



Project Refrigeration units at Iper Arese, a recent project undertaken by Arneg

ESM EXAMINES THE LATEST TRENDS IN THE COMMERCIAL REFRIGERATION INDUSTRY, INCLUDING EFFORTS BEING MADE BY RETAILERS AND BRAND OWNERS ALIKE TO KEEP ENERGY COSTS AND ENVIRONMENTAL IMPACT TO A MINIMUM.

Increased demand for fresh and frozen foods, changing consumption habits, stringent food production regulations and improvements in the cost-efficiency of units are all reasons why the global market for commercial refrigeration is big, and getting bigger.

According to figures released by Chillventa, the international refrigeration exhibition, which took place in October, the total market for commercial refrigeration was estimated at \$38 billion last year, with some 49% of this total (\$18.6 billion) going on refrigeration equipment, with drinks coolers (14%), ice machines (8%), vending machines (6%) and other applications and components (23%) comprising the remainder of spend.

Building on this, a recent report from US-based market research firm Credence Research estimates that the global market will be worth \$41.5 billion by 2022, with

growth strongest in the Asia-Pacific region (particularly India and China), and European investment expected to centre around replacing existing units with more cost-effective, modern systems.

Smart Investment

More and more retailers are embracing solutions that are tailored to the specific needs, rather than off-the-shelf solutions. Suppliers such as Italy-based Arneg are going the extra mile to work with retailers on bespoke solutions for often sizeable projects, such as the recently-opened Iper Arese in Italy.

"Flexibility has always been our philosophy," says Gian Paolo Di Marco, Export Director, Arneg World. "Our aim is to ensure that retailers can find the right solution for their needs. This process is not based solely on the product itself, but it involves us working together with retailers on the development of a layout or store concepts, and

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Export Director, Arneg World

erly and in a more cost-effective manner is a whole other story."

Thinking Green

Arguably one of the biggest areas dictating investment in the refrigeration sector involves environmental concerns.

"Stringent energy consumption regulation is forcing retailers to replace their outdated refrigeration equipment with energy efficient solutions," Credence Research says in its report. "High initial investment cost is the primary factor limiting the growth of these products particularly in price sensitive markets".

Central to this focus is the phasing out of hydrofluorocarbons (HFCs) from the refrigeration industry, replacing them with natural refrigeration alternatives, such as CO₂. Europe is currently the world's largest market for transcritical CO₂-powered refrigera-

tion* in the supermarket sector, with growth rates of between 25% and 35% over the past few years. In the world of refrigeration, particularly involving CO₂, a transcritical cycle is a thermodynamic cycle where the working fluid goes through both subcritical and supercritical states. It is an area in which the most investment in the sector is taking place.

Areas Of Focus

Recently, the Consumer Goods Forum (CGF) published a handbook examining areas of improvement within the retail and CPG sector when it came to the adoption of natural refrigerants. In November 2010, the CGF Board of Directors outlined a strategy through which members would commence phasing out HFC refrigerants by 2015.

One year on from that, most, if not all members are well on this path, and the Forum is working in promoting the "development, commercialisation and adoption of climate-friendly alternatives to HFCs for all relevant industry sectors," according to Ignacio Gavilan, Director, Sustainability at the Consumer Goods Forum, as well as "overcome barriers that limit the widespread introduction of these climate-friendly technologies and practices."

At the close of last year, the CGF published a booklet examining some of the successes among European retailers when it

continues with our involvement in the store's maintenance programmes. This is the difference between a manufacturer just selling products and one offering solutions."

Arneg is one of the most active suppliers when it comes to new product development with a number of high profile new launches in the past couple of years, including the state-of-the-art Lisbona 2, Panama 3, Osaka 3, and Venezia units. According to Di Marco, this investment is necessary in order to compete.

"The development of new products and solutions is the best way to compete in our industry as well as in others. Arneg invests a large percentage of its turnover in research and development to offer products that have a better display, save more energy during their life cycle and be installed in a quicker way, since time is money.

"Nowadays, it is not difficult to produce a refrigerated unit. To ensure it works prop-

SUSTAINABLE REFRIGERATION SOLUTIONS FROM FREOR



In commercial refrigeration, FREOR strongly promotes the use of natural refrigerants. Propane R290 driven refrigeration equipment has been the company's focus for the last several years. FREOR has supplied R290 refrigeration equipment to a number of retailers in Switzerland and Finland, including Migros,

S-Market and Neste-K. These supermarkets have chosen autonomous multidecks and freezers with built-in variable speed propane compressors. The cabinets are connected to a Hydroloop Hybrid system, allowing them to remove heat through a glycol-cooled line or directly emit it into the store area and heat the store premises on demand. The improved propane system is controlled by specially developed software, enabling additional energy savings.

An important criterion for customers choosing R290 refrigeration cabinets is the energy efficiency and ecological friendliness of these units. The use of propane results in higher efficiency and energy-savings of up to 30%.





came to refrigeration practices; a real snapshot of how far the industry has come.

Retail Investment

At Dutch retailer Ahold (now Ahold Delhaize), for example, research undertaken in 2010 found that 27% of its CO2 emissions were caused by refrigerant leakage. It commenced a series of trials using hybrid CO2 systems the same year, and as of 2015, the group boasted 350 Albert Heijn stores running on hybrid CO2 systems, and almost 50 stores using CO2 fully. Fast forward a year, and Albert Heijn recently opened what it describes as the most sustainable store in Europe, in Pumerend in November, which boasts a CO2 refrigeration system 10% more eco-friendly than similar systems it operates elsewhere in its estate.

Carrefour, too, has adopted CO2 as a cleaner form of refrigeration. At the start of the decade, the retailer set out a goal to reduce its emission levels by 40% by 2025. Following an in-depth study of its store estate, it began implementing transcritical CO2 solutions across Europe in 2011, one of the first of which was in Spain. As José Francisco Molla, Carrefour Spain's technical director explained, such a move was "a highly innovative test in Europe, since it is difficult to implement a clean refrigeration technology in a warm climate. We used various technological transformations in order to get it to operate optimally and attain good levels of energy efficiency."

In the UK, retailer Marks & Spencer is coming up to the tenth anniversary of its Plan A initiative, a 100-point social and



New Store Albert Heijn Pumerend, the retailer's most eco-friendly outlet. Left: This year's Chillventa

environmental strategy launched by the retailer in 2007 (and updated in 2010 and 2014). It set out some ambitious goals in terms of emission reduction from its refrigeration systems - to reduce the carbon emissions from its UK and Ireland store refrigeration by 80% by 2020; to use carbon dioxide in any new refrigeration systems from 2014; and to fully replace HFCs by 2030.

Finally, Metro Cash & Carry has also set out a target to reduce emissions from refrigerant losses by a total of 29% by 2020. As of FY 2015, the group had switched 153 Real and Metro Cash & Carry outlets to natural refrigerants such as CO2, while Metro also has agreed on a programme for worldwide phasing out of the use of F-gases by 2025, which it has already started implementing. The leakage rate of emissions from Metro Cash & Carry fell from 14.6% at FY 2014, to 11.0% in FY 2015.

Next On The Agenda

At government level, the EU is 'leading the way' in terms of the phasing-down of the

use of HFCs in both refrigeration and air conditioning. In October, EU Commissioner for Climate Action and Energy Miguel Arias Cañete was among those meeting in Kigali, Rwanda, to seek agreement on HFC-reduction measures, which form part of the Paris Agreement on Climate Change. Coming out of that meeting, Cañete described it as "a huge win for the climate. We have taken the first concrete step in delivering on the promises we made in Paris last December. The global phase-down we have agreed on Friday could knock off up to half a degree of warming by the end of the century. [...] We have shown through our own action on the hydrofluorocarbon gases that this is a fast and cost-effective way to reduce emissions."

With momentum firmly shifting away from HFCs towards more environmentally friendly refrigerants, those in the industry that are still holding back from updating their refrigeration solutions could be left out in the cold. ■

COMING UP: In the next edition of ESM, we will be examining how businesses in the retail and FMCG sector are implementing both refrigeration and other climate-saving initiatives in our review of the Consumer Goods Forum Sustainable Retail Summit. For further information, contact steve@esm magazine.com

BIO STORES Solutions



In line with market trends that have seen a boom in the organic sector in 2016, Arneg SpA supports major mass retail chains designing an advanced range of solutions with customised layouts. A successful coming-together



of technology and healthy food once again demonstrates leading commercial refrigeration equipment provider Arneg's keen awareness of environmentally sustainable innovation that improves quality of life.

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