



Heat Pump heating contribution to Ukraine ヒートポンプ暖房によるウクライナへの脱炭素貢献と復興支援

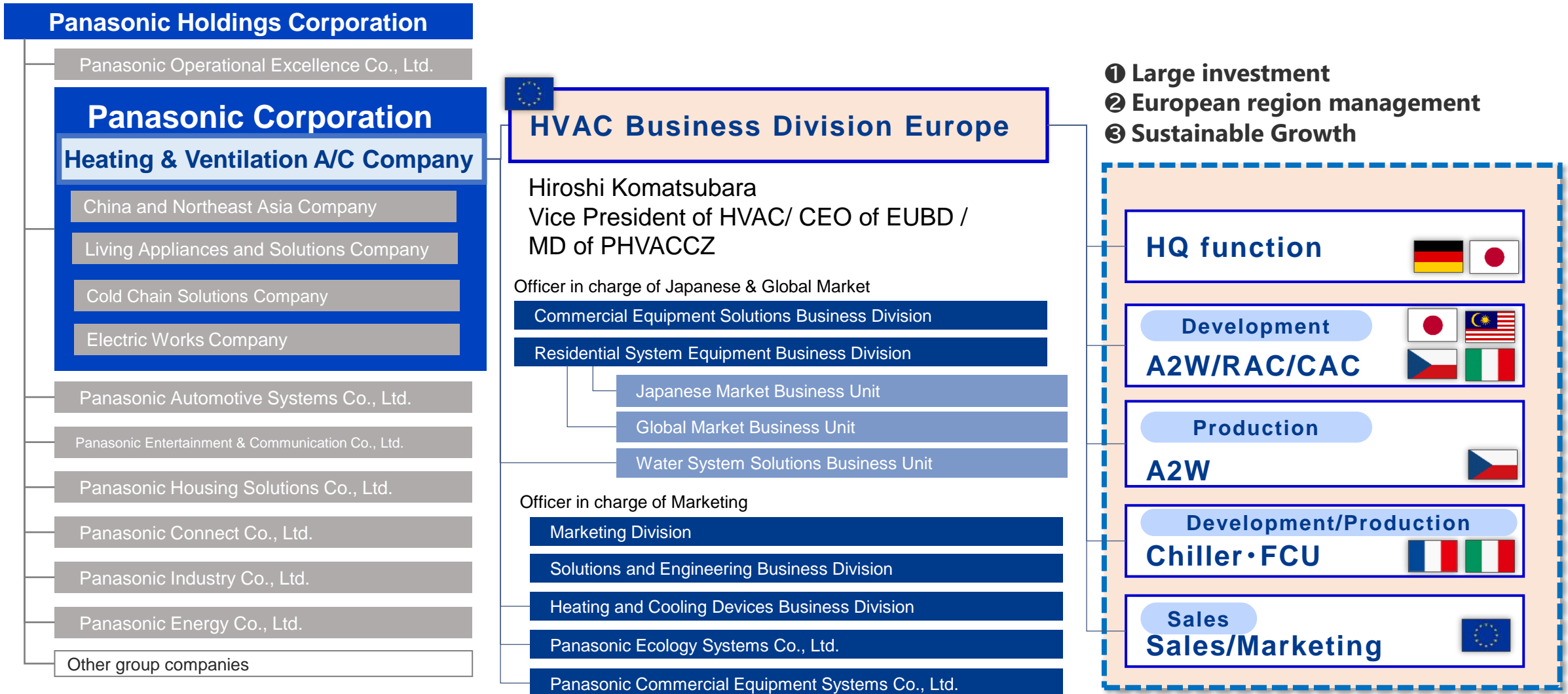


Panasonic Heating & Ventilation AC Company
パナソニック株式会社 空質空調社

3rd September 2024

- ① **Panasonic HVAC Company Introduction**
- ② **What is Air to Water (A2W) ?**
- ③ **Activities in Ukraine**
- ④ **Panasonic Technology Introduced JCM Project**

Established HVAC EUBD at the front of European market as one of most important region, in order to cope with market needs swiftly



EU Green-deal toward carbon neutral society boost demand for hydronics solution, such as energy efficient A2W and chiller

EU direction



1. EU Green-deal (decarbonization)

Promote to reduce CO2 emission toward decarbonization in 2050



2. Energy shift from fossil fuel

A2W penetration expand to 30mil units toward 2030



3. New F-gas regulation update

Strict refrigerant regulation

Market Trend

Regulation, direction and incentive by government

Environment awareness change from gas boiler to A2W

Accelerate to shift low GWP refrigerant

Net zero CO₂ emissions in our own value chain

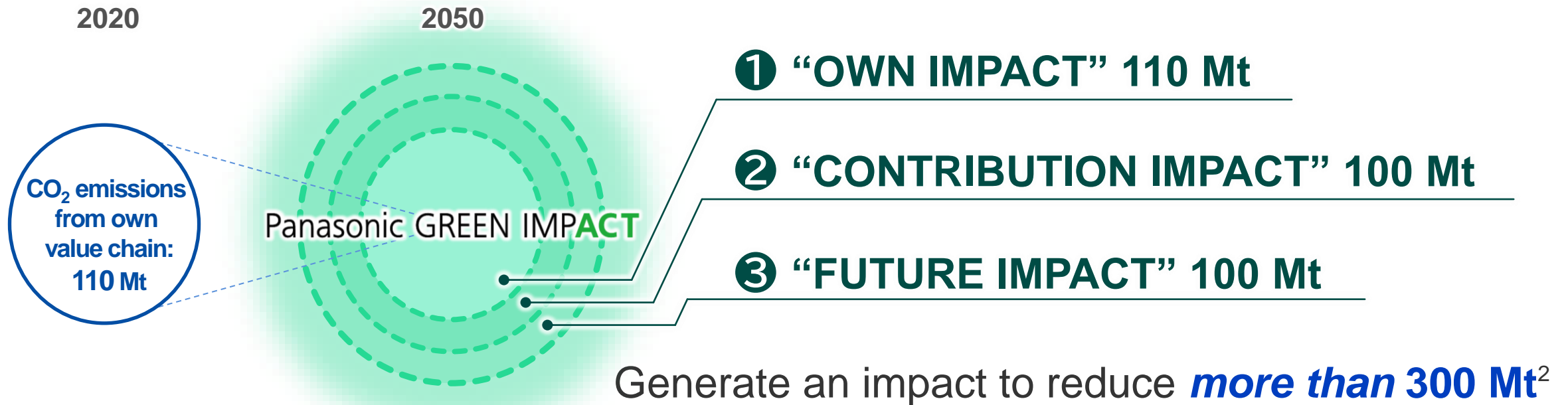
Achieve at the earliest stage Groupwide

- ① Emission reductions based on Scopes 1–3¹

“Avoided Emissions” for society through business

Help energy users reduce CO₂ emissions

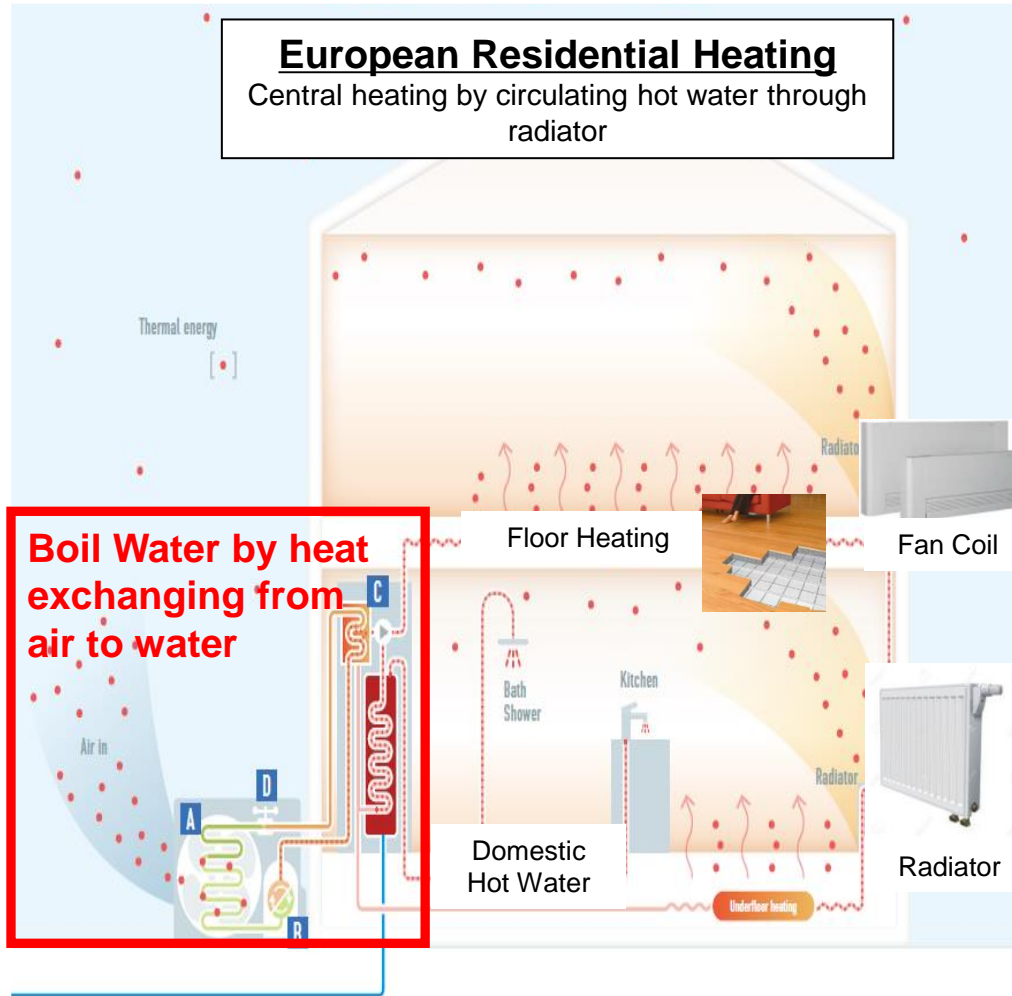
- ② “Avoided Emissions” through existing businesses
- ③ “Avoided Emissions” through new technologies & businesses



¹Incl. decarbonization effects in society; ²Calculated by emission factor as of 2020

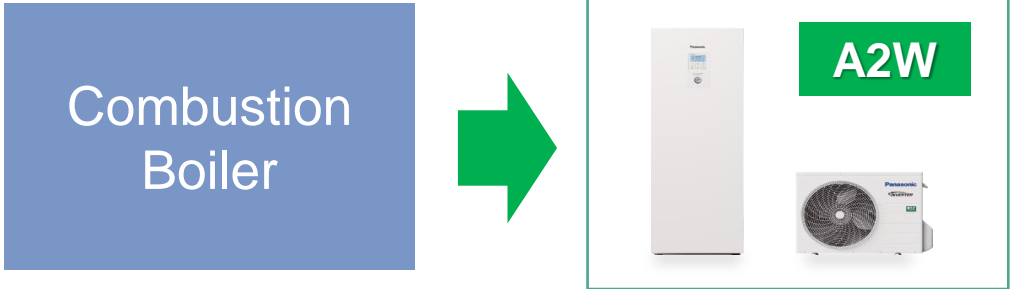
What is Air to Water (A2W) ?

A2W is heating & cooling and domestic hot water system, circulating warmed/ cooled water which exchange between air and refrigerant



Contribution of A2W for reducing CO₂

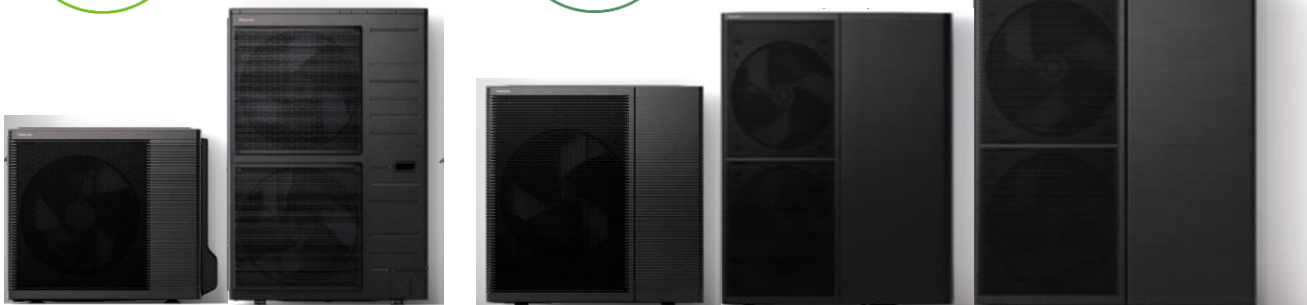
Contribution for replacing combustion system



CO₂ Emission
→ 65% Reduction

* Internal calculation
1unit/Year

- A2W : Electricity emission coefficient(kg-CO₂/kWh) : 0.277
- Boiler : Thermal conversion(MJ/kWh) : 3.6
- Gas conversion(m³/MJ) : 0.0217
- Gas Emission coefficient(kg-CO₂/m³) : 2.24



Aquarea K
3-16 kw

Aquarea L
5-9 kw

Aquarea M
9-16 kw

Big Aquarea M
20-30 kw



Single house



Multi Family House

Light Commercial

<Aquarea M>

- * T-CAP solution with natural refrigerant
- * Improved flexibility with modular concept
- * DHW up to 65°C without heater

<Big Aquarea M>

- * Large capacity (20, 25, 30kw) and up to 300 kw with cascade
- * Max Water temperature 75°C at -15°C
- * Compact design for space saving solution

① High Performance even under severe condition

- Ambient temperature down to **-28°C** with Mono bloc
- 75°C hot water even up to -15°C outside *L series up to -10°C
- Rated Capacity kept until -15°C outside as well

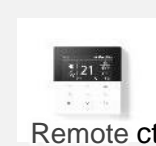
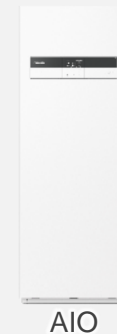
② Low noise and signature design

- Top class low sound operation
*K Series: **55-65dB**, L Series: **54dB**, M Series: **52-69dB**
- AIR ARCHI design with compact size

③ Energy Saving

- High Efficiency **SCOP A+++/A++** (A7W35/W55)
*Aquarea M 9-16kw

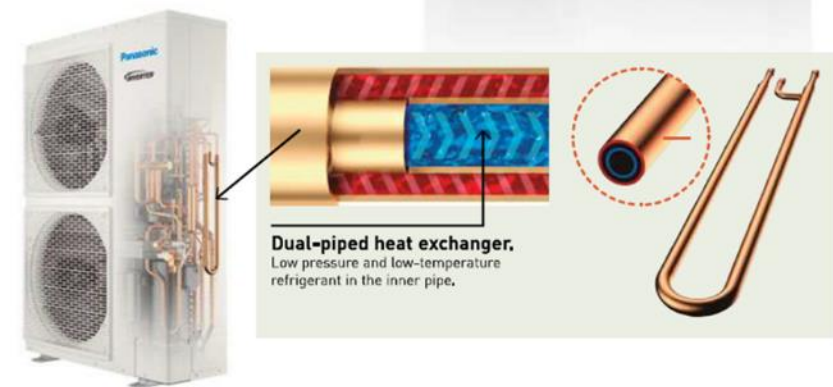
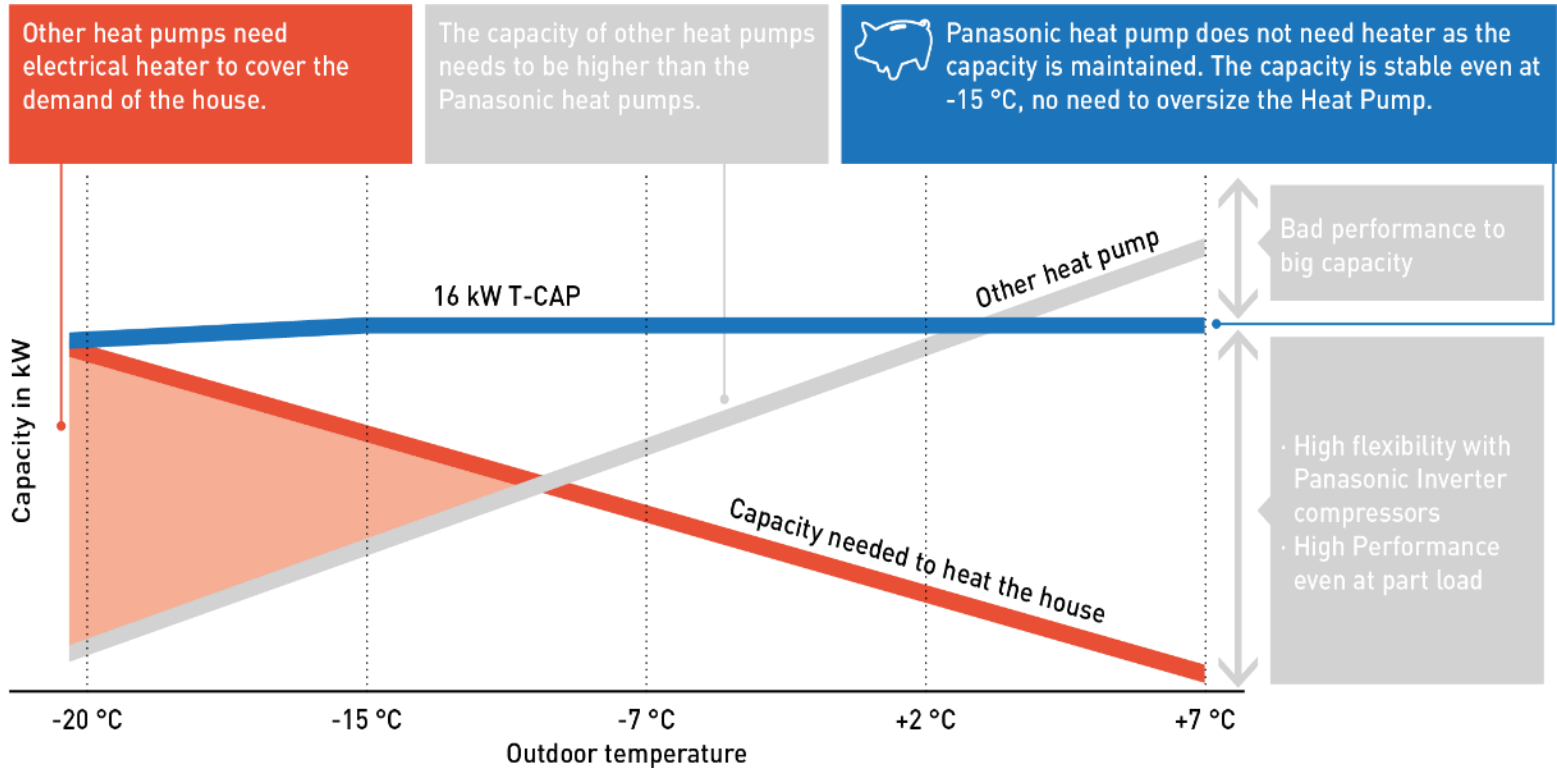
Indoor Application



Ensure ample heating capacity-even at low temperatures. The entire Aquarea T-CAP lineup is excellent for replacing gas or oil boilers and for connecting to new underfloor heating, radiators or fan coil units.

❖ Powerful capacity even at low temperatures

With Aquarea T-CAP technology, Panasonic heat pumps can work in outdoor temperatures as low as -28°C and maintain capacity without backup heating at -20°C (9kw).



❖ Original Sub cooler EVA Bypass Circuit and optimum expansion valve control

1990 2000 2010 2020 2021 2022 **2023** **2024**



A2W business (Ukraine)

- 1) Low Electricity Price
- 2) High Gas Price (Consumer)
- 3) European trend (Climate)
- 4) Population
- 5) Commercial (B2B) demand



Potential Market (2018 -)
The next market, after Poland

2018 :
Ukraine Partners Trip to Japan



2020 : A2W training Center opened in Kyiv

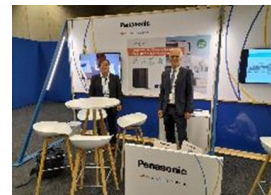


2022 : New Czech factory started A2W supply



2023 : Ukraine Reconstruction JICA project (越冬支援) 

2024 : Integration into European HVAC PHVACEU



Panasonic installed A2W in five kindergartens in Ukraine during the harsh winter of January

Gas boiler to A2W



Wood boiler to A2W



MAP OF HEAT PUMP INSTALLATION CANDIDATE SITES



Lviv : Zhovka



Vinnyt : Slavutych



Rivne : Dubno

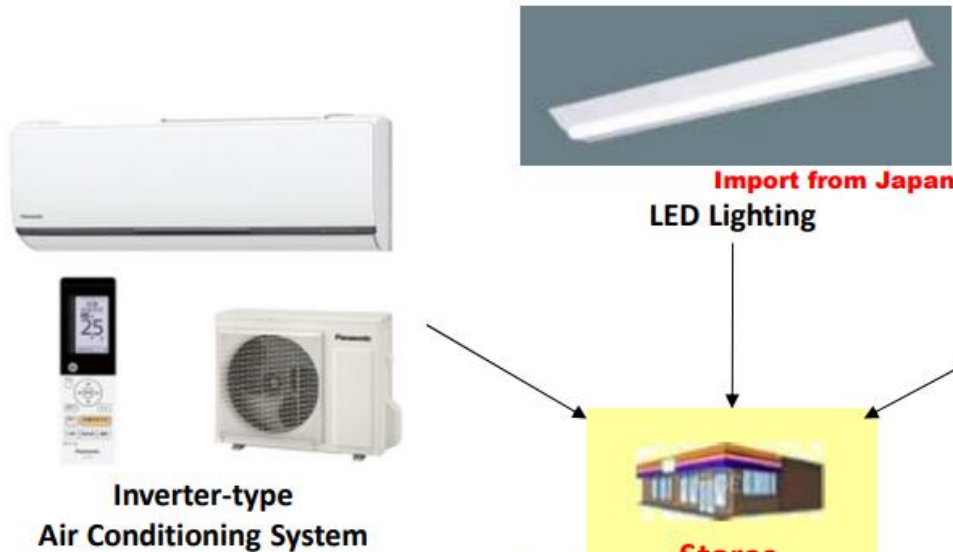


Vinnytsya : Zhmerynka



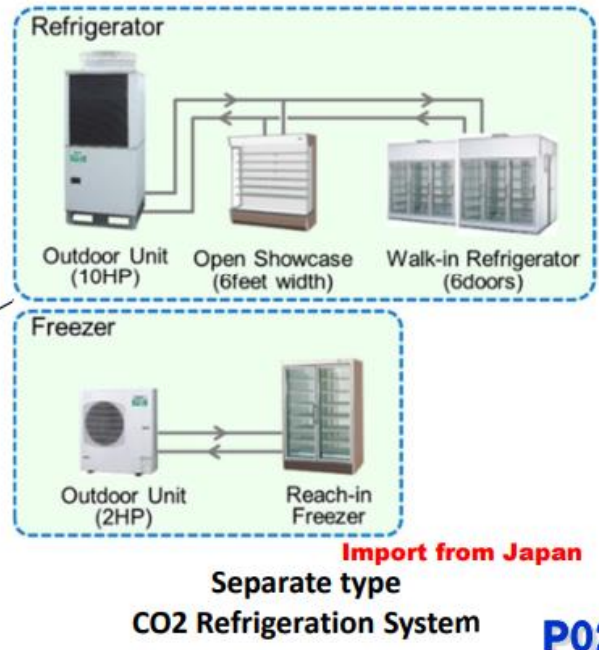
Several energy saving equipment

- (1) **Inverter-type air conditioning system**
(The most performance)
- (2) **LED lighting**
(Automatically control type)
- (3) **Separate type CO₂ refrigeration system**
(first installation of CVS in South East Asia)

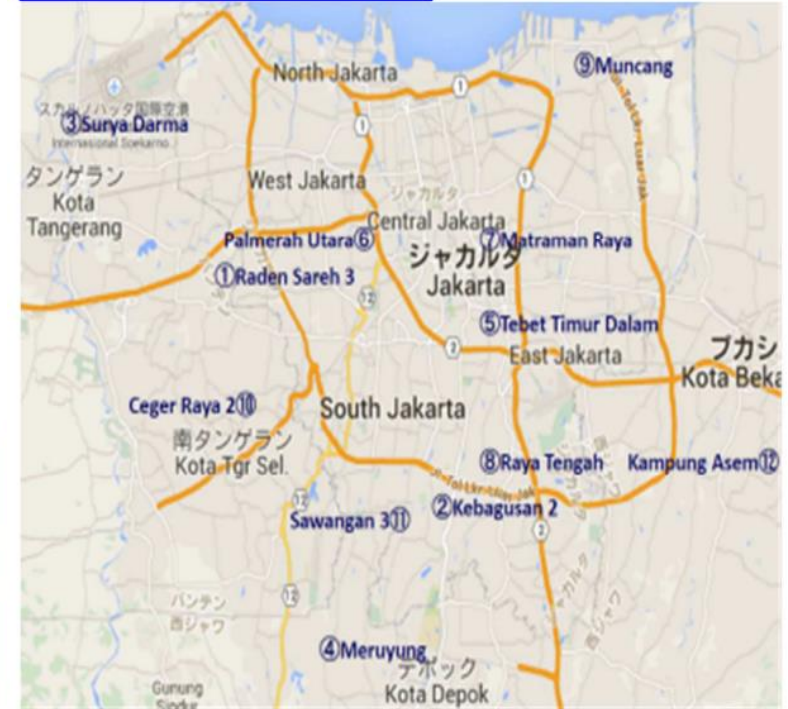


All devices by Panasonic

- ← Methodology: ID_AM004
- ← Methodology: ID_AM005
- ← Methodology: ID_AM008



Location of target store



The project covers a total of **12 grocery stores** located in Jakarta

Reference:
“インドネシアにおけるJCM事業の実施に関するセミナー（2017年）”
URL: [【LAWSON】 Seminar on JCM PJ Implementation in Indonesia\(掲載用\)170719 \(gec.jp\)](#)

Panasonic
GREEN
IMPACT

Panasonic GREEN IMPACT

heating & cooling solutions

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