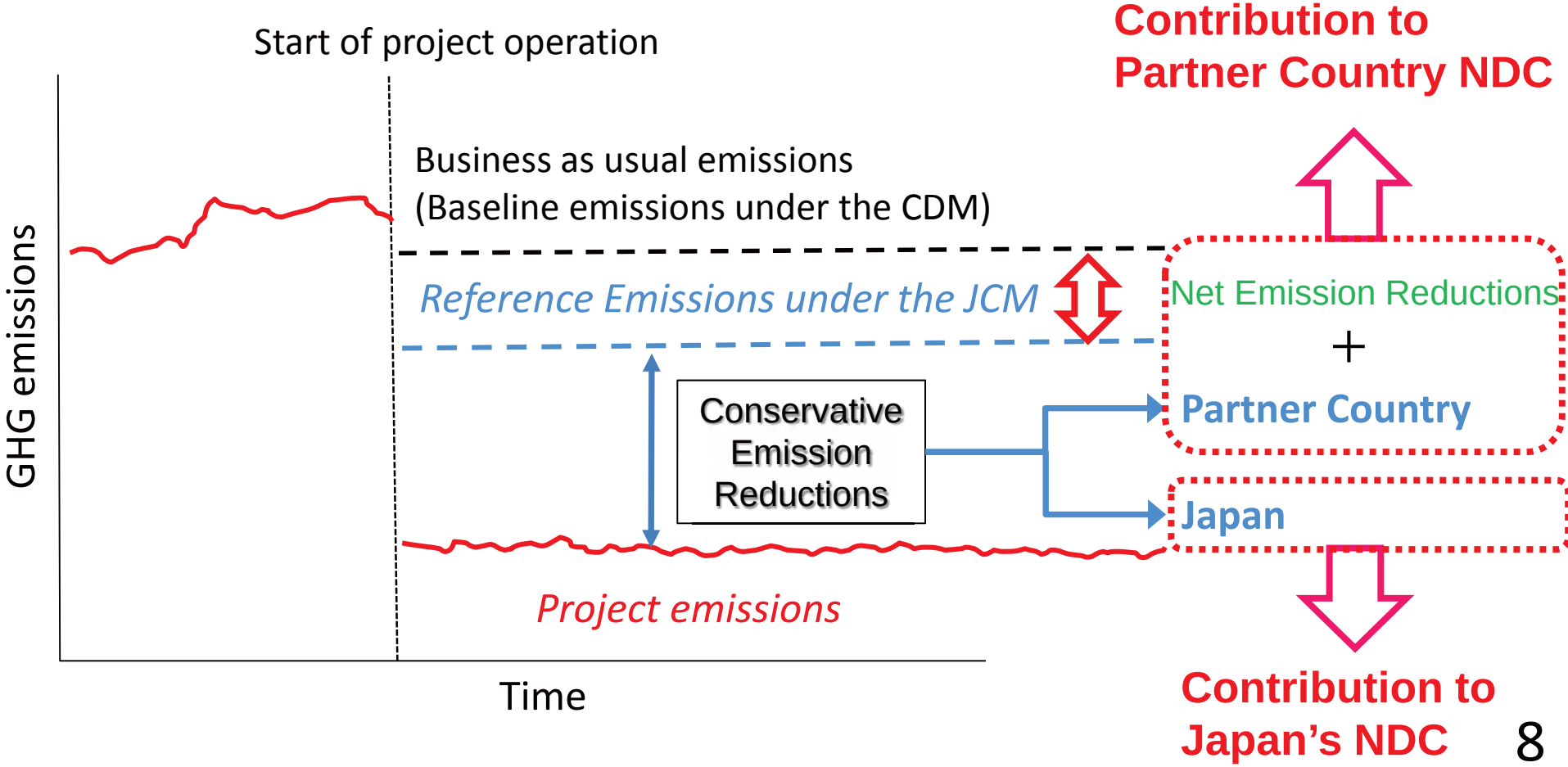
Reference information
GHG emissions and removals
JCM and other international contributions

○ Japan establishes and implements the JCM in order both to appropriately evaluate contributions from Japan to GHG emission reductions or removals in a quantitative manner achieved through the diffusion of low carbon technologies, products, systems, services, and infrastructure as well as implementation of mitigation actions in developing countries, and to use them to achieve Japan's emission reduction target.

○ Apart from contributions achieved through private-sector based projects, **accumulated emission reductions or removals by FY 2030 through governmental JCM programs to be undertaken within the government's annual budget are estimated to be ranging from 50 to 100 million t-CO_2.**

JCM's Contribution to NDC

- JCM's conservative emission reduction calculation (reference emissions below BaU emissions) will ensure a net decrease and/or avoidance of GHG emissions.
- This part of emission reductions will automatically contribute to the achievement of NDC.



JCM Model Projects by MOE

The budget for projects starting from FY 2018 is 6.9 billion JPY (approx. USD 69million) in total by FY2020

(1 USD = 100 JPY)

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

Government of Japan

Finance part of an investment cost (**less than half**)

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

International consortiums
(which include Japanese entities)

- Scope of the financing: facilities, equipment, vehicles, etc. which reduce CO_2 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.

JCM F-gas Recovery and Destruction Model Project by MOE

【Budget for FY 2018】
40 million JPY (approx. 0.4 million USD) (1 USD = 100 JPY)

Government of Japan

Finance part of the cost in flat-rate (up to 40 million JPY/year)

Conduct MRV to estimate GHG emission reductions.
At least half or ratio of financial support to project cost (larger ratio will be applied) of JCM credits issued are expected to be delivered to the government of Japan

International consortiums (which include Japanese entities)

Manufacturers of equipment which uses F-gas	Users of equipment which uses F-gas	Entities for recovery and transportation of used F-gas (recycling or scrap entities)	Entities for destruction of used F-gas (may use existing facility for destruction)

Purpose

To recover and destroy F-gas (GHG except for energy-related CO2, etc) from used equipment instead of releasing to air, and reduce emissions

Scope of Financing

- Establish scheme for recovery and destruction
- Install facilities/equipment for recovery/destruction
- Implementation of recovery, transportation, destruction and monitoring

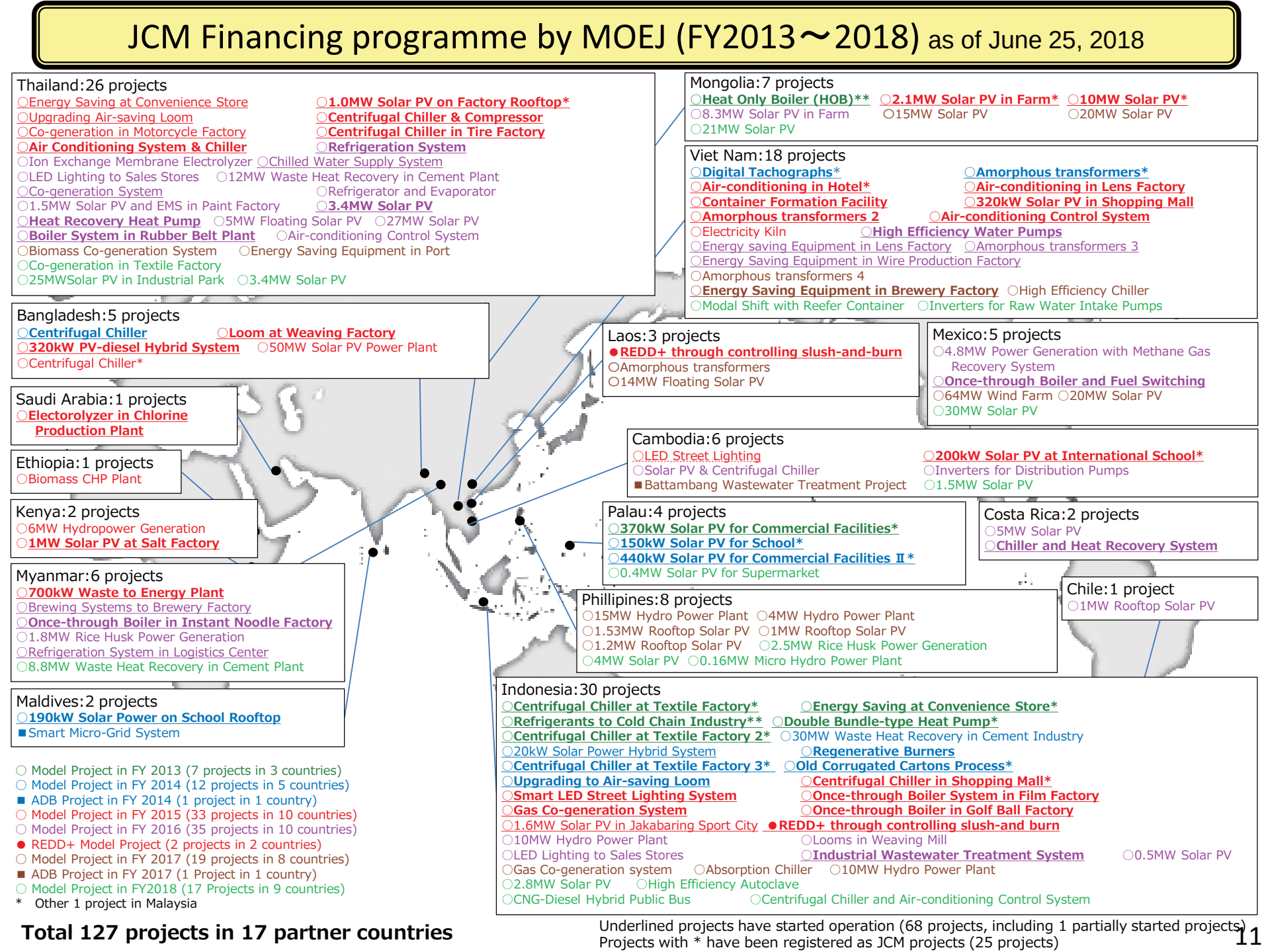
Project Period

Three years in maximum (Ex. 1st year for scheme, 2nd year for facilities, 3rd year for recovery/destruction)

Eligible Projects

- After the adoption of financing, start implementation of recovery/destruction within three years
- Aim for the registration as JCM project and issuance credits

JCM Financing programme by MOEJ (FY2013～2018) as of June 25, 2018



Thailand:26 projects
- ○Energy Saving at Convenience Store
- ○Upgrading Air-saving Loom
- ○Co-generation in Motorcycle Factory
- ○**Air Conditioning System & Chiller**
- ○Ion Exchange Membrane Electrolyzer
- ○LED Lighting to Sales Stores
- ○Co-generation System
- ○1.5MW Solar PV and EMS in Paint Factory
- ○**Heat Recovery Heat Pump**
- ○**Boiler System in Rubber Belt Plant**
- ○Biomass Co-generation System
- ○Co-generation in Textile Factory
- ○25MWSolar PV in Industrial Park
- ○**1.0MW Solar PV on Factory Rooftop***
- ○**Centrifugal Chiller & Compressor**
- ○**Centrifugal Chiller in Tire Factory**
- ○**Refrigeration System**
- ○Chilled Water Supply System
- ○12MW Waste Heat Recovery in Cement Plant
- ○Refrigerator and Evaporator
- ○**3.4MW Solar PV**
- ○5MW Floating Solar PV
- ○27MW Solar PV
- ○Air-conditioning Control System
- ○Energy Saving Equipment in Port
- ○3.4MW Solar PV

Mongolia:7 projects
- ○**Heat Only Boiler (HOB)****
- ○8.3MW Solar PV in Farm
- ○21MW Solar PV
- ○**2.1MW Solar PV in Farm***
- ○15MW Solar PV
- ○**10MW Solar PV***
- ○20MW Solar PV

Viet Nam:18 projects
- ○**Digital Tachographs***
- ○**Air-conditioning in Hotel***
- ○**Container Formation Facility**
- ○**Amorphous transformers 2**
- ○Electricity Kiln
- ○Energy saving Equipment in Lens Factory
- ○Energy Saving Equipment in Wire Production Factory
- ○Amorphous transformers 4
- ○**Energy Saving Equipment in Brewery Factory**
- ○Modal Shift with Reefer Container
- ○**Amorphous transformers***
- ○**Air-conditioning in Lens Factory**
- ○**320kW Solar PV in Shopping Mall**
- ○**Air-conditioning Control System**
- ○**High Efficiency Water Pumps**
- ○Amorphous transformers 3
- ○High Efficiency Chiller
- ○Inverters for Raw Water Intake Pumps

Bangladesh:5 projects
- ○**Centrifugal Chiller**
- ○**320kW PV-diesel Hybrid System**
- ○Centrifugal Chiller*
- ○**Loom at Weaving Factory**
- ○50MW Solar PV Power Plant

Laos:3 projects
- ●**REDD+ through controlling slush-and-burn**
- ○Amorphous transformers
- ○14MW Floating Solar PV

Mexico:5 projects
- ○4.8MW Power Generation with Methane Gas Recovery System
- ○**Once-through Boiler and Fuel Switching**
- ○64MW Wind Farm
- ○20MW Solar PV
- ○30MW Solar PV

Saudi Arabia:1 projects
- ○**Electorolyzer in Chlorine Production Plant**

Cambodia:6 projects
- ○LED Street Lighting
- ○Solar PV & Centrifugal Chiller
- ■Battambang Wastewater Treatment Project
- ○**200kW Solar PV at International School***
- ○Inverters for Distribution Pumps
- ○1.5MW Solar PV

Ethiopia:1 projects
- ○Biomass CHP Plant

Kenya:2 projects
- ○6MW Hydropower Generation
- ○**1MW Solar PV at Salt Factory**

Palau:4 projects
- ○**370kW Solar PV for Commercial Facilities***
- ○**150kW Solar PV for School***
- ○**440kW Solar PV for Commercial Facilities Ⅱ***
- ○0.4MW Solar PV for Supermarket

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

Myanmar:6 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
- ○8.8MW Waste Heat Recovery in Cement Plant

Phillipines:8 projects
- ○15MW Hydro Power Plant
- ○4MW Hydro Power Plant
- ○1.53MW Rooftop Solar PV
- ○1MW Rooftop Solar PV
- ○1.2MW Rooftop Solar PV
- ○2.5MW Rice Husk Power Generation
- ○4MW Solar PV
- ○0.16MW Micro Hydro Power Plant

Chile:1 project
- ○1MW Rooftop Solar PV

Maldives:2 projects
- ○**190kW Solar Power on School Rooftop**
- ■Smart Micro-Grid System

Indonesia:30 projects
- ○**Centrifugal Chiller at Textile Factory***
- ○**Refrigerants to Cold Chain Industry****
- ○**Centrifugal Chiller at Textile Factory 2***
- ○20kW Solar Power Hybrid System
- ○**Centrifugal Chiller at Textile Factory 3***
- ○**Upgrading to Air-saving Loom**
- ○**Smart LED Street Lighting System**
- ○**Gas Co-generation System**
- ○1.6MW Solar PV in Jakabaring Sport City
- ○10MW Hydro Power Plant
- ○LED Lighting to Sales Stores
- ○Gas Co-generation system
- ○2.8MW Solar PV
- ○CNG-Diesel Hybrid Public Bus
- ○**Energy Saving at Convenience Store***
- ○**Double Bundle-type Heat Pump***
- ○30MW Waste Heat Recovery in Cement Industry
- ○**Regenerative Burners**
- ○**Old Corrugated Cartons Process***
- ○**Centrifugal Chiller in Shopping Mall***
- ○**Once-through Boiler System in Film Factory**
- ○**Once-through Boiler in Golf Ball Factory**
- ●**REDD+ through controlling slush-and burn**
- ○Looms in Weaving Mill
- ○**Industrial Wastewater Treatment System**
- ○Absorption Chiller
- ○10MW Hydro Power Plant
- ○High Efficiency Autoclave
- ○Centrifugal Chiller and Air-conditioning Control System
- ○0.5MW Solar PV

○ Model Project in FY 2013 (7 projects in 3 countries)
○ Model Project in FY 2014 (12 projects in 5 countries)
■ ADB Project in FY 2014 (1 project in 1 country)
○ Model Project in FY 2015 (33 projects in 10 countries)
○ Model Project in FY 2016 (35 projects in 10 countries)
● REDD+ Model Project (2 projects in 2 countries)
○ Model Project in FY 2017 (19 projects in 8 countries)
■ ADB Project in FY 2017 (1 Project in 1 country)
○ Model Project in FY2018 (17 Projects in 9 countries)
* Other 1 project in Malaysia

Total 127 projects in 17 partner countries

Underlined projects have started operation (68 projects, including 1 partially started projects)
Projects with * have been registered as JCM projects (25 projects)

JCM model projects selected for FY2018 (First selection)

	Partner Country	Project	Sector	Estimated GHG emission reduction [tCO2/year]
1	Indonesia	Energy Saving by Introducing High Efficiency Autoclave to Infusion Manufacturing Factory	Energy efficiency	1,950
2	Indonesia	Introduction of 2.8MW Solar Power System in Healthcare and Food Factories	Renewable energy	2,446
3	Indonesia	Introduction of CNG-Diesel Hybrid Equipment to Public Bus in Semarang	Transportation	1,870
4	Indonesia	Energy Saving for Air-conditioning System of Shopping Mall by High Efficiency Centrifugal Chiller and Air-conditioning Control System	Energy efficiency	1,501
5	Mongolia	21MW Solar Power Project in Bayanchandmani	Renewable Energy	27,008
6	Palau	Introduction of 0.4MW Rooftop Solar Power System in Supermarket	Renewable Energy	296

JCM model projects selected for FY2018 (First selection)

	Partner Country	Project	Sector	Estimated GHG emission reduction [tCO2/year]
7	Vietnam	Modal Shift from Truck to Cargo Ship with Freshness Preservation Reefer Container	Transport	11,025
8	Vietnam	Energy Saving by Introduction of Inverters for Raw Water Intake Pumps	Energy Efficiency Improvement	1,043
9	Cambodia	1.5MW Solar Power Project in Kampong Thom	Renewable Energy	831
10	Mexico	30MW Solar Park Project in Guanajuato	Renewable Energy	36,037
11	Myanmar	Introduction of 8.8MW Power Generation System by Waste Heat Recovery for Cement Plant	Renewable Energy	19,241

JCM model projects selected for FY2018 (First selection)

	Partner Country	Project	Sector	Estimated GHG emission reduction [tCO2/year]
12	Thailand	Introduction of Gas Co-generation System and Absorption Chiller to Fiber Factory	Energy Efficiency Improvement /Renewable Energy	17,851
13	Thailand	25MW Rooftop and Floating Solar Power Project in Industrial Park	Renewable energy	10,620
14	Thailand	Introduction of 3.4 MW Rooftop Solar Power System in Technical Center and Office Buildings	Renewable energy	1,617
15	Philippines	2.5MW Rice Husk Power Generation Project in Butuan City, Mindanao	Renewable Energy	5,118
16	Philippines	Introduction of 4MW Rooftop Solar Power System in Tire Factory	Renewable Energy	2,858
17	Philippines	0.16MW Micro Hydro Power System in Taguibo Water Supply Facility, Mindanao	Renewable Energy	682

Expected schedule of JCM financing programme in FY2018

[JCM Model Project]

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

Items	Date
Starting date of 2nd call for request	End of Aug, 2018
Deadline for entities to submit their application	End of Nov, 2018
Announcement of selection	At any time upon selection

[JCM F-gas Recovery and Destruction Model Project]

Items	Date
Starting date of call for request	14th June, 2018
Deadline for entities to submit their application	17th July, 2018
Announcement of selection	Middle of Aug, 2018

[ADB Trust Fund (JFJCM)]

Items	Date
Call for request	All year round
Selection of projects	All year round

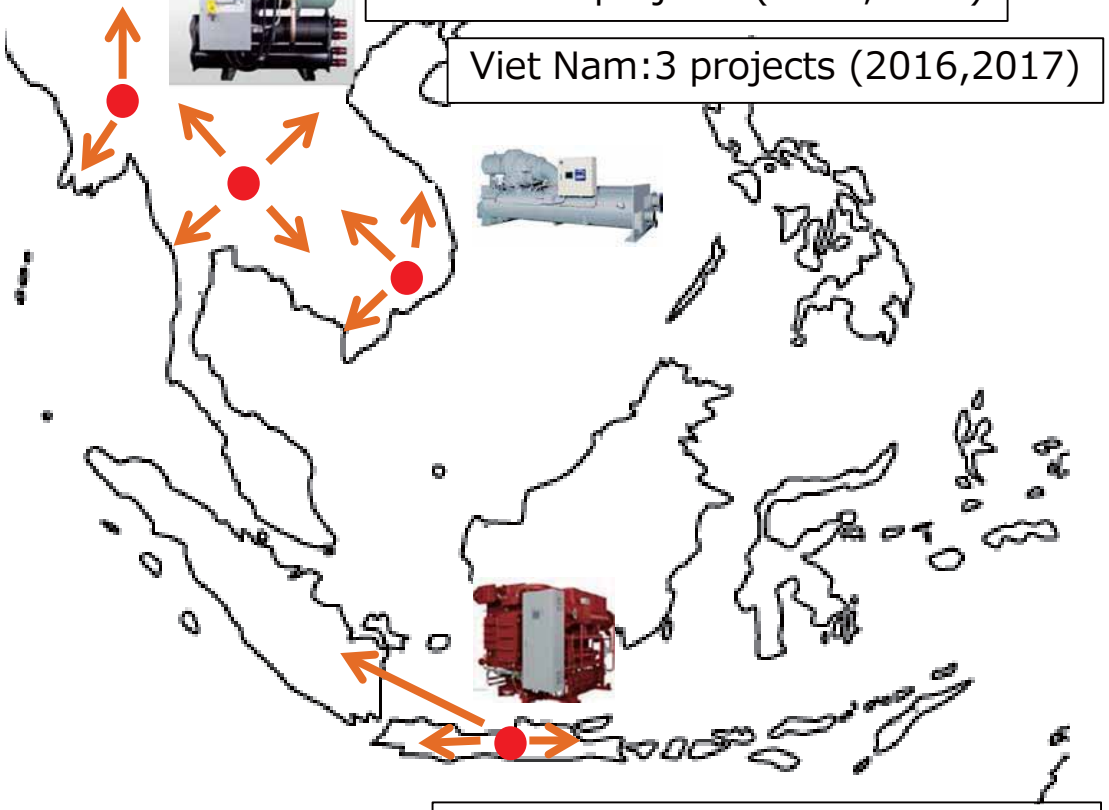
Business Model Case① : Replicating through Standard & Institutional Arrangement

- Company succeeded to implement leading low carbon technologies through the JCM
- Using the project as a showcase, their business was developed in ASEAN countries
- Further business development is expected through the establishment of energy efficiency standard s and relevant institutional arrangements

Myanmar:2 JCM model projects (2016)

Thailand:7 projects (2015,2016)

Viet Nam:3 projects (2016,2017)



Indonesia:6 projects (2013-2017)

JCM model project

↓

Demonstration of energy efficiency effects

↓

Establish standards & institutional arrangements

- Regulations
- Standards
- Taxes

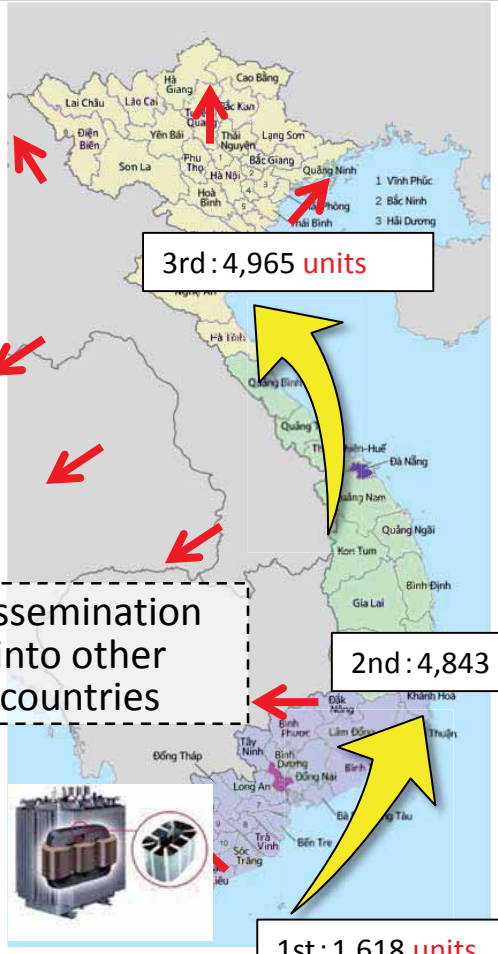
↓

Business development in other countries, sectors

Chillers/Refrigerator

Business Model Case② : Replicating through specific actions

- Company succeeded to introduce amorphous high efficiency transformers all over Viet Nam through the JCM
- Local energy distribution company included specifications for hiring the technology in its procurement standard based on understanding on its effectiveness
- Further business development is happening in other countries (e.g. Lao PDR)



JCM model projects

Demonstration of energy efficiency effects

Specifications included in procurement standard

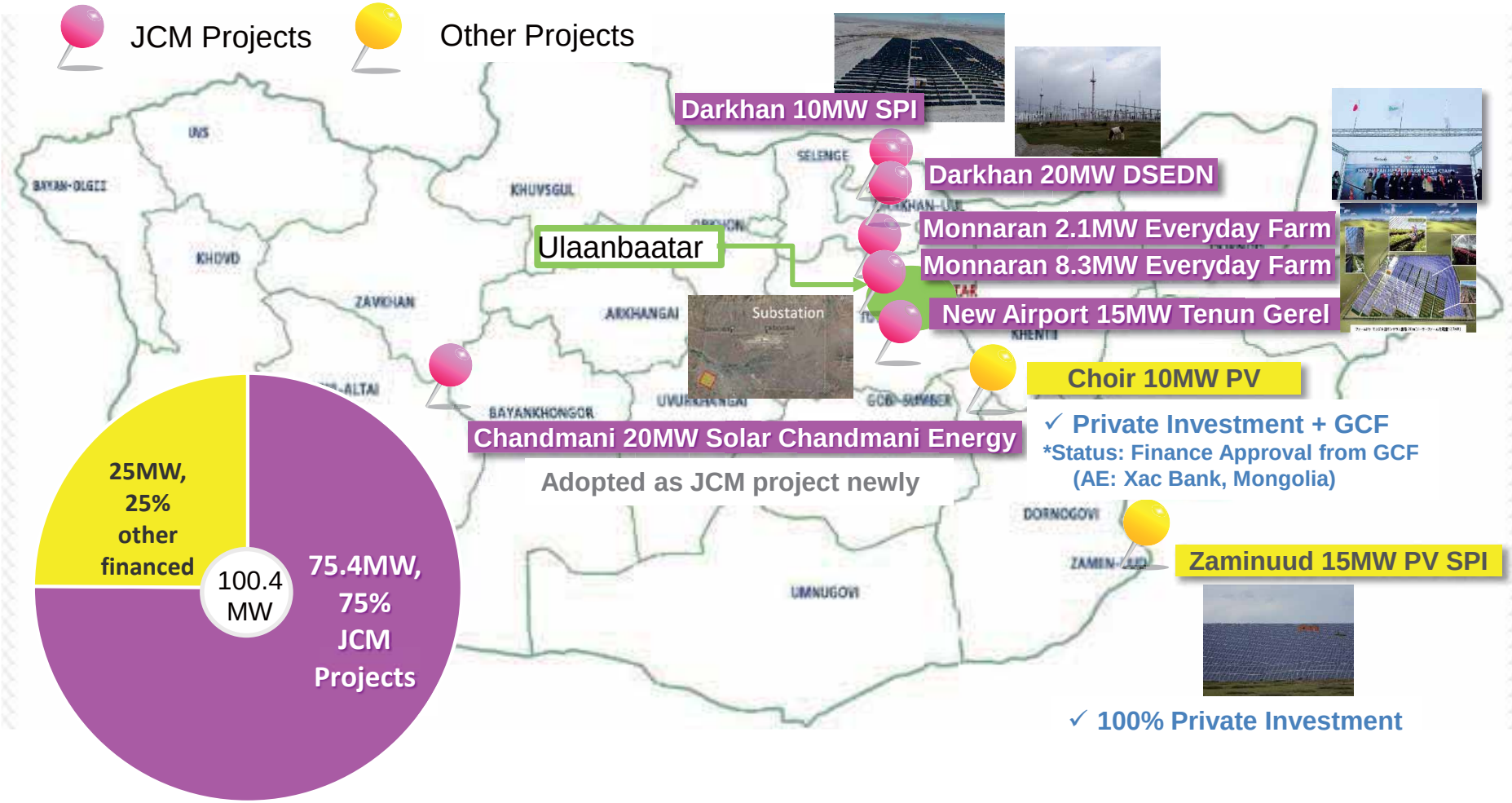
Sustainable business development

Dissemination of technology domestically and internationally

The Case of JCM's Contribution to NDC (Mongolia)

- Emission reduction of 14% is aimed to be realized by 2030 in total national GHG emissions, compared to the projected emissions under BAU scenario.
- In energy sector, the share of renewable electricity capacity to be increased up to 30% of total electricity generation capacity by 2030, from 7.62% in 2014.

75% of solar PV power facilities so far have been installed by the JCM as of June 2018



***JCM related Contribution for NDC in Mongolia**: **75 MW**

*Private Investment PV Project by the trigger of successful JCM projects: 25MW