

DEGREE CELSIUS

Spring 2011

THE NEWSLETTER FROM DAIKIN REEFER

# The year for growth

**2011 – the year  
that Daikin become  
global leaders in air  
conditioning?**



#### **market focus**

Daikin units enter second-hand market

#### **distribution focus**

America's service network expands

#### **technology focus**

Life Cycle Climate Performance

#### **market focus**

seaborne reefer trade growing

#### **customer focus**

APL and their 1,200 Daikin reefers

#### **strong air-conditioning sales**

Daikin soon to become global leader

# Welcome

## Daikin offers its support to those effected by events in Japan

In light of the recent tragic events in Japan, the entire personnel of Daikin Reefer would like to express our deepest sympathy to all those who were affected and continue to suffer from the earthquake and tsunami of 11 March 2011 and its aftermath.

We thank all of our countrymen and all those from overseas who are now working so hard on the emergency response, recovery and relief effort, including the heroic efforts of personnel at the Fukushima Daiichi

*We pray for the successful resolution of events at the Fukushima nuclear power station*

nuclear power plant. We pray for the swift recovery of the disaster areas and the successful resolution of the unfolding events at the Fukushima power station.

As you are aware, our production facilities for reefer container units are now in Suzhou, China, so for the moment, no disruption has occurred to our manufacturing capabilities.

In the air conditioning sector, two of our factories will have been limited by the planned power cuts, but have

sustained no structural damage.

In support of all of those affected by the earthquake, the Daikin Group is donating ¥100 million (\$1.23 million) in financial aid and around ¥200 million (\$2.46 million) in materials to the relief effort, including 600 commercial-use air purifiers and 500 far-infrared electric heaters.

We also intend to solicit donations from all of the employees of the Daikin Group to contribute to the disaster relief efforts.

As our thoughts and prayers go out to all those affected, Daikin would also like to acknowledge

*Daikin acknowledges the fortitude and great spirit of the Japanese people in the face of adversity*

the cooperation and fortitude of the Japanese people in the face of adversity. With this great spirit, we



**Daikin Reefer's President, Katsuyuki Sawai.**

know that Japan will recover. Daikin is committed to playing its part in this process, even as we continue to serve our clients and grow our markets around the world.

Throughout this issue, you will read about the initiatives we are taking to cement our commitment to global leadership, growth and innovation.

**Katsuyuki Sawai, President of Daikin Reefer**



# Global leadership, growth and innovation

2011 is set to be a milestone year for Daikin

Following two tough trading years in 2008 and 2009, Daikin Industries recovered well during 2010, with our air conditioning sales driving renewed business growth globally, despite the strong yen, increasing prices in raw materials such as steel, copper and aluminium, and a continued downturn in the semi-conductor and automotive industries.

Notwithstanding the recent tragic events in Japan, Daikin is still on course to overtake Carrier as the best-selling air conditioning manufacturer in the world, helping to make 2011 a milestone year in our company's history. In the reefer container sector, total annual production recovered to around 100,000 units last year, almost back to 2007 levels. Daikin sold approximately 20,000 new LXE10E





scroll compressor units, making us once again the second largest provider to the global refrigerated container market.

Significant developments in 2010 included the addition of China Shipping Container Line (CSCL) as our first customer among the major Chinese container carriers, along with further growth in our share of the global reefer leasing

*China Shipping Container line is our first customer among the major Chinese container carriers*

market. Having only entered the leasing industry in 2005, Daikin ended 2010 with a 20% share of this important market sector.

Our philosophy of persistent innovation leads to continuous enhancement of our products and services. As with all Daikin products, we have developed our product by listening closely to our customers' requirements and

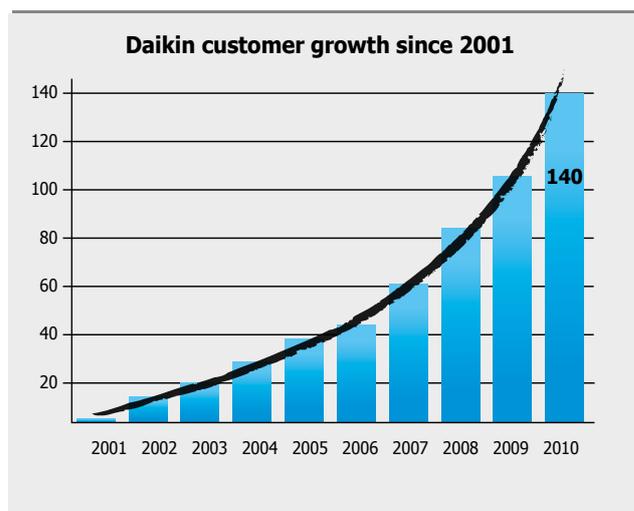
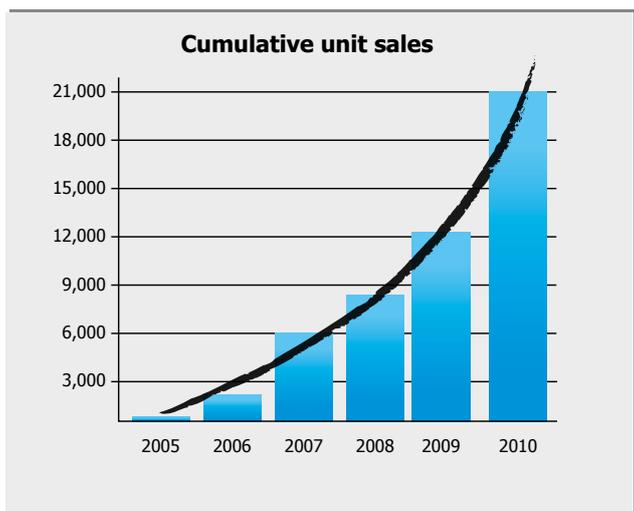
*Having only entered the leasing industry in 2005, Daikin ended 2010 with a 20% share of this important market sector*

considering the market, to provide solutions for your reefer business both today and in the future.

With our sales, technical, design, after-sales and quality control departments working together for customer satisfaction, Daikin aims to become the premier provider to the global refrigerated container market, as well as the world leader in air conditioning.



**Our share of the global reefer leasing market has grown significantly since our entry in 2005, growing to 20% by 2010.**



In 2010, Daikin sold over 20,000 new LXE10E scroll compressor units, making us the second largest provider to the global refrigerated container market.

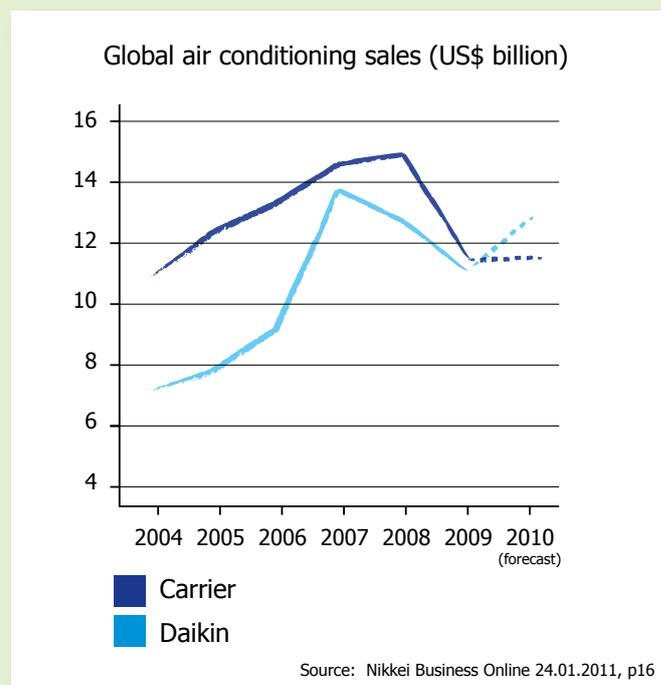
Our customer base has grown annually since 2001. We now have 140 customers.

## Daikin to be global leader in air-conditioning

As of the end of our financial year in April 2011, Daikin Industries is on track to take over from Carrier Transicold as the leading supplier in the global air conditioning (AC) market.

We aim to secure the global leadership position with sales of more than ¥1.4 trillion (\$17.3 billion) in the AC field. As part of this, Daikin will comprehensively enhance its strengths as a specialist in ductless air-conditioning, and pursue new business creation in areas peripheral to the core business. In addition, a flexible alliance and partnership strategy will be adopted to rapidly transform various business opportunities into concrete results.

While business scale is obviously necessary to achieve the global number one position, Daikin also seeks to become the clear leader by offering the best products and services in the world. Daikin simultaneously strives to develop business in each region of the world and to become a welcomed and accepted presence in all of the markets that it serves.



Source: Nikkei Business Online 24.01.2011, p16



# Intermodal South America

## Daikin exhibits for the sixth year running

**D**aikin is exhibiting at the upcoming Intermodal South America trade fair, taking place in Sao Paulo, Brazil, 5-7 April. We are very pleased to be present again at the largest transport and logistics show for the South American market.

Over 550 companies will exhibit this year and more than 45 countries will be represented at the event, with over 43,000 visitors expected.

South America remains a strong growth area for Daikin Reefer and its customers. Our theme for the 2011 show is

'Daikin Growth in Worldwide Markets' and we look forward to welcoming current and potential clients to Booth B46 during the three-day event.

For more information, email [info@daikinreefer.com](mailto:info@daikinreefer.com)

Daikin Reefer: Booth B46  
Intermodal South America 2011  
5-7 April 2011  
Transamerica Expo Center  
Sao Paulo, Brazil  
[www.intermodal.com.br](http://www.intermodal.com.br)



# Customer focus

## Dole protect their high quality produce with Daikin reefers

**W**ith 2010 revenues in excess of \$6.8 billion, Dole Food Company is the world's largest producer and marketer of high-quality fresh fruit and fresh vegetables. Dole also markets an ever-expanding line of packaged foods.

Dole has introduced premium quality, healthy food products, fresh and packaged. The product line ranges from canned pineapple solids and mixed fruits to canned beverages, packaged fruit snacks and tomato sauce.

The company's focus on health and nutrition remains strong as it continues to grow its range. Daikin spoke with Dole Philippines about its decision to invest in the LXE10E for its own fleet of reefers.

### **Why did Dole Philippines choose Daikin?**

"Dole's operations in the Philippines rely on conventional reefer vessels and containerized reefer ships. Many of the ocean carriers utilized by Dole currently use the Daikin LXE10E, which has enabled us to experience the Daikin performance. Dole values the reliability and performance

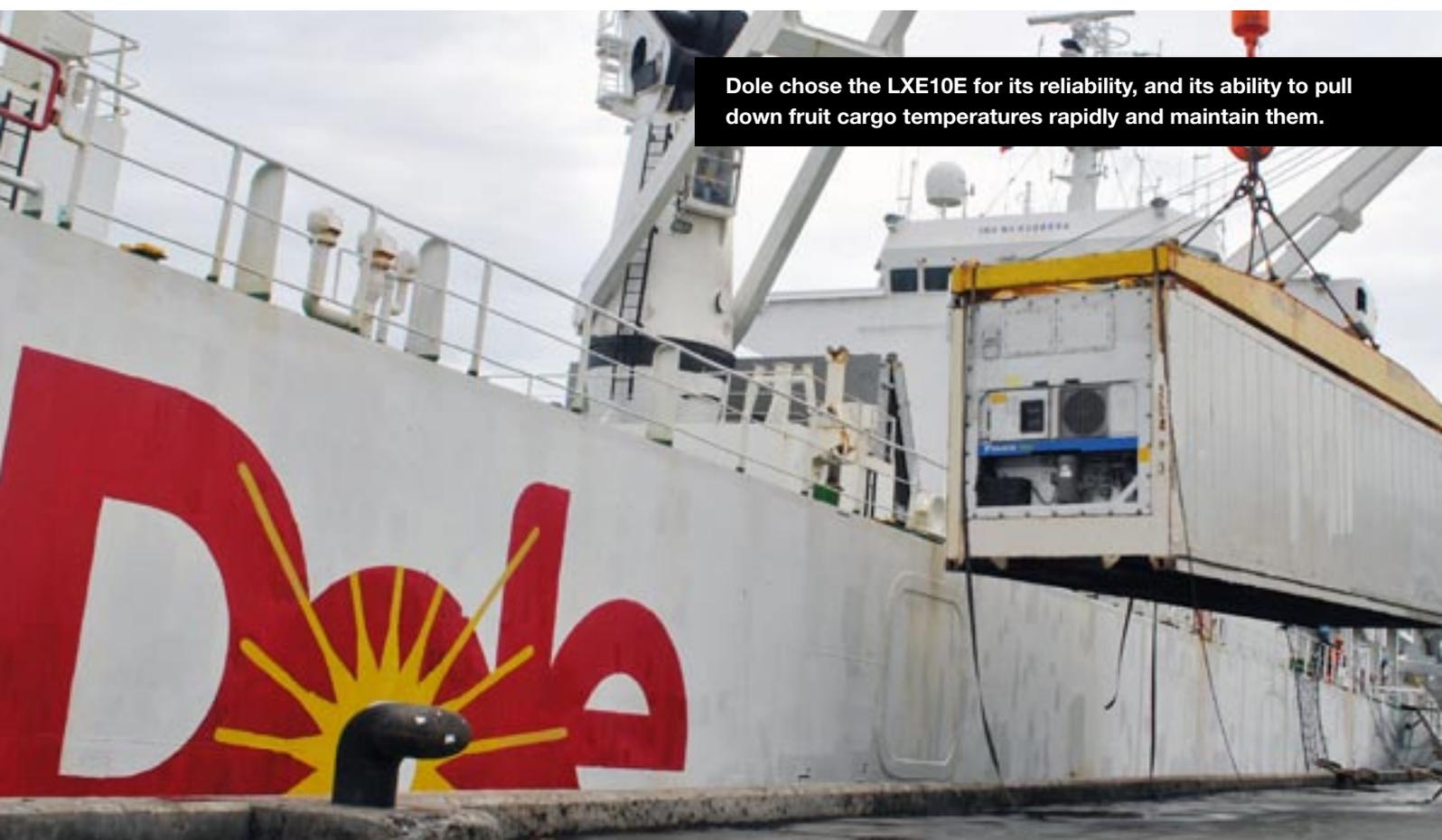
offered by these units, both of which were contributing factors when Dole decided to select the Daikin LXE10E.

*"The LXE10E is a reliable machine with good pull-down and precise temperature control"*

### **What is your impression now that you have your own Daikin machines?**

"As expected, the LXE10E is very reliable. Often, our reefer containers are used for inland transport from farm to terminal within Mindanao, and the reefer machinery is running most of the time in very tough conditions. We are very satisfied with the Daikin Reefer machinery and its operational performance.

Besides its reliability, the LXE10E is able to pull down banana cargo temperatures very quickly. It's a reliable machine with good pull-down and its precise temperature control helps us to maintain excellent quality."



**Dole chose the LXE10E for its reliability, and its ability to pull down fruit cargo temperatures rapidly and maintain them.**



# Customer focus

## Climate-controlled reefer specialists, APL

Daikin is proud to provide APL with over 1,200 LXE10E units. APL provides services to over 140 countries, and reliable reefers are an integral part of their business.

**A**PL is recognized as one of the industry's refrigerated and climate-controlled reefer specialists. It is the world's fourth-largest container transportation and shipping company, providing services to more than 140 countries worldwide. APL's network combines ocean and intermodal freight transport operations with advanced IT and e-commerce.

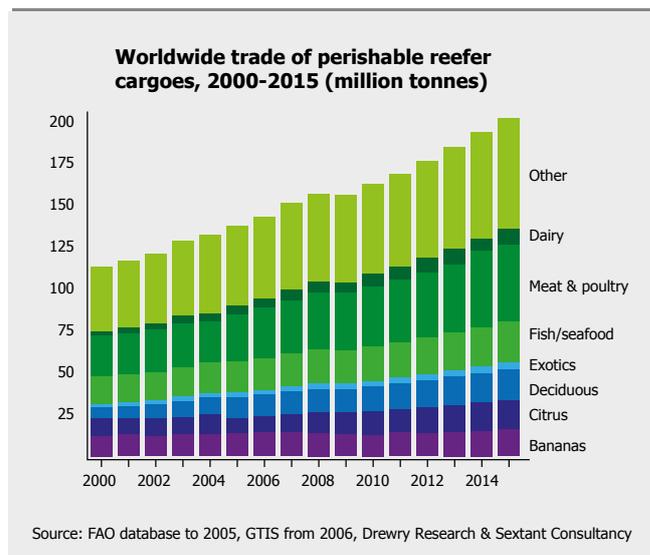
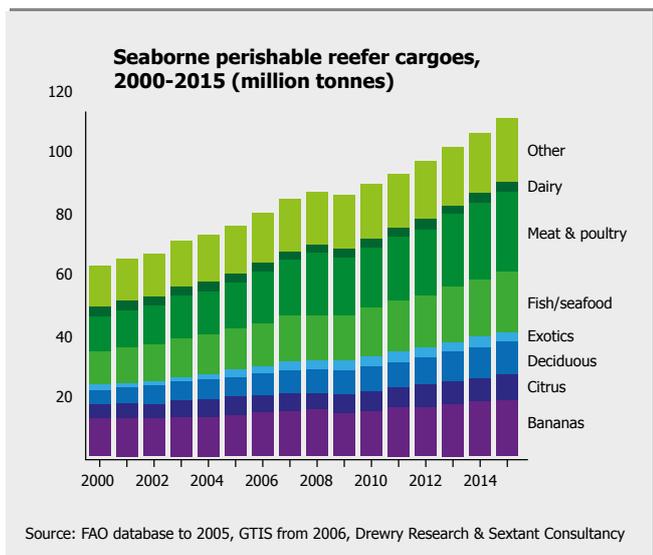
Being a reefer specialist requires special handling know-how, including, but not limited to:

- proper post-harvest handling procedures
- sanitation, pre-cooling and packaging
- stowage, temperature management and air exchange
- product compatibility, humidity management
- effective use of modified and controlled atmosphere

Following successful trials with Daikin LXE10E units during 2009, APL now has over 1,200 Daikin reefer containers operational in its fleet.

*Daikin have been conducting training seminars worldwide to familiarize APL staff with all of the LXE10E's features and capabilities*

Daikin have been conducting training seminars worldwide for APL in order to familiarize staff with all of the unit's features and capabilities, so that these benefits can be extended to their customers.



# Market focus

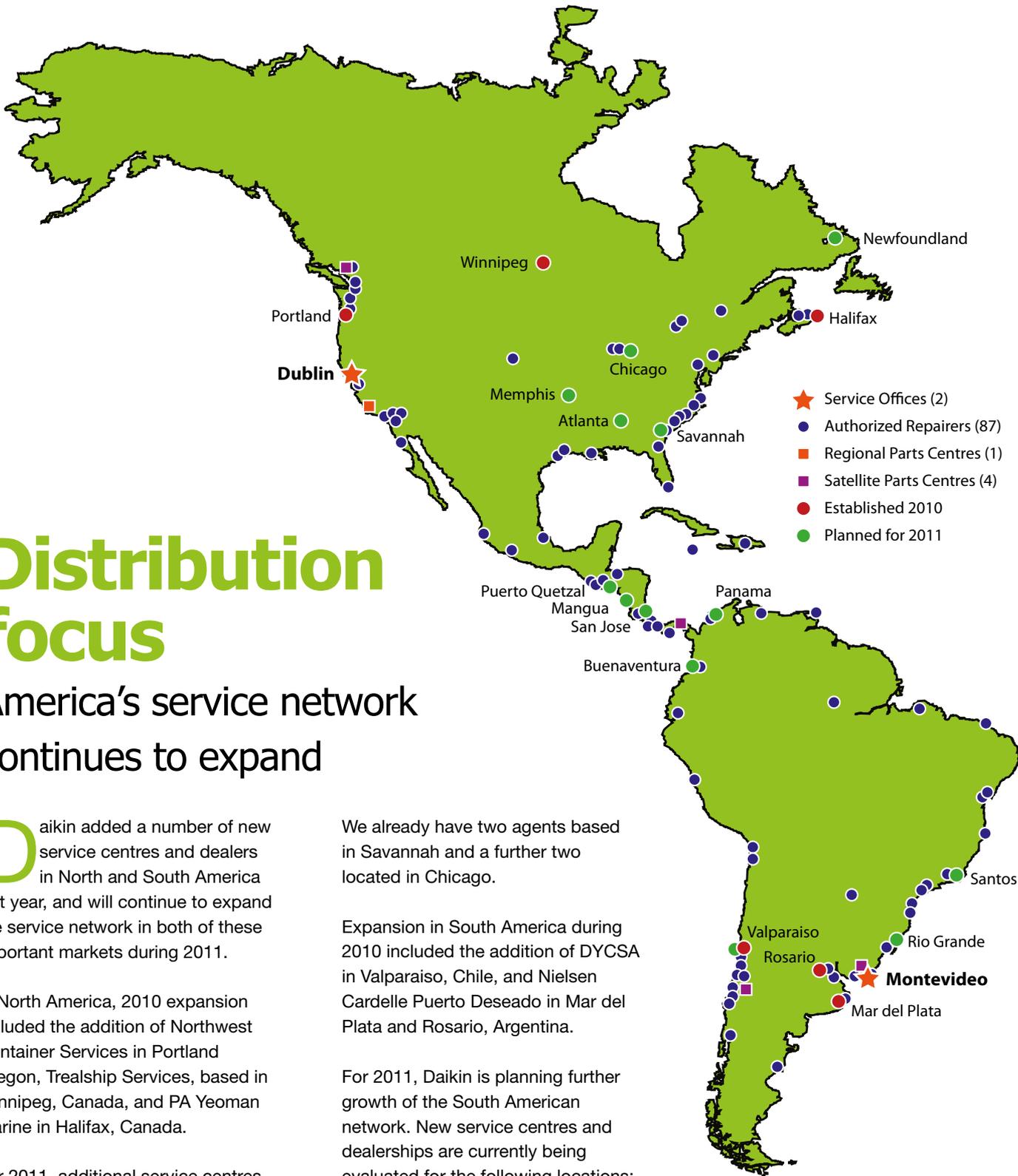
## Seaborne perishable reefer trade to keep on growing

Latest forecasts from Drewry Research reveal that the global trade in perishable reefer cargoes is expected to increase from 157 million tonnes in 2009 to 203 million tonnes by 2015.

Seaborne perishable reefer trade is also forecast to increase its market dominance, growing from 84.9 million tonnes in 2009 to 110.3 million tonnes by 2015.

Covering fruit, vegetables, meat/poultry, fish/seafood, dairy and other commodities, the figures reflect the increasingly globalised nature of perishable cargo production and consumption and bode well for continued increase in reefer container demand over the coming years.





# Distribution focus

## America's service network continues to expand

**D**aikin added a number of new service centres and dealers in North and South America last year, and will continue to expand the service network in both of these important markets during 2011.

In North America, 2010 expansion included the addition of Northwest Container Services in Portland Oregon, Trealship Services, based in Winnipeg, Canada, and PA Yeoman Marine in Halifax, Canada.

For 2011, additional service centres are now being evaluated in the following locations:

- Atlanta, Georgia
- Chicago, Illinois
- Honolulu, Hawaii
- Memphis, Tennessee
- Newfoundland, Canada
- Savannah, Georgia

We already have two agents based in Savannah and a further two located in Chicago.

Expansion in South America during 2010 included the addition of DYCSA in Valparaiso, Chile, and Nielsen Cardelle Puerto Deseado in Mar del Plata and Rosario, Argentina.

For 2011, Daikin is planning further growth of the South American network. New service centres and dealerships are currently being evaluated for the following locations:

- Brazil – Rio Grande and Santos (additional service dealers)
- Chile – Valparaiso (additional service dealer)
- Colombia – Buenaventura, Cartagena and Santa Marta (additional service dealers)
- Costa Rica - Puerto Limon

- (additional service dealer)
- El Salvador - San Salvador
- Nicaragua – Managua

For more information on our North and South American service network, please email [info@daikinreefer.com](mailto:info@daikinreefer.com)

# Market focus

## First generation Daikin units enter second-hand market

As Daikin celebrates ten successful years for the LXE10E scroll compressor machine in the shipping and, more recently, leasing industries, owners are now starting to place their older units into the secondhand market.

Take-up is progressing well and Daikin is supporting clients to realise residual value from their initial investment with an education programme for wholesalers, dealers and domestic end-users of retired reefers.

*Daikin helps clients to realise residual value from their investment with an education programme for dealers of retired reefers*

This includes the well-received Daikin Touch & Feel (T&F) hands-on training sessions, to familiarise end users with the essential features and functions of the LXE10E. From 2009-2010, targeted T&F seminars for the second-hand market were held in Miami, Moscow, Oakland CA, Rotterdam, Singapore, Qingdao and St Petersburg. In 2011, further T&F sessions will be staged in Australia (Sydney), Brazil, Chile, Costa Rica, South China and South Korea (Busan).

As well having its first generation units enter the second-hand arena, Daikin is also enjoying sales of new units into the domestic market. As reported in our last newsletter, specialist companies such as ArcticStore and TITAN (now incorporating Boxtainer) are specifying new Daikin units for a variety of special projects providing portable cold stores, container cold stores and ambient storage solutions for clients in Africa, the Mediterranean, Middle East and Russia, among other regions.

For more information on Daikin's activities in the domestic and second-hand markets, email [info@daikinreefer.com](mailto:info@daikinreefer.com)



**As first generation LXE10Es enter the secondhand market, Touch & Feel sessions prove useful to wholesalers and dealers.**



# Innovation focus

## Daikin establishes Technology & Innovation Centre in Osaka



Daikin's new facility in Settsu City, Osaka Prefecture, will serve as a global centre of excellence in air conditioning and fluorochemical research.

**D**aikin Industries is establishing a global Technology and Innovation Centre (TIC) at its Yodogawa Plant in Settsu City, Osaka Prefecture. The new 58,000m<sup>2</sup> facility will serve as a technology development base. Air conditioning and chemical researchers will work closely with product development engineers from various company divisions, and the disciplines of mechanical and chemical engineering will be integrated with the fields of electrical and electronic engineering.

The TIC will bring together around 1,000 R&D experts from three bases in Japan. This will increase to 1,600 personnel in the future. The TIC will focus on promoting information sharing and communication. This will improve research

efficiency and speed to market in the development of core technologies, such as heat pumps, inverters, and fluorochemicals. Construction of the centre begins in May

*The TIC will promote world-class technology and develop environmental initiatives and new alternatives to heat pump technology*

2011 at an investment cost of approximately ¥30 billion (\$370.5 million) and operations are scheduled to start in November 2014.



As Daikin rapidly expands its worldwide presence in the fields of air conditioning and fluorochemicals, with emphasis on emerging markets, the ability to launch timely products to meet the specific needs of each regional market has become key to the company's further growth. Clarifying priorities and roles for a wide range of research and development themes is now essential.

While continuing to strengthen the local R&D function that discerns and incorporates local needs, Daikin also recognizes the need to have a single centre of excellence concentrating on themes that have universal applications and will greatly contribute to the overall global business, so that results can be quickly generated.

The centre will emphasize the development of core and common technologies, along with maintaining base model products. It will serve as the primary facility of the Daikin Group for promoting world-class technology

and innovations in development of 'global number one' environmental initiatives and new alternatives to traditional heat pump technology.

The TIC will be a training ground for overseas engineers to learn about shared values and Daikin's R&D methods. It will serve as a venue to encourage exchanges between

*A single centre of excellence concentrating on themes that have universal applications and will contribute to overall global business*

engineers from various fields inside and outside the company. The goal is to generate open innovation through the fusion of new technology and knowledge; to realize innovation through collaborative creation.

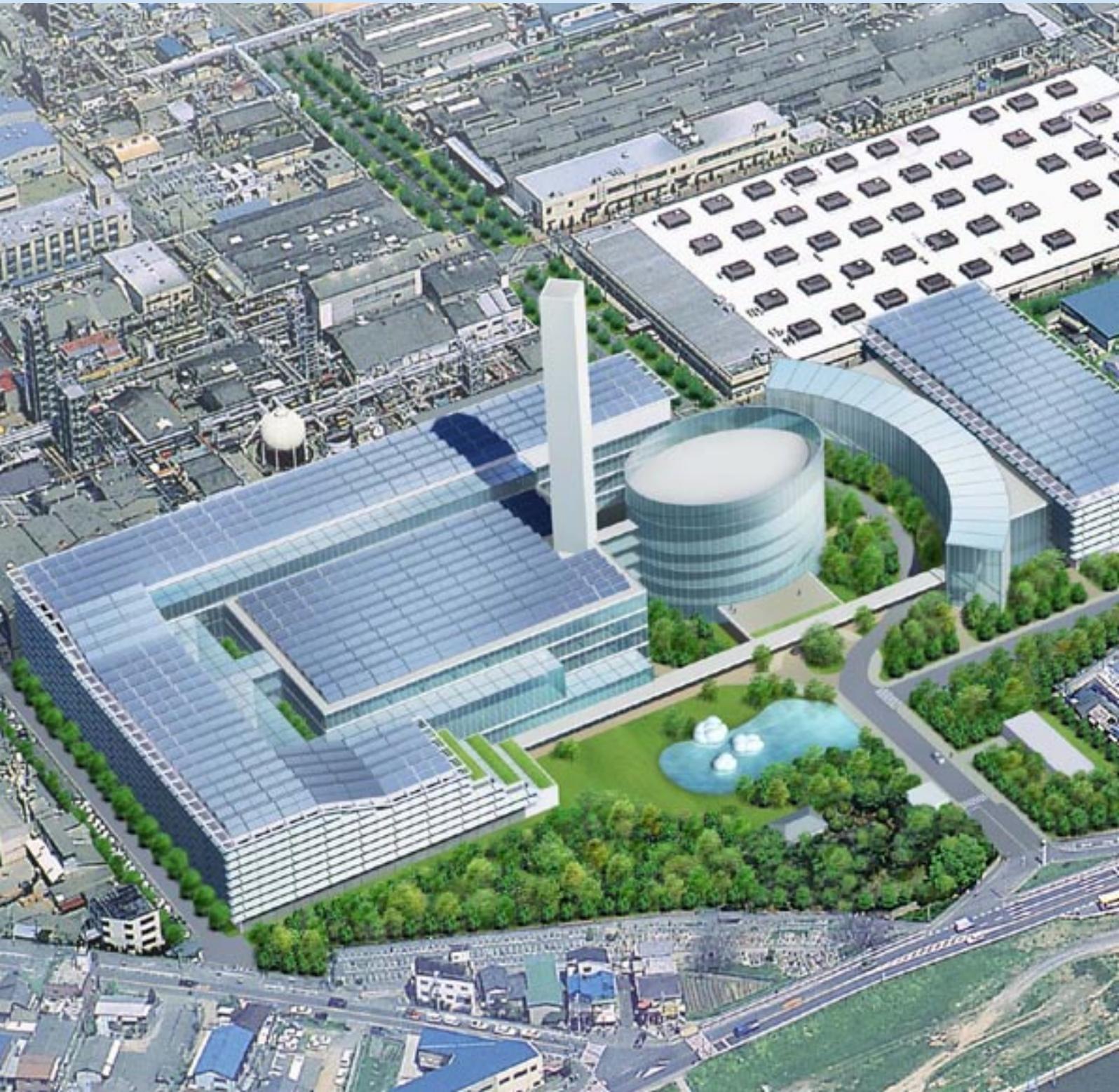
# World-leading facilities foster technology innovation

**The TIC will include an environment chamber and testing room designed to simulate the widest range of climatic and residential conditions.**

The environment chamber will be capable of simulating various environments found around the world, including ambient air temperatures from  $-40^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$ , plus sunlight, wind and rain. It will also authentically reproduce

the conditions of an actual residence. This is a major global facility for an air conditioner manufacturer and the potential is enormous.

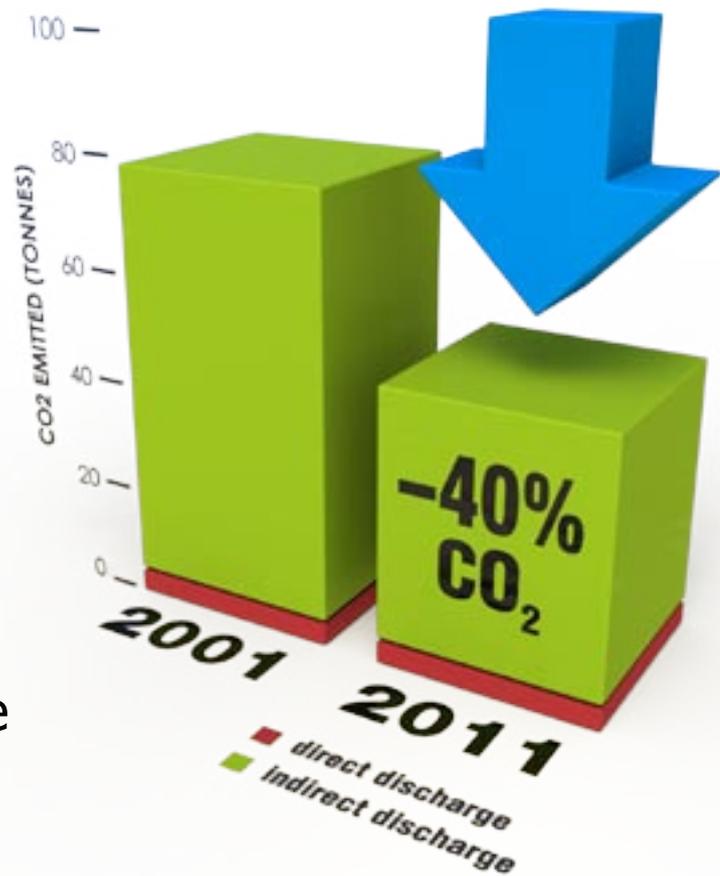
Testing with simulations of actual installation conditions in each regional market will improve product reliability. Daikin will be able to promote actual verification of renewed spatial value creation by enabling testing of an entire residence.



# Technology focus

## Daikin improves Life Cycle Climate Performance

Daikin is constantly working to reduce unit power consumption and thereby environmental impact. LCCP is a key component of this process.



**Life Cycle Climate Performance analysis has helped us to increase efficiency and reduce CO<sub>2</sub> emissions by 40% in ten years.**

Life Cycle Climate Performance (LCCP) was first introduced in 2004 at the International Symposium on New Refrigerant and Environmental Technology in Kobe, followed by the Earth Technology Forum in Washington DC. It has since become one of the key metrics for expressing and evaluating the global warming impact of air conditioning and refrigeration technology.

LCCP provides a 'cradle to grave' framework for analysis of energy consumption through the entire lifetime of a refrigeration or air conditioning product, identifying both direct and indirect contributions to climate impact. In the case of container refrigeration machinery, LCCP indicates the kilograms of CO<sub>2</sub> produced, consumed and/or leaked at each stage of the unit's production, operation and final disposal.

The two major measurements are direct CO<sub>2</sub> discharge, covering gas

*LCCP is crucial in evaluating the impact of refrigeration technology in global warming*

leaked or purged to the atmosphere during operation, and indirect CO<sub>2</sub> discharge, which covers energy consumption during operation.

Direct CO<sub>2</sub> discharge = Refrigerant volume in system x Refrigerant's GWP x Percentage of leaked or purged refrigerant

Indirect CO<sub>2</sub> discharge = Power consumption per year (kWh) x 12 years x Conversion to CO<sub>2</sub> kg from kWh

Direct and indirect discharge figures are added together to give the total LCCP. The higher the figure, the greater the global warming impact.

The chart above provides an LCCP comparison of the first Daikin LXE10E model in 2001 and the latest model in 2011. In both cases, it is important to note that more than 90% of LCCP is derived from indirect CO<sub>2</sub> discharge. In other words, power consumption during operations has by far the greatest impact on environmental performance and reducing this is the most important aspect for an improved LCCP calculation.

The effects of Daikin's ongoing initiatives to reduce unit power consumption can be clearly seen in the latest LCCP comparison, with the 2011 LXE10E coming in around 40% lower than the original model of 2001.

# New business

## McQuay wins contract for NYC's One World Trade Center

**D**aikin Europe NV announces that wholly owned Daikin subsidiary McQuay International has been awarded the contract to supply air conditioning for the One World Trade Center. Also known as the Freedom Tower, this is the tallest building in the proposed five-tower complex to replace the World Trade Center towers. The air conditioning system will consist of units custom designed to the project's specifications.

The system showcases the world-class capabilities of the Daikin-McQuay organisation to respond to customer needs, regardless of project size or complexity.



## DAIKIN people



**Arjan Bezemer**  
**General Manager**  
**Daikin Refrigeration Office**

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From 1 March 2011, Arjan Bezemer takes over as General Manager of the Daikin Refrigeration Office in Rotterdam, Netherlands. He replaces current GM Toru Hayashi, who has a new assignment and will be transferring to Singapore as Sales Manager for the Asia region.

Arjan has been Service Manager Europe, Middle East & Africa for Daikin Industries since September 2002. He first joined the reefer container industry in 1995 as a service engineer for reefer M&R specialist Smith Holland, following which he spent three years with Haffmans BV as Project

Engineer on a newbuild CO2 recovery plant, including cooling systems. Arjan will combine his existing duties with his new role as General Manager.

**Toru Hayashi**  
**Daikin Asia**  
**Servicing Pte Ltd**

Toru Hayashi is currently General Manager of Daikin's Refrigeration Office in Rotterdam. Toru will be transferred to Singapore as General Manager for reefer sales of Daikin Asia Servicing Pte Ltd, South East Asia

region. At the time of going to press, Toru's new contact details were not yet available. We will be able to provide them once he has taken up his new post.

