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Our Business Activities in Food Retail Equipment Business

13th February, 2018

Panasonic Corporation Appliances Company

Food Retail Equipment Businesses

Shigeru DOHNO

- 1. Introduction of Panasonic's Food Retail Equipment Business**
- 2. Our strategy for refrigerant**
- 3. Our track records**
- 4. Domestic and overseas expansion in the future**
- 5. Conclusion**

Profile

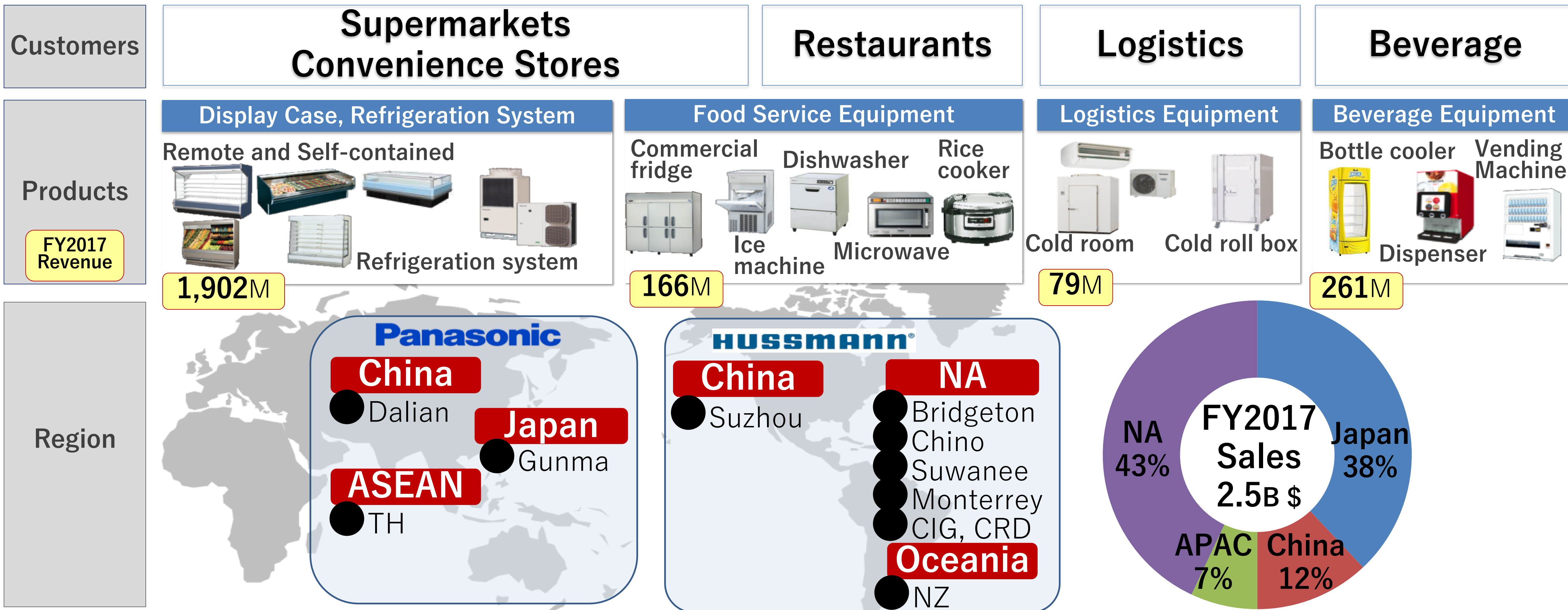
- 1962 Birth (55 years old)
- 1986 Joined Matsushita Electric Works Co.
Engaged in “advanced development” of product & manufacturing at HQ R&D
- 2006 Aqua Device Business Division
→ GM in charge of Sales, Planning, Engineering, Quality, Procurement, and Manufacturing
- 2011 MD, Aqua Device Business Division
- 2012 Dir. of Technology, Beauty Living Business Division (BLBD)
- 2013 MD, Kitchen Appliances Business Division (KABD)
- 2015 Managing Director, AP Company (in charge of planning)
- **2017 Managing Director of AP Company
(in charge of food retail equipment businesses)**





Overview of Food Retail Equipment Business

Promote refrigeration equipment business for “Supermarkets/Convenience Stores”, “Restaurants/Logistics”, “Beverage” customer in Japan/China/APAC/NA



Kigali Amendment and F-Gas Regulation

Japan
1st Group

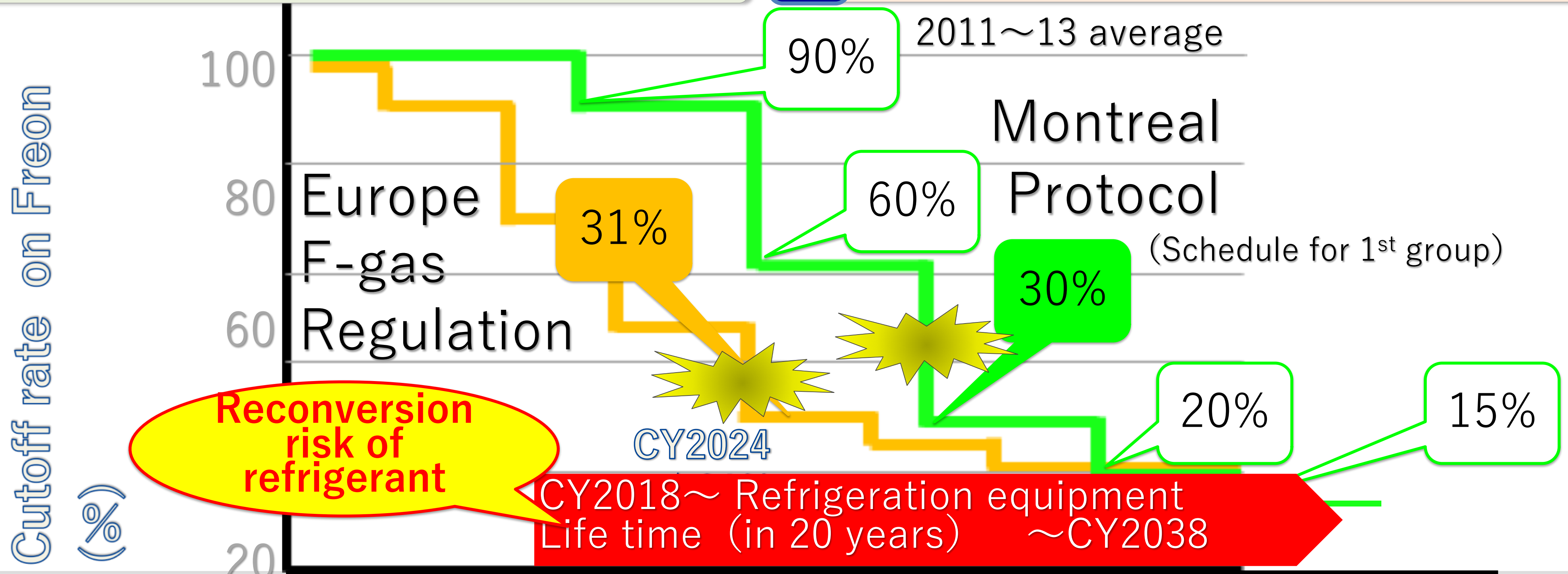
Kigali Amendment

⇒ Cutoff less than 30% in 2029 and less than 15% in 2038

Europe

Strict its own regulation,

⇒ Cutoff to 31% in 2024 (change from '15)



Reconversion risk of refrigerant

CY2018~ Refrigeration equipment Life time (in 20 years) ~CY2038

Refrigerant strategy of Panasonic for refrigeration systems

**Pursue Environment-friendly and Energy-saving
Introduce & expand the use of appropriate natural
refrigerant for each equipment to lead the industry.**

Promotion of Natural Refrigerant

Post HFC refrigerant
(GWP<1500)
But, after 2029
there is **risk of ban**

Promotion of **natural-refrigerant**,
considering **the risk of re-investment
in the future (refrigerant re-
conversion)**

Why natural refrigerant?

No direct impact to global warming by refrigerant leakage

Benefits for industry

Freon leakage
Retail 60%

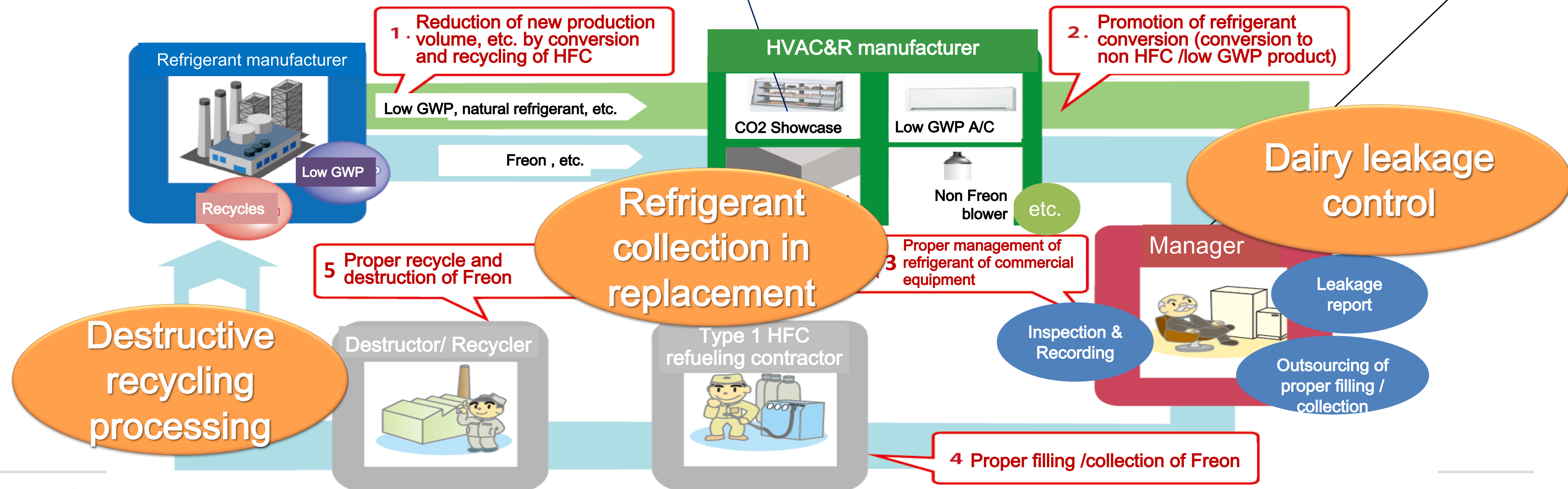
Measures

Large volume of
refrigerant
containment

Benefits for users

Easy to manage,
Exception for Act for Rationalized Use and
Proper Management of Fluorocarbons

Overall lifecycle of HFC, etc.



Background & Achievement of CO2 Condensing Unit

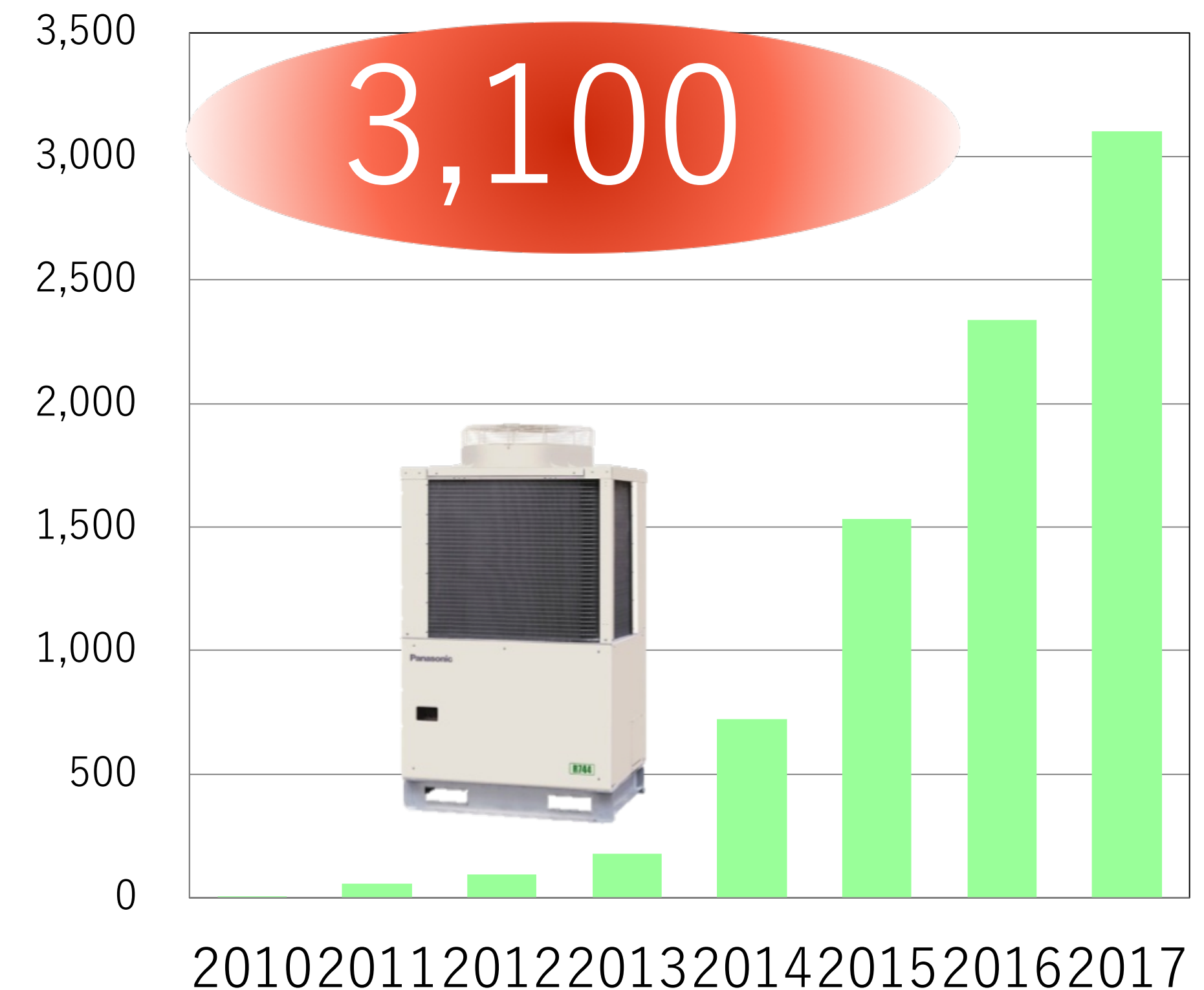


System

The Promotion of CO2 system by government support and evaluation

- 2005 YR** participated in **Ministry of Economy Trade and Industry (NEDO)** project Basic research period
- 2009 YR** Start of demonstration experiment in the supermarkets.
- 2010 YR** **Launch the CO2 refrigerant adopted condensing unit**
 - ★Protect the Ozone Layer, Prevent Global Warming Grand Prize (2010 YR)
 - ★Energy Conservation Grand Prize (2013 YR)
- 2014 YR** Ministry of Environment (MOE)
 - MOE project to accelerate the usage
 - “Energy efficient refrigeration and Air-conditioning Equipment based on Natural Refrigerant Good Practices”
 - ★Electrical Science and Engineering Promotion Award (2014 YR)
 - ★Chairman Prize of ECCJ (2014 YR)
- 2015 YR** Launch **Pressure Adjust Control type condensing unit** & side flow type 10HP condensing unit
 - ★Protect the Ozone Layer · Prevent Global Warming Grand Prize (2015 YR)
 - ★Minister of the Environment’s 2016 Commendation for Global Warming Prevention Activity (2016 YR)
- 2017 YR** Start to Export **2 HP for Europe** (2018 YR : 10HP)
Start to manufacture in China the **2HP for China** (2018 YR : 10HP)

Cumulative Number of stores Installed CO2 as of 2017YR end





Introduction of CO2 unit to overseas

Verification test & Installation started at Asian and European local stores

stores



Denmark
Sweden
Norway
Belgium



【test installation】

Iceland
Germany
Poland
Hungary
Spain
Swiss
England
Italy
others

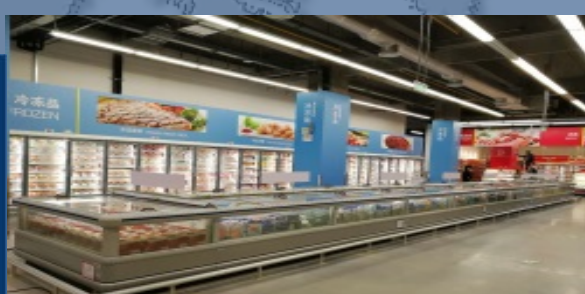
July, 2017

Start of sales ·
installation



Malaysia

Malaysia, NRE support
“Multilateral fund
for the implemen-
-tation of
Montreal Protocol
May, 2017 opened

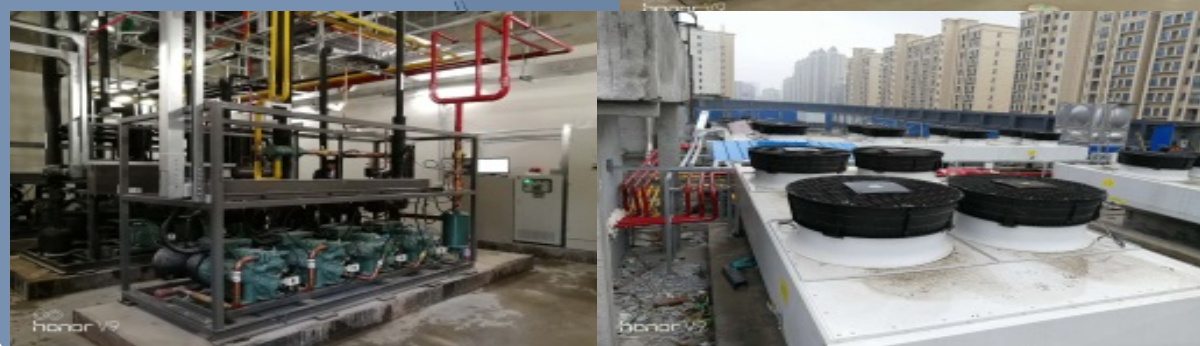


China



13 stores installation

Wuhan 3rd store
Sep, 2017 opened



Indonesia

13 stores
installation

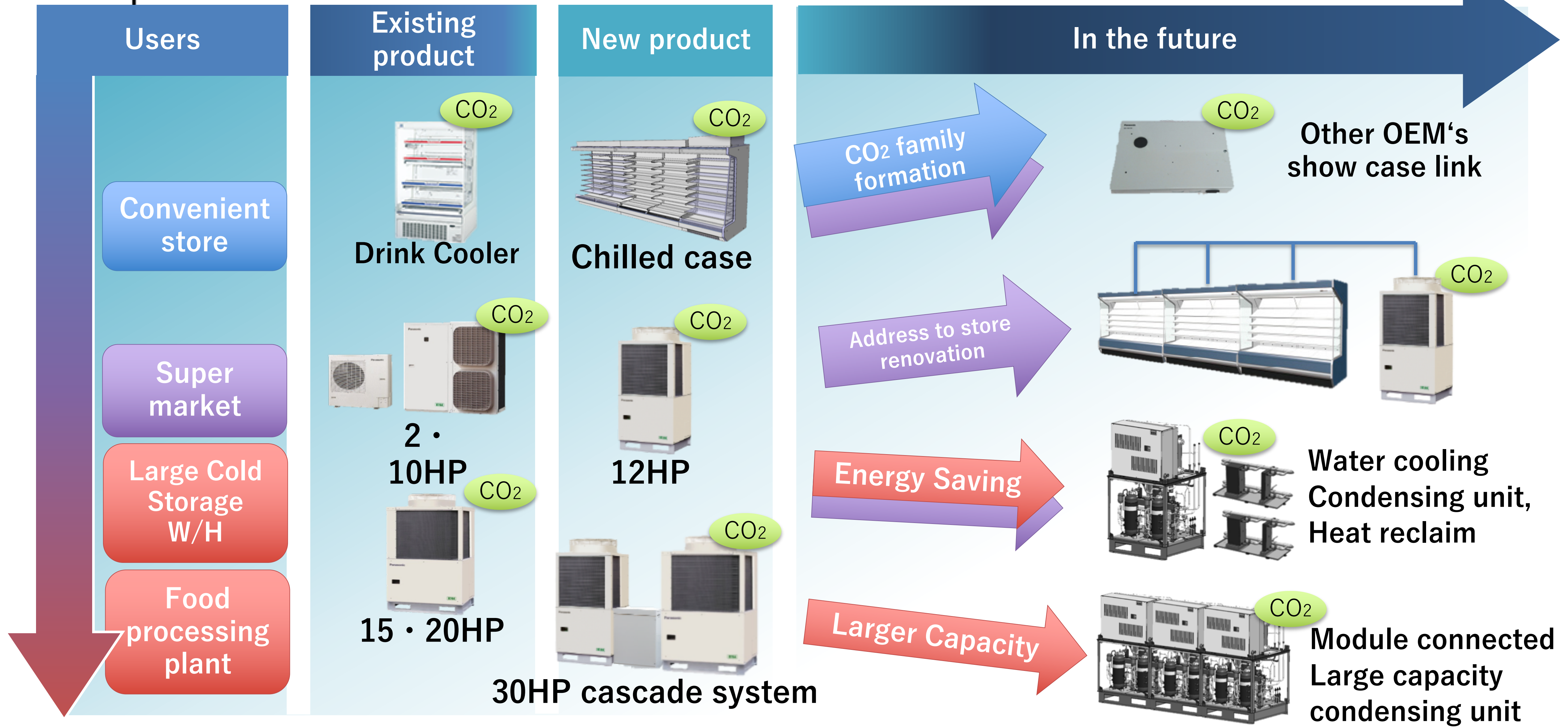


Taiwan

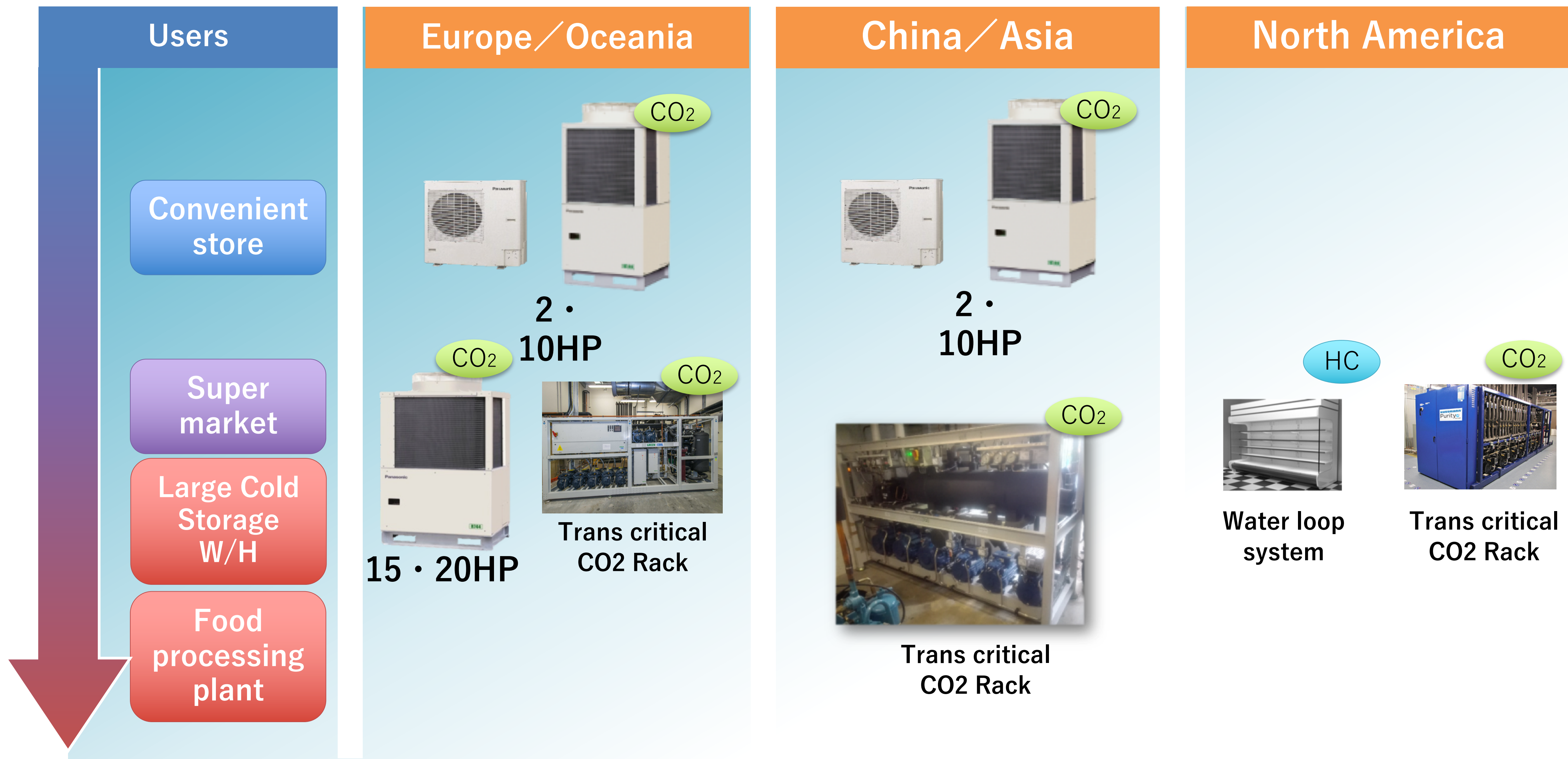


Linkou Wenvi store
Jan. 2016 installation

Concept of Our Natural Solution (Japan)



Concept of Our Natural Solution (Overseas)



For further growth of natural refrigerant in Japan

Government

- Setup infrastructure for promotion

End users

- Take initiative for expansion

Manufacturers

- Cost down, Energy saving, Address to store renovation
- Lineup expansion including larger capacity
- CO2 family formation

**Triune
Expansion**

Panasonic promotes natural refrigerant as our mission in Japan.



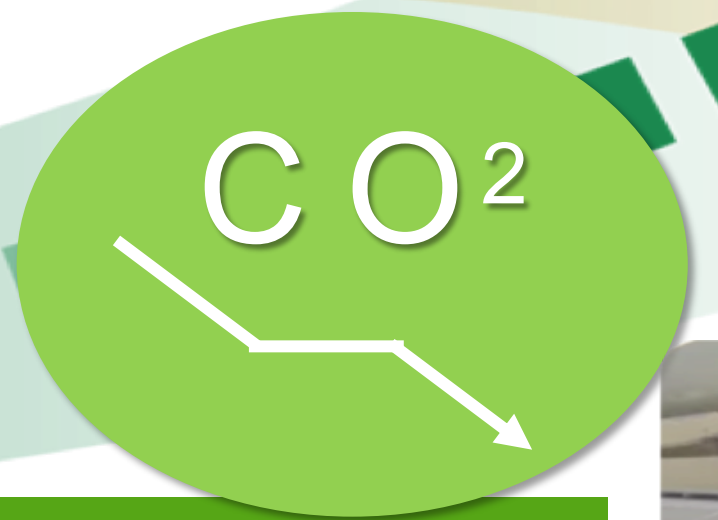
Panasonic Environmental Vision 2050

Energy Consumption

Energy Creation

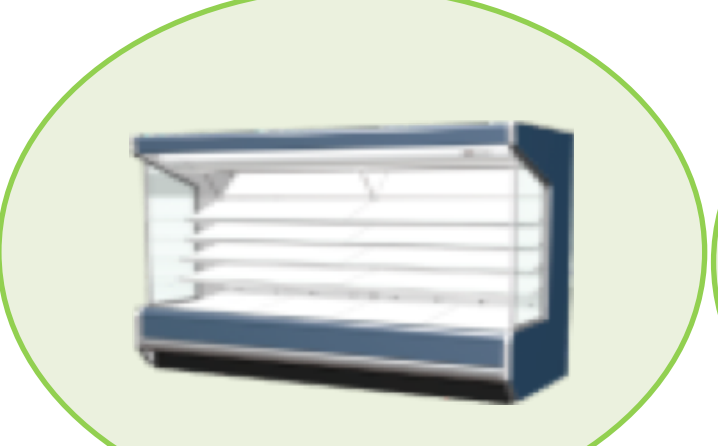
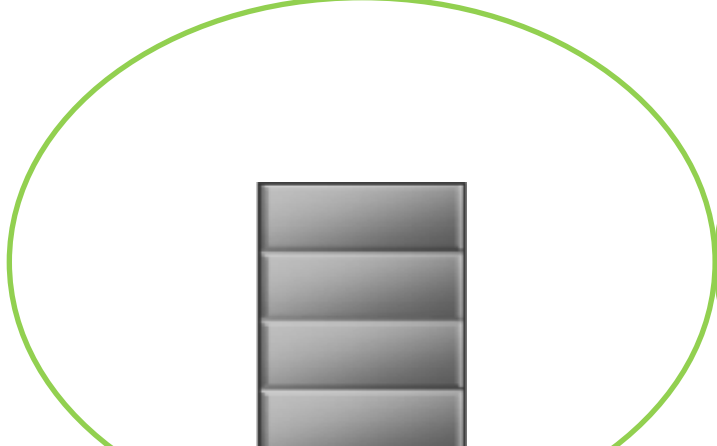
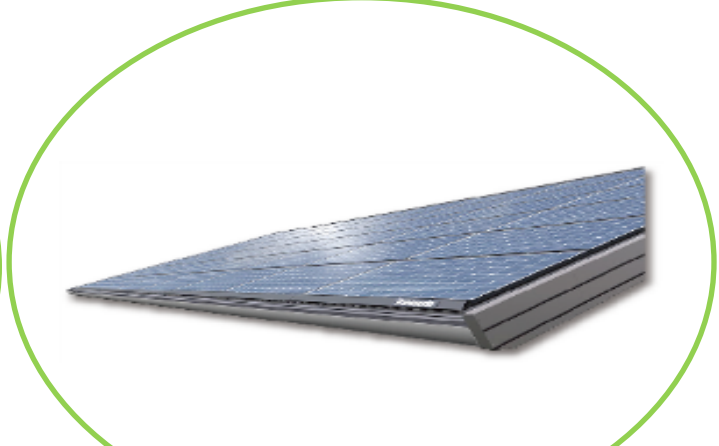
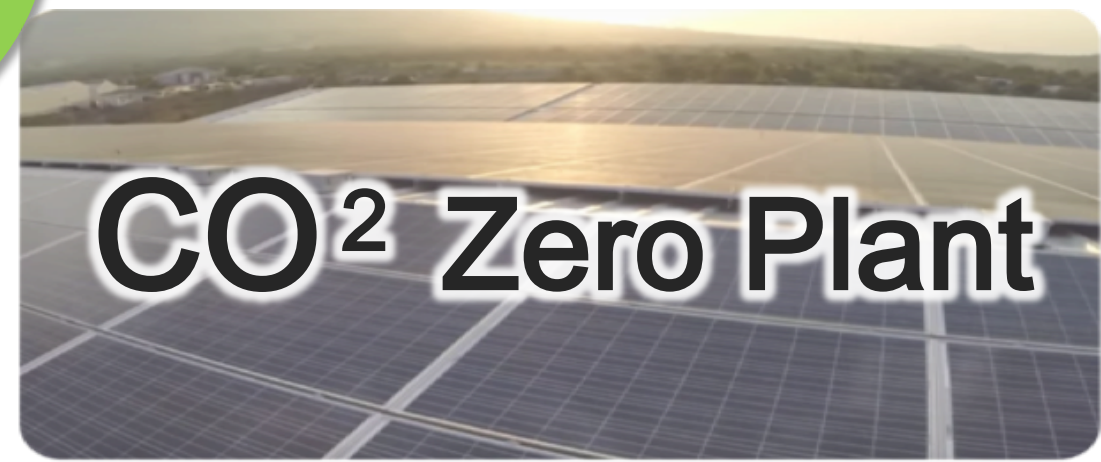
Business expansion of energy creation & storage
Growing usage of clean energy

Improvement of energy-saving
Manufacturing process innovation



Year 2050

Technology for clean-energy society



Energy-saving home appliances

Photovoltaic generation

Hydrogen cell

Fuel cell

Storage battery

Energy-saving commercial equipment



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Thank you very much!