



Business Case for Natural Refrigerants

11-12/04/2018 – Beijing





Welcome & Introduction

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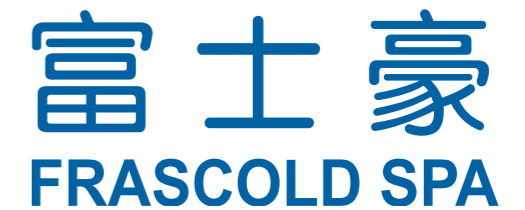


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global market accelerator
for natural refrigerant based technologies





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)





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All presentations
will be added to
www.ATMO.org/China2018



Networking Drinks & Dinner

Tuesday, 11 April, 6.30pm



Metro Site Visit

Friday, 13 April - pre-registrations only!

Programme

Wednesday, 11 April

DAY 1 - 11 APRIL 2018

16:00 Welcome & Introduction

16:20 Technology Leadership Round
Table

18:30 Networking Drinks Reception

19:30 Networking Dinner

Programme

Wednesday, 12 April

DAY 2 - 12 APRIL 2018

08:00 Registration

09:00 Policy Session

10:15 Networking Break

10:45 Chinese HVAC&R Associations
Session

12:00 Networking Lunch

DAY 2 - 12 APRIL 2018

13:00 Future of the Industry End User
Panel

14:30 Networking Break

15:00 Technology Case Studies Part I

16:15 Networking Break

16:30 Technology Case Studies Part II

Network: Sheraton

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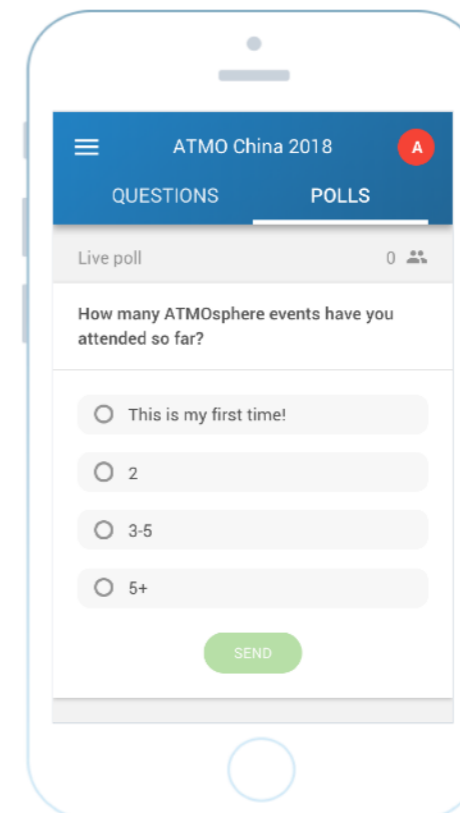
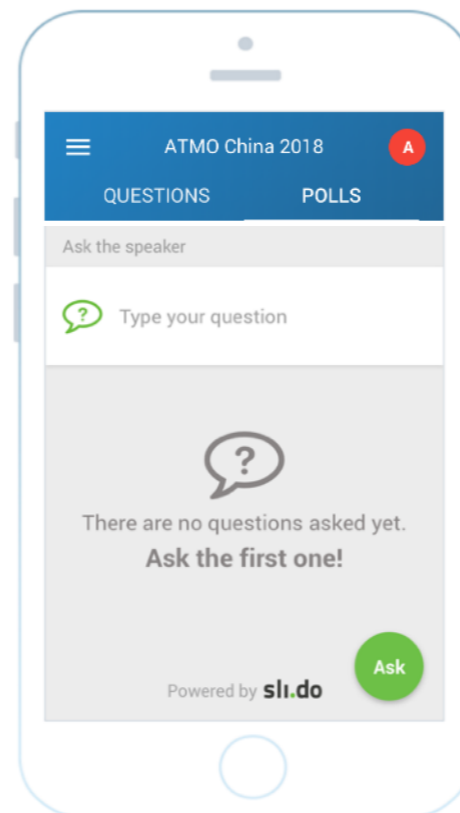
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Live Coverage

Live coverage of ATMOsphere China 2018, including all news & key messages from the event

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AMMONIA21



<http://shecco.com>



Please note

This conference is on record

Natural Refrigerants: Global Market and Policy Trends

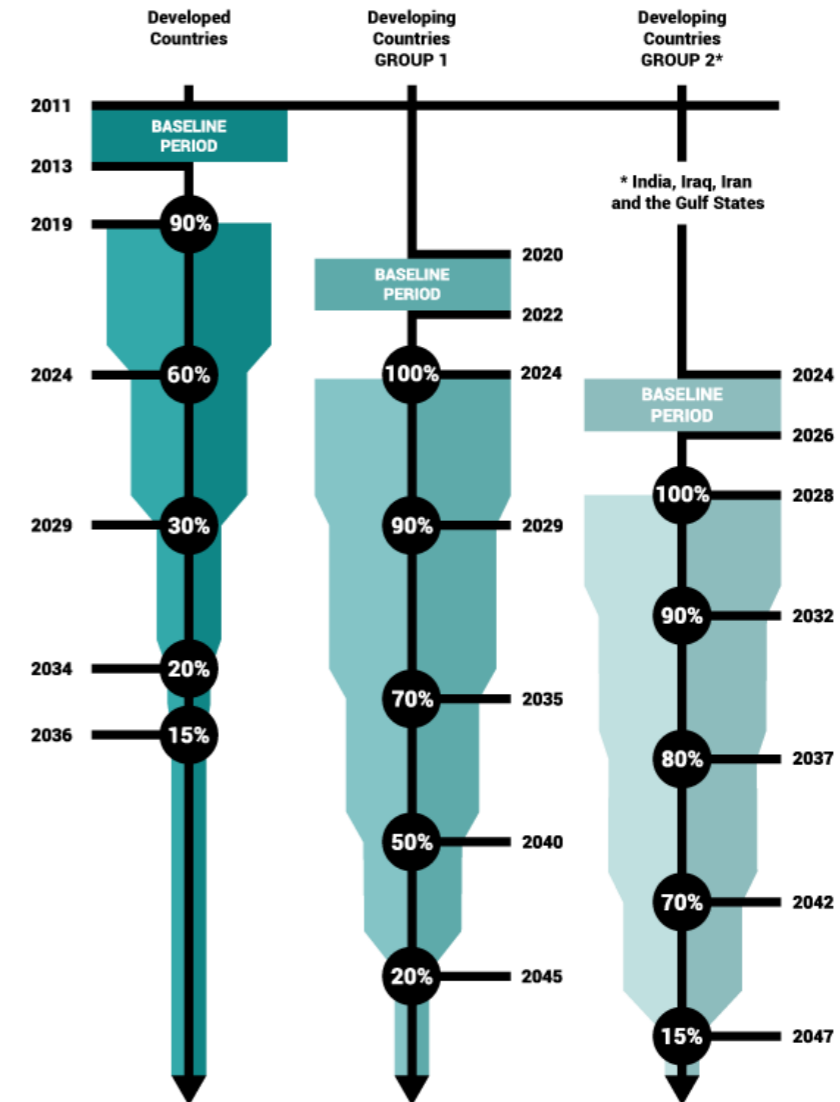
POLICY TRENDS

01

KIGALI AMENDMENT

Global phase-down of HFCs by 85% by late 2040s

HFCs no longer seen as long-term viable solution

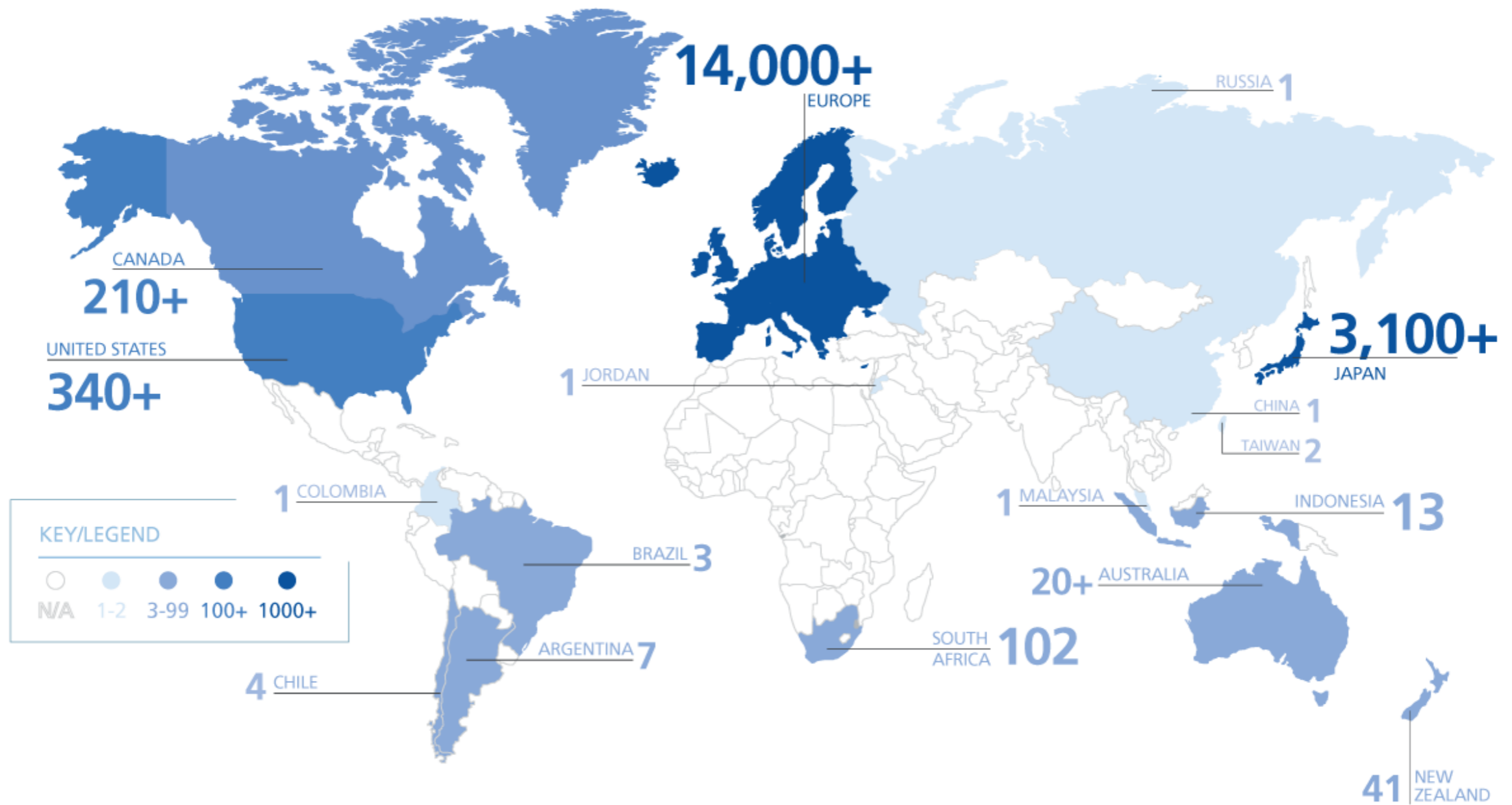


MARKET TRENDS

- COMMERCIAL REFRIGERATION

02

CO₂ TC STORES GROWING GLOBALLY



**First major CO₂ transcritical store opened
January 2018**

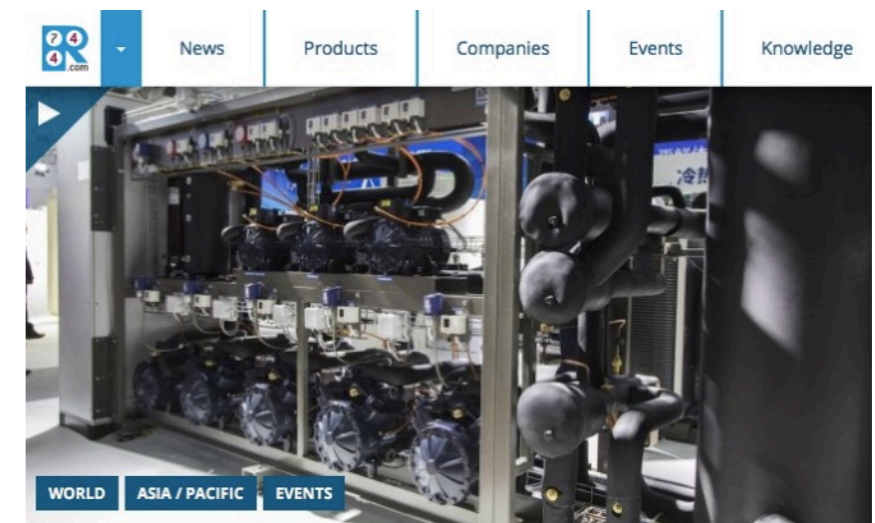
METRO Beijing Lishuiqiao wholesale store

- Goal: transcritical systems in all its new Chinese stores by 2025



<http://acceleratechina.com/>

- Currently **40+** subcritical CO₂ supermarkets in China (HFC/CO₂ cascades)
- **First major CO₂ transcritical** in 2018, several more planned for 2018-2020 period
- **NEW 2nd CO₂ TC system** for a Chinese retailer to be installed in 2018
- **10 CO₂ transcritical stores by 2020?**
- Challenges: **training, component availability & cost**



Panasonic unveils CO₂ transcritical rack

By Andrew Williams, Apr 10, 2018, 21:35 GMT+8

The first will be installed in a domestic Chinese supermarket this year.

GROWING COMPETITION - HYDROCARBONS

Plug-in Units in Supermarkets with R290: A reality today

- global market estimate (April 2018)
2,000,000+ units worldwide
- estimated **4000+** R290 **plug-in cabinets** in Chinese supermarkets today



MARKET TRENDS

-

INDUSTRIAL REFRIGERATION

03

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:

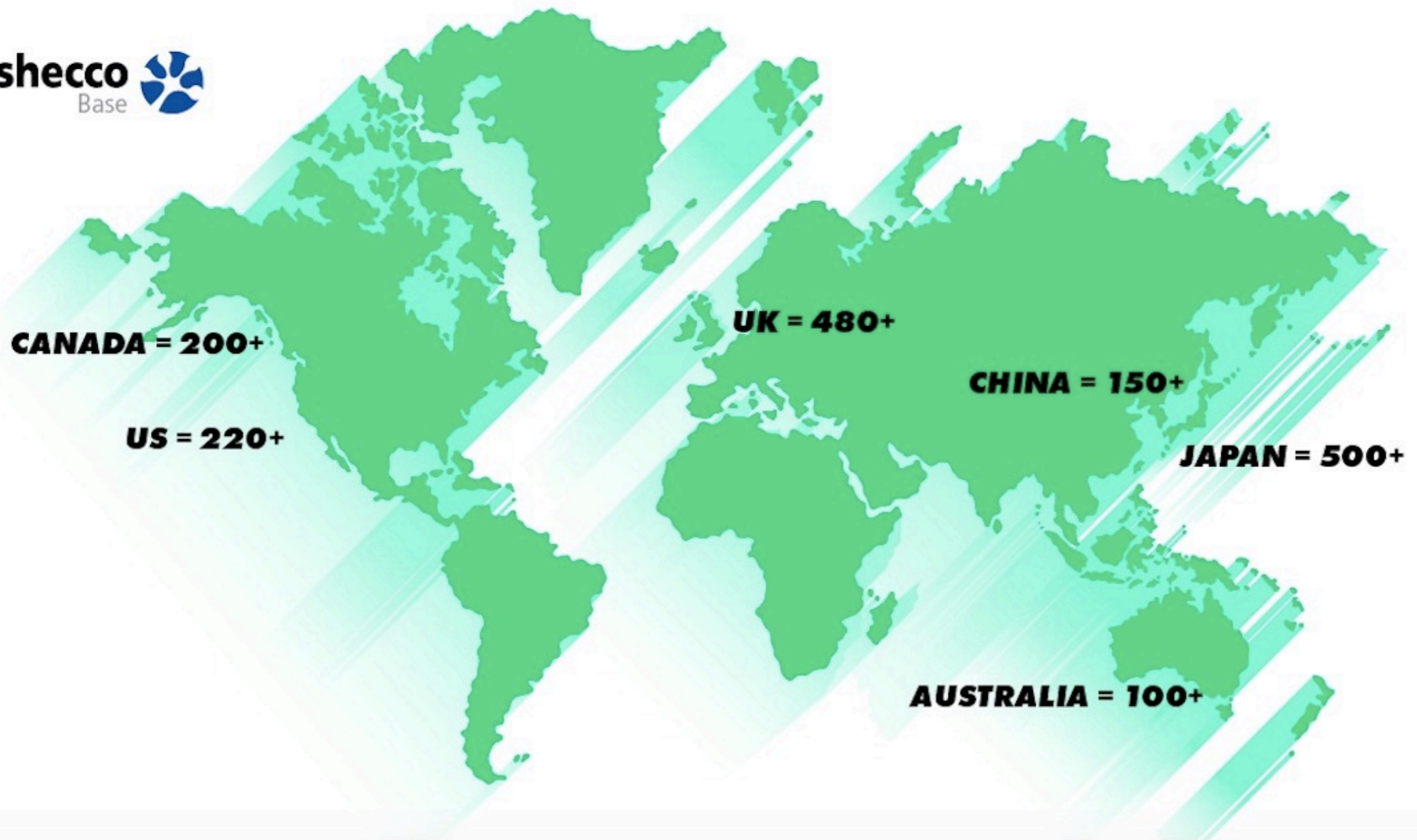
- **ammonia low charge**
- **CO₂ transcritical**
- **NH₃/CO₂**



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**

LOW-CHARGE AMMONIA TODAY



OVERVIEW



- Pressure on HCFCs and HFCS driving markets globally towards natural refrigerants
- Competition between different types of natural refrigerant-based systems increasing: leading to better performance & reduced costs
 - **CO₂ transcritical** growing in commercial refrigeration, and also in industrial sector
 - **Hydrocarbons** gaining ground in refrigeration in small and medium-sized capacities
 - **Low-charge ammonia** systems increasing penetration in industrial refrigeration due to increased safety and efficiency
- **2018:** Key year to develop together the market for natural refrigerants
- Next sectors for development: HVAC

shecco
Base



THANK YOU!

Stand up please!





Thank you very much!

