


행복한 에너지를 만듭니다

The Best Environment – Friendly Energy Company



*Making your city  
clean and profitable :  
Waste to Energy*

**Kwangsoo KIM**

행복한  
에너지 세상을  
만들어가는  
KDHC  
Happy Energy  
Happy Life



# Contents

- 1. Introduction of KDHC**
- 2. Types of waste to energy**
- 3. Waste to energy of incinerator,  
Case study**
- 4. Refuse Derived Fuel(RDF) combustion**

# Introduction of KDHC(Korea District Heating Corporation)



<Long queue of line to buy oil>

## Two Oil Shocks in 1970s



- Negative growth
- High inflation
- Imbalance of external accounts
- Energy Efficiency?
- Energy Security?



# Introduction of KDHC

Establishment : 1985(Loan from ADB, US\$32M, Repaid by 2003)

- Seoul Mapo Area First District Heating Project



**Asian Development Bank**  
FIGHTING POVERTY IN ASIA AND THE PACIFIC

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## Projects

### ■ LN0765-KOR: Southern Seoul District Heating Project

#### Project Data Sheet (PDS): Overview

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Country	Korea, Republic of
Project Number	17060
Project Type or Modality of Assistance	Loan
Status	Closed
Approval Number	Loan No. 0765
Approval Date	03 Dec 1985
ADB Financing (\$ thousand)	32,000
Sector / Subsector Classification	Energy / Electricity Transmission and Distribution

#### Project Data Sheets (PDS)

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# Present status of KDHC

## Name

- Korea District Heating Corporation

## Establishment

- 1985.11.1

## Purpose

- To save energy, to reduce pollution and to increase the convenience of the public

## Organization

- 1 CEO, 1 vice president, 2 headquarters, 14 divisions, 18 branch offices
- About 1,700 employees

## Credit Rating

- International : A1(Moody's)
- National : AAA

## Financial Status(as of 2014)

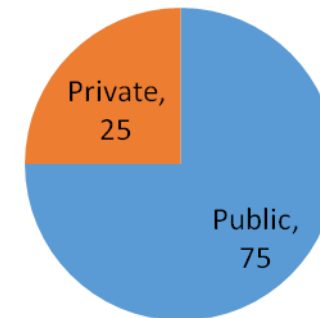
- Asset : USD 4.7 billion / Sales : USD 2.1 billion

## Sales volume

- Heat : 1.4M households / Electricity : 1,631MW

## Share Ownership

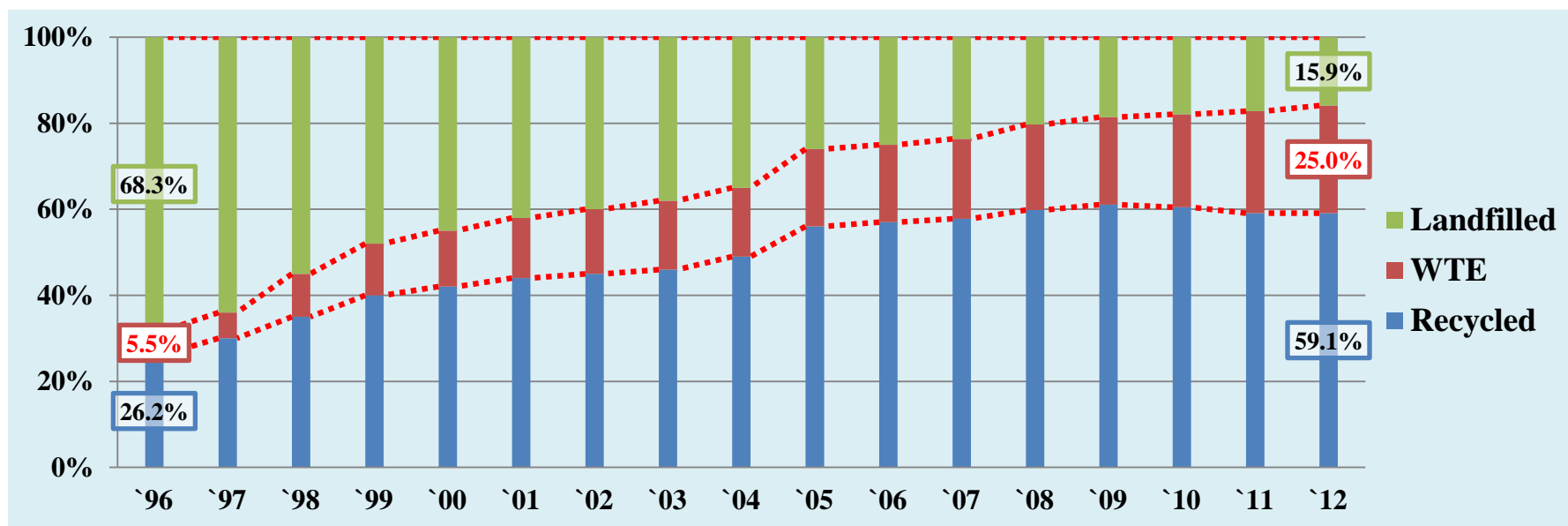
- Government & Public Companies : 75%
- Open to public in the stock market : 25%



## Major Business

- Integrated Energy : District Heating and Cooling
- Electricity
- Renewable energy

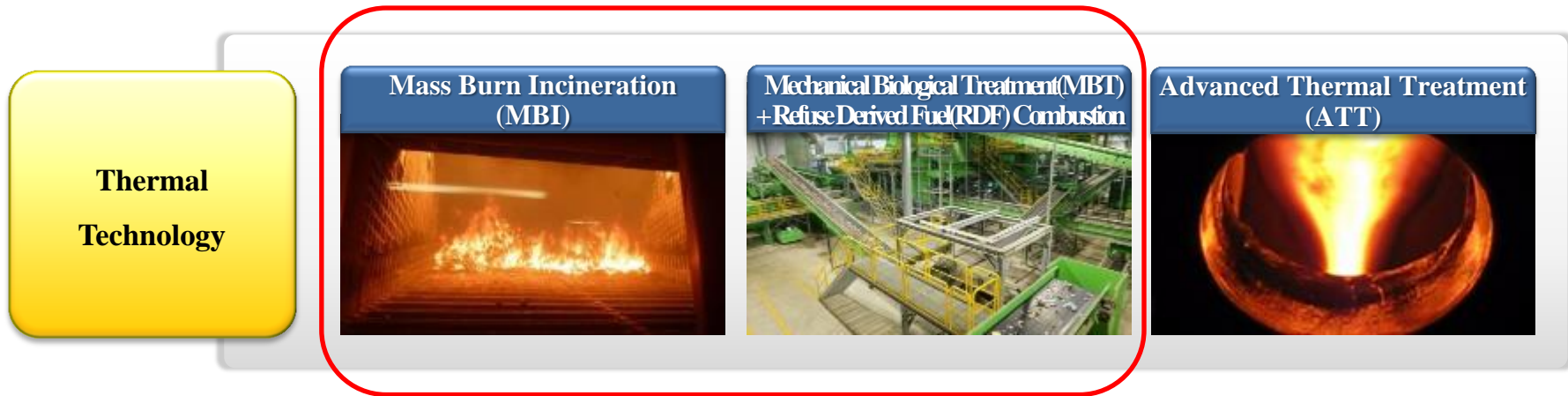
# Waste To Energy ratio 25% and increasing



### Policies for waste in Korea

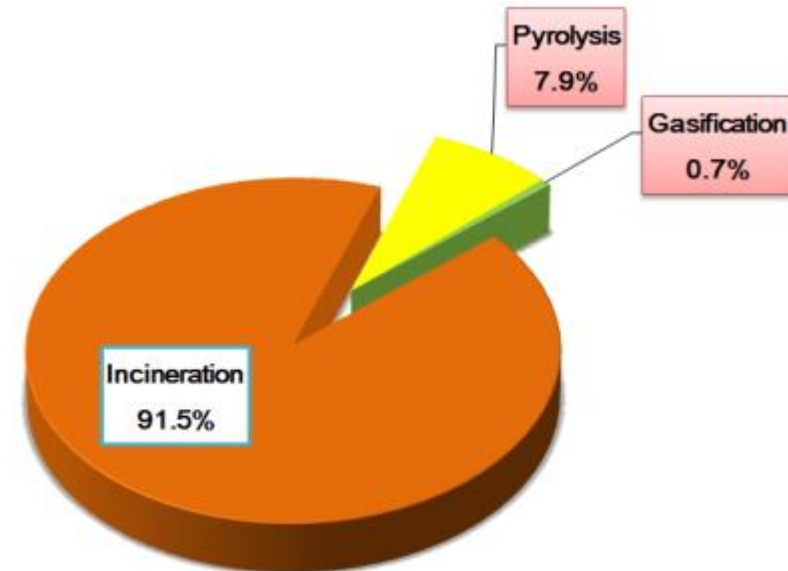
- **Reduction** : control use of disposable goods, adopt volume-rate disposal system
- **Reuse** : adopt deposit system on empty bottles, plastic bags, and etc.
- **Recycle** : support recycling facilities, promote recycling industries
- **WtE** : support government aid, strengthen pollutant management
- **Landfill** : recover landfill gas, strengthen pollutant management

# Types of Thermal Technology

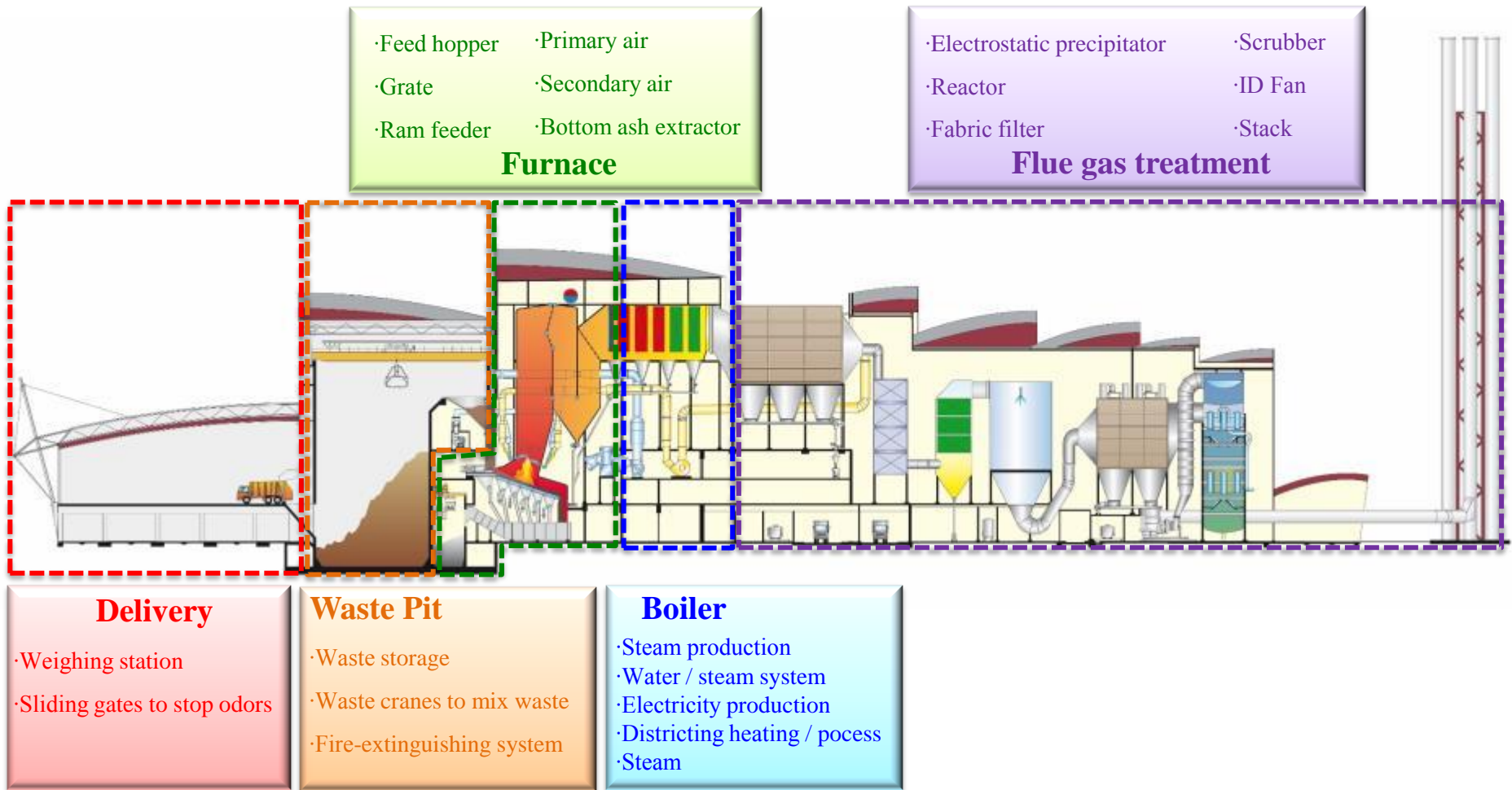


Item	Total	Incineration	Pyrolysis	Gasification
Number of facility	184	167	13	4
Capacity(Ton/day)	17,207	15,739	1,355	113

\*. Thermal treatment facility(over 100t/day) = 49 sites

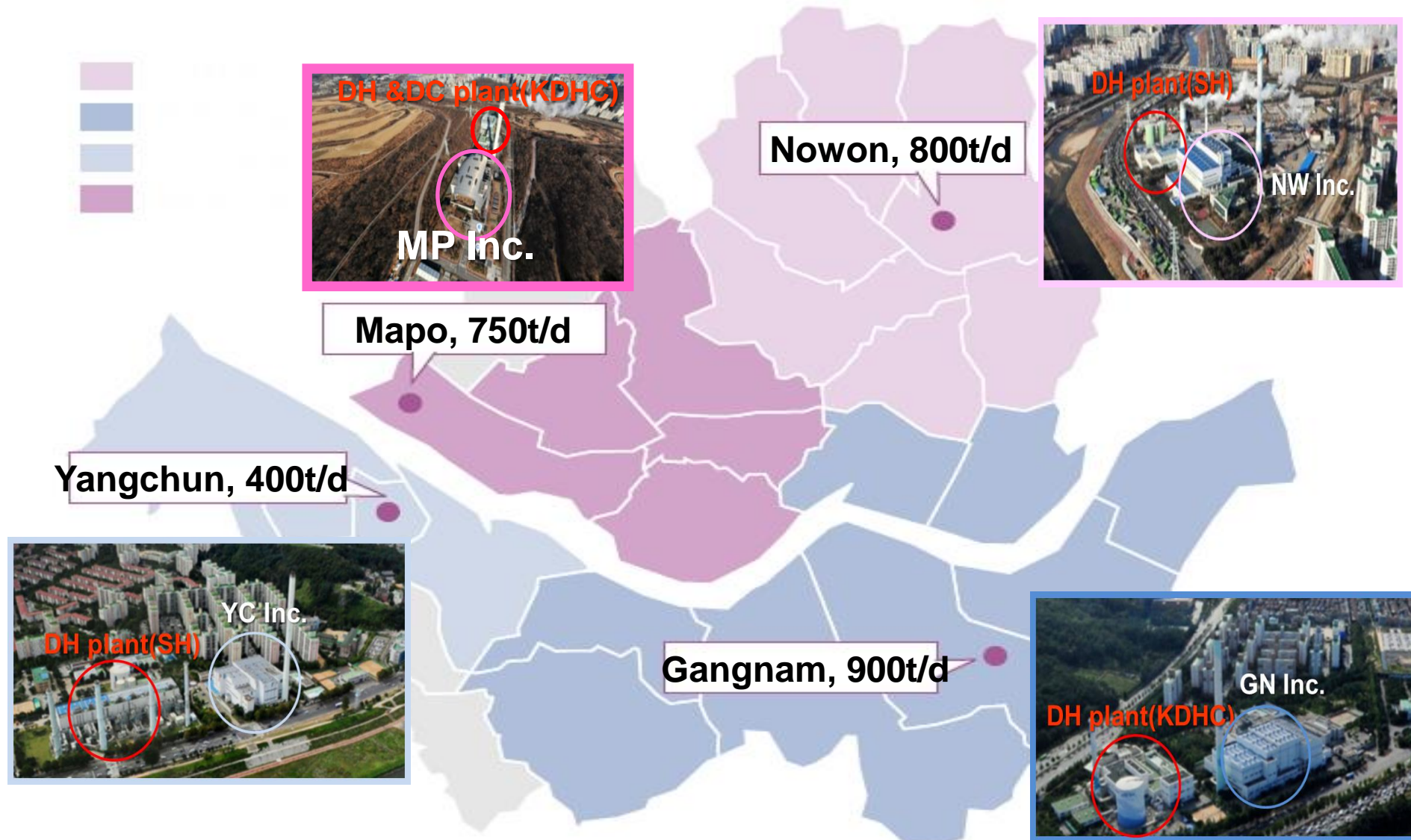


# 5 processes of Stoker Type



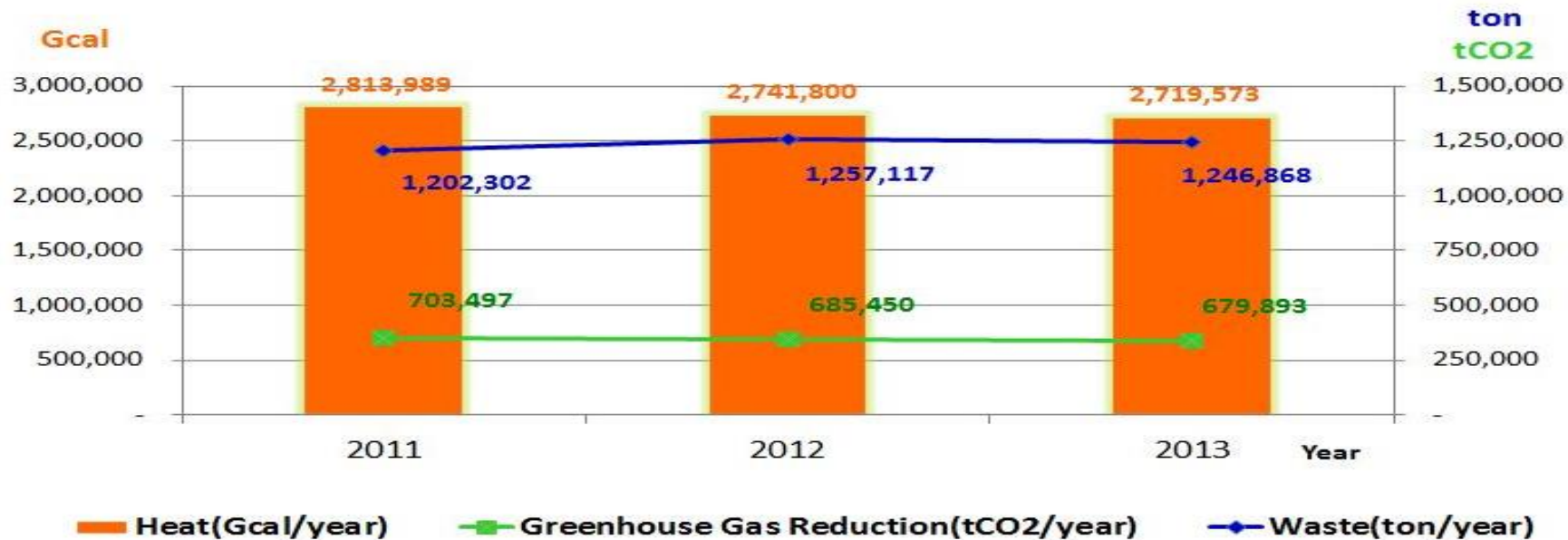


# 4 major Incineration plants in Seoul(capacity 2850 t/d)

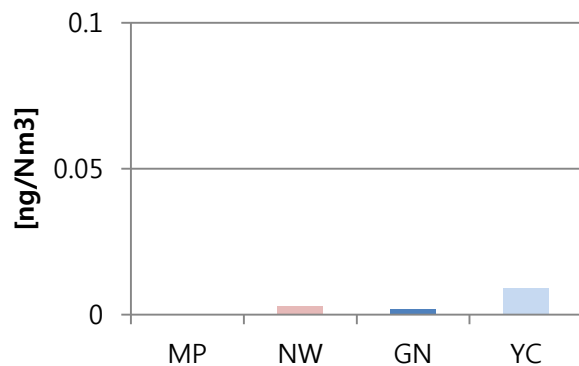


# Environmental effect(Low pollutants)

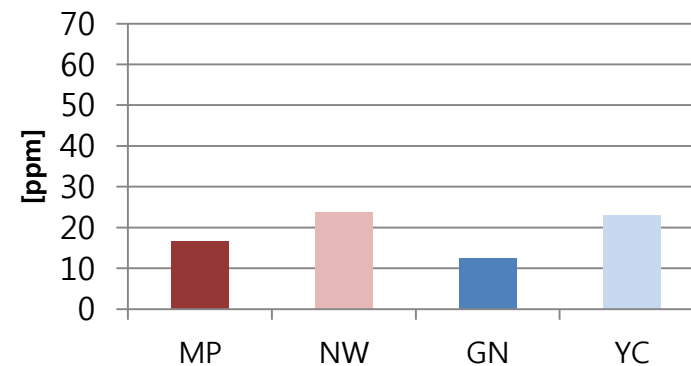
## Greenhouse Gas Effect (LNG replacement effect)



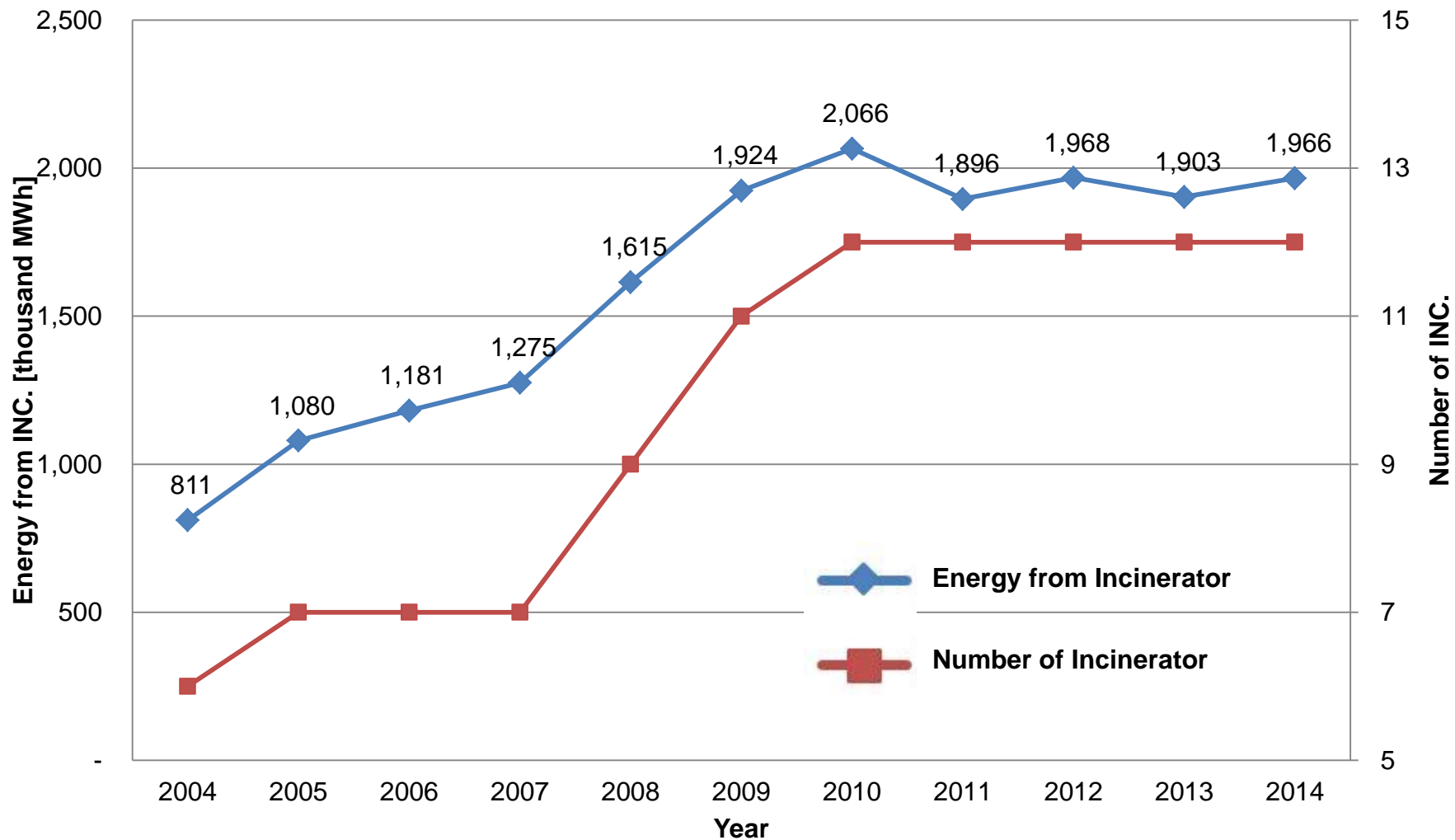
### Dioxin (< 0.1)



### NOx (< 70)



# Status of energy supplied by KDHC using incinerator

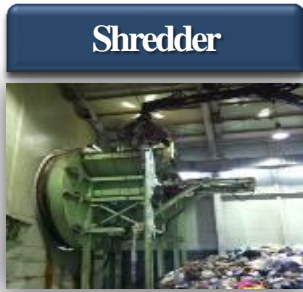


**The Number of Inc., connected to KDHC, has more than doubled since 2004.**

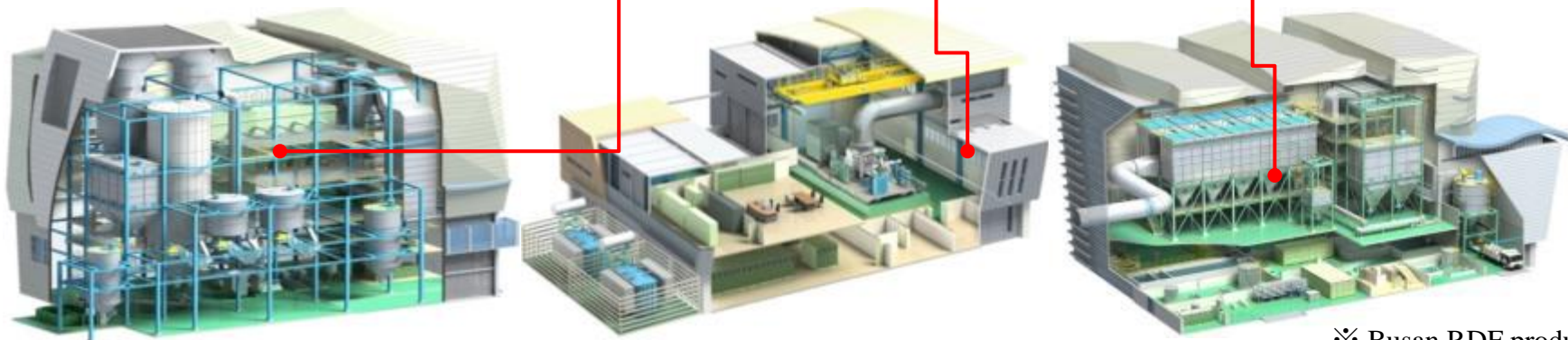
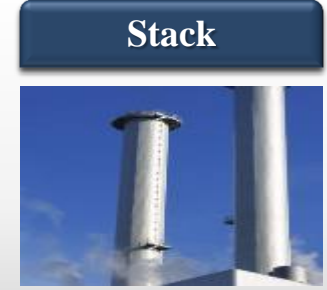


# Mechanical Biological Treatment+Refuse Derived Fuel Combustion

**MBT  
Process**



**RDF  
Combustion**



※ Busan RDF production facility

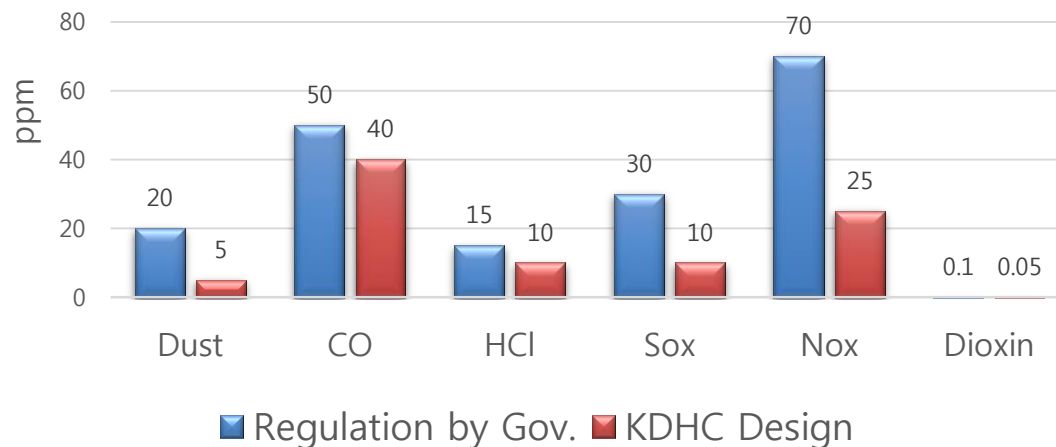


# Case Study : RDF Cogeneration(electricity + district heating)

Division	Content
Capacity	22MW+52MWth
Fuel (RDF)	492ton/day
Area	RDF MT(21,900m <sup>2</sup> ) RDF CHP(111,274m <sup>2</sup> )
Investment (\$us million)	RDF MT(79) RDF CHP(99)
Output (Estimation)	Elec. : 170GWe Heat : 349GWth



## RDF CHP Environment Protection



**Gwangju-Jeonnam New Town : 50thousand people, 20thousand household**

# Case Study : Change of Nanji landfill site in Seoul

## Worldcup Park(Nanji-do)





# Conclusion



**Joyce Gilos Torre Franca** added 2 new photos.  
Cebu Doctors' University - June 23 at 4:30am · 🌐

 Profile

I got inspired by a kid ❤️



# Thank you

**Kwangsoo KIM**

**KDHC Renewable Business Team**

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