

# Activities of Energy Conservation at Baking Plant

**KOBEYA BAKING CO., LTD.**

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# KOBEYA BAKING Co., Ltd.

-Manufacture of bread, cakes, and frozen dough

-Running several brand bakeries and restaurants

## History:

- 1918 Established in Osaka
- 1928 Started using yeast (the 1<sup>st</sup> company in Japan)
- 1929 Employed high speed horizontal mixer ( // )
- 1939 Started packaging bread ( // )
- 1973 Changed over to unbleached flour
- 1975 Opened the first bakery restaurant
- 1980 Stopped using potassium bromate
- 1988 Started doing frozen dough business
- 1997 Started selling “emulsifier-free & yeast-food-free” products

## Main business

## Company profile

Address : 2-16-14 Houshin  
Higashi-yodogawa, Osaka

President & CEO: Kenichi Kiriya

# of Employees : 1,410 (2014)

## Company policy

**Mission :** Development of food culture for future

### Management principles :

- + Customer satisfaction
- + Pioneer spirit
- + Development of employee’s abilities

### Policy :

- + “Fresh and Pure”
- + “healthy is tasty”
- + “emulsifier-free & yeast-food-free”

Wholesale



Bakery



Restaurant



Frozen dough



# “Chiba Frozen Dough Plant”

- + Operation started in 1996
- + Main plant in Kanto area
- + Producing high quality foods

Products :Frozen dough  
Site area :7,034 m<sup>2</sup>  
Build. area :2.973 m<sup>2</sup>



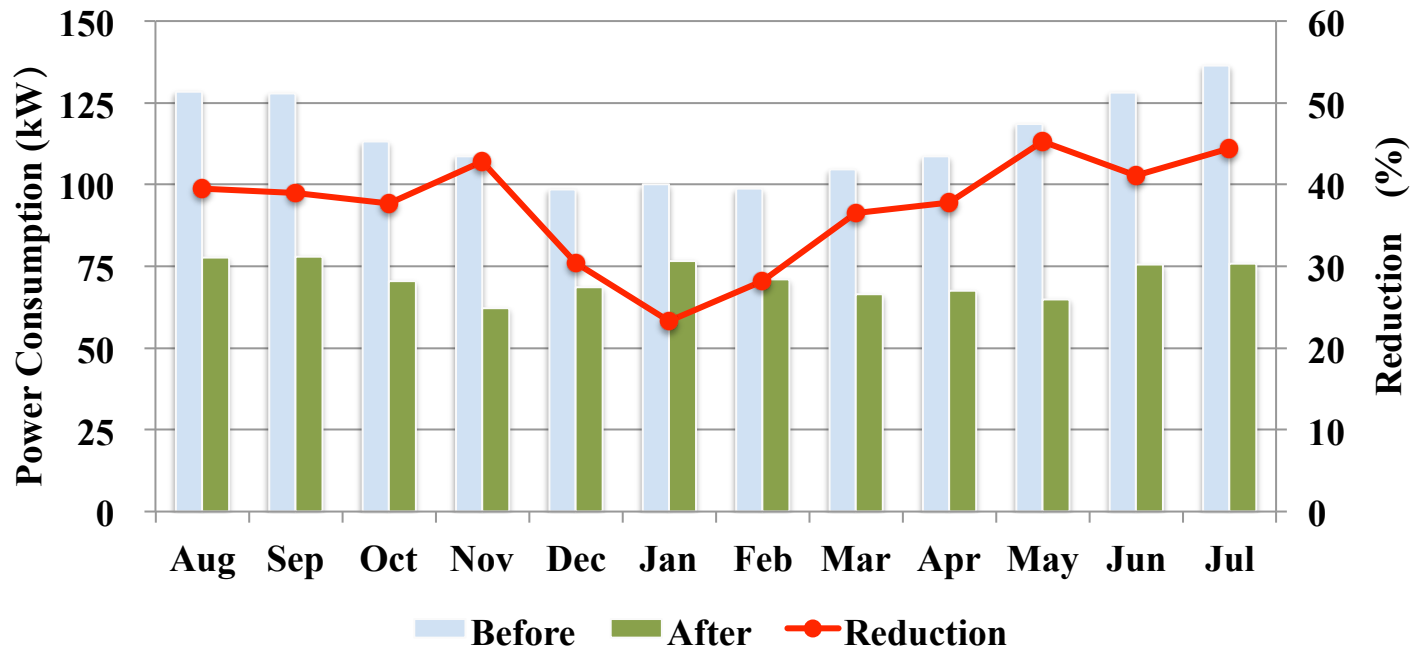
## Activities of energy conservation

- |                                  |                                 |
|----------------------------------|---------------------------------|
| 1.Natural refrigerant system     | : non-fluorocarbon refrigerant  |
| 2.Inverter driven air compressor | : energy saving while unloading |
| 3.Night-time thermal storage     | : Daytime peak-cut              |
| 4.Roof with heat cutoff coating  | : reduction of heat penetration |

# 1. Natural refrigerant system

## Freezing system of bread dough

	Previous system	New system
Freezer Type	Spiral	Spiral
Compressor Type	F1612C	NewTon F600
Main Motor	130kW	90kW
Cooling Method	HCFC-22 DX	NH3/CO2 L.P.



**Average 38% power savings of compressor**



## 2. Inverter-driven air compressor

### Air compressor

**Pre-existing problem:**  
Less efficiency of  
previous air compressor  
at part-load conditions.

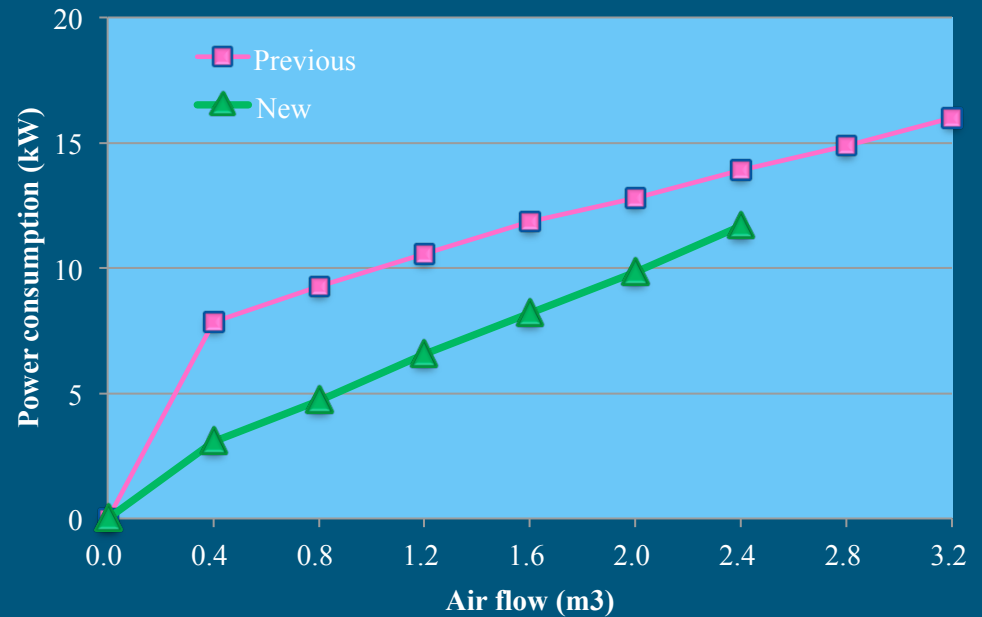
**Compressed air  
consumption was  
reduced by Kaizen  
efforts.**

**Employment of Inverter  
driven A.C.**  
previous : 11kW x 2 sets  
new : 15kW x 1 set

**Achieved 27% power savings.**

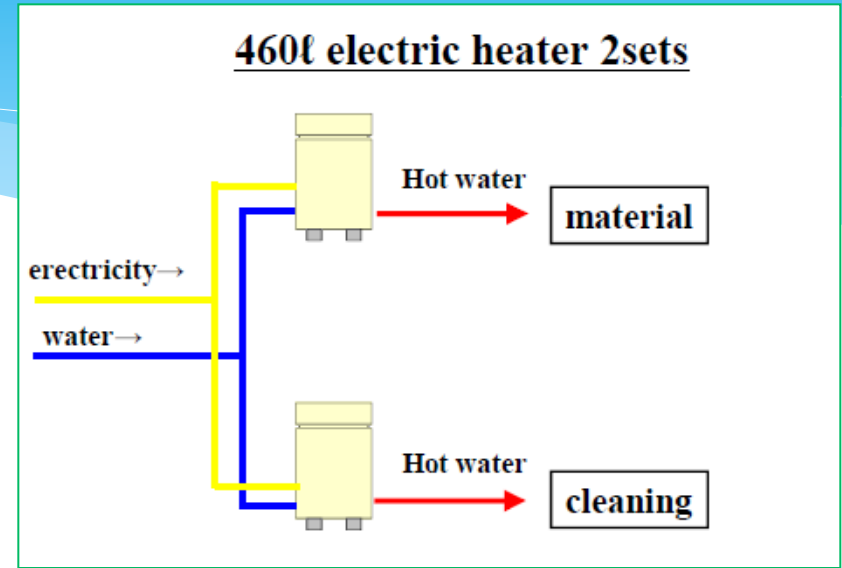
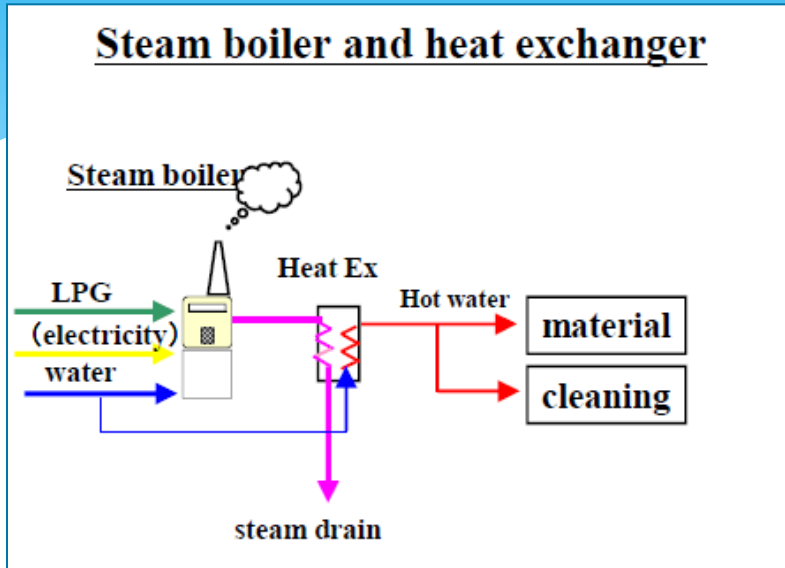


Comparison of power consumption



# 3. Night-time thermal storage

## Hot water supply



Central Steam boiler



Individual electric heater

Effective results by electric heater:

- 1) 75% energy cost saving
- 2) Mold-free
- 3) Securing from burn injury



## 4. Roof with heat cutoff coating

**Pre-existing problem: Increase in power consumption of refrigeration system due to an increase in heat penetration from the roof in summer.**



**Solution : Roof with heat cutoff coating**

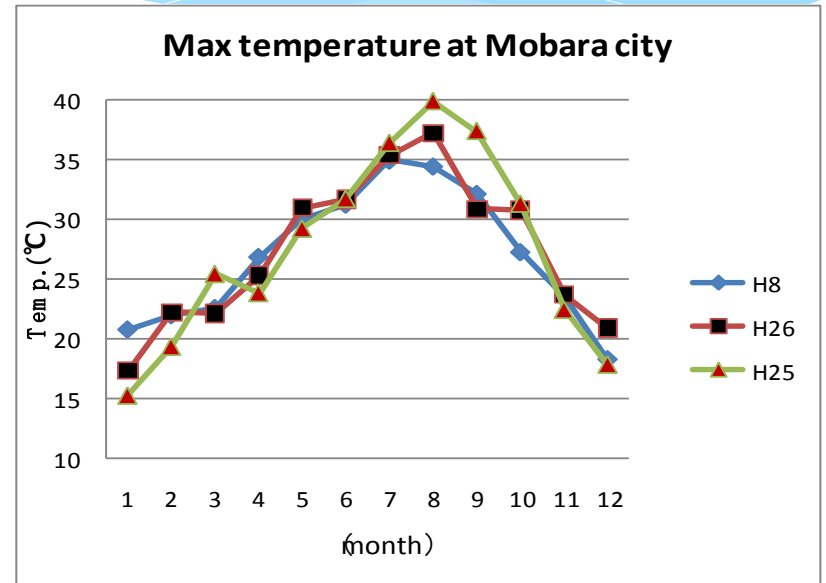


**Days with temperature above 30°C**

**1996 (H 8) : 27 days**

**2013 (H25): 58 days**

**2014 (H26): 46 days**



**Effective results ;**

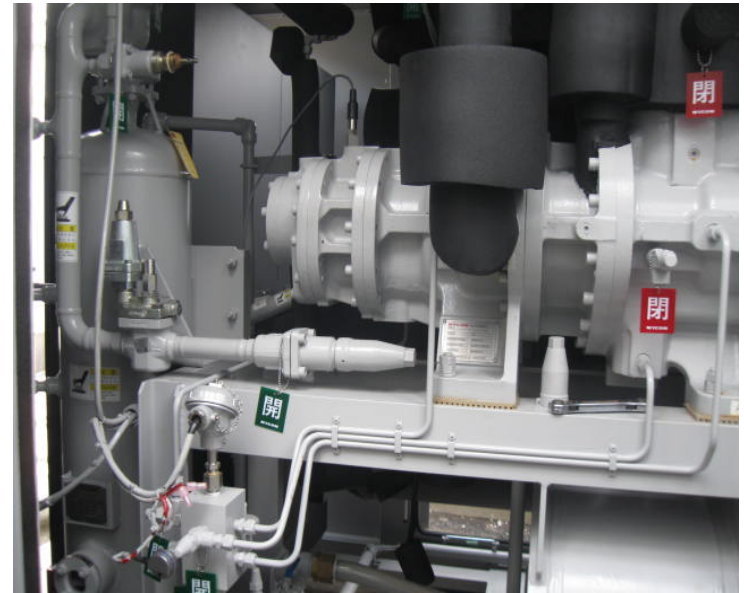
**1) Decrease in room temperature by 3°C**

**2) Equivalent reducing cooling load is**

**25,000kW/year**

# Future energy saving plans

- 1. Employment of natural refrigerant system**  
Replacement of another HCFC-22 freezer to NH<sub>3</sub>/CO<sub>2</sub> for quick freezing line of bread dough  
⇒ Target: 30% reduction of power consumption
- 2. LED light**  
Replacement from existing lights to LED  
⇒ Increasing illuminance  
⇒ Saving energy





**Thank You**  
**For Your Attention**



3-5 February 2015 in Tokyo