

a changing industry

natural refrigerants market trends in europe and beyond



Brussels, 15 October 2013

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shecco

GUIDE Europe 2013



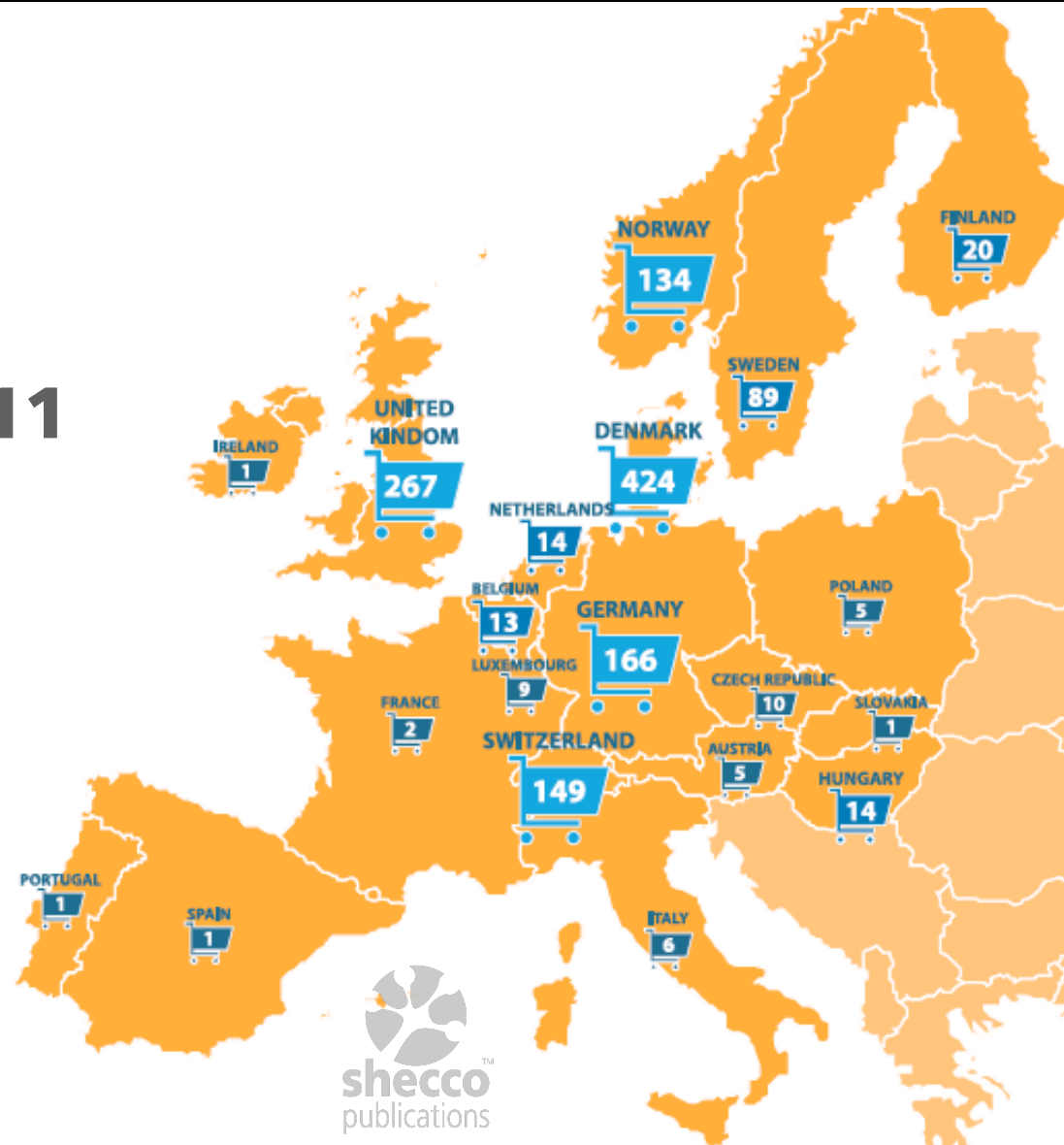
- **expected launch: Nov 2013**
- **2nd edition due to high popularity**
- **HVAC&R industry survey with 350+ responses**
- **current & future use of NR**
- **market trends & drivers**
- **market and technology maps**

GUIDE Europe 2013 - supporters



CO₂ TC stores: europe 2011

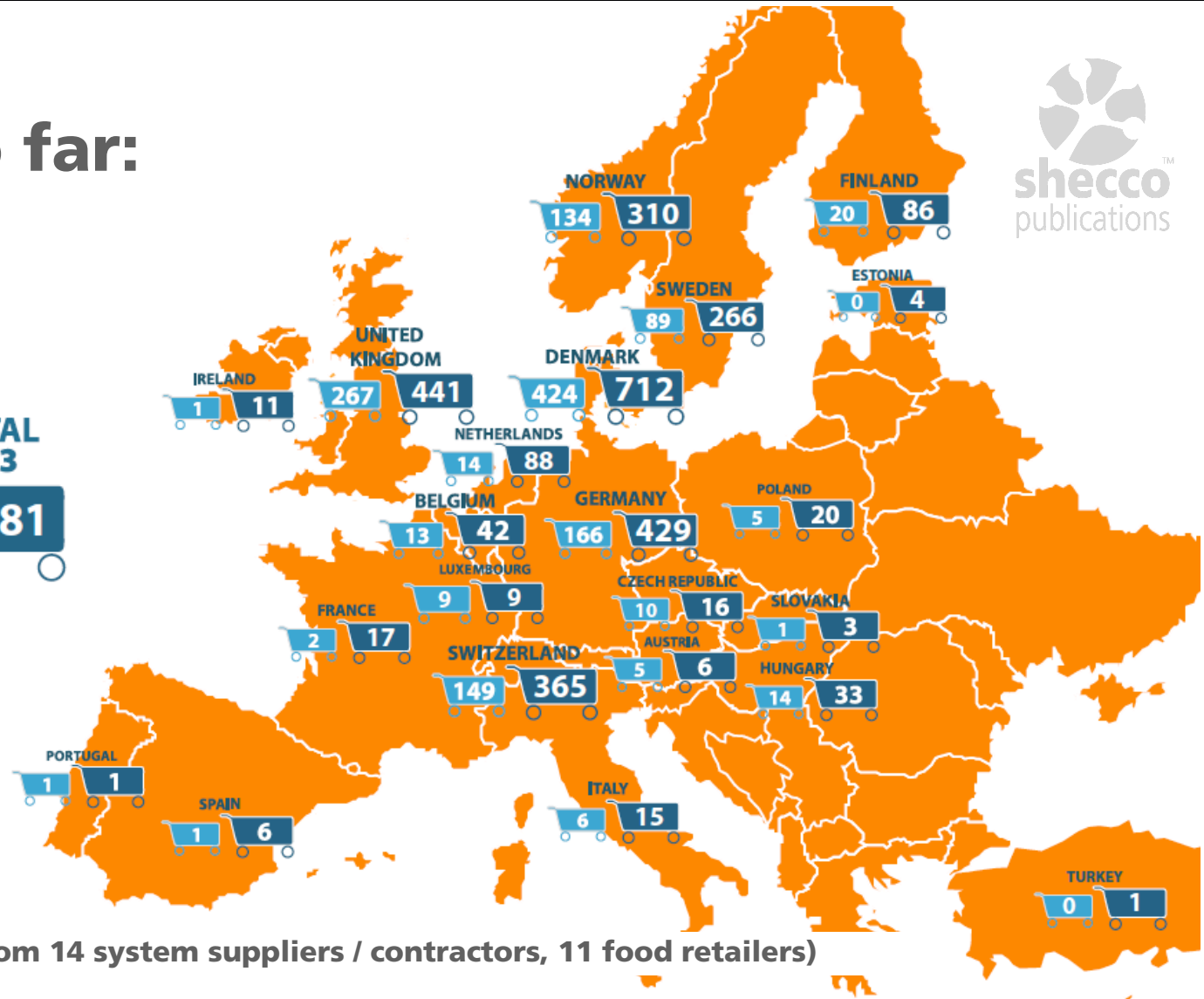
**verified: 1,331
transcritical CO₂
stores by mid-2011
for Europe**



CO₂ TC stores: europe 2013








verified so far:



(status Sept 2013, data from 14 system suppliers / contractors, 11 food retailers)

CO₂ TC stores: europe 2011-13 (est.)

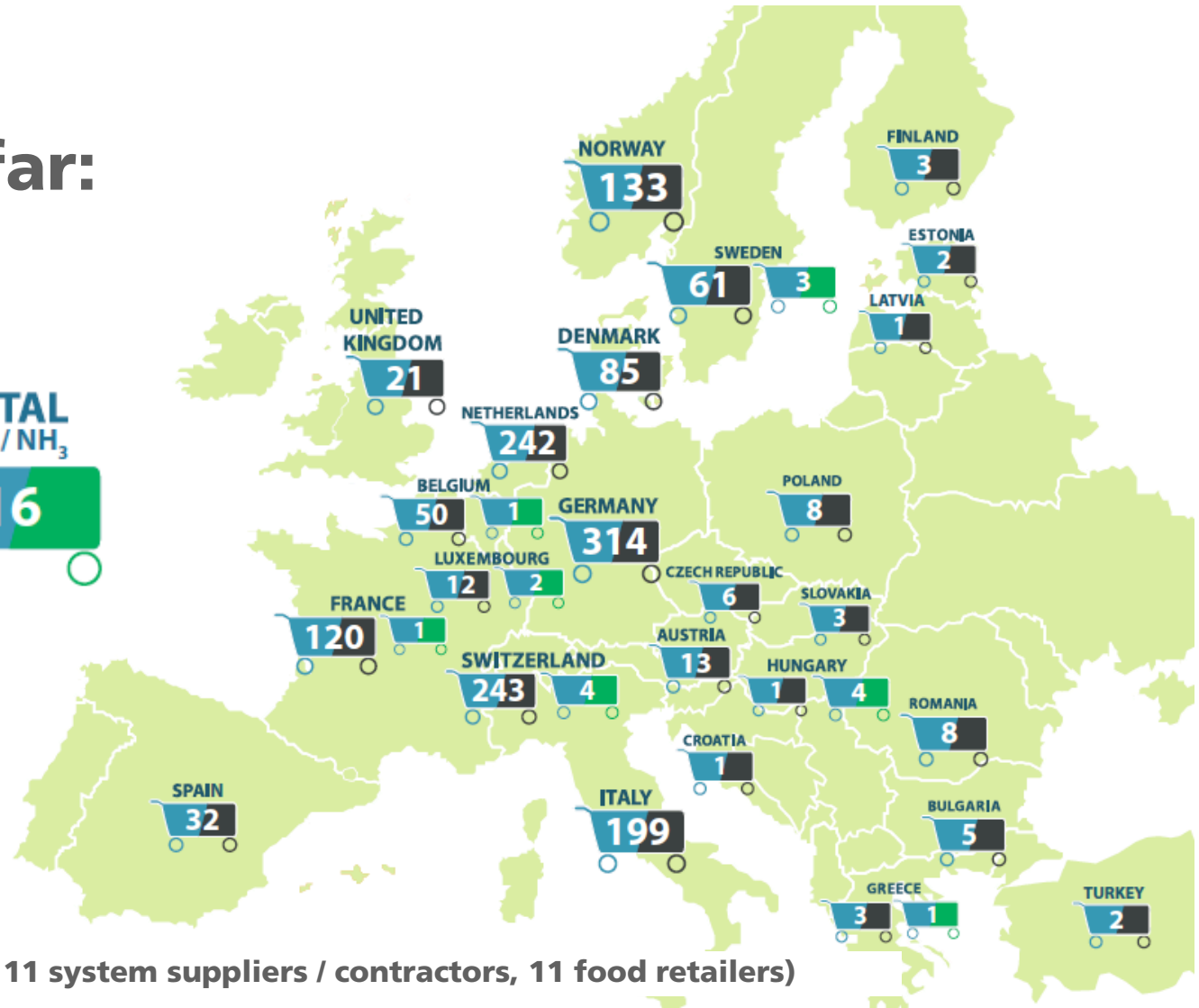
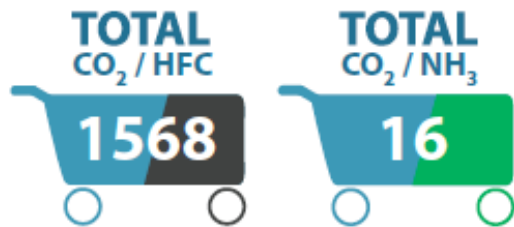


		2011	2013	Increase in 2 years
	Denmark	424	712	+68%
	United Kingdom	267	441	+65%
	Germany	166	429	+158%
	Switzerland	149	365	+145%
	Norway	134	310	+131%
	EU	1331	2881	+116%

CO₂ cascade stores: europe 2013



verified so far:



(status Sept 2013, data from 11 system suppliers / contractors, 11 food retailers)

CO₂-HFC cascade stores: europe 2013



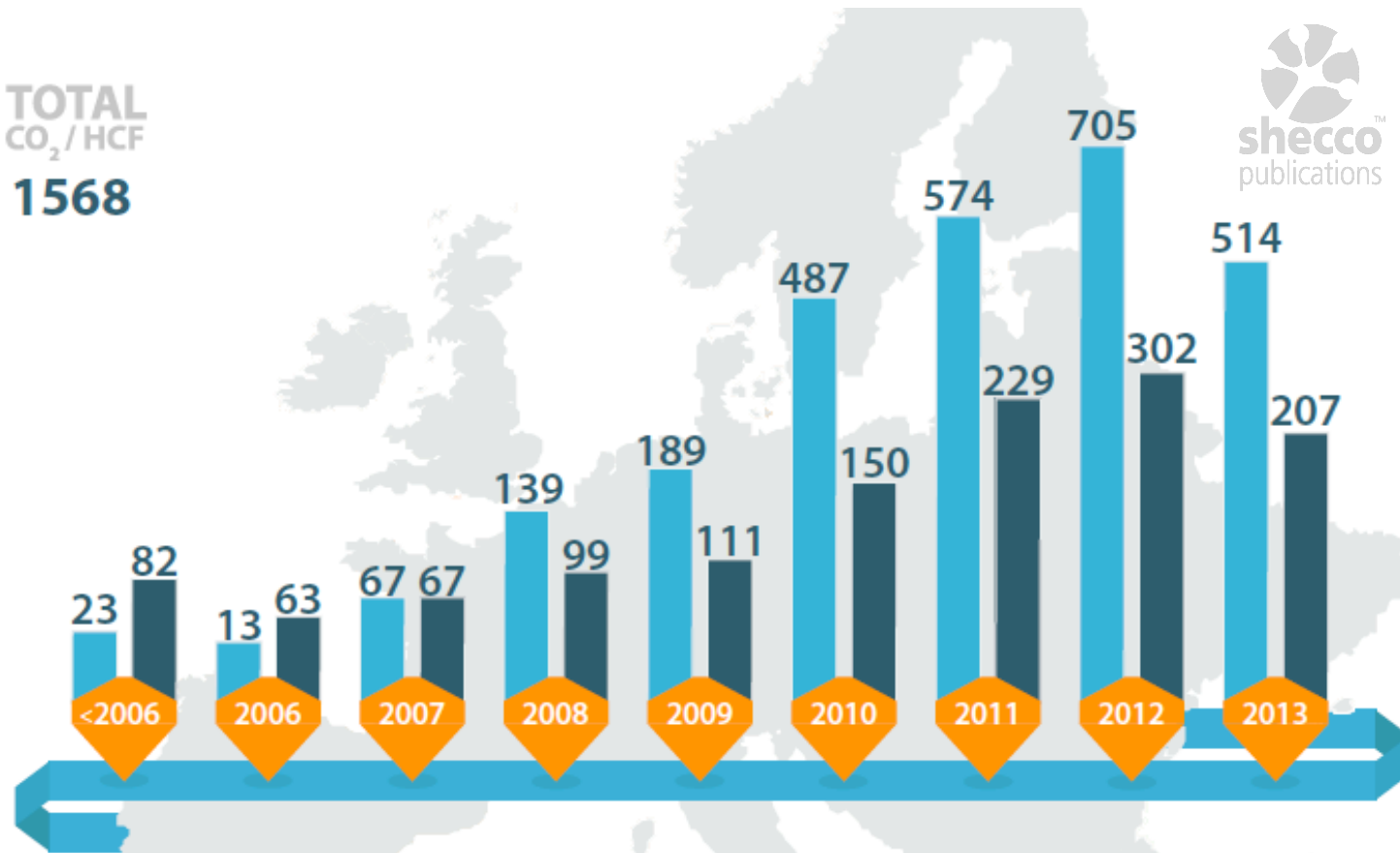
		2013 (tbc)
		
	Germany	314
	Switzerland	243
	Netherlands	242
	Italy	199
	Norway	133

growth of CO₂ stores in europe 2006-13



**TOTAL
CO₂ TC
2881**

**TOTAL
CO₂ / HCF
1568**



(status Sept 2013, data from 16 system suppliers / contractors)

number of CO₂ stores worldwide (est.)



TOTAL
CO₂ TC
SUPERMARKETS  3050(+)

TOTAL
CO₂ CASCADE/
SECONDARY
SUPERMARKETS  1965(+)

food retail brands using CO₂ (Sept 2013)



min. 113 brands

commercial refrigeration trends in europe



a combination of market, policy and technology drivers has led to an impressive growth of european stores using CO₂-based commercial refrigeration systems in just 2 years.

commercial refrigeration trends in europe



new & optimised components and system designs have shifted the efficiency equator further south and will ultimately remove it. today and in the coming years we will see a variety of technology solutions further closing efficiency and price gaps (if existing).

commercial refrigeration trends in europe



europe will continue being the market leader for the coming years and europe-based suppliers can benefit from their experience gained, also in other parts of the world - but: competition is emerging.

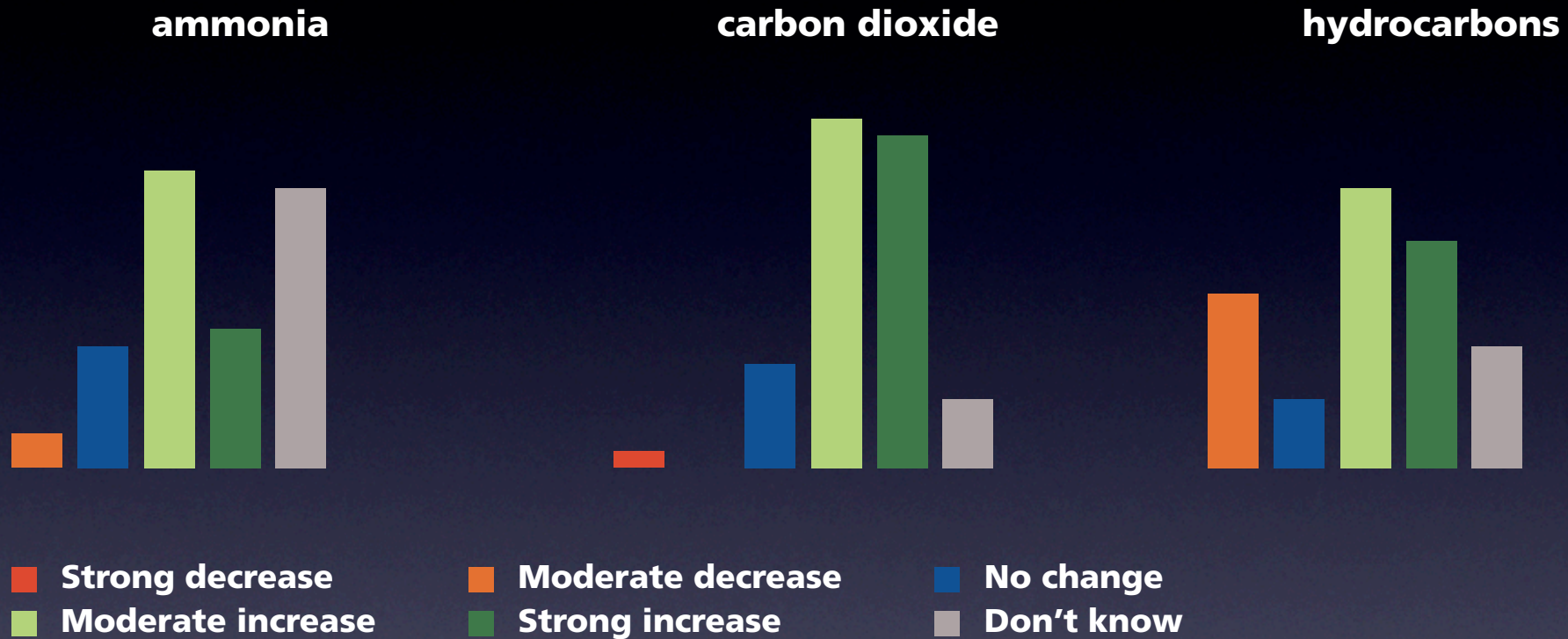
industrial refrigeration market: europe



**90% of large / 25% of
small systems: NH₃**

**the market penetration differs significantly
from country to country**

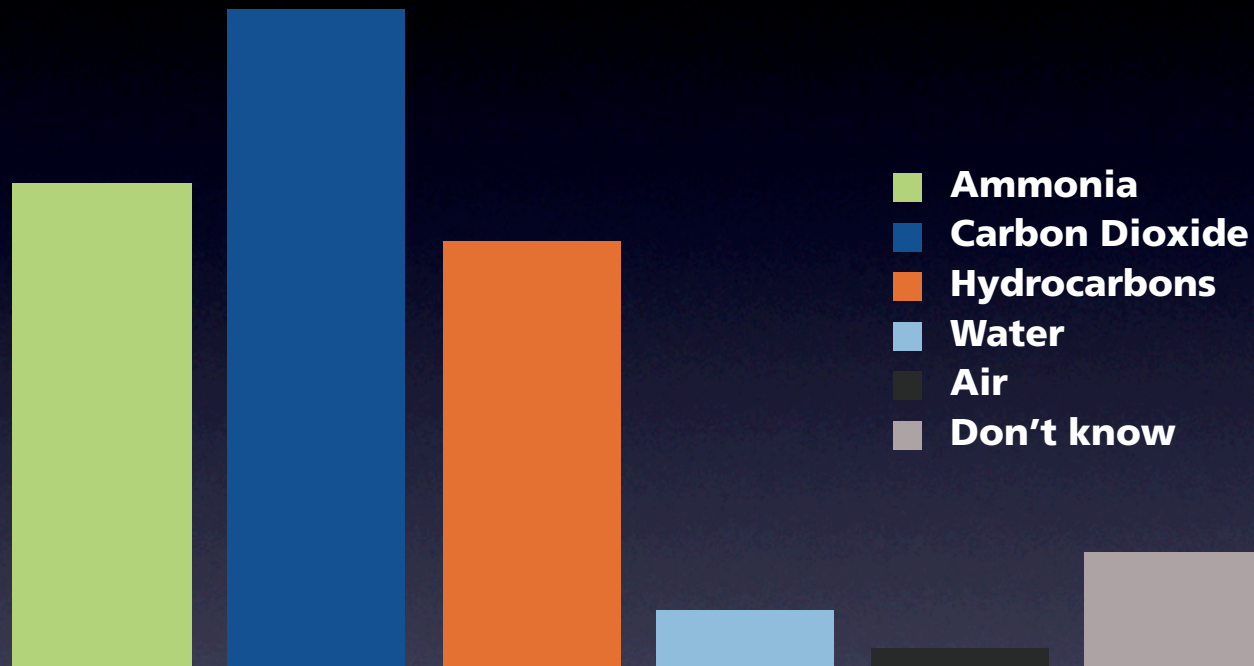
change in products & services offered



carbon dioxide will enjoy a stronger increase among system suppliers to the commercial and industrial refrigeration industry than other natural refrigerants

source: shecco survey among 50 system suppliers for the European industrial refrigeration industry

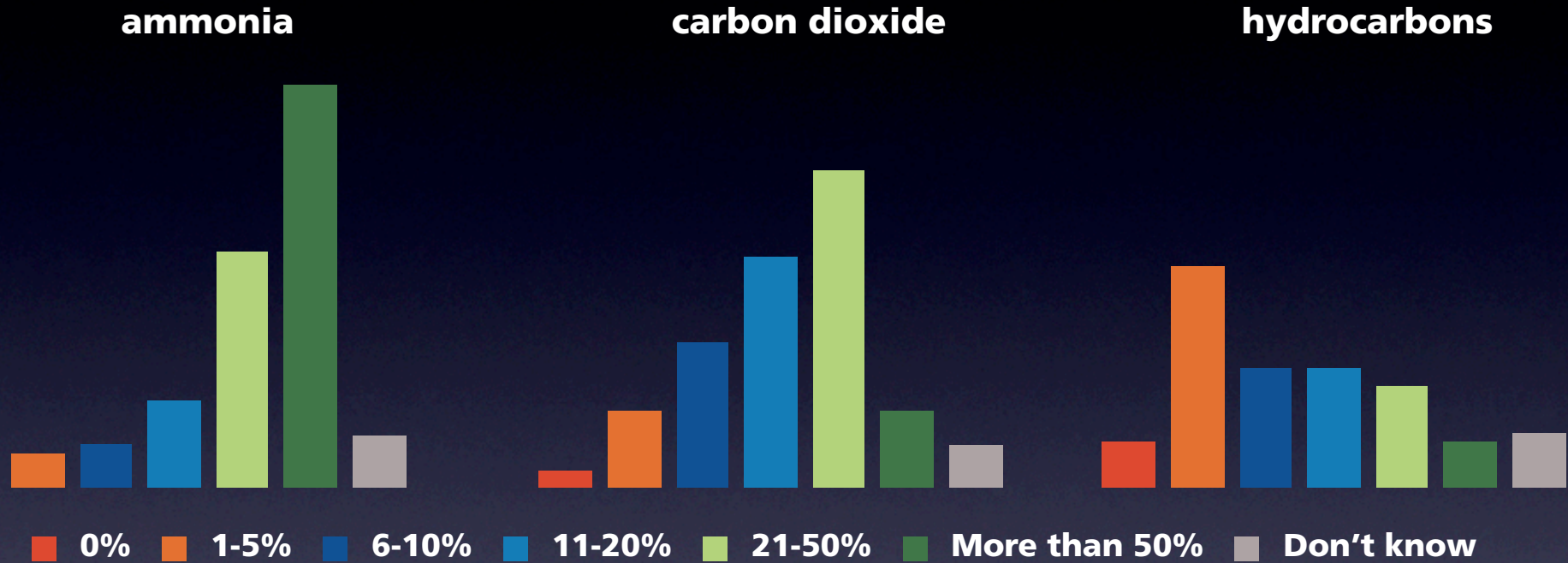
new products & services



carbon dioxide will significantly increase in popularity while ammonia will continue to play a major role. hydrocarbons is expected to be part of system suppliers' strategy.

source: shecco survey among 50 system suppliers for the European industrial refrigeration industry

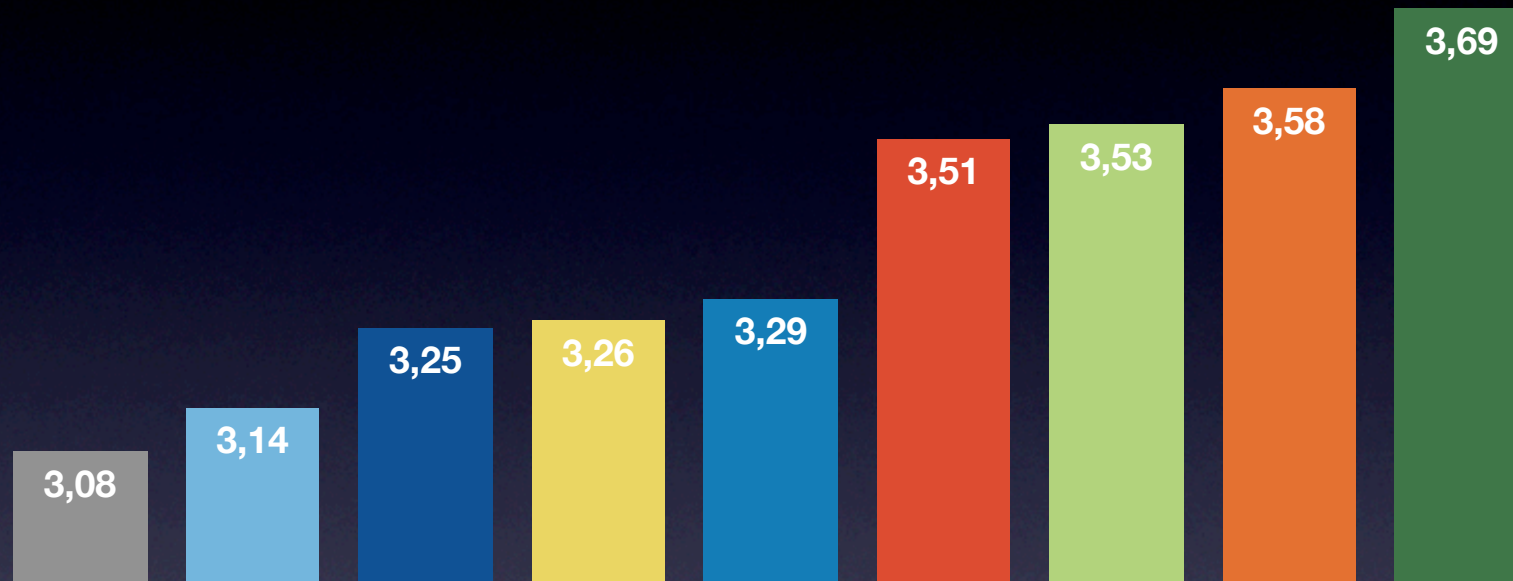
absolute market share in 2020



ammonia will defend its market-leading position in the next 7 years, followed by carbon dioxide especially in NH₃/CO₂ systems - the market share of hydrocarbons will remain rather small

source: shecco survey among 184 HVAC&R experts for European industrial refrigeration

purchasing criteria for commercial & industrial end-users



- Trained servicing personnel
- Reliability, compactness, weight
- Compliance with current and upcoming legislation
- ROI / life cycle costs
- Capital cost, initial investment
- Environmental impact
- Availability & supply of technology
- Safety levels
- Efficiency, performance

source: shecco survey among 122 HVAC&R experts for European industrial refrigeration, scale: 1-4

industrial refrigeration trends in europe



despite slow growth rates in the food industry and industrial refrigeration sector overall, the move towards a still broader adoption of natural refrigerants is expected to continue.

industrial refrigeration trends in europe



the 2015 deadline for a complete R22 ban has added further impetus to a mature market, where ammonia will remain a dominant refrigerant but will get "competition" by CO₂/NH₃ solutions, and to a lesser extent HCs

industrial refrigeration trends in europe



a strong focus on charge reduction, a system's capital cost but also its cost of ownership; and an even stronger emphasis on safety, reliability and legislative compliance will dominate the european industrial refrigeration sector in the next years.

european natural refrigerants company map



shecco - useful links



GUIDEs:

<http://guide.shecco.com>

GUIDE 2013: Examples of NH₃/CO₂ secondary systems for cold store operators

<http://guide.shecco.com/GUIDE-NH3-CO2-Secondary-Systems-2013.php>

GUIDE 2013: Natural Refrigerants - Market Growth for North America

<http://guide.shecco.com/GUIDE-Natural-Refrigerants-North-America-2013.php>

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