

# Aeon's activities to expand the installation of natural refrigerants

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## Outline

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# 1. About Aeon (As of Feb. 29, 2013)

- Foundation: 1926
- Sales amount: ¥5,685 billion
- Number of company: 227
- Number of store:

General Merchandise Store	598
Supermarket	1, 708
SUPERCENTER	26
Discount Store	152
Home Center	123
convenience store	4, 462
Specialty Store	3, 664
Others	562
Financial Services	527
Service	1, 394
<b>合計</b>	<b>13, 217</b>



Number of customers:  
**4 million / day**

## 2. Aeon Sustainability Principle

**Aeon aims to realize a sustainable society with stakeholders based on our basic principle of “pursuing peace, respecting humanity and contributing to local communities, centered on customers.”**

**With “realization of a low-carbon society”, “conservation of biodiversity”, “effective use of resources”, and “dealing with social matters” as pillars, we will think globally and act locally.**

Toward realizing sustainable management

Toward balancing Group growth with the development of society

Key Issue 1

Realization of a Low-carbon Society



Key Issue 2

Conservation of Biodiversity



Key Issue 3

Better Use of Resources



Key Issue 4

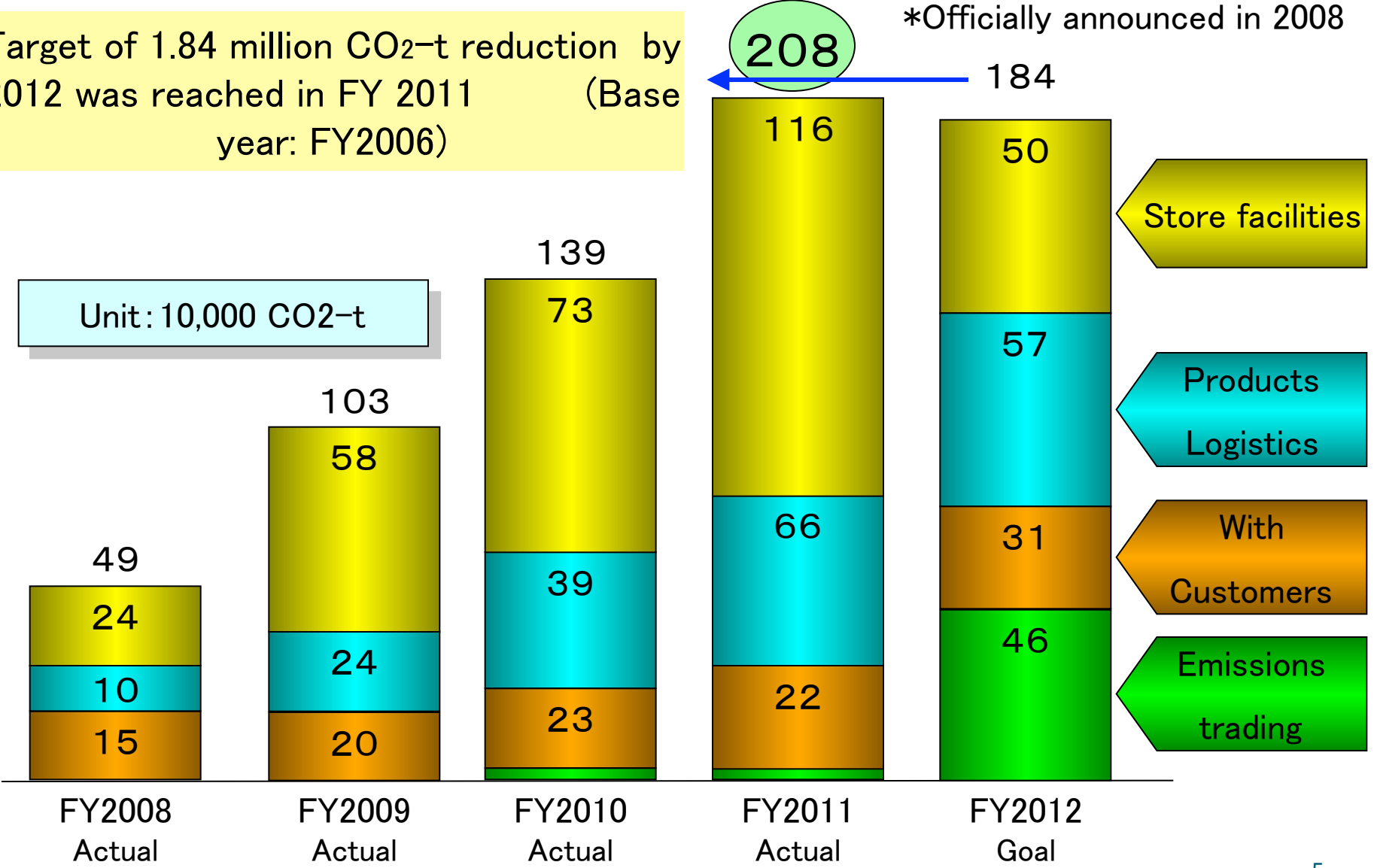
Dealing with Social Matters



### 3. Aeon declaration on preventing global warming (2008\*)

Target of 1.84 million CO<sub>2</sub>-t reduction by 2012 was reached in FY 2011 (Base year: FY2006)

\*Officially announced in 2008



## 4. Aeon Declaration on Natural Refrigerants

- Aeon Declaration on Natural Refrigerants was publicly committed to contribute to the low carbon society in Nov 2011.
- We will introduce facilities with natural refrigerants(CO<sub>2</sub>) at all our new stores while converting to natural refrigerants at about 3,500 existing stores overtime.



**GMS**

**General Merchandising Store**



**Supermarket**



**Small Supermarket**



**CVS**

**Convenience Store**

# 5. Installation of facilities with CO2 refrigerants

## CO2 refrigerant installation at Aeon group supermarkets



Year	Store Name	Area	Descriptions
2009	Max Valu Rokugodotemae	1426m <sup>2</sup>	Safety Stability Energy saving CO2 reduction
2010	Max Valu Ogoritanabatadori	2192m <sup>2</sup>	
2011	Max Valu Aeon Town Himeji	2400m <sup>2</sup>	

Repeated verification  
to accelerate introduction



Safety & Stability


Energy saving: about 10%


CO2 reduction: about 50%

## 5. Installation of facilities with CO<sub>2</sub> refrigerants

【 The result of FY2012 installation 】: 7stores

Format	Store Name	Area	Descriptions
Supermarket	Max Valu Shinfunabashi	1900m <sup>2</sup>	Installed as a part of the project of HCFC alternative by the Ministry of Economy, Trade and Industry
	Max Valu Hamakitanakase	2193m <sup>2</sup>	
	Max Valu Kasugaisakashita	2229m <sup>2</sup>	
	Max Valu Amagasakikinrakuji	1509m <sup>2</sup>	
	Max Valu Shinmiyakojima	1800m <sup>2</sup>	

 Energy saving: about 20%

 CO<sub>2</sub> reduction: about 50%

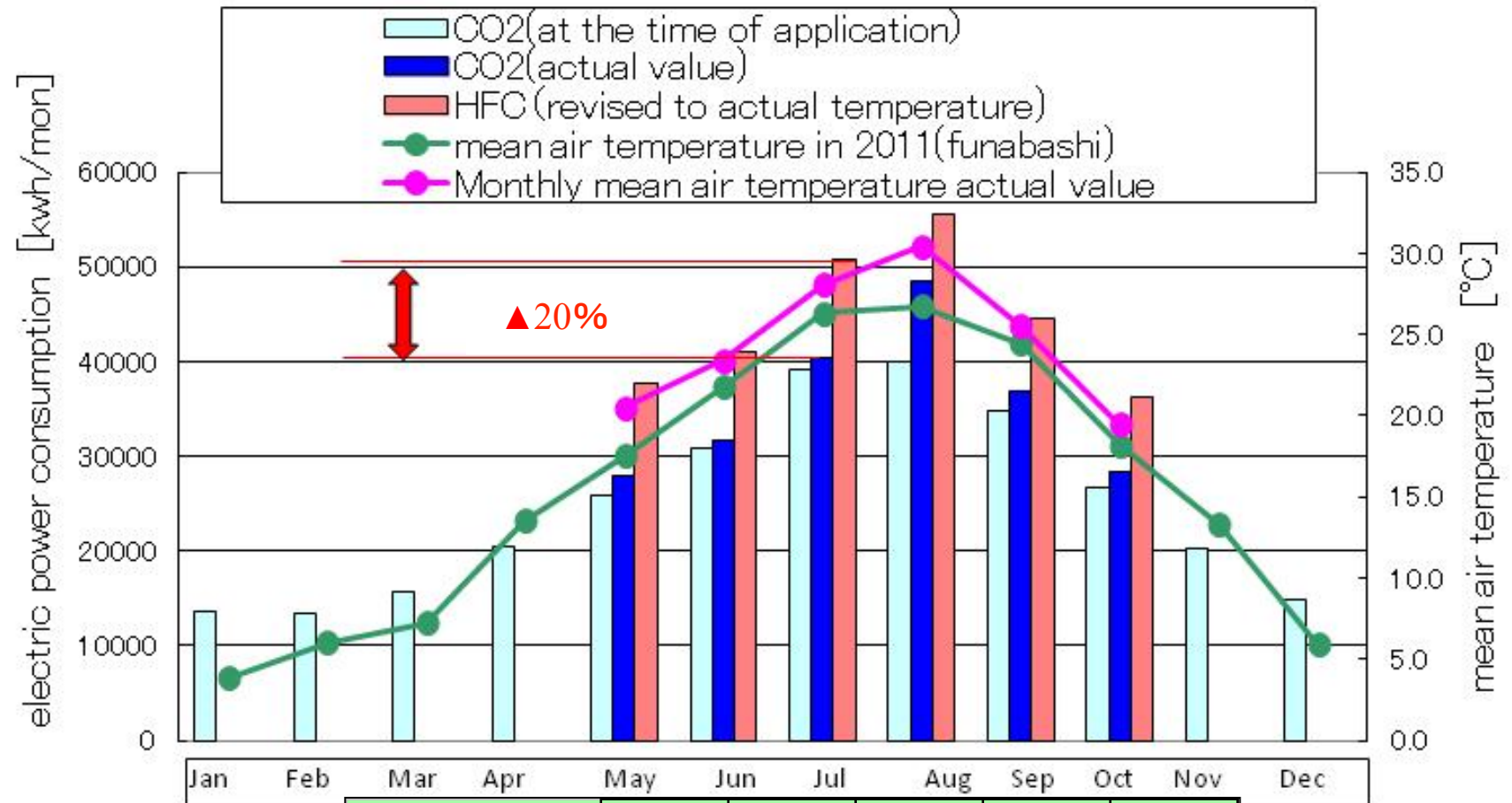
CVS	Ministop Yachiyo Industrial Park	107m <sup>2</sup>	Energy Saving: about 30%* (*Freezer cases of Ministop)
DS	Acolle Takashimadaira	338m <sup>2</sup>	



MV Shin-Funabashi(April 2013 Open)

Inspect of energy saving effect in high temperature and humidity

Progress of electric power consumption (May-Sep)



	Jun	Jul	Aug	Sep	平均
CO2実測/HFC 実測気温に補正)	77%	80%	87%	83%	82%

## 6. Installation to large GMS 【Aeon Mall Makuhari Shintoshin ✂️Open: Dec. 20, 2013】

### ■ Outline of the SC

- Ground floor area: about 192,000m<sup>2</sup>
- Total floor area: about 128,000m<sup>2</sup>



### ■ Installation of Natural refrigerants to Aeon Makuhari Shintoshin (Store area)

- Number of installation : 20 systems, 144 cases with CO<sub>2</sub> refrigerants (Total 182 cases)
- Energy saving : About 20% reduction (Compared to cases with HFC refrigerants)
- CO<sub>2</sub> reduction : Total 813t /Indirect effect 60CO<sub>2</sub>-t /Direct emissions 753Co<sub>2</sub>- t

# 7. Issues regarding expanding the installation

Strict regulation and cost are the major issues

Issues	Possible Measures (example)
<p>Regulation and Cost issues (High Pressure Gas Safety Act)</p>	
<p>CO<sub>2</sub> is required to be treated as propane, though it is an inactive gas.</p> <p>–Smaller size: the Act <u>is not applicable</u></p> <p>The installation number of refrigeration unit will increase.</p> <p>– Desired size: the Act <u>is applicable</u></p> <p>The spec for active gas is required.</p> <p>=&gt; resulting in high cost</p>	<ul style="list-style-type: none"> <li>▪ Trim weight of high intensity steel pipes with the collaboration of manufactures.</li> <li>▪ As for freezer cases, saving energy effect was confirmed by 20–30%. The reduction of operating cost can be the driver to increase the number of stores with natural refrigerant freezer cases.</li> </ul>
<p>Technological issues</p>	
<p>Noise control (for the installation in urban areas)</p>	<p>Improve the soundproof technique</p>

## 8. The direction to solve the obstacles

- (1) Solve the obstacles with the collaboration of stakeholders
- (2) Ask the government to show the clear direction on natural refrigerants
  1. The policy to encourage manufactures' and installation suppliers' technological innovation to shift toward natural refrigerants.
  2. Easing of regulations and preferential treatment to encourage technological development.
- (3) Increase the awareness of the detrimental effects of Freon to take appropriate measures for it.

