



# North America's Natural Refrigerant Potential: First Results from an Industry Survey



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# WHY? - GUIDE World / Europe



- starting point: aim to quantify + illustrate the global market potential for NR
- method: the world's biggest survey on NR with 1,200+ respondents from 92 countries
- result: "GUIDE to Natural Refrigerants: Market Growth for Europe" published in February 2012
- viewed online: 5500+ individual readers; 83,000+ pages viewed
- next: detailed analysis of the North American market potential, strengths & weaknesses of NR
- outlook 2012-2020

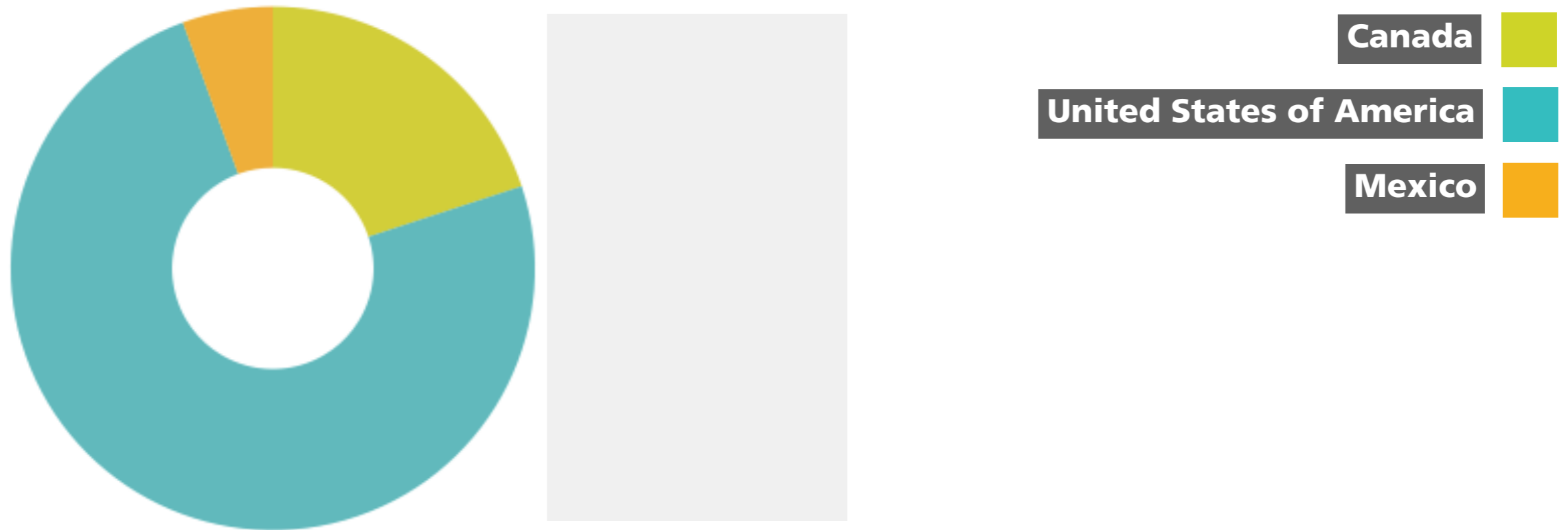


# HOW? survey on North America



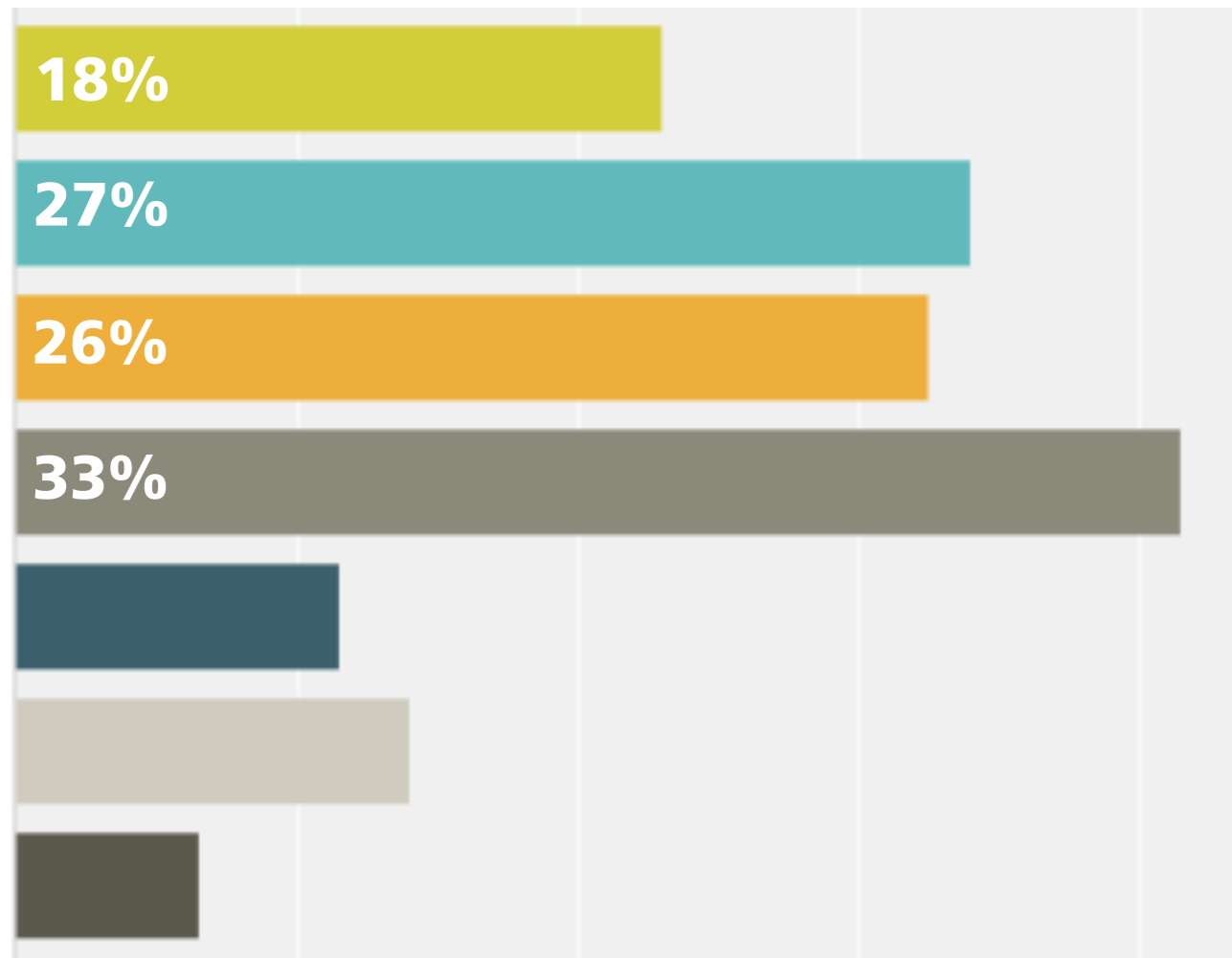
- online survey launched in March
- until end-May 250 responses (+270 in 2011) received to questions in the field of:
  - market state, trends & drivers
  - industry expectations by refrigerant and application
  - NR leadership capacity
  - barriers & opportunities to the use of CO<sub>2</sub>, NH<sub>3</sub>, HC, H<sub>2</sub>O, Air

# WHO? - respondents location & size



- ▶ **location: nearly 3/4 of respondents are US-American based / active**
- ▶ **organization size: 41% small (1-99 staff); 38% large (500+ staff)**

# WHO? - respondents activity type



End Users

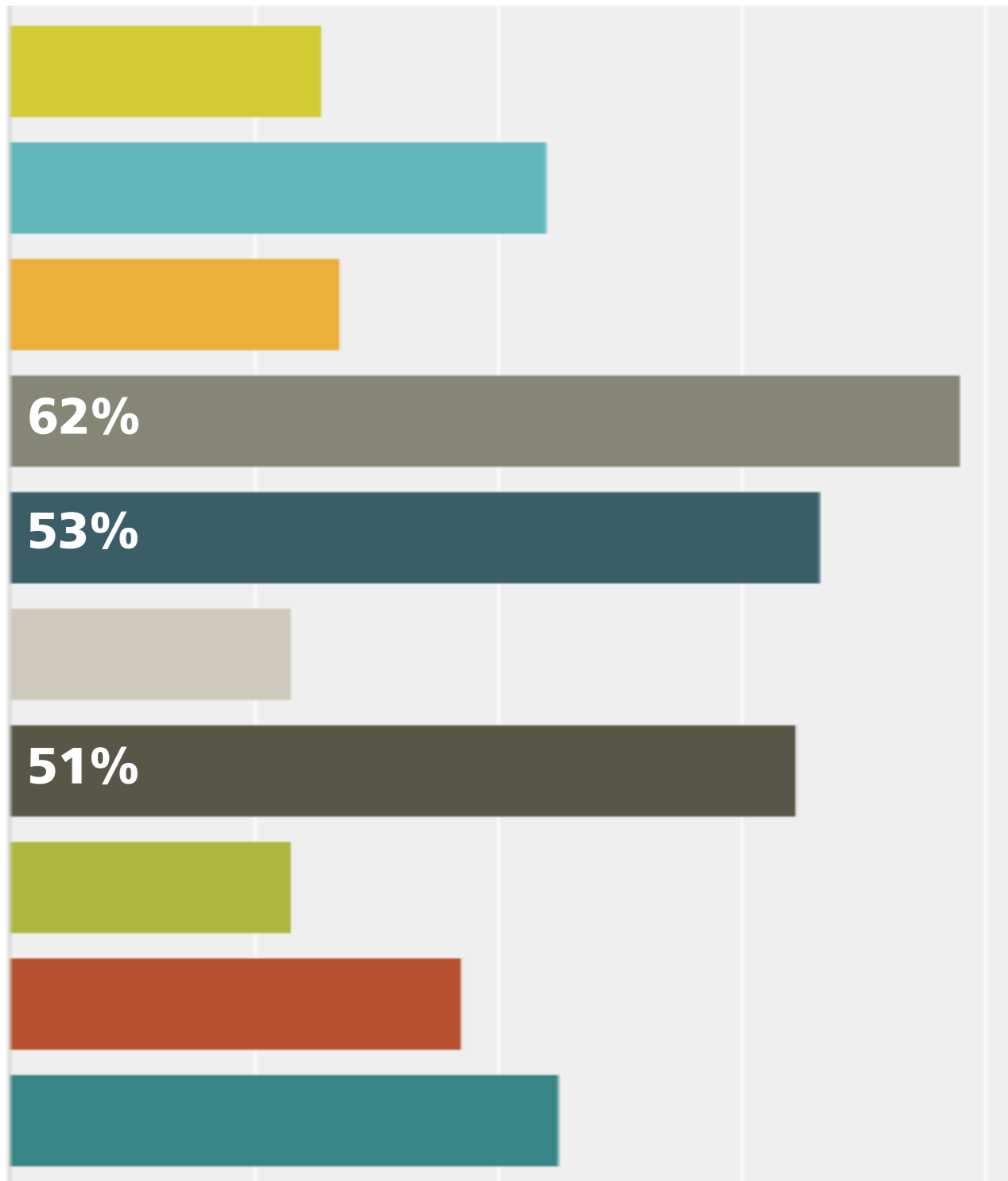
System Manufacturer

Component Supplier

Engineering & Contractor

- ▶ most respondents are active in engineering & contracting, system manufacture and/or component supply
- ▶ **18% end-users**; 11% training & research

# WHO? - respondents activity sector

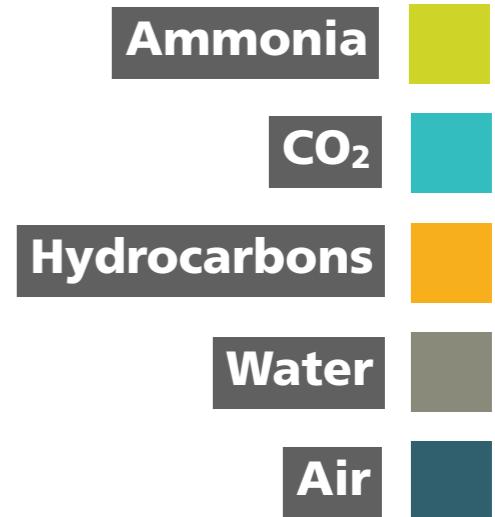


**Refrigeration - Commercial**

**Refrigeration - Industrial**

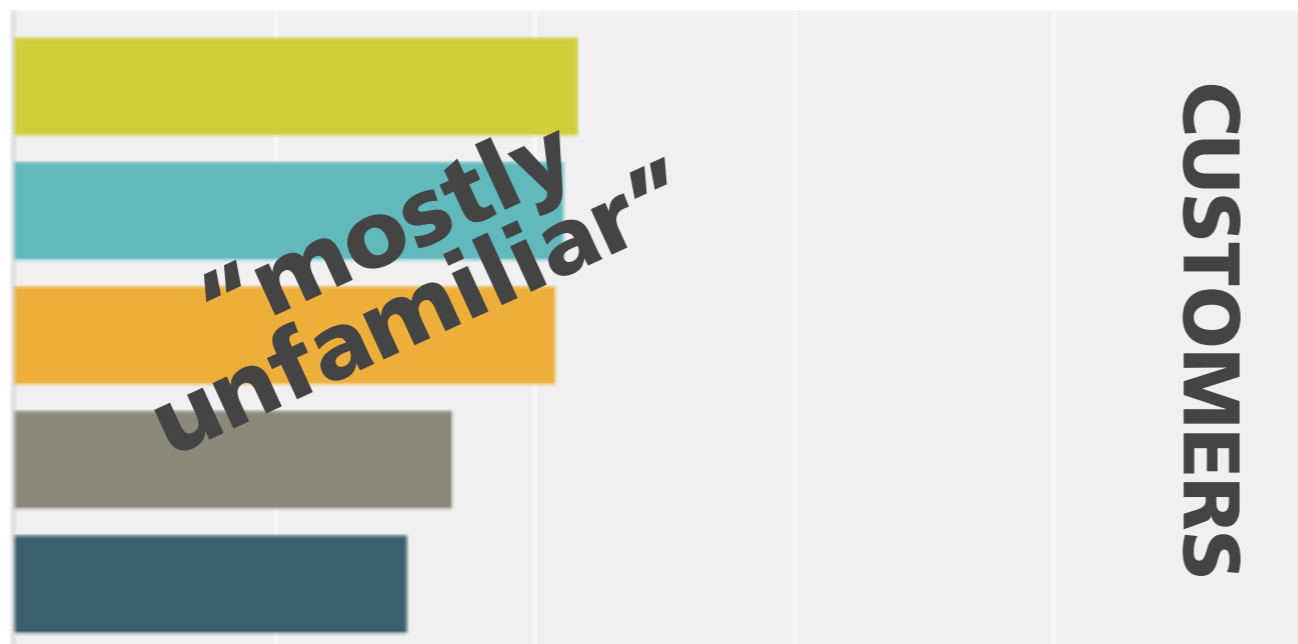
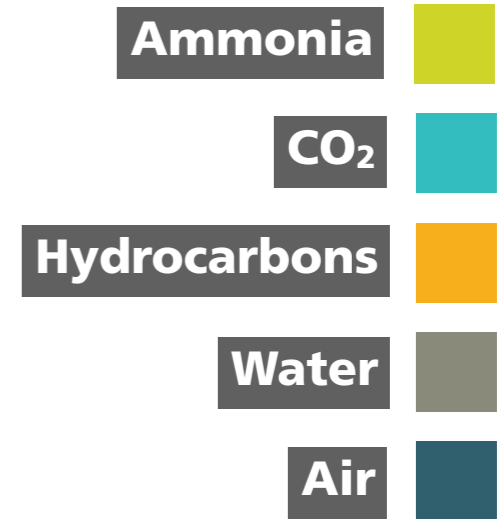
**A/C - Industrial & Commercial**

# familiarity with refrigerants



- ▶ **80% of respondents are very or somewhat familiar with CO<sub>2</sub> , followed by HCs (78%) and ammonia (70%)**
- ▶ **water and air have the lowest awareness levels (19% and 21% not at all familiar)**

# familiarity respondents vs customers



- ▶ consistently lower NR familiarity for customers than for respondents
- ▶ best match for NH<sub>3</sub> - all other show a mismatch between respondents and what they think their customers know



# NR used today



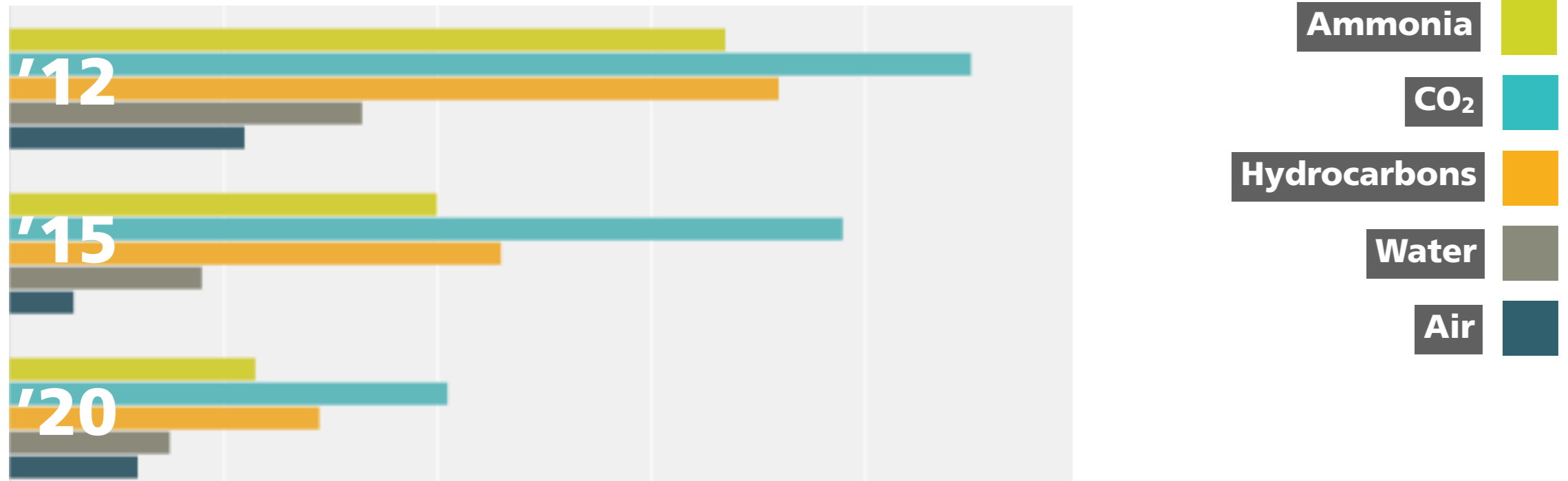
- ▶ **69% of respondents already use NR; 26% do not (yet); 5% don't know**
- ▶ **out of those providing/using NR, most use CO<sub>2</sub>, NH<sub>3</sub> and HCs**

# plans to use NR



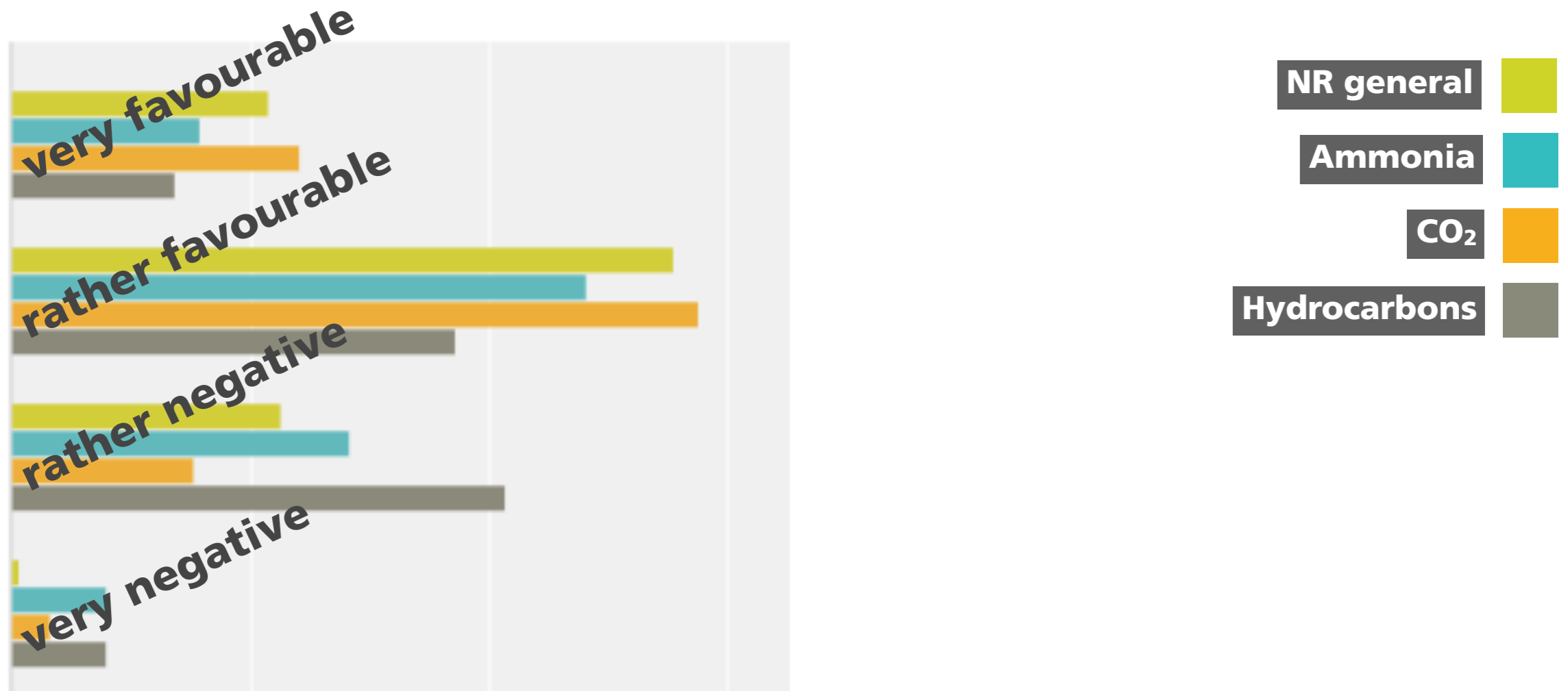
- ▶ **pro-NR respondents: 92% are planning to use NR in the future; 2% will not use them; 6% do not know**
- ▶ **non-NR respondents: 38% are planning to use NR in the future; 22% will not use them; 43% do not know**

# plans to use NR in 2012, 2015, 2020



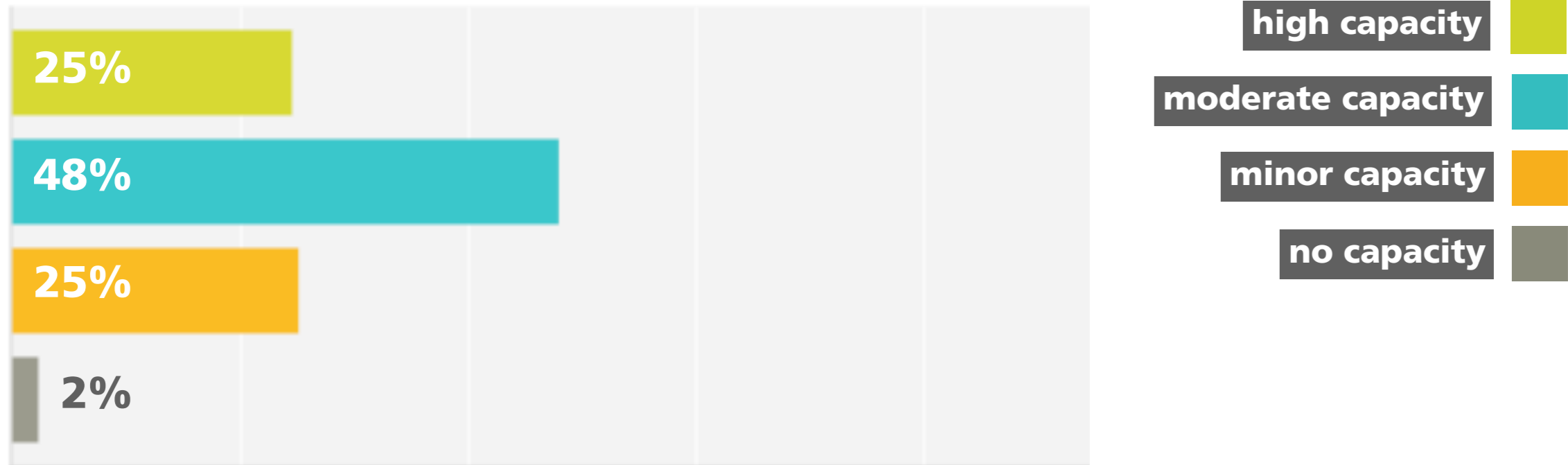
- ▶ **pro-NR respondents: most will use CO<sub>2</sub> by 2012 and by 2015**
- ▶ **non-NR respondents: total adoption rate is lower; most will use HCs by 2012, and CO<sub>2</sub> by 2015**

# business & regulatory climate



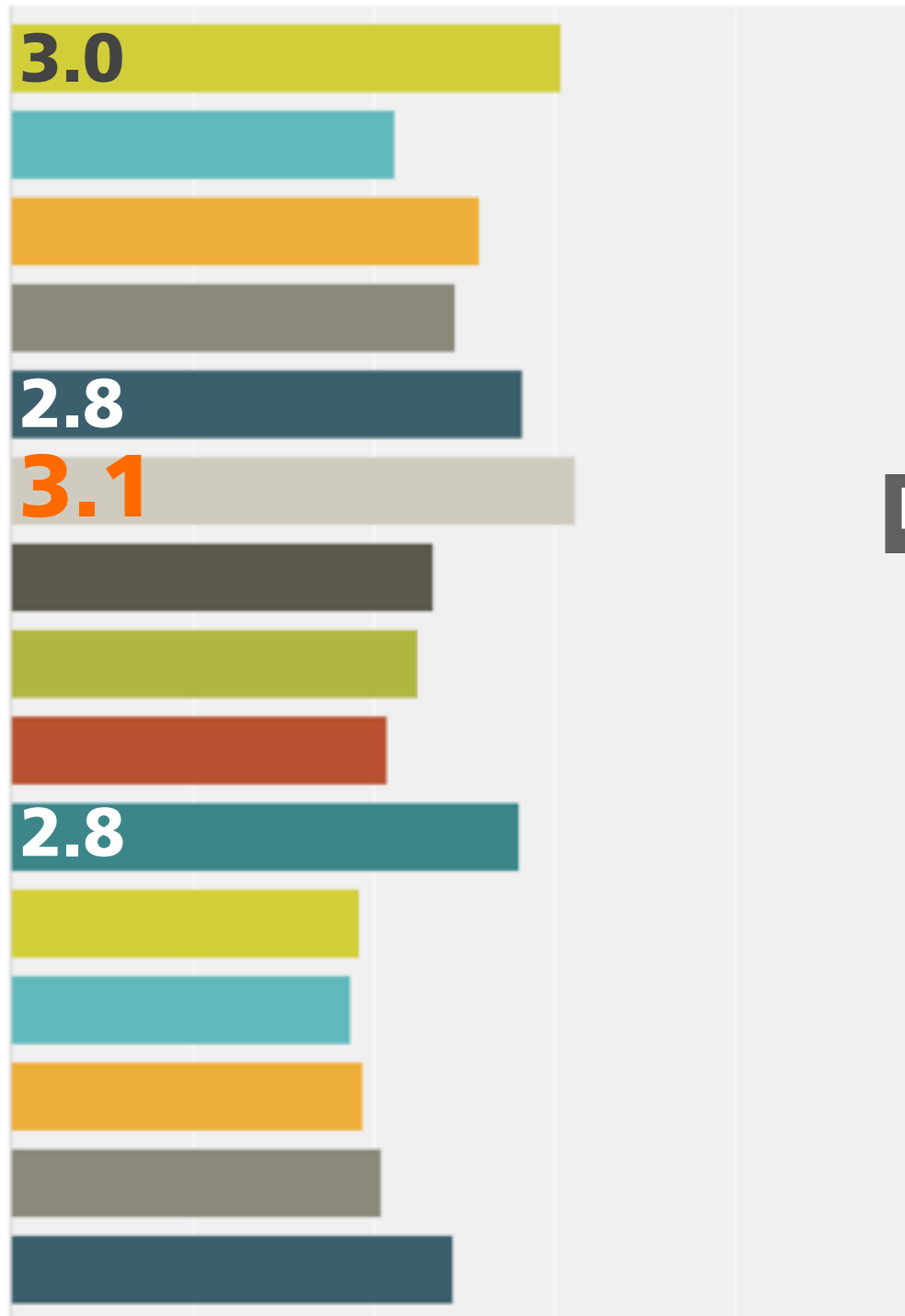
- ▶ pro-NR respondents: **90% see very or rather favorable climate for CO<sub>2</sub> ; only 50% confirm that for HCs**
- ▶ non-NR respondents: most see the climate for NR overall, CO<sub>2</sub> and HC as rather favorable; that for NH<sub>3</sub> as rather negative

# north america's NR capacity



- ▶ **pro-NR respondents: 50% see moderate capacity for North America to become a world leader in NR (25% high capacity; 25% minor/no capacity)**
- ▶ **non-NR respondents: 44% see moderate capacity (23% high capacity; 33% minor/no capacity)**

# NR strengths



**Refrigerant costs**

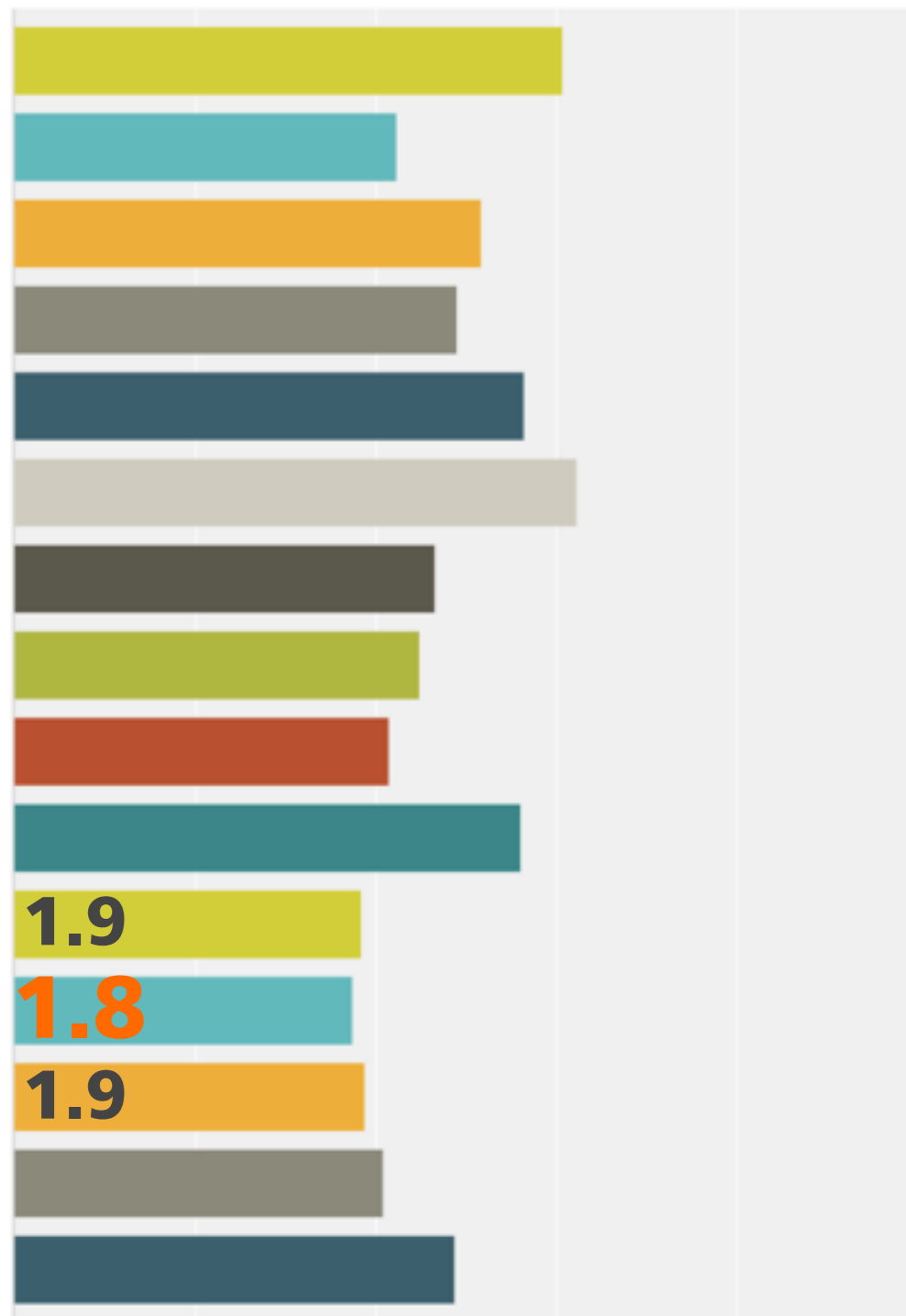
**Performance, efficiency**

**Direct & indirect environmental impact**

**Competitive advantage, green image**

scale from ++ (4) to -- (0)  
above 2 = stronger

# NR weaknesses



scale from ++ (4) to -- (0)

below 2 = weaker

**Lack of awareness; misconceptions**

**Lack of skilled personnel**

**Lack of uniform standards**

# THE GUIDE North America '12



- easy-to-access **reference guide for CO<sub>2</sub>, NH<sub>3</sub>, HCs, (water, air) in North America**
- illustrate + quantify the **market potential** through industry expectations, barriers & opportunities, policy analysis
- **free distribution** to industry, end-users, regulators



# THE GUIDE'12 - content



- ◎ **“Ecosystems”: the applications of NR**
- ◎ **Market outlook by refrigerant / application 2012, 2015, 2020**
- ◎ **CO<sub>2</sub> supermarket map for Canada & the USA**
- ◎ **NA regulation & standards analysis**
- ◎ **Case studies**
- ◎ **Company directory**
- ◎ **End Users' statements**



**launch: Autumn 2012**

# CO<sub>2</sub> supermarket map

**verified:** 1,331 transcritical stores by end-2011 for Europe

**supermarket map for North America:**

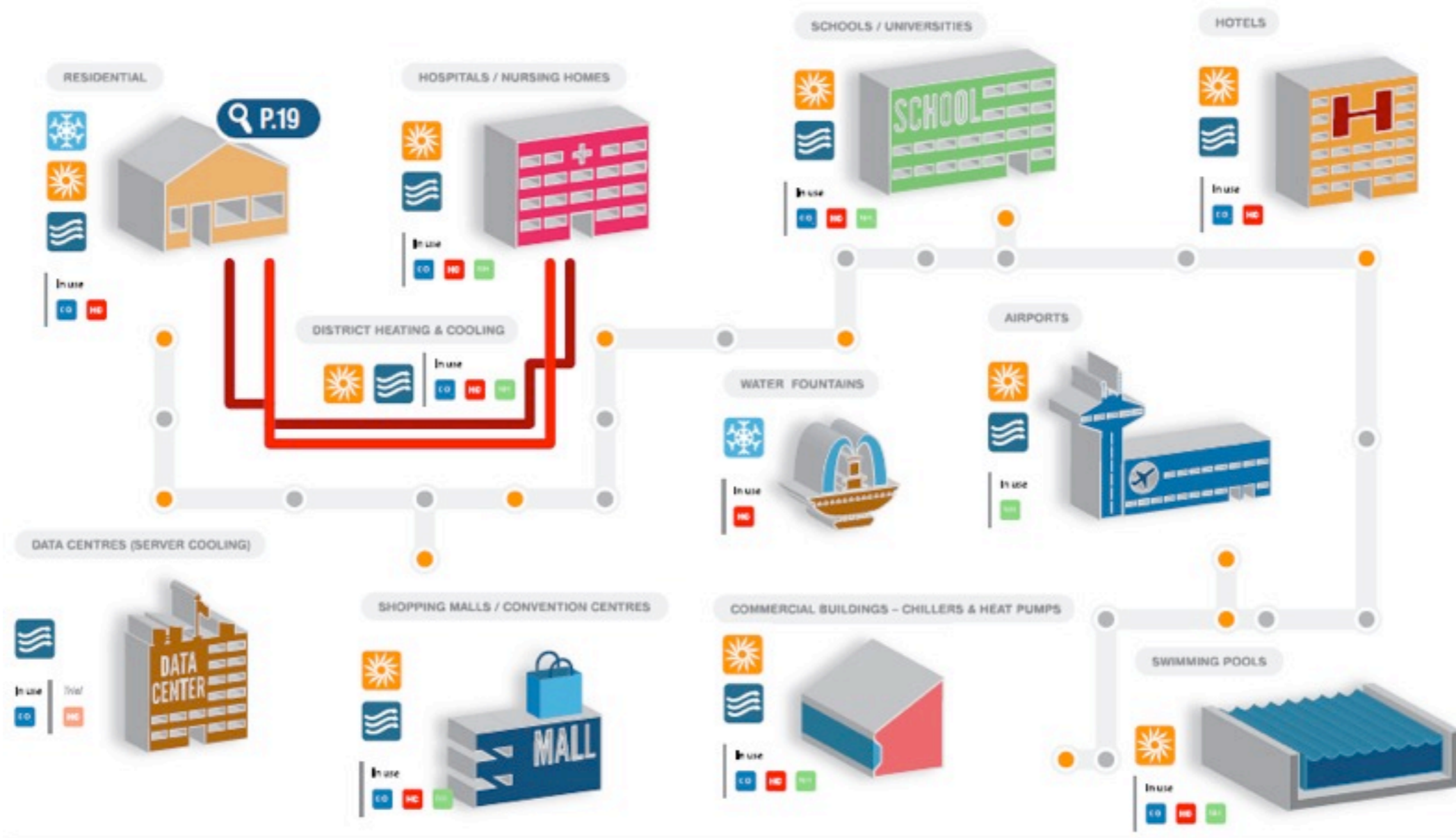
- ▶ **transcritical**
- ▶ **secondary**
- ▶ **cascade**

**missing: your input**



# “Ecosystems” - applications

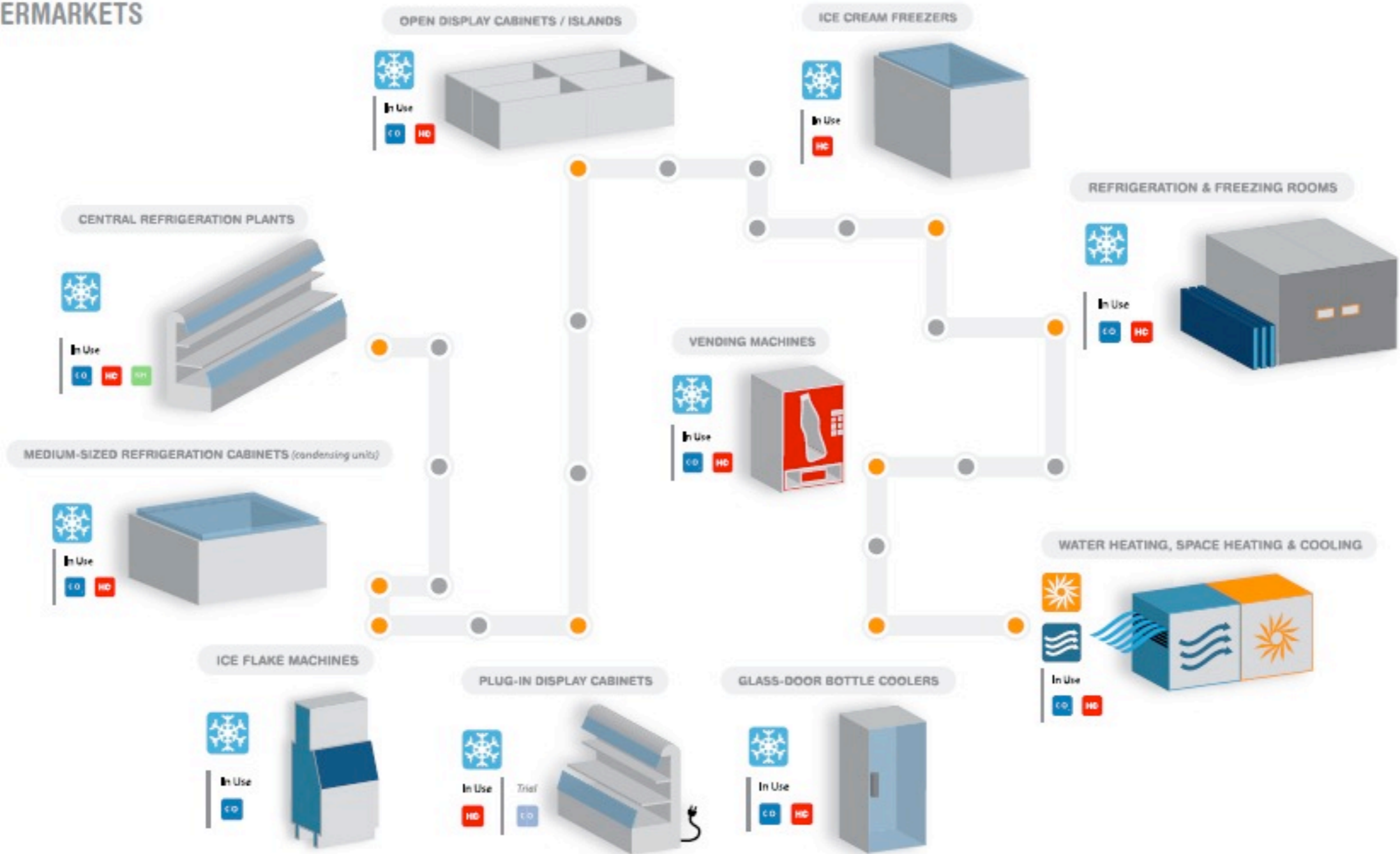
## CITY & BUILDINGS



Ammonia
 | 
  Carbon Dioxide
 | 
  Hydrocarbons
 | 
 |||| 
  Refrigeration
 | 
  Heating
 | 
  Air Conditioning

# “Ecosystems” - applications

## SUPERMARKETS



# THE GUIDE - current supporters



# contact & more information



- ◎ **Download the GUIDE - Market Growth for Europe**
- ◎ **Take the SURVEY for the GUIDE North America**
- ◎ **<http://guide.shecco.com>**

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# live polling



- ◎ **What is North America's capacity to become a world leader in Natural Refrigerants?**
  - ◎ **high capacity**
  - ◎ **moderate capacity**
  - ◎ **minor capacity**
  - ◎ **no capacity**
  
- ◎ **Send a code via text message to 22333 from your US phone**
- ◎ **Visit [www.pollev.com/ATMOSphere](http://www.pollev.com/ATMOSphere) and select the answer**