

sheccoBase Policy Trends Update



ATMO
sphere

Business Case for
Natural Refrigerants

25-27/09/17-Berlin

ATMOsphere Europe
Berlin, 27 September 2017

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INTERNATIONAL DEVELOPMENTS



- **Climate Week 2017 - 18-24 September in NYC**
 - brought together international leaders from business, government and civil society to showcase the unstoppable momentum of global climate action
 - **300 companies**, incl. US businesses committed to **set ambitious science-based climate targets**
 - **UN General Assembly** - ministers and top UN leaders urged the world's nations to quickly ratify the Kigali Amendment to the Montreal Protocol
 - **so far 8 countries ratified Kigali Amendment** (Mali, the Federated States of Micronesia, Marshall Islands, Rwanda, Palau, Norway, Chile and Tuvalu)
 - amendment will enter into force on 1 January 2019, provided that it is ratified by at least 20 parties to the Montreal Protocol

- **Standard IEC 60335-2-89** (household and similar electrical appliances) currently recommends charge limit of hydrocarbons at 150g
- On-going review: agreement on recommended limit expected by 2018: **raising the limits to 500g** likely
- 26 Working Group members (including Germany, NZ, Japan, US)
- A new IEC standard would influence the adoption of the same standards at national level across the world
- **Next step:** Submission of the proposal to the SC61C committee to go to the first official vote as a Committee Draft (CDV) in October in Vladivostok
- HC charge limit set by another standard - **IEC 60335-2-40** for air-conditioning, heat pumps - currently being discussed as well
- **Potentially opening up further opportunities to hydrocarbons globally**

- **LIFE FRONT:** new EU project to remove **barriers posed by standards** to wider uptake of flammable refrigerants in refrigeration, air conditioning and heat pumps
- **FRONT** = **F**lammable **R**efrigerant **O**ptions for **N**atural **T**echnologies
- **6 partners:** shecco, AHT, ait-deutschland, ECOS, HEAT, NIBE
- **Main objectives:**
 - Support EU and international standardisation process
 - Reduce safety risks from improved system design
 - Engage in technology capacity-building
 - Remove non-technological knowledge barriers
- **Standards Action Group - open to interested parties to join the project efforts**



UNITED STATES & CANADA



New US Administration under Trump: what it means for the Industry?

- Head of EPA (Scott Pruitt): leading advocate against action on climate change
- Head of DOE (Rick Perry): ties to oil sector, climate sceptic

Open questions / risks

- Ratification of Kigali Amendment?
- Role of EPA in enforcement of legislation?
- Investment in renewables, climate change programmes
- Future of SNAP?



August 2017: U.S. Court of Appeals of Columbia - EPA cannot require companies to replace HFCs designated for HVAC&R equipment or other applications with low-GWP substances under the SNAP program

- **long-term effects of this decision as well as the reaction by the EPA remain to be seen**

Background:

- EPA's Significant New Alternatives Policy (SNAP) program lists alternatives (incl. natural refrigerants) to high GWP refrigerants AND delists the use of high GWP refrigerants
- **Hydrocarbons** listed as alternatives in number of applications, including commercial refrigeration
- **September 2016** SNAP published a rule to prohibit the use of certain high GWP fluorinated gases (R404A, R410A, R134a, and R407C).



Underwriter's Laboratories (UL)

- Domestic refrigeration - increase charge limit of HC from 57g to 150g in line with current IEC standard; EPA approval still needed
- Aims to update requirements before 2018 to allow revision of codes by standard setting bodies (ICC and IAPMO)
- HC charge increase under IEC standard likely to influence UL standards

ASHRAE

- Speeding up its normal process of revising standards to meet the 2018 deadline

DOE - Energy conservation standards

- March 2017 - new efficiency standards for commercial refrigeration equipment went into effect - they make the average commercial refrigeration unit about 30% more efficient compared to the previous standards

Short-Lived Climate Pollutant (SLCP) Reduction Strategy - approved on 23 March 2017

- Aim to **reduce HFCs by 25%** below business-as-usual emissions by 2020; **by 40% by 2030**;
- Opportunities to increase uptake of natural refrigerant-based HVAC&R solutions;
- CARB currently conducting a **Scientific Assessment to investigate effective measures for low-GWP alternatives**.



- Canada implementing **HFC phase-down until 2030**, including reporting obligations
- Plans to introduce **nation wide carbon pricing in 2018**
- Sector specific **bans on high-GWP HFCs**

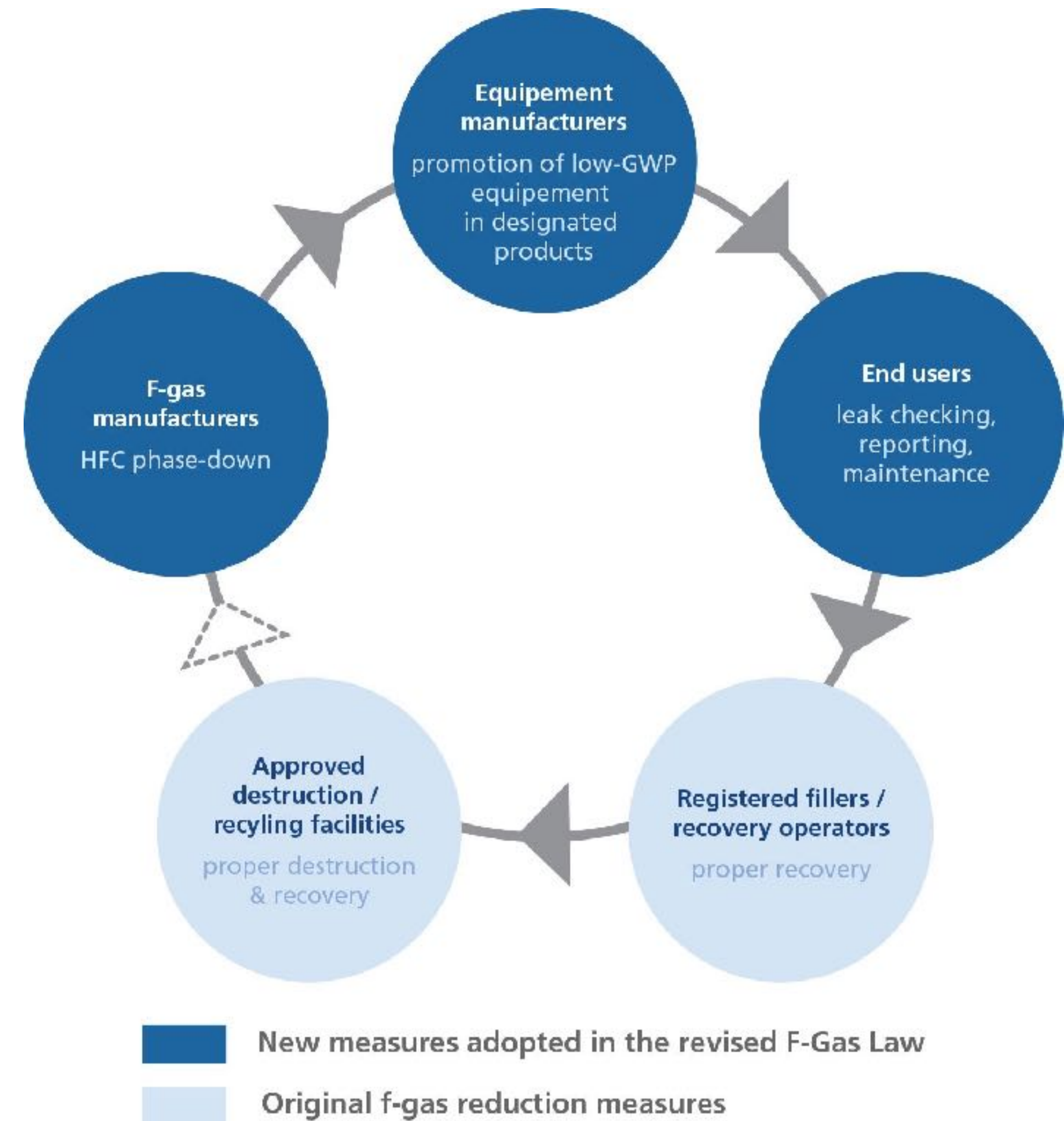
| Product | Use | Date | Maximum GWP |
|--|-------------------------|------------|-------------|
| Stand-alone medium-temperature refrigeration | commercial / industrial | 1 Jan 2020 | 700 |
| | residential | 1 Jan 2025 | 150 |
| Stand-alone low-temperature refrigeration | commercial / industrial | 1 Jan 2020 | 1,500 |
| | residential | 1 Jan 2025 | 150 |
| Centralised refrigeration (capacity > 30 kW) | commercial / industrial | 1 Jan 2020 | 1,500 |
| Condensing unit (capacity ≤ 20 kW) | commercial / industrial | 1 Jan 2020 | 2,200 |
| Chillers | commercial / industrial | 1 Jan 2025 | 700 |
| Mobile refrigeration | commercial / industrial | 1 Jan 2025 | 2,200 |

JAPAN

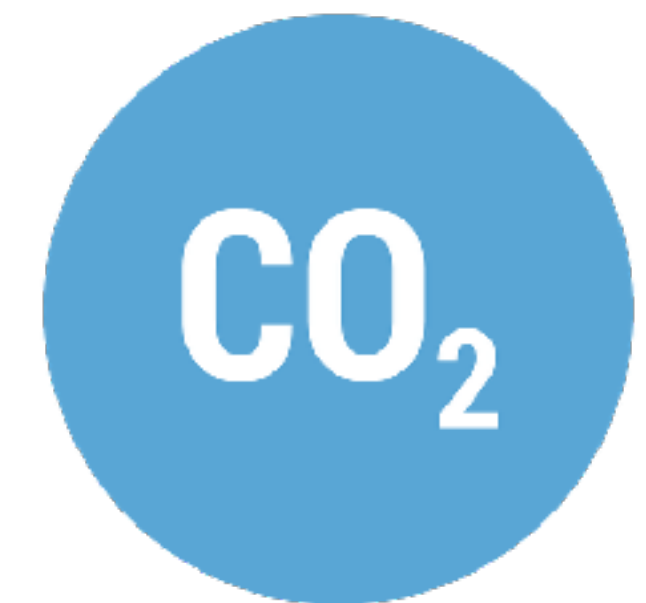
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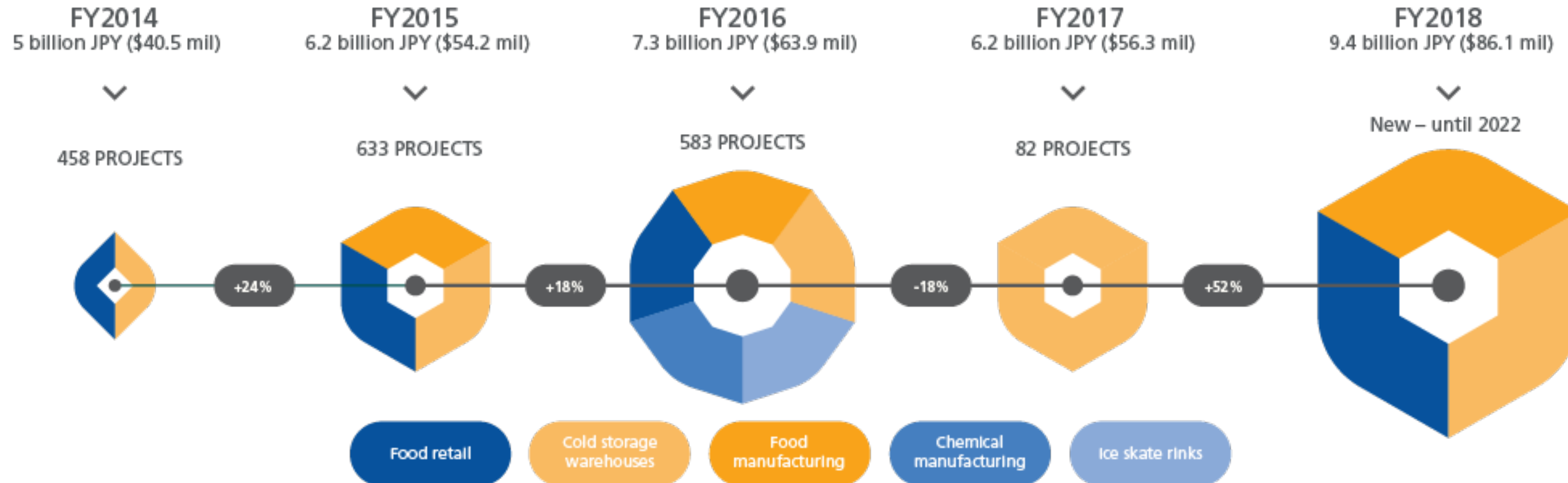
- Effective as of April 2015;
- Targets the entire life cycle of f-gases, from production to destruction;
- Reduced f-gas leakage from commercial equipment: periodical checks, maintenance, reporting etc.; proper refill and recovery; obligation of destruction;
- Promotion of low-GWP / non f-gases alternatives for designated products, incl. condensing units & refrigeration units > 1.5kW (target of average GWP 1500 by 2025).



- **July 2017: CO₂ reclassified** under High Pressure Gas Safety Act
- move from the strictest level of Group 3 to the **least restricted level of Group 1**
- **What does it mean?**
 - CO₂ equipment with **daily refrigeration capacity under 20 tons** does not require any government notification or permission (previously under 3 tons);
 - CO₂ equipment with **daily refrigeration capacity between 20-50 tons** will require a government notification (previously permission request as well);



≡ OPPORTUNITY for larger CO₂ refrigeration (commercial and industrial) systems to be introduced in the market, creating more options for end users



FY2018 (9.4 billion JPY - \$86.1 mil) in food retail, food manufacturing and cold storage sectors

By 2022 (end of subsidy scheme) - achieve cost parity with conventional f-gas equipment, and accelerate the uptake of natural refrigerant-based technology

AUSTRALIA & NEW ZEALAND

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- **March 2017:** New f-gas legislation introduced in Australia amending the Ozone Protection and Synthetic Greenhouse Gas Management (OPSGGM) Act by adding an **HFC phase-down plan**
- A statutory **phase-down of HFC imports** will be implemented, commencing January 2018, and will **reduce HFC emissions by 85% by 2036**
- Compared to Kigali Amendment requirements: **lower baseline** (reflecting Australia's current demand), & **more frequent reduction steps**



Australian Government

Department of the Environment and Energy

New Zealand HFC **phase-down plan:**

- HFC import licensing system;
- Permit system for the exportation of HFCs and imports of recycled HFCs;
- Support programs for alternative refrigerants (open for consultation).

Targets: reduce HFC consumption by +80% and HFC imports from around 1,340 KtCO₂ to < 260 by 2036.

Expected to come into force by **January 1, 2019.**



Ministry for the
Environment
Manatū Mō Te Taiao

- As a result of the Kigali amendment countries are stepping up legislative efforts to limit the use of HFCs - the pressure will now not go away = **opportunities for natural refrigerants**
- Upcoming **Montreal Protocol meetings** will determine funding guidelines for developing countries; programmes to facilitate adoption of natural refrigerants (next meeting in November 2017 in Montreal)
- **Update of standard IEC 60335-2-89** will be key to growing the potential of HC use globally
- **USA** - how HFCs will be treated remains to be seen
 - BUT **California** will advance its legislation nevertheless - scientific assessment of possible measures currently ongoing

Industry Platforms:

www.hydrocarbons21.com

www.R744.com

www.ammonia21.com

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GUIDEs**

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THANK YOU!