JCM Project Experience in Indonesia

Ebara Refrigeration Equipment & Systems Co., Ltd

& PT. Ebara Indonesia(PTEI)

JCM Project in Indonesia

EBARA has installed high efficiency chillers following three (3) Textile projects in Indonesia for humidity & temperature control.

* Title: Energy Saving for Air-conditioning and Process Cooling at Textile Factory (Two Projects)

  CLIENT: **PRIMATEXCO** INDONESIA at Sambon-Batang (Pekalongan)

  Hereafter: PRIMA Project 1 & PRIMA Project 2

* Title: Energy Saving for Textile Factory Facility Cooling by High-efficiency Centrifugal Chiller

  CLIENT: **NIKAWA** TEXTILE INDUSTRY at Mitra Karawang Jaya

  Hereafter: NIKAWA Project

Both Companies shall be operating their chillers and collecting the Electricity consumption data for MRV.

PT. Ebara Indonesia(PTEI) shall maintain the chillers for keeping good condition.

Three Project's Location

COMPARISON Between Reference & Project Chiller

Both Projects Chiller's Capacity: 1758kW (≒ 500USRt)

Item	Unit	Reference Chiller	PRIMA		NIKAWA Project
			Project 1	Project 2	
Chilled Water Leaving Temp.	℃	7	14	14	11
Cooling Water Leaving Temp.	℃	37	36.9	36.9	36.9
Actual COP		5.33	7.66	7.814	7.097
Adjusted COP		5.33	6.01	6.13	6.22

Item	PRIMA		NIKAWA Project
	Project 1	Project 2	
Registeration No.	ID001	ID005	ID004
Estimated Emission Reduction	117 tCO2/Y	152 tCO2/Y	205 tCO2/Y
Methdology (ID-AM002)	17-Sep-2014		
Registeration	31-Oct-2014	8-Sep-2016	8-Sep-2016

FEATURE of EBARA CHILLERS

* PT. Ebara Indonesia has a service center in Indonesia for client and his satisfaction.
* We have communicated to the chillers through Internet for continuous monitoring (24 hrs).
  * Even if something wrong, our monitoring center will advise to our local engineers to solve the issue.
* Using high efficiency chillers, End user save the electricity cost 10% or more compared with conventional chillers.


Prima Project-1 chiller Operating from Feb. 2014

JCM Registered Project at 2013 in Indonesia

PT PRIMATEXCO INDONESIA
Amount of GHG Reduction (Project-1 & 2)

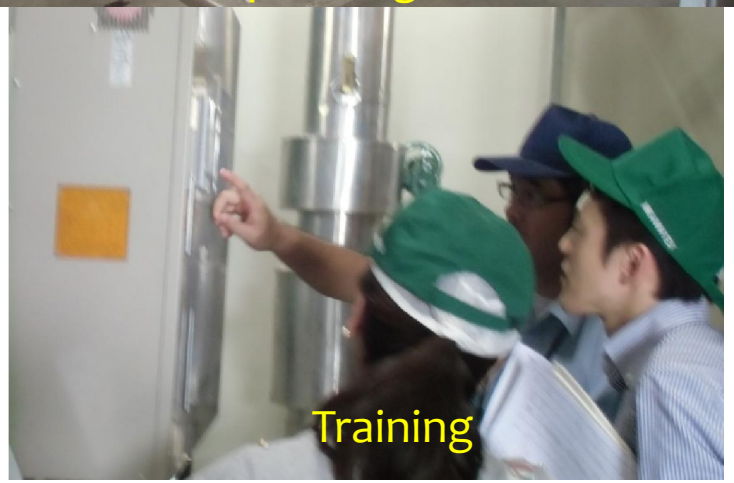
Year	Operating Month	Consumed kW	Reduced tCO2/P	Emission Factors
Project 1	Start Feb. 2014 & Operating up to now			
2013	1.5 Months	173,472	10	0.814
2014	12 Months	1,436,311	88	0.814
2015	12 Months	1,350,301	83	0.814
2016	9 Months	1,151,033	73	0.84
Project 2	Start Apr. 2015 & Operating up to now			
2015	12 Months	1,325,390	104	0.814
2016	9 Months	1,233,671	100	0.84

JCM Registered Project at 2014 in Indonesia

Nikawa Textile Industry

Chiller in the Factory
Operating From Dec. 2014

2014 Project Tag



Training

NIKAWA TEXTILE INDUSTRY
GHG Reduction (NIKAWA Project)

Year	Operating Hrs	Consumed kW	Reduced tCO2/P	Emission Factors
2014	4 Months	549,945	53	0.814
2015	12 Months	1,787,695	172	0.814
2016	9 Months	1,310,737	130	0.84

Chiller is operating from Dec. 2014.

Site Visit by Indonesian JCM Committee Members

Amount of GEG Reduction in Indonesia by Centrifugal Chillers

* We have reduced GHG emission in Indonesia as follows;
  * PRIMATEXCO (1st Project): 254 tCO_2 + (417 tCO_2)
  * PRIMATEXCO (2nd Project): 204 tCO_2 + (537 tCO_2)
  * NIKAWA TEXTILE: 355 tCO_2 + (678 tCO_2)
  * **Total** **813 tCO_2 + (1632 tCO_2)**

  Note:

  813 tCO_2 was reduced from end of 2013 to end of 2016 and 1632 tCO_2 or more will be expected to reduce from 2017 to 2020.

Technical Transfer

* We have invited few engineers from Indonesia and train the chiller technology in Japan for Technical transfer.
* Also we have arranged training for both companies local engineers in Indonesia.

Training In Japan

CONCLUSION

* High Efficiency chiller is expensive. But energy saving model can expect to save GHG emission.
* In Indonesia, air Conditioning system is one of the biggest market for chillers. Too many old chillers are operating.
* Also Textile Industry is one of the biggest export business in Indonesia. Factories are using many old chillers now.
* In Indonesia, Initial cost is one of the most important point for selecting the chiller. Save energy & stable operation is also important issue for long time operation. Therefore we would like to promote High efficiency & stable operating chiller for Indonesian energy situation. Fortunately, we could supply additional chiller to M/S NIKAWA TEXTILE INDUSTRY without any JCM Subsidy program.
* As our conclusion, we would like to try continuously to promote replacing high efficiency models for GHG emission reduction.

Thank you for your kind attention !!