JCM MODEL PROJECT

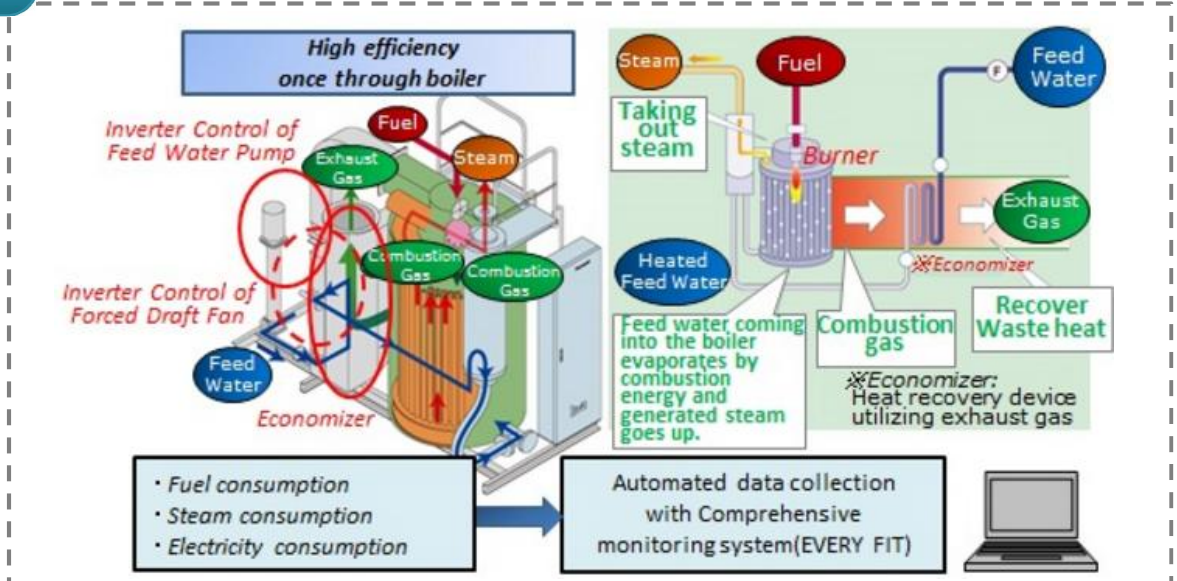
Introduction of
High Efficiency Once-through Boiler
in Film Factory
(Cilegon, Banten)

Mitsubishi Chemical Corporation
PT MC PET FILM INDONESIA

1 PROJECT OVERVIEW

Outline of GHG Mitigation Activity

A high efficiency once through boiler is installed at a film factory in Cilegon. The project boiler reduces fuel consumption by higher efficiency and enables the reduction by fuel switch from oil to gas.



Role of Project Participants

Mitsubishi Chemical Corporation:
Overall management of JCM project.
Reporting GHG emission reduction
PT MC Pet Film Indonesia:
Operation of high-efficiency once through boiler and Monitoring

Sites of JCM Model Project

Map Data ©2015 Google, SK planet, ZENRIN


Film factory in Banten

Company Profile

PT MC Pet Film Indonesia: Manufacturer of PET Film and KTF

Products

1 PET (Polyethylene Terephthalate) Film

PET Film Industrial Grade

Highly qualified plastic with thin, clarity, flatness, smoothness spesification and relatively heat-proof.

Purpose:
One of smartphone and LCD (flat TV)'s display essential components.

PET Film Food Packaging

Highly qualified plastic with thin, strong, flexible and harmless specification (food grade). Suitable for food packaging. Shield product from gases, humidity, water, UV rays and heat. Easy to print on.

Purpose:
Food packaging (coffee, instant noodle, candy, etc) and bottles.




2 KTF (Polyethylene Breathable Film)

Highly qualified plastic with flexibility, liquid-proof and air-through (less hot, comfortable to wear) breathable film

Purpose:
Baby and adult diapers, feminine napkins and hospital needs


History

1. Date of Establishment
19th May 1995

2. Production Capacity

IFA	PET Film (Packaging)	4,200 T/Y
IFB	PET Film (Packaging & Industrial)	20,000 T/Y
KTF	PE Film (breathable Film)	3,600 T/Y

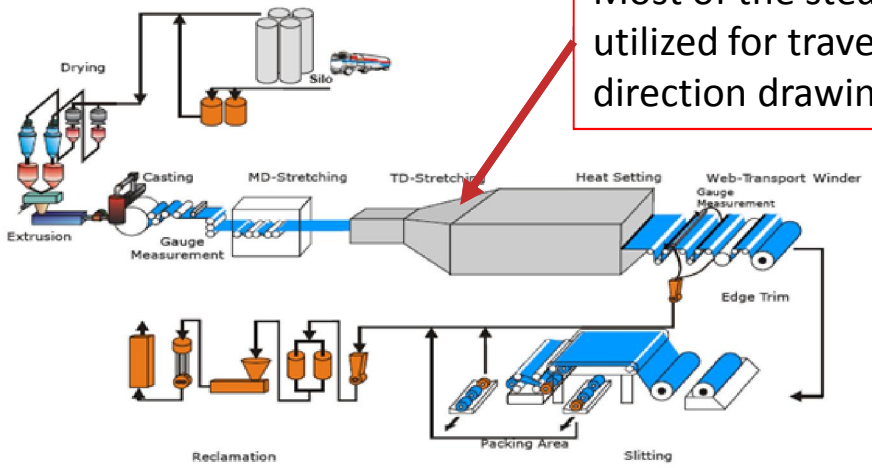
3. Start of Commercial Production

IFA	July 1996	Plant had stopped in May 1999
IFB	May 1999	
KTF	Jun 2015	

4. Number of Employee (Apr 2017)

MFI Employee		244 person
	Indonesian	235 persons (JHO : 13, FAM : 222)
	Japanese	9 persons (JHO : 2, FAM : 7)

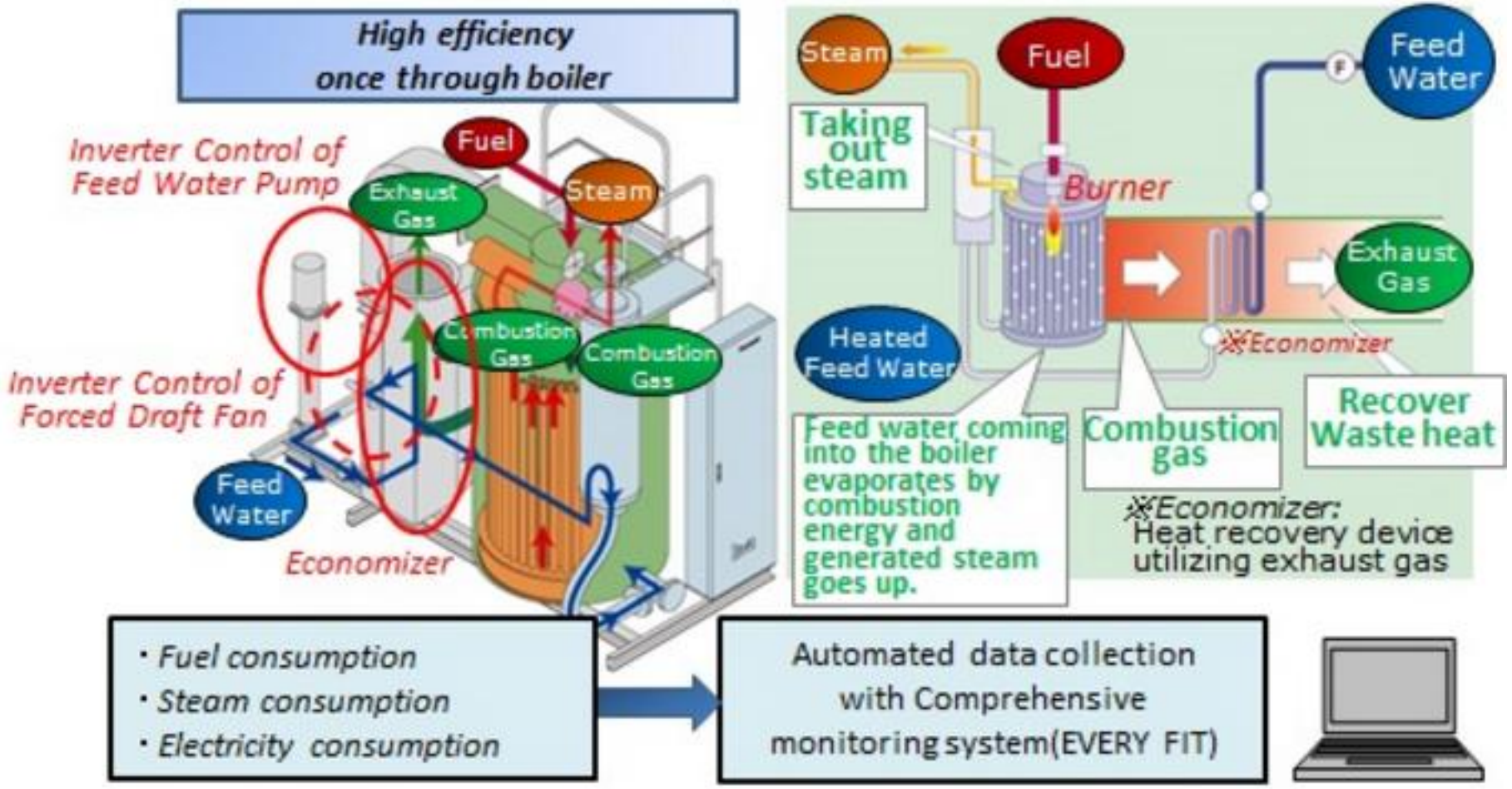
Process Flow



Most of the steam is utilized for traverse direction drawing

2 PROJECT IMPLEMENTATION

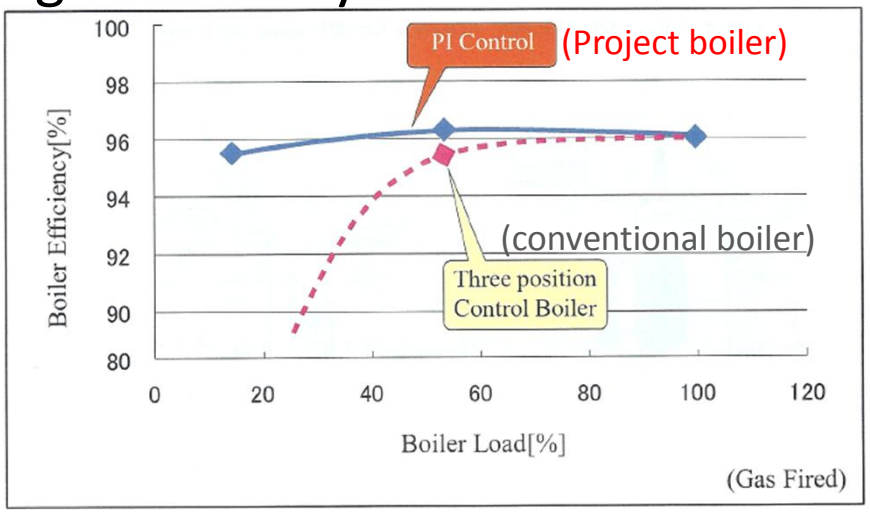
Applied technology: Once-through Boiler

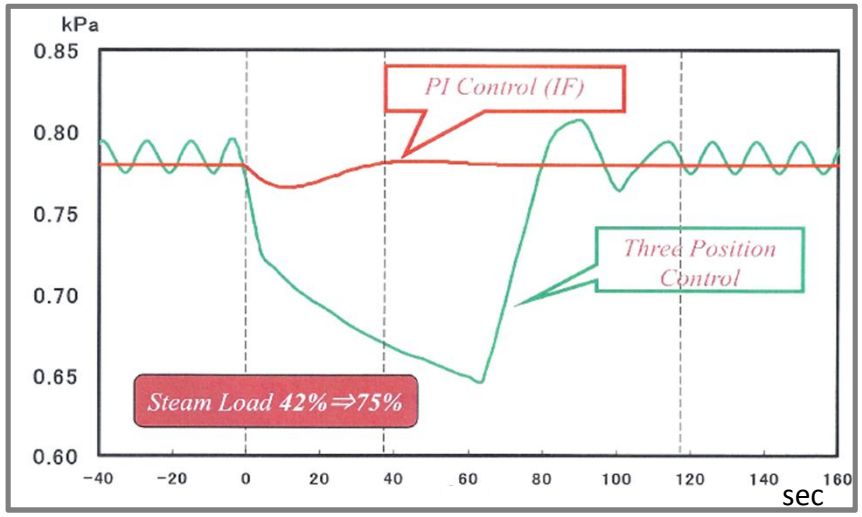


2 PROJECT IMPLEMENTATION

Applied technology: Proportional Integral (PI) Control

Combustion PI control and Feed Water Supply PI control makes High Efficiency and Stable Steam Pressure.





High Efficiency

- Boiler efficiency does not decrease even at low load
- Efficiency in partial load is kept high

Stable Steam Pressure

- Fluctuates in conventional three position control
- PI control keeps steam pressure stable

2 PROJECT IMPLEMENTATION

Current progresses and Challenges

Progress

Aug 2016: Installation

Sep 2016: Trial operation

Oct 2016: Arrange working procedure

Nov 2016: Start operation

Challenge:

Getting permissions required longer period than expected. It delayed the overall schedule to some extent.

2 PROJECT IMPLEMENTATION

Expected Benefit

GHG Reduction for the project period (8 years) is as follows. The annual reduction changes due to periodical maintenance of the factory. The energy saving also contribute to the production cost reduction.

Year	Estimated Reference emissions (tCO_{2e})	Estimated Project Emissions (tCO_{2e})	Estimated Emission Reductions (tCO_{2e})
2016	413	296	117
2017	3,190	2,283	907
2018	3,190	2,283	907
2019	3,480	2,491	989
2020	3,190	2,283	907
2021	3,480	2,491	989
2022	3,190	2,283	907
2023	3,190	2,283	907
Total (tCO_{2e})	23,323	16,693	6,630

2 PROJECT IMPLEMENTATION

Technology replication opportunities in Indonesia
Contribution to the sustainable development of Indonesia

From the market survey, every year, at least 200 industrial boilers are estimated to be sold and more than half of them uses coal for their fuel.

(1) There are plenty of technology replication opportunities in Indonesia every year.

(2) The once-through boilers (especially gas type) emit much less GHGs per steam supply compared to coal boilers.

(3) PI control of the once-through boiler can maintain stable combustion, which contributes to the prevention of air pollution.

3 GHG EMISSION REDUCTIONS AND MRV

Progress of the JCM Project Cycle (Methodology development)

Draft methodologies has been discussed in Joint Committee. Eligibility Criteria are drafted as follows. Excel sheet is also drafted already.

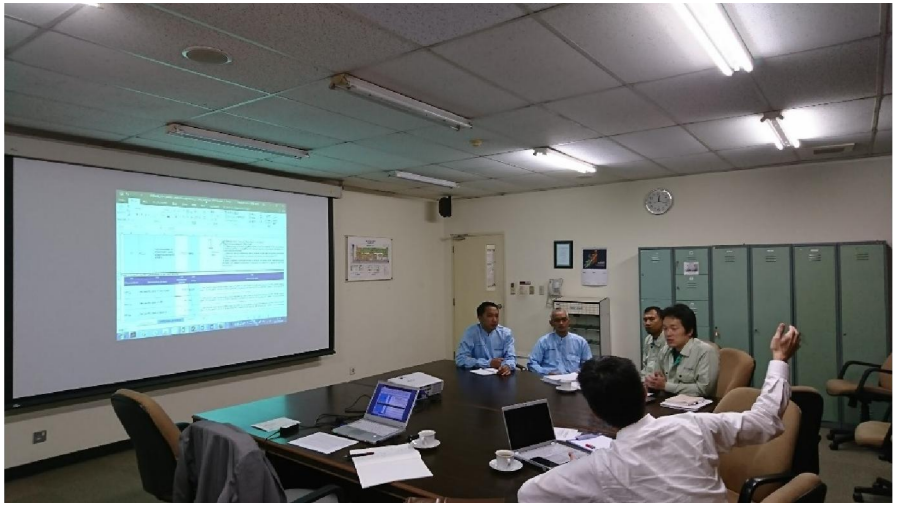
Criteria 1	• The project boiler is a once-through boiler • with a rated capacity of 4 ton/hour per unit or less (equivalent evaporation)
Criteria 2	• Periodical check and maintenance by the manufacturer of boiler or authorized agent is implemented in accordance with the manufacturer's requirement basically.
Criteria 3	• Feed water will be appropriated water treated by purification/demineralization system such as Reverse Osmosis (RO) membrane treatment.

3 GHG EMISSION REDUCTIONS AND MRV

Progress of the JCM Project Cycle (PDD preparation)

As soon as JCM Methodology is approved, PDD will be submitted. Draft PDD is completed based on the draft methodology.

Local stakeholder consultation is completed. The related stakeholders thinks the JCM project is good and needs to be promoted.



@ MC Pet Film with factory staff

@ Bappeda Kota Cilegon