

climate control

MIDDLE EAST

KEY PERSPECTIVES ON THE REGION'S HVACR INDUSTRY

November 2021

LICENCE TO CHILL

REFLECTIONS ON DC DIALOGUE

Dan Mizesko, US Chiller Services

EXPO DIARY

Interviews with Leminar, Faisal Jassim, Trosten, Panasonic

THE EXTENT OF INFLUENCE OF DIGITAL

How profound is digital intervention in lowering energy use, TCO?



Region Report:
The Nordic approach to sustainability

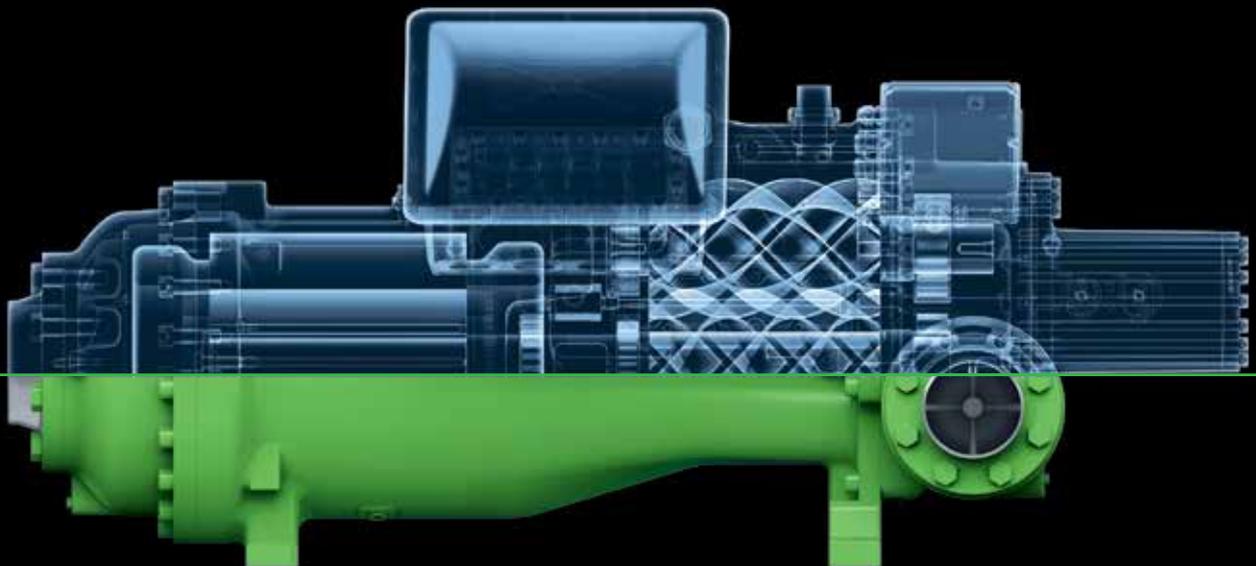


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How profound is digital intervention in lowering energy use, TCO?

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The Purdue paint

Whilst the world was preparing for COP26, a Purdue professor and his team of researchers announced the formulation of the world's whitest acrylic paint. Dr Xiulin Ruan, a professor of mechanical engineering at the university, said the paint, which contains an extremely high concentration of barium sulphate, has the ability to reflect 98.1% of solar radiation and to deflect infrared heat, effectively allowing buildings to cool below the surrounding air temperature without using any power. In his words, using the paint to cover a roof area of about 1,000 square feet could result in a cooling power of 10 kilowatts.

Compared to this, white paint available in the market reportedly typically reflects 80-90% of the heat and apparently gets warmer than cooler. The increase in efficiency and the reported potency in cooling down a building that the Purdue paint promises are sources of excitement that could provide a timely boost to global efforts at minimising greenhouse gas emissions – and not to forget, opening up the possibility of enhancing Indoor Air Quality. And further, not to forget, lowering total cost of ownership, which is as powerful a clincher as any in buying decisions.

This is not the first time that scientists and engineers have come up with yet another avenue of passive cooling. It would be interesting to see if developers and building owners the world over respond substantially to the possible potential the development holds. At the time of writing this editorial, I am not privy to any downsides the paint might have.

Does the performance drop over time? I don't have an answer to that. Is the paint expensive to procure? I don't have the answer to that, either. But, if it is indeed effective, a simple cost-benefit analysis would point to the financial feasibility of applying to a vast inventory of buildings.

The world needs such solutions, and for barriers to be lowered. Any and every solution that could help avert a climate disaster is welcome, despite the disruptive nature, despite the substantial investment ploughed into mechanical solutions. And perhaps it is not disruptive if meant to complement efforts rather than replace them.

The point remains – we are quickly running out of time, and we are doing far, far less than we ought to in mitigating climate change. The general consensus is that COP26 was a mixed bag, and that we are too caught up in unyielding political structures and a climate of mistrust to be able to make any meaningful progress. Yes, it is true, the construction and buildings sector represents just one source of emissions, with transportation and livestock being potent facets, but to lean on that would be a self-defeating argument. And that's why we need more like Dr Ruan to be flagbearers of progress.

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KEY PERSPECTIVES ON THE REGION'S HVAC INDUSTRY

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Dominic De Sousa (1959-2015)



V. Santhosh Kumar

‘WE ARE WASTING ENERGY HERE’

Aleksandar Jovanovic, Senior Sales Director, Climate Solutions, Turkey, Middle East and Africa, Danfoss and **V. Santhosh Kumar**, Sales Director, Climate Solutions, MENA Region, Danfoss, in conversation with Surendar Balakrishnan

What are your objectives in the new assignment?

Aleksandar Jovanovic: I am almost very fresh here, so it will be maybe an outsider’s view on the market, because I still haven’t met all the customers. I am coming from Europe, especially eastern Europe, which has been one step behind western Europe. Most of the innovation, when it comes to heating, cooling, air conditioning, electronics and controls is coming from Europe, which is way ahead of the United States.

My objective would be to introduce existing trends into the market and making sure that they are implemented and that they are explained to everybody. Even though there are lot of manufacturers here, in Saudi Arabia and in Turkey, which especially is huge, very few innovations are coming through. The trends are still emerging in Europe, from a product development perspective; here in the region, it is a matter of implementing them.

I am particularly passionate about educating the market. And again, if we look around here, we see a very different level of knowledge and understanding, starting from the end-users to the designers, and from the contractors to the service people. It depends from country to country, market to market, so it’s a very colourful picture, but basically, we spend a lot of time educating people and pushing the new technology through. And again, when I look here, there are so many different levels – you have end-users, who are very aware about the opex and capex and how it works. Most of them are still focused on initial investments without thinking about energy efficiency or lifecycle costs. You still have a lot of energy waste. A big part of my career I was working for food retail, so if I go to a supermarket here, I freeze myself with the open cabinets; I hate this. I was at a movie recently, and I was freezing, I mean there is absolutely no logic there. We are wasting energy here, and for sure, we can do better.

We can move the technologies, the new refrigerants into the marketplace. But, it is a process. We know how to do it, because we have the experience, but it will take time. Of course, any help is more than welcome, because of course, we cannot do it alone.

I think it is important that we are talking to the end-users, because without their mindset change nothing will move. We also need to go all the way down to the service guy, because again even if you had willingness to do something, if you have a lot of buildings and supermarkets, you also need to have the service guy who is educated in order to be able to service high-tech solutions. I heard two guys had died servicing a chiller here, and if I hear correctly, they put oxygen instead of the refrigerant in the compressor, and one of them was an engineer.

We need to make sure that people are aware that there are a lot of fake products in the market. The profit is such that every criminal is so good. Some of these things can be very dangerous. We also hear of people repairing the compressors. Some compressors are not meant to be repaired, so who knows what the guys did. In Europe, you have very few cases, but here in the region, it is present; again, it depends from country to country.

And, regarding the market, we are just revising the strategy. We believe Egypt will be a hot topic in the next few years. We were there together, a month ago, and I've been in the business for the last 25 years, and I have never seen anything like it. If you visited it recently, it's amazing. You are driving, and you have 100s of buildings being built at the same time – the Red Sea projects, the monorail... it's an unbelievable number of projects. Egypt is the fastest-growing market in the region, by far.

In Saudi, of course, on paper, it looks good, but they are slower when it comes to implementation, and that is the only difference. In terms of size, Saudi Arabia is even bigger, but the speed of implementation in Egypt is very fast. So, we are definitely planning to move more aggressively there and open the office. And you have the markets not counting the Emirates, and of course, we have Turkey, which is a huge market.

Santhosh, with perhaps the exception of Saudi Arabia and, to an extent, Qatar, we are seeing a change from a capital goods market to more of an aftermarket in the GCC region. Is the transformation forcing a revision of strategies?

V Santhosh Kumar: With respect to the Middle East, specific to the UAE, we have



Aleksandar Jovanovic

always been strong on our aftermarket. But, the level of education and training that's lacking with the service technicians is still our focus point, where we want to get more to the secondary market, where we can engage more with the service technicians and help them get to a point where they are ambassadors of Danfoss. When they are dealing with Danfoss products, they need to speak that quality and technical capability, so we are looking for some certification programmes for them and not just leaving it up to the wholesalers. Danfoss has also set up its priorities, and it's very evident that the focus must be on climate change. We are talking about the organisation, and

it includes the food chain, of course, and we are talking about electrification. It depends on various sectors and, of course, it depends on the market. For this region, Africa and the Middle East are the focus. With Egypt booming, with Saudi booming and, of course, Qatar and the UAE talking of the next 10 years of industrial growth, so I think this is all assuring that the growth will be taking place at a fast pace.

In my view, district energy becomes a big topic for us, and this is something that we want to educate, and we want other parts of the region to understand that this is happening in the UAE. In Egypt, they are developing a ▶

completely new city, which seems to be a summer house for just 3-4 months. They are not even talking about the concept of district energy there and developing such a huge city; in the long run, it will not be a sustainable project. So, we are engaging with consultants and contractors to make them aware of the benefits of district energy in terms of energy savings. District energy is becoming the focus for us, as is retrofit. For sure, the UAE is going to go on a revival, and I believe that there is a very clear focus on retrofitting the existing buildings. So, here we are again engaged with a lot of contractors and consultants to look into retrofit as not just specific to HVAC but as an overall solution provider, as we have all the products and technologies starting from lighting to HVAC control.

In the case of retrofits, the first priority are the hotels and hotel chains, and we are talking to the engineering departments. So that's another focus for us.

And then, we have the traditional business, where we are looking at the refrigerant change driving the industry. With OEMs, we still have people manufacturing with R22. I don't know whether it is acceptable or not.

When you speak on education, what is the direction you are taking? Is it total cost of ownership? Is it from an indirect emissions point of view?

Kumar: When I say total cost of ownership, that is a vital aspect. We'd like to take a step-by-step process. The more important aspect is with the contractors, consultants and the distributors, about trying to tell them what could go wrong and how not using the right technology would do damage. So, we are working on it at 2-3 different levels. We have set up a training centre in Deira, Dubai, with one of our partners, where we are bringing in customers and training them on a monthly schedule. Then, there are the trainings that we schedule for the leading contractors and the consultants, where it's more of a thought leadership, where we are talking about Danfoss and what it is focusing on in the next 2-3 years.

Jovanovic: No matter who you choose, we have so many references, world-wide, and so many software that can easily prove to the end user the ROI over

the cost of ownership. We are not inventing the wheel, we are just trying to implement something that already exists, and it's just one more step if we are talking about CO2 and you don't need to explain the green footprint and the fact that it is super energy efficient.

Talk us through this. You have reported success with the CO2 transcritical solution in a supermarket project in Jordan. What would it take to switch from R22 to this? How can you amplify CO2 across the entire GCC region and Egypt?

Jovanovic: Normally, this is an end-user approach, and it is easy to show the payback time – it's not rocket science. And all the cabinet manufacturers that we are dealing with here are already building the CO2 system; we only need to train the contractors here, but again we know how to do it, because I did it starting from the Czech Republic to Ukraine, because it was from one market to the next.

Now despite what you have reportedly achieved in Jordan, are you seeing instances where people are still not convinced that CO2 transcritical systems will work in high-ambient conditions? Do you sense other factors at work – say, the cost of moving away from R22?

Kumar: From an end-user perspective, it is seen as an initial high cost of investment. So, the ROI is not really looked into at an early stage. Also, it's a personal drive for the end-users – when giants, like Carrefour, come into the market and establish a system, then we will see other chains coming in. But I believe it is seen as a high investment cost at the beginning.

Are there any instances of the ESCO model being applied in the refrigeration sector?

Kumar: We are engaged with Al Gurg, and TTE, which is an ESCO-certified company, as well. We are now engaging with them on certain projects. They are talking about a complete retrofit ESCO approach, and

they are looking at all the aspects. For example, we are proposing micro-channel condensing units to go with this, and of course, they are moving into an ammonia system. We have just started off with this discussion with them, and we have some reference projects, and there can be a full package that will do the whole project – the consulting as well as the execution. And, talking about CO2, the fundamental issue is that we can train, but are there resources who are really capable of taking up such a kind of training – that is a big challenge confronting the industry. We have had instances where the contractor says the technicians have no background. They wanted a job, they got in and then, by experience, they do things.

Today, we still find people installing a reciprocating compressor and then using the same methodology to install a scroll compressor, which will be a big failure. So, even when it comes to charging the systems, many things are still lacking, so I think it's a long way, but it has to be a sustainable way of planned activities that we have to do in order to upgrade the level of education with these technicians. So, CO2 will take some time. We don't have the infrastructure, the skilled labour. These are high-end systems, and playing with them will cost us serious damage. And also, the industry should have the drive. In refrigeration, we don't have enforced regulations that are pushing the industry to make these changes.

Jovanovic: We hear how the region is taking serious care about energy efficiency and savings; on the other side, R22 is still allowed in the market, which is the total opposite.

How difficult is it to install a CO2 transcritical system?

Jovanovic: It's not at all difficult – you just need to be more careful, as it is higher pressure. It's not such a big deal, we hear thousands of installations across the world. But you need specialised contractors, we need to train the existing ones. [ccma](#)



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THE NORDIC



REVOLUTION

The Scandinavian HVACR industry is widely seen as a front-runner in sustainable development, with a strategic focus on energy efficiency, renewable energy and better Indoor Environmental Quality

By **Charmaine Fernz** | Features Writer

Scandinavia, better known as the 'Nordic' countries, is blessed with abundant natural beauty. This section of northern Europe has been the front-runner in implementing green regulations and, broadly speaking working incisively towards a greener future.

According to the Federation of European Heating, Ventilation and Air Conditioning Associations (REHVA), there is constant ongoing research and development on energy efficiency, renewable energy sources and indoor environment. However, post the Paris Climate Agreement, in December 2015, there has been more

focus on measures to reduce greenhouse gas emissions. The aim – future buildings must be real zero-energy buildings over their lifetime.

GOVERNMENT INITIATIVES

Interestingly, sustainable initiatives have taken years to implement and regulate. However, Ronak Monga, Lead Business Development Manager - Commercial Building Services (CBS), GRUNDFOS Gulf Distribution FZE, explains that the Scandinavian government, along with the European Union, is driving sustainability in several ways, not least by having legislative measures in place for minimum efficiency and performance

requirements. "Initiatives, such as green tax breaks, taxation on CO2 emissions and green funds for innovation are among the long list," he says. "These encouraging initiatives are making businesses take steps to improve their carbon and water footprints, helping them become more sustainable."

Monga speaks of a similar working structure in the district heating sector in Scandinavia, where there is a push to adopt 100% biofuels or renewable energy by 2040. Today, in Denmark, he says, 51% of all district heating is done by biofuels, while 38% is by fossil fuels; and the remainder is ▶



Ronak Monga

dependent on other sources, including renewables. He says Denmark is taking several steps to convert the 38% of district heating installations to completely renewable or a mix of renewable and biofuels, to become completely non-fossil fuel-dependent by 2040. Denmark and the rest of the Scandinavian countries, he says, serve as a very good example to the rest of the world, in proving that doing good for the environment is also good for the business.

PEOPLE'S INSIGHT

Scandinavia is seeing the latest standards and sustainability initiatives being adopted and implemented, with development goals across all industries and residents. Monga points to how homeowners are more aware of energy, water, and heating or cooling costs within their homes. "In some parts of Denmark, a rating system on homes is deployed, where homes that are rated high on efficiency by use of latest boilers, pumps, lighting and building envelope get a higher rating," he says. "These developers can demand a higher buying price on homes, and owners can demand higher rent." Monga goes on to suggest that this is a win-win situation for all, coupled with a great initiative and motivation for the developer and residents alike. The benefit as they know is paying a higher upfront cost on the property, but a lower operational cost on living expenses, he says.

From a business point of view, Monga

explains, facility managers are looking for more insights, enabling them to make more informed decisions on facility equipment. MEP equipment is getting more intelligent and connected. With this connectivity, facility managers gain the advantage of insights that are previously missed.

Sharing a similar point of view, Robert Johansson, Sales Manager, Systemair Sverige AB, says that homeowners and facility managers are looking for low energy consumption and sustainable

products. "The SFP value has a strong impact on the ventilation systems, and demands are normally 1.5 or even lower," he says, "with heat recovery being at least 80% or higher even during outdoor conditions at -30 degrees C." This would mean taking into account the freezing situation, too. Johansson further adds that the technical rooms must be even bigger as air-handling units (AHUs), as well as duct systems, are bigger, followed by customised ventilation systems with demand control feature. ▶

After 1973

Lars-Olof Johansson from Engelholms KylKonsult takes us through a trip down memory lane to events that shaped the sustainability ethos in much of Scandinavia...

It all started in 1973, when following the war between Israel and the Arab countries, Scandinavia was plunged in an oil crisis.

Across Scandinavia, or even overall Europe, there was little chance of procuring oil to heat even the buildings. During this period, in a bid to reduce oil consumption, the Swedish government laid down a programme for people living in independent buildings to improve insulation. This would be for all ventilation insulations in a bid to

reduce energy consumption. Furthermore, the government paid up to 35% of the installation cost as a kind of subsidiary.

The government-led initiative, which lasted 15 years, witnessed a 20% reduction in total energy consumption in Sweden. This was a huge step.

The regulation on refrigerants followed in 1992. As per the regulation, the government gave substantial subsidies and loans with low or zero interest to encourage more green effective installations.

Swede story

H.E. Massoud Biouki, Sweden Trade Commissioner in the UAE, describes the quintessential Swedish mindset on sustainability



H.E. Massoud Biouki

Sustainability is one of the absolute top priorities of the Swedish government. Sweden is known worldwide as a powerhouse within sustainability. Currently, roughly 60% of energy in Sweden is from renewable energy sources, and the Government has set a goal to reach 100% by 2040. Through a strong collaboration between the government, academia and private sector innovations, we are well on the way to meeting the goal. Specifically, for the HVAC industry, Sweden has set a target to reduce energy consumption by 50% by 2050. To achieve this, there is a major focus on sustainable HVAC and energy efficiency from the Swedish government.

The country is also ranked one of the world's most innovative countries, frequently ranking in the top five in different categories. The majority of innovation spending comes from multinational companies spending on research and development, and this, of course, includes companies within the HVAC industry. The Swedish Government has also allocated resources to promote energy-efficient ventilation solutions within the HVAC industry. All these factors are more towards cleaner air.

BETTER IAQ

Sweden is a country with the cleanest air in the world; having said that, there is always room for improvement. The Swedish government is continuously working to acknowledge that improved

indoor air quality (IAQ) is a way to protect public health.

In 2018, the Swedish government took a big step in allocating USD 1.8 million in the yearly governmental budget – and an additional USD 3.2 million over the coming three years – to enhance IAQ in Sweden. The allocated funds focused mainly on creating platforms to enhance knowledge about improved IAQ, but also focused on solutions to achieve this, namely ventilation and filtration technologies. Further, new regulations recently implemented reward for buildings with demand control of ventilation.

SUSTAINABLY STRONG

Sweden has always had a strong focus on sustainable practices, and this is something that is seen as a cornerstone of many regulations and standards. Energy efficiency is also a key part of the Swedish industry, in general, and of the HVAC industry, in particular – Swedish solutions have always aimed to be as energy-efficient as possible, as this contributes to improved sustainability, overall. Finally, Swedish standards have for a very long time had a strong focus on durability and quality, to construct buildings and systems that last for a long time, which in turn, contributes to a higher level of sustainability.

As sustainability is a key part of Swedish projects, all construction and large-scale projects undertaken in the country normally include a heavy

emphasis on long-term sustainability. However, one key notable project is the Hammarby Sjöstad development project, in southern Stockholm, which is one of the world's most mentioned and visited eco-friendly and sustainable reference cases for urban developments. This project incorporates sustainability in all aspects of the project and development lifecycle.

DISTRICT COOLING IN STOCKHOLM

It might seem strange, considering the cold climate, but the District Cooling network in Stockholm is the world's largest district cooling system, based on the number of customers it serves. It covers almost all of downtown Stockholm.

While Sweden doesn't need as much cooling for indoor living purposes as in the GCC region, due to the cold climate, there is an abundance of cold water supply that can be used in the district cooling system. In addition to that, the Swedish District Heating system is also world-leading, and many Swedish companies from this industry are active on a global level as both consultants and solution providers.

Specifically, for this region, we see a large and untapped potential for increased collaboration between the GCC region and Sweden with regard to district cooling, where Sweden can once again contribute with competence and expertise to drive sustainable growth in the district cooling sector in the GCC region.



Fredrik Häggström

Weighing in, Fredrik Häggström, Sales Director, New Business and NE Europe, Camfil, says that times are very different. “Today, we are witnessing an increasing demand for premium products with high efficiency,” he says. Residents today are well informed, and with the increasing population, the question that arises is the case of retrofitting and does it work in the ‘Nordic’ countries?

RETROFIT REPORT CARD

Interestingly, Lars-Olof Johansson from Engelholms KylKonsult says that the concept of retrofitting faded away more than 20-25 years ago. Scandinavia, he says, started very early, just like the whole of Europe, with regulations coming into play right from 1992. “These regulations meant replacing old Freon with advanced Green options, which was implemented in 1995 across Sweden,” he says. “This meant the market need for retrofitting was overcome.” After that, there was nothing left to retrofit, as it had been replaced with new insulation or environmentally friendly installations that use natural refrigerants.

Sharing an opposing view, Monga asserts that retrofitting of existing buildings is high on the agenda for many end-users. “This is primarily to meet local legislative and energy-efficiency goals set by the EU, as well as to reduce energy and water consumption,” he says. “Retrofitting helps create a positive impact on climate change.”

Citing an example of retrofitting, Monga highlights pumping applications on domestic circulator pumps, which are measured on an Energy Efficiency Index (EEI). The EEI of all new and replacement circulators, which will be retrofitted instead of existing pumps, have to be less than or equal to 0.23, he says.

10-12% of projects being retrofit assignments.” The scope varies to include replacement of existing equipment, the inclusion of new and more intelligent controls to existing pumping equipment as well as installation of digital solutions, he says.

“Interestingly, one can have a small shop in a remote village or forest without any grid network,” he says. “With hydrogen fuel cells, you have the air conditioning running.”

RETROFIT UPTAKE

The revival of retrofitting means there is an increased focus and methodology. As Robert Johansson states, the percentage of retrofit project assignments are approximately 30-50% across new modern energy-efficient products and systems. “Exhaust ventilation will change to supply/exhaust and heat recovery, followed by demand control in air distribution products for buildings,” he adds.

From a business perspective, Monga speaks of how Grundfos is seeing an uptake in retrofit, with nearly

OVERCOMING ROADBLOCKS

Interestingly, with change always comes the challenge. This is especially true in Scandinavia, with growing interest in advance technologies in the HVAC industry. This is because good heating has always been a necessity due to the cold climate in the Nordic region. As the primary energy use of buildings is about 40% of energy demand, good energy efficiency has been on the Nordic agenda for decades. The harsh climatic conditions have also made people demand a good and comfortable indoor environment.

These requirements have also given rise to several challenges within the industry. Lars-Olof Johansson says the main challenges for the construction industry are to reduce energy consumption, the impact on the environment and global warming, and to design or construct something that has a long lifetime and a reduced lifetime cost. “These are the major concerns as we do not just consider the installation costs but look at it like LCC (Life Cycle Costs),” he says.

Weighing in on the subject, Monga says HVACR – specifically heating – represent the highest energy-intensive applications with buildings. One of the challenges faced within the buildings and construction industry, he says, is the difference between the design or intended design, and the final product. While the consulting engineers/designers intend to design and execute the most efficient HVAC systems, in reality, the execution may not reflect this, he says, adding that this typically arises from the lack of proper controls and equipment commissioning. “It isn’t enough to just have the most efficient equipment and correct design,” he says. “Commissioning is the third very important part of the equation to deliver on the intended performance.” Monga sees several steps that need to be taken within existing buildings, such as adopting digital analytical tools and replacing older equipment with new and smarter self-controlling equipment, which help find and overcome shortages.

Adding to this, Haggström says the biggest challenge is to find competent staff followed by inflation and long delivery times of certain materials, which can disturb the business.

ENVIRONMENTALLY CONSCIOUSNESS 2.0

Several challenges across Scandinavia are overcome with constant research. Key findings from REHVA state that when moving more towards the use of renewable energy sources, the demand side management becomes vitally important. The use of energy should match with production. ICT applications with reliable building simulation and control systems become more important. In the long run, the EU, with Scandinavian countries in the first row, will stop combustion as a source of heating, first coal and later the



other fuels. The Finnish government has decided to place a ban on the burning of coal for energy production by 2029. This will lead to an innovative new use of integrated energy systems, not only at the buildings level but also at the community level. In Scandinavian countries, this development will be the first, as there are no extensive natural gas networks to supply cleaner fuel for heating.

“There is some new development every week,” Lars-Olof Johansson says, pointing to the dynamic nature of work involved. Citing an example, he explains there is an association in Sweden recovering all plastic waste material that is recycled. This recycled material will be converted to biodegradable bottles as well used to make washing powder or dishwasher powder. The factory for plastic recycling is spread across 60,000 square metres in the southern part of Sweden. The facility is a zero-energy building, with solar panels installed on the roof, and spanning 60,000 square metres. This is being done to avoid buying electrical energy. “Similarly, many houses in Sweden are now installing solar panels on the roof,” he adds.

FUTURISTICALLY NATURAL

In Lars-Olof Johansson’s view, the next bet would be fuel cells and hydrogen. “Fuel cells are a very good invention,” he says. “When used in a car, the only residue that comes out is water and steam, with no emissions.” Interestingly, the source for the fuel cells is hydrogen, which can be split up by electrolytic catalysts from water, which can be used as petro hydrogen or green hydrogen. “The concept of using hydrogen was unknown a few years ago but now is developing at supersonic speed,” Lars-Olof Johansson points out. Hydrogen fuel cells are very easy to produce. They can be produced locally with just water, wind turbine or solar panel and stored in tanks like gasoline. Hydrogen can be used across industries, be it transportation, oil or even the construction industry.

Lars-Olof Johansson explains that for the HVACR industry, hydrogen can be used as a kind of a power source for remote installations, characterised by absence of grids. They can also be used to complement the conventional grids, in order to reduce operating costs. “Interestingly, one can have a small shop in a remote village or forest without any grid network,” he says. “With hydrogen fuel cells, you have the air conditioning running.” [ccme](#)

REFLECTIONS ON DC DIALOGUE

Participants in CPI Industry's district cooling conference, in June 2021, shared comments that formed an interesting wish-list. Well, guess what? Some of the solutions are readily available.

The August 2021 edition of *Climate Control Middle East* magazine carried a detailed post-event report on the DC Dialogue conference, in June 2021, which I found interesting.

The most thought-provoking comments were in the point-counterpoint section of the report, on what participants wished to see to improve the district cooling industry in the GCC region. I found all the panelists and commentators very knowledgeable in their respective fields of expertise. I want to follow up on two of the wish-list items in this article. Both are available and can be utilised immediately.

First, in a discussion relating to the building user side of district cooling, George Berbari, CEO, DC PRO Engineering, stated that connected buildings need to operate efficiently, pointing to a law in New York City, in which buildings are required to report data. George mentioned that he would like to see this implemented in the GCC region. In the same vein, Nasar Bin Jarsh, COO, Emicool, stated that Emicool is reporting monthly Kwh, and that putting all this in one bucket and looking to see a building's cross-section of building energy use would be amazing.

Regarding the law that George was referring to – New York City Local Law 87 – it requires that all buildings over 50,000 square feet report energy consumption annually. Now, the technology to analyse this reported data that Nasar requested is currently available and can be implemented in any building in the GCC region. All that would be required are the utility bills of the past three years and subsequent monthly utility bills.

This data needs to be loaded into a software program, and you have all the information and analysis you need at your fingertips. At US Chiller Services, we already use a technology that performs this and other analyses and calculations, in New York and the GCC region. The program finds, tracks and proves energy savings for buildings. At a macro-business level, the information helps answer the business questions that lead to better-performing buildings. Whether it's one building or large portfolios, the technology uses utility bill data to answer four key business questions:

1. How are your buildings doing? It is about understanding performance at a building or portfolio level. You can see performance in simple metrics and benchmark a building against itself, a portfolio, its peers and ENERGY STAR Portfolio Manager.
2. Are buildings getting better or worse? The technology helps prioritise where to focus attention on, by watching building expenses, and use with weather patterns and changes in your building. You can then spend time finding solutions for those buildings with the greatest needs.
3. Where are the best opportunities for savings? The technology will help implement solutions that will change building performance. It will enable you to identify low-cost operation and maintenance changes, and plan for improvements with a good return on investment.



Dan Mizesko is Managing Partner/ President, U.S. Chiller Services International. He may be contacted at dmizesko@uscny.com

4. Have past improvements paid off? The technology will help measure and prove the results. Every investment – large or small – should yield results. Tracking changes and improvements will allow you to build best practices and save more.

At US Chiller Services, we collect, input and validate all necessary monthly utility energy data for our customers to help find, track and prove savings.

Additionally, the technology:

- Documents cost, consumption and carbon
- Benchmarks building against themselves, their peers, and similar buildings
- Compares utility cost and consumption metrics across utilities
- Normalises for the effects of weather and correlates energy to business variables
- Quantifies cost savings achieved (managing to ASHRAE and IPMVP standards)
- Allows seamless integration with ENERGY STAR
- Shares visibility with building professionals, who can offer and deliver solutions

The program, called Utility Insight, yields a simple, easy-to-understand building performance report, delivered as a cloud-based software application that enables building professionals to understand, manage and implement efforts to reduce energy usage and expense. The technology brings visibility across entire portfolios – making buildings comparable not only to themselves but to their peers, to ENERGY STAR and to business factors that matter. This readily available and in-use technology covers the requests for reporting and analyses that George and Nasar discussed in the DC Dialogue wish-list.

The second wish-list item I would like to follow up on was a question by Sekhar Reddy, Managing Director, Lexzander: “Why aren’t we using gas, which is in abundance in Dubai?” I found the question very reasonable, as I have not seen any gas-driven or hybrid gas/ electric-driven centrifugal chillers at any district cooling plant in the region.

In January 2017, the UAE launched its Energy Strategy 2050, according to which the country would diversify its energy mix and include 12% clean coal, 38% Natural Gas, six per cent nuclear energy and 44% clean energy (solar power, wind power and biofuels). The strategy aims to increase the share of clean energy in the country’s electricity generation capacity to 50% by 2050 (44% renewable and six per cent nuclear). Having gas-driven centrifugal chiller plants or hybrid-operated centrifugal chiller plants would seem to fit with this strategy and allow the electric utility a more remarkable ability to meet demand in the summer, when the District Cooling plants either switch over to gas-driven mode or are operating fully on gas-driven technology.

In addition, advances in Natural Gas/hydrogen (NG/H2) blending are fast developing. As the name would suggest, NG/H2 blending integrates concentrations of hydrogen into existing natural gas pipelines to reduce the carbon intensity of the methane. This



A gas-driven centrifugal chiller

blending carries the hydrogen and natural gas mix to the intended location.

Gas-driven chillers cool water using energy provided by a natural gas engine. They operate similarly to electric chillers, substituting the electric motor for a gas engine to drive a compressor.

The engine that drives the compressor in a gas-driven chiller can operate at multiple speeds, which means that one unit can handle ▶



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LICENCE TO CHILL

multiple loads. Gas-driven chillers are used to provide larger tonnage cooling loads in areas with medium to high electric rates. In particular, they are installed in hybrid systems with electric chillers. Such systems are optimised to provide the most economical cooling, often depending on the time of day. Gas-driven machines are used during on-peak electric times, and electric-driven might be used off-peak.

With Natural Gas in abundance in the GCC region, having a district cooling plant operating fully on Natural Gas chillers, or at least hybrid plants, could make sense. You can even have a hybrid chiller, whereby the chiller will work as a Natural Gas-driven compressor and as an electric-driven centrifugal compressor, installed in parallel. The chiller can operate on either energy drive.

District cooling must be regarded

“ Advances in Natural Gas/ hydrogen (NG/H2) blending are fast developing. As the name would suggest, NG/H2 blending integrates concentrations of hydrogen into existing natural gas pipelines to reduce the carbon intensity of the methane

as mission-critical in the GCC region. In other words, there ought to be no room for outages or failures. Gas-driven chillers, installed along with electric-

driven chillers, can offer better reliability and plant uptime. If a power failure were to occur at the district cooling plant, the gas chillers and backup generators for pump and tower fan loads would give the plant full redundancy and reliability and provide cooling during an electrical outage. This technology is available to be utilised in new district cooling plants or to be integrated into existing district cooling plants.

I found the points about reporting/ analysing building energy data as well as the point of utilising Natural Gas in the district cooling industry very thoughtful and impactful. I am excited that these technologies are currently available, and given that major professionals in our industry are bringing both technologies into the forefront of discussions, we should all begin the process of considering and implementing them. **ccme**

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THE EXTENT OF INFLUENCE OF DIGITAL

How profound is the impact of a digital ecosystem on efforts towards greater energy efficiency and towards reducing the total cost of ownership in the GCC region? **Charmaine Fernz** of *Climate Control Middle East* has the report...



A post-pandemic world has stressed the need for a digital transformation, and it is becoming obvious by every passing day that companies looking at business growth cannot afford to sidestep the fast-evolving IT ecosystem. Srinivasan Rangan, Director of Marketing and Product Management, Rheem MEA Manufacturing, is of the view that

the HVACR industry is undergoing a decisive digital transformation. “Customers today are looking for superior home comfort, energy efficiency and sustainable solutions that are pushing innovation boundaries to advanced business models,” he says.

Digitalisation in the HVAC industry is not just about smarter solutions but enhanced business efficiency in the long

run. Elaborating on this, Visakh Tom Jose, Sales Manager – Air Solutions, LG Electronics Gulf, speaks of how digitalisation also improves operational or service capabilities of a building by leveraging digital technologies and digitised data. “This has been an ongoing process within the HVAC industry but has witnessed a sudden surge in the last few years,” he adds. ▶



ARE WE READY, THOUGH?

With a quick uptake of new technological advancements, the consensus is that typically, digital solutions need to be variable and scalable, depending on the amount of equipment and size of a facility. Atif Masud, Director, Service, and Aftermarket, Carrier Middle East Limited, says: “Most customers consider digitalisation an investment for the future, aligned to industry trends. The entire digitalisation process is also part of a long-term, multi-phased plan, with costs spread out over the project to realise the benefits.”

The pandemic has fast-tracked technological advancements across every sector, and the HVAC industry is no exception. However, the general view is that there are several factors to be considered before adopting the process, such as the scope of services brought under digitised data and the extent of data design and analysis. As Jose puts it, “The scope is very wide, and there is also a growing need for tailor-made solutions.” These factors, he says, affect costs,

which include designing an HVAC system with embedded software to extreme comprehensive control and monitoring of all MEP services, lifts and CCTV – all connected to the cloud. These elements, he adds, constitute approximately just five per cent of the total MEP package price.

Further, associated costs play a vital role in digitalisation. Citing an example, Jose says: “If one has to take only the HVAC systems, central remote controlling systems start from a point of only 16 units to more than 8,000 units. Again, as the scope changes, functional features also change, which can affect costs.” It is commonly known that technologically advanced systems accrue associated costs that include cloud-based IoT solutions, smart sensing components, or thermostats integrated with mobile applications. Sharing a similar point of view, Rangan says: “Digitalisation of HVACR equipment involves dedicated costs for research and development, safety, performance and reliability. The process would also require existing

controls to be upgraded to incorporate the new technology.”

One cannot but ignore that there is a significant cost associated with developing technology infrastructure, such as cloud-based data storage systems, data security, building management systems and smart buildings. Interestingly, the pandemic has taught a vital lesson – there is drastic imminent change and blurred boundaries through technology. The HVAC industry, though legacy bound, is slowly but steadily adapting to changing scenarios. The question that arises is whether retrofitting is the best option? The answer is a simple ‘yes’.

RETROFITTING: BOON OR BANE?

Deployment of new technology comes with a host of changes. In the HVAC industry, adapting to the whole new world of digitalisation is a long-drawn process. Beginning with the construction, though, contractors will perform the retrofit work; however, it is the homeowner who must have a need. Rangan asserts that retrofit requirements can stem from end consumers or individual homeowners but should be handled by trained HVAC professionals.

Interestingly, digital HVACR solutions are better received by homeowners, compared to legacy systems. Retrofitting of existing buildings makes them more useful due to better optics and functionality. The general conclusion is that the implementation of advanced systems reduces overall power consumption by adapting and automatically adjusting system settings to custom-suit a homeowner’s comfort.

Rangan further explains that retrofitting existing buildings with digitalised solutions is the need of the hour. “The benefits are immense, such as improved efficiency, superior user interface and integration capabilities with building management systems,” he asserts.

COST AS A FACTOR

Industry reports on digitalisation suggest that building owners usually absorb the investment cost, upfront. The benefits are later accrued from the savings and returns of the digitalisation initiative. As Rangan says, everything depends on the



type of technology used. Not all digital solutions would lend themselves to a full-building retrofit and can be carried out without disturbing the HVACR system until the completion of final commissioning. Typically, this takes a few hours to complete. However, if this involves component upgrades, at least a part of a building may need to be shut down, he says.

Jose points out that digitalisation does not affect the way existing mechanical systems work, though, nor does it change internal control logic within the systems. By digitalisation, all mechanical systems are connected to a digital platform to extract data, based on which analysis is done, and machines are instructed by an external source to function in a particular method to enhance the service and operational level capabilities of the building.

Businesses today are looking for cost-effective methods, and retrofitting digitised equipment can be financially beneficial. "Digitalised solutions are the basic and cheapest way of attaining the first step of energy efficiency in a building," Jose says.

Crunching numbers, he says that digitalisation of existing HVAC, lighting and plumbing equipment in a building, can achieve approximately 5-15% energy efficiency. Digitalisation retrofits are not just about connecting systems

“ AMC through IoT is also slowly picking up, because it enhances troubleshooting speed, thereby reducing downtime

to the central system or cloud; they also involve using the right software to reach an efficient ROI. Interestingly, it is believed that retrofitting an old, inefficient HVAC system and other services with the inverter-based HVAC system and efficient services, along with a tailor-made digitalised solution, can also bring at least 50% energy savings to a building, depending on the site.

However, retrofitting is an ongoing process that has an impact on several divisions and, more importantly, requires a constant update of information. Training is key to understanding subjects like performance optimisation of the system, using building controls systems, and analysing data to deliver proactive health and predictive insights. Now, that is something to ponder and plan.

OVERCOMING CHALLENGES

With every opportunity comes a challenge. The question is, 'how do we overcome it and drive towards profitability?' Digitalisation in the HVAC industry to be future-ready requires overcoming many challenges, including a change of mindset or even mere availability of software solutions. Raising an interesting point, Masud says the financial aspect is one of the key barriers for building owners when it comes to digitalisation. The initial investment costs, in some cases, can be high and may be seen as an obstacle to quick investment decisions.

While some may believe they can overcome the finance-related challenge, they may confront a technological hurdle, stemming from the fact that not all digital options may be universally suitable for all solutions. "This may require on-field or laboratory testing, to be deemed safe and efficient for use," Rangan says.

Training homeowners is another factor to be considered, as some may not be comfortable using advanced digital solutions and may prefer analogue controls. Data security follows next, as many digital devices may need to be integrated with homeowners' Wi-Fi connection or may require device permissions to access location data. "Additional on-ground challenges could include upfront costs, privacy and data protection," Rangan warns, adding



that in complex systems, information systems need to be protected to detect potential attacks. Companies also need to invest in training HVAC technicians while constantly educating them on multiple technologies for maintenance. Then, there is a risk of delivering obsolete technology. For homeowners who prefer digitalisation, there is a need for expert knowledge, multiple changes and customisation.

THE SUSTAINABILITY APPROACH

Any digital transformation is a mere journey. It is a consolidated effort by a city, country or nation towards becoming more future-ready, which is ongoing and constantly evolving. The next key factor is being sustainable. Interestingly, there is a growing motivation among building and business owners across the GCC region to pursue smarter solutions. Rangan says:

“Market drivers are looking for efficient and sustainable initiatives. The technological benefits of better user interface and efficiency are some of the decision-making criteria.”

From a government perspective, there is no mandate particularly for digitalisation in new buildings. However, many policies are being implemented for driving digital transformation in the UAE across various sectors. Jose cites the UAE Digital Government Strategy 2025, which outlines various activities leveraging emerging technologies to build capabilities. “We expect mandates to incorporate digitalisation in buildings

“We expect mandates to incorporate digitalisation in buildings to be formed very soon,” he says. “This is being done to drive sustainability and help the UAE achieve the ultimate aim of UAE Energy Strategy 2050.”

to be formed very soon,” he says. “This is being done to drive sustainability and help the UAE achieve the ultimate aim of UAE Energy Strategy 2050.”

The Dubai Government also launched a digitalisation strategy, in 2017, to boost government performance at all levels and to create a new vital market with high economic value. The UAE Vision 2021 and UAE Centennial are also strategies that have strong themes around digitalisation and transformation.

BEING FUTURE-READY

With a strong push by governments not just in the UAE but across the GCC region on digital transformation, the trend is evolving and buildings are getting smarter. Today, it is all about the Internet of Things (IoT) and Artificial Intelligence (AI), both of which, when incorporated, will make any country future-ready. IoT platforms are enablers of smart, healthy and connected buildings. As Masud puts it, “Digital technologies, such as cloud analytics, big data and AI/ML are changing the way the industry creates value and delivers service.”

Many markets are shifting towards sophisticated controls for HVACR equipment. AI and IoT are part of every product development. Rangan says: “Features, like Scheduling, Geofencing, Learning Algorithms, and Temperature Setbacks, are popular with homeowners. Moreover, remote controlling HVACR equipment through cloud-based solutions are next on the list for new homeowners. The potential for AI and IoT is limitless, even providing service reminders and allowing manufacturers or suppliers to remotely access system parameters to analyse the system’s overall health

and maintenance requirements.” Energy-service companies (ESCOs), or similar businesses, could provide comprehensive energy packages, such as smart controls combined with heat pumps and renovation measures, aimed at delivering energy savings across a range of end uses. Smart optimisation and control technologies, as well as IoT, would enable better cooperation with service providers and equipment manufacturers.

AI and IoT are the future. While IoT already plays a major role in the digitalisation of HVAC services, AI is expected to follow soon enough. There is a precedent of uptake: Building Management Systems (BMSes) connected to the cloud are becoming a common trend across retrofits. “Around 80% of clients going for an HVAC retrofit opt for IoT,” Jose says. “AMC through IoT is also slowly picking up, because it enhances troubleshooting speed, thereby reducing downtime.” Simply put, the potential is vast; it seems a matter of time before the region starts seeing a greater uptake. [ccme](#)

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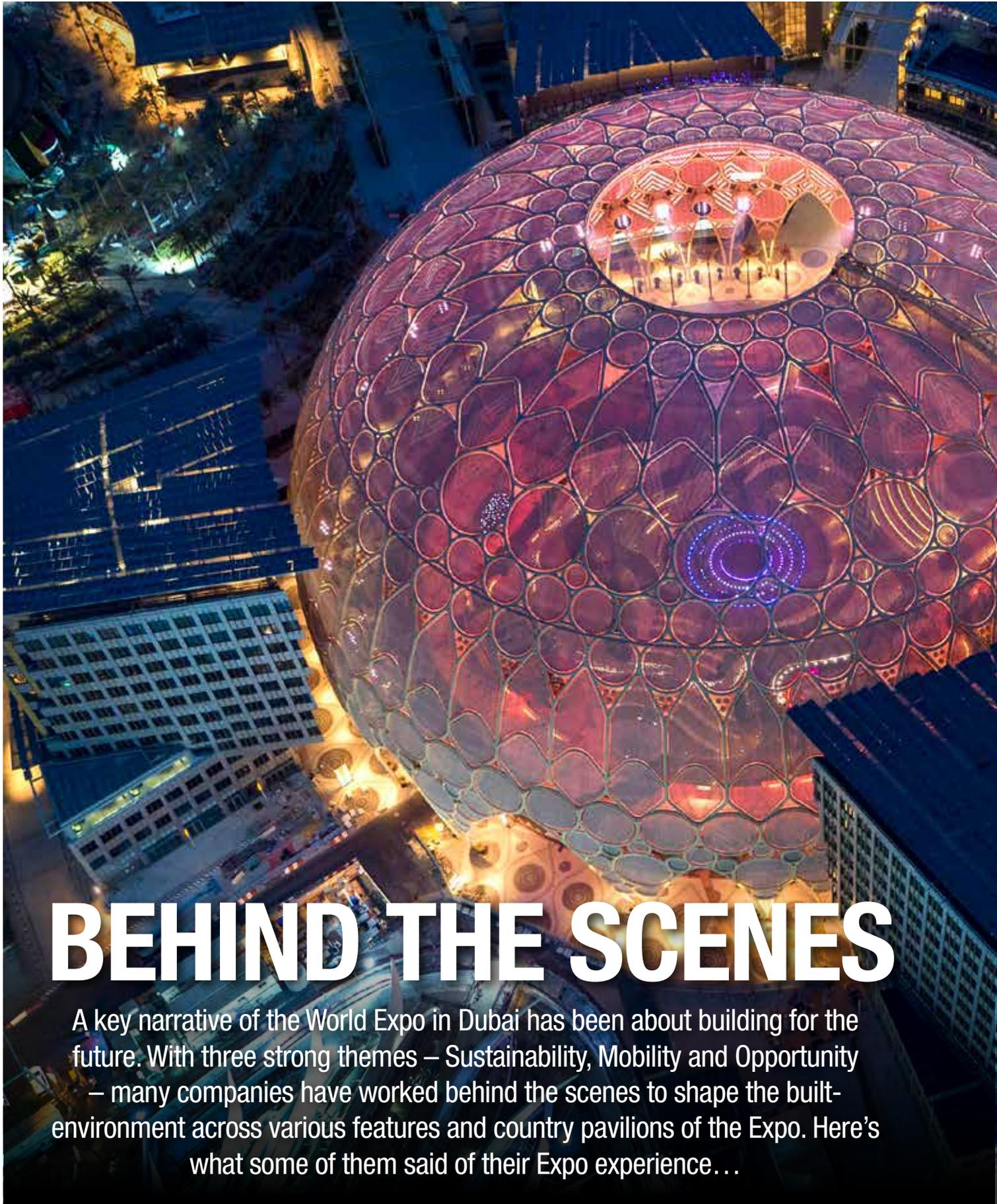
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BEHIND THE SCENES

A key narrative of the World Expo in Dubai has been about building for the future. With three strong themes – Sustainability, Mobility and Opportunity – many companies have worked behind the scenes to shape the built-environment across various features and country pavilions of the Expo. Here's what some of them said of their Expo experience...



A common thread running through the World Expo, which commenced on October 1, 2021 and which concludes in end-March 2022, is about innovation and future preparedness. As per reports from the Expo committee, the first 10 days of the event attracted more than 400,000 visitors. Since then, in just 24 days since the start of the event, the number of visitors has swelled to nearly 1.5 million. According to the committee, the numbers are growing, and more visitors are coming over to explore futuristic innovations.

A major highlight of the Expo site is the dome at Al Wasl Plaza, which is the world's largest 360-degree projection screen. More than 3,000 lighting fixtures and 1,000 speakers are contributing to a one-of-a-kind spectacle of masterful artistic collaboration. This is just one per cent of what the Expo has to offer across its 74 pavilions, though.

I spoke to four companies that contributed to providing comfort cooling to some of the features and pavilions...

Pramodh Idicheria

COO, Engineering and Healthcare Services, Oasis Investment Company LLC, Al Shirawi Group

What have you installed at the Expo site?

Al Wasl Pavilion is covered with a dome designed like a trellis that is 65 metres in height and 150 metres in diameter. The structure demanded a large number of indoor cooling units at various angles, fixed to the interconnected rings of S460 pipes. This had to be done with appropriate adjustment of blowers along with the removal of condensate water to minimise heat produced by the lights. Together, the team, comprising Leminar and Rheem, did extensive research and development and built a mock-up indoor unit with an impromptu model of the air conditioning units in the Leminar Service Centre, in Dubai. Once the unit provided positive results, it was transferred to the pod's manufacturer in Mexico to understand the stress and operational capability. It passed the required tests and demonstrated its perfect fit for the trellis structure.

We have supplied 84 individual VRF systems with a total capacity equal to 420 HP in this project. We have also supplied more than eight pavilions with VRF systems, with a total capacity of 806 HP. We have supplied the high-efficiency SAVR series VRF units with a capacity range from 8 HP to 14 HP. These have been supplied to Thematic Districts, Expo 2020-Dubai Developments, Mechanical Parcel Shell



Pramodh Idicheria

and Core, EXPO 2020 Al Wasl plaza Parcel B, Expo C38-District & Parks, Indonesia Pavilion, Spain Pavilion, C198 Pavilion and the Venezuela Pavilion.

Were you required to install customised solutions?

There was a lot of customisation for the special lighting at Al Wasl Pavilion. The lighting was built by a US-based company. Thus, there was a lot of coordination required by our engineers at the Rheem facility, in the United States, as well as coordination with the local builders. They were constantly interacting for a month only for the design and the kinds of systems requirements.

Subsequently, Al Shirawi Contracting also undertook work in Sweden, Uruguay and the Women's pavilions. This was primarily waterproofing for the three main pavilions as well as 13-14 other pavilions. ▶



Did you face any unique engineering challenges?

There were space constraints at the Expo site, as there was limited space. Then, the location of the condensing unit was another. After several meetings with the client, the space allocation was sorted out and managed.

Given that sustainability is a key theme, how intense was the focus on energy efficiency and indoor air quality?

The air conditioning of Al Wasl Pavilion was with a VRF system. This was chosen over DX and chilled water central air conditioning plants. The VRF system was chosen, because it is more sustainable and consumes less power.

What is to happen to the installations after the Expo? Would there be continuity?

For us, all products we have supplied are a one-time installation. We are aware that there are going to be three options for the Expo site: The built structures would remain and be

maintained, some pavilions would be converted into a mixed-use facility and some would be demolished and scrapped, post the Expo. For example, in the Sweden Pavilion, the interiors which we handled, a lot of wood came from Sweden. However, post-Expo, a lot of things from the pavilion will be taken back to Sweden. However, for our products, it is a one-time installation. Al Wasl Pavilion will stay, but we are not aware of the post-Expo plans.

Could you highlight the green initiatives?

For our contracting, in terms of the waterproofing and interiors, we tried to procure as many things locally. This reduced shipment costs and was more sustainable. Even for the ducting, all the steel used was procured from across the UAE and GCC region. Normally, we would import from Japan, but we opted for local manufacturers. Another important factor was the Galvanised Iron sheets – the main raw materials for the ducting; they were bought locally. [ccme](#)

Raphael Khat

Chairman, Faisal Jassim Trading Company

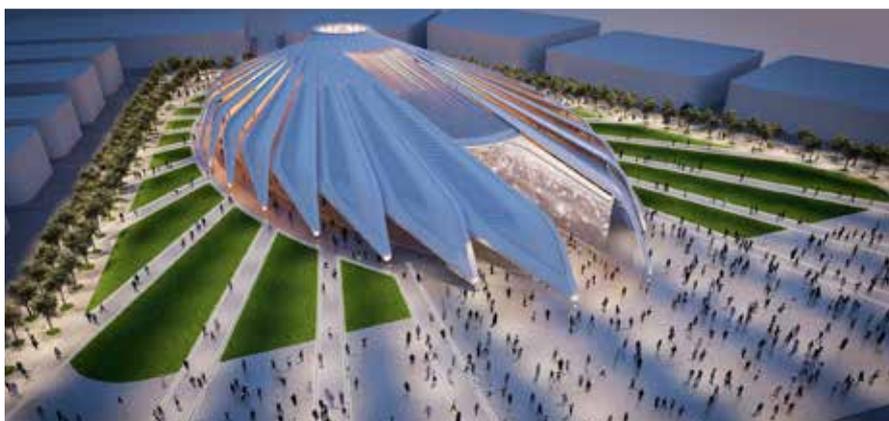
What have you installed at the Expo site?

We have been involved in the Expo right from the beginning. For the Metro project connecting the Expo to the city, we have supplied major equipment, such as fans for ventilation of the tunnels. This was a critical piece of equipment that is needed usually for fire and safety. This was also subjected to very critical commissioning standards. We have also supplied heat exchangers to cool the stations using district cooling systems.

For the sustainability buildings, we have supplied air-handling units and fan-coil units, and those have been already fitted with DC motors that are very highly efficient motors. They have been commissioned to a lot of detail, wherein a consultant and the commissioning engineer have taken a lot of time to ensure certification of all the units.

We also supplied valves and pressure independent control valves for the Mobility and Sustainability buildings. Those valves are essential in controlling the flow and optimising energy for the air-handling unit and the air conditioning system, in general. They have also helped contractors to achieve the set temperature and design for the flow and pressures within the system. This was done to ensure the system is efficient.

We have also supplied all the grids, ducting and dampers for various pavilions and buildings. We usually supply the pre-insulated ducting system, which is known for high energy and efficiency and the capability of maintaining the temperature. We have installed a solar system for hot water in the Mobility building. There are three structures on the mobility building, wherein on the top, they have solar collectors, which are being installed to capture maximum heat. All these systems have also been assigned to very strict commissioning. The same approach for hot water has been done in the UAE Pavilion, as there was no



Raphael Khlaf

Were you called to offer customised solutions, given the unique structure of several features of the Expo?

Except for the solar system, there is nothing really that required a special design. All installations – especially for air-handling units – were selected for a particular duty that is required by the consultant of those applications. In general, our products are of very high quality, and we have always worked to ensure efficiency and optimal performance.

What unique engineering challenges, if any, did you encounter during installation?

Our major challenge was fast delivery and high-end specifications. It is seen that once installations have been commissioned properly to give the required output, the challenge is to keep them in top peak performance. This required continuous maintenance service.

How intensely did you focus on energy efficiency and indoor air quality?

Sustainability – energy efficiency and indoor air quality -- was always a concern for us. It was, and has been, the common denominator in everything we have done. All installations have been selected to offer optimal energy efficiency. There are a lot of equipment, which have variable flows. Proper installation, balancing from valves and PICV and accuracy were very important during system commissioning. **came**

possibility for a solar system. So, we have installed heat pumps, known to be much more efficient than standard heating element systems.

Finally, we have also installed pumping systems from Xylem across a big number of pavilions. We have also supplied electrical switchgear panels and conducted several installations, using ABB components in our pro-master system. It is essential to understand that we have adapted to strict requirements of sustainability within the buildings throughout the project.

In a nutshell, we have supplied to as many as 15-20 pavilions with our plastic conduit for electrical wires containment from our factory, Multiplast Dubai.

We supplied Flowtech air outlets, grilles and diffusers to the UAE, India, Ireland, Baden Wurttemberg and Luxembourg pavilions. We have supplied LV panels to more than 40 pavilions as well as to conference and exhibition halls.

We have also supplied pumps and systems across the projects, such as the

Thematic District; Opportunity District; Al Wasl Plaza Parcels - A, B, E, F, G, H; Conference and Exhibition Centre (COEX), Sustainability District, Mobility District, and to Japan and Morocco pavilions.

Our scope was the supply of main distribution boards, sub-main distribution boards, control panels, motor control centres, capacitors banks and final distribution boards. The highlighting factor is that we designed and assembled ABB Trueone ATS (Automatic Transfer Switch), which is the first installation in the GCC region.

A key factor to consider for the product range is that we can modify the panels to suit new requirements, as per new load demands. We have used VFDs to ensure energy-efficient solutions. The equipment is adaptable, and they can, within certain tolerances, be adaptable to a particular change, load and capacity. They can also really adapt to lower and higher loads.



S P Sarangan

S P Sarangan

General Manager, Trosten Industries Company LLC

Could you talk us through what specifically you installed at the venue?

We have supplied most of the airside HVAC equipment, like air-handling units, fresh-air-handling units with heat recovery and fan-coil units. Our journey at Trosten started with Hoare Lea Engineering Consultants, wherein, we were specified for all the thematic districts – Opportunity, Sustainability and Mobility.

Especially, the Eurovent certification for the fan-coil units, covering acoustic performance and certification for High Delta T and EC motors had given us an edge over most of the international and local manufacturers. Our psychrometric laboratory added confidence to our client by performance testing the units for various working conditions before delivery.

At Expo 2020, some of TROSTEN's installations include Wasl Plaza, UAE Pavilion, Co-Ex (Conference & Exhibition Halls) and RTA's ROUTE 2020. We are also able to share that we have installations of over 151 air-handling units for Route 2020, the largest Gold LEED-certified transport project in the world.

Did some of the buildings require customised engineering solutions?

MEP services always pose a challenge to the architecture, and we have



demonstrated our roles, responsibly meeting architectural needs. Our company is known for its flexibility in customised solutions, by designing tailor-made units to suit any dimensional constraint; we have succeeded in satisfying the requirements of the contractors.

I would like to mention the fan-coil units of two different configurations in low height and low width for the same capacity. These gave a lot of flexibility to the consultants and contractors to choose from, based on the specific constraints encountered for every installation.

What specific engineering challenges did you encounter?

The most interesting engineering challenge was the 'piston effect in the tunnel' for the Route 2020 Metro project.

This Metro project runs underground through tunnels from Al Furjan to the Green Community and has two underground stations.

The piston effect is a phenomenon that happens when a train passes through the tunnel and the air in the tunnel gets squeezed by the train. During this time, negative pressure is created behind the train and draws the conditioned air outside into the tunnel.

We had worked very closely with the Expolink Consortium engineers to analyse the variance in both positive and negative pressure, which can have an impact on air-handler performance. Numerous selections were run, and we selected the fans in such a way that they can handle any variance of the operating conditions. We also ensured that the fans are operated in the optimum efficiency band with suitably rated motors.

What specific focus did you give to energy efficiency and indoor air quality?

With sustainability ingrained in everything related to Expo 2020, Trosten has delivered the most energy-efficient HVAC equipment. At Route 2020, for instance, we have installed premium efficiency motors with high efficiency, direct-driven plenum fans to eliminate energy losses in the transmission between fan and motor.

At the Expo 2020 venue, we have selected and supplied air handlers with the lowest Specific Fan Power (SFP) values, which makes the system highly energy efficient. For the Co-Ex (conference and exhibition halls), we have supplied air-handling units with EC fans in an array to reduce input power, lower footprint and also to address redundancies, considering that Co-Ex is a critical application.

We installed EC motor fan coil units with energy savings up to 2/3rd of the conventional FHP motors at the thematic districts, including Co-Ex projects. That way, we firmly aligned ourselves with the sustainability theme of Expo 2020.

Air filters significantly influence IAQ and are directly related to the air pollutants and our health, as well. We have delivered our units with ISO 16890-certified filters, demonstrating filtration performance towards the most harmful fine specks of dust.

What performance metrics are you able to share with us from the time of commissioning and handover till now?

Commissioning of our Plant 2 facility in Dubai Investments Park enhanced our productivity to a great extent in meeting our regional requirement of HVAC products. Expo 2020 created a sudden surge in demand. To keep up on our delivery commitments and also meet the Expo timelines, we further expanded our infrastructure with additional manpower. We ensured that both our plants operated 24x6, with a single shift on Fridays. This timely intervention in managing the work process enhanced productivity, and we could comfortably meet the Expo management's schedule on every project.

Thanks to Expo, since then, the

factory team has been trained to work on a 24x6 basis, which has ensured continuous operation.

After the Expo is over, what would happen to the products you have supplied to specific areas? What is the likely usage profile? And would your equipment be able to handle the demands of potentially repurposed facilities?

We understand from the Expo organisers that once the event is over, the whole site will be turned into District 2020, a new urban development.

For the thematic districts, during the HVAC design and equipment selection, we have been asked to carry out equipment selection for additional working conditions to explore the maximum cooling capacity of each unit. We have carried out very detailed exercises. Once the Expo is over, the application of the site may vary; and as per our understanding, the MEP team would work around the available database to get more flexibility of using the existing HVAC installations for meeting the new requirement.

We have prior working experience of projects going through a transformation

from shopping malls to hospitals and residential apartments to hotels.

Our unique modular construction of air-handling units gives lot of flexibility in modifying, adding or replacing the required components to meet the capacity requirements, as per the requirements of the repurposed profile. Unitary products, like fan-coil units, do not offer much flexibility with three-speed FHP motors in meeting the requirements of the revised application. With our supplies of EC motor fan-coil units to the thematic districts, we can achieve a wide range of airflow rates, including cooling capacities with 0-10 V control voltage input. This ECM feature will be a huge advantage when the profile of the current facility changes.

We have also supplied fan-coil units with FHP – AC motor for Expo 2020 pavilions with five-speed options, a standard feature for all the TROSTEN fan-coil units. This five-speed option gives the end-user the flexibility of running the unit at the chosen medium speed to suit requirements, which is not an option with most manufacturers.

Once the Expo is over, we will work in close coordination with the management of 'District 2020', understand their requirement and provide suitable solutions. [ccme](#)

Eiji Ito

Managing Director, Panasonic Life Solutions Middle East & Africa; Hiroyuki Shibutani, Panasonic Marketing Middle East & Africa

What opportunities has the Expo provided for you to showcase your technologies?

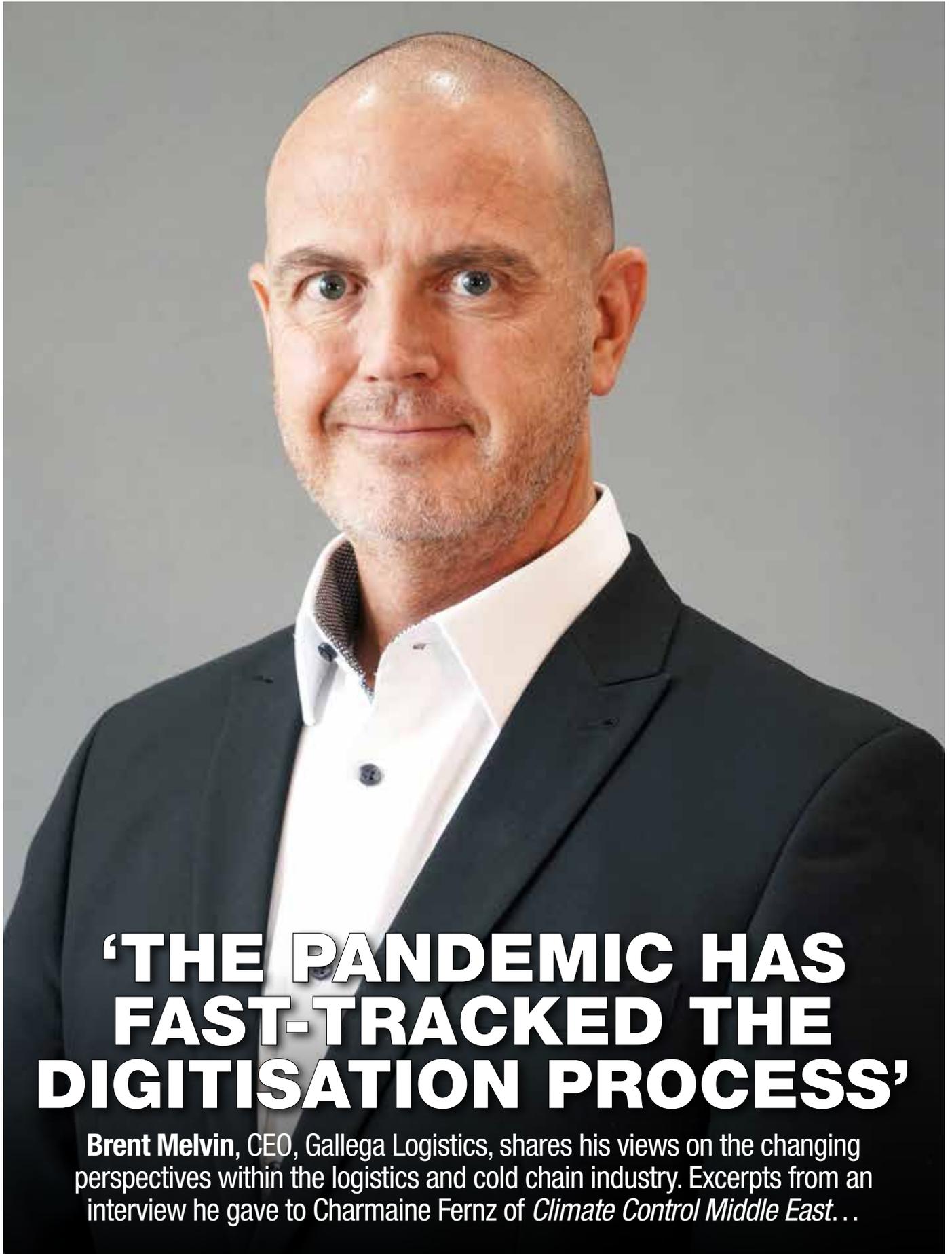
Over the years, World Expos have been a key platform for us to display some of our greatest innovations.

At Expo 2020, Panasonic is showcasing several innovations at the Japan Pavilion. The major solutions being introduced are under the 'Quality Air for Life' theme. The solutions include the nanoe™ X technology-powered air conditioners, air purifiers and portable nanoe™ X generators. The 'ziaino', a specialised technology of air sterilisation for commercial usage, is also being

showcased, followed by other B2B solutions, such as MirAle – the home IoT platform.

Our solutions ensure that our customers breathe clean and healthy air whether in a car, at home, hospitals or while at school.

Panasonic has always benefited immensely from World Expos. The company is showcasing its regional strategy by introducing solutions that enrich lifestyles in the new normal. We would also like to highlight the six-month display of projection mapping solutions and mist solutions at the Japan Pavilion and other pavilions. [ccme](#)



‘THE PANDEMIC HAS FAST-TRACKED THE DIGITISATION PROCESS’

Brent Melvin, CEO, Gallega Logistics, shares his views on the changing perspectives within the logistics and cold chain industry. Excerpts from an interview he gave to Charmaine Fernz of *Climate Control Middle East*...

Could you elaborate on the cold chain logistics industry in pre-and post-Covid scenarii?

We have witnessed consistent drive and an increase in the perishable cargo space. In a post-pandemic scenario, dynamics have shifted from brick-and-mortar towards online shopping. In a nutshell, what would have taken probably 3-5 years to evolve with online shopping behaviour has been severely fast-tracked by the COVID lockdown process. There are a host of new operators that have come into the online space. To cite two examples, Spinneys and Carrefour created their online shopping presence, despite that one could still go through an aggregator to purchase a product. So, it is quite an interesting dynamic, where different channels were made available to a big consumer base.

The question that remains is sustainability. This is going to be a very interesting space to watch, because we do not completely understand the real dynamics.

How has the impact been on Gallega?

At Gallega, we operate in a B2B space and on behalf of the marketplace. We deliver to small retail outlets, which are still your traditional brick-and-mortar buildings. These include traditional trade, small-to-medium-size supermarkets and grocery outlets that are frequented by day-to-day shoppers. Interestingly, this middle class is buying online. This is purely a personal assessment in terms of the general market. However, we are very lucky as far as continuity is concerned. With supply chains, although there was a backlog, slow down and unavailability of certain products in a lot of areas, there was still consistency, and the market has not suffered much. The government, too, has been very quick to respond, react and maintain. There is a bit of normalisation coming into the industry.

How do you see technology driving the cold chain industry?

Digitisation and visibility of cold chains are emerging technologies. They have been

fast-tracked as a result of the pandemic. Now, when we talk about technology and visibility, we are talking about different levels of the supply chain. If we talk about the B2B wholesale to retail space, it is one dynamic and certainly has more to do with food safety and security.

Moving downstream, there is the last-mile B2C, which is currently technology-driven. Today, everyone has an app and good websites. Then, there is the emergence of aggregators and several marketplaces. In short, there has been a massive education of masses towards digital shopping, particularly in the retail space and, more importantly, perishable cargo space. I do not think it will change.

What is of importance now is the sustainability of channels, and the quality of produce pushed through these channels. Governments have to regulate delivery mechanisms. To cite an example, if we take the bike environment, there is no level of monitoring, tracking and management of temperature. Delivery is ostensibly fast but uncontrolled and unregulated, ▶

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and governments are starting to look into these deliveries. Then, you have van deliveries, which are a very different prospect. Here, one goes back to the traditional old-style tracking technology with temperature monitoring of vehicles, location tracking and route optimisation – some of the more robust technologies that have been in play in the past.

How does one effectively understand the process of tracking and regulation in a cold chain environment?

There are ways of control and reliance by the shipping line to sustain the cold chain and the integrity of the reefer container. The only way to monitor any excursion or incursion into the temperature would be with a data tracker or data logger inside the container in the reefer. There are different operators for these controls, once in a cleared environment and into the warehouse; then, of course, the whole cold chain is structured and managed to the retail outlets.

What new developments are you able to report at Gallega?

The emergence of the BuyGro marketplace is a food/FMCG marketplace, established by the Ghassan About Group. It is one of the business silos within the entire group of companies. Gallega manages the cold chain, so particularly looking at the receipt of products from multiple vendors and suppliers in the market here to a control point, which is cold stores. We also handle the distribution, focussing on primary traditional trade, small restaurants, cafeterias, food outlets and HORECA trade, among many others. We have established a marketplace, plus an entire cold chain infrastructure that goes with it. There are two elements to the launch of BuyGro – one what it proposes and two a whole new culture and infrastructure for

Gallega. Something that did not exist but was acquired and developed to meet the needs of the micro business.

Has the pandemic had any positive effects on the logistics and cold chain industry?

There have been positive developments, and the industry never goes back. This growth was driven by a couple of areas. Starting with the government, besides regulation, the UAE government is very conscious of food safety. The right and appropriate regulations are adhered to by logistics providers and operators in the cold chain business. We are moving ahead and are at par with many mature markets. There is also a trend towards digitisation. The pandemic has just fast-tracked processes. However, blockchain has not seen a big uptake, because it has its place in many areas. But, it is not the be-all-and-end-all and can be integrated. It can also be supported by other tools, as blockchain is dependent on multiple players taking up the same technology.

We have seen governments take up certain blockchain technologies for clearances but are not looking at particular items of food with expiry batches or lots in that same blockchain structure. We as an industry have the responsibility to make sure we check the expiry batches and lots while recording and maintaining transparent data sets. This can be shared with both the supplier and consumer at any time. We need to work with governments to align these kinds of advanced protocols to ensure that our industry is very robust and competes with the modern world. We also need to look at backup programmes in the event of power failures. What the pandemic has forced us to do is to adhere to these protocols more closely. Today, people are more sensitive about contamination of products, adhering to protocols and ensuring safe delivery without contamination.

Has there been an uptake of more technological advancements in a cold chain environment?

In my view, there is more development of existing technology into modern coding or software. Now, there are more integrated solutions, operating in a cold chain environment. Earlier, tracking devices would be installed in vehicles informing about the location of the vehicle and the temperature. Today, this has evolved to route optimisation, wherein customer communication is real-time data sets, which include the location of the driver, vehicle point-of-sale solutions, as well as temperature management. The bigger and better software integrated solutions are making our jobs easier as logistics providers. Now, we do not have to work with multiple software but more integrated and enhanced solutions.

How do you look at staff retention and encouraging existing staff in a post-pandemic scenario?

We as Gallega are very people-focused. I do not see my business as anything without our staff that operates the business. We believe in the growth of our people, and training is an important element. One needs to realise that at the end of the day an organisation is all about its people and team effort. I believe in investing in our staff, and that is why we use technology jointly with ongoing training and development across all areas of the business. I am sure that we are not without fault, like many organisations, but we strive to make sure our people are happy, there is job satisfaction and, finally, quality associated with performance. [ccme](#)



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Empower acquires Dubai Airport's district cooling systems

At AED 1.1 billion, it is the largest deal of its kind, utility provider says

By CCME Content Team



Standing (L-R): H.E. Saeed Mohammed Al Tayer and H.H. Sheikh Ahmed bin Saeed Al Maktoum
Sitting (L-R): Ahmad Bin Shafar and H.E. Khalifa Al Zaffin

In the presence of His Highness Sheikh Ahmed bin Saeed Al Maktoum, President of Dubai Civil Aviation Authority, Chairman of Dubai Airports, Chairman and Chief Executive of Emirates Airline & Group and the Chairman of the Dubai Supreme Council of Energy, Empower signed an agreement to acquire the district cooling systems of Dubai International Airport, with a total cooling capacity of 110,000 refrigeration tons (RT), for a total value of AED 1.1 billion. Making the announcement through a Press release, the utility provider added that the deal materialised through a combination of internal accruals and debt financing from local and international banks with which

Empower has close strategic relations.

His Excellency Saeed Mohammed Al Tayer, Managing Director and CEO of DEWA and Chairman of Empower, was also present at the signing ceremony. The acquisition agreement was signed by Ahmad Bin Shafar, CEO, Empower and His Excellency Khalifa Al Zaffin, Executive Chairman, Dubai Aviation City Corporation (DACC).

Under the acquisition agreement, Empower said, it will own and manage all the existing district cooling infrastructure of Dubai International Airport, with all its facilities and complexes, with a capacity of up to 110,000 RT that include five units. This capacity, it added, covers the equivalent of 11 times the consumption of

Burj Khalifa, the world's tallest tower.

H.H. Sheikh Ahmed bin Saeed Al Maktoum, said: "The deal is a part of the AED 25 billion Public-Private Partnership (PPP) project portfolio announced by the Government of Dubai's Department of Finance (DOF) at the Dubai International PPP Conference, which was held last month at the Expo 2020. With this acquisition, the Dubai Aviation City Corporation has made a big leap through its partnership with Empower, the global leader of the environmentally friendly district cooling industry and in adopting innovative technologies.

"The deal supports the DACC's continuous endeavors to achieve its ambitious strategy emanating from both the

UAE Vision 2021 for sustainable growth, and the Dubai's unique vision to promote the values and standards of sustainability and environmental protection. Through this acquisition, both the parties seek to reaffirm Dubai's leading global position by accelerating the pace of developments by strengthening partnerships, using advanced technologies and adopting innovation in all their activities."

For his part, H.E. Al Tayer said: "The acquisition is in line with the vision of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to consolidate Dubai's global position on the map of sustainable development. It is also an active part in the Dubai Demand Side Management Strategy 2030, of which district cooling is one of its prominent pillars."

His Excellency explained that the acquisition agreement formulates a new concept of partnership between the two parties and transfers its investment outputs to a broader space that comprises the protection of the environment and natural resources, sustaining the momentum of creating environmentally sustainable communities throughout the Emirate, and recording unprecedented levels of performance in improving the

efficiency of the energy sector, especially with regard to standards to meet the growing demand for district cooling services, which is mainly in line with Dubai's vision to be the world's most sustainable city.

His Excellency stressed that Empower, with its industrial leadership, innovative technologies and quality of expertise in the environmentally friendly district cooling industry, has high regard to its partnership with DACC, as a major player in the global aviation industry. "Empower plays an eminent role in the Dubai's economic development, and is striving to strengthen its leadership in the district cooling industry locally, regionally and globally, to reaffirm the extent of the growth and prosperity in Dubai's industrial sector, that is rich in investment opportunities and ability to permanently develop and expand the scope of investment activities related to the present and future of the vital district cooling sector," he said.

H.E. Al Zaffin said: "We are immensely proud of what we have achieved within the DACC Group and our contribution to help establish the Emirate of Dubai as the foremost global aviation hub, with DXB firmly established as the largest international airport in the world. This strategic partnership with Empower is

a testament to our ambition to deliver streamlined operations at DXB and continue the path of high growth. I am certain that Empower will serve Dubai International Airport according to the highest industry standards."

For his part, Bin Shafar, said: "We see the acquisition as a long-term partnership with a reputable institution of significant importance on the developmental and economic levels, and Empower is ready with its teams to assume the responsibility imposed by this partnership and looks forward to fulfilling it to the fullest."

He pointed out that Empower's superiority and leadership in the district cooling industry and its remarkable success in adopting unprecedented technology in operations, production and provision of services, has made it a unique strategic partner for the largest institutions and mega projects, the latest of which is the Dubai International Airport with all its facilities and complexes. Currently, he said, Dubai International Airport is one of the busiest airports for international travel, with 25.9 million passengers being handled last year. In 2019, it saw 86.4 million passengers, and it targets 56 million passengers for the next year, making it one of the world's busiest airports.

RAK Municipality invites specialised energy auditors

Offers opportunity to express their interest in a new industrial sector initiative

By CCME Content Team

As part of the Ras Al Khaimah Energy Efficiency and Renewables Strategy 2040, Ras Al Khaimah Municipality has invited specialised energy auditors in a bid to recruit their services for a new initiative to provide the industrial sector with best-in-class energy audits.

Making the announcement through a Press release, the Municipality said the industrial sector represents a large

share of the total energy consumption in Ras Al Khaimah. The initiative is designed to support industries in Ras Al Khaimah in reducing their energy cost and their environmental footprint, the Municipality said. This is in alignment with several of the UAE's strategies, including Operation 300bn, National Climate Change Plan of the UAE 2017-2050, UAE Energy Strategy 2050 and the recently announced strategic initiative,

UAE Net Zero by 2050, the Municipality added.

The Municipality said it intends to select energy auditing companies specialised in the industrial sector, to be involved in the new initiative. The most relevant industrial areas where energy expertise is sought include cement, quarries, ceramics, glass, metal fabrication, building materials and packaging, it said.

The Municipality said it is encouraging those auditing companies that are interested, to send Expressions of Interest to eer@mun.rak.ae, with the subject-line reading as "Industrial Energy Auditing Initiative". The Municipality said that those interested should send a company profile along with the Expression of Interest, showcasing relevant expertise. The deadline for sending, it added, is November 20, 2021.

Tabreed announces Q3 2021 financial results

Reports increased profitability resulting from what it describes as sound business planning; says it is more agile than ever, paving the way for further expansion



By CCME Content Team

The National Central Cooling Company (Tabreed) released its consolidated financial results for the first nine months of 2021, reporting a net profit of AED 388 million – an increase of five per cent compared to its 2020 performance for the same period.

Making the announcement through a Press release, the district cooling utility said the results ably demonstrate the effectiveness of its approach to sustainable growth, including divesting its 44% stake in Qatar District Cooling Company (Qatar Cool) while increasing ownership of the 80,000 Refrigeration Ton (RT) Al Maryah Island district cooling scheme in Abu Dhabi to 100% during the quarter.

According to Tabreed, the financial highlights in the nine months ended September 30, 2021 include:

- An increase in Group revenue by 16% to AED 1,464.7 million (Q3 2020: AED 1,257.9 million)
- An increase in core chilled water revenue by 16% to AED 1,412.9 million (Q3 2020: AED 1,219.1 million)
- An increase in EBITDA by 15% to AED 775.7 million (Q3 2020: AED 676.6 million)
- An increase in profit from operation by 19% to AED 483.5 million (Q3 2020: AED 406.4 million)
- A reduction in share of results of associates and joint ventures by nine per cent to AED 33.7 million (Q3 2020: AED 37.1 million)
- An increase in net profit attributable to the parent by five per cent to AED 388.0 million (Q3 2020: AED 370.4 million)

According to Tabreed, the operational highlights in the nine months ended September 30, 2021 include:



Khaled Abdulla Al Qubaisi



Khalid Abdullah al Marzooqi

- A reduction in total connected capacity to 1,202,760 RT, following divestment of Qatar Cool shareholding
- A record 14,307,638 hours worked without a single lost time incident (LTI), the most recent occurring in July 2015

Speaking on the occasion, Khaled Abdulla Al Qubaisi, Chairman, Tabreed, said: “Tabreed continues to shine, posting more record results that demonstrate the effectiveness of its long-term strategy. Shrewd investments make for steady and manageable growth, and this company’s rock-steady resilience is something everyone involved in can be proud of. Customer service, operational reliability and an unwavering pursuit of efficiency are what Tabreed’s unrivalled reputation is built upon, and I look forward to seeing the company’s future plans come to fruition, particularly as district cooling will play an essential role in the UAE’s drive toward carbon neutrality. We are a force for good – for the environment, our customers, our people, our stakeholders

and the communities in which we operate.”

Khalid Abdullah Al Marzooqi, CEO, Tabreed, added: “The company experienced rapid and exceptional growth of its portfolio during 2020, and we are now seeing real return on investment with steady, reliable and efficient performance across our networks. Our shareholders appreciate this considered approach to growth, and we have exciting plans for the near future, with an even more diverse array of services that will help to bolster our leading market position while adding to our environmental credentials.

“We keep mentioning the word, ‘resilient’, when referring to Tabreed, and for good reason – it perfectly sums up our approach to business. We were the first district cooling company to be established in the UAE and, after nearly a quarter of a century, are stronger and more agile than ever. Tabreed’s medium- and long-term plans are sound and attainable, and all of us in this remarkable company have genuine reason for optimism when we look to the future.”



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REGIONAL NEWS



Rheem inaugurates manufacturing facility in Dubai

Prior, launches Pro Partner Loyalty programme, signals increase in investment in regional operations, greater engagement with stakeholders

By CCME Content Team



On the shop floor

Photographs: Surendar Balakrishnan

Rheem inaugurated a manufacturing facility in Dubai for production of commercial air conditioning units, through a 100%-owned-and-operated Rheem business, called Rheem MEA Manufacturing LLC.

“This exciting, new development for Rheem highlights our investment in an evolving Middle East market,” said Chris Peel, CEO, Rheem. “We have had a presence here since the 1980s, and this expansion solidifies our commitment to the community, as

well as the strength of our long-term partnerships in the region.”

In the first phase, Rheem will manufacture the Renaissance Xcede line of commercial rooftop units, which cover 10 to 30 tons of refrigeration.

Mike Branson, President, Global Air, Rheem, said: “Manufacturing in the GCC [region] will allow us to better serve the needs of our customers. The products built at this factory will be designed in the USA to Rheem’s standard of quality and reliability, while meeting the specific market and

climate requirements of the GCC [region].”

Rheem said the opening of the manufacturing facility is one amongst a series of strategic investments in the GCC region. Prior, Rheem established a new headquarters office and opened the Rheem Innovation Centre in Dubai. The company said it has also strengthened sales operations and distribution across the region, and launched a highly successful Pro Partner contractor loyalty programme.



The Rheem MEA factory

Earlier, on October 4, Rheem launched “the highly successful” North American Pro Partner loyalty program in the GCC region.

According to the company, Pro Partner is a contractor loyalty programme that offers a collection of tools to enable participating partners to better serve their customers. The programme includes benefits, which will grow Pro Partner businesses and improve the consumer experience through a digitally enabled web platform, the company said. According to Rheem, the programme provides tools and benefits that align around the four Pro Partner cornerstones:

- Enhancing consumer experience
- Motivating HVAC contractors with incentives

- Empowering partners with marketing and business support
- Offering training

Pro Partners receive access to Rheem guides, ready-to-use templates and reference examples to create engaging print and digital marketing collaterals for their market, the company said. Pro Partners also receive support through innovative products, tools and training to ensure they can deliver a superior customer experience while growing their businesses, the company said.

“The program is committed to providing world-class training for our Pro Partners,” said Brian Hempenstall, General Manager. “Hence, we have collaborated with ‘North American Technician Excellence’ to provide



Mike Branson speaking during the factory opening

NATE-certified trainings. Pro Partners and the technicians trained here will also receive Rheem & NATE branded e-Certificates.

“Our Pro Partner program is going to be the ecosystem of our Go-to-Market strategy for the next decade, and I can confidently say that this program is going to revolutionize the HVAC industry in this the Middle East region.”

Three years on...

In November 2018, Noor Abu Dhabi produced its first kilowatt-hour of clean energy, which it supplied to the grid. The progress since then...

By CCME Content Team



The energy sector plays a critical role in enabling countries to develop and implement long-term strategies to protect the environment and preserve their natural resources. Energy production and consumption is one of the largest sources of global greenhouse gas emissions, and various governments are harnessing any viable power alternatives to curb the release of harmful energy by-products to the environment.

Among these alternatives, solar power is one of the most popular due to its minimal carbon footprint, cost-

effectiveness and energy yield. Since the mainstream availability of solar technologies to global markets, various governments can set realistic and attainable long-term goals as part of their climate pledges. Solar is also a versatile energy source that is highly compatible with other technologies, such as e-mobility and green hydrogen.

In the UAE, the government has accelerated its plans to attain a robust energy mix through its Energy Strategy 2050, wherein the country will significantly lessen its dependence on oil and gas to fuel its economic growth.

One of the most prominent clean energy facilities in the UAE is Noor Abu Dhabi, the world's largest stand-alone operational solar plant, located in Abu Dhabi's Sweihan region. With more than 3.3 million solar units installed in a single site, the facility can gather up to 1.2 gigawatts of clean energy.

Abdulla Salem Al Kayoumi, CEO, Sweihan PV Power Company, said the UAE government is raising the contribution of renewable and clean energy to 50% of the total energy mix by 2050. Noor Abu Dhabi, he added, is one of the first initiatives to achieve this target.

Al Kayoumi said: “We are proud of our accomplishments as a major player in the UAE’s renewable energy sector in line with the country’s efforts to diversify its energy mix and ensure the sustainability of our power supply and the preservation of our resources. In the years to come, we expect further exponential growth of the renewable and clean energy industry, as part of the UAE’s Energy Strategy 2050.”

Despite its rich oil resources, the UAE aims to become a global hub for renewable energy products and services, company said. Solar energy, it added, is abundant in the country, which makes Noor Abu Dhabi one of the facilities that will enable the country to realise its sustainability goals.

Al Kayoumi said: “We have built the world’s largest stand-alone photovoltaic (PV) plant in a single phase within 20 months, and in November 2018, we produced our first kilowatt-hour of clean energy to the grid. Since then, we have been diligently putting in our efforts to maximize our energy yields through efficient and effective asset management.”



Abdulla Salem Al Kayoumi

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Priva opens Dubai office

Provider of climate and process control technologies for horticulture launches Middle East operations, citing rise in demand for efficient and sustainable food growing solutions

By CCME Content Team

The Netherlands-headquartered Priva, which provides hardware, software and data-services in the fields of climate control, energy saving and optimal reuse of water, has expanded its global footprint with the opening of its first office in the Middle East in Dubai.

Making the announcement through a Press release, the company said the move comes as it witnesses exceptional growth in demand for its horticulture and building automation solutions in the Middle East, as governments, and private and public growers intensify their focus on food security and self-sufficiency.

“At Priva, our mission is to contribute to a sustainable world, where a growing world population can live a healthy and comfortable life,” said Meiny Prins, CEO,

Priva. “In everything we do, our focus is to develop self-sufficiency through local and efficient safe food production. By bringing people, knowledge and technology together, we can create a climate for growth, even under the harshest conditions.

“Through our local presence on the ground, we look forward to working alongside local and regional entrepreneurs, farmers, growers, project developers, investors and the government to support the development of sustainable business models in and around mega cities to achieve the region’s food security and self-sufficiency goals.”

Leading Priva’s operations in the Middle East is Giovanni Angiolini, General Manager, the company said. Commenting on his appointment, Angiolini said: “I am very excited to take up this exciting new role within Priva and to help grow the

company’s footprint in the region in what is a very exciting and opportune time. With over 60 years of international expertise in horticulture and building automation, we look forward to becoming a global knowledge partner locally on the ground and to help achieve the region’s indoor growing and horticulture goals.”

Prior to joining Priva, Angiolini supported The Netherlands’ Ministry of Foreign Affairs with the design and development of the programming for the Food cluster, as part of The Netherlands Pavilion at Expo 2020 Dubai. In addition, he worked with The Netherlands Enterprise Agency, which is part of the Ministry, and the Dutch Greenhouse Delta, an association representing Dutch horticulture, on the development of the strategy for a three-year, public-private initiative to position Dutch horticultural companies in the Gulf region.

Eurovent Middle East launches Cooling Tower Guidebook

Association extends invitation to a physical workshop on evaporative cooling; participants will receive a copy of the Guidebook, it says

By CCME Content Team

Eurovent Middle East has introduced the Cooling Tower Guidebook, with a view to creating awareness and providing a comprehensive overview on a highly-energy-efficient cooling technology. Making the announcement through a Press release, the Association has also extended an invitation to an event to physically launch the Guidebook. The event, on November 23, in Dubai, will include a workshop on evaporative cooling, as part of the Association’s HVACR Leadership Workshop.

The publication of the Guidebook marks the end of a two-year project,

where members of the Association compiled the most essential information on evaporative cooling, to provide consultants, developers, building operators and investors with a quick and comprehensive reference to the technology, Eurovent said. The use of water in cooling processes is as old as mankind, yet may provide challenges in notoriously dry environments, it said. The water-energy nexus will be one of many aspects to be discussed at the event, it added.

According to Eurovent Middle East, further topics in the workshop include:

- Introduction to the Cooling Tower Guidebook
- Overview of advantages of evaporative cooling
- Working principles
- Critical aspects of design, installation and operation
- Case study
- Cooling tower certification

According to Eurovent, the event, taking place at Le Meridien Dubai Hotel & Conference Centre, will start at 5pm (Gulf Standard Time). Participants, it said, will receive a printed copy of the Guidebook.

Arabia CSR Forum highlights post-pandemic sustainability and resilience from 2020 to 2030

Organisers point out to how more than 35 global and local leaders addressed a wide range of issues from investment to innovation

By CCME Content Team

The 9th Arabia Corporate Social Responsibility Forum lifted the veil off a most critical and thought-provoking theme: 'Post Pandemic Sustainability and Resilience'. Organised by Arabia CSR Network, the Forum took place on October 3 and 4 in Dubai, under the Patronage of the Ministry of Climate Change and Environment, the Network said through a Press release.

Sheikh Salem bin Sultan bin Saqr Al Qasimi, Chairman, Department of Civil Aviation, Ras Al Khaimah, and member of the Executive Council of the Government of Ras Al Khaimah, was the main speaker. The message and themes of the Forum and its agenda are very important, as the expected outputs and recommendations serve as a compass that supports regional and global sustainable development paths, he said, adding that the new and completely unexpected challenges created by COVID-19 has undoubtedly contributed to the weak capabilities of governments and countries in meeting and achieving the UN Sustainable Development Goals and the 2030 Agenda for Sustainable Development.

Sheikh Salem said the restoration of the institutions of the economy and

society will depend on how we are able to re-inspire and build on the pillars that we have adopted to achieve the sustainable development goals, which include the pillars on which we have built them – that it, capital, material capabilities and resources, science, technology and modern technologies, so that they fit and respond to current and future developments. He stressed that the same propositions may also relate to the importance of the readiness of institutions and business sectors in all countries of the world due to their pivotal role in supporting the global sustainable development process.

The topics of the plenary sessions of the Forum were 'From Words to Actions – The Goal of Achieving Net Zero', 'Workers, Wellness & Welfare: Empowering Internal Stakeholders', 'A Crisis on Our Plates: Tackling Climate Change through Food Systems', 'Lessons Learned: The Future of Corporate Fabric' and 'Economic Sustainability: Recovery, Regulation and Resilience'. They were each designed to foster an inclusive and sustainable recovery while contributing to resilient economies and societies at home and abroad.

Qais Bader Al Suwaidi, Director,

Climate Change Department, Ministry of Climate Change and Environment, was one of the participants. He said: "Despite the difficult times, the UAE remains steadfast in its commitment to re-building better. The pandemic has taught us valuable lessons that may reshape the way we live and interact with the environment.

"With a positive outlook, we will continue to promote the role of the green economy as the cornerstone of post-pandemic recovery, and we hope that our experience will inspire the world."

Habiba Al Ma'rashi, President & CEO, Arabia CSR Network, said: "We need to ensure that recovery from the COVID-19 pandemic and its shattering socio-economic consequences must not leave anyone behind. Our recovery efforts must support both social wellbeing and environmental sustainability, in a manner that is inclusive and prioritises those most vulnerable. We have to look at using regulations and innovations effectively to push all industries. We commend the Government of UAE for its commitment to green economy, renewable energy and laying strong foundations for Circular Economy."

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Belimo launches EV4

Introduces integrated thermal energy management solution

By CCME Content Team

Belimo launched the EV4, an integrated thermal energy management solution, with the objectives of measuring energy, controlling the power and managing Delta T.

The new solution makes meter integration easier, the company said. It provides the facility for parallel operation, where it is possible to connect BACnet and M-Bus networks, the company said, adding that it equally provides the facility for direct integration, wherein no intermediary software is required. It can measure and control power and manage Delta T, ensure high quality metering and enabled billing, it said, adding that the EV4 also ensures digitally supported workflows for the entire product lifecycle.

The EV4 has a clever design, Belimo said. It provides ease of re-calibration and also helps establish data transparency, it added.

According to Belimo, the EV4 provides a whole range of features for building owners, including traceable



verification and logging of billing-relevant data; easy and open data access, which provides flexibility when choosing the service provider for cost accounting; low commissioning and operating costs, which translate to optimum investment protection; and future-proof and full transparency, thanks to direct Internet connection. It also provides energy-efficient system operation and stable Delta T, the company claimed, adding that this leads to minimisation of temperature surcharges from the district cooling providers.

According to Belimo, the EV4 provides a wide range of features for consulting engineers, as well, including the facility of reduced effort and time saving, owing to optimally coordinated all-in-one solutions; reduced planning effort and time savings through simple valve design; traceable verification and logging, which paves way for a true commissioning report; automatic hydronic balancing during operation at any load conditions; easy adaptations to power changes; and simple, fast and remote customisation, in case of any design changes.

AHRI, CEBC sign MoU

The advancing of energy efficiency in the MENA Region behind the move, AHRI says

By CCME Content Team

The Air-Conditioning, Heating, & Refrigeration Institute (AHRI) and the Clean Energy Business Council (CEBC) recently signed a Memorandum of Understanding (MoU) to further comply with harmonised energy-efficiency policies, codes and regulations in the Middle East and North Africa (MENA) region, AHRI said through a Press release.

The agreement outlines shared goals for both organisations and

encourages regional dialogue with stakeholders on building performance, energy conservation and environmental sustainability, AHRI said. The two associations will collaborate on several activities, including joint advocacy efforts, to accelerate implementation of recognised testing and rating standards, it said. Promoting product certification programmes, and compliance and verification mechanisms through the MoU will support the region's efforts relating to green building codes and exceeding

minimum energy performance standards, it added.

"It is a great opportunity to join hands with AHRI and focus on energy efficiency initiatives, in line with the regional commitments under COP21, UAE's Energy Strategy 2050, and several demand-side management and energy strategies by the Emirates of the UAE," said H.E. Dr. Nasser Saidi, Chairman, CEBC. Stephen Yurek, President and CEO, AHRI, added, "As a leading organization in the development of standards, environmental, and energy guidelines with an emphasis on industry-government cooperation, we are delighted to enter into this partnership with the CEBC and work toward raising the bar of energy efficiency in the MENA region."

India Pavilion at Expo 2020 launches AC helmet

Start-up, based in the southern Indian state of Telangana, joins hand with NIA for marketing it in the UAE and other GCC region countries

By CCME Content Team

The India Pavilion, at the World Expo in Dubai, launched what it said is the world's first AC safety helmet. Designed and manufactured by Telangana, India-based tech and safety start-up, Jarsh Safety, the helmet is reportedly suitable for outdoor workforce and field executives.

According to Jarsh Safety, NIA Limited, in Dubai, will distribute the product in the UAE market. NIA, it added, is also the exclusive regional distributor for a wide range of consumer electronics and home appliances.

The product launch is part of the India Innovation Hub initiative by the Indian Pavilion at the World Expo 2020, wherein the pavilion is showcasing the top 500 most-reputed startups from India. The project is working under the guidance of the Consul General of India in Dubai, Dr Aman Puri, and with the support of the Indian diaspora and prominent investor institutions.

The Jarsh-NIA AC Helmet works on patented solid-state cooling technology to provide cooling up to 24 degrees C, Jarsh Safety said. The premium model for senior executives has a battery life of two hours, whereas the heavy-duty model for the skilled workforce has a 10-hour battery backup, the company said. Four vents across the helmet provide a uniform cooling experience, keeping the user sweat-free, comfortable and productive on the job, the company added.

Kausthub Kaundinya, CEO, Jarsh Safety, said, "The Jarsh-NIA AC Safety Helmet is a game-changer for the construction and outdoor workforce, especially in a region that is characterised by extreme working conditions during the summer months.

"We started our journey from a garage office and, over the years, brought smiles to thousands of workers



across India. Jarsh Safety is now going global, and we strongly believe that the joint NIA-Jarsh mission can help alleviate the working conditions of the workforce across the world."

Kaundinya also thanked the Federation of Indian Chambers of Commerce & Industry (FICCI) for providing the platform to launch the product in the UAE.

Kamran Birjees Khan, CEO, NIA Limited, said the helmet is in line with the UAE Government's endeavours to advance workforce welfare standards.

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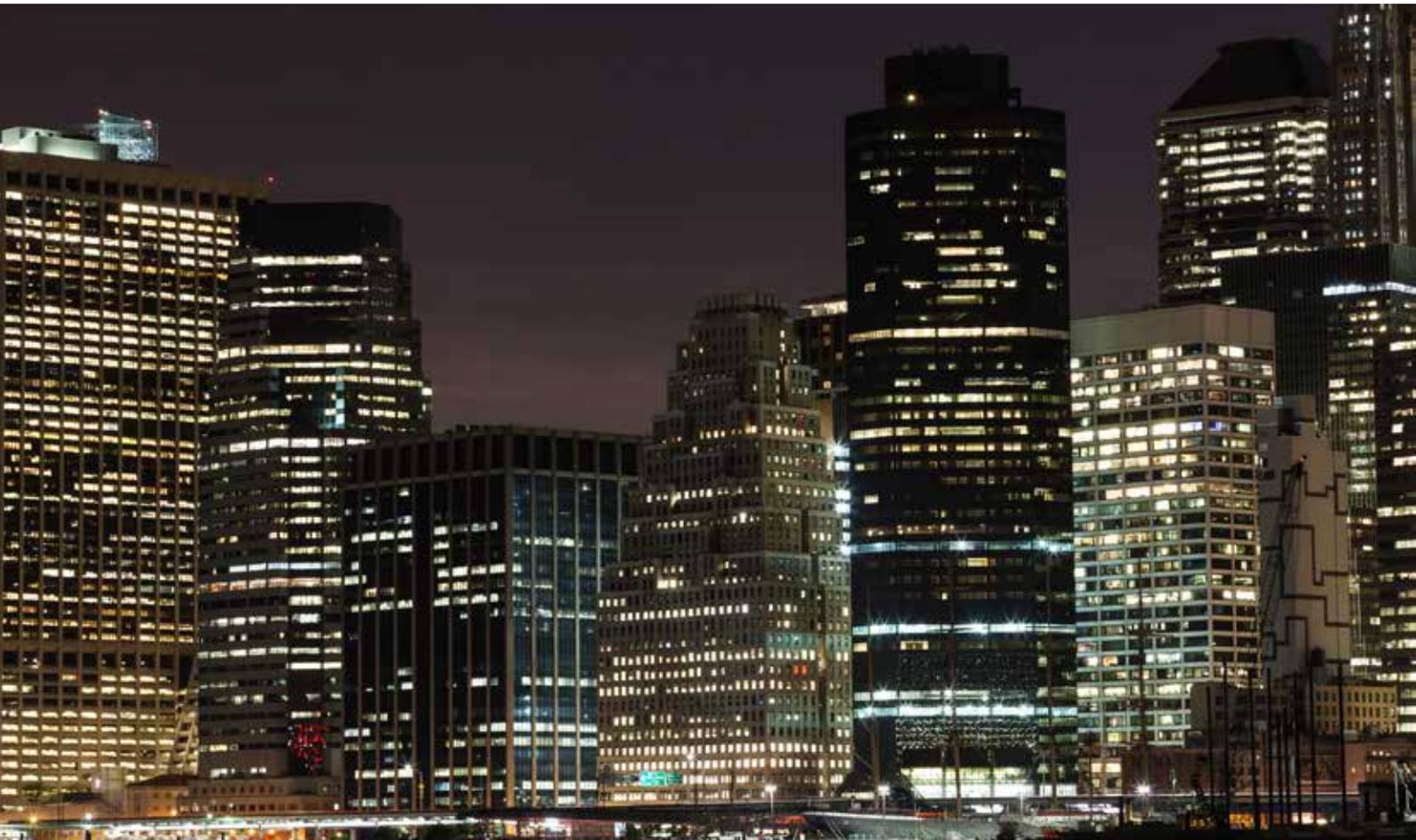
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REPORT

UN: Pandemic causes dip in building emissions

Long-term outlook bleak, though

By CCME Content Team



The economic consequences of the COVID-19 pandemic caused CO2 emissions from buildings and construction to fall significantly in 2020, but a lack of real transformation in the sector means that emissions will keep rising and contribute to dangerous climate change, according to the 2021 Global Status Report for Buildings and Construction.

The report, published by the UN Environment Programme-hosted Global Alliance for Buildings and Construction

(GlobalABC), finds that in 2020, the sector accounted for 36% of global final energy consumption and 37% of energy related CO2 emissions, as compared to other end-use sectors.

While the level of emissions within the sector are 10% lower than in 2015, reaching lows not seen since 2007, this was largely due to lockdowns, slowing of economies, difficulties households and businesses faced in maintaining and affording energy access and a fall in construction activity. Efforts to decarbonize

the sector played only a small role, the authors of the report said.

With large growth projected in the buildings sector, emissions are set to rise if there is no effort to decarbonise buildings and improve their energy efficiency, the authors said. In Asia and Africa, building stock is expected to double by 2050, they said, adding that global material use is expected to more than double by 2060, with a third of this rise attributable to construction materials.

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“This year showed that climate change is an immediate direct threat to every community on this planet, and it is only going to intensify,” said Inger Andersen, Executive Director, UNEP. “The buildings and construction sector, as a major source of greenhouse gas emissions, must urgently be decarbonized through a triple strategy of reducing energy demand, decarbonizing the power supply and addressing building materials’ carbon footprint, if we are to have any chance of meeting the Paris Agreement goal of limiting global warming to 1.5C.”

The GlobalABC’s Global Buildings Climate Tracker found that there have been some incremental improvements in action to decarbonize and improve the energy efficiency of the sector.

In 2015, 90 countries included actions for addressing buildings emissions or improving energy efficiency in their Nationally Determined Contributions (NDCs) under the Paris Agreement. This number has now hit 136, although ambition varies, the authors of the report said.

Since 2015, an additional 18 countries have put in place building energy codes – a move that is crucial to shift emissions downwards – bringing the total to 80, the authors said. Local cities and governments have also developed codes, they said. Investment in energy efficiency rose to over USD 180 billion in 2020, up from 129 billion in 2015. Green building certification has increased by 13.9% compared to 2019, they said.

Overall, however, the report finds that these efforts are insufficient, both in terms of speed and scale.

Other key findings of the report include: Two-thirds of countries still lack mandatory buildings codes; most of the increase in energy efficiency spending came from a small number of European countries; too small a share of finance goes into deep energy retrofits, and there is a lack of ambitious decarbonization targets in NDCs.

What comes next?

Energy demand in the buildings and construction sector is likely to rebound, as economic recovery efforts take hold and as pent-up demands for new construction are realized, the authors said.

By 2030, to be on track to achieving a goal of net-zero emissions by 2050, the International Energy Agency says that

direct building CO2 emissions would need to decrease by 50%. Indirect building sector emissions will have to drop through a reduction of 60% in power generation emissions. To achieve these goals, the report finds, the sector has to take advantage of every lever.

While pandemic recovery spending has not sufficiently prioritized climate-friendly approaches to the level required, the authors said, there is still an opportunity to invest in decarbonizing our buildings while increasing their resilience:

- Countries need to harness the sector’s transformative potential for achieving the energy transition.
- Governments need to commit to further decarbonizing the power, as well as heating and cooling energy supply. This includes stepping up ambition in NDCs to include building decarbonization targets that contain the so-far largely overlooked embodied carbon and the emissions from the production of building materials.
- The rate of growth of investment in building efficiency needs to double to over 3 per cent per year, and must expand beyond direct government investment to private investors.
- Scope and coverage of building energy codes need to increase. All countries need to have in place mandatory building energy codes, and these would ideally address performance standards for building envelopes, design, heating, cooling, ventilation systems and appliances, and ensure links with integrated urban planning.
- Buildings’ resilience needs to increase to futureproof our homes and workspaces. A typical building constructed today will still be in use in 2070, but the climate it encounters will have changed significantly. The necessary interventions to reduce the climate impact of existing buildings should be combined with investing in adaptation and resilience measures.
- In addition, both public and private sector need to seize the tremendous investment opportunities this sector offers – for example, through green bonds or through banks increasing green building construction and mortgage finance.

AMCA initiates work on Standard 340

Seeks volunteers to serve on the technical committee

By CCME Content Team

Air Movement and Control Association (AMCA) International Inc. is seeking volunteers to serve on the technical committee for a new AMCA Standard: AMCA Standard 340 – Laboratory Method of Sound Testing of Large-Diameter Ceiling Fans.

Making the announcement through a Press release, AMCA said the standard will develop a method of sound testing for large-diameter ceiling fans (LDCF), sometimes referred to as High Volume Low Speed, or HVLS, fans. The method would allow for the third-party certification of sound data in a manner that is cost-effective and produces accurate, repeatable results, and to provide standardised design data for the application of LDCF in occupied spaces, AMCA added.

Currently, each LDCF manufacturer uses a different method of test, AMCA said. Existing sound test standards require acoustical testing chambers that are cost-prohibitive due to the large size of LDCF



– up to 24 feet in diameter, AMCA said. A method of test is needed to provide consistent, accurate and comparable sound performance data for designers and end-users, AMCA added.

Committee members would be expected to participate in reviewing the standard and resolving any comments received, AMCA said, adding that meetings will be held virtually by conference call.

According to AMCA, stakeholders for the Standard include manufacturers of LDCF, building design engineers and architects, end-users, testing labs of LDCF, and trade associations and professional societies within the HVAC industry.

For more information, it encouraged those interested to contact Shruti Kohli-Bhargava, Manager, Publications & Standards at shrutik@amca.org.

Eurovent Certita announces first ever certification of air cleaners

Process is based on factory audits, random product sampling and tests according to NF B44-200:2016 for air cleaning performances and ISO 3741:2012 for acoustic performances, organisation says

By CCME Content Team

Eurovent Certita Certification said it granted the first ever certificates for air cleaners. Making the announcement through a Press release, Eurovent said, it issued the certified in September to three independent air cleaners with clean air efficiencies for particles, gaseous pollutants, microorganisms and allergens.

The scope of the certification programme includes all independent air cleaners for residential and non-

residential applications, Eurovent said. The certification process is based on factory audits, random product sampling and tests according to NF B44-200:2016 for air cleaning performances and ISO 3741:2012 for acoustic performances, it said. All tests are performed by independent testing laboratories, it added.

According to Eurovent, as part of the certification programme, Clean Air Efficiency Classes are certified. The

classes are represented in a dedicated Efficiency Label to allow end-users to compare easily between the different independent air cleaners.

According to Eurovent, the following other performances are certified:

- **Purified air flow rates, for the following pollutants:**
 - o Particles
 - o Gaseous pollutants
 - o Micro-organisms
 - o Allergens
- **Recommended room area**
- **Sound power level**
- **Energy consumption**
- **Air flow rate**

The list of the corresponding products and product performance reports, Eurovent said, can be checked at www.eurovent-certification.com.

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AHR Expo 2022 Innovation Awards winners announced

Organisers urge industry to attend in-person to see winning products and technology come to life on the show floor in Las Vegas

By CCME Content Team

The AHR Expo (International Air-Conditioning, Heating, Refrigerating Exposition) announced the winners of the 2022 AHR Expo Innovation Awards, through a Press release.

Each year, winners are chosen in 10 industry categories to represent the most innovative products and technologies hitting the market in the coming year. “This past year was a challenge for everyone, and in unique ways, the HVACR industry,” said Mark Stevens, Show Manager. “Our industry was called to the front lines to put our very best products and technologies to the test. The Innovation Awards purpose is to honor those that are pushing the bar to create innovative solutions to difficult problems. We are thrilled to celebrate this year’s winners and what they bring to the industry, as well as to continue to champion innovation among our professionals.”

The Innovation Awards encourage exhibitors to submit new products and technologies for recognition via review and selection by a panel of third-party judges, comprising distinguished ASHRAE members, AHR Expo said. Entrants are evaluated based on overall innovative design, the creativity of the product or service offered, application, as well as potential market impact. “This industry is tremendously exciting for its role in our everyday lives,” Stevens said. “Now, more than ever, we have the chance to show the world just how important HVACR is. Manufacturers on the AHR Expo Show floor are in tune with their stakeholders and the greater needs of the world and are responding by developing new tools, products and services that offer safety, efficiency, and sustainable smart solutions.”

According to AHR Expo, the Innovation Awards program serves as a metric to see the year-to-year growth in the industry. While the Awards officially recognize only a select few, the Show floor is a robust example of how manufacturers

are growing the industry in exciting ways. “AHR Show Management would like to formally congratulate each of our 2022 AHR Expo Innovation Award winners, as well as finalists and all our entrants, for their continued leadership and contribution to HVACR,” Stevens said. “We look forward to seeing these innovators in the marketplace in the coming year, and in-person on the Show floor in 2022.”

The 2022 AHR Expo Innovation Award Winners and finalists were selected in 10 industry categories, including building automation, cooling, heating, indoor air quality, plumbing, refrigeration, software, sustainable solutions (formerly green building), tools and instruments, and ventilation.

The winners, with their products described in the words of AHR Expo, are:



BUILDING AUTOMATION

Winner: iSMA CONTROLLI S.p.A., iSMA-B-MAC36NL Hybrid IoT Controller, powered by Niagara Framework, Booth C969 Innovation: The iSMA-B-MAC36NL master application controller family provides an all-in-one solution for mini-BMS. Created visualization can be displayed and controlled via HDMI output and two USB ports that enable connection of a mouse/keyboard or dedicated touch for the HMI panel. No PC, additional licenses, or additional costs are required. As MAC controllers are based on the Niagara Framework, it enables the integration of almost any existing protocol on the building network. The onboard M-Bus port, 2 ethernet ports, and the RS485 port can be integrated with just one

device. Finally, the controller has an onboard dip and rotary switches that can be used as a part of the application. All of the features of the controller are managed by dedicated modules in Niagara Framework to accelerate the installation process and thus reduce labor costs.

Finalists in this category include: BrainBox AI, BrainBox AI; CUBE USA, CUBE Edge IoT.



COOLING

Winner: Danfoss, Danfoss Turbocor® VTCA400 Compressor, Booth C3906

Innovation: The new VTCA400 from Danfoss offers improvements on traditional centrifugal compressor designs that are large in physical size and footprint, which ultimately lead to higher cost and space constraints for the end user. The VTCA400 solves this problem by using a patent-pending hybrid compression design that uses a combination of mixed flow and radial impellers, enabling high-performance and a compact footprint. In this design, the first-stage impeller uses a mixed flow impeller with both axial and radial components while the second-stage impeller uses a radial design. The hybrid compression design allows for a compressor footprint that is half the physical size and weight of a conventional radial-only design. It also maintains high efficiency levels — a 10% improvement in full load efficiency and 30% improvement in IPLV above ASHRAE 90.1-2019 minimums, when considering a three (3) compressor, 1200-Ton system.

Finalists in this category include: Copeland Compressors and Condensing Units / Emerson, Copeland™ oil-free centrifugal compressor; Teqtoniq GmbH, Teqtoniq TRC150 Oil-Free Centrifugal Compressor.



HEATING

Winner: Carrier, Infinity@ 24 Heat Pump with Greenspeed@ Intelligence, Booth C1310 Innovation: The Infinity@ 24 Heat Pump with Greenspeed@ Intelligence is Carrier's highest-efficiency and most advanced heat pump with up to 24 SEER and 13 HSPF for premium energy savings, extremely quiet performance and premium comfort features. The unique, variable-speed compressor of this unit allows it to adapt its output to the needs of the home with infinite adjustments between 25% and 100% capacity. The heat pump offers excellent humidity control and is capable of removing up to 400% more moisture than standard systems. Based on Carrier testing, all data was run with the systems cycling once they met the assumed home load. The assumed load at AHAM conditions (80/70, 80) is the capacity of the variable-speed running continuously in dehumidification mode. The difficult conditions load was determined by a Wrightsoft@ load calculation for a home in Florida at 69 OD 72/63 ID. This condition was provided by a customer in Florida as "worst case."

Finalists in this category include: HVAC Manufacturing and Technology Inc., SpaceGain Air Handling Units; Addison, FrostShield Defrost-Free Heat Pumps.

AntrumX is a patented centralized sensing technology. AntrumX monitors IAQ for 32 spaces from a single location, using one sensor for every 16 rooms. Consolidating one centralized sensor for multiple spaces increases sensor accessibility while ensuring better overall control. Centralized sensing ensures better overall control because the data from 16 spaces comes from a single source, allowing building managers to optimize their ventilation strategy, and save energy without sacrificing IAQ. Additionally, the AntrumX has the ability to transport air without moving parts. Leveraging the building's pressure differential between supply and exhaust, AntrumX is able to move air samples from each space to the Sensor Pack without adding energy to the system. The Sensor Pack also monitors multiple data points across multiple rooms. Using over-the-air software updates and a state-of-the-art hardware design, the Sensor Pack can be customized to sense what's required today and be easily exchanged or updated as requirements change over the life of the building.

Finalists in this category include: LG Electronics USA, Inc., LG Split Rooftop DOAS (Dedicated Outdoor Air System) with Energy Recovery Wheel; TZOA, HAVEN IAQ.

The self-contained design delivers a "plug and play" solution that is part of a complete package revolving around easy installation, operation, and durability. The ability to expand is a foundational and distinctive benefit. Both the suction and discharge headers are sized to accommodate the flow rate from the maximum speed of four pumps. Quick and easy disconnects to the main panel allow customers to disconnect each pump individually with minimal system disruption.

Finalists in this category include: Lochinvar, LLC, Lochinvar Commercial Heat Pump Water Heaters; Towle Whitney LLC, GEN-5 Platform.



REFRIGERATION

Winner: ebm-papst Inc., AxiEco 630-910 Axial Fan, Booth C3324 Innovation: The AxiEco 630-910 incorporates new impeller geometry with a rotating diffuser and optimized blade design in order to reach a low noise level and high-efficiency. The steep air performance curve provides a pressure increase of more than 700 Pa, which is extraordinary for axial fans. With a maximum air flow of up to 30,000 m³/h, the AxiEco 630-910 covers a wide range of different applications, especially those where high-efficiency and high back pressure are key. The integrated commutation electronics, with an active PFC (power factor correction) as an option, enables the fan to be used in applications with low harmonics requirements, without any external filtering measures.

Finalists in this category include: Copeland Compressors and Condensing Units / Emerson, Copeland™ horizontal variable speed scroll compressor for refrigeration (1 to 4 HP); and Johnson Controls, Inc., ZS series horizontal scroll compressors with R290 and variable speed compatibility.



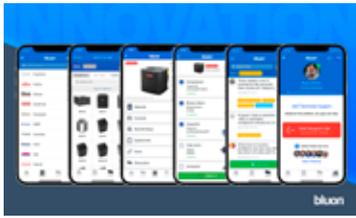
PLUMBING

Winner: Franklin Electric / Little Giant, Inline SpecPAK, Multi-Pump Pressure Boosting System, Booth C4334 Innovation: With only 14.5 inches in depth, its unique smaller footprint makes the Franklin Electric Inline 1100 SpecPAK Pressure Boosting System small enough to be hung in a small utility closet, or wall-hung to preserve critical floor space. The system's Inline 1100 constant pressure pumps are quiet, compact, self-contained, and versatile. Powered by water-cooled motors, it delivers quieter operation versus traditional air-cooled motors.



INDOOR AIR QUALITY

Winner: Antrum, AntrumX™ IAQ Facilities Monitoring System, Booth C1071 Innovation:



SOFTWARE

Winner: Bluon, Inc., Bluon Support Platform, Booth C6617 Innovation: The Bluon Support Platform is a mobile application that becomes a centralized hub for HVAC technicians. Bluon was built for technicians, by technicians, and provides detailed system information, just-in-time training, best practices and 24/7 live tech support. The app's most important function is its ability to make the lives of technicians easier by providing a single, trustworthy source of detailed HVAC system information, along with live tech support when needed in the field. The main features of the free app include: a comprehensive unit database of 40,000 HVAC model numbers, spanning 75+ brands, with 75,000+ original manuals, troubleshooting guides, wiring diagrams, and technical specifications; best practices known as "pro-hacks" for a wide-range of situations; easy-to-use calculators for SH/SC, airflow, pressure setpoints, TXV sizing, etc.; HVAC training videos and tools that techs can use on the job; a revolutionary HVAC forum that gets techs the info they need when they need it; 24/7 live tech support; and a replacement parts identification tool cross-referenced by model numbers and compatible part numbers.

Finalists in this category include: CoolAutomation, Service Provision App; Interplay Learning, SkillMill™.



SUSTAINABLE SOLUTIONS (formerly Green Building)

Winner: Engenuity Power Systems Inc, E/ ONE Home Power System, Booth N7435

Innovation: Engenuity's E/ONE Home Power System is a modern rethinking of a classic combined heat and power system. Using clean and plentiful natural gas, the E/ONE produces both electricity and heat for homes or businesses. Since the E/ ONE is capable of making more power than the home or business requires, the additional power can be sold back to the grid, generating income for the E/ONE's owner. In addition, the E/ONE leverages the reliability of the natural gas distribution network to replace conventional backup generators. E/ONE easily produces all the electricity needed to operate homes or businesses; therefore, the periodic blackouts, such as those recently seen in Texas and California, will not affect the product's ability to function.

Finalists in this category include: Caleffi Hydronic Solutions, Commercial domestic hot water (DHW) recirculation systems combine energy efficiency and water conservation; Danfoss, Danfoss Turbocor® TGS380 Compressor.



TOOLS & INSTRUMENTS

Winner: Fluke Corporation, Fluke 378 FC Non-Contact Voltage True-rms AC/ DC Clamp Meter with iFlex, Booth C2737 Innovation: The Fluke 378 FC true-rms clamp meter uses FieldSense technology to make testing faster and safer, all without contacting a live conductor. The meter measures accurate voltage and current measurements through the clamp jaw. It works by clipping the black test lead to any electrical ground and putting the clamp jaw around the conductor, which results in reliable, accurate voltage and current values on the display. The 378 FC clamp meter includes a unique PQ function that senses power quality issues automatically. When making FieldSense measurements, the 378 FC will detect and display power quality issues, relating to current, voltage, power factor or any combination of the three. This allows for

quick determination if an upstream supply problem exists, or if there is a downstream equipment problem.

Finalists in this category include: Climatch International S.A., F-100 Cordless Stud Welder Machine; RIDGID / Emerson, RIDGID® PCS-500 Pipe Saw.



VENTILATION

Winner: Aides, InspirAIR® Fresh, Booth C2734 Innovation: The InspirAIR® Fresh contains new innovative design features. A newly developed counterflow enthalpic core and unique fan scrolls ensure 75% sensible recovery efficiency at 32 degrees F, as tested to the new CSA 439 standard, required as of October 2020. Occupants can also expect to get ample fresh filtered air due to variable-speed EC motors that adjust speed to changes in pressure due to stack effect and filter loading. The InspirAIR® Fresh is designed to provide optimal fresh air, regardless of filter type. Currently, ERVs are rated for use with a basic filter, and when using a MERV13 or HEPA filter, the airflow is reduced significantly.

Finalists in this category include: Carrier, Carrier Aero® 39M with ECM Direct Drive Plenum Fans; LG Electronics USA, Inc., LG Split Compact DOAS (Dedicated Outdoor Air System).

"It's always exciting to follow along as these products and services come to life in the marketplace," Stevens said. "What's more, is to see others work to keep pace with innovation and develop new solutions. We are thrilled to be back in-person and headed to Las Vegas for a return to business. We hope you'll join us and these winners in action on the Show floor before they hit the market."

Funds raised from the entry fees of the Innovation Awards competition will be donated to a Vegas-area charitable cause, AHR Expo said. Registration for the 2022 AHR Expo is free until January 30, 2021, and can be completed on ahrexpo.com.

ASHRAE addresses climate change solutions at COP26

Hosts side event highlighting growing building stock, consensus-based standards and building industry involvement

By CCME Content Team



ASHRAE addressed climate change solutions at the United Nations' Climate Change Conference of the Parties (COP26) in Glasgow, Scotland, held from October 31 to November 12.

ASHRAE said it formally participated as a Non-Governmental Organisation (NGO) and an official COP observer. The United Nations granted permission for select organisations to participate in COP26 activities.

More than 60 of the largest and most influential international architecture, landscape architecture, engineering, planning and construction firms, along with two dozen organisations representing over one million building industry professionals worldwide, issued a Communiqué to government leaders headed to COP26 challenging them to step up their emissions reduction targets for the built-environment. The firms and organisations are signatories of the 1.5°C COP26 Communiqué — an open letter to sovereign governments demonstrating the firms' and organisations' commitment to meet the Paris Agreement's 1.5°C carbon budget and demanding governments do the same.

ASHRAE said its focus at COP26 was to emphasise the importance of the building community's participation in addressing the climate crisis. Architecture 2030 and ASHRAE hosted a COP26 Official Side Event on November 10, featuring the 1.5°C COP26 Communiqué and its signatories. The event, titled '65% by 2030 / ZERO by 2040: Top 200 Global Firms and Organizations Lead With 1.5°C Climate Actions', highlighted ways in which the signatories are responding to the urgency of the climate crisis and specific actions to decarbonise the built world and meet the Paris Agreement's 1.5°C carbon budget.

At the side event, 2021-22 ASHRAE Treasurer, Ginger Scoggins, highlighted the world's growing building stock and the role of built-environment organisations, such as ASHRAE, in assisting both policymakers and industry leaders in better understanding their impact on our climate change solutions.

"ASHRAE signed onto the 1.5°C COP26 Communiqué, and we are here today because engineers and scientists involved with HVACR and building systems have been, and will continue

to be, advancing solutions to address climate change," Scoggins said. "We are here, because we recognise that the built-environment is a key source contributing to the world's greenhouse gas emissions and with the building stock continuing to expand and doubling by 2050, solutions from the buildings community is ever more critical."

Additionally, Scoggins spoke about the credibility of ASHRAE's technical resources and global standing in the development of consensus-based standards. "ASHRAE's flagship Energy Conservation Standard 90.1 is the benchmark for commercial building energy codes in the United States and has been a key basis for codes and standards around the world for more than 45 years, reducing energy consumption by 50%, yet only 38 countries have specifically named building standards and codes in their Nationally Determined Contributions," Scoggins said. "Many of the countries where the building stock is expected to grow do not require energy standards for buildings. ASHRAE signed the buildings industry's communique, and we are ready to help policy makers and the buildings industry around the world transform our building stock into one that is sustainable, resilient, and healthy. We are here to be part of the solution and we are up to the challenge."

In a separate statement, 2021-21 ASHRAE President Mick Schwedler, commented on ASHRAE's participation at COP26 and shared additional ways that the Society is addressing climate change. "ASHRAE's climate action efforts exemplify the Society's core dedication to engineering excellence in environmental stewardship," Schwedler said. "The ASHRAE Global Headquarters building renovation project demonstrates that existing buildings can be transformed into net-zero-energy structures cost-effectively, using current, off-the shelf technologies. Our Advanced Energy Design Guides, developed with our partners, provide zero energy K-12 schools and office buildings guides to equip designers in achieving zero energy and significantly reducing carbon. ASHRAE is proud to work with other world leaders to not only raise awareness of the issues surrounding climate change, but collectively seek to redefine the built environment for the times and continually explore what is possible through industry leading innovation."

No fission, more emission

Germany's nuclear early closure will cost 1 billion tons in added emissions, study finds

By CCME Content Team

Germany's early closure programme for its nuclear power stations will cost a staggering 1 billion tons in additional CO2 emissions, a study has found. If Germany had closed coal plants early instead, as climate justice would demand, it could achieve net-zero status more easily and save massive additional climate damages, the authors of the study said.

Germany has six remaining nuclear reactors, due to be closed down next year, removing a huge source of zero-carbon electricity from the German economy. If these reactors were kept in operation, a complete exit from coal would be possible by 2028, 10 years earlier than Angela Merkel's government has planned. This would be in accordance with the court case won by German youth fighting for a safe climate future.

This is one of the key findings to emerge from the study on how Germany could use nuclear power to alter the waning course of its Energiewende. The

findings are in a report, titled One Billion Tons. Ökomoderne e.V., which aims to use science so Nature can thrive, commissioned the study; Think Atom, a Finland-based not-for-profit research firm, executed the study. The timing of the report is critical, as Natural Gas prices spike, coal plants are running out of stock, and a new coalition government is forming after elections in which climate was a main issue.

The report shows that it has become increasingly clear that Germany's path to climate neutrality has not nearly been enough. After 20 years and hundreds of billions of euros spent, renewables like wind, solar and biomass account for only 20% of energy use. Around 75% comes from fossil fuels, through burning coal, natural gas and oil. To meet its own goals, Germany needs to speed up its CO2 reductions drastically. The new report shows that this is only realistic if the nuclear shutdown is abandoned.

"Given that we need to act very fast and reduce emissions significantly in the 2020s, keeping the currently operating

nuclear plants open is the quickest and surest way to do that," Rauli Partanen, energy analyst and lead author, One Billion Tons report, said. "It is highly risky and irresponsible towards future generations to try to solve the climate challenge without one of the most capable technologies we have at our disposal."

While refurbishing the remaining reactors will surely cost money, the International Energy Agency (IEA) has shown that extending the operation of nuclear reactors is the most cost-effective way to produce low-carbon energy, and recommends countries to maximise their safe usage. For Germany, keeping its nuclear reactors open is one of the cheapest ways to reduce emissions, the report said.

Mark Lynas, a leading environmental campaigner in the United Kingdom, said the report is another proof of environmentalists across Europe taking an evidence-based approach. This growing movement, Lynas wrote in the foreword to the report, "puts the joint climate and biodiversity emergency at the top of the priority list, and is not trapped by ideological mindsets fixed in the 1970s".

The full report is available at www.onebilliontons.org.

LU-VE GROUP wins accolade

Receives EcoVadis bronze medal for sustainability

By CCME Content Team

LU-VE Group said it has received the EcoVadis bronze medal in the annual sustainability assessment.

On the sidelines of the announcement, the company said that in 2021, it was in the top 20% of the most virtuous companies in terms of sustainable procurement, and in the top 30% of the best companies for the manufacture of general-purpose machines.

EcoVadis, it said, is a company that specialises in corporate sustainability assessment, and intelligence and collaborative performance improvement

tools for global supply chains. Each year, it evaluates more than 75,000 companies from over 200 sectors in relation to the quality of the sustainability management system in four thematic areas – environment, labour practices and human rights, ethics and sustainable procurement – on the basis of 21 criteria (energy consumption and emission of greenhouse gases, product end-of-life, employee health and safety, diversity, supplier environmental practices, etc.).

Matteo Liberali, CEO, LU-VE Group, said: "We are proud to be recognized by EcoVadis, because this important sustainability rating once again certifies

the work of LU-VE towards increasingly sustainable goals, and underlines our commitment to operating according to the highest environmental and ethical standards in compliance with the values which have always characterized our Group."

In 2021, LU-VE said, it was one of the first companies to obtain Eurovent certification for CO2 unit coolers, being among the very first companies to have focused on the replacement of greenhouse gases (F-Gases) with natural refrigerants with low or no impact on the ozone layer. It said it was also the first company in Europe to obtain the "Certify All" certification from Eurovent in 2000 for all its ranges of condensers, dry coolers and unit coolers.





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{Quoteyard}

Starting this issue, we bring to you a collection of some of the most interesting quotes, extracted from the articles in the issue. In case you missed reading, we recommend you flip back to take full advantage of the insights and remarks, in the context in which they have been presented.

“

I heard two guys had died servicing a chiller here, and if I hear correctly, they put oxygen instead of the refrigerant in the compressor, and one of them was an engineer. ”

p7

“

We need to make sure that people are aware that there are a lot of fake products in the market. The profit is such that every criminal is so good. ”

p32

“

if we take the bike environment, there is no level of cold chain integrity. This is due to a lack of monitoring, tracking and management of temperature. Delivery is ostensibly fast but uncontrolled and unregulated, and governments are starting to look into these deliveries. ”

“

The HVAC industry, though legacy bound, is slowly but steadily adapting to changing scenarii. The question that arises is whether retrofiting is the best option? The answer is a simple ‘yes’.

p22

“

Interestingly, one can have a small shop in a remote village or forest without any grid network. With hydrogen fuel cells, you have the air conditioning running.

p14

“

AMC through IoT is also slowly picking up, because it enhances troubleshooting speed, thereby reducing downtime.

p23

“

Advances in Natural Gas/hydrogen (NG/H₂) blending are fast developing. As the name would suggest, NG/H₂ blending integrates concentrations of hydrogen into existing natural gas pipelines to reduce the carbon intensity of the methane.

p18

The Royal League

of fans

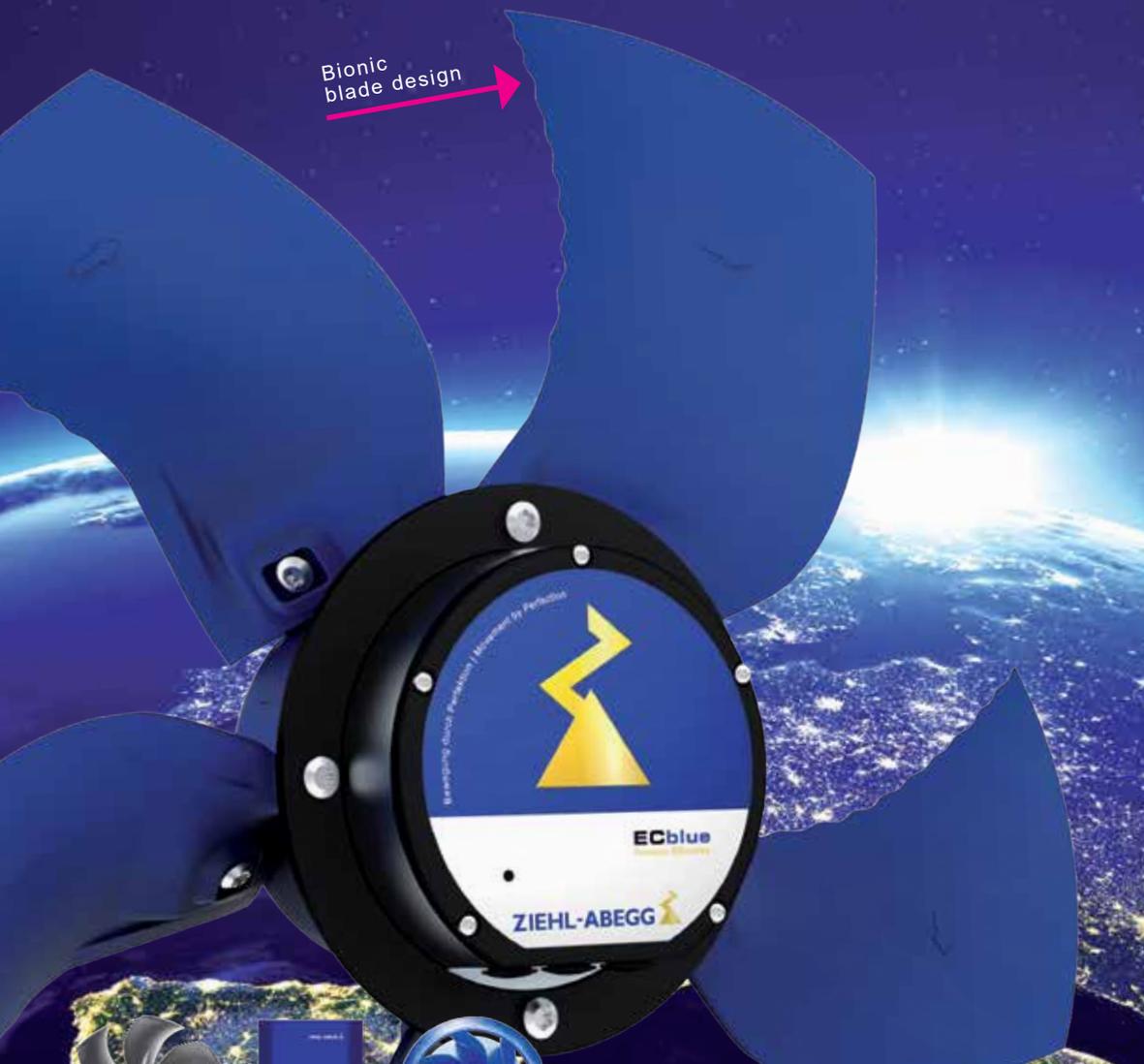


Feel the future

FFowlet - new standards of fan technology in agriculture

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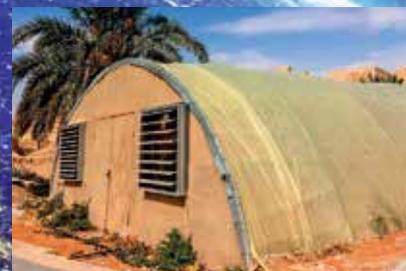
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