



ATMO
sphere





Welcome & Introduction

Marc Chasserot

Chairman ATMOsphere, shecco Group CEO

Lydia Matthäus-Wiltink

Global Events Manager, shecco

2017



Panasonic®



Sponsors





 **BRONZE**

Temprite


fives



ebmpapst

Nidec
-All for dreams **SECOP**

 **TERO**
Made in Germany.



AHT
green . freshness . worldwide

 **MITSUBISHI HEAVY INDUSTRIES**
THERMAL SYSTEMS, LTD.



Welcome to the world's largest
database on Natural Refrigerants.



sheccoBase 

Find out more
www.sheccobase.com





World's largest NatRef database (updated daily)

Team of experts (Engineers, Analysts, Researchers, Journalists)

Credit-based system for tailor-made requests

Reports (Policy, Market, Technology)





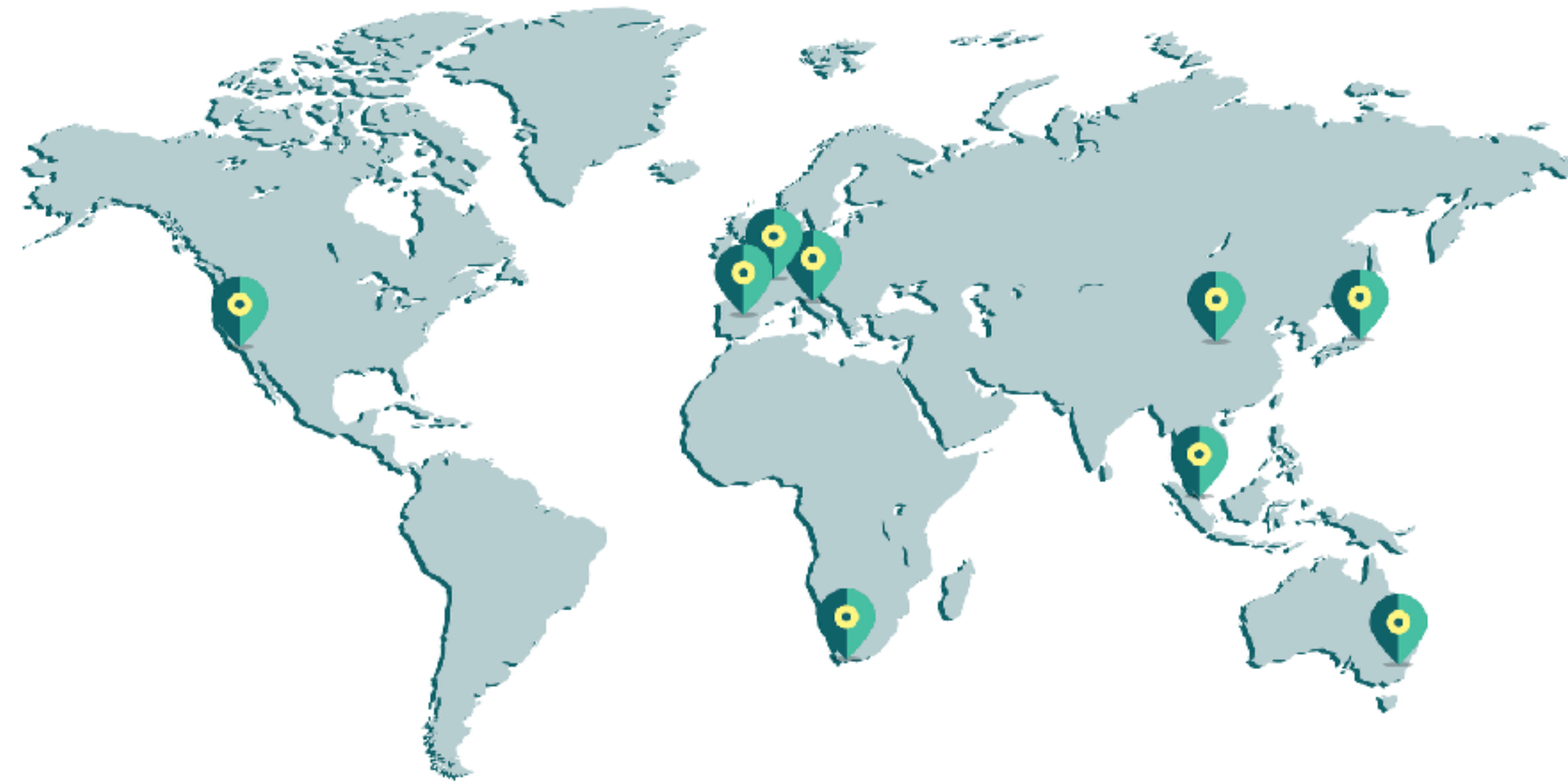
first monthly / bi-monthly / quarterly news magazine about natural refrigerants for Japan, Europe, North America and Australia

about the **most progressive business leaders** working with natural refrigerants in all HVAC&R sectors

free digital distribution



Read Accelerate Japan 15 (on your tables and online)!



ATMO JAPAN

13 February
Tokyo

ATMO CHINA

11-12 April
Beijing

ATMO AUSTRALIA

7 May
Sydney

ATMO AMERICA

12-14 June
Long Beach, CA

ATMO FRIGAIR

7 June
Johannesburg

ATMO FRANCE

5 July
Paris

ATMO ASIA

4 September
Singapore


ATMO IBÉRICA


18 September
Madrid


ATMO EUROPE


19-21 November
Lago di Garda

More info on
www.ATMO.org


 Event details


 News


 Sponsors

 Presentations

 Pictures

 Report

 Programme

 Register now

44 events

Torben M. Hansen: Market Overview:
Commercial / retail refrigeration

1077 speakers

7050 attendees

available on **ATMO.org**

Alexander Cohr Pachal:
High-efficiency NH3 and

Igor C. Croiset: General
Overview of the Foam









Rene van Gerwen: Five
golden rules for

Masood Ali: State of the
industry

Jan Boone: Market
Overview

Christian Schmäzle: 100 kW R744
Compressor for commercial

Nina Masson: Natural
Refrigerants in the EU

-  Event details
-  News
-  Sponsors
-  Presentations
-  Pictures
-  Report
-  Programme
-  Register now

All presentations
will be added to
www.ATMO.org/Japan2018



Business matchmaking

Tuesday, 13 February, 3:30 and 4:45pm

Guided tour of the sponsor area for individual or small group meetings



Networking Reception **Panasonic**[®]

Tuesday, 13 February, 6pm

Network: Atmosphere

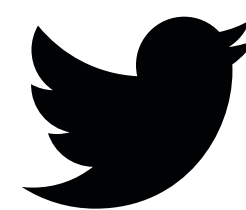
Password: atmosphere

Participate to the discussion on Twitter
by tagging your tweets with the hashtag

#ATMOJapan

Follow us

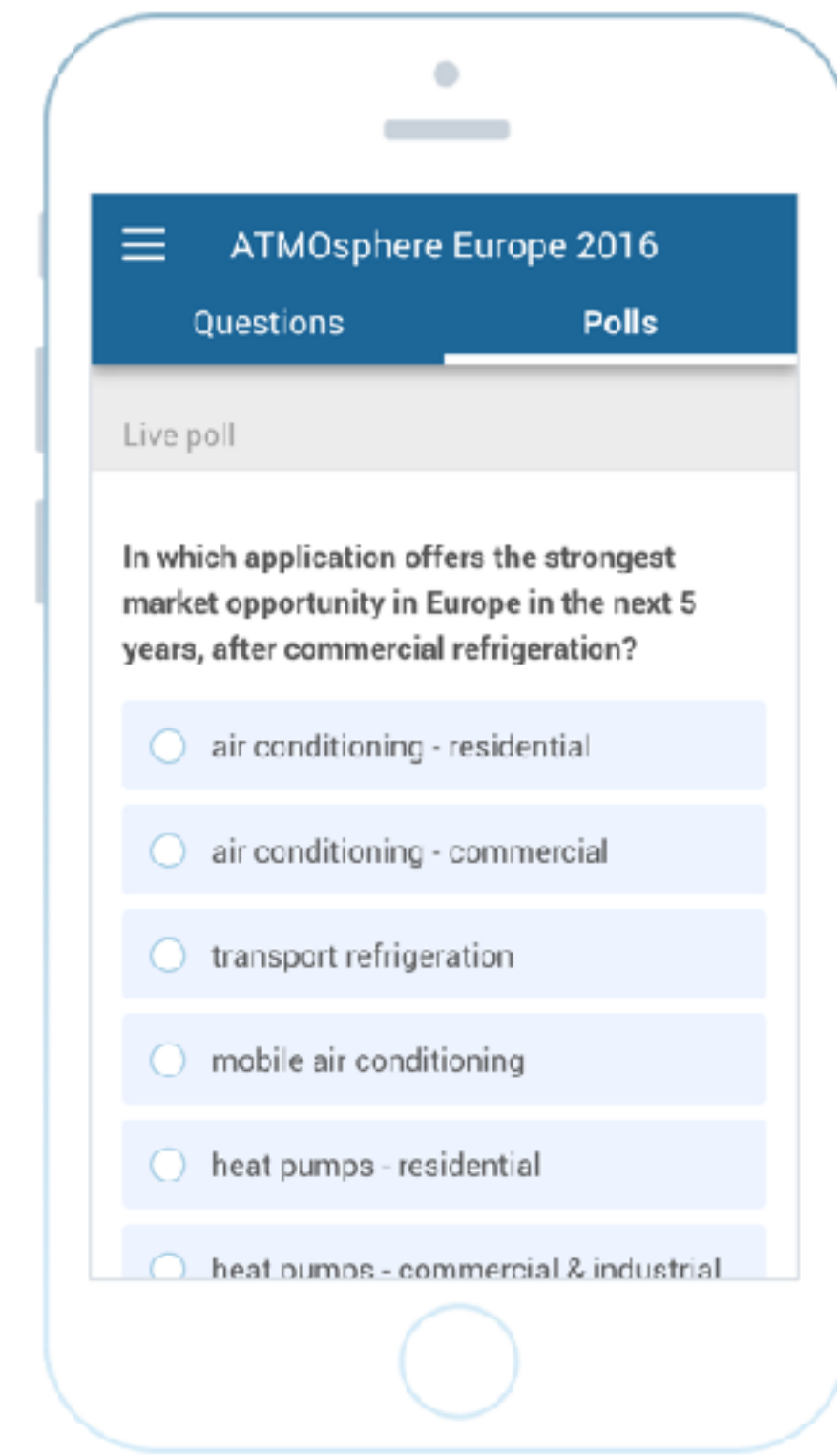
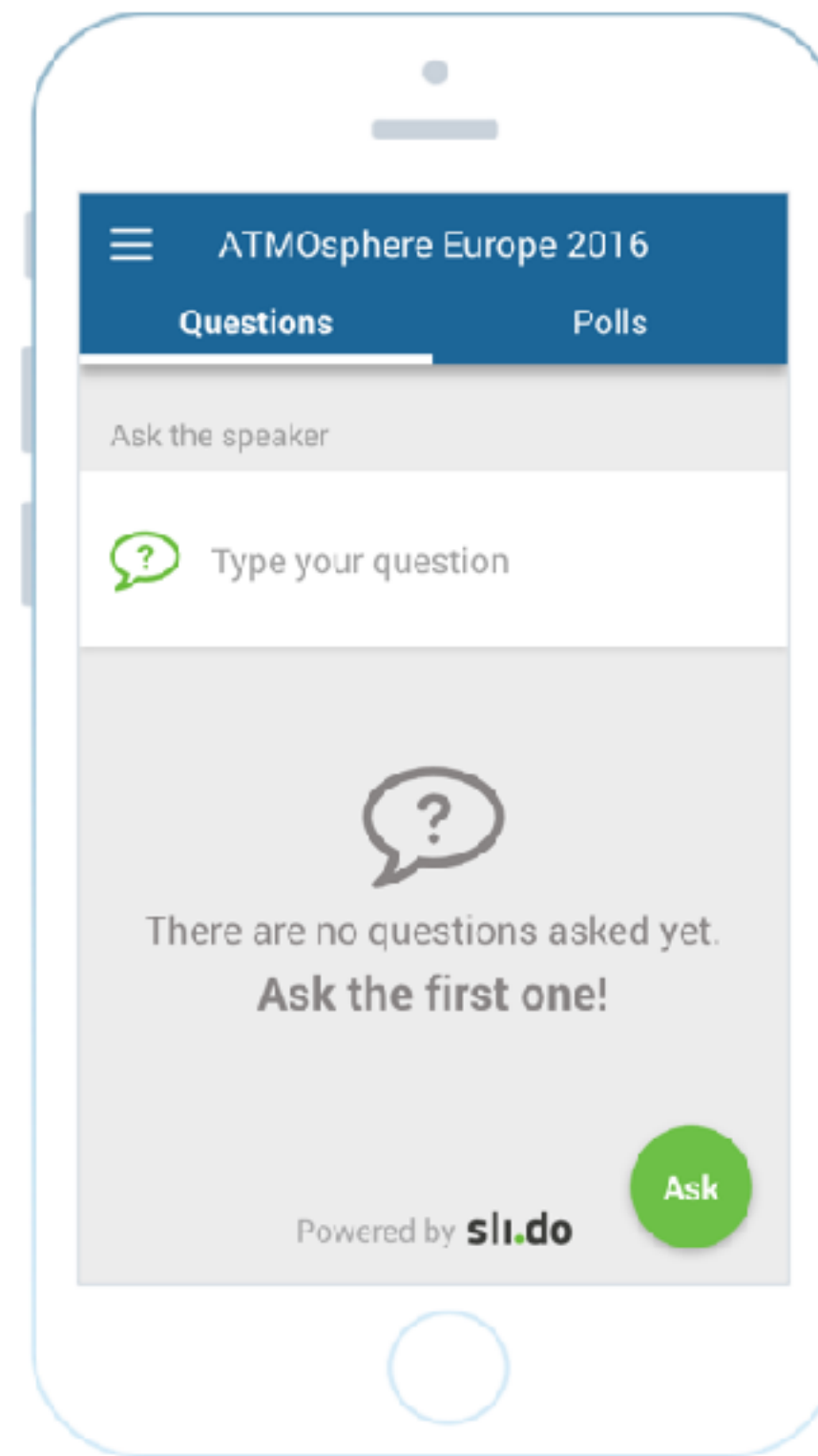
@ATMOEvents





ATMO
sphere

Join at
<http://slido.com>
#Danfoss



Applause from you

ATMOsphere events
Feb 8

ATMOsphere Japan 2018



2

Next story
A/C System Not Cooling Hous...

After a successful first edition, ATMOsphere Japan is returning to Tokyo: a fast, influential and innovative city—on **13 February 2018**, one day before Japan's largest retail exhibition, the Supermarket Tradeshow.

Summary of ATMOsphere Japan 2018 will be created on Medium, including all news posted on all shecco Media brands.



Keep up with all the articles: <https://medium.com/@atmo>



Please note

This conference is on record

Programme

Tuesday, 13 February

9:00am

Welcome & Introduction

9:20am

Policy Session

10.20am

CEO Interview

10:45am

Networking break

11:15am

Technology Leadership Round Table

12:30pm

Networking lunch

1.30pm

Future of the Industry End User Panel

3pm

Networking break

3:30pm

Technology Case Studies - Industrial Applications OR Business matchmaking

4:30pm

Networking break

4:45pm

Technology Case Studies - Commercial Applications or Business matchmaking

Natural Refrigerants: Global Market and Policy Trends

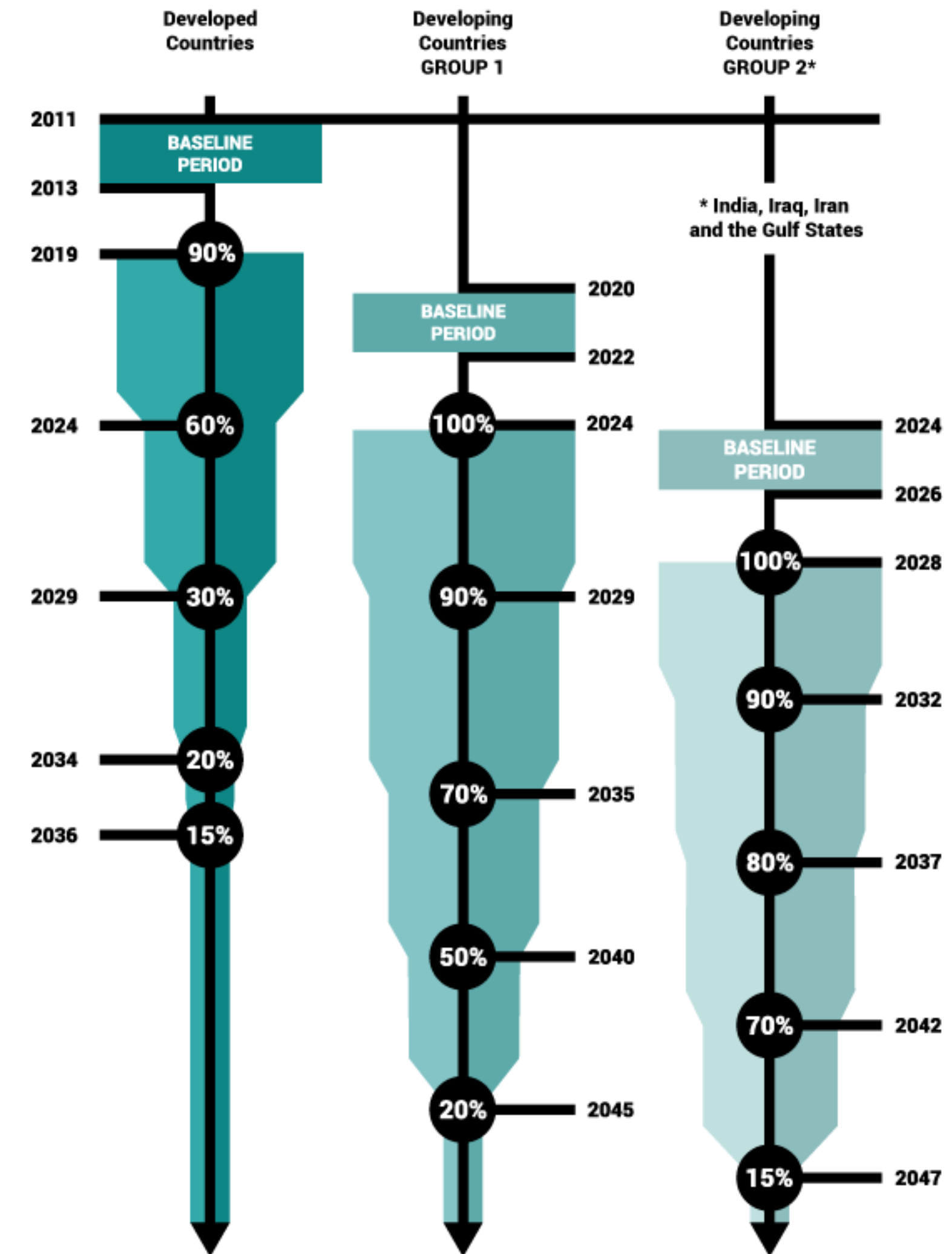
POLICY TRENDS

01

KIGALI AMENDMENT

Global phase-down of HFCs by **85% by late 2040s** - first reductions by developed countries as of 2019, by most developing countries as of 2024

- **> 0.4°C warming avoided by 2100;** energy efficiency gains could significantly increase climate impact
- **Entry into force:** 1 January 2019 (24 countries ratified so far)
- **Top priorities:**
 - standards for flammable refrigerants - revision of international standards needed
 - guidelines for finance to developing countries (negotiated by end 2018) - enabling activities, funding for leapfrogging, ...
 - MLF to negotiate finance for ‘maintaining or enhancing’ energy efficiency



STANDARDS: KEY DEBATE FOR HYDROCARBONS

International standards - barrier for wider uptake of energy efficient hydrocarbon-based equipment

—> revisions are on-going, **potentially opening up opportunities for HCs globally**

IEC 60335-2-89 for commercial refrigeration

- Proposal to raise the max. charge limit of flammable refrigerants (e.g. propane from 150g to 500g)
- **Final amended standard expected beginning of 2019**

IEC 60335-2-40 for AC and heat pumps

- Proposal to increase allowable charge size for flammable refrigerants by implementing various mitigation measures (e.g. improved system tightness, minimum airflow, determining max releasable charge), while keeping the max charge size
- Final amended standard expected in 2019-2022

European Union

CEN and CENELEC to work on specifications for A3 refrigerants to provide for additional mitigation measures and allow wider use of HCs

EUROPE: F-GAS REGULATION

2016: 7% cut in HFC quotas

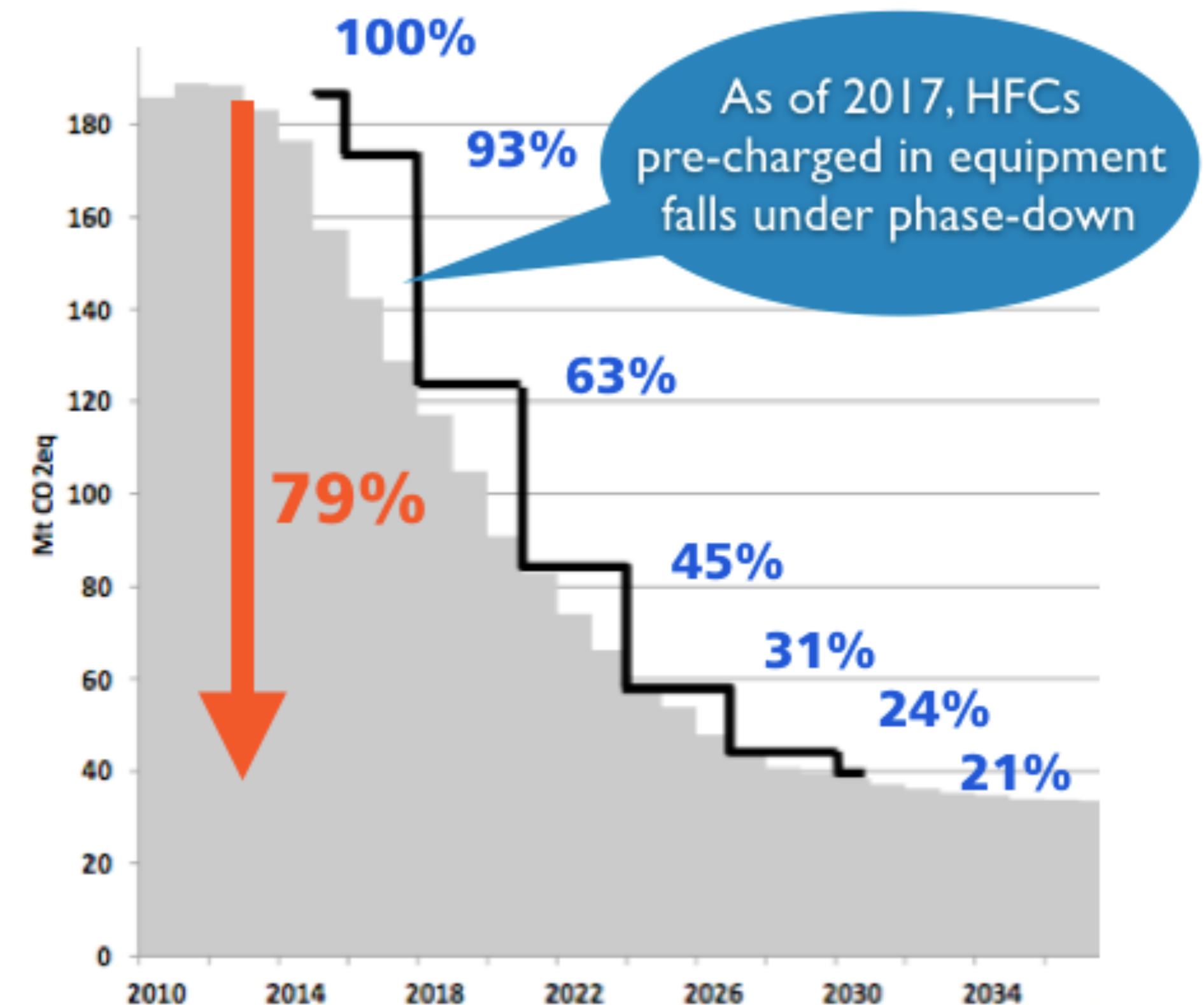
2017: HFCs pre-charged in equipment covered under phase-down

2018-2020: 37% cut in HFC-quotas - major impact on HFC prices:

- ↑ • 5x increase in 2017
- 20x increase expected in 2018

+ **national level:** several countries implemented or plan to implement (France) HFC tax; others encourage natrefs through incentives

NO negative impact on manufacturers & buyers of natural refrigerant-based equipment



US: EPA SNAP PROGRAM

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

January 2018: U.S. court denied request to rehear HFCs case. Court of Appeals turned down petition by NRDC, Chemours and Honeywell to rehear ruling that blocks EPA from delisting HFCs

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

Background:

- **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) in certain end uses



US: CALIFORNIA LEADING THE WAY

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

- Aims to **reduce HFCs by 25%** below business-as-usual emissions by 2020; **by 40% by 2030**;
- CARB currently conducting a **Scientific Assessment to investigate effective measures for low-GWP alternatives**
- CARB initiated process of **adoption into state regulations of SNAP Rule prohibitions of HFCs** in stationary refrigeration and air conditioning

California Cooling Act - introduced on 7 Feb 2018 by Senator Lara

- intent to enact legislation to restrict the use of high GWP refrigerants & to introduce incentive program to speed up introduction of lower GWP alternatives



Ricardo Lara @senricardolara · 22h

Businesses are on board with the search for alternatives to dangerous #superpollutants! #SB1013 #CACoolingAct @shecco @honeywell

US: CALIFORNIA LEADING THE WAY



Ricardo Lara @senricardolara · 22h

Businesses are on board with the search for alternatives to dangerous
#superpollutants! #SB1013 #CACoolingAct @shecco @honeywell

MARKET TRENDS - LIGHT COMMERCIAL REFRIGERATION

02

CONSUMER BRANDS CHOOSING NATURAL REFRIGERANTS



5.5 million units using natural refrigerants collectively installed - hydrocarbons (mostly) and CO₂

⇒ **33 million tonnes of avoided CO₂** (equivalent emissions of more than 6.7 million passenger cars over one year)



Increasing number of consumer brands choosing HCs for their point of sale equipment - often targeting global procurement 100%

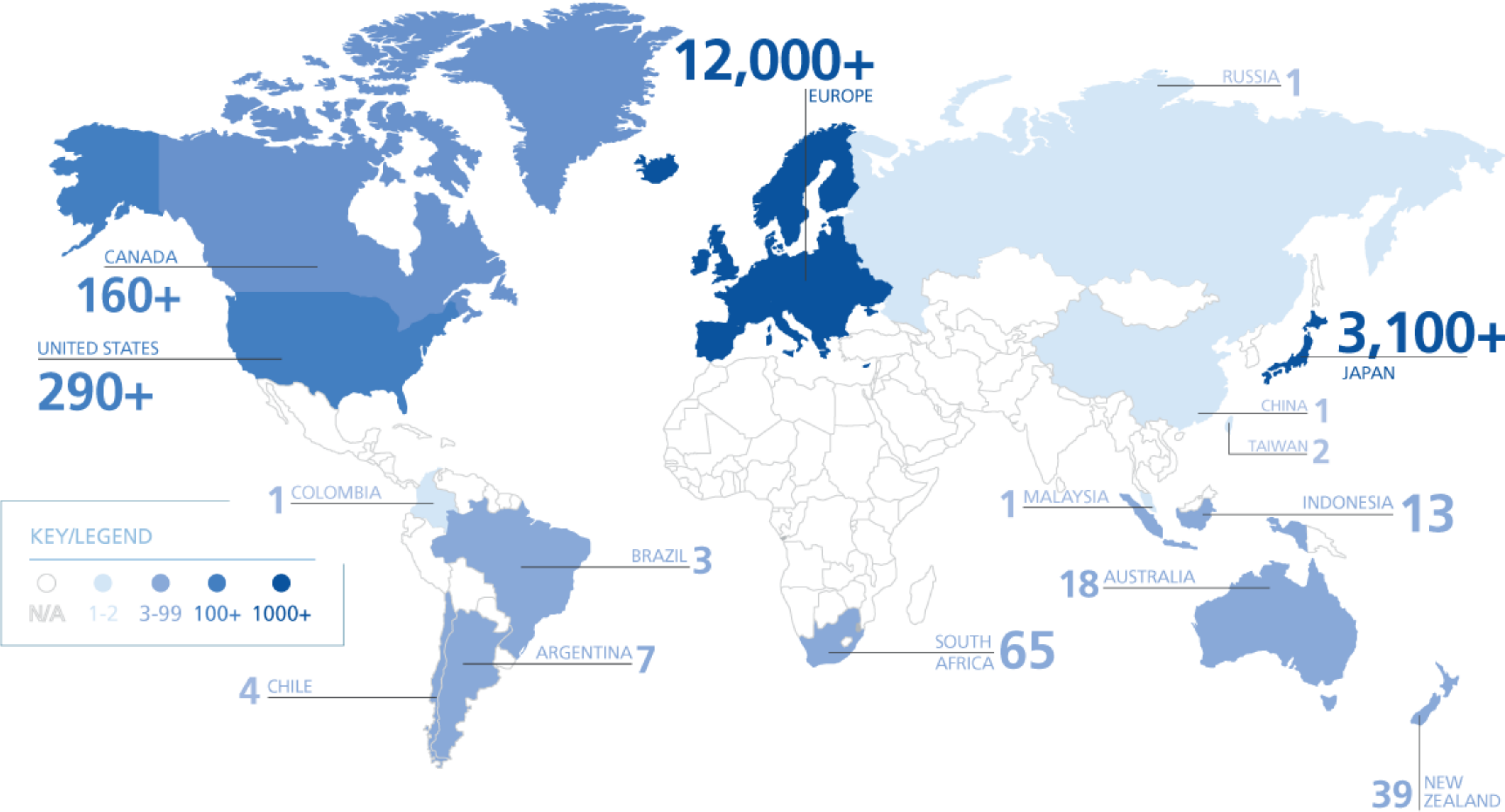


HC uptake in Japan has been slow (besides vending machines), but expected to grow significantly (currently 250+)

MARKET TRENDS - COMMERCIAL REFRIGERATION

03

CO₂ TC STORES GROWING GLOBALLY



CO₂ IN CHINA (JAN 2018 UPDATE)

- **First major CO₂ transcritical** store opened January 2018
 - ➔ METRO Beijing Lishuiqiao wholesale store
 - ➔ centralised transcritical CO₂ rack system
 - ➔ parallel compression, waste heat, and two-stage gas cooling
 - ➔ first store to be used as blue print to move forward with their F-Gas Exit Program in the country

- Currently **40+ subcritical CO₂ supermarkets** in China (HFC/CO₂ cascades)



NORTH AMERICA: R290 SELF-CONTAINED CASES FOR STORES

Aldi - 1,000+ stores in North America in 2017 installed **R290 self-contained cases** from AHT

Interest in these energy-efficient cases continues to grow

Other retailers introducing HCs in plug-in units - e.g. Whole Foods Market and ShopRite

AHT has placed 1.500.000 HC plug-in units globally, annual production 300.000

Charge limits => the key to future evolution (globally)

- A higher charge limit would enable to units with one R290 circuit instead of multiple ones reducing cost and increasing energy efficiency



MARKET TRENDS - INDUSTRIAL REFRIGERATION

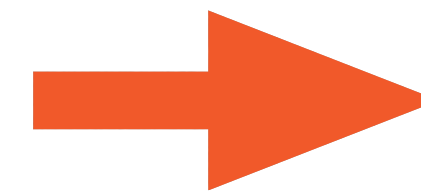
04

COMPETITION BETWEEN DIFFERENT NR SYSTEMS INCREASING

Industrial refrigeration market traditionally dominated by **ammonia** and H(C)FCs

NR cutting edge technologies becoming strong trend and competing:

- **ammonia low charge**
- **CO₂ transcritical**
- **NH₃/CO₂**



Key drivers:

- **increased safety - lower risk**
- **higher efficiency**
- **easier servicing**
- **return on investment for the end user**
- **growing competition - prices pushed down, technology becoming more available**

INDUSTRIAL REFRIGERATION IN JAPAN

The market is changing from strong reliance on R22

500+ projects with **NH₃/CO₂**

NEW: 10+ projects with **CO₂ transcritical (total 40 units)** in cold stores and for food processing

= reclassification of CO₂ under High Pressure Gas Safety Act opening the door to CO₂ in larger capacities



CO₂ transcritical - gaining grounds in industrial refrigeration in different parts of the world:

- bigger capacity **compressors** + other components for larger applications becoming available from several key suppliers
- **Canada:** growing number of CO₂ TC installations in cold storage / food processing, mainly by 2 manufacturers (Carnot Refrigeration & Systems LMP); Quebec province supporting CO₂ uptake
- **Europe:** Demand for CO₂ in industrial refrigeration growing, several manufacturers providing CO₂ TC technology in commercial refrigeration expand to industrial sector

shecco
Base



THANK YOU!

Stand up please!





ATMO
sphere

Thank you very much!