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### Ministry of the Environment Japan's JCM(Joint Crediting Mechanism) F-gas Recovery Destruction Model Project

# Project on Introduction of Scheme for Fluorocarbons Recovery and Destruction with Utilization of Existing Waste Incineration Plant

September 12, 2019

### **DOWA Eco-System Co. Ltd.**

Waste Management Siam Ltd.





## **Overview of DOWA Holdings Co., Ltd.**

- Founded
- Capital Stock
- Net Sales (FY2017)
- Employees

1884 in Japan JPY 36.4 billion JPY 454.7 billion(USD 4.1billion)

approx 6,400 (March 2018)



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DOWA ECO-SYSTEM DOWA METALS & MINING DOWA ELECTRONICS MATERIALS

DOWA METALTECH DOWA THERMOTECH



## **Core Businesses of DOWA**



### **Environmental Business in Asia**



### **Facilities in Thailand**



# Fluorocarbons (F-gas) as Refrigerant

Refrigerants: Used for equipment to "cool down" inside temperature (examples: air conditioning units, chillers, refrigeration units, freezers, storages, etc. )



### **F-gas and Refrigerants**

- Fluorocarbons (or F-gas) are used as refrigerants for equipment (e.g. refrigeration units, showcases, unit coolers, air-conditioner (AC), etc. ).
- F-gas : CFCs/HCFCs/HFCs



HFC has been introduced as substitute of CFC/HCFC (ozone depleting substances), however, HFC has also Global Warming Potential(GWP).

### <Example (Preliminary Calculation)>

- Greenhouse effect of 1 ton of HFC(R-410A) is equivalent to 2,090 tCO2
- 1 ton of HFC is used for 1,000 units of AC(in case of 1kg/unit)



## **Background of MOEJ project in Thailand**

Facilitating dissemination of energy-efficient equipment for GHG(Green House Gas) reduction in Thailand



Current status of fluorocarbon management in Asia

### Issues

- Most of fluorocarbons are released to the air when old equipment is replaced with the new energy-efficient one.
- ✓ Effect of energy efficiency would be diminished if fluorocarbons are not treated properly (e.g. emission to the air).



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# **BPEC Fluorocarbons(FCs) Destruction Test(2015 & 2016)**

Facility : Bangpoo Environmental Complex Co.,Ltd. (BPEC)(Samutprakarn) Test Approval: Destruction test approval from DIW and IEAT in 2015



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![](_page_7_Picture_4.jpeg)

## Summary of MOEJ project in Thailand

JCM F-gas Recovery Destruction Model Project :

Project on Introduction of Scheme for Fluorocarbons Recovery and Destruction with Utilization of Existing Waste Incineration Plant

#### **About the Project**

- ✓ Project proponent : DOWA Eco-System Co., Ltd. (DES), Waste Management Siam Ltd. (WMS)
- ✓ Funded by: Ministry of the Environment Japan (MOEJ)
- ✓ Co-operation with: DIW, TGO, PCD and relevant associations and organizations
- ✓ Duration: 2.5 years (from October 2018 to March 2021)

#### Objective

- Achieve reduction of GHG emission (by destructing Fluorocarbons (HFC/HCFC/CFC) that has global warming potential)
- ✓ Practice of proper management of Fluorocarbons

#### **Benefit and Expected outcomes**

- Cooperation with stakeholders in Thailand : Workshop will be held for stakeholders in Thailand to share knowledge and information on proper management of fluorocarbons
- Practice of proper management : Practice of proper management (recovery and destruction) will be conducted by the support of MOEJ.

![](_page_8_Picture_14.jpeg)

![](_page_8_Picture_15.jpeg)

## **Project Contents - Summary**

![](_page_9_Figure_1.jpeg)

## Project Contents – Target Fluorocarbons under MOEJ Pj

![](_page_10_Figure_1.jpeg)

#### **GHG reductions/year by HFC destruction in Fy 2019 (Tentative)\***

GHG reductions/year by HFC destruction\*\* :

#### 20,900 tCO2-eq/year(Equivalent 6,000-7,000cars CO2 emission/Year)

#### (in case that 10 ton of R-410A(GWP 2,090) will be destructed.) \*Note: These types and the amount above is tentative and identified through this project. \*\*Note: More GHG can be reduced by destruction CFC/HCFC stored/used in Thailand.

![](_page_10_Picture_6.jpeg)

![](_page_10_Picture_7.jpeg)

![](_page_10_Picture_8.jpeg)

## **Project Contents – Destruction Facility (BPEC)**

### Flow Diagram of FCs Disposal at Bangpoo Environmental Complex Co., Ltd.

![](_page_11_Figure_2.jpeg)

![](_page_12_Picture_0.jpeg)

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# If you are interested in this Project(business), please contact us. Thank you!

# Waste Management Siam Ltd. (WMS) Prin Hanthanon

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![](_page_12_Picture_5.jpeg)

![](_page_12_Picture_6.jpeg)