


Role of the JCM in strengthening MRV for implementing and achieving NDC

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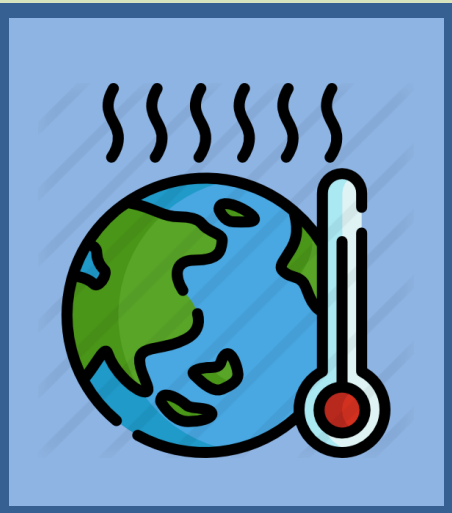
Role of the Joint Crediting Mechanism (JCM) Towards Sustainable Development and Achievement of NDC

Japan Pavilion, 6th December 2018, 17:00-18:30



JCM Joint Crediting Mechanism

Roles of Thailand Greenhouse Gas Management Organization: TGO

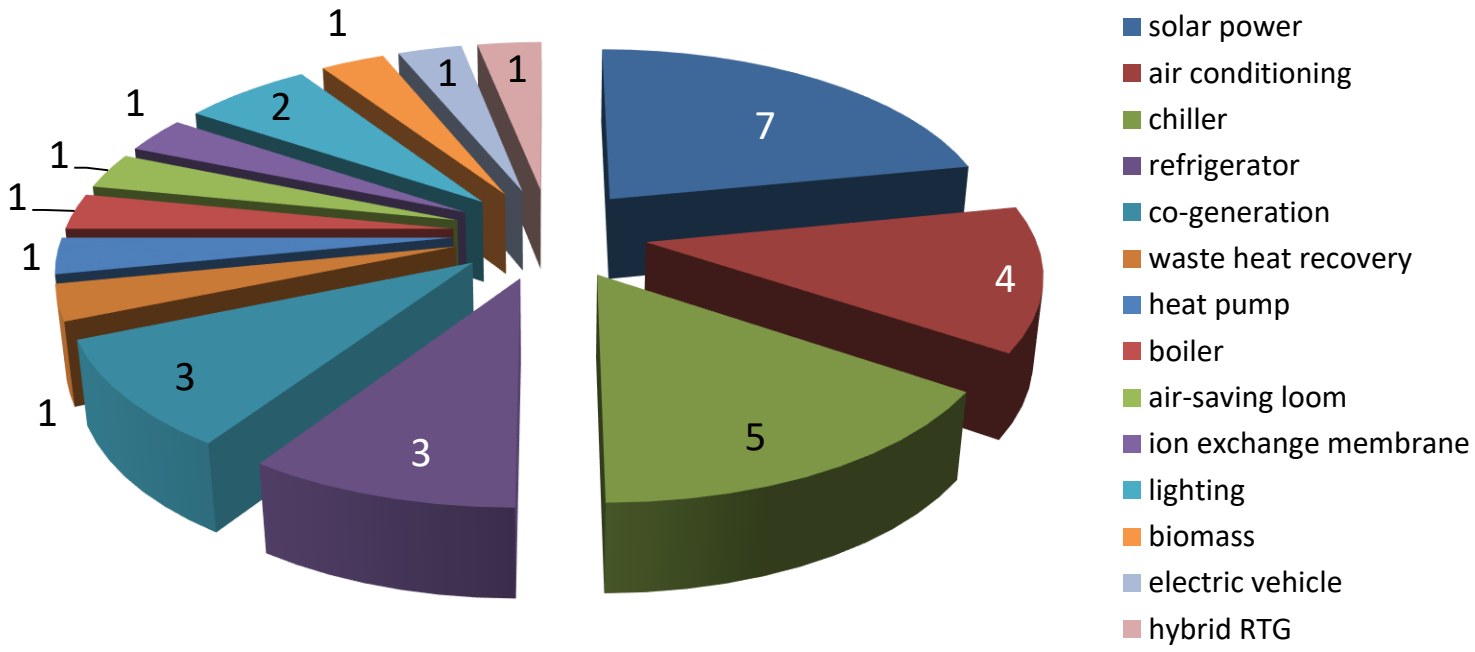
Thailand Greenhouse Gas Management Organization is a public organization under the Ministry of Natural Resources and Environment (MoNRE) and is designated by the cabinet to be a secretariat of the JCM of the Thai side. TGO serves the Joint Committee by performing the work for the implementation of the JCM since November 2015. Besides, TGO also

- check the completeness and correctness of
  - draft methodologies
  - Project Design Documents (PDDs)
  - monitoring reports
- check the qualification of the Third Party Entity (TPE)
- participate the local stakeholder consultation meetings
- on-site visit JCM Model Projects
- promote the development of JCM projects in Thailand
- organize/co-organized seminars/workshops on JCM
- publish data about JCM on website

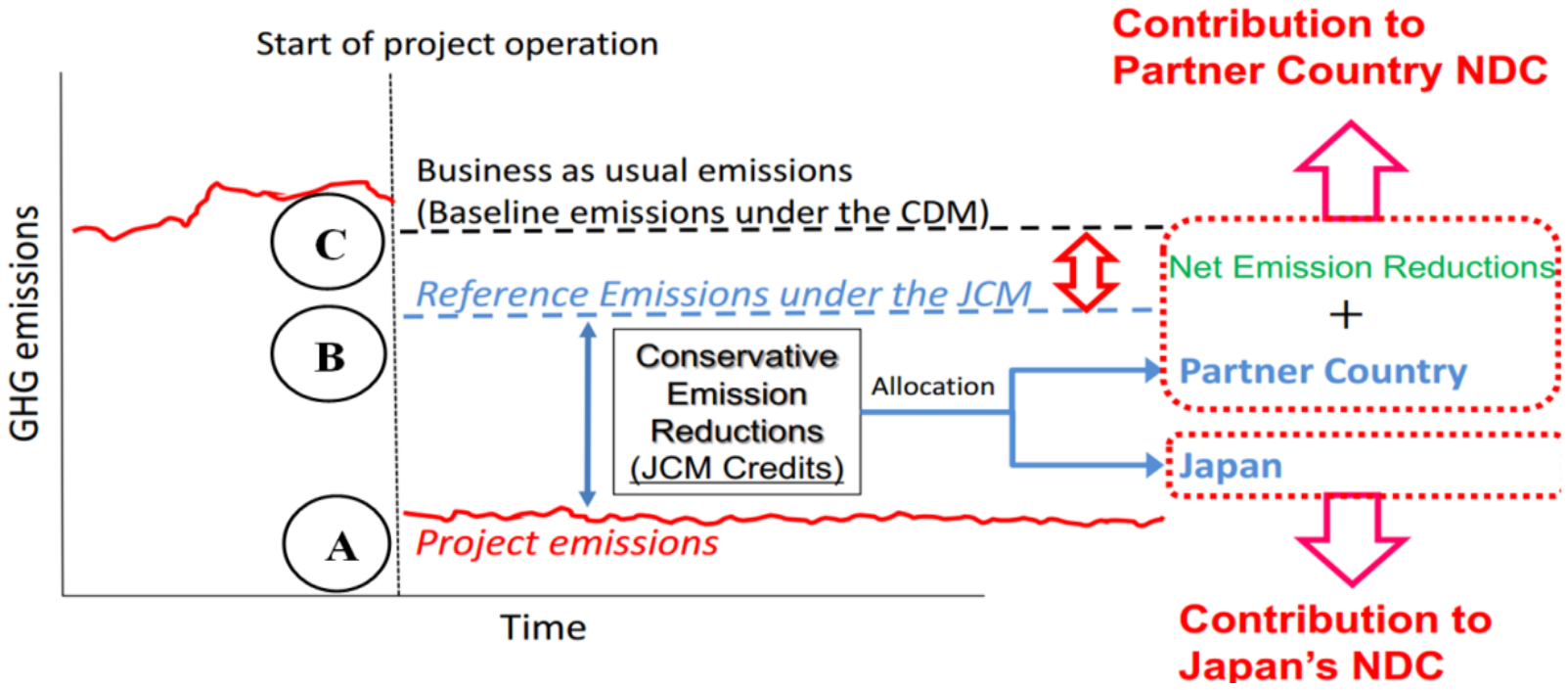
Type of JCM Model Projects

Project type	Number of projects	GHG reduction (tCO_2/y)
Energy efficiency	18	90,592
Renewable energy	8	39,080
	26	129,672

number of project categorized by technology



Calculation of emission reductions



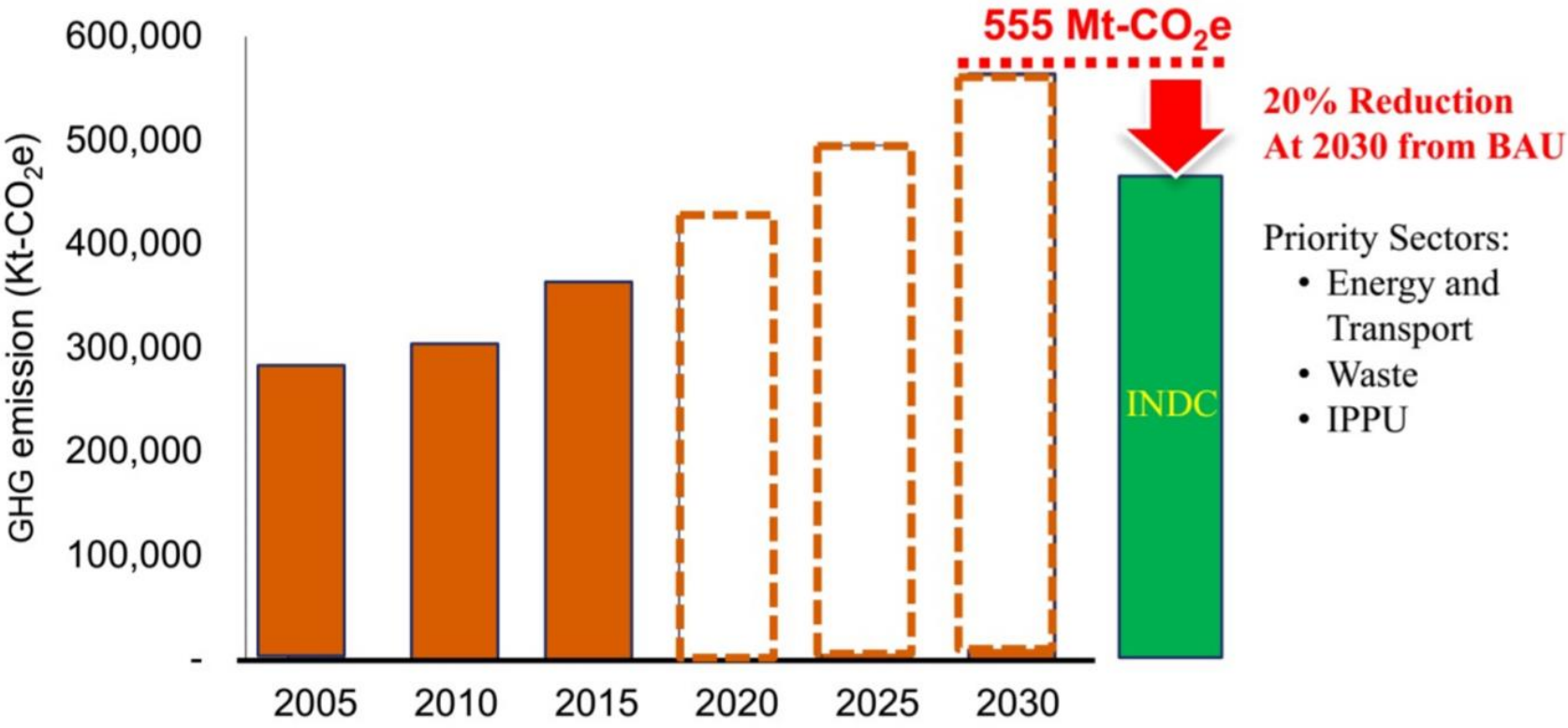
$$ER_p = RE_p - PE_p$$

ER_p : Emission reductions during the period p [tCO_2/p]

RE_p : Reference emissions during the period p (tCO_2/p)

PE_p : Project emissions during the period p (tCO_2/p)

Thailand's NDC

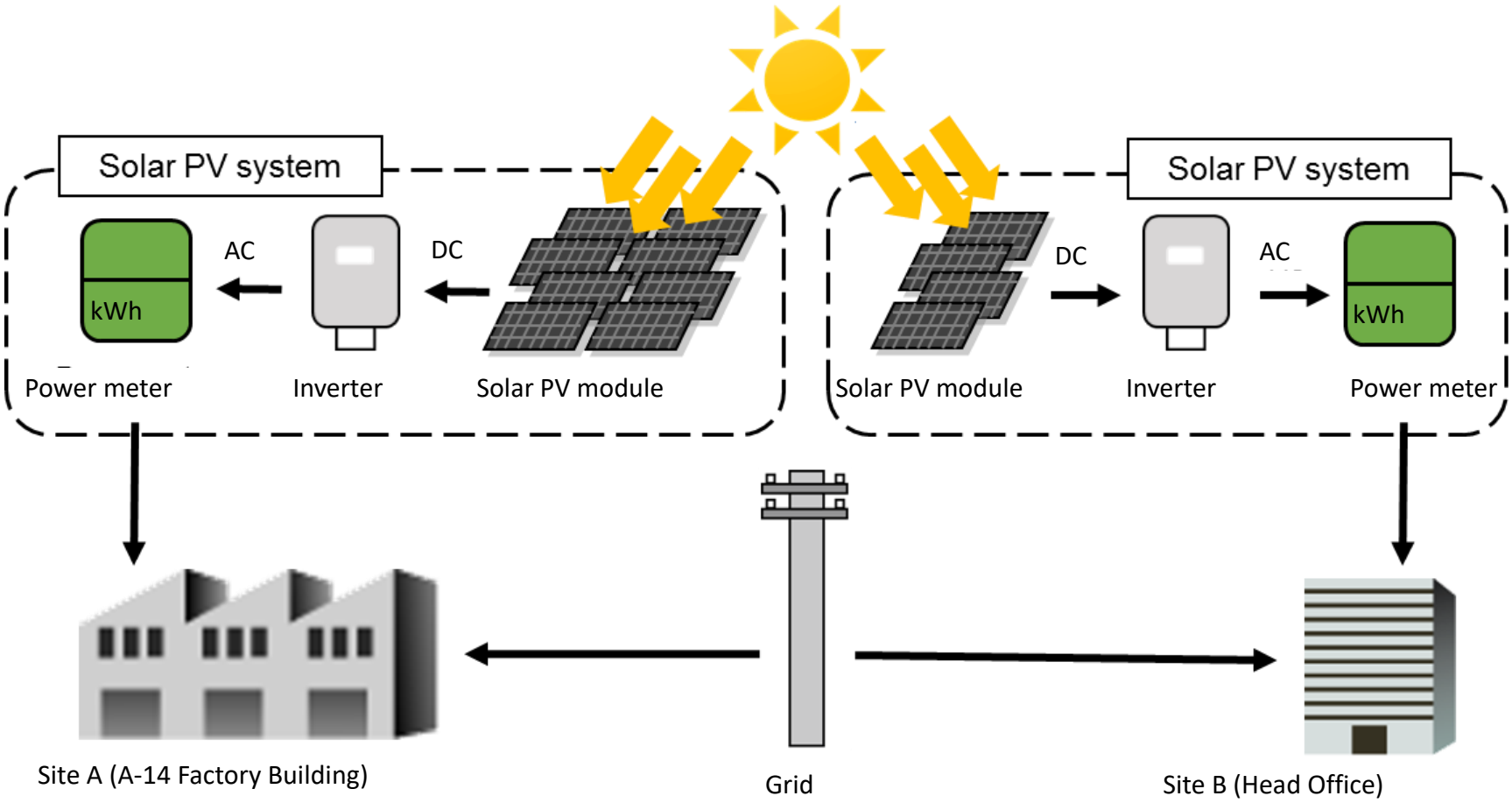


(Source: ONEP, 2017)

Approved JCM Methodologies

Methodology code	Title	Approval
TH_AM001	Installation of Solar PV System	23 Aug 2016
TH_AM002	Energy Saving by Introduction of Multi-Stage Oil-Free Air Compressor	Version 1.0 23 Aug 2016
		Version 2.0 21 Aug 2017
TH_AM003	Energy Saving by Introduction of High Efficiency Centrifugal Chiller	21 Aug 2017
TH_AM004	Installation of Energy Saving air Jet Loom at Textile Factory	21 Aug 2017
TH_AM005	Energy Saving by Introduction of Non-Inverter High Efficiency Centrifugal Chiller	21 Aug 2017
TH_AM006	Installation of Displacement Ventilation Air Conditioning Unit in the Cleanroom of Semiconductor Manufacturing Factory	21 Aug 2017
TH_AM007	Power Generation by Waste Heat Recovery in Cement Industry	20 Apr 2018

JCM Methodologies: TH_AM001
Installation of Solar PV System



JCM Methodologies: TH_AM001
Installation of Solar PV System

Calculation of project emissions

$$PE_p = 0$$

PE_p : Project emissions during the period p (tCO_2/p)

Calculation of reference emissions

$$RE_p = \sum_i EG_{i,p} \times EF_{RE}$$

RE_p : Reference emissions during the period p (tCO_2/p)

$EG_{i,p}$: Quantity of the electricity generated by the project solar PV system i during the period p (MWh/p)

EF_{RE} : Reference CO_2 emission factor of grid electricity and captive electricity (tCO_2/MWh)

JCM Methodologies: TH_AM001
Installation of Solar PV System

EF_{RE} : Reference CO_2 emission factor of grid electricity and captive electricity (tCO_2/MWh)

- calculated based on the power generation efficiency of 61.2% using natural gas as the power source.
- The default value for EF_{RE} is set to be 0.319 tCO_2/MWh.
- The default emission factor is derived from the result of the survey on the generation efficiency of major natural gas-fired power plants in Thailand. The default value should be revised if necessary from survey result which is conducted by the JC or project participants.

JCM Methodologies: TH_AM003

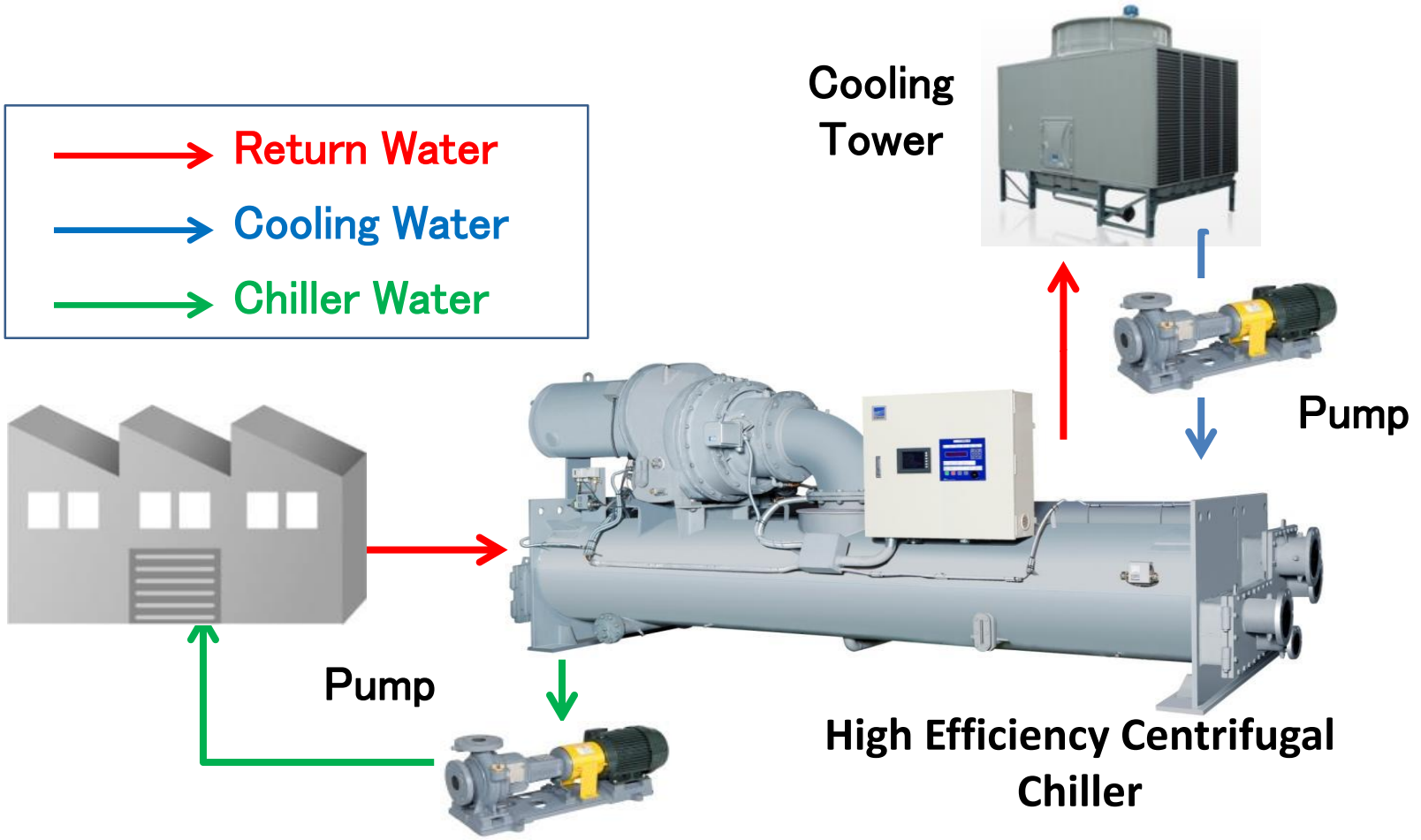
Energy Saving by Introduction of High Efficiency Centrifugal Chiller

■ High-efficiency centrifugal chiller for air conditioning

- High COP (high energy efficiency)
- ODP of the refrigerant (HFC-134a) used is zero for the ozone layer protection

JCM Methodologies: TH_AM005

Energy Saving by Introduction of Non-Inverter High Efficiency Centrifugal Chiller



JCM Methodologies:

TH_AM003: Energy Saving by Introduction of High Efficiency Centrifugal Chiller
TH_AM005: Energy Saving by Introduction of Non-Inverter High Efficiency Centrifugal Chiller

Calculation of project emissions

$$PE_p = \sum_i \left(EC_{PJ,i,p} \times EF_{elec} \right)$$

PE_p : Project emissions during the period p (tCO_2/p)
$EC_{PJ,i,p}$: Power consumption of project chiller i during the period p (MWh/p)
EF_{elec} : CO_2 emission factor for consumed electricity (tCO_2/MWh)

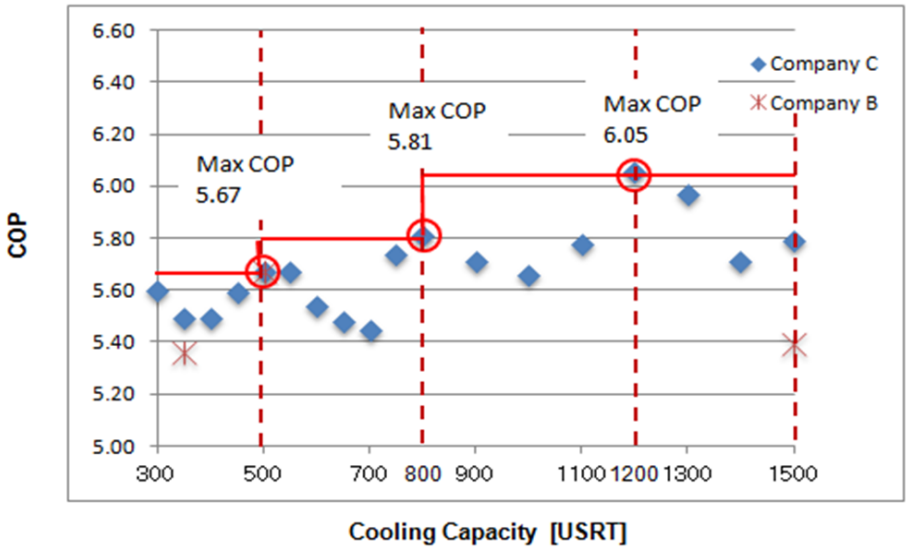
Calculation of reference emissions

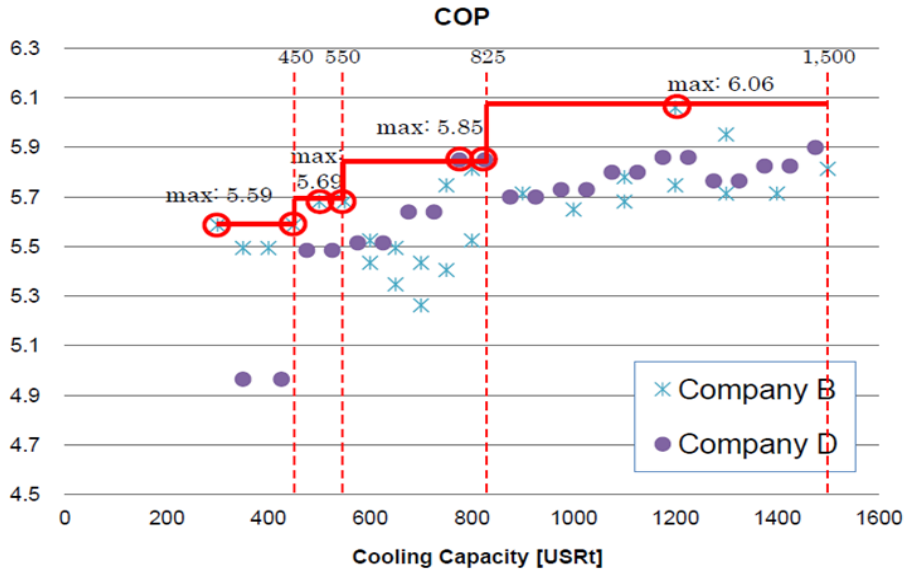
$$RE_p = \sum_i \left[EC_{PJ,i,p} \times \left(COP_{PJ,tc,i} \div COP_{RE,i} \right) \times EF_{elec} \right]$$

RE_p : Reference emissions during the period p (tCO_2/p)
$EC_{PJ,i,p}$: Power consumption of project chiller i during the period p (MWh/p)
$COP_{PJ,tc,i}$: COP of project chiller i calculated under the standardizing temperature conditions (-)
$COP_{RE,i}$: COP of reference chiller i under the standardizing temperature conditions (-)
EF_{elec} : CO_2 emission factor for consumed electricity (tCO_2/MWh)

JCM Methodologies:

TH_AM003: Energy Saving by Introduction of High Efficiency Centrifugal Chiller
TH_AM005: Energy Saving by Introduction of Non-Inverter High Efficiency Centrifugal Chiller





COP values of inverter type centrifugal chiller marketed in Thailand

Cooling capacity per unit (USRt)	300≤x<500	500≤x<800	800≤x≤1500
Threshold COP value	5.67	5.81	6.05

	Cooling capacity per unit (USRt)			
	300≤x≤450	450<x≤550	550<x≤825	825<x ≤1,500
Threshold COP value	5.59	5.69	5.85	6.06

Role of JCM in achieving NDC target

Environmental integrity		JCM
Robust accounting	- avoid double counting - avoid double claiming - Corresponding adjustment	✓
Quality of units	- 1 tCO_2eq directly leads to an emission reduction of at least 1 tCO_2eq in the transferring country - additional - not over estimated - permanent	✓

Thailand Greenhouse Gas Management Organization (Public Organization): TGO

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