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# Airside INTERNATIONAL

Will global warming put an end to the need for snow clearance at major airports, except for a few places in the Polar regions? Absolutely not, says Airside's Chris Lewis. World temperatures may be rising, and there could well be fewer days with snow in many parts of the world, but snow still has the ability to take airport authorities, transport operators and even weather forecasters by surprise

## SNOW OR NO - THE SHOW MUST GO ON



Zurich Airport has a large fleet of snow-removal vehicles

**W**hen it does come, snow still has the ability to completely shut an airport down if it is not properly equipped, or if adequate plans are not in place. Coupled with this is the intensity of today's air traffic. Whereas in the past global aviation might have been able to function with the odd runway here and there closed by snow, the system is much less tolerant today. Runways must be kept open if humanly possible.

So the demands on snow clearance equipment will, if anything, arguably be greater than in the past.

Weather is, of course, notoriously hard to

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Welcome to the Winter 2016 issue of *Airside International*. The big recent news in the UK was its government's decision to opt for a new runway at Heathrow in an effort to meet the country's air capacity crunch, a move that was met with the mix of delight, anger and consternation on the part of various parties that had been predicted by all.

However it's highly unlikely that anything will be built for some years yet, as the proposals likely face legal challenges and even more political wrangling.

As well as the usual coverage of a range of challenges and concerns facing airport operators today, we talk in this issue to handler AeroGround Flughafen München's fleet manager about GSE management and to Glasgow Prestwick about its big plans for the future.

*Airside* was in the US recently to take a look at the latest on offer at the International Airport GSE Expo, while the issues facing today's ground support equipment manufacturers are not forgotten, as a New Zealand-based supplier talks to us about the view from the other side of the world.

We hope you enjoy the issue.



MIKE BRYANT | EDITOR

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Boschung snow ploughs work their magic at Zurich Airport

Both 2009-10 and 2010-11 had three winter storms that qualified as at least a Category 3 based on the Northeast Snowfall Impact Scale, whereas the severe 1995-96 winter didn't have as many storms of that ranking, and you'd have to go back to 1960-61 to find as many high-scoring winter storms in a single season as seen in each of the past two years.

**INTENSITY**

But at the UK's Met Office – one of the leading global authorities on weather – aviation scientist Claire Bartholomew says she does not think there is currently sufficient evidence to support the theory that snowfalls are getting less frequent but more intense. Although there is a projected reduction in the number of days with snow, there is still a huge amount of regional variation and the amount of snow can fluctuate enormously from year to year.

There is a lot of interest in general weather trends in the aviation industry, she adds – not just snow but effects like turbulence or convection. And while there has been considerable research on the effects of climate change, there have not yet been too many studies looking at its impact on aviation specifically.

Of course, there are parts of the world where it's a reasonable assumption that there will never be sufficient snowfall to justify investing in heavy-duty clearance equipment. A spokeswoman for Dubai Airports (yes, it has snowed in the UAE in recent memory, a couple of times in the past two decades or so) says that neither of the major airports there has invested in equipment because snow is such an infrequent event.

But in other parts of the world it is very different. Dan Meincke, director of traffic and airside operations at Copenhagen Kastrup airport, points out that it is often the speed, rather than the amount of snow that causes issues. "We have lots of sea around our airport, so we have something we call 'snow bombs' – and global warming will increase this phenomenon.

predict. It's impossible to know exactly what the weather will be tomorrow – even less so in 72 hours' time. Even in those regions where winter snow is a given, can we know exactly on what date the first heavy fall of the year will be?

Still less is it possible to gauge with any certainty what long-term trends in weather, or snowfall, will be. Writing in 2011 in the blog of research organisation Climate Central, just after the US East Coast had experienced a particularly heavy snowfall, weather expert David Kroodsma said that the best answer he could give to the question: 'Is climate change making snowstorms worse?' was: "Maybe."

Global warming might be reducing average seasonal snowfall over time, but from an airport perspective what is of equal interest is whether that snowfall comes from many small storms or fewer, bigger ones. In fact, the US East Coast had just seen an abnormally high number of major storms – defined as storms that dropped more than 10 inches over large areas – Kroodsma said.



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Snow bombs can occur right next to the airport and we often have only 20-30 minutes to be ready for 10-20cm of snow.” Basically, cold air blowing over relatively warm water creates lots of snow, which the prevailing wind then deposits over Kastrup.

Like other airports, Kastrup aims to be open 24 hours a day, every day of the year, so employees in many other departments – firemen, bus drivers, marshals and others – lend a hand during snowfalls. Meincke observes: “We have employees with a lot of soul and spirit, and that means a lot.”

Kastrup favours eco-friendly, multifunction vehicles that can be used for both summer and winter operations, “easy-to-maintain, standard products” that are straightforward to look after and which use readily available, standard spare parts. “We try to be eco-friendly, with particulate filters, alternative fuel solutions,” Meincke notes, adding that autonomous robotic equipment may be of interest in future.

Likewise in the US, Denver International Airport (DEN) also favours multifunction equipment, which it says is “a primary requirement to ensure more capability with a smaller fleet”.

New stricter emission regulations have now been fully implemented at Denver which means that engines’ emission systems have been more complicated by after-treatment systems such as particulate filters and diesel exhaust fluid (DEF); managing DEF is a new issue both for operators and technicians.

But the new multifunction snow units offer improved performance and potentially could mean savings on labour costs: GPS and telematics allow better tracking of vehicle movements and route planning, while also monitoring vehicle idling statistics.

Aero Snow Removal is Denver’s ramp snow removal contractor. The airport does though manage its operation in terms of the quantity of equipment and number of staff required, start and stop times, and when snow melters are mobilised.

As with major gateways, Denver’s expectation is never to close if at all possible. As to whether snowfalls are getting more unpredictable, Denver had 78 inches of snow three years ago and 72 inches last year, “so it’s been fairly consistent”.

Bob Kerlik, vice president of media relations at Allegheny County Airport Authority, which operates Pittsburgh International Airport on the US East Coast, says that among the many factors to consider in buying snow clearance equipment are reliability, reputation, parts availability and price. “We want a machine to last 20 years that meets 100% of the required specifications,” he explains.

Some airports are looking to multifunctional pieces of equipment but others are quite happy with two separate apparatuses, he adds.

New equipment has to meet Tier 4 emissions standards, “which leaves some unknowns of what the impact will be on



the engines of these large pieces of equipment,” Kerlik points out. There are also considerations in managing de-icing fluid run-off, he adds.

New equipment also tends to feature GPS and electronic chemical tracking, using modern sensors and computers on vehicles.

#### PRIOR PREPARATION AND PLANNING

But preparation is everything in successful snow clearance, Kerlik says. Pittsburgh usually starts its planning in August, to prepare for the first anticipated snow event in late October or early November. Equipment preparations for the following year start after the last snow event of the season, usually March, with preventative maintenance checks and necessary repairs. Sufficient supplies are stockpiled prior to the season and replenished as required.

‘Dry-run’ training is also performed to refresh employees prior to having to deal with an actual winter event.

Each winter season is different and a winter plan is prepared annually and reviewed by all. Weather experts are also contacted prior to the season for short- and long-range forecasts and they are consulted at least three times per day for updates to conditions, expectations and changes.

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**S W I S S P R E C I S I O N**



Kerlik points out that while very few airports in the US permit contractors on the actual airfield, gate areas are typically cleared by airlines with their own equipment – or they may use contractors.

Snow can, of course, cause problems on the roads and transport systems outside the airport, which could prevent vital employees making it in to work to perform snow clearance duties. So, when a major weather event is expected, crews arrive beforehand and are prepared to stay throughout in emergency accommodation – which include a kitchen and bunk rooms at Pittsburgh to allow personnel to stay on site as long as necessary.

As for whether staff can make it to the airport in the first place, Kerlik notes that the gateway is surrounded by interstate highways, which are typically well cleared by the state authorities. (It's often said that places that experience a lot of regular snow cope better than places in temperate climates like London, where snow is less predictable and the road authorities less well equipped, or possibly less ready, to deal with it.)

Is there now more of an expectation that airports must stay open, whatever the weather? Kerlik opines: "It's always been that way in the US and at Pittsburgh International Airport. The national airspace system is heavily impacted if any airport closes. Safety and security are always the top priorities at Pittsburgh International and we take pride in the great snow removal reputation here."

Also in the US, the Port of Seattle – which manages the local airport, Seattle-Tacoma (Sea-Tac) – looks for "a cost-effective and safe means for clearing snow and ice. We look for modern, multifunction equipment that is operator-friendly, meets our strict emission standards and can be upgraded as technology evolves."

There aren't really any environmental or emission standards for snow removal equipment as such, it says, but the airport tries to find the most environmentally friendly machines available while still maintaining high operational standards. Seattle, in fact, rarely gets snow but calls in contractors when two inches or more are forecast; they are called to stage equipment prior to that event.

Global warming or not, Zurich Airport "always needs to be prepared for long and heavy winters". Despite its situation in the heart of the Alpine region, it proudly boasts that it has never had to close its runways during winter or due to weather disruption.

Even here, though, snow clearance equipment has to pay for its keep. One criterion in its selection process is that it should be usable for other tasks during the off-season.

As well as fulfilling safety and environmental criteria – although Switzerland is outside the EU, Zurich looks for equipment that complies with EU norms in terms of pollution and noise – other factors to consider are price (both the purchase price and the cost of maintenance during its life cycle), how long the delivery of spare parts takes and even the quality of the instructions provided.

New equipment also needs to be compatible with the current fleet, easy to handle, offer good performance – and it should be corrosion-proof.

Overall, the lifecycle of equipment at Zurich is anticipated to be between 20 and 25 years, says the airport.

Wherever possible, Zurich Airport invests in alternative technologies such as electric drives, but as continuous operation during winter is a main goal, any new technologies have to be at least as reliable as the older ones.

Munich Airport, as a major German intercontinental hub, puts much effort into ensuring that it remains open, even during difficult weather conditions, says aviation vice president

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Alexander Hoffmann. The gateway has invested “to a great extent in the purchase of state-of-the-art winter service equipment, weather forecast technologies as well as the continuous training of employees”, he reports.

As well as meeting technical and operational requirements, the acquisition costs and annual maintenance costs are important and, not least, the lower the CO<sub>2</sub> emission the better (at least ‘Euro 5’ standard).

On-call or on-demand provision and service of staff, vehicles and material is, however, becoming more and more challenging, Hoffmann continues. Moreover, the co-ordination and interfacing with all entities involved in winter service – air traffic control, weather service, apron control, airlines and aircraft de-icing – is more complicated and comprehensive due to extreme weather conditions which can occur more rapidly and intensely. Around 90% of snow clearance and removal at Munich Airport is outsourced to subcontractors but controlled and co-ordinated by the airport’s directors of operation. ■



Some of Copenhagen Airport’s fleet of vehicles dedicated to combating the harsh Scandinavian winter weather



A snow blower in action at Copenhagen Airport



Schmidt snow blower and MAN truck in operation at Switzerland’s Zurich Airport



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# Throwing light on AGL

The scale of the airfield ground lighting (AGL) infrastructure at the world's big airports is huge. It all has to be maintained, and upgraded as funds allow. The example of two large US airport hubs puts the nature and size of the challenges of lighting runways, taxiways, stands and all other areas of the airside environment into perspective

**O**'Hare International Airport encompasses over 7,200 acres of land just west of Chicago, and has no less than eight active runways and associated taxiways; an additional runway is also currently under construction.

There are more than 15,000 runway and taxiway in-pavement/elevated light fixtures and more than 2,000 guidance signs on the airport. All elevated taxiway, in-pavement high-speed centreline, in-pavement guard and elevated runway guard lights, plus touchdown zone light fixtures are served by modern LED lighting with heaters.

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## Fraport looks ahead

BJORN VIETEN, SENIOR CONSULTANT on airside development for Frankfurt Airport operator Fraport, has plenty of experience when it comes to the sophisticated automation of airfield lighting systems. He was in around the start, about a decade ago, of the 'Follow-the-Greens' programme that has developed a system for switching taxiway lights to green as relevant to guide individual aircraft or vehicles along their ground route on the airport surface. And he and his colleagues are still very much involved in these kind of complex technologies today.

Follow-the-Greens, which *Airside International* took a good look at back in 2013, is now much more than a concept under validation. It is in operation at a growing number of airports around the world such as Dubai International, Seoul Incheon and Singapore Changi, while many others have implementation projects either currently running or in preparation.

Airports are going ahead with Follow-the-Greens because the concept and systems involved have completed final validation activities that prove the safety, interoperability and operational capabilities of the technology. The latter includes the shortening of taxi times and savings on both fuel costs and the emissions created while taxiing, as well as significant reductions in controller and flight crew workload and improved situational awareness in towers and cockpits.

Fraport was one of the six big European airports that joined forces in the SESAR European Airports Consortium (SEAC): SESAR, the Single European Sky ATM Research programme, has benefited not only from Fraport's involvement but also Aéroports de Paris', Heathrow's, Munich's, Schiphol's and Zurich's. All these gateways have to some extent concerned themselves with automating their airfield infrastructure in ways more or less approximating to the Follow-the-Greens concept, though in different ways and to different extents.

Together with the other partners in SESAR, SEAC helped to turn Follow-the-Greens into the so-called 'SESAR solution', a fully developed and documented concept. Two validation exercises performed in Frankfurt were major milestones in that process.

Beyond the definition and validation of the concept, Fraport and other SEAC partners are also actively involved in integrating mature and beneficial solutions and the corresponding enablers into the relevant standardisation documents. While this explicitly includes Follow-the-Greens at this stage, Fraport's overarching objective is to never restrict airports to one specific technology, but to leave the door open for alternative solutions and for a selection process based on a local business case.

The associated standards and regulations are currently developed under the responsibility of organisations such as the European Aviation Safety Agency (EASA), EUROCONTROL, EUROCAE, and the European Telecommunications Standards Institute (ETSI). In a few months, work on a globally relevant International Civil Aviation Organization (ICAO) document will commence and Fraport will also be involved in that.

In general, all functions of an advanced surface movement guidance and control system (A-SMGCS), including Follow-the-Greens, depend on adequate surveillance quality. Nowadays, surveillance at airports is usually resourced by information from radar systems fused with sophisticated positioning information from

multilateration systems that measure running times between the transmitters of aircraft and vehicles and a network of receiving antennas on the ground. The resulting synthetic surface situation is then enriched with flight plan data and displayed to the controllers. At Frankfurt Airport, Fraport has a team of experts working on maintaining and further developing the surveillance system, as well as all necessary equipment – including a mobile multilateration unit.

In addition to the efforts being made to optimise the existing system, Fraport is also looking into new technologies that may help to overcome the limits of radar and multilateration when it comes to factors like precision and probability of detection. A partnership with an innovative German/Croatian company called MobilisS GmbH has led not only to patent applications, but also to initial but promising results concerning the capabilities of using earth magnetic field sensors for aircraft and vehicle detection and identification on the airport surface.

Vieten believes it is highly likely that Fraport can prove in the near future that these sensors can deliver unprecedented detection accuracy, the capability to identify aircraft types based on their specific influence on the earth's magnetic field, and precise heading information – all at a low cost, with easy implementation and full independence from any kind of influence, including solar storms. More than 10 potential applications have already been identified, including use as holding position protection systems and as an improved docking guidance system.

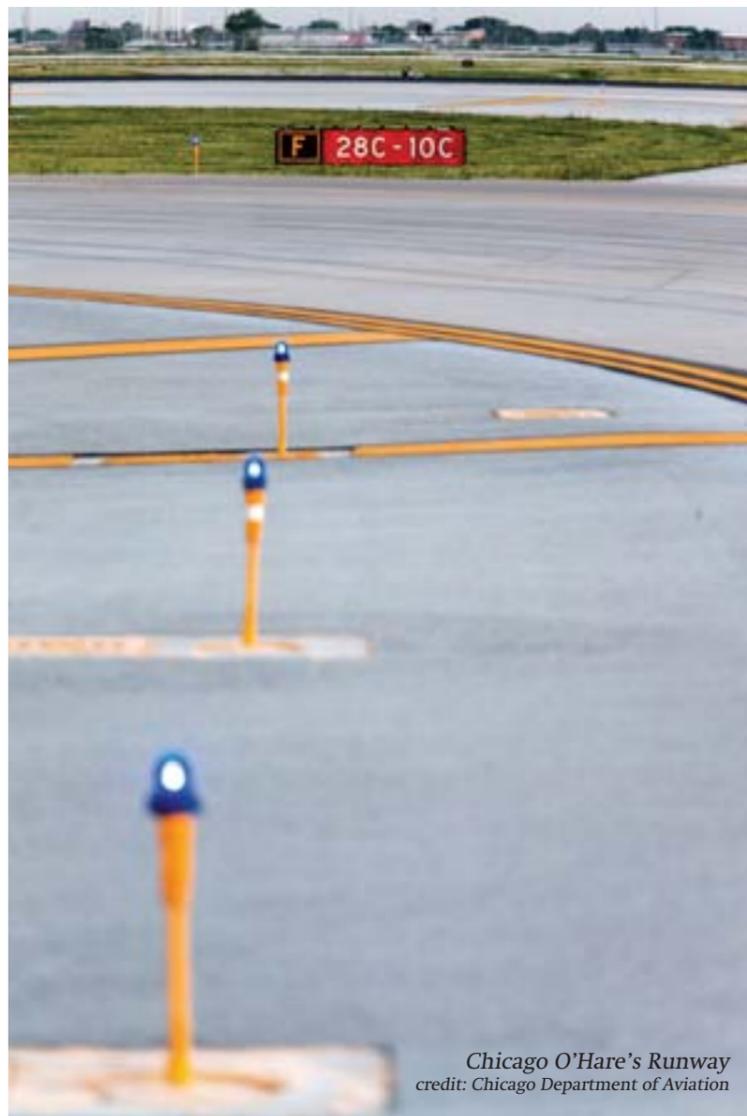
Currently, Fraport is running a major project in terms of introducing an integrated Apron Controller Working Position (ACWP) into its apron control towers. Following the concept definition and an elaborate requirements engineering process, the project is now in the procurement phase. The replacement of the existing system environment is at the core of the project, as it currently consists of various individual tools with multiple screens and input devices. The new system is to be a state-of-the-art integrated solution with only one touchscreen acting as interface to the users.

The integrated character of the new working position and its basic functions, such as surface safety nets, are expected to deliver improved situational awareness for controllers. Furthermore, the new system will contain additional features supporting recently developed A-SMGCS functions – eg, the integration of holistic traffic pre-planning solutions – and will also support the integration of future guidance concepts/operations.

The current phase of the ACWP project, as well as further implementation projects at Frankfurt Airport, is co-funded within the framework of the INEA CEF Transport Call of the European Commission. Fraport appreciates the EC endorsement, "as it not only supports the company in improving operational efficiency, but also in contributing to the ambitious objectives defined in the Single European Sky initiative", explains Andreas Eichinger, head of strategic projects and deployment at Fraport AG.

The Implementing Regulation IR716/2014, which builds on the SESAR results, and the corresponding funding framework, show that the importance of airports for the network is recognised by the EC, he considers. "We appreciate this view and we are looking forward to further strengthen the co-operation with all partners in the ATM community," Eichinger concludes. ●

At Frankfurt Airport, Fraport has a team of experts working on maintaining and further developing the surveillance system, as well as all necessary equipment



Chicago O'Hare's Runway  
credit: Chicago Department of Aviation

Currently, O'Hare's runway elevated edge lights are of the older halogen variety, but these will eventually be converted to LED once approved for use at O'Hare by the Federal Aviation Administration (FAA), a spokesperson for the Chicago Department of Aviation (CDA) – operator of the airport – confirms. Its light fixtures were, in the main, manufactured by ADB (now ADB Safegate), and most of the airport's guidance signs are of Lumacurve manufacture.

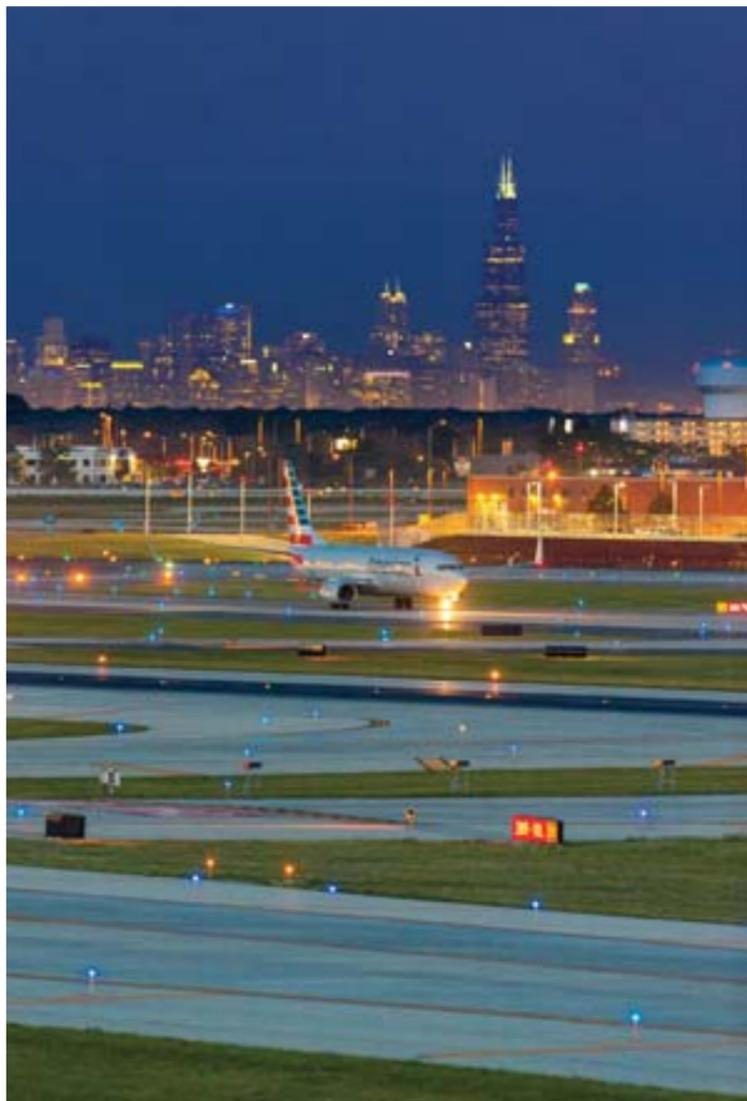
O'Hare's airfield lighting system has changed over time due to new technologies becoming available, especially with respect to the move to LED. "We also look for signs and lights that will hold up through difficult weather conditions in order to ensure that Chicago maintains the air operations area completely safe for daily operations," the spokesperson notes.

Indeed, the biggest maintenance challenge facing Chicago O'Hare in regard to its airside infrastructure relates to the winter weather it experiences, CDA explains. Ice can be damaging to electrical circuits and in-pavement fixtures, while electrical grounds can result from glycol. Lights are also occasionally knocked down by vehicles and snow-removal equipment, while signs can be blown down by aircraft jet blast.

To meet the challenges, O'Hare's airfield maintenance team is performed by a well-trained staff of airfield-certified electricians that, CDA says, "take pride and ownership of the air operations area".

O'Hare replaces about 20-25 airfield lights each week, many of these having been knocked down by vehicles during





snow removal operations in the winter time. The lights are replaced as soon as maintenance personnel have access to the area, this varying with the time of day and level of operations at the airport.

The move to LED has undoubtedly improved efficiencies and reduced maintenance costs at O'Hare, the airport operator considers. "These were low-hanging fruit for the CDA to incorporate through regular maintenance," it points out. "The challenge now is to upgrade the airfield electrical vaults to take full advantage of LED reduced wattage."

"The CDA is in the process of replacing older and inefficient circuit regulators with programmable, smart CCRs (constant current regulators) in order to take full advantage of LED and substantially reduce energy consumption and associated costs," it confirms.

#### LED CONVERSION AT DENVER

Denver International Airport (known as DEN) has approximately 22,200 lights on the airfield. Originally, its airfield lighting had quartz fixtures but, confirms Kimberly Watanabe, DEN's airside engineering supervisor: "We have been working on converting these over to LED fixtures. There are now four of the six runways with LED centreline and touch down zone lights."

Additionally: "Most of the taxiway centreline lights have been converted to LED fixtures, though not on our gate and cargo aprons, but we have a project this spring to convert the gate apron taxiway centreline lights to LED."

In fact, about half of the airfield is now lit by LED, Watanabe explains, most of it ADB equipment.

Preventative maintenance for DEN's airfield lighting is performed during both the day and the night. The day shift is focusing on changing the quartz system to the new LED systems on taxiways, while the night shift works on re-lamping the quartz systems as needed. The quartz lamps are replaced in the field for elevated lights, but the in-pavement lights need to be refurbished in the shop, Watanabe informs. Quartz lamps are typically replaced within a year but flashing lights have a shorter life span. "We have been using in-pavement LED lights for five years now and very few have had to be replaced." Indeed, DEN has focused on switching over to a LED system primarily for the maintenance benefits associated with the new LED lamps, Watanabe remarks.

Looking to the future composition of DEN's airfield lighting system, the airport operator has undertaken an airfield lighting evaluation programme over this past year. This evaluation

## ADB Safegate: bringing it all together

AIRFIELD LIGHTING SPECIALIST ADB and gate docking specialist Safegate came together more than six months ago now. The boss of the combined enterprise, ADB Safegate, is delighted with the wide-ranging portfolio it can offer its customers, as well as the "holistic" way in which it can provide fully integrated airside systems to its client base.

"We have made great progress since we announced our merger back in March," says CEO Christian Onselae. "While looking at our own organisation, we're always keeping a close eye on our customers. Our main focus is the strategy of the new company, roadmaps and how to combine the best of both brands."

Bringing the two companies together has allowed the combined enterprise to provide a more 'joined-up' portfolio of products to its airside-operating customers. "We (now) offer a stronger combined portfolio that allows us to view airport operations in a holistic manner," Onselae informs. "We're better positioned to address customers' real-world challenges and deliver airport performance, rather than selling products or systems."

Customers certainly seem to have welcomed the merger. Their feedback, says Onselae, has been "overwhelmingly positive... The initial reluctance among some customers I guess is normal. The proof is in the pudding – customers are seeing the first results of our merger and they like it. We share their hunger to find the right solutions to congestion, sustainability, safety and so on. We are big and strong enough to handle the most complex projects but at the same time less complex to deal with."

"Future-proofing an airport lowers congestion, tackles weather issues like delays and cancellations, improves operating time, resilience and overall throughput"

#### SHEDDING LIGHT ON DEVELOPMENTS

"This year, we had an interesting challenge in terms of integrating the portfolios of the two companies," Onselae continues. "A challenge to revisit our portfolios and identify gaps – if any. This exercise led to a series of important changes that help us combine the best of both portfolios."

"Both brands offer the entire portfolio of airfield solutions – LED and halogen lights, complementary power solutions and AGL (airfield ground lighting) control systems. This will evolve to help our customers to maximise their return on investment and benefit from the lowest energy consumption around."

"Our industry is focused on capitalising the latest technologies, new electronics, LED lamps, etc. We are redesigning lights to prolong their lifetime and benefit from the latest progress in aerodynamics, material choice and feature sets. An airfield is not designed lightly. Developing and testing a high-quality fixture can take up to two years. We constantly monitor all technologies and decide which make sense to introduce, often in collaboration with key customers."

Supporting technologies have to be carefully considered and, Onselae observes, "There are ongoing developments on the power solutions side to capitalise fully on the benefits of LED lights. Airfield lighting can only fully

benefit from energy savings with power systems that are optimised for the technology and specific function at the airport."

Moreover: "Digital transformation and big data offer amazing possibilities. Through system integration, airlines and airport operators can benefit from sharing relevant data at the right time. While new techniques can take time, integration helps you to get more out of what you already have."

#### AIRFIELD SYSTEM INTEGRATION

Introducing new infrastructure in the form of modern AGL is one challenge; integrating it effectively in the airside environment is another. "One cannot underestimate the complexity of airfield technology and systems," Onselae warns. "Whenever you change lights and systems, often people need to undergo extensive retraining. On the system side, the complexity lies in integration."

However: "While the initial investment may be large, it often pays back huge rewards on the operational level. For example, future-proofing an airport lowers congestion, tackles weather issues like delays and cancellations, improves operating time, resilience and overall throughput. So, airfield lighting upgrades often come with quite an attractive overall return on investment."

Looking to the future, Onselae and his team are expecting to place further focus on issues such as energy efficiency, sustainability and safety. "As airports prepare for the coming wave of technology, our solutions should capture all these new trends relating to new light sources and solutions for controlling airfield lights. Beyond that, there's a clear trend towards more efficient operations, reducing turnaround times as airports tackle congestion and capacity issues."

"We are expanding our apron management offer to become a market leader in movements to and from the gate. Plus, our ATC offer has been expanding quite rapidly over the last five years."

"With air traffic constantly growing, we as an industry need to be more efficient. Not only to save cost for airports and airlines but also to save land and the environment in general. Airports need to do the most with what they have, putting more aircraft and passengers through less space." ●



"The 5 step CCRs allows us to have more control of the brightness of the LED system to match the quartz system"

Kimberly Watanabe

Denver Airport's lighting control computers



CCR in Denver Airport's East Lighting Vault

Right: On the apron at Denver Airport

process allows for prioritisation of associated capital improvement projects. "We have plans to continue the evaluation process by looking into circuit load calculations for the system, modifications to the Airfield Lighting Control Monitoring System and considering energy-saving strategies," says Watanabe.

Alongside the ongoing assessment programme, DEN will continue its efforts to replace its quartz AGL system with LED in concourse taxiways and runway complexes through capital improvement projects benefiting from FAA AIP (Federal Aviation Administration Airport Improvement Programme) grants. "This work has primarily focused on in-pavement centreline lights and we're also starting to include in-pavement hold bar lights," Watanabe points out.

However: "We have not replaced elevated edge lights. One reason is the cargo pilots still use the infrared signature from the quartz edge lights on the runway to assist in landing operations during inclement weather."

**LESSONS LEARNED**

"One of the lessons we have learned since converting to LED is that we switched from a 3 step to 5 step Constant Current Regulator (CCR) to allow for the brightness between LED and quartz lights," says Watanabe. "We had received feedback from the pilots about the vast difference in brightness when they would taxi between the two systems. The 5 step CCRs allows us to have more control of the brightness of the LED system to match the quartz system."

Finally, DEN has also built up an asset management team. This team keeps records of improvements made to airfield infrastructure, along with maintenance records. Several software programs are used to keep this information accurate and accessible to users. "This task is a great investment for DEN's future," Watanabe concludes. ■



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# Vital cog in the wheel

As well as the big GSE manufacturers that tend to dominate the market for airside equipment, we should not forget all the smaller suppliers who provide GSE to more remote regions. From its base in New Zealand, Flight GSE is one such company, which traditionally go under the radar but nevertheless as a whole represent a vital cog in the airside wheel. Flight GSE director Alan Peacock tells *Airside International* about the vital role his company plays

**F**light GSE was established in 2009 when we first moved out to our purpose-built factory at Rolleston, near Christchurch. We also own a firm called Independent Signs, which has been operating since 1989, but having relocated from Christchurch Airport to Rolleston, found that we lost a lot of our customer base (not being ‘Johnny on the spot’).

With spare construction capacity and two staff with great skills in design and fabrication, it then became a matter of looking to leverage those skills to build other products to meet the needs of our remaining aviation customer base. The idea behind (Flight GSE’s parent company) Flight Equipment Group was that we should have an umbrella ‘brand’ to meet those needs.

The company remains small; however, that doesn’t stop us tackling some interesting work. Flight GSE has a clearly defined target market of smaller airlines, particularly those in the South Pacific. Export clients include Solomon Airlines, Air Vanuatu, Fiji Airways, Air Rarotonga, Air Kiribati and Air Terminal Services in Tonga. We have products in places as diverse as Perth in Australia, Tarawa in Kiribati and Rarotonga in the Cook Islands. Our products are used by both civil and military operators, and from light piston twins to business jets and mainstream airliners.

*Just one of the many remote airfields whose operations Flight GSE seeks to support*



*Flight GSE equipment*



*Seghe Airfield Terminal in the Solomon Islands*

The Pacific Islands market was selected for a number of reasons – primarily because no one else seems to want to look after the smaller operators, quantities required aren’t taxing and with our design skills we are able to tailor-make equipment that actually meets the needs of these airlines, rather than offering a ‘one size fits all’ solution.

The products’ designs must be adapted to suit the environment. For instance, most fields are unsealed, originally crushed coral strips that date from the Second World War. Tugs are almost non-existent, meaning that it must be possible to hand-haul trolleys.

We market through personal contacts with the airline operators and the airports. This means that we value our membership of Aviation New Zealand, the Airports Association of New Zealand and the Association of South Pacific Airlines highly. This close association breeds an attitude of partnership with the airlines. This is epitomised by our support by way of donating LPV trolleys (LPV stands for low passenger volume) and other equipment for auction, with proceeds going to local charities. We recently donated an LPV trolley to the Rescue Helicopter Trust in Christchurch. Being able to have all of their mission-critical gear on a trolley that can be wheeled out to the helicopter for loading has shaved two minutes off their response time. That will directly translate into lives saved.

## MARKET UNDERSTANDING

Key to our marketing is understanding what challenges the operators face. There is no better way to do this than to go out to the islands to physically see them for yourself. My travels in the industry have taken me to Australia, Papua New Guinea, Kiribati, Solomon Islands, Vanuatu, Fiji, Tonga, Rotuma, and Samoa. Products we have designed and have in operation include standard baggage trolleys (2.4m x 1.2m decks) in Tonga, Fiji and the Cook Islands, LPV baggage trolleys (150+ in service,



including 58 domestically), passenger stairs, maintenance stands, potable water and lavatory carts, hangar furniture and hangar materials carts, and terminal services carts. We have also just delivered our first towable maindeck loader (which has a 4-tonne lift to a 3.7m height) and our first belt loader.

We also meld GSE manufacturing with signage. We have recently introduced a low-cost, rotationally moulded airfield marker, again with the South Pacific in mind. This is NZCAA Part 139-approved and will enable our Pacific Island airport clients to use a long-life, virtually maintenance-free product. Other items we have designed and built have included digitally printed advertising marquees and passenger baggage size check gauge signs. In terms of GSE, being able to use the services of our sign company allows full airline branding to be applied, so the end products look the part.

Clever design and the use of quality materials is a key selling point for us. It stems from the Kiwi 'No. 8 wire' attitude of being able to build and adapt things from available materials, and using clever thinking to give us a competitive edge. For example, many of the South Pacific Airlines might operate a single narrowbody jet (a B737 or A320, for example) on international services and turboprop or piston machines for domestic routes. Our LPV trolleys with their 1.6m x 0.8m deck were designed from the outset to fit through the cargo door of the B737 and A320 aircraft, meaning these airlines are able to uplift their GSE from New Zealand and take it home onboard their own aircraft to save freight costs.

We're also using the same clever design process to design and build an integrated aircraft wheel handling system. To this end, we have wheel dollies built that service aircraft from the B737 right up to the widebody A330 for ground handling and warehousing of the main and nose wheels of these aircraft. We are also currently building our first 'multi-lifter' that will have wheel handling capabilities. The third item in that line will be a wheel dolly trailer to move the wheels from the distribution warehouse to the ramp. By opting to design cleverly we are able to keep our costs down and quality up.



A portable water tanker which will be delivered to Tonga

We recognise that freight costs are a key factor in the purchase price of every item for an airline. This means, as a small company operating at the bottom of the world, that we will always be limited as to places where we can sell product. That said, we are looking to allow licence-building of some of the items we manufacture. Kiwis tend to be trusting and honest. As such, we believe that we can offer products to airlines under contract, so they can have the items built locally for their own domestic use (not for export). Such a philosophy means we could earn on an LPV trolley built in PNG for instance, while minimising freight costs to the client and helping create local jobs in their economy.

Perhaps that is naïve in our modern times, but I have found those in the airline industry to be amongst the most passionate and honest people I know. I believe the aviation industry breeds honest and fair operators, and as such allowing our products to be licence-built could be a key to assist our smaller airline clients to keep their costs in check. ■



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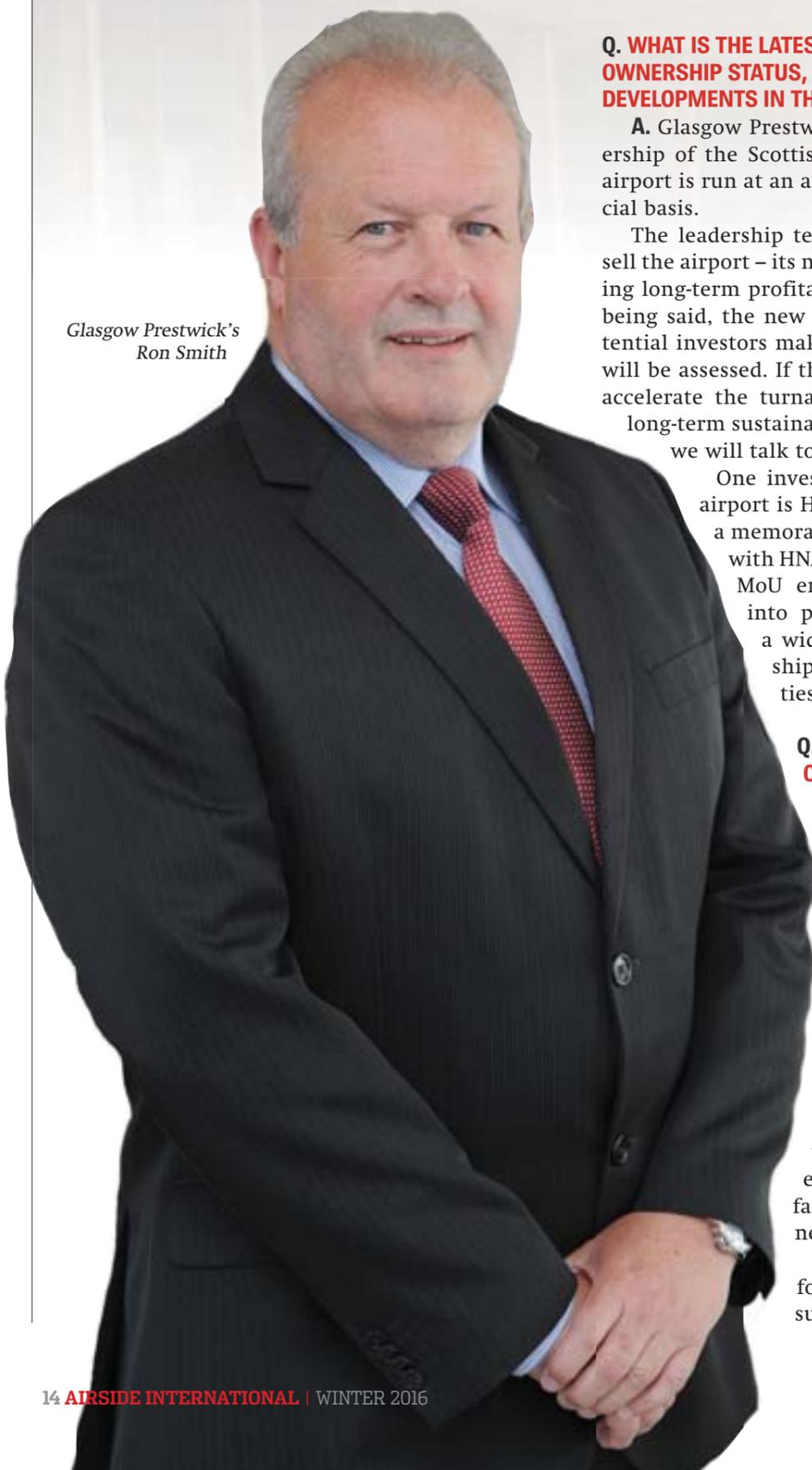
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# Managing change

There's plenty going on at Scotland's Glasgow Prestwick Airport. CEO Ron Smith spoke to *Airside* about how the airport operator is going about managing that change



Glasgow Prestwick's  
Ron Smith

**Q. WHAT IS THE LATEST ON THE AIRPORT'S OWNERSHIP STATUS, AND POTENTIAL FUTURE DEVELOPMENTS IN THAT REGARD?**

**A.** Glasgow Prestwick Airport is under the ownership of the Scottish Government. However, the airport is run at an arm's length and on a commercial basis.

The leadership team is not actively looking to sell the airport – its number one priority is developing long-term profitability and sustainability. That being said, the new leadership is clear that if potential investors make contact, then their interest will be assessed. If they have the potential to help accelerate the turnaround and the delivery of a long-term sustainable future for the airport then we will talk to them.

One investor who has approached the airport is HNA Group. The airport signed a memorandum of understanding (MoU) with HNA in London on 25 August. This MoU enables both parties to enter into preliminary discussions about a wide range of potential partnership and investment opportunities into the airport.

**Q. AMONGST THE MANY CHANGES OF LATE AT GLASGOW PRESTWICK HAS BEEN THE APPOINTMENT OF A NEW MANAGEMENT TEAM. CAN YOU TALK ABOUT THE THINKING BEHIND THAT?**

**A.** Glasgow Prestwick Airport completed its new leadership team with the appointment of myself as CEO in May. I bring more than 25 years of experience of operating at an executive level to Glasgow Prestwick, experience spanning aviation, manufacturing, technology and engineering.

Supporting me in my efforts to deliver a profitable and sustainable airport are Derek

Banks as finance and commercial director (who also joined in May), Mike Stewart as business development director (who joined in January), Jules Matteoni as operations director (who has 22 years' service), and Sonia Rafferty, human resource director (who has 16 years' service).

In the short time that I have been with the airport, I have identified the need to be much more proactive when it comes to selling the various services that the airport has to offer. As such, one of my first orders of business was to bolster the business development team. The airport has now appointed a passenger route development manager, David Craig, and a general aviation and military business development manager, Kris Ballie. This new team is led by Mike Stewart, who will focus on developing the airport's cargo business.

**Q. HAS IT BEEN A BUSY TIME FOR YOU SINCE THE NEW MANAGEMENT TEAM TOOK OVER? HAS IT BEEN A CASE OF A 'NEW BROOM' OR HAVE YOU SOUGHT A HIGH DEGREE OF CONTINUITY?**

**A.** At leadership level there has been a significant amount of change. The new chairman and Non-Executive Board decided to reshape the team to ensure that it had the right skills, knowledge and experience to drive the business forward.

Although there have been significant changes with the recruitment of a new CEO, finance and commercial director and business development director, there is still almost 50 years of experience working with Glasgow Prestwick Airport at the leadership team table through the operations and human resource directors.

The airport believes that this combination of experience from a range of industries and fresh thinking combined with the detailed knowledge of the airport, how it operates and its journey to date will be a winning formula.

It is important to remember that (as of October) the 'new' leadership team has only really had a full permanent complement for four months. It is still early days for the new leadership team and there is a bit of familiarisation and exploration required before setting out what the strategy will be moving forward. This team is working on the strategy now and it will be announced by the end of this year.

There are a lot of things at Glasgow Prestwick

Airport that make it unique and that work well. Central to this strategy will be identifying how we can maximise on the 'good stuff', whilst improving the areas that need attention.

The possibilities at the airport are vast and there are a lot of projects that we could undertake to improve our business. However, as with any business, we do not have limitless resources and we will need to prioritise, and therefore the change required may take time to deliver.

**Q. ARE YOU LOOKING TO EXPAND THE NUMBER OF FLIGHTS THROUGH GLASGOW PRESTWICK IN THE MONTHS AND YEARS AHEAD?**

**A.** Absolutely. One of the pillars of our strategy will be looking to grow across all of our business areas – including passenger, cargo, military, executive and general aviation. This is fundamental to delivering a sustainable business, as it will provide more resilience to changes in the airport's external environment.

In relation to the routes we will be looking to secure, we are working on delivering some domestic connectivity with London but we are also exploring a number of other international opportunities.

Glasgow Prestwick Airport is unique in its abilities to handle large and specialist cargo jobs and we believe that we will definitely be able to secure some business in this area in the coming years. For example, through an MoU between

the Scottish Government and Heathrow, we will be looking to create a cargo hub to transport materials manufactured in Scotland that will need to be moved down to construct an additional runway and terminal at the London airport, should Heathrow move ahead on a third runway.

We have invested in a dedicated immigration clearance facility for our fixed-base operator (FBO) customers and we hope to utilise this to attract private aviation customers visiting the west of Scotland (and these could be arrivals from all over the world).

**Q. DO YOU SEE GLASGOW PRESTWICK AS VERY MUCH A PROVIDER OF A BALANCED PORTFOLIO OF AIR SERVICES? WILL THAT CONTINUE TO BE THE CASE?**

**A.** Yes. The fact that we offer a full range of aviation services is one of our key selling points – if you need anything aviation-wise in the west of Scotland, we've got you covered! In fact, some of our services are unique in Scotland and even into the north of England.

A further benefit across many of our service areas is that they are managed end-to-end by the in-house team. This streamlines the process and delivers savings for our customers. It makes us a very straightforward airport to work with, where customers can have one point of contact that will co-ordinate the delivery of everything you need – from facilities to fuel.



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It is also important to remember that our service offering goes beyond handling and landing-related services. We have a diverse property portfolio including offices, warehouses and hangers. This makes a significant contribution to our revenue.

We are keen to build on our current tenant list and attract more aerospace companies to establish a presence at Prestwick. Building on this has knock-on benefits. It can enhance our appeal to our aviation customers through having services like maintenance, repair and overhaul (MRO) on-site. We recently announced that Chevron would be setting up a facility at Prestwick. It will join Prestwick Aircraft Maintenance, meaning that we will have two major MRO providers on our airfield.

In addition to developing our existing portfolio, we will also be looking at ways in which we can diversify within the aviation sphere. Glasgow Prestwick Airport has always been pioneering and, as such, we are looking to secure a licence to be the UK and Europe's first spaceport. This will offer a further revenue stream and hopefully more opportunity and sustainability.

As we said previously, ensuring that we achieve a balance across all of these areas will enable us to deliver a sustainable and resilient airport.

**Q. CAN YOU TALK ABOUT YOUR PLANS TO BECOME A SPACEPORT?**

**A.** On 20 May this year, the UK Government announced its decision to cancel the bid process for a UK spaceport and replace that with a licensing framework. This will enable a broad range of commercial spaceflight operations to be established in the UK.

The types of commercial space operation that the UK Government is potentially aiming to license include:

- Horizontally launched sub-orbital spaceplane operations for microgravity experiments and passenger spaceflight experience
- Satellite launch into orbit from horizontally launched sub-orbital spaceplanes

- Vertical satellite launch systems and recovery

Glasgow Prestwick Airport is now engaging with the Civil Aviation Authority (CAA), Department for Trade (DfT) and the UK Space Agency to establish the licensing criteria for operating a spaceport in the UK. We expect to become the first fully licensed operational spaceport in the UK, with minimal investment required to achieve this.

We see our opportunity in this area lying in terms of:

**REUSABLE LAUNCH SYSTEMS**

Glasgow Prestwick Spaceport is a prime location for the development and operation of reusable horizontal space launch systems with safe over-water take-off paths. The infrastructure for such systems is largely already in place.

The on-site broad-based aerospace industry has the science, technology, engineering and mathematics knowledge and skills and experience to help make this happen.

The existing broad-based AeroSpace infrastructure that surrounds the Glasgow Prestwick Spaceport will be able to provide immediate technical and engineering support to any new space launch operator choosing to use the spaceport.

**SATELLITE LAUNCHES**

Glasgow Prestwick Airport sees itself as the prime location for polar orbiting and sun-synchronous orbiting satellites given its northerly latitude. There are very few higher latitude sites.

The accessibility of the site, along with the favourable climate conditions, makes it one of the most cost-effective and lowest risk polar launch sites.

The airport's experience in specialist and heavy cargo handling and its developed and capable aerospace industry make it an ideal location for any mission preparation activity – missions can then be deployed from Prestwick to any launch site around the world.

Glasgow Prestwick Airport is familiar with managing the



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#### SAFE LANDING SITE

Glasgow Prestwick Spaceport's location on the European western seaboard with clear over-sea approaches also makes it an ideal emergency landing site for aborted US space launches and planned or emergency de-orbits for any horizontal landing spacecraft.

The spaceport's heavy cargo handling capability, coupled with the extensive on-site aerospace engineering infrastructure, ensures that a landed spacecraft can be quickly secured and shipped back to any location on the planet.

#### Q. WHAT OTHER PLANS DO YOU HAVE? DO YOU INTEND TO INVEST FURTHER IN YOUR AIRSIDE INFRASTRUCTURE AND FACILITIES?

**A.** The airport's core infrastructure – for example, the runway – is in good condition as there has been a rolling maintenance programme. However, beyond these core parts of our infrastructure, one of the challenges that we have is that the previous ownership heavily under-invested in the airport. We need to bring a lot of things throughout the airport up-to-date.

As we progress with the development of our strategy, we will develop investment plans. We will be looking at things like our property, equipment and a number of other areas. Key considerations in our investment plans will be improving efficiency, effectiveness, safety and, importantly, sustainability.

There are a number of investments that we know are required, so we have proceeded with finalising the overarching strategy. This includes investment in a new radar system that will help to mitigate wind farm clutter. We've also invested in equipment to improve our efficiency and passenger experience – for example, a new ambulift to assist passengers with reduced mobility (PRM). We are also changing to electric vehicles where possible. ■

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Frederik von Blomberg talks to *Airside* about his role as GSE fleet manager for handler AeroGround Flughafen München GmbH

# Staying grounded

**Q. WHAT IS THE SCALE OF THE GROUND SERVICES OPERATIONS YOU SUPPORT, AND THE SIZE OF THE GSE FLEET THAT YOU OPERATE AT MUNICH AND IN BERLIN?**

**A.** AeroGround Flughafen München GmbH currently handles more than 600 flights a day. Our subsidiary AeroGround Berlin GmbH is responsible for around 120 movements at the two Berlin airports of Tegel and Schönefeld. Overall, AeroGround's GSE fleet management team is responsible for nearly 1,000 motorised pieces of equipment and over 3,000 other mobile assets.

**Q. ARE YOU GROWING YOUR GSE FOOTPRINT AT MUNICH OR BERLIN?**

**A.** At Munich, the amount of GSE in use has remained stable in recent times, with no significant ups or downs. In addition, the near future will not show major changes until either commercial conditions change or the decisions about important infrastructure measures are made.

With the acquisition of Acciona Airport Services Berlin GmbH, including all equipment and the one-to-one transfer into AeroGround Berlin GmbH, the overall footprint at both Berlin airports remained the same. Future growth here, however, will definitely lead to an adjusted setup.

**Q. WHEN IT COMES TO ACQUIRING GSE, DO YOU TYPICALLY LOOK TO BUY OR TO LEASE EQUIPMENT? WHAT FACTORS WILL AFFECT THIS DECISION?**

**A.** Typically, AeroGround invests in its own equipment. This has proven to be the most economical solution. In addition, it gives us the opportunity, together with our supplier, to acquire equipment according to the specifications needed for AeroGround's operations. But, for short-term requirements, GSE rental is an option.



**Q. LIKewise, WHEN IT COMES TO REPLACING GSE, WHAT WILL DETERMINE WHEN GSE IS TO BE REPLACED AND HOW WILL YOU DETERMINE EXACTLY WHAT SHOULD BE ACQUIRED?**

**A.** There is one main reason why we take GSE out of service: if maintaining operational readiness becomes uneconomic, perhaps due to rising maintenance costs. The decision about GSE specifications is a joint effort involving the operations departments and other stakeholders under the leadership of the fleet management team.

**Q. PRESUMABLY, YOUR PRODUCT REPLACEMENT CYCLES DIFFER ACCORDING TO THE TYPE OF UNIT INVOLVED, AS WELL AS MANY OTHER FACTORS?**

**A.** AeroGround has no general replacement cycles in place. The lifetime of GSE is primarily based on the reliable availability of spare parts, provided compliance to GSE KPIs (key performance indicators) related to safety and operational quality is maintained.

**Q. ARE THERE FAVOURED GSE SUPPLIERS THAT YOU TURN TO FIRST, OR WOULD YOU CONSIDER ALL MANUFACTURERS WITHIN AN OPEN TENDER PROCESS?**

**A.** As a public entity, AeroGround is bound by European law regarding the acquisition of new GSE, which results in tender processes. These are open to all suppliers. We prioritise having a good relationship with all manufacturers.

**Q. ARE THERE MANY PRESSURES OTHER THAN FINANCIAL OR PERFORMANCE-BASED ONES THAT WOULD AFFECT YOUR CHOICE OF GSE (AND MANUFACTURER)? FOR EXAMPLE, WOULD THE ENVIRONMENTAL IMPACT OF ANY GSE YOU ACQUIRE BE A FACTOR?**

**A.** Munich Airport has consistently pursued its

goal of going CO<sub>2</sub> neutral by 2020. AeroGround supports this effort with the procurement of 'green' GSE. Already, 25% of the motorised GSE fleet is electrically driven.

Where an e-version is not available or the TCO (total cost of ownership) vis-a-vis conventional engines is uneconomical, we order GSE with the latest diesel technology to minimise emissions.

**Q. HAS THE CHANGING NATURE OF THE AIRCRAFT YOU ARE ASKED TO HANDLE AFFECTED WHICH GSE YOU CHOOSE TO ACQUIRE AND TO OPERATE?**

**A.** Over recent years, AeroGround has procured where possible equipment with the widest possible range of usability – such as steps suitable for both narrow- and widebody aircraft. This flexibility has proven itself, reducing the number of different variants of the same type of GSE.

Ongoing monitoring of both aircraft as well as the GSE industry puts us in a position to act fast should the need for further adjustments arise. ■

“The decision about GSE specifications is a joint effort involving the operations departments and other stakeholders under the leadership of the fleet management team”



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Lufthansa is just one of many AFS on-airport refuelling customers

# Topped up

The business of on-airport refuelling continues to evolve, as new technology becomes available, new gateways are constructed that require associated fuelling infrastructure and as requirements change. The big into-aircraft fuel suppliers are keeping up though

One of the big names in on-airport fuel provision is Cavotec, whose UK managing director Gary Matthews also wears a number of other hats – amongst them serving as the company’s market unit manager for its Airports unit (Cavotec’s other units are Ports & Maritime and General Industry).

The big news of late for Cavotec’s airport-based fuelling business concerns its deal with Ordinat, the Izmir-based fuel system installation specialist, for Cavotec to provision approximately 800 fuel pits at what is currently known as Istanbul New Airport (the massive gateway being constructed and operated by Istanbul Grand Airport, or IGA). Each hydrant includes pipework, under-hydrant ball valve and hydrant valve. It represents the biggest new airport fuelling

system project under way anywhere around the world, Matthews points out.

The order was signed in June this year, and Cavotec has already begun manufacturing the systems. Deliveries of fuel hydrant pits, fuel valve isolation chamber covers, fuel low point drains and high point vent pits will continue in a phased process until the end of 2017, Matthews confirms.

In addition to the Istanbul order, Cavotec also recently secured the purchase order for pits to be located in the Midfield expansion of Hong Kong International Airport (HKIA). This project will involve approximately 80 fuel hydrant pits, 20 fuel valve isolation chamber covers, 60 fuel low point drains and high point vent pits. Cavotec will begin supplying the systems this year and continue the process into next year.



Cavotec UK managing director Gary Matthews

Cavotec offers a full range of at-gate, at-hangar or on-stand support services, including in-aircraft refuelling (top right)

Cavotec supports refuelling operations at many US gateways, including Las Vegas McCarran Airport (bottom right)



**FULL FUNCTIONAL RESPONSIBILITY**

Cavotec does more than manufacture and supply airfield refuelling systems and equipment. It offers a full range of at-gate, at-hangar or on-stand support services – involving not only fuelling, but pre-conditioned air (PCA), 400Hz power and ‘wet’ services such as handling fresh water provision and lavatory water changes. “We can do the stand layout and design for the in-ground pit systems; on some projects we have carried out the installation, or we can just supervise installation, as well as provide all the equipment,” Matthews explains.

Acting as a one-stop shop, Cavotec will offer the customer performance guarantees, adopting what Matthews describes as “full functional responsibility”. Given that Cavotec can manufacture and supply the majority of the equipment itself, alongside acting as a systems integrator, it is well placed to do so, he notes.

And it is not just in the civil market that Cavotec offers its wares. It includes many military customers amongst its client list, supplying hydrant systems and pantographs to support the unique needs of military customers – some of whom require, for instance, ‘hot fuelling’, the potentially dangerous process of refuelling an aircraft while its engines remain running.

**EXPANDING FOOTPRINT**

Another on-airport fuel supplier growing its presence in this market is Air BP, which – it says – “continues to expand its network worldwide so that customers can source Air BP reliability at even more locations”. Indeed, Air BP has added 200 new global locations over just the last two years.

Air BP announced at last year’s National Business Aviation Association (NBAA) convention a new partnership with fixed-base operator (FBO) Signature Flight Support, and the implementation of that collaboration was completed in August this year. The Signature deal added 62 new FBOs in the US to the Air BP network, which, a spokesperson remarks,



*Air BP has a growing international network of on-airport fuelling operations*

“firmly positioned the business in the world’s largest general aviation market”.

In addition, Air BP has maintained a number of joint ventures in other countries. It is, for example, the only international company to have a fuel joint venture in China. “We also work in a joint venture with LOTOS in Poland and we continue to strengthen our presence through investment in South America – in June this year, we signed a 50/50 joint venture with PBF in Peru, which gives us entry into a third South American country (we were already present in Chile and Brazil),” the spokesperson says.

Going a little further back, Air BP acquired Statoil’s aviation fuels business in 2014, which added a further 73 airport locations in the Nordic countries to its global network. The acquisition strengthened Air BP’s presence in a number of locations in the region, particularly in Norway.

“Air BP carefully evaluates all its business relationships in order to form successful ventures,” says the company. “Working with companies that have high-quality services ensures that we are able to provide our customers with the best service and maintain the standards they expect.”

**EVOLVING REQUIREMENTS**

As traffic volumes at airports around the world increase and airlines want ever-more efficient turnarounds, “guaranteeing a reliable delivery of fuel means that all parts of the fuel system need to be maintained and expanded to operate at increased volumes – from storage capacity to hydrants”, the Air BP spokesperson explains. “Any disruption to an airport’s ability to refuel aircraft can disable an airport’s ability to operate; failure to deliver effectively shuts it down.

“An airport operator therefore needs to be able to rely on its fuel supplier. To provide this level of support, the fuel supplier has to have the technical experience and expertise to understand what can go wrong and where, and what preventative controls can be put in place.”



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Air BP's own Technical Services offers specialist technical teams that are available 24/7 and are able to respond to incidents that occur in the 48 countries where Air BP operates. Furthermore, in such an eventuality, as well as testing the fuel Air BP can audit the airport and develop an improvement plan. It is also not uncommon for the Air BP teams to provide technical support to airlines in instances where an aircraft has taken fuel of an inconsistent quality and experienced problems with its fuel system as a result.

In fact, "Air BP Technical Services can support customers with a complete aviation fuel consultancy service," the spokesperson says. This embraces design, build and maintenance of fuel facilities; management and operation of fuel facilities; setting and maintaining standards; audits and inspections; essential technical documentation; product quality and operational support; and advising on carbon footprint reduction in ground operations.

Air BP has looked to offer creative and innovative solutions in regard to the challenges of minimising the environmental impact of on-airport fuelling. A range of measures introduced in this regard include the supply of Biojet, the supply of unleaded avgas and offering assistance with voluntary carbon offsetting (including compliance with the requirements of European Emission Trading), as well as simply lowering emissions resulting from refuelling operations at airports.

In January, Air BP – working together with Norwegian airport operator Avinor and biofuel specialist SkyNRG – collaborated to successfully deliver jet biofuel from the airport's main fuel farm via the existing hydrant mechanism. This, the company says, marked the first time that aviation biofuel had been delivered through the normal supply mechanism, thereby reducing logistics costs significantly. "Air BP demonstrated that airports can readily access biofuel with relative ease, utilising existing physical infrastructure," says the spokesperson. "Air BP anticipates that this will increase interest and demand, as well as contribute to a biofuel future for the aviation sector."



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“AFS always looks out for new technologies in order to increase safety and efficiency”

AFS sales manager  
Julien Touvron

In May, Air BP launched its new Environmental Solutions offering at this year’s European Business Aviation Convention & Exhibition (EBACE). The offer provides capabilities and knowledge to help customers achieve their carbon reduction goals through ‘reduce, replace and neutralise’ carbon emissions initiatives.

Plus, as part of a wider Carbon Management plan, Air BP is also developing new technologies to support green refuelling operations over and above into-aircraft fuelling. “It is developing biofuel supply chain opportunities; changing internal day-to-day operations; and establishing initiatives that aim to influence behaviour, and attitudes, to carbon reduction within the industry,” the spokesperson adds.

#### ALL CHANGE

Hamburg-headquartered AFS Aviation Fuel Services has undergone major changes of late. Last year, globally active ground handling services provider Swissport acquired the shares of BP Europe, thereby becoming AFS’s major shareholder. German flag-carrier Lufthansa remained its second co-shareholder.

According to AFS sales manager Julien Touvron: “This shareholder structure opens up great opportunities in the fuelling market for the future. Swissport’s global network will help to create a very interesting new outlook for the airlines in terms of an optimised one-stop-shop perspective.”

Touvron continues: “Because of the former shareholding structure, AFS has been traditionally based in Germany and Austria, but now we look forward to expand our network. Meanwhile, the fuelling market in Europe is undergoing significant changes in regard to many of the oil companies – traditional owners of the fuelling assets on airports – withdrawing from the business and increasingly focusing on the marketing of jet fuel. We are beginning to see conditions similar to the US market, where many oil companies have fully left the apron. Therefore, the market is in strong need of independent fuelling service providers being able

to offer performance, quality and the safety standards of the oil industry.”

As we have seen at Air BP, so at AFS: “Environmental protection and safety are key issues for us,” Touvron observes. “In AFS’s day-to-day business, strict operational procedures are followed to prevent leakages and pollution of any kind. To offer one example: We have almost completed the conversion of our truck fleet on start/stop technology. Furthermore, AFS is co-operating in several biofuel projects, in order to be prepared for the future of our industry. Airports and leading airlines are piloting the change, and, AFS – as the German market leader – has to be part of this process.”

Moreover: “AFS always looks out for new technologies in order to increase safety and efficiency,” Touvron reports. “Safety in terms of implementing no-dead-angle cameras and other safety devices. Efficiency in terms of supporting data capture and the transfer of fuelling tickets from the truck to the cockpit and fuel department of the customer, which provides a more efficient and transparent fuelling process.”

“The industry is moving into a tablet-based era, which will make the trucks lighter (without the heavy onboard computer), cheaper and operationally more efficient. AFS actively supports this transformation in collaboration with leading airlines.”

As to the role of research and development: “R&D obviously plays a key role in implementation of new technologies, creating a competitive advantage for our customers,” he says. “AFS sets its focus on the core business – fuelling. We work closely with selected partners to prepare our future (in terms of such matters as IT, truck equipment and filter technology).

“AFS is an active member of the IATA Technical Fuel Group and intends to remain there to support the development of the industry through offering our practical experience.

“We also have HSSE (health, safety security and environment) and IT experts and engineers specialised in fuel trucks, all able to develop specifications, determine our needs and then manage our suppliers in these areas,” Touvron concludes. ■

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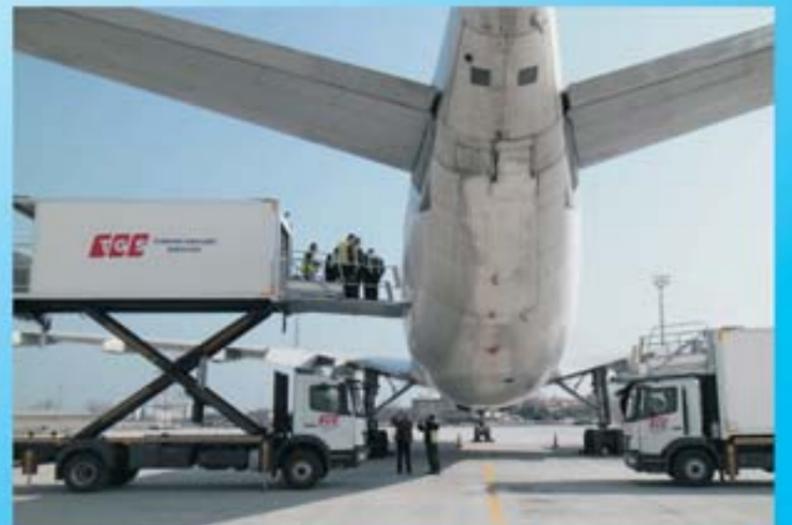
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# Green technology

As pressure for more environmentally friendly aviation increases – from customers, regulators and within the industry itself – pre-conditioned air units (PCAs) are becoming an ever-more worthwhile investment. *Megan Ramsay reports*

**P**PCAs are used at airports to attain and maintain a suitable temperature within an aircraft while it is parked, supplying hot or cold air into the cabin for the comfort of passengers on board. They run off electricity, making them a cheaper and more sustainable option than the aircraft's own auxiliary power unit (APU), which is costly in terms of fuel and generates far more CO<sub>2</sub> emissions.

One producer of PCAs is Spanish company ADELTE. Marketing director François Mamert says the importance of this piece of equipment is threefold. "First, it allows airlines to reduce their costs – the fee paid to the airport is much less expensive than the cost of fuel consumption while stationary and the maintenance of the APU. Second, airports can use them to generate extra revenue by charging airlines to use them. And third, there is a big tendency to create greener airports that generate less CO<sub>2</sub>; PCAs are a good tool for that."

Indeed, he notes that Airports Council International (ACI), the International Civil Aviation Organization (ICAO) and other organisations are "really pushing" for airports to lower their CO<sub>2</sub> (and other) emissions and that PCAs contribute to achieving this objective.

He explains: "Airports are interested in reducing their carbon footprint. They are responsible for the global pollution (CO<sub>2</sub> is only one, though the most significant, of those pollutants) generated by the overall activity throughout the LTO cycle – which is between the moment the aircraft is on approach to land to the moment of its take-off, including ground activities during turnaround.

"Although all emissions must be taken into account, including those of the ground support equipment, the vehicular traffic inside but also to/from the airport, and the terminal building itself (air conditioning, central heating, etc), the aircraft itself is a significant factor. When a PCA service is not available on the stand where the aircraft is stationed, the pilots have no choice but to run the APU to provide air conditioning to the cabin and this generates a tremendous amount of CO<sub>2</sub>."

For example, he estimates that an aircraft of the size of an A320 or B737 will consume around 100kg of jet fuel per hour. When it combines with the air during combustion, this generates more than 300kg of CO<sub>2</sub>. Considering a single aircraft stand occupied for nine hours per day, running the APU will generate more than 1,000 tons of CO<sub>2</sub> in a year. "This is the same as 2,000 cars driving from Barcelona to Berlin ... and back!" he observes – and widebody aircraft would obviously generate much more CO<sub>2</sub>.

Just recently, on 6 October, ACI and ICAO signed an MoU for providing a framework for enhanced co-operation on environmental initiatives, including information exchange, best practice guidance, workshops and training.

Angela Gittens, director general of ACI World, points out: "Environmental protection is one of ICAO's strategic objectives, while promoting airport excellence and building capacity in ACI World and Regions are both within ACI's strategic objectives. Our respective goals align with the need to improve environment-related initiatives and promote the respective capacity building at airports worldwide."

## TECHNICAL CONSIDERATIONS

The purpose of a PCA is to provide an efficient, flexible and reliable way to deliver high-quality pre-conditioned air for cooling or heating to a variety of parked aircraft. When it comes to deciding which PCAs to install, the main criteria to take into

## Comfort

PASSENGERS ARE THE main beneficiaries of PCAs, which maintain a constant optimum temperature inside the cabin. Mamert notes: "The perception of comfort for seated passengers is dramatically influenced by the combination of temperature and humidity. Using the ASHRAE study on comfort perception, we can see that a slight increase of two (2) degrees combined with a rise of relative humidity brings a very good mark (10 = Excellent) to a low one (3 = uncomfortable)."

PCA units include a variety of efficient filters to ensure the air supplied to the aircraft is of a high quality. They also include thermo acoustic insulation, and in some cases enhanced noise reduction, he adds. ●



An ADELTE ground-mounted PCA

account are the type and size of the aircraft operating to/from the airport in question, and its location's climatic conditions – both the ambient air temperature and relative humidity.

Mamert explains further: "For regions with extreme weather conditions, the refrigerant used as a default, R-410A, must be replaced by R-134a. Both these gases, being near-azeotropic, enable simple top-up recharge in case of a leak – unlike other gases such as R-407 which, being a ternary blend, requires complete removal and disposal prior to a complete recharge or the system progressively loses performance."

He continues: "PCAs are point-of-use units which can fit any layout platform and can be installed on any modern passenger boarding bridge (PBB). The largest PCAs can weigh over 4,000kg, which is far from negligible, but PBBs are now designed to support this extra weight. There are two configurations available: the PCA can be either hung underneath the PBB for direct supply to the aircraft via a flexible hose, or installed on the ground near the aircraft's stop position. In the latter case, the distribution can be achieved in various forms – from laying the hose directly on the ground, to a telescopic tube under the PBB or even an underground duct to a service pit in which the flexible hose is housed."

Availability of electricity is, of course, a factor for any airport considering the use of PCAs, although Mamert is keen to point out that ADELTE's PCAs are highly efficient.

The design and operational characteristics of PCAs are codified and regulated, he adds. Manufacturers refer to EN 12312-17, which is the main standard for air conditioning equipment, as well as to the International Air Transport Association's AHM 910, AHM 913, AHM 974 and AHM 1002, as well as requirements defined by the various aircraft manufacturers. In addition, there are defined protocols that operators must follow in order to operate and properly maintain the equipment.

## INNOVATION

The most commonly used PCAs used at airports today have a rather binary operating system: they are basically either on or off. This means that the system is always operating at 100% of its capacity regardless of the actual aircraft needs such as those relating to the passenger load and outside air temperature. The result is a significant waste of energy.

While some PCA units available on the market today can vary their cooling capacity, this is possible to only a limited extent.

On the other hand, Mamert states: "ADELTE has developed a new technology, called full inverter, offering a full regulation of the PCA's capacity using specific four-phase compressors and a high-quality direct drive centrifugal blower (VFD). This enables us to make a fine and constant regulation in coherence with the aircraft's cabin temperature real needs. It directly benefits our customers by dramatically reducing the electrical consumption and increasing efficiency by up to 35%."

Even more dramatic, he claims, is the reduction of electrical energy when the system is operating in cooling mode. The ADELTE inverter will then operate as a heat pump, mining energy from the ambient air to produce the required heat. Competing products use conventional heating resistors of 30–70kW.

Mamert remarks: "Developing this inverter technology was not easy to do. Also, previously there was not so much attention on CO<sub>2</sub> emissions. The context now is that we are all more fo-

cused on these issues and airports are very interested.”

AENA is the first airport operator to have purchased this technology, which was introduced in 2015. The Spanish airport operator ordered 20 ground-mounted Zephir units with full inverter technology in March last year, for installation at Palma de Mallorca airport. The deal included 10 100kW units, six 140kW units and four 240kW units, with deliveries having begun last summer.

Jordi Floreta, vice-president and commercial director at ADELTE, comments: “Constant dedication to R&D&I (research, development and innovation) is crucial for providing better service and delivering the most advanced gate solutions to clients around the world. With this totally new inverter technology, ADELTE is definitely pushing the GSE sector to the next level and accelerating the process towards green airports.”

Of course, it is important to note that the upfront cost (capital expenditure) of a PCA unit is not the sole criterion in selecting the most suitable equipment for an airport. Operational expenditure, which includes (among other items) consumption of electricity, maintenance and replacement parts (a compressor designed for fixed operation will age badly when one forces it to vary, Mamert observes) can all add up over the lifetime of the equipment.

#### MARKET TRENDS

Looking to the future, Mamert says: “More and more airports require an advanced system called IASS (integrated aircraft stand system).

The IASS provides better integration between the PCA and other stand equipment such as PBB, VDGS (visual docking guidance system), and GPU (ground power unit), and allows the airport to monitor incidents and the number of service hours of each piece of equipment. It provides useful information in order to have a global understanding of gate equipment operation and in planning of preventive maintenance. We are currently installing that solution in our ongoing projects at Karachi and Islamabad in Pakistan,” he reveals.

Globally, Mamert believes the demand for PCA units is increasing in most markets, supported by the increase in airline traffic, the expansion of existing terminals, the construction of

ADELTE  
marketing director  
François Mamert



## A word on ‘tons’

BY MARC FLAMME, AIRCRAFT GROUND SERVICING MANAGER AT ADELTE

THE INTERNATIONAL SYSTEM of Units, or SI (aka the ‘metric system’), is used in all countries in the world except for three: Liberia, Myanmar and the US. The historical leadership of the latter in the air conditioning industry has led to the generalisation of expressing the cooling capacity of PCA units in tons, and this even by engineers that are not ‘metrically challenged’.

#### SO WHAT IS A TON?

The name refrigeration ton dates back to a century ago when primitive air conditioning systems used ice stored in a basement to cool a building by ventilation. More precisely, it is a ‘short ton’ or 2,000 pounds of ice melting over a period of 24 hours. Consequently, a ton is equivalent to 12,000BTU/h (British Thermal Unit per hour) and as 1BTU/h equals 0.293W, we obtain then that 1 ton equals 3.517kW.

This conversion factor is scientifically correct but may lead to a biased result when expressing the cooling capacity of a PCA unit. Actually the tonnage only describes the nominal capacity of the compressor(s) and so a PCA unit having, say, four 15-ton compressors will be labelled as a 60-ton unit which could be erroneously converted as  $60 \times 3.5 = 210\text{kW}$ . Erroneously indeed, because the compressor’s nominal tonnage is expressed for a given set of working conditions (temperature and relative humidity) corresponding to the optimum of its performance curve and which may not be the same as those encountered in real operation. Moreover, the internal losses and inefficiencies must be deducted from the nominal compressor capacity; for example, the motor of the blower generates heat inside the PCA unit. The resulting cooling power at the output of the PCA unit is therefore much lower than 60 tons.

Therefore, as those manufacturers labelling their PCA units in kW do so by referring to the actual cooling power measured at the output of the unit, the conversion factor between compressor tons and net cooling power in kW is more in the range of 2.5 instead of 3.517, giving 150kW in the above example.

This is the reason why ADELTE always communicates the cooling power of our PCA units in kW as measured at the output and under the actual operational conditions specific to the customer’s location. ●

new airports, sustainability policies, the need for airports to generate new revenues and for airlines to lower their operating costs while providing comfort to their passengers.

“We have won the confidence of customers from around the world. We are proud to list customers from as far away as Seoul in South Korea to Europe, the Middle East and Latin America. The context is favourable for the consolidation of demand for PCAs using inverter technology,” he concludes. ■

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# What happens in Vegas...

*Airside International takes a look back at the International Airport GSE Expo, which took place at the Rio All-Suite Hotel and Casino in Las Vegas between 18 and 20 October*

This year's exhibition integrated what had until then been two separate events – the GSE Expo Worldwide and the International Airport Equipment Manufacturers' Association's (IAEMA) Airport Expo, and represented the year's only exhibition dedicated to GSE to be held in North America.

It was a big success: the busy exhibition hall was thronged with visitors, while the lovely Nevada weather ensured that there were plenty of people wanting to look over the vehicle and equipment display in the space outside, or at the demonstrations that could also be witnessed in an adjacent area.

*Airside International* was at the show, and here is a taste of just some of the news from the event:

## Tronair out in front

Tronair was amongst the many US GSE manufacturers exhibiting a range of equipment in the outdoor display area. One of the vehicles on display was its Jetporter JP125S electrically powered towbarless tug.

With a maximum full-load speed of 3mph (4.8kph) and a maximum aircraft weight pull capacity of 125,000lbs (56,699kg), it is ideal for handling aircraft such as the BAe 146, Bombardier Challenger 605 and other business jets. The JP125S has dual independently excited motors, allowing the drive wheels to operate entirely independently and thereby offer much better traction in tough operating conditions – and weather north of the US Mason-Dixon Line can certainly become a challenge in winter.

The tug benefits from a very tight turning circle, explains Justin Akinleye, Tronair's product development manager – Jetporter. "It can turn almost on a dime,"

Jetporter's JP125S electrically powered towbarless tug can turn almost on a dime, not only allowing it to work in cramped spaces but also meaning less movement for an aircraft that is attached during manoeuvring

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he points out, not only allowing it to work in cramped spaces but also meaning less movement for an aircraft that is attached during manoeuvring. The JP125S also offers regenerative braking, ensuring smooth deceleration for both tug and aircraft.

Tronair bought the JP125S model line about a decade ago, but it is continuing to add to its capability, Akinleye reports.

An even newer item within the Tronair product portfolio is its XM tractor range, designed specifically with the needs of the narrowbody B737 and A320 Family aircraft in mind. The XM-20 is the base model, its bigger brother incorporating an extra weight kit to provide it with greater drawbar pull.

The XM tug has been “kept simple”, Akinleye informs, avoiding any complexities in design that might prove liable to breakdown in operation. Such simple designs also keep maintenance requirements down. However, additional functionalities – all the ‘bells and whistles’ – can be provided if a customer so chooses by way of additional upgrade packages.

The XM series “came out strongly” as recently as January this year. “The market has really been looking for this sort of thing,” Akinleye suggests.

### ALL CHANGE

It’s been all change of late. Golden Gate Capital, a San Francisco-headquartered private equity company, announced in September that it had acquired Tronair (see Airside Update in this issue of the magazine). Being under this financial giant’s wing, with all its on-tap resources, represents a big step forward, Akinleye considers, adding: “Golden Gate is looking to invest in our platforms, and it is looking for us to grow.”

That expansion will see development far beyond North America’s borders, he remarks, although the company will “take its time with the export market”, ensuring that risks are not taken.

As well as investment in product, it is also vital to invest in ancillary support provision, Akinleye notes, explaining that Tronair will continue to offer extensive after-sales service and spare parts stocking to ensure that it can react swiftly to meet the changing needs of its customers.



Left: SSC’s Trans-Stop shift inhibitor fitted to a Ford C6 transmission

Below: SSC’s Pace-One G2 speed limiter electronic control module



### Providing control

Offering a range of engine transmission shift inhibitors and interlocks, as well as speed limiters, SSC – Safety Systems & Controls – has been active in the GSE market for a couple of decades, and has been a regular feature at the IAEMA show over the years.

Its involvement in the airside world dates back to the mid-90s, when it was working with what was then Continental Airlines on a problem the carrier faced involving damage being suffered by many of its GSE vehicles. The damage was being caused by GSE operators not stopping the vehicle before shifting gear direct from drive to reverse, or vice versa, on a mechanical transmission. This was causing damage to the vehicles’ transmissions and driveline, and Continental was looking for a solution.

SSC developed a solution for the carrier, explains Houston-based company president Chris Webre, and has been supplying this product to GSE customers ever since. It has also worked on similar solutions for forklifts, and it was in this market that SSC began developing technologies adapted for electrical rather than mechanical transmissions. Nowadays, many types of forklift rely on electric drives, as do – increasingly – GSE product lines, and SSCs electric shift inhibition can be as valuable for GSE as it has been for materials handling equipment such as forklifts.

SSC also promoted its speed limiting technology at the recent exhibition. Given the ever-present danger of ‘ramp rash’, such an offering has become increasingly valued in the airside world, and SSC’s speed limiting can be activated either by means of proximity sensor or vehicle location or activated by certain operator actions – an operator’s decision to tilt raise a belt loader, for example, could trigger an automated command to limit the vehicle’s speed to 5mph or less.

“We are offering our expertise in speed inhibition for both mechanical linkage and electronic governor GSE,” Webre explains, “not just to current customers in the US but across the world.” Not that SSC doesn’t already have customers based outside North America – Europe’s TLD is one, for example – but it is outside the US that there is perhaps most potential for further growth in terms of its GSE sales. Webre is certainly keen to go beyond the 10,000 or so GSE units around the world that already employ SSC technology, he adds.

### Being smart in the field



SmartField, from MobileLogix, is a cloud-based, software-as-a-service platform that helps to make companies more efficient by optimising their use of scarce resources, explains Ron Babich, MobileLogix CEO. Software designed to improve performance in the field, it incorporates capabilities such as tracking, monitoring, GSE equipment and inventory management, and is intended to provide an end-to-end solution

for field operations, sales and support.

MobileLogix is mainly concerned with ‘Mobile Workforce Management’, and its 15-year history lies primarily in industries such as oil and gas and other high-value capital businesses. But it has been in the airside space for about five years now, Babich recalls, adding: “We saw a big gap in this market to optimise the value of assets.” SmartField is now in use in 24 countries and services six languages. Customers include service providers and self-handling airlines.

As well as allowing the optimal deployment of labour on tasks, SmartField makes good use of modern vehicle telematics to allow customers to make best use of their vehicles and equipment, providing reports on each item’s location, service history and current operations.

Babich has big plans for SmartField’s further improvement. One ambition is to build voice technology into the system; another is to develop the system such that each piece of equipment is equipped with a single button that can be pressed to generate a status report on that unit, delivered in real time to the individual’s preferred device – be it mobile/cell phone, tablet, laptop or whatever. SmartField is also platform-neutral, being supported in Windows, Android and IOS operating systems.

Las Vegas represented the first time that Babich and his team have been at the show but interest was high, he reports, for the technology. It seems like there is a bright future for MobileLogix and SmartField.

### Pulling their weight

Eau Claire, Wisconsin-based GSE manufacturer NMC-Wollard was showing off its Model 100 tow tractor in the demonstration area of the exhibition. The M-100 is described as a rugged cargo tractor built for civilian ramp and military environments. It has a dual-wheel, spring-mounted drive axle, is power-steered and boasts GM automatic transmission. It has sold well over the years, confirms vice president Bruce Steingart, its many customers including a number of handlers as well as self-handling airline giants like Delta and American.

It is easy to maintain and offers a cost-effective alternative to the tugs that have been developed to be Tier 4 compliant.





FAST's owner, president and CEO Dane Anderson

Right: FAST Global Solutions is now employing robotic technology to further improve quality off the production line



### FAST growth

It's been a very busy last couple of years for FAST Global Solutions, the Minnesota-headquartered GSE manufacturer. Formed in 1979, it was best known up to last year as WASP Inc – but the process of rebranding the company became a necessity when WASP acquired FAST Manufacturing, a major manufacturer of agricultural sprayers and liquid fertilizer equipment, in May last year.

Why adopt the specific name FAST Global Solutions, a move initiated in September 2015? Well, explained owner, president and CEO Dane Anderson on the FAST stand in Las Vegas in October, the 'Global' refers to the firm's worldwide scope of operations (the company sells equipment into 80 different countries around the world), while 'Solutions' refers to its customer-focused product designs supported by the firm's 35 expert engineers on staff.

What hasn't changed over the last couple of years is the fact that it remains the world's biggest manufacturer of non-powered ground support equipment. Some of its bigger clients operate fleets of between 15,000 and 20,000 units of FAST/WASP equip-

ment. Nor, says Anderson, has the desire and commitment to support its GSE customers through 'thick and thin' altered at all.

But the scale and nature of its operations have change since the FAST acquisition. The company began a process of major diversification with that merger that is continuing today. Its approximately 700 employees meet the needs of not only those in the agricultural business, but also the airline business and the integrators looking for new equipment of a careful design and high quality.

The company also required a change in branding to reflect that diversification. FAST Global Solutions has a new website, while its three-striped logo points to that three-stranded product offering achieved as a result of the diversification. Some of the company's legacy equipment has retained the WASP brand, to avoid confusion and because that's the way some customers seem to like it, but the rebranding process has made significant strides.

Further expansion is planned. FAST Global Solutions currently operates five different manufacturing sites across the US mid-West, but Anderson confirms that he is looking for further plant to support increased production runs. Acquiring a new facility also means that additional trained engineers can be brought on-board, by no means an unimportant consideration for a growing concern like FAST intent on delivering high-quality product.

Any new facility might conceivably be located outside North America. In particular, the low-cost labour available in Eastern Europe (though within the EU) is an attractive option, but there are also possibilities in Asia or elsewhere, Anderson notes. A move into a local presence in an important market would allow FAST to be that much closer to its customers there, as well as save on shipping costs and on time (perhaps as much as 35-40 shipping days in the case of Europe, for example).

Another option would be inorganic growth in the form of an acquisition of another GSE supplier. Again, this manufacturer might well be based beyond the USA's borders, if the circumstances were right. And any deal would take the form more of a merger than an acquisition, Anderson insists. FAST Global Solutions is 100% employee-owned, and any GSE manufacturer brought with-



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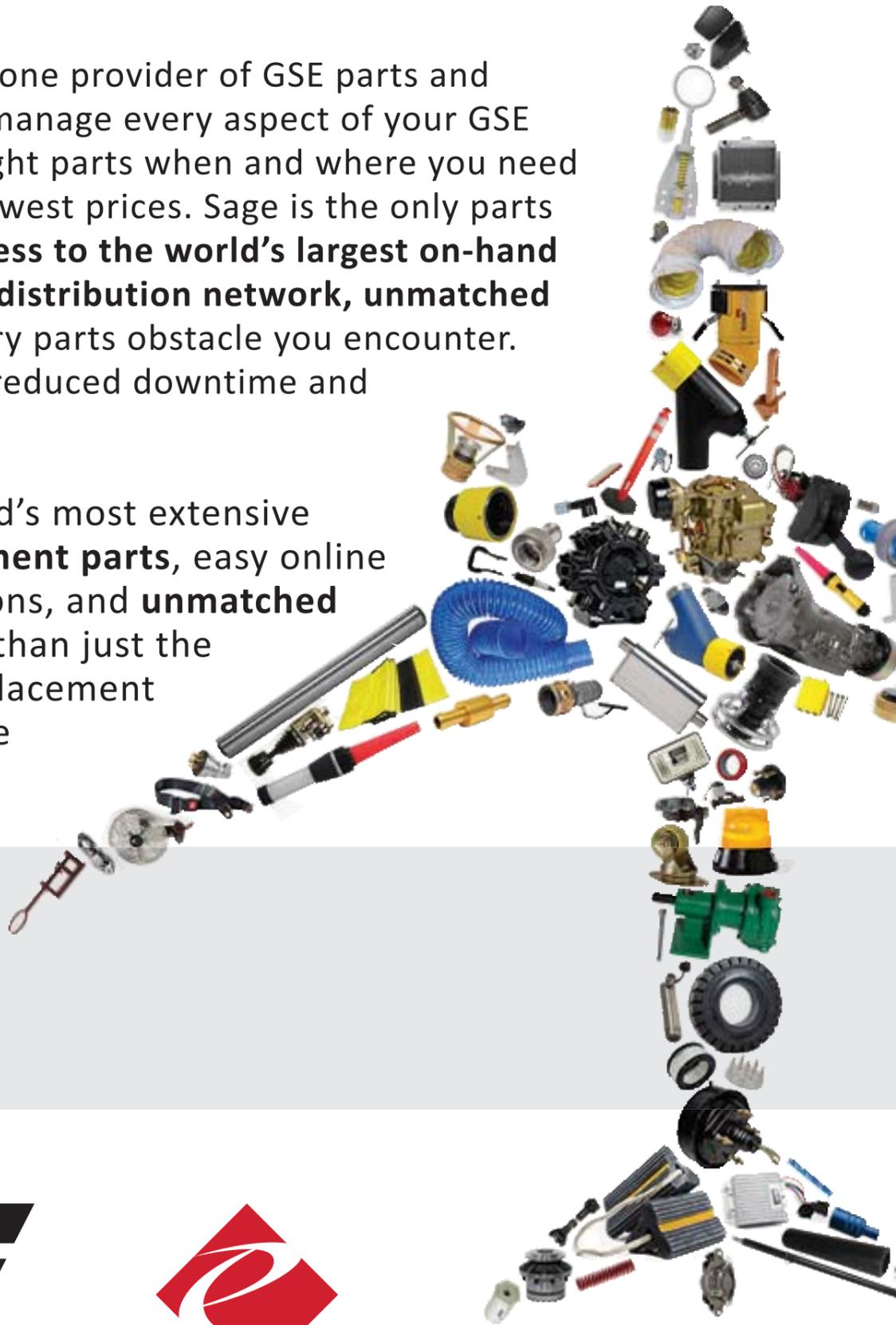
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in the FAST orbit would adopt the same model, he promises. “We do a little bit of manufacturing outsourcing, but we like to control most of our own manufacturing,” and that situation isn’t likely to change any time soon, he says.

Improvements are also being made at the FAST factories currently in operation. For example, new robotic technology is being introduced in order to increase product quality yet further. Perhaps such improvements might also help the further diversification of GSE product lines that Anderson would like to see. For example, FAST is looking at supplying more electrically powered GSE.

The goal is to grow the company, and the expansion of the aviation sector will support such growth, Anderson considers. In terms of its GSE business, FAST’s focus will remain on the world’s top 25 global carriers and the major ground handling companies as well as a fair few of the big regional players, but industry trends are also opening up a wealth of new possibilities. The e-commerce boom will certainly drive new demands for GSE, for example, while new multinational conglomerates such as Amazon and Alibaba are moving into the air freight express business too.

## Vestergaard keeps busy

Denmark-based GSE manufacturer Vestergaard was prominent in the display area and made a number of announcements during the period of the show.

First, it confirmed that American Airlines had awarded it a new multi-station Vacuum Toilet Service (VTS) order. The US carrier has purchased 33 units for use at three additional stations: Philadelphia, Charlotte and Phoenix. The new deal follows the successful introduction of an initial 50 units into New York JFK, Dallas/Fort Worth, Chicago and Los Angeles airports for American. The VTS units will be supplied in both summer and winter use configurations.

Second, Vestergaard announced the introduction of its newest product, ZVTS, a summer series vacuum toilet service unit. The ZVTS offers the same features and benefits as the company’s standard VTS unit, but at an entry price point. Developed for warm weather operations, the unit is said by Vestergaard to be receiving “overwhelming acceptance in the Asian market and is gaining a keen interest for the Caribbean, Mexico, Hawaii, Central and South American markets”.

The unit offers the same quality and reliability as the VTS line, and the same unique continuous vacuum technology, without the added cost of winterisation protection and optional features.

Finally, Vestergaard confirmed that the US Federal Aviation Administration (FAA) has approved the use of its in-truck manufacturing (ITM) of Type I de-icing fluid for operation with United Airlines at Chicago O’Hare Airport.

United partnered with Vestergaard at O’Hare to test the in-truck blending technology on two of the airline’s Elephant Beta de-icers during the winter seasons of 2014-15 and 2015-16. The FAA has now approved the ITM for operation for the 2016-17 winter season at the airport.

The Vestergaard ITM technology allows for the onboard manufacturing of Type I fluid. Using additive packs and propylene glycol to blend the Type I fluid directly on the truck instead of buying already mixed Type I fluid, airlines increase their flexibility in purchases. Such carriers would no longer depend on deliveries of Type I fluid from a limited number of suppliers that may be delayed due to weather and logistics during snow events, Vestergaard notes. All the chemicals required to mix the Type I fluid on the truck can be purchased in advance and kept on-site.

Mixing on the truck using individually stored components also prolongs the shelf life and reduces storage capacity requirements (as pre-mixed Type I fluid also contains water). Plus, the in-truck mixing system increases quality control as well as benefits the environment, there being a major reduction in the carbon dioxide emissions footprint, Vestergaard observes. ■

United partnered with Vestergaard at O’Hare to test the in-truck blending technology on two of the airline’s Elephant Beta de-icers during the winter seasons of 2014-15 and 2015-16

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## What's new in the airside world?

# AIRSIDE UPDATE

## Aviator to withdraw from UK ground handling market

"Aviator has undertaken a strategic review of its business and as part of this review, and in conjunction with its key stakeholders including its airline customers, the airports at which it operates and the employee unions, the group is looking to exit the UK ground handling market in order to focus on its core markets in the Nordic region," the Sweden-headquartered company has confirmed.

"Aviator will look to complete this exit in or around the end of November 2016 through the orderly transition of services to other providers or via airline in-sourcing to support the needs of our customers and their passengers. The group will make further announcements in due course," it added in an October statement.

## Jewers opens doors for the RAF...

Hangar door supplier Jewers Doors has designed, manufactured and installed its Esavian doors on a new 24,000 square metre hangar at RAF Brize Norton, a Royal Air Force air base in Oxfordshire in the UK. The three-bay hangar currently acts as a maintenance space for A400 military transports, but is also expected to house C17 Globemasters and A330 Voyagers in time.

Jewers Doors also recently completed a project to design, manufacture and install Esavian doors on Presidential Flights Hangar 2 at Abu Dhabi International Airport. The hangar, which has the capacity to accommodate two A380 aircraft, has a 181m opening divided into two equal bays by Esavian Type 126 power-operated steel sliding doors. This project represents the latest in a long line of Esavian hangar door installations in the Middle East for the Bedfordshire-based company.

Finally, Jewers Doors is also installing its Esavian hangar doors in the new Aviation Cosmetics painting and finishing hangar at Safi Aviation Park on the island of Malta.

Built to accommodate A380 aircraft, the hangar will feature Esavian Type 126 doors designed, manufactured and installed by Jewers Doors. Each of the three door leaves are 42m wide and 13m high.

## UK Government gives green light to London Heathrow expansion

In late October, the UK Government gave the nod to London Heathrow's plans for a new runway as an answer to the country's airport capacity crunch. The UK's biggest air gateway responded by saying: "Expansion of Heathrow is the only option that will connect all the UK to global growth, helping to build a stronger and fairer economy."

## Gazpromneft-Aero foreign footprint reaches 170 airports

Gazpromneft-Aero, operator of the Gazprom Neft aviation refuelling business, has begun providing refuelling services for Aeroflot scheduled flights at Malta International Airport, expanding the company's geographic presence abroad to 170 airports. Eight airports had by then (late August) been added to the Gazpromneft-Aero international network since the start of 2016.

Gazpromneft-Aero's refuelling partner in Malta is national aviation fuel supplier Enemed and the supply of fuel to Aeroflot will be undertaken as part of a long-term agreement on the refuelling of the carrier's regular flights to international airports.

Vladimir Egorov, CEO of Gazpromneft-Aero, observes: "We have achieved significant success in developing partnerships with major Russian and international air carriers, and in collaborating with local market leaders in aviation refuelling. Expanding the business geographically is a priority for Gazpromneft-Aero's long-term strategy, in accordance with which the company plans to increase its refuelling network to 262 airports throughout Russia and abroad by 2025."

Then, in late October, Gazpromneft-Aero confirmed it had signed a 3-year deal with Hindustan Petroleum, one of India's leading aviation fuel sales companies, allowing Gazpromneft-Aero aviation partners to be supplied at airports at which Hindustan Petroleum operates. Under this contract, Hindustan Petroleum offers Gazpromneft-Aero access to its 35-airport network throughout India's largest cities.

The first co-operation agreement between the two companies was signed in 2010. Today, they offer refuelling services for Aeroflot and Volga-Dnepr throughout India's most important business and tourist centres — Delhi, Hyderabad, Goa, Mumbai, Calcutta, Chennai, Trivandrum, and Varanasi.

## John Menzies to buy ASIG

John Menzies is to purchase aviation service provider ASIG in a move that will boost Menzies Aviation's footprint at many major international hubs.

Owned by BBA Aviation, ASIG is particularly prominent in the on-airport fuelling business in North America and the UK, but is also well known for its ground handling. The acquisition will create one of the world's largest aviation services providers, and the deal is expected to be completed by the end of this year.

In other news, Menzies has added new airline customers in the form of Air Canada and EVA Air at Australia's Brisbane Airport. In June, Air Canada began a new daily B787 direct service between Vancouver and Brisbane, and it awarded Menzies Aviation the associated passenger, ramp and cargo handling contract. In addition, Menzies began providing passenger and ramp services for EVA Air at the Queensland city on 5 October. EVA operates five times a week A330-300 services between Taipei and Brisbane.

## Bird-watching at Brussels

Brussels Airport temporarily installed a system that monitors and maps the behaviour of birds around the facility 24 hours a day. The radar detects birds to a height of 3.7km and at a distance of up to 5km, and provides insight into the behaviour of birds on the airport. It was used for a period of two weeks to collect the data.

The airport operator is taking several preventive measures so that as few birds as possible are around or nest on the airport grounds. The bird control unit at Brussels

## ... while Rubb supplies new hangar for easyJet at Gatwick

Rubb Buildings has provided a twin-span hangar measuring 91.5m wide by 60m long for low-cost carrier easyJet at London Gatwick. The structure measures 9.2m to the eaves and 16.8m to apex of each span. Each front gable is 45.7m wide and features a 41m wide x 13.5m vertical lifting fabric door.

The facility provides 5,200 square metres of usable working floor space. A full LED lighting system, ventilation system and liquefied petroleum gas (LPG) heating system have also been installed.

To complete the build, two sets of vertical lifting Megadoor hangar doors were fitted to allow access to the two-bay facility. Building commenced in November 2015 and the process included fitting 8,700 square metres of PVC membrane.

Brendan McConnellogue, easyJet's head of maintenance, comments: "The Rubb team who worked on site were absolutely first-class. The first steel went in the ground on December 14 and by May 19 we were able to introduce the first aircraft into the hangar.

"The successful delivery of this project, which has been challenging both in terms of scale and its timeline, is another example of what can be achieved through easyJet's innovative and lean approach, not only meeting a tight timeline, but also creating strong sustainable partnerships to deliver market-leading operational performance."

Ian Hindmoor, Rubb Buildings' managing director, adds: "We are very proud of this flagship aviation building and of what we produced and delivered in a challenging and complicated working environment, in such a short space of time." ●

Airport uses various preventive measures to scare off birds, including playing predatory birdcalls through loudspeakers of a car, firing air cannons and luring larger birds into traps.

In other news from the Belgian capital's biggest air gateway, renovation works on its Runway 01/19 were completed two weeks ahead of schedule thanks to favourable weather conditions in August. The runway rehabilitation work took a month and a half to complete and, during this period:

- 239,000 square metres of asphalt, in a 12cm layer, was replaced
- 62,000 square metres of runway shoulder was demolished and reconstructed
- 373m of cable was renewed
- 5.6km of rainwater drains was demolished and rebuilt
- 3.2km of sewerage was renovated
- 1,850 lamps were replaced by LED lights

During the renovation works, Brussels Airport Company took the opportunity to sow new grasses alongside Run-

way 01/19. The blend of two grasses contains endophytes, a type of fungus in the roots, which makes the grass taste poor to animals. The airport operator is testing this mixture to examine whether rabbits, other rodents and birds will actually avoid the grass as a result.

## ADB Safegate offers new brand identity and inks airport deals

In October, ADB Safegate launched a new brand identity that captures the company's focus on delivering 'Airport Performance' from aircraft approach to departure.

Airport Performance solutions encompass, the company explains, every aspect of air traffic control and guidance, from approach, runway and taxiway lighting, to tower-based traffic control systems, to intelligent gate and docking automation. The newly merged company's aim is to enhance an airport customer's existing infrastructure

to achieve substantial gains in aircraft handling capacity, improve the safety of operations and support airlines through faster aircraft turnarounds.

ADB Safegate was created in early 2016 by a merger of ADB Airfield Solutions and Safegate Group, and also includes various other previously acquired companies, including Liberty, Lucebit, ERNI and AviBit. All companies will now operate under the ADB Safegate umbrella.

The Airport Performance approach has recently been implemented at several airports around the world, including Toronto Pearson Airport in Canada, which turned to ADB Safegate for the design and installation of an Airfield Lighting Control and Monitoring System (ALCMS) for its five runways. The system was designed to enable more efficient airside operations and support future growth.

In the UK, Birmingham Airport has chosen the company's Integrated Tower Solution to improve real-time information sharing between the airport, airlines, ground handlers and air traffic control. And, in France, Charles de Gaulle (CDG) and Orly airports are introducing ADB Safegate's apron management and docking systems to enhance throughput, tackle congestion and optimise airport transit process efficiency.

Says CEO Christian Onselae: "Our new brand signals an important milestone for ADB Safegate. It gives us a fresh image that shows how we have transformed since our merger six months ago. It lets us stand out as a company that can deliver solutions tailored to the needs of airports as they face the difficult challenges posed by rapidly growing demand and increasing competitive and regulatory pressures."

More details on the integration and market positioning of ADB Safegate can be found in the airfield lighting feature within this issue of Airside International.

## Second phase of QAIA's New Terminal Project is completed

In September, Airport International Group (AIG) – a consortium of regional and international partners brought together to operate and expand Queen Alia International Airport (QAIA) in Jordan – confirmed that the second phase of QAIA's New Terminal Project had been completed. An inauguration ceremony, which took place on 5 September, was held at one of the airport's newly expanded piers.

Costing US\$214 million, the second phase of QAIA's New Terminal Project added 43,513 square metres to the airport's total footprint and raised its annual passenger capacity up to 12 million passengers. There are other plans to further increase the capacity to 16 million passengers a year.

As a result of the expansion, the total number of gates in operation at QAIA has nearly doubled, up from 13 to 25 operational gates, of which eight are remote and 17 are contact. The additional nine contact gates are operated from two fixed link bridges, as well as four new super fixed link bridges, two of which can accommodate the A380.

## Changi announces latest contract award for 3RS

In August, Changi Airport Group (CAG) announced the award of a S\$1.107 billion (US\$810 million) contract to a joint venture formed by Hock Lian Seng Infrastructure and Sembcorp Design and Construction for the second package of works relating to the development of a three-runway system at Singapore Changi Airport. The award was made at the end of a competitive tender.

As part of Changi Airport's capacity expansion plans, several packages of works will be undertaken to introduce a three-runway system at the airport by the early 2020s. The scope to be executed by the JV represents the second package of works for this programme, which will be car-



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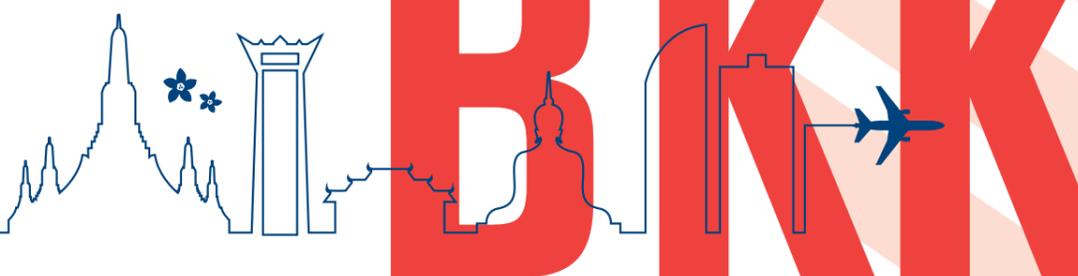
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## Oshkosh supplies 100th Snozzle

Oshkosh Airport Products has delivered a Striker 6 x 6 aircraft rescue and firefighting (ARFF) vehicle equipped with a Snozzle high-reach extendable turret (HRET) to Tucson International Airport, Arizona. The delivery represented the 100th Snozzle sold since Oshkosh acquired the product line.

"The Oshkosh-exclusive Snozzle sets the industry standard," states Jeff Resch, Oshkosh Airport Products Group vice president and general manager. "The Snozzle continues to gain new customers beyond aircraft rescue and firefighting – including municipal fire departments, mining operations, oilfield and petrochemical plants, and other applications – where its many benefits enhance performance while keeping firefighters further away from danger."

"Safety is a top priority for the Tucson Airport Authority (TAA)," adds Bonnie Allin, Tucson Airport Authority president and CEO. "Having the right equipment for our public safety personnel is critical, particularly when it comes to our aircraft rescue and firefighting trucks."

The Oshkosh Snozzle is available on the Striker's full range of 4 x 4, 6 x 6 and 8 x 8 models, as well as on Pierce custom chassis. It features a hardened carbide steel tip, a perforated nozzle and a forward-looking infrared camera. The device enables firefighters to discharge from 6.1m (20ft) below grade to elevations as high as 19.8m (65ft).

In other news, Oshkosh has sold and delivered two H-Series Single Engine Blower vehicles to the Metropolitan Airports Commission (MAC), a public corporation that operates Minneapolis-St Paul International Airport (MSP) and six general aviation airports in the

region. The vehicles will be placed into service in time for the upcoming snow season at Lake Elmo and Crystal Airports, two of the MAC's general aviation airports located near the Twin Cities.

"We unveiled the H-Series Single Engine blower earlier this spring at the Snow Symposium," Resch notes. "The Single Engine Blower is a versatile machine, and we are seeing a growing amount of interest in the vehicle by airports large and small."



As the equipment superintendent at MAC, Chuck Kanuit oversees maintenance for approximately 400 vehicles. "We've wanted Oshkosh to build a single engine blower for our reliever airports, and we got involved in the design from a very early stage," he says. "We're already familiar with much of the Single Engine Blower's componentry and electronics from our other H-Series vehicles; this will be a big help when it comes to parts and maintenance." ●

*The MAC's two Single Engine Blower vehicles will be placed into service in time for the upcoming snow season at Lake Elmo and Crystal Airports, two of the MAC's general aviation airports located near the Twin Cities*

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ried out near the airport's existing Runway 2. That scope includes pavement works, drainage works, mechanical and electrical works, security fencing, perimeter roads, ancillary buildings, as well as other supporting works such as services and road diversions.

The first package of works for the three-runway system was awarded in October 2015 to a joint venture of Samsung C&T Corporation and Koh Brothers. These works, which cover the proposed Runway 3 extension and its vicinity, are already under way.

Changi Airport is currently served by two runways (Runways 1 and 2). As part of the airport's development plans, CAG is concurrently expanding both Changi's terminal capacity – through the building of Terminals 4 and 5, and the expansion of Terminal 1 – as well as its runway and airfield capacity through the development of the three-runway system.

To achieve the latter, a third runway (Runway 3), previously used by the military, is being extended to handle larger aircraft and connected to the rest of Changi Airport through a network of supporting taxiways. The extension of the runway, together with the new taxiway system, adds about 40km in length. A whole suite of supporting infrastructure and systems will also be built to support three-runway operations.

### John Glenn cleans up

Making best use of a US\$2.7 million Voluntary Airport Low Emission (VALE) grant awarded by the Federal Aviation Administration (FAA) in September 2015, the Columbus Regional Airport Authority installed pre-conditioned air (PCA) units at 11 jet bridges and upgraded 13 existing ground power units (GPUs). Several gates already had emission-reduction technology prior to the award of the VALE programme and, now, all gates at John Glenn International are equipped with these improved units. An electrical substation was also installed near Concourse B gates as part of the project.

The federal grant funded 75% of the project's costs, with the Columbus Regional Airport Authority financing the balance. Work on the project began in November 2015 and was completed in August this year. The new units are projected by the airport authority to allow for a total emission reduction of 207.1 tons of carbon monoxide over a period of 20 years.

"With the critical support of our federal delegation we're committed to meeting and exceeding Clean Air Act guidelines," remarks Elaine Roberts, president and CEO of the Columbus Regional Airport Authority.

Centrally located in Ohio, John Glenn International Airport is one of three airports operated by the Columbus Regional Airport Authority. Opened in 1929, the airport offers nearly 150 daily departures from Columbus to 33 destinations.

### Babcock secures Qantas GSE win

UK-headquartered support service provider Babcock has been awarded a five-year contract, with an option for a further two years, to support Qantas Group's GSE fleet at 60 locations across Australia.

According to Babcock, the agreement will streamline the management of the airline's fleet of over 10,000 GSE assets spread across 60 locations in Australia, including Qantas' domestic, regional, freight, catering and engineering operations, as well as those of Jetstar. "Working with Qantas as its asset management partner, Babcock will deliver a programme to improve reliability of equipment and provide significant long-term capability and cost benefits," a statement from the company says.

Babcock already provides a range of support services at many international airports, including London Heathrow and London Gatwick, Amsterdam Airport Schiphol and São Paulo Guarulhos, as well as – most recently – at Rome Fiumicino. It also has extensive experience of successfully delivering fleet

### WFS handles for PIA in the UK

Worldwide Flight Services (WFS) has won a three-year contract to provide cargo handling and trucking services for Pakistan International Airlines (PIA) in the UK.

WFS will handle export and import cargo for PIA's wide-bodied flights at London Heathrow, Birmingham and Manchester airports, connecting customers in the UK with Islamabad, Karachi and Lahore.

At Heathrow, cargo carried onboard PIA's 10 flights a week will be managed at WFS' Building 551 in the airport's World Cargo Centre. WFS also operates cargo terminals at Birmingham and Manchester airports. PIA operates 10 flights a week ex Manchester and four services a week from Birmingham.

Cliff McKrell, operations director, UK & Ireland at WFS, notes: "This is another important contract win for WFS. PIA has recognised the value of having a single cargo handler at all three of its online airports in the UK, which we are also able to connect using our UK coastwise trucking network. Combined with our close working relationship with the airline's GSA partner in the UK, this increases the potential to generate cargo for the airline's flights from across the country."

In other WFS news, the handler appointed Craig Smyth as its new CEO this summer. Smyth, former CEO of Menzies Aviation, took over as WFS CEO on 29 August.

Bastian Lueken, head of the European investment team at Platinum Equity, which acquired WFS last year, describes Smyth as a perfect fit for the company. "Craig has the right combination of leadership skills and industry expertise to build on WFS's success and deliver on our long-term goals for the company," Lueken declares. "He is one of the most experienced and respected executives in the aviation services industry and has proven himself over a distinguished 20-year career."

Smyth joined WFS after more than two decades at John Menzies plc, where he most recently served as CEO of Menzies Aviation. ●

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“This is another important contract win for WFS. PIA has recognised the value of having a single cargo handler at all three of its online airports in the UK...”

Cliff McKrell

management services to a range of customers including the London Fire Brigade and the city’s Metropolitan Police.

Archie Bethel, chief executive of Babcock International Group, comments: “We have a proven track record of improving the performance and reliability of our customers’ assets, whilst delivering efficiency savings. Qantas are regarded as one of the world’s leading long-distance airlines and we are very much looking forward to working with them to implement a suite of modern fleet management systems and tools which will enhance safe and effective fleet capability across all the airline’s sites.”

### Golden Gate takes over at Tronair

Golden Gate Capital, a private equity investment firm based in San Francisco, announced in September that it had acquired GSE supplier Tronair Parent, Inc from Levine Leichtman Capital Partners. Tronair will remain headquartered in Holland, Ohio, and will continue to be led by its current senior management team, including president and CEO Harley Kaplan, a Golden Gate statement confirmed.

Founded in 1971, Tronair designs, manufactures and sells GSE for business, commercial and military aircraft applications.

“Tronair has successfully differentiated itself through best-in-class engineering capabilities and a collaborative customer approach, resulting in innovative solutions that support safe and efficient aircraft ground operations. We are excited to partner with Tronair management as the company continues to execute on its strategy to build the industry’s leading ground support equipment platform,” enthuses Rajeev Amara, Golden Gate Capital’s managing director.

“Our investment in Tronair demonstrates our commitment to partnering with high-quality aerospace and capital equipment businesses to turbocharge their growth and enhance their strategic relevance.”

Harley Kaplan, Tronair’s president and CEO, adds: “We look forward to working with Golden Gate Capital to con-

tinue our positive momentum in the marketplace – driving growth throughout our product portfolio by continuing to deliver value for our customers.

“With Golden Gate Capital’s operational expertise and financial support, we will be well-positioned to bolster our market leading position while continuing to deliver the high quality, innovative products and leading customer service for which we are known.”

### EPIC Fuels branches out into ground vehicle fuelling

EPIC Fuels, a supplier of aviation fuels, supplies and services to airlines, FBOs and other aviation-related facilities, has begun offering ground fuels, a new product line for the company. Effective since October, EPIC Fuels now offers ground fuels or motor fuels, including a variety of gasoline and diesel options for delivery to customer locations in addition to its aviation fuels (Jet and 100LL).

Ground fuel products supplied include blended gasohol, reformulated gasoline (RFG), and both summer and winter blends of Reid Vapor Pressure (RVP) gasoline. Clear or conventional gasoline (gasoline without ethanol) is available too. EPIC’s ground fuel products also include ultra-low sulphur diesel, premium and winterised diesel blends.

“We often find that our aviation customers need ground fuels in addition to Jet and Avgas,” remarks Lee Jones, EPIC Fuels’ vice president of supply.

### Textron acquires Safeaero assets

In October it was confirmed that Textron Specialized Vehicles Inc., a Textron Inc company, has acquired, through its Swedish affiliate, Textron Sweden AB, the assets of Safeaero i Trelleborg AB, a Swedish manufacturer of de-icers for the aviation industry.

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## What's new in the airside world?

Safeaero's business will operate as part of Textron Specialized Vehicles' Ground Support Equipment business, which manufactures GSE products under the TUG, Douglas, Premier and, now, Safeaero brands.

Safeaero's line of de-icers is primarily designed to allow for efficient de-icing operations at major airport hubs. The line includes five different models and these are expected to complement Textron Specialized Vehicles' pre-existing Premier line of de-icers, which primarily serve regional spoke airports and general aviation facilities.

The acquisition of Safeaero's product line will enable Textron Specialized Vehicles to offer customers "a more complete line of equipment to meet their GSE needs, from Safeaero and Premier de-icers, to Douglas towbarless aircraft pushbacks, to TUG conventional pushbacks, baggage and cargo tractors, belt loaders, mobile HVAC units, air-starts and ground power units", a joint Textron/Safeaero statement explains.

"The Safeaero business is an important addition to our growing stable of GSE brands and product lines," observes Kevin Holleran, president and CEO of Textron Specialized Vehicles. "We offer a broad line of GSE products to our customers, whether they are serving passengers at an airport of the scale of London Heathrow, or a critical regional FBO."

Safeaero's business will continue to operate from its facilities in Trelleborg, Sweden.

### Wyoming gateway readies for winter

In July, Casper/Natrona County International Airport, Wyoming, broke ground on a new snow removal equipment and maintenance building. The US\$5 million dollar

construction contract was awarded to Caspar Building Systems, Inc. Site work for the building is now underway, and the project is anticipated to be completed by July of 2017.

The 27,076 square foot facility will replace several World War II buildings the airport has been using up to now. The development is being funded by a combination of Federal Aviation Administration (FAA) Airport Improvement Program (AIP) funds, Wyoming Department of Transportation (WYDOT) Aeronautics funds, and local Passenger Facility Charge (PFC) revenue.

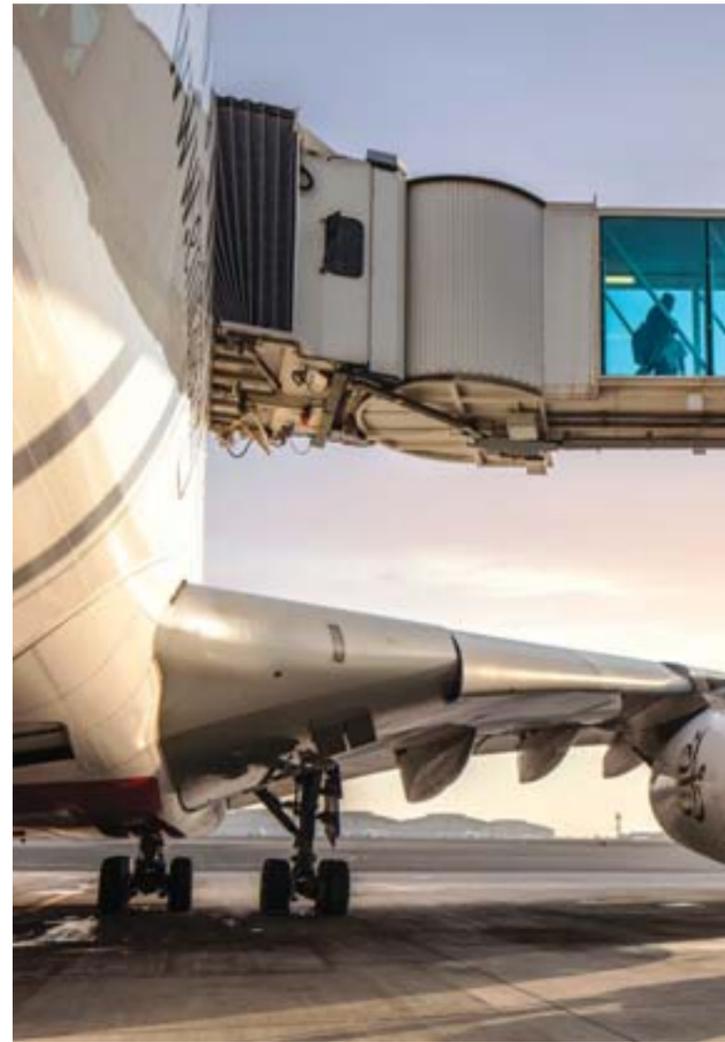
"The current maintenance buildings were never meant as permanent structures, yet we have been operating out of them for over 60 years and they are over 70 years old," says airport director Glenn Januska. "Not only are the current buildings aged and energy inefficient, our equipment has gotten larger but the maintenance and storage areas obviously have not."

The airport operator confirms that the building represents just the first phase of a larger structure designed to accommodate more and larger equipment in the future as the airport's needs evolve.

### London City gets the green light for expansion

London City Airport has received planning permission from the UK Government to begin a £344 (US\$438 million) development of the gateway, which is located in the heart of the nation's capital.

The City Airport Development Programme (CADP) includes plans for seven new aircraft stands and a parallel taxiway and passenger terminal extension, designed to enable up to 6.5 million passengers to use the airport each year by 2025.



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## Copenhagen teams with Amadeus on A-CDM

Copenhagen Airports has introduced the Amadeus Airport Sequence Manager and A-CDM Portal solutions which – it says – provide the airport, its airline customers, ground handlers and air traffic controllers with accurate and synched information on aircraft departures.

Christian Poulsen, chief information officer and vice president for assets & technology at Copenhagen Airports, comments: “This will help airlines spend less time near the gate and on the runway so they can minimise delays, keep travellers happy and save fuel, thus reducing their impact on the environment. In short we all benefit - it’s a win-win.

“We chose Amadeus as a strategic partner to provide the IT foundation to support our ‘Expanding CPH’ plan on how to grow from 25 to 40 million passengers per year. We are well on the way with that expansion plan,” Poulsen adds.

John Jarrell, head of airport IT at Amadeus, enthuses: “We are committed to supporting Copenhagen Airport’s vision to improve the airport’s operational performance and customer experience. We have seen great results working together, and for them to become an A-CDM compliant airport is a great milestone in our journey together.”

Copenhagen Airport and Amadeus announced a 10-year deal in March this year that will see the former adopt a wide range of Amadeus solutions. Amadeus Airport Sequence Manager and A-CDM Portal solutions are two of the nine solutions to be implemented as part of this agreement. ■

## Dubai Airports to increase the number of A380 contact stands at DBX’s Concourse C

Dubai Airports has commissioned work on a project to increase the number of A380 contact stands at Dubai International Airport’s (DXB) Concourse C, a move designed to enable the facility to accommodate Emirates’ growing fleet of super jumbos.

The project will increase the number of Code F gates at Concourse C from three to 13, bringing the total number of A380 gates at DXB to 47 – more than any other airport in the world. Concourse C became a part of the Terminal 3 complex used exclusively by Dubai’s flag-carrier Emirates and its partner Qantas, following the opening of the US\$1.2 billion Concourse D in February earlier this year.

The upgrade project, which began in the third quarter of this year and is expected to be completed by the end of 2018, forms part of Dubai’s Airports’ DXB Plus programme, under which the operator aims to increase DXB’s annual handling capacity to 118 million passengers by 2023 without building any additional major infrastructure.

Bryan Thompson, senior vice president of development at Dubai Airports, observes: “Considering the traffic growth at Dubai International and the central role the airport will continue to play for the aviation sector as well as Dubai’s economy over the next 10 years, it is vital that we provide additional capacity while enhancing our customer service. We believe this first project under DXB Plus will deliver on both fronts.” ●

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