JCM
JOINT CREDITING MECHANISM
INDONESIA - JAPAN

Progress of The Joint Crediting Mechanism (JCM) in Indonesia

April 2015

Source :

- MOEJ-GEC JCM booklet "The Joint Crediting Mechanism (JCM) : Progress of Financing Programme for JCM Model Projects and Feasibility Studies for JCM Projects by MOEJ in 2014"
  - November 2014 edition
- The JCM Project information provided by the participant companies
- JCM Indonesia Website : www.jcmindonesia.com

Table of Contents

MOEJ : Ministry of Environment of Japan
METI : Ministry of Economy, Trade and Industry of Japan
NEDO : New Energy and Industrial Technology Development Organization
ADB : Asian Development Bank


The 2nd Joint Committee Meeting JCM

What is the JCM?

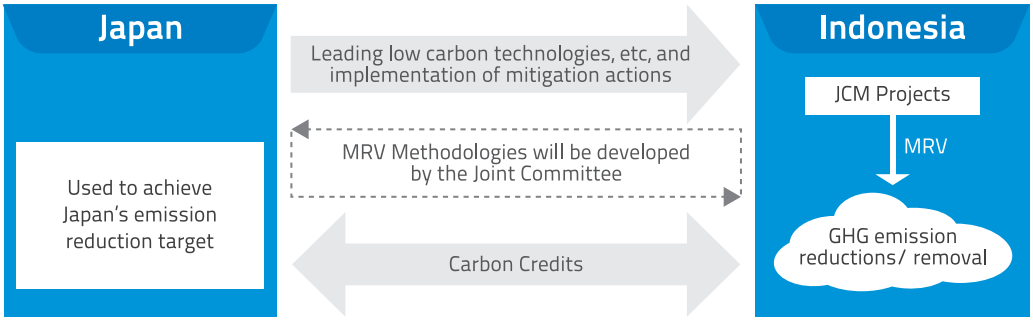
The Joint Crediting Mechanism(JCM) encourages cooperation between Japanese and Indonesian institutions to promote implementation of Low Carbon Development activities in Indonesia.

A History of the JCM in Indonesia

- 2010 : Initial discussions between National Council on Climate Change of Indonesia as JCM focal point and Japanese Government Delegation
- 2011 : Formal meeting on the JCM between National Council on Climate Change of Indonesia and related ministries and Japanese Government Delegation
- 2012 : Establishment of Coordination Team for Inter-State Carbon Trade Negotiation (Tim Koordinasi Perundingan Perdagangan Karbon Antarnegara (TKPPKA))
- 2013 : Signing on JCM Cooperation between the Governments of Indonesia and Japan
- 2014 : Establishment of Indonesia JCM Secretariat

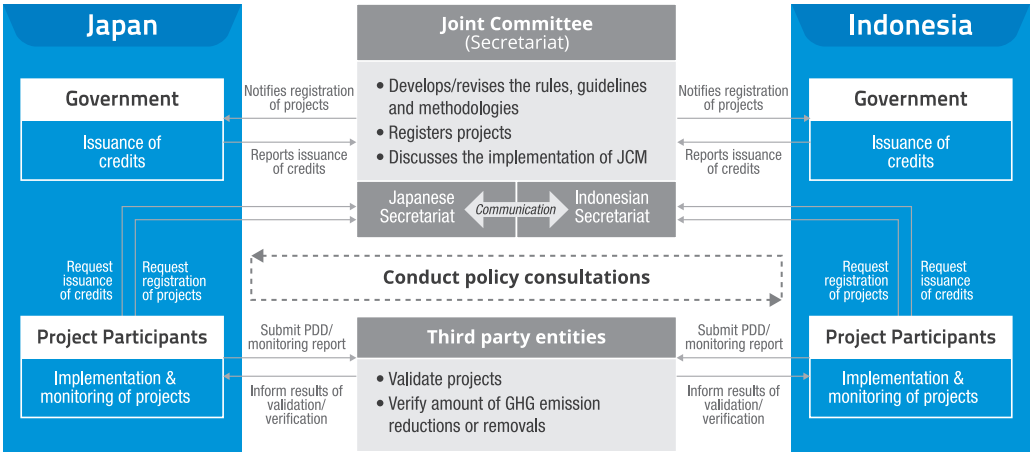
B Basic Concept of the JCM Cooperation between Japan and Indonesia

Figure 1. The JCM scheme between Japan and Indonesia



- Facilitating diffusion of leading low carbon technologies, products, systems, services, and infrastructure as well as implementation of mitigation actions, and contributing to sustainable development of developing countries;
- Appropriately evaluating contributions from Japan to GHG emission reductions or removals in a quantitative manner, by applying measurement, reporting, and verification (MRV) methodologies, and using them to achieve Japan's emission reduction target;
- Contributing to the ultimate objective of the UNFCCC by facilitating global actions for GHG emission reductions or removals, complementing the Clean Development Mechanism (CDM).

Figure 2. The JCM Cooperation Scheme

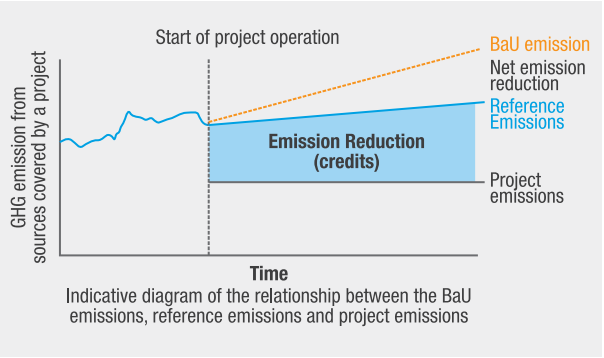


C MRV Methodology

The reference emissions are calculated to be below or at least on the same level business-as-usual (BaU) emissions, by conservatively estimating/identifying plausible emission or by other methods determined in the methodologies to be approved by the Joint Committee.

The net emission reductions from JCM projects are accounted as Indonesian domestic emission reductions.

Figure 3. Basic Concept for Crediting under the JCM



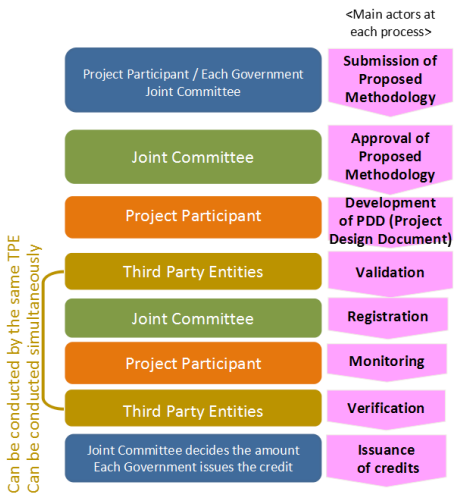
Indicative diagram of the relationship between the BaU emissions, reference emissions and project emissions

Approved JCM MRV methodologies (as of April 2015):

- Power Generation by Waste Heat Recovery in Cement Industry
- Energy Saving by Introduction of High Efficiency Centrifugal Chiller
- Installation of Energy-efficient Refrigerators Using Natural Refrigerant at Food Industry Cold Storage and Frozen Food Processing Plant
- Installation of Inverter-Type Air Conditioning System for Cooling for Grocery Store

Methodology update and public comments are available on www.jcmindonesia.com

D Project Cycle of the JCM



The image describes the steps to follow for project participants, third-party entities (TPEs), the Joint Committee, the secretariat, both Government sides, and other stakeholders, for approval of a methodology, registration of JCM project, issuance of credits and related actions.

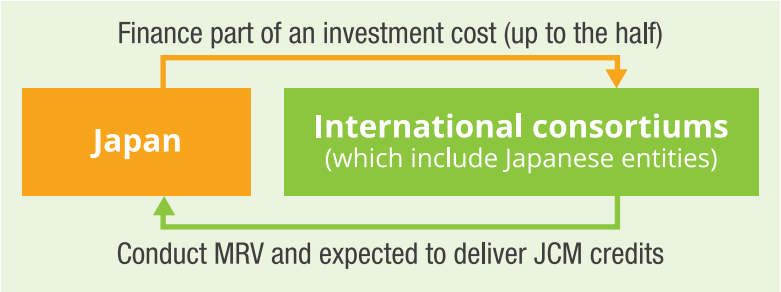

CO - CHAIR

JCM Promotion Scheme

A Financing Programme for JCM Model Projects by MOEJ

Scope of the financing: facilities, equipment, vehicle, etc. which reduce CO_2 from fossil fuel combustion as well as construction cost for installing those facilities, etc.

Figure 4. Financing Programme for JCM Model Projects



B Promotion Scheme for JCM Demonstration Projects by METI/NEDO

- JCM Demonstration Projects are funded by METI Japan and implemented by NEDO (New Energy and Industrial Technology Development Organization), which supports the project costs necessary to verify the amount of GHG emission reduction in line with JCM rules and guidelines.
- Coverage of project cost: Cost of the JCM Demonstration Projects necessary for MRV: e.g. Cost of design, machines, materials, labor, travel, etc.

C New Support Program Enabling "Leapfrog" Development (Fund/ADB) by MOEJ

	Fund for expansion of low-carbon technologies	ADB Trust Fund
Scheme	To finance the projects which have the better efficiency of reducing GHG emission in collaboration with other projects supported by JICA and other national organizations	To provide the financial incentives for the adoption of the advanced low-carbon technologies which are superior in GHG emission reduction but expensive in ADB-financed projects
Purpose	To expand superior and advanced low-carbon technologies for building the low carbon society as the whole city wise and area wise in the wider fields, and to acquire credits by the JCM.	To develop ADB projects as the "Leapfrog" developments by the advanced technologies and to show the effectiveness of the JCM scheme by the acquisition of credits of the JCM.

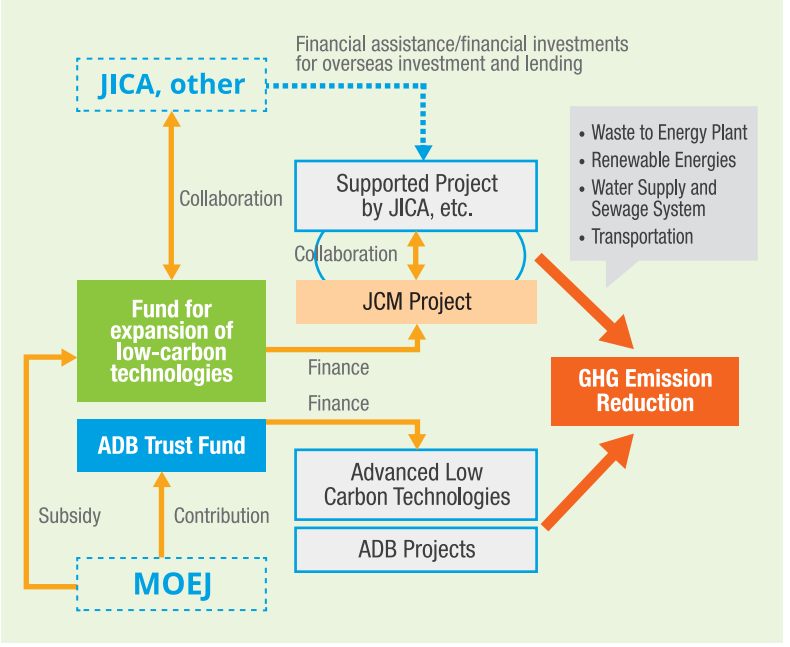


Figure 5. New Support Program Enabling "Leapfrog" Development (Fund/ADB)

D JCM Feasibility Study (FS) by MOEJ and METI/NEDO

The study to promote potential JCM projects, survey their feasibility, check the practicality of the MRV methodology, and elaborating investment plan.

E Capacity Building Programmes by MOEJ and METI

Capacity building activities to increase technical expertise (consultations, workshops, training courses, etc.)

JCM Projects in 2013 & 2014

Model/Demonstration Projects are promoted to follow the steps described in the JCM project cycle (see page 5). Official MRV (measurement, reporting, and verification) of emissions reduction starts after a project is registered.

Location of on going JCM Projects

Sectoral Scope

- energy industries (renewable/non-renewable sources)
- energy distribution
- energy demand
- manufacture industries
- metal production
- solvent use
- transport
- REDD+
- agriculture
- waste handling and disposal
- construction
- chemical industries
- fugitive emissions from production and consumption of halocarbons and sulfur
- fugitive emissions from fuel
- mining/mineral production

JCM Model Project

JCM Demonstration Project

JCM Registered Project

A JCM Model Project

Model Project (JFY 2013)

JFY : Japanese Fiscal Year

Energy Saving at Convenience Stores

Energy Demand

Estimated Emission Reduction

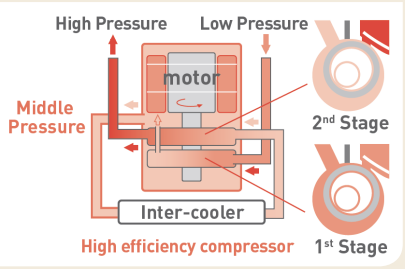
33 tCO_2 /store/year

Lawson, INC.

PT. Midi Utama Indonesia Tbk

Total electricity consumption of food retail convenience stores is decreased by the installation of the latest high-efficiency facilities and high-efficiency chillers with natural refrigerant (CO_2 refrigerant), inverter-controlled air-conditioners, and LED lighting. As a result, CO_2 emissions due to electricity consumption are reduced.

This project involves 12 convenience store of Alfa Midi located in Jakarta, Tangerang, and Depok.



Model Project (JFY 2013)

Energy Saving for Air-Conditioning and Process Cooling at Textile Factory

Energy Demand

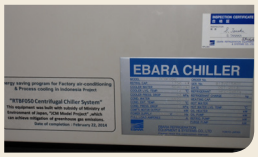
Estimated Emission Reduction

117 tCO_2 /year

Ebara Refrigeration Equipment & Systems and Nippon Koei Co., Ltd.

PT. Primatexco Indonesia

In Indonesia, humidity control is indispensable for the textile industry to maintain produce quality and massive energy output, which is required for the adjustment of factory air conditioning. The target factory replaces old-fashioned chillers (230 USRt and 250 USRt) with high-efficiency chillers (500USRt), in order to save energy and mitigate CO2 emissions. High-efficiency chillers adopt a high-performance economizer cycle and a super-cooling refrigerant cycle in order to save energy. Also, the chillers use low-pressure refrigerant (HFC-245fa) with zero ODP (Ozone Depletion Potential)



Model Project (JFY 2013)

Energy Saving by Installation of Double Bundle-type Heat Pump

Energy Demand

Estimated Emission Reduction

170 tCO_2 /year

Toyota Tsusho Corporation

PT. TTL Residences

In order to reduce natural gas consumption, a double bundle-type heat pump, generating both heating and cooling energy, is installed into the thermal supply system in serviced apartments. The heat pump supplies cooling energy for air conditioning in the hotel to reduce the electricity consumption. The reduction of natural gas consumption and coal-fired electricity consumption through the utilization of the heat pump contributes to GHG emission reductions. The heat pump is capable of high temperature heating (more than 60 degrees C), and its efficiency combining heating and cooling is expected to be 450 – 500 %

Model Project (JFY 2014)

Power Generation by Waste-heat Recovery in Cement Industry

Energy Industries (renewable/non-renewable sources

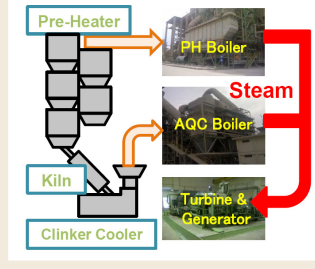
Estimated Emission Reduction

122,000 tCO_2 /year

JFE Engineering Corporation

PT. Semen Indonesia Tbk

The proposed project is planned to introduce a waste heat recovery (WHR) boiler steam turbine generator system at an existing cement production plant (PT. Semen Indonesia, Tuban Plant) located at Tuban, East Java, Indonesia. The WHR system utilizes waste heat currently emitted from the cement factory without utilization. WHR boilers generate steam using the waste heat exhausted from the cement plant, and the steam is fed to the steam turbine generator to generate electricity.



Model Project (JFY 2014)

Solar Power Hybrid System Installation to Existing Base Transceiver Stations in Off-grid Area

Energy Industries (renewable/non-renewable sources

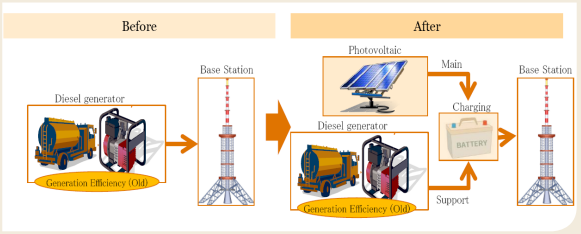
Estimated Emission Reduction

3,096 tCO_2 /year

ITOCHU Corporation

PT. Telekomunikasi Selular

There are many islands, off-grid areas, in Indonesia. This project is to install solar power and lithium ion batteries to existing mobile base stations where supply of electricity is by diesel generator. This project is planning to reduce consumption of diesel oil and CO_2 emissions by the above Hybrid Power System and control each base station's data by Cloud service at Telekomunikasi Selular's office. The project contributes to the spread of new technology in Indonesia and enable establishment of a new remote management system through a Cloud system.



Model Project (JFY 2014)

Energy Saving through Introduction of Regenerative Burners to the Aluminum Holding Furnace of the Automotive Components Manufacturer

Energy Demand

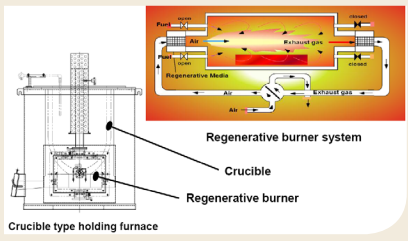
Estimated Emission Reduction

856 tCO_2 /year

Toyotsu Machinery Corporation, Hokuriku Techno Co.Ltd.

PT. Toyota Tsusho Indonesia, PT. Yamaha Motor Parts Manufacturing Indonesia, PT. Matahari Wasiso Tama, PT. Hokuriku Techno Indonesia

Replacing a conventional burner with a high-efficiency regenerative burner for an aluminum holding furnace improves energy saving and reduces GHG emissions. YPMI has an aluminum wheel die casting line with 11 crucible type holding furnaces. Local furnace manufacturer PT. Matahari replaces and modifies the furnaces supervised by the branch of Japanese furnace manufacturer Hokuriku Techno. PT. Matahari acquires sophisticated furnace design and manufacturing knowhow of regenerative burner furnaces and their tuning/maintenance techniques.



Model Project (JFY 2014)

Energy Saving for Textile Factory Facility Cooling by High Efficiency Centrifugal Chiller

Energy Demand

Estimated Emission Reduction

118 tCO_2 /year

Ebara Refrigeration Equipment & System Co., Ltd.

PT. Nikawa Textile Industry, PT. Ebara Indonesia

The textile industry is a major industry in Indonesia. To produce high quality products, air-conditioning is of key importance. For reducing GHG for the textile industry, a high-efficiency chiller is one of the best options to choose. The existing 500USRt chiller is replaced by a high-efficiency centrifugal chiller, which consists of a two-stage high efficiency compressor, economizer and sub-cooler system. By applying a purge unit with Activated Carbon, nearly 100% of HFC-245fa refrigerant with 0 ODP is recovered for excellence in GHG reductions.

Model Project (JFY 2014)

Reducing GHG Emission at Textile Factories by Upgrading to Air-saving Loom

Energy Demand

Estimated Emission Reduction

566 tCO_2 /year

Toray Industries, Inc.

PT. Indonesia Synthetic-Textile Milles (ISTEM), PT. Eastertex, PT. Century Textile Industry (CENTEX), PT. Toray Industries Indonesia (TIN)

Exporting textile products from Indonesia is the highest amount in South-eastern Asia.

In the project, at 3 sites of textile factory in Indonesia we will upgrade existing weaving looms to total 81 units of the latest air-saving loom(*).

* “Toyota JAT810”

This “JAT810” has original air-saving technology to reduce air consumption for weft insertion more 20% than the conventional model. The effect is not only reducing CO_2 emission by saving the power consumption of air-compressors but also reducing the running cost.

Model Project (JFY 2014)

Introduction of High Efficient Old Corrugated Cartons Process at Paper Factory

Manufacturing Industries

Estimated Emission Reduction

14,884 tCO_2 /year

Kanematsu Corporation

PT Fajar Surya Wisesa Tbk.

This project aims to achieve electricity usage reduction per ton produced (by about 10 %) by introducing a Japanese high-efficient system for the old corrugated carton (OCC) process for PT. Fajar Surya Wisesa, thereby contributing to CO_2 reduction.

A corrugated carton production line is consisted of two main processes, OCC process and sheet forming process, and this project is for the former.

This OCC process is a process to prepare clean raw materials containing dissolved paper fibers by mixing used corrugated board into water for defiberization and removing foreign substances.

Since a large amount of material (water) is handled in this process, the electricity is significantly consumed by the power motors.

Energy saving can be achieved by 2 technologies: (1) high efficient process design, and (2) application of each high efficient equipment.

B JCM Demonstration Project

Demonstration Project (JFY 2013)

Remote Auto-Monitoring System for Thin Film Solar Power Plant in Indonesia

Energy Industries (renewable/non-renewable sources

Estimated Emission Reduction

1,433 tCO_2 /year

SHARP Corporation

PT. PLN

Indonesia has many remote islands which depend on diesel power plants, subject to increase in fuel oil price and CO_2 emission. Solar power generation is expected to contribute to the reduction of fuel oil. Thin-film PV technology and remote auto-monitoring system for such remote islands helps enable CO_2 emission reduction on a large scale, be verifying this efficacy and spreading widely in Indonesia. This technology produce high power generation in high temperature / low latitude areas and its spectral response can utilize the short (blue) spectrum more effectively in low latitude area. It is also an environmentally-conscious technology as it does not use hazardous substances such as cadmium and using only 1/100th of the amount of silicone used in Crystalline PV. The long term credibility of this technology is suitable for use in mega-solar plants, as it gives high performance in the hot and humid condition, and adoption of highly damp-proof module sealant.

Demonstration Project (JFY 2013)

Energy Saving by Optimum Operation at Oil Refinery

Energy Demand

Estimated Emission Reduction

3,400 tCO_2 /year

Yokogawa Electric Corporation

PT. Pertamina (Refinery Unit V)

At oil refinery (a large CO_2 emitter), effective & sustainable CO_2 emission reduction technologies will be verified, then standardized for JCM roll out.

Introduce Advanced Process Control (APC) system proved at Japan and global oil majors, customize to meet local environment, then verify effective and sustainable CO_2 emission reduction by fossil fuel reduction.

Demonstration Project (JFY 2013)

Utility Facility Operation Optimization Technology

Energy Demand

Estimated Emission Reduction

58,000 tCO_2 /year

Azbil Corporation

Azbil Berca Indonesia, PT. Pertamina

This technology can be applied to the existing utility system of factories of various industries and is high return-on-investment (ROI) technology, since it works on simple computer systems, without high-performance hardware or other expensive equipment. It has a great amount CO_2 reduction potential for various industries in Indonesia, such as refineries, chemical plants, district heating and cooling systems, and so on.

Utility Facility Operation Optimization Technology is a "RENKEI" control, which is Japan is leading-edge technology. By using optimization technology, the system determines the optimum selection and optimum load allocation for utility equipment such as boilers, steam turbines, and chillers used in utility facilities, in order to minimize CO_2 emissions. Without any change of utility facility hardware this technology will realize a great amount of CO_2 reduction facilities, in order to minimize CO_2 emissions. Without any change of utility facility hardware, this technology will realize a great amount CO_2 reduction.

C JCM Registered Project

JCM Registered Project is a Project which joins financing program by MOEJ (Model Project) or METI (Demonstration Project) and has been approved by The Joint Committee to be acknowledged under the JCM scheme after going through validation process.

Registered Project (JFY 2014)

Energy Saving for Air-Conditioning and Process Cooling by Introducing High-efficiency Centrifugal Chiller

Energy Demand

Estimated Emission Reductions (average)

114 tCO_2 /year

Ebara Refrigeration Equipment & Systems Co. Ltd.
Nippon Koei Co. Ltd.

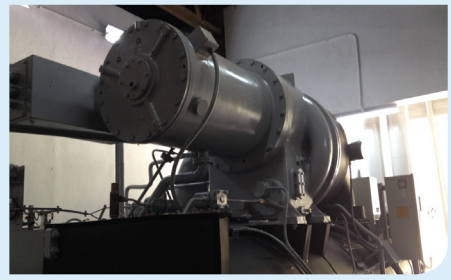
PT. Primatexco Indonesia

Reference No.: **ID001**

Batang, Central Java Province

In Indonesia, humidity control is indispensable for the textile industry to maintain product quality and massive energy output, which is required for the adjustment of factory air conditioning.
The target factory replaces old-fashioned chillers (230 USRt and 250 USRt) with high-efficiency chillers (500USRt), in order to save energy and mitigate CO_2 emissions. High-efficiency chillers adopt a high-performance economizer cycle and a super-cooling refrigerant cycle in order to save energy. Also, the chillers use low-pressure refrigerant (HFC-245fa) with zero ODP (Ozone Depletion Potential)

This Project is the first registered project under JCM scheme in the World.



Registered Project (JFY 2014)

Project of Introducing High Efficiency Refrigerator to a Food Industry Cold Storage in Indonesia

Energy Demand

Estimated Emission Reductions (average)

120 tCO_2 /year

Mayekawa Manufacturing Co.,Ltd.

PT. Adib Global Food Supplies, PT. Mayekawa Indonesia

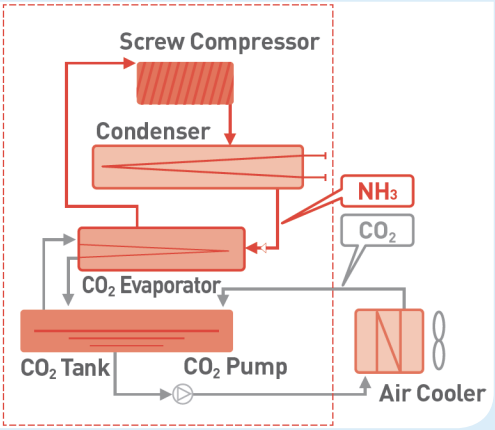
Reference No.: **ID002**

Kel./Kec. Bantargebang, Bekasi, West Java Province

This project is located at PT. Adib Global Food Supplies new site factory at Bekasi, West Java Province.

The advanced energy efficient cooling system using natural refrigerant (NH_3 and CO_2) is introduced into the food industry and logistics industry in Indonesia, where energy consumption is very high, demonstrating its high energy saving impact as well as a large amount of GHG emission reductions.

A screw compressor and an IPM (interior permanent magnet synchronous) motor are adopted and operated integrally, to achieve highly efficient operation of the cooling facility. This technology is utilized by PT. Adib not only to reduce the emission reduction but also to improves the efficiency of the refrigerator which used as cold storage for the food industry



Registered Project (JFY 2014)

Project of Introducing High Efficiency Refrigerator to a Frozen Food Processing Plant in Indonesia

Energy Demand

Estimated Emission Reductions (average)

21 tCO_2 /year

Mayekawa Manufacturing Co.,Ltd.

PT. Adib Global Food Supplies, PT. Mayekawa Indonesia

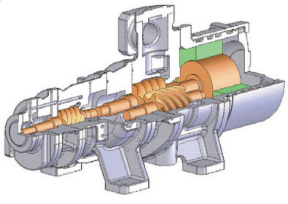
Reference No.: **ID003**

Kec. Cilebar, Kab. Karawang, West Java Province

This project is located at PT. Adib Global Food Supplies existing frozen food factory at Karawang, West Java Province.

The advanced energy efficient cooling system using natural refrigerant (NH_3 and CO_2) is introduced into the food industry and logistics industry in Indonesia, where energy consumption is very high, demonstrating its high energy saving impact as well as a large amount of GHG emission reductions.

A screw compressor and an IPM (interior permanent magnet synchronous) motor are adopted and operated integrally, to achieve highly efficient operation of the cooling facility. This technology is utilized by PT. Adib not only to reduce the emission reduction but also to improve the efficiency of frozen food processing.



Screw Compressor

Condensing Unit

Coordinating Ministry for Economic Affairs
Republic of Indonesia

In Cooperation with:

JICA

For Further Information

Indonesia JCM Secretariat

BUMN Building 18th Floor
Jl. Medan Merdeka Selatan 13, Jakarta - 10110 Indonesia

www.jcmindonesia.com
info@jcmindonesia.com