



# Status of JCM Implementation in Thailand

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**Thailand Greenhouse Gas Management Organization (Public Organization): TGO**

Seminar on the Joint Crediting Mechanism (JCM) Implementation in Thailand –  
Accelerating Promotion of Environmental Infrastructure through JCM  
12<sup>th</sup> September 2019, Amari Watergate Bangkok Hotel

# **Bilateral Cooperation on the JCM for the Low Carbon Growth Partnership between Japan and the Kingdom of Thailand, 19<sup>th</sup> November 2015**

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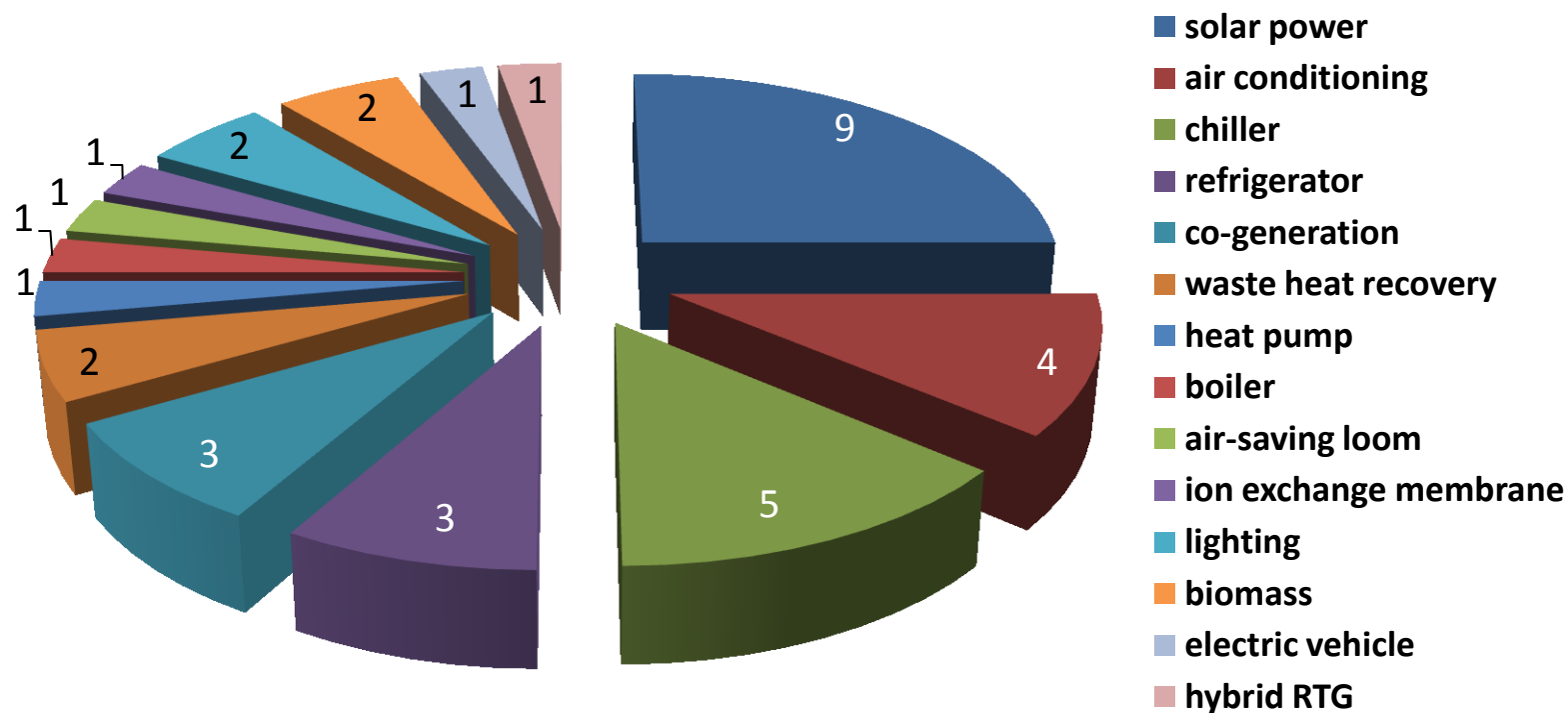
# JCM Development Cycle



# JCM Model Projects

Project type	Number of projects	GHG reduction (tCO <sub>2</sub> /y)
energy demand	19	88,802
energy industries	11	85,826
	30	174,628

## number of project categorized by technology

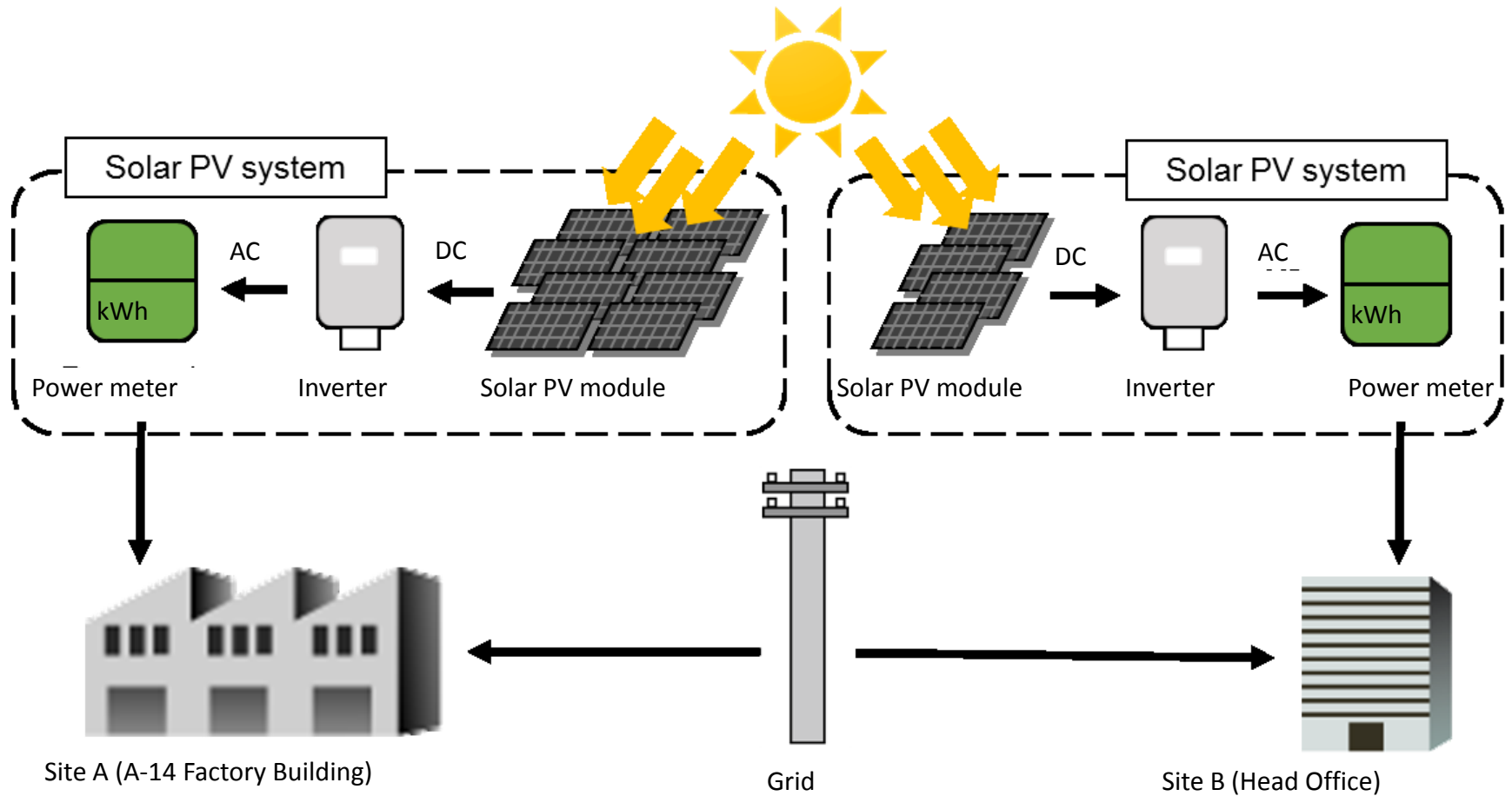


## Approved Methodologies (9 methods)

ID TH_AM	Title	Latest version	Date of approval
001	Installation of Solar PV System	1.0	23 Aug 2016
002	Energy Saving by Introduction of Multi-stage Oil-Free Air Compressor	2.0	21 Aug 2017
003	Energy Saving by Introduction of High Efficiency Inverter Type Centrifugal Chiller	1.0	21 Aug 2017
004	Installation of energy saving air jet loom at textile factory	1.0	21 Aug 2017
005	Energy Saving by Introduction of High Efficiency Non-Inverter Type Centrifugal Chiller	2.0	14 Jan 2019
006	Installation of Displacement Ventilation Air Conditioning Unit in the Cleanroom of Semiconductor Manufacturing Factory	1.0	21 Aug 2017
007	Power Generation by Waste Heat Recovery in Cement Industry	1.0	20 Apr 2018
008	Introducing heat recovery heat pumps with natural refrigerants for the food manufacturing industries	1.0	14 Jan 2019
009	Installation of gas engine cogeneration system to supply electricity and heat	1.0	14 Jan 2019

# JCM Methodologies: TH\_AM001

## Installation of Solar PV System



# JCM Methodologies: TH\_AM002

## Energy Saving by Introduction of Multi-Stage Oil-Free Air Compressor

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- Multi compression stage for higher energy efficiency
- Oil-free for clean working environment

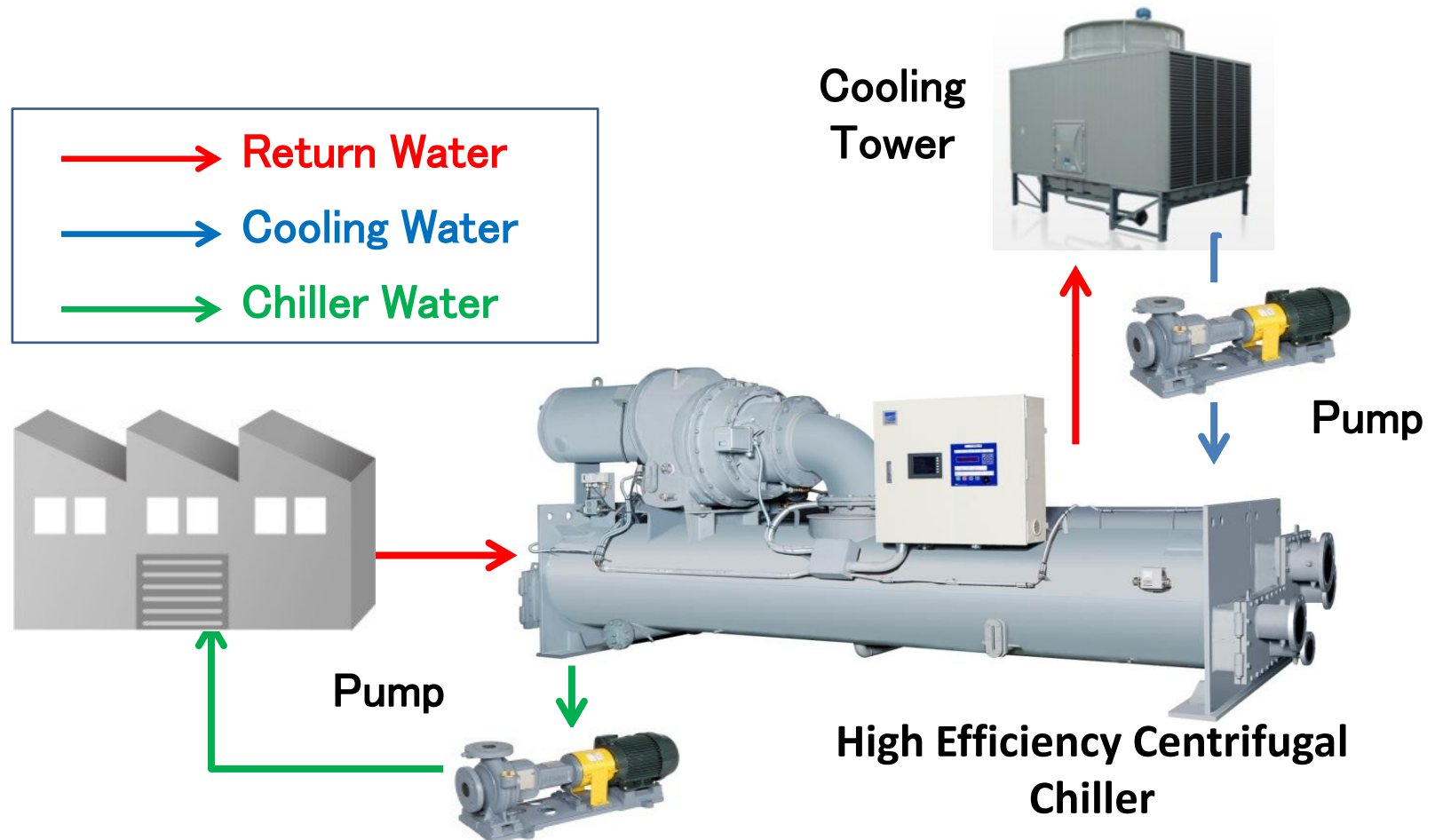
### ■ High-efficiency centrifugal chiller for air conditioning



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

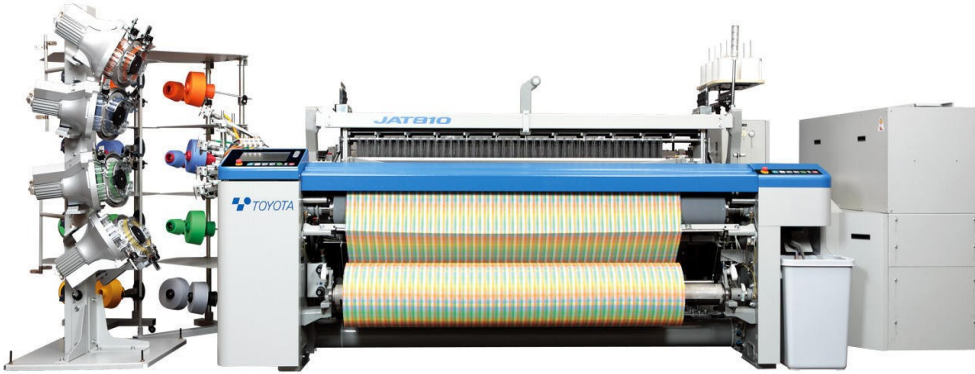
# JCM Methodologies: TH\_AM005

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

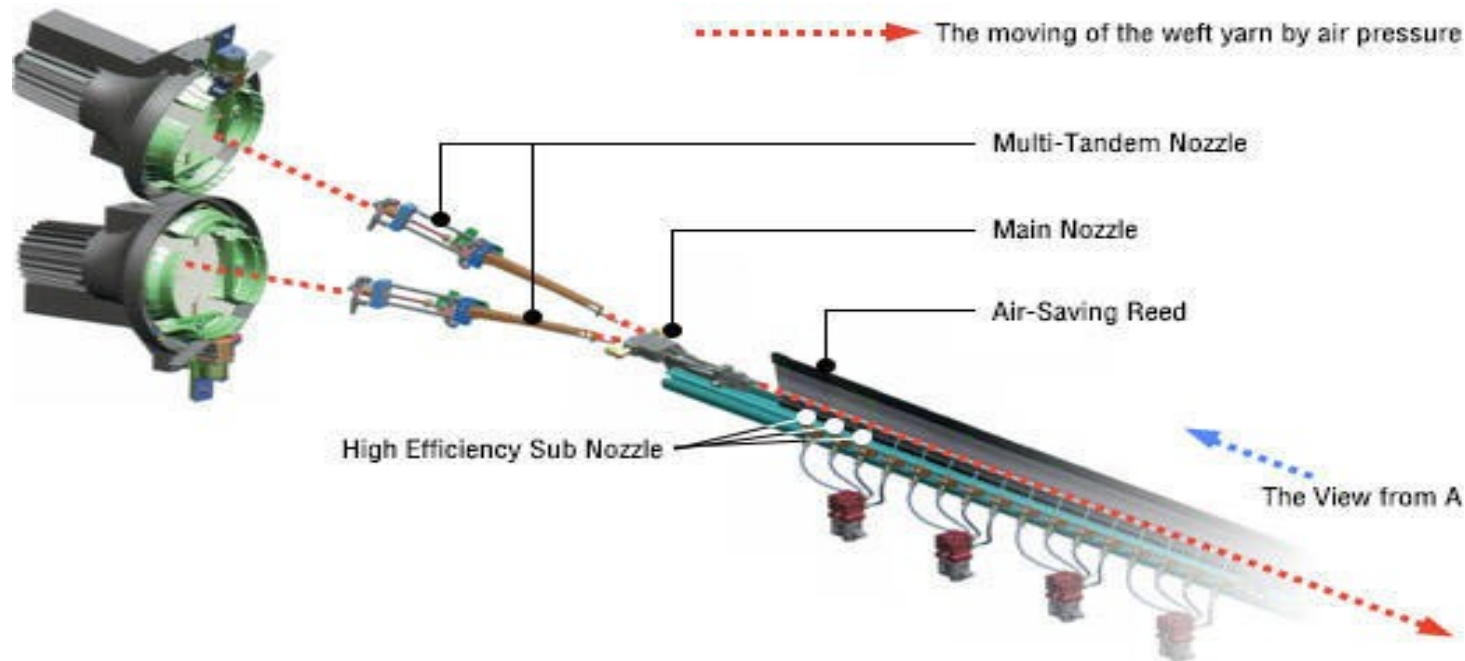


# JCM Methodologies: TH\_AM004

## Installation of Energy Saving air Jet Loom at Textile Factory



Energy saving air jet loom  
“Toyota JAT810” produced  
by Toyota Industries  
Corporation

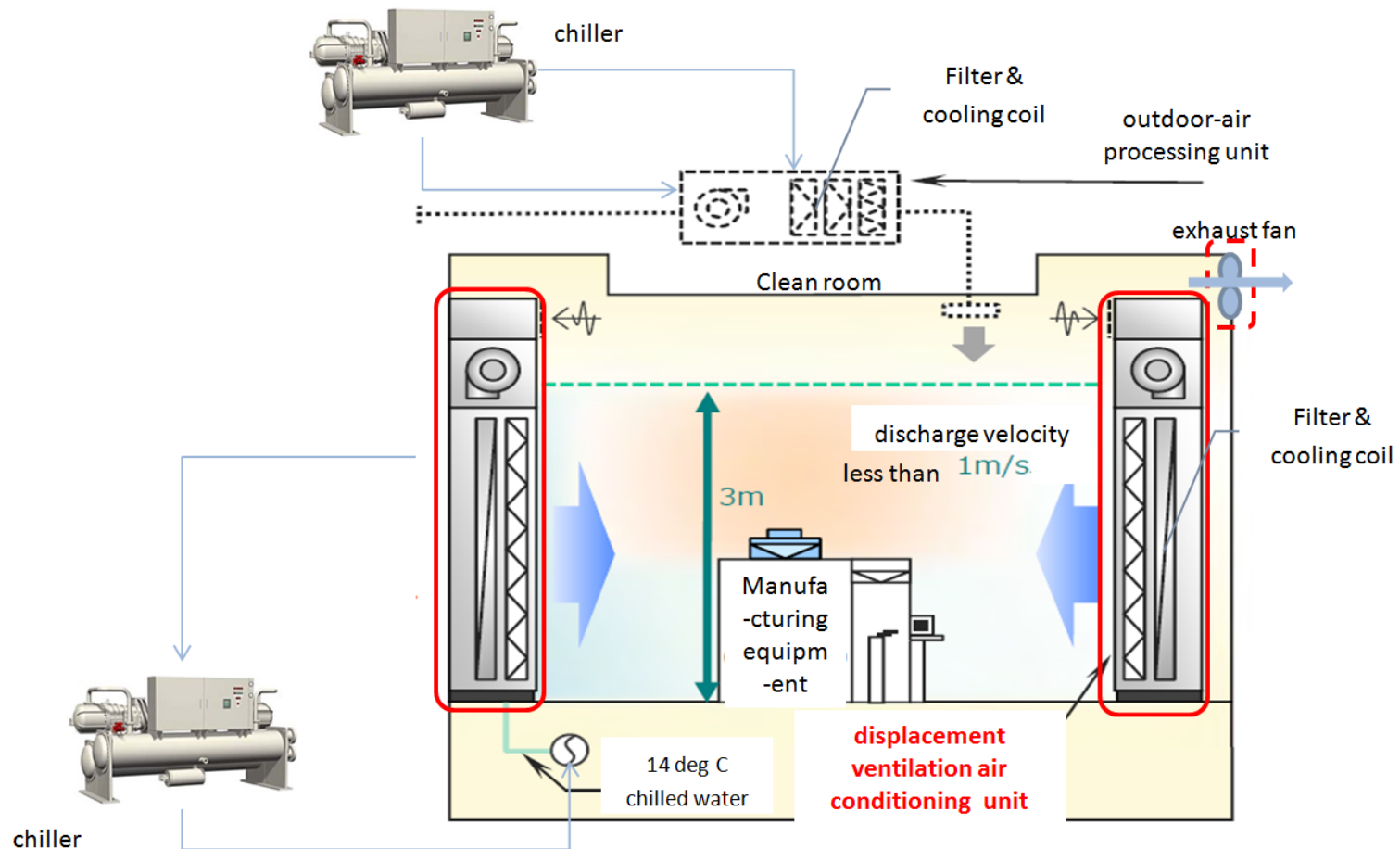


Air-Jet  
weft  
insertion  
system

# JCM Methodologies: TH\_AM006

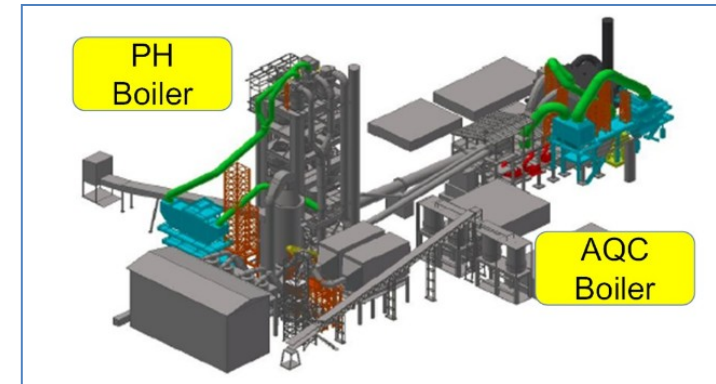
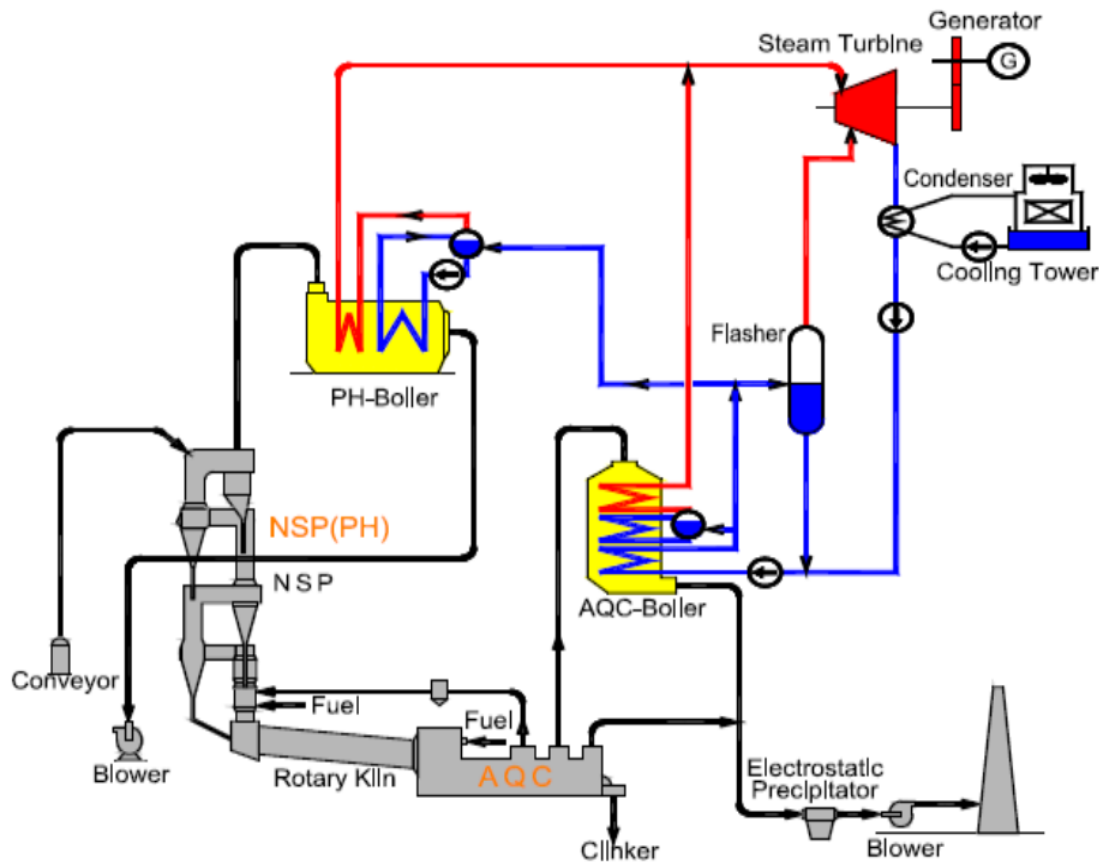
## Installation of Displacement Ventilation Air Conditioning Unit in the Cleanroom of Semiconductor Manufacturing Factory

### Outline of the technology applied



# JCM Methodologies: TH\_AM007

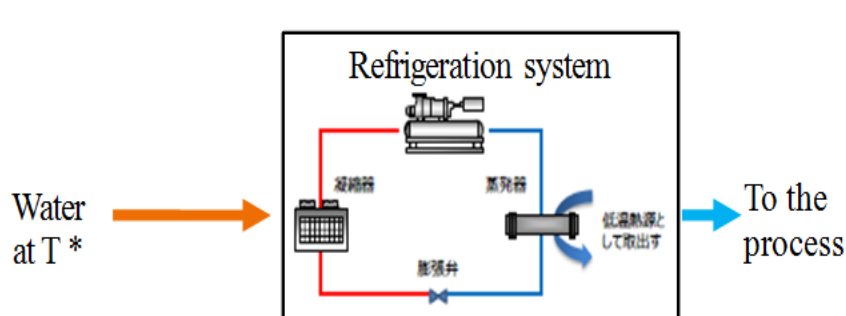
## Power Generation by Waste Heat Recovery in Cement Industry



# JCM Methodologies: TH\_AM008

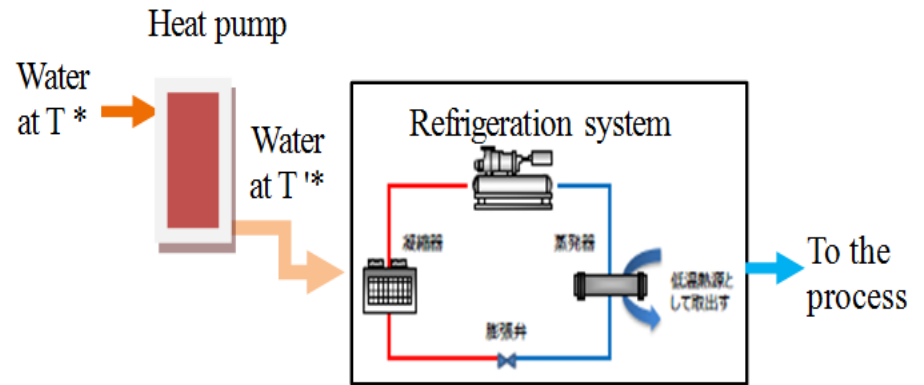
## Introducing heat recovery heat pumps with natural refrigerants for the food manufacturing industries

Before the project



\*T= Temperature

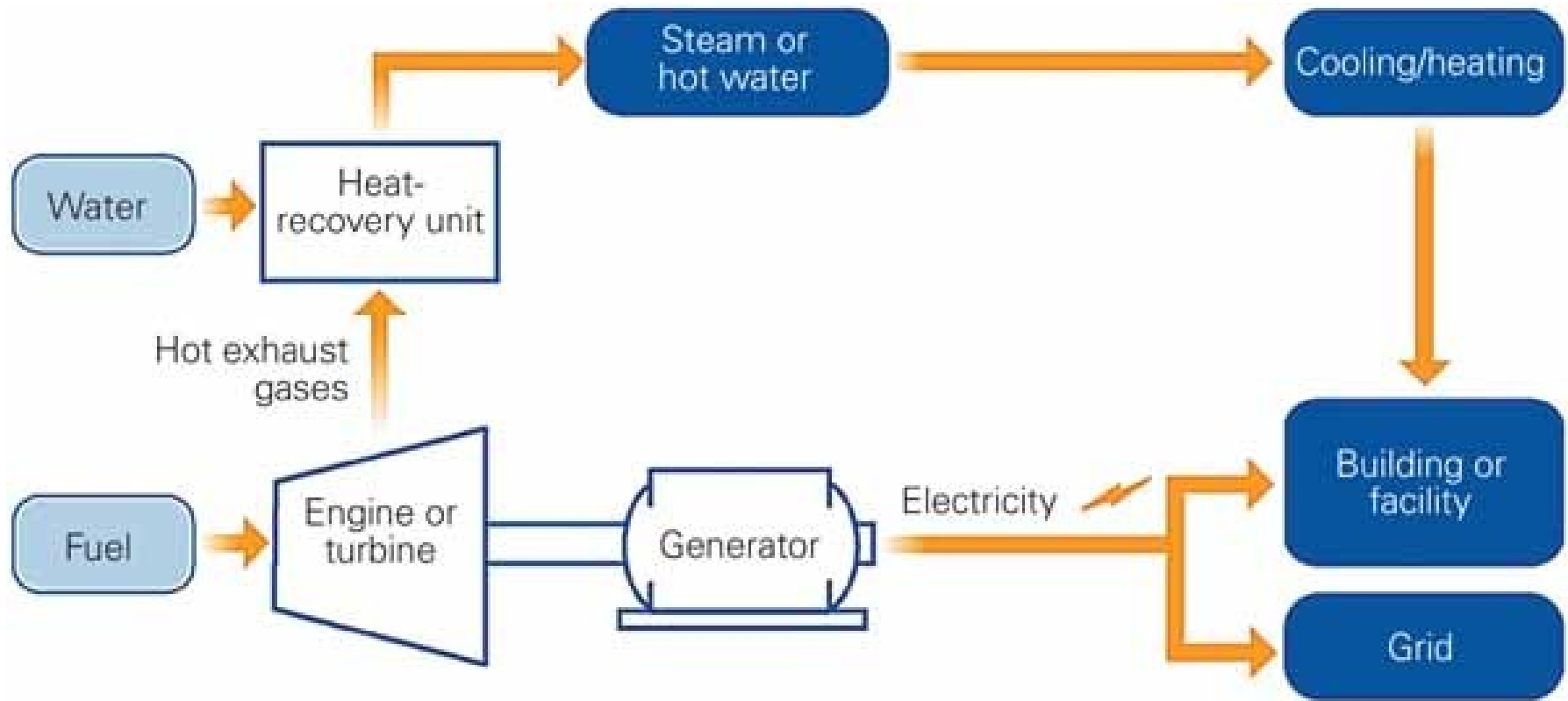
After the project



\*T, T'= Temperature, where  $T > T'$

# JCM Methodologies: TH\_AM009

## Installation of gas engine cogeneration system to supply electricity and heat



## Proposed Methodologies (9 methods)

Title
Installation of inverter-controlled air conditioning system for convenience store(s)
Installation of an inverter-controlled separate type fridge showcase for convenience store(s)
Energy Saving by Introduction of High Efficiency Screw Chiller for freezing and refrigeration
Installation of compressor control system(s) for split type air conditioner(s)
Energy Saving by Installation of an Evaporator with Mechanical Vapor Recompression
Energy Saving by Introduction of High Efficiency Once-through Boiler and Installation of Economizer into Existing Boiler
Installation of gas engine cogeneration system with absorption chiller to supply electricity, heating energy and cooling energy
Installation of Energy-efficient Refrigerators Using Natural Refrigerant at Cold Storage
Introduction of High Efficiency Electrolyzer in Caustic Soda Production Plant

## Third Party Entity (5 companies)

Company name	Designated date	1. Energy industries	2. Energy Distribution	3. Energy demand	4. Manufacturing industries	5. Chemical industry	6. Construction	7. Transport	8. Mining/mineral production	9. Metal production	10. Fugitive emissions from fuels	11. Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	12. Solvent use	13. Waste handling and disposal	14. Afforestation and reforestation	15. Agriculture
Lloyd's Register Quality Assurance Limited (LRQA)	23 Aug 2016	○ ●	○ ●	○ ●				○ ●						○ ●		
Bureau Veritas Certification Holding SAS (BVC)	23 Aug 2016	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●
Japan Quality Assurance Organization (JQA)	21 Aug 2017	○ ●		○ ●	○ ●	○ ●					○ ●			○ ●	○ ●	
Japan Management Association (JMA)	21 Aug 2017	○ ●	○ ●	○ ●											●	
EPIC Sustainability Services Private Limited (EPIC)	10 Dec 2018	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●	○ ●

## Registered Projects (6 projects)

Project Title	Expected Greenhouse Gas Emission Reduction (tCO <sub>2</sub> eq/year)	Date of approval
Introduction of Solar PV Systems on Rooftops of Factory and Office Building	440	21 Aug 2017
Reducing GHG emission at Textile Factory of Luckytex (Thailand) Public Company Limited by Upgrading to Air-saving Loom	253	20 Apr 2018
Installation of High Efficiency Air Conditioning System and Chillers in Semiconductor Factory	3,327	20 Apr 2018
Energy Saving for Semiconductor Factory with High Efficiency Centrifugal Chiller and Compressor	324	20 Apr 2018
Introduction of 3.4MW Rooftop Solar Power System to Air-conditioning Parts Factories	1,071	14 Jan 2019
Power Generation by Waste Heat Recovery in Cement Industry	29,206	2 Aug 2019
<b>Total</b>	<b>34,621</b>	

## Introduction of Solar PV Systems on Rooftops of Factory and Office Building



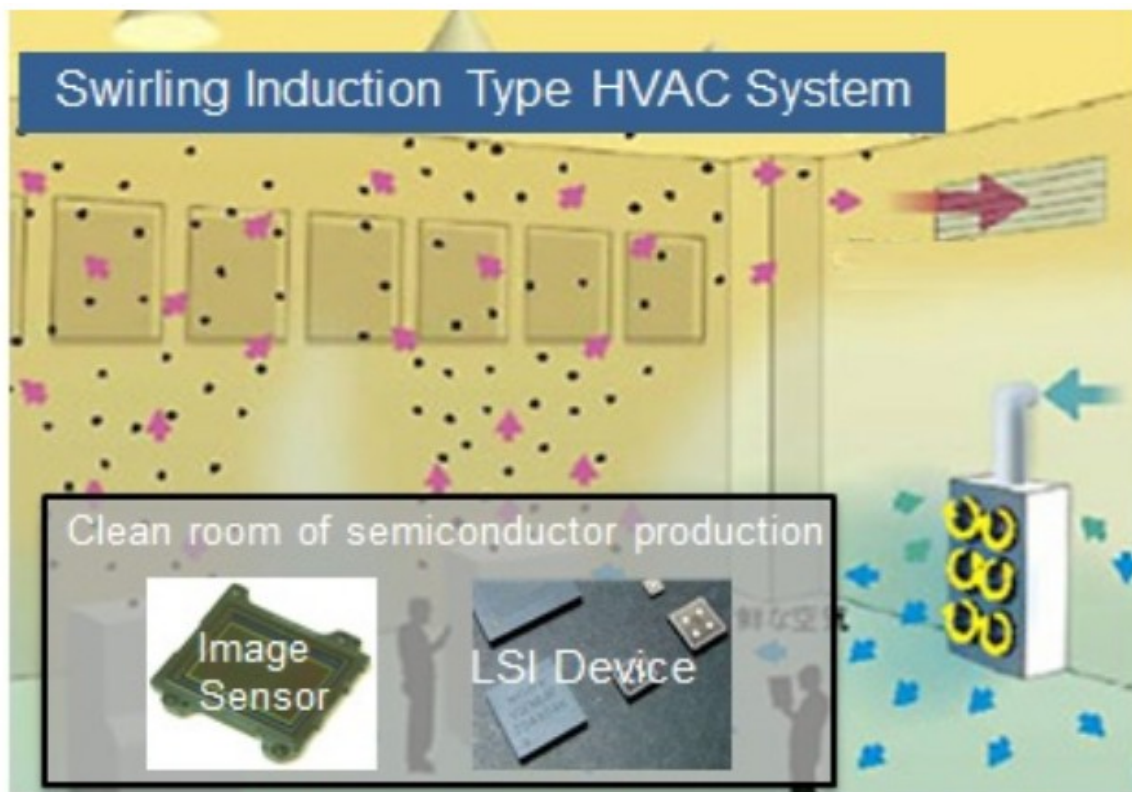
## JCM Model Project (TH002)

Reducing GHG Emission at Textile Factory of Luckytex (Thailand)  
Public Company Limited by Upgrading to Air-saving Loom



# JCM Model Project (TH003)

## Installation of High Efficiency Air Conditioning System and Chillers in Semiconductor Factory



Reference : Takasago Thermal Engineering Co.,Ltd. Website



High-efficiency  
centrifugal chiller  
for air conditioning

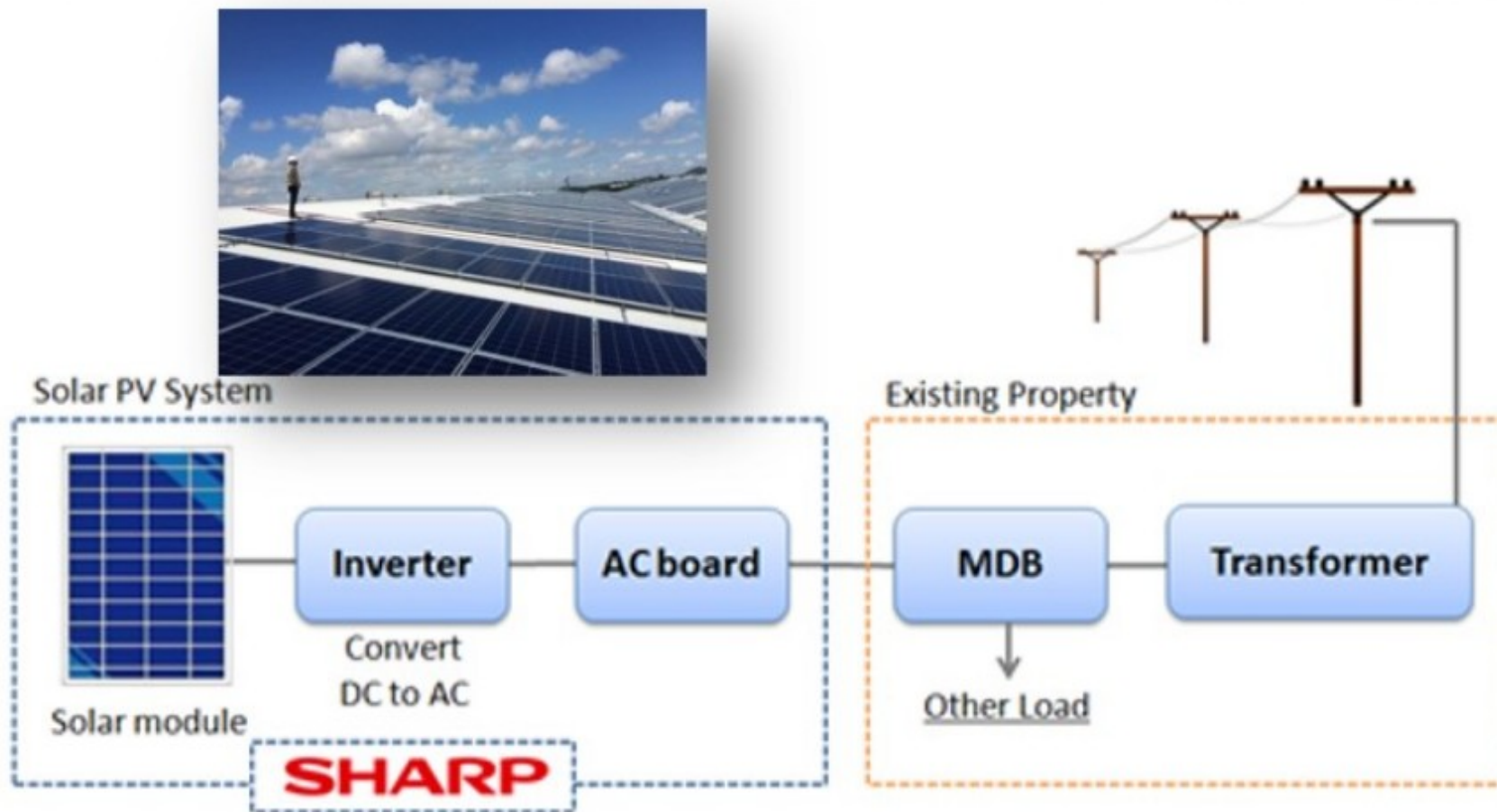
# JCM Model Project (TH004)

## Energy Saving for Semiconductor Factory with High Efficiency Centrifugal Chiller and Compressor

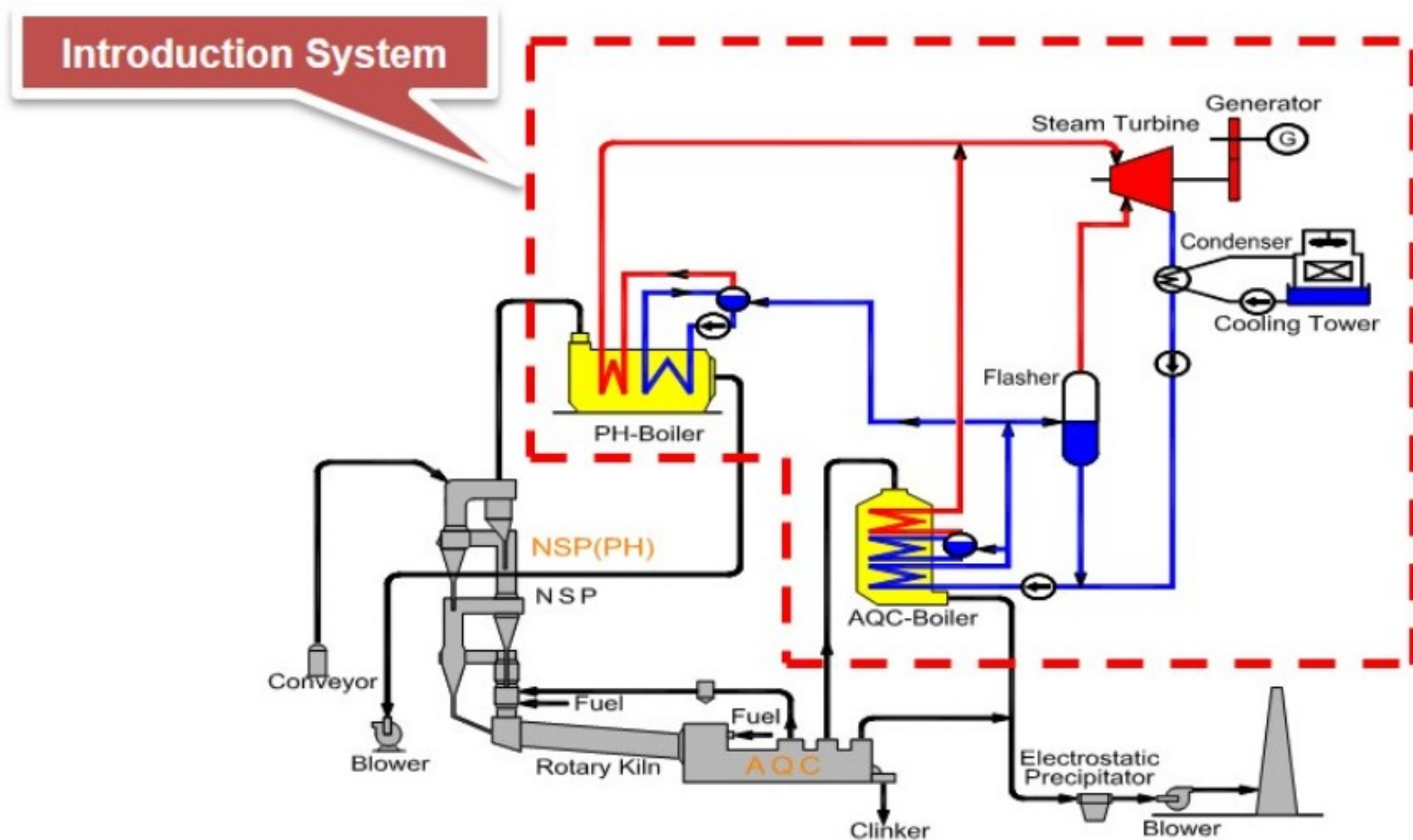


# JCM Model Project (TH005)

Introduction of 3.4MW Rooftop Solar Power System to Air-conditioning Parts Factories



## Power Generation by Waste Heat Recovery in Cement Industry



## Request for registration (4 projects)

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Project Title
Energy Saving for Air Conditioning in Tire Manufacturing Factory with High Efficiency Centrifugal Chiller
Introduction of 0.95 MW Rooftop Solar Power System in Cigarette Lighter Factory
Introduction of 0.97 MW Rooftop Solar Power System for Fishery Net Factory
Introduction of Heat Recovery Heat Pumps to a Chicken Slaughtering Plant in Thailand

## Credit Issuance (3 project)

Project Title	Thai side	Japanese side
Introduction of Solar PV Systems on Rooftops of Factory and Office Building	149	151
Installation of High Efficiency Air Conditioning System and Chillers in Semiconductor Factory	1,202	1,202
Energy Saving for Semiconductor Factory with High Efficiency Centrifugal Chiller and Compressor	57	58

## Seminar & Workshop (18 events)

Title of Meeting	Co-organizer	Date
JCM capacity building in Thailand	Institute for Global Environmental Strategies (IGES)	6 <sup>th</sup> Nov 2015
		25 <sup>th</sup> Jan 2016
		22 <sup>nd</sup> Aug 2017
		31 <sup>st</sup> Jan 2019
A training for JCM TPE		26-27 <sup>th</sup> Jan 2016
		5 <sup>th</sup> Sep 2019
Workshop on writing PDD		30 <sup>th</sup> Sep 2016
JCM Implementation in Thailand	Global Environment Centre Foundation (GEC)	11 <sup>th</sup> Sep 2018
		12 <sup>th</sup> Sep 2019
Japan-Thailand Joint Crediting Mechanism (JCM)	Ministry of Economy, Trade and Industry (METI)	6-7 <sup>th</sup> Jul 2016
		17 <sup>th</sup> Oct 2017
Developing JCM Projects in Thailand	Asian Development Bank (ADB)	27 <sup>th</sup> Sep 2016
Opportunities and Development of JCM for the private sector (give information of the MOEJ funding for FY 2016 – First call)	Thailand Greenhouse Gas Management Organization (TGO)	7 <sup>th</sup> Apr 2016
		5 <sup>th</sup> Oct 2016
		7 <sup>th</sup> Apr 2017
		10 <sup>th</sup> Apr 2018
		5 <sup>th</sup> Apr 2019

# Ready Thailand to Combat Climate Change

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