



**THAMMASORN
GROUP**

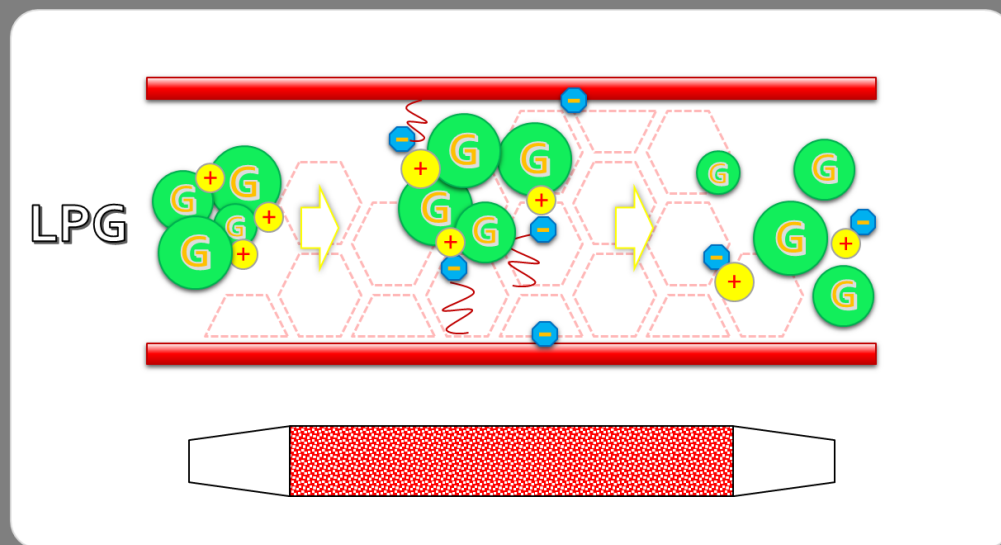
Thailand
ESCO 

DOS
GREENOVATION
A Member of Thammasorn Group

DOS
ECO GAS

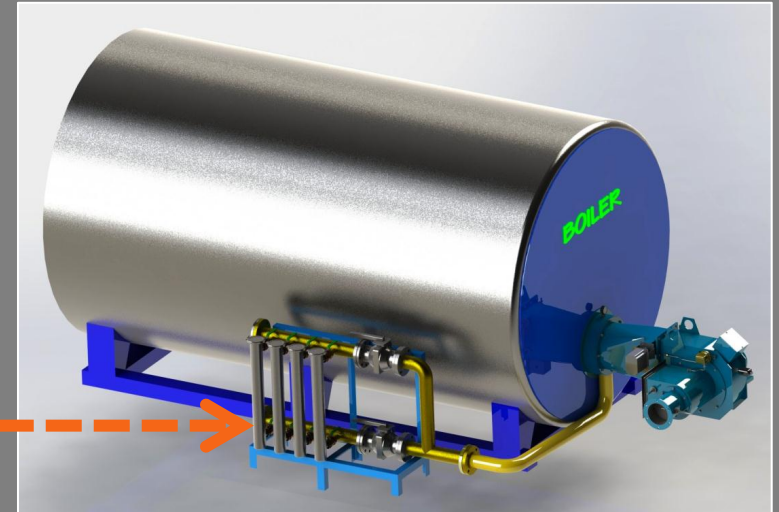
BETTER PERFORMANCE

PRINCIPLES

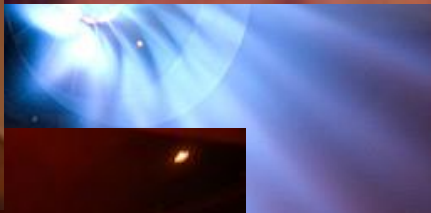


Dos Eco Gas is an innovative catalyze filter, made of composite material using LPG molecular rearrangement method, spread dense group of LPG to sparse group, increasing combustion efficiency.

Compatible with LPG/NG
Install next to Burner

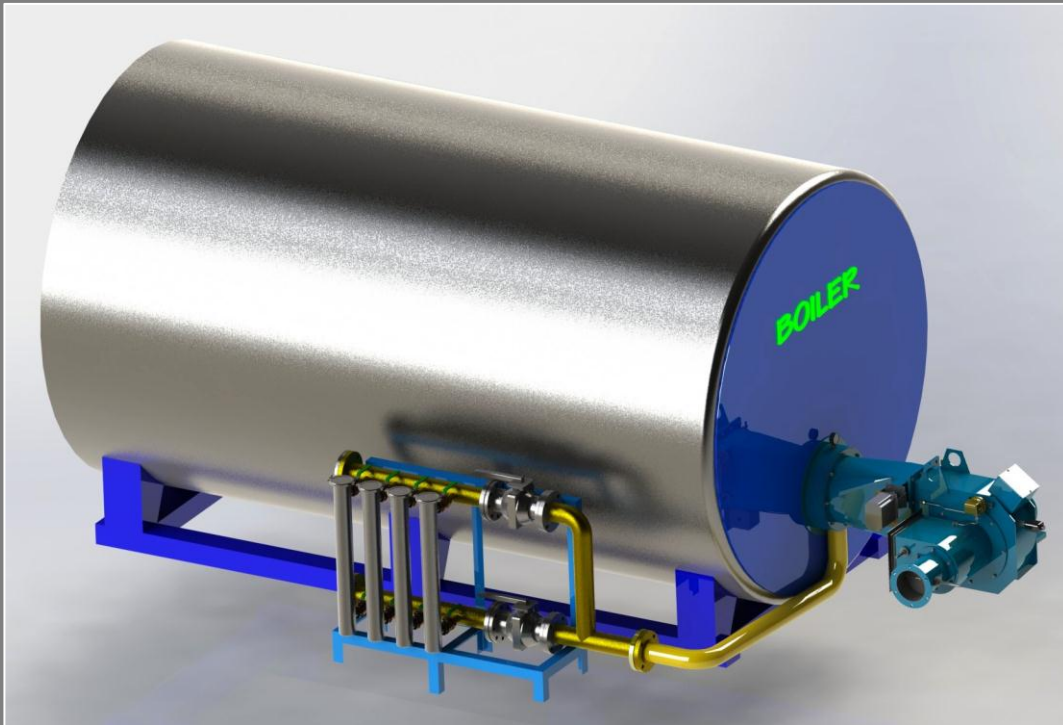


variety industrial application
which use **LPG/NG** as heat
source such as Boiler,
Burner, Industrial Oven and
Furnace.



Industrial Application

BOILER











Industrial Application

LAUNDRY CENTER BUSINESS

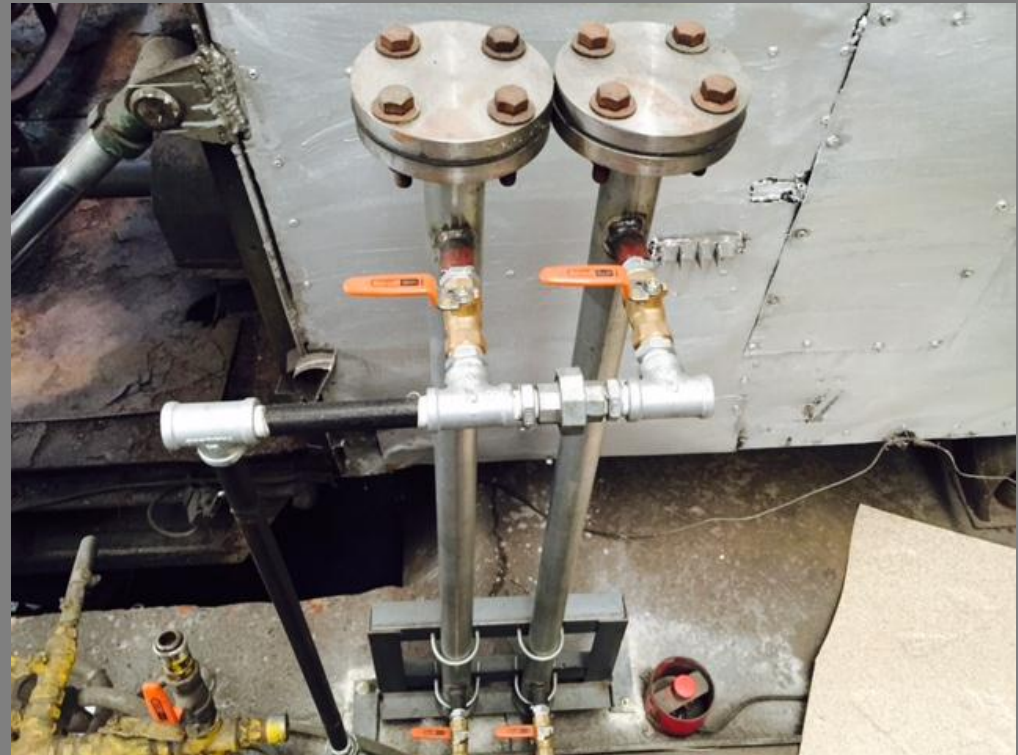
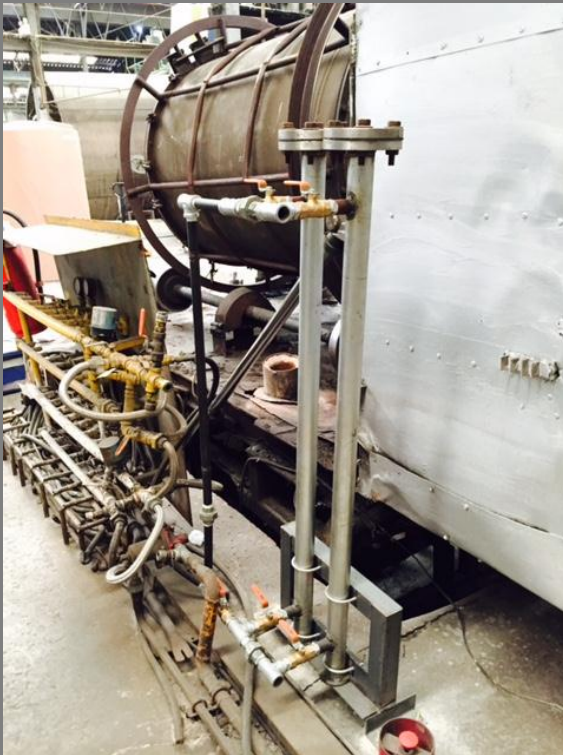


1. Reference Sites

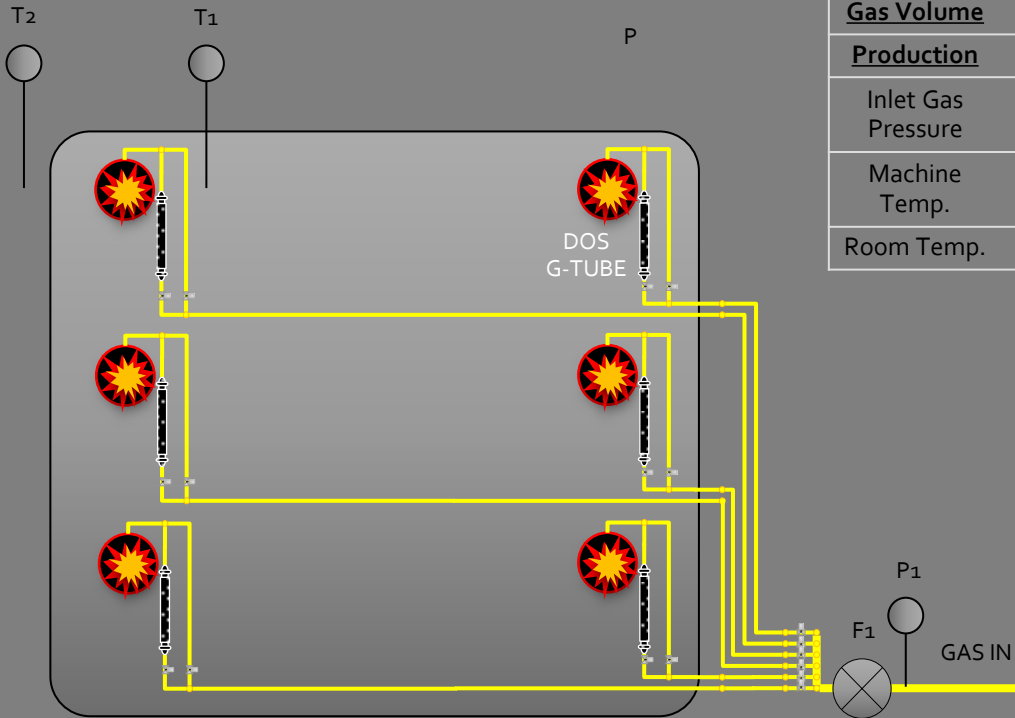
Plastic Rotary Mold at Thammasorn Co., Ltd.



ENERGY SAVING UP TO
20%



DOS ECO GAS CATALYSE



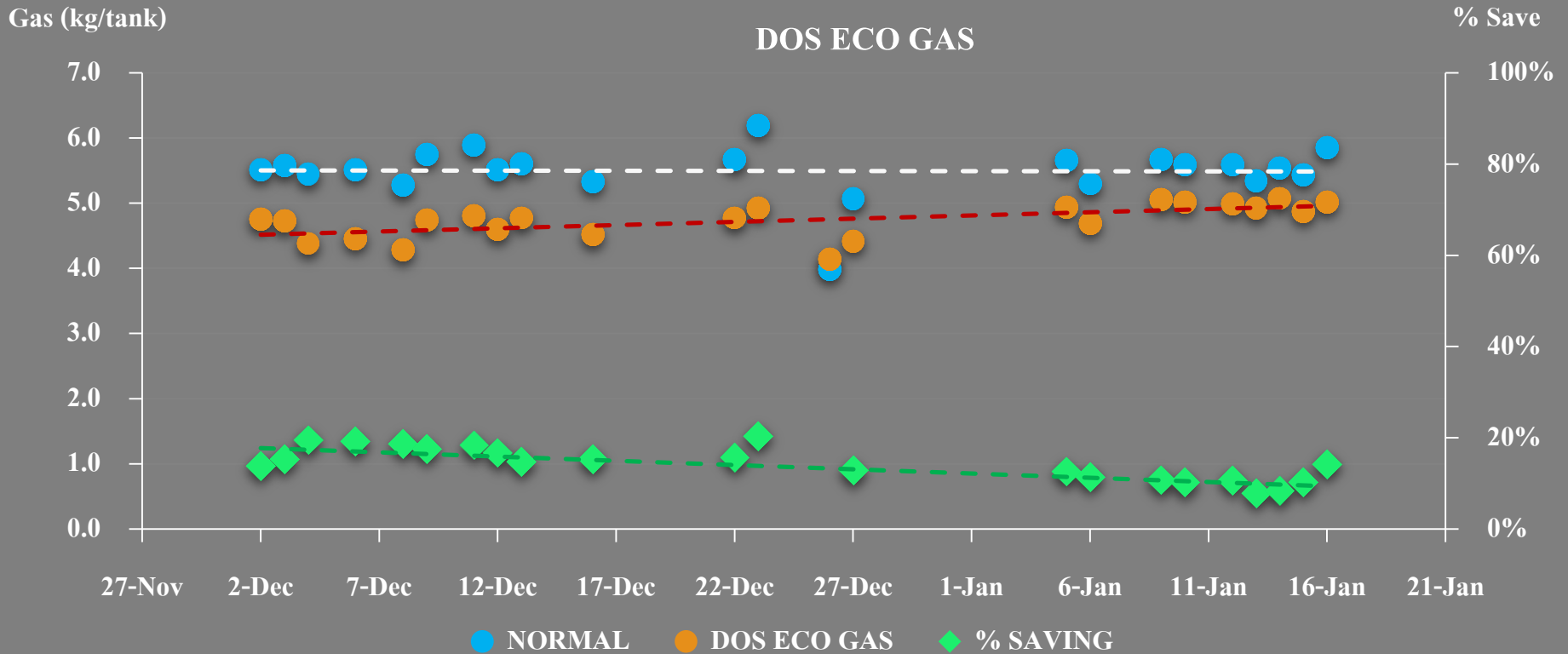
VARIABLES		SYMBOL	UNIT
<u>Gas Weight</u>	<u>Variable</u>	<u>W_1</u>	<u>kg.</u>
<u>Gas Volume</u>	<u>Variable</u>	<u>F_1</u>	<u>litre</u>
<u>Production</u>	<u>Variable</u>	<u>P</u>	<u>unit</u>
Inlet Gas Pressure	Cont. Var.	P_1	bar
Machine Temp.	Cont. Var.	T_1	celcius
Room Temp.	Cont. Var.	T_2	celcius

$$\eta = \frac{W_1}{P}$$





COMPARISON CHART ON GAS CONSUMPTION PER TANK PRODUCTION UNIT



Average Saving: 13.54%

2. Reference Sites

Fire Tube Boiler 3 Tons at Thammasorn Co., Ltd.

SAVING
Average 13.87 %



STREAM RATIO

NORMAL 90.65 kg/1m³

WITH DOS ECO GAS 78.08 kg/1m³

3. Reference Sites

Once Through Boiler 1.5 Tons at
Thai Young Chemical Co., Ltd.



4. Reference Sites



Once Through Boiler 2 .5Tons x 4
at TIPCO F&B Co., Ltd.



5. Reference Sites

TOSHIBA
Leading Innovation >>>

Once Through Boiler 2.5 Tons at Thai
Toshiba Electric Industries Co., Ltd.



6. Reference Sites



Heat Treatment Oven 20 burners at
Magotteaux Co., Ltd.



7. Reference Sites



Once Through Boiler 2.5 Tons x 2
at Nipro (Thailand) Co., Ltd.



INVESTMENT MODEL

Shared Saving

SHARE SAVING



INVESTOR = ESCO
COMPANY

บริษัทจัดการพลังงาน
(ESCO) **DOS**

รับบริการ
โรงงาน/อาคาร

FACTORY

สัญญาพลังงาน
(EPC)

MEASUREMENT AND VERIFICATION

- (International Performance Measurement and Verification Protocol; IPMVP) METHOD - A (Measured Factors and Stipulated)

$$\text{Stream Ratio} = FO/mS^*$$

Stream Ratio = LPG Consumption to Steam Output

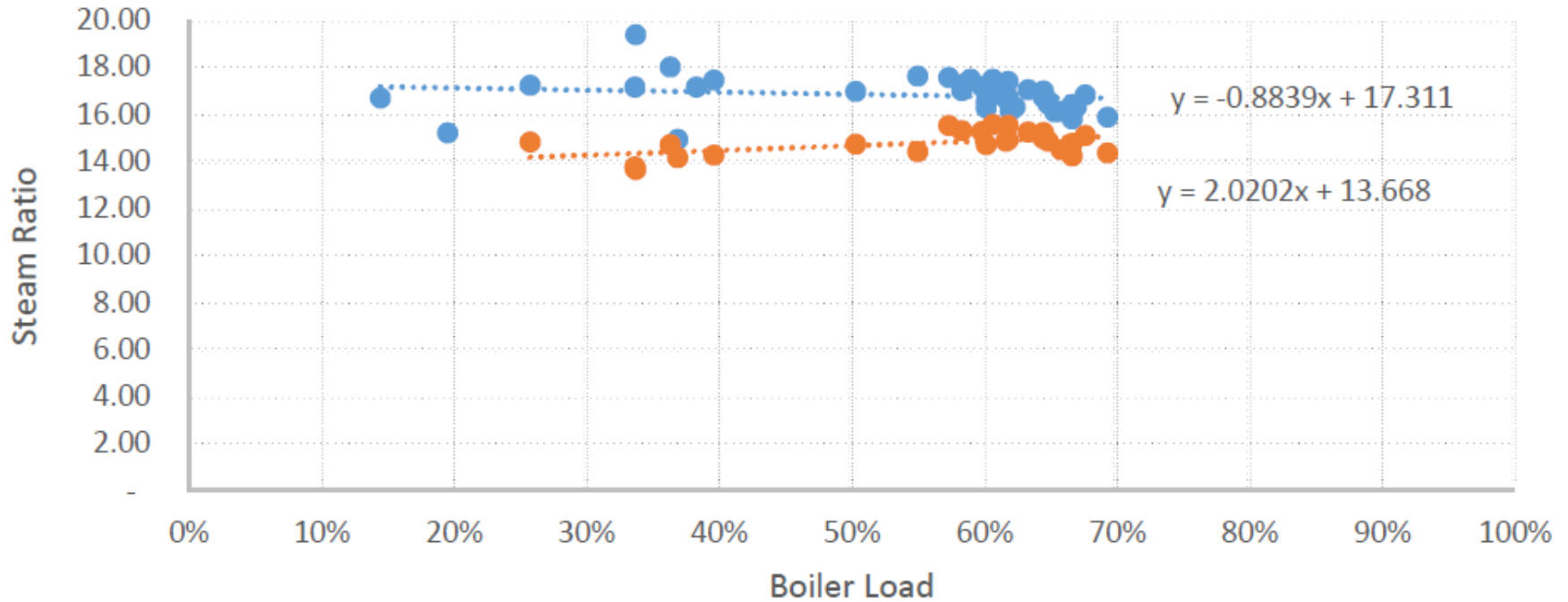
FO = LPG Consumption Rate (Kg/hr)

mS = Water Intake Rate (kg/hr)

*** Continuous data collection, analysed by fitted curve on scatter diagram.**

Boiler Performance

● Before ● After



INVESTMENT GRADE AUDIT



BENEFITS (1)



ENERGY SAVING TO 20%



NOT USE POWER



GAS TEMPERATURE
INCREASE TO 5-10%



EASY INSTALLATION



GREEN PRODUCT



PATENT PENDING

BENEFITS (2)

- **Free Investment** by ESCO Share Saving Project
- Efficiency LPG cost control with **varying load baseline**
- Confidence with **international performance measurement and verification protocol** (IPMVP-Method A)
- Use **same metering equipment** before and after installation
- **Free services** during the contract period
- Share saving with **the market price of LPG** at billing month
- Warranty by **DOS**

PROCEDURE STEP



Energy
Saving!

Thank You