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MIDDLE EAST

KEY PERSPECTIVES ON'S HVACR INDUSTRY

January 2023

LICENCE TO CHILL

'Sure, go for VFDs, but protect the motors'
Dan Mizesko, Dalkia US Chiller Services

PERSPECTIVES

IAQ: Still falling short on data-driven strategies
Dr Iyad Al-Attar, air filtration consultant

Climate change action: Not enough
Rehan Shahid, P&T Architects and Engineers

IN PICTURES

The Big 5 Dubai

CLIMATE CONTROL AWARDS (12TH EDITION)

That winning feeling!

'OSCARS OF THE HVACR INDUSTRY' LIVES UP TO ITS BILLING

+

Ziehl-Abegg invests €100 mn in new US plant

Carrier releases HAP v6 HVAC software

Systemair scales up Saudi operations

Giwee highlights CHP Pro Series VRF system

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VOL. 18 NO. 1 ◆ JANUARY 2023

Surendar Balakrishnan
Editor
@BSurendar_HVACR

Politics and the trickle-down effect

The KPIs we establish for every edition or cycle of the Climate Control Awards reflect the editorial aspirations of *Climate Control Middle East* magazine. Whilst the broad parameters are socio-economic and sustainable development, the granular perspective probes the specific measures being taken to solve existential problems that concern many pockets of society. For instance, what is the HVACR industry doing to stop interfering with Nature in the name of providing comfort cooling and process cooling? What is it doing to protect physiological and mental health and to ensure optimal productivity? And what is it doing to minimise food loss and food waste – to the extent possible, given that other factors, including energy management, the peculiarity of our habitats and behavioural issues, add to the complexity of the twin problems?

As a magazine, our engagement is with the gaps and shortcomings the HVACR industry is either seeking to bridge and overcome or to altogether avoid; the latter is a cause for concern and provides a fertile ground for harvesting KPIs. Of course, it would be a travesty of justice to suggest the industry, on its own, is sidestepping the issues it ought to grapple with, for after all, it is part of a larger scheme of things populated by conflicting factors, but still there is so much it can do to mitigate the situation. Around the time of the New Year festivities came the heartening news of an assessment that the hole in the ozone layer is on the mend and that it would likely recover to the situation that existed in 1980 by the year 2045 over the Arctic and by 2066 over Antarctica. Now, if the world manages to hold the course, that's an achievement the industry can be proud of, as it has worked so closely and profoundly in minimising the use of the causative chemicals.

The battle against climate change and the striving for better Indoor Air Quality demand similar – perhaps deeper – coordination of efforts and the willingness to look beyond prejudices, geopolitical limitations, existing global financial structures and corporate vested interests. The prejudices and other negatives permeate multiple layers of political structures to such an extent that the HVACR industry finds itself caught in the grip. And so, there is a need for a change in thinking to happen at the very top and for that to trickle down to the consciousness of the industry. That change in thinking would be based on scientific merit, open-mindedness and abolition of regional insecurities – the last a possibility only if the world sincerely aims for equitable growth.

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Dominic De Sousa (1959-2015)

EMPANELLED COLUMNISTS

Dr Iyad Al-Attar
Independent air filtration consultant, writes on specific science and technology issues relating to Indoor Air Quality, including airborne particles

Euan Lloyd
Senior Counsel, Construction & Infrastructure, Al Tamimi, writes on legal aspects of the building construction industry, including contractual obligations and payments

Krishnan Unni Madathil
Auditor, Bin Khadim, Radha & Co. Chartered Accountants, carrying out an analysis of the market, writes on business opportunities for the HVACR industry

Jeremy McDonald
Principal of Guth DeConzo Consulting Engineers, in New York. He served as the technical consultant to the New York State Energy Research and Development Authority in development of an IAQ guideline for Higher Education in NY: "Covid-19 Response Guide, State University of New York".

Dan Mizesko
Managing Partner/President, US Chiller Services International, writes on issues relating to chilled water systems, including operation & maintenance

François Boueri
Vice President, AHRI MENA, writes on regulation-related issues impacting multiple stakeholders in the building construction industry

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Tinseltown aboard the QE2

Based on the overall feedback, the 12th edition of the Climate Control Awards was an event worthy of its status, says Surendar Balakrishnan of *Climate Control Middle East*

THE 12th edition of the Climate Control Awards, on December 7 on board the Queen Elizabeth 2, anchored in Dubai, was a night to remember, going by the positive feedback that poured in after the ceremony.

Produced by CPI Industry, publishers of *Climate Control Middle East* magazine, the ceremony featured the giving away of trophies in 25 categories – a new record in the history of the Awards exercise for the niche HVACR industry. As per tradition, the trophies were handed out in recognition of the impact organisations and individuals belonging to the HVACR and allied industries had on socio-economic and sustainable development outcomes.

Over the years, the Awards exercise, mirroring the core philosophy of *Climate Control Middle East* magazine, has stood for an honest appraisal of efforts to safeguard people and planet and to ensure good health and support for various industries and other wheels of the economy. The ceremony was all about the result of the appraisal.

A 19-member, trans-national jury carried out the appraisal – a protracted exercise in itself and which included a series of online meetings with applicants, spread over two days. But, in the end, it was worth it, as the exercise upheld the time-cherished guiding principles of the Awards – ethics, substance, relevance and truth.

Here, we bring to you in pictures the glorious evening that was…















12th ANNUAL CLIMATE CONTROL

AWARDS 2022






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'We the Jury'

The following were the judges of the 2022 Climate Control Awards...

Imtiaz Ahmad
Executive Director - Facility Management & HSE, Dubai Holding Asset Management

Dr Iyad Al-Attar
Air Quality/Filtration Consultant; Visiting Academic Fellow, School of Aerospace, Transport and Manufacturing, Cranfield University

Carlos Amaya
Senior Specialist, Demand Side Management (DSM), Abu Dhabi Department of Energy (DoE)

Evie Boustantzi
C-Level Executive

Holley Chant
Vice President of Sustainability, Lendlease

Robert Davies
Operations Director - Advisory Services Middle East, WSP in the Middle East

Dr Amitabha Ghosh
Planetary Scientist, NASA

Omnia Halawani
Co-Founder & Co-CEO, GRFN

Dr P.R. Jagannathan
Senior General Manager-Sustainability, Sobha Realty

Mansour A Kharoub
Senior Manager, Khatib and Alami

Sougata Nandi
Founder & CEO, Energy and Environmental Efficiency Advisory (3e Advisory); Author, *Energy Management in Real Estate: Secrets to Success;* Chairperson of the Jury, Climate Control Awards

Dr Kapil Narula
Economic Affairs Officer, United Nations Economic and Social Commission for Western Asia (UN ESCWA)

Shamim Rashid-Sumar
Senior Vice President, Codes and Standards Advocacy, National Ready Mixed Concrete Association (NRMCA), USA

Shameek Roychoudhury
Director-Premises and Administration, RAKBANK

Representative from the third-party auditing firm that monitored the judging process:

Krishnan Unni Madathil
Chartered Accountant and Audit Partner, Bin Khadim, Radha & Company

Gurdiish Singh Sabharwal
Regional Director Engineering, Oberoi Hotels and Resorts

Sanjeev Sinha
President – IT & Digitization, India Power Corporation Limited

Rehan Shahid
Director, P&T Architects and Engineers Ltd

Shashi Verma
Chief Technology Officer, Transport for London

12th ANNUAL CLIMATE CONTROL

AWARDS 2022

'And the Award goes to...'

Here are the category-wise short-listed organisations and individuals, and winners...

EDITOR'S CHOICE AWARD

Winner:

> **George Berbari, CEO, DC PRO Engineering**

MANUFACTURER/ SUPPLIER OF THE YEAR (AIR TREATMENT)

Shortlisted companies:

- ACS KLIMA ISITMA SOGUTMA HAVALANDIRMA SAN VE TIC AS
- BAPI
- Carrier Middle East Limited

Winner (Joint):
> **BAPI**

Winner (Joint):
> **Carrier Middle East Limited**

MANUFACTURER/ SUPPLIER OF THE YEAR (FIRE & LIFE SAFETY)

Shortlisted companies:

- Central Ventilation Systems Co. LLC
- Leminar Air Conditioning Industries LLC

Winner (Joint):
> **Central Ventilation Systems Co. LLC**

Winner (Joint):
> **Leminar Air Conditioning Industries LLC**

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MANUFACTURER/ SUPPLIER OF THE YEAR (AIR MOVEMENT, VENTILATION)

Shortlisted companies:

- Leminar Air Conditioning Industries LLC
- ZIEHL-ABEGG Middle East FZE

Winner:

> **Leminar Air Conditioning Industries LLC**

INNOVATIVE MANUFACTURER/ SUPPLIER OF THE YEAR (CHILLERS)

Winner:

> **Carrier Middle East Limited**

MANUFACTURER/ SUPPLIER OF THE YEAR (CHILLED WATER SYSTEM EQUIPMENT AND COMPONENTS, LESS CHILLERS)

Shortlisted companies:

- Conex Universal (IBP Group)
- DCServe Equipment Trading LLC
- Grundfos Gulf Distribution
- HERZ Middle East
- Pettinaroli

Winner:
> **Grundfos Gulf Distribution**

DISTRICT COOLING UTILITY PROVIDER OF THE YEAR

Winner:
> **Emaar District Cooling LLC**

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GCC REGION MANUFACTURER OF THE YEAR

Shortlisted companies:

- Daikin Middle East & Africa
- Hira Industries LLC
- Kingspan Insulation
- Rheem Manufacturing

Winner:
> **Rheem Manufacturing**

HVAC CONSULTING ENGINEER OF THE YEAR

Winner:
> **Ibrahim Hassanien, Allied Consultants**

MANUFACTURER/ SUPPLIER OF THE YEAR (VRF SYSTEMS)

Shortlisted companies:

- Carrier Middle East Limited
- Rheem Manufacturing
- Samsung Gulf Electronics

Winner (Joint):
> **Carrier Middle East Limited**

Winner (Joint):
> **Rheem Manufacturing**

YOUNG HVAC CONSULTING ENGINEER OF THE YEAR

Winner:
> **Oommen Philip Tharakan, Phileo PM Aircondition & Refrigeration Trading LLC**

MANUFACTURER/ SUPPLIER OF THE YEAR (STANDALONE DX)

Winner:
> **Trane**

MANUFACTURER/ SUPPLIER OF THE YEAR (WATER HEATERS)

Shortlisted companies:
- Rheem Manufacturing
- Viessmann Middle East FZE

Winner:
> **Rheem Manufacturing**

HVACR ACCESSORIES MANUFACTURER/ SUPPLIER OF THE YEAR

Shortlisted companies:
- Fawaz Trading and Engineering Services Co LLC
- Kinetics Middle East LLC
- Leminar Air Conditioning Company LLC

Winner:
> **Leminar Air Conditioning Company LLC**

PROJECT OF THE YEAR, NEW CONSTRUCTION – IEQ (HEALTHCARE, ACADEMIC, HOSPITALITY, COMMERCIAL, RESIDENTIAL)

Winner:
> **Sobha Constructions LLC**

COMMISSIONING/ RE-COMMISSIONING COMPANY OF THE YEAR

Shortlisted companies:
- AESG
- Alpin Limited

Winner:
> **AESG**

IoT INTEGRATION INITIATIVE OF THE YEAR

Shortlisted companies:

- Armstrong Fluid Technology
- Carrier Middle East Limited
- Taka Solutions

Winner:
> **Carrier Middle East Limited**

MEP CONSULTANT OF THE YEAR (SMALL PROJECTS: < AED 30M)

Winner:
> **Silcock Leedham Consulting Engineers**

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MEP CONSULTANT OF THE YEAR (MID-SIZED PROJECTS: AED 30M - AED 100M)

Winner:
> **PNC Architects**

MEP CONTRACTOR OF THE YEAR (SMALL PROJECTS: < AED 30M)

Winner:
> **Veristar Building Contracting LLC**

MEP CONTRACTOR OF THE YEAR (LARGE PROJECTS: > AED 100M)

Shortlisted companies:
- AG Engineering
- Voltas Limited

Winner:
> AG Engineering

DOMINIC DE SOUSA AWARD FOR INNOVATION

Shortlisted companies:
- Rheem Manufacturing
- Saif Air Tech by Fakhruddin
- Vortex Biotech FZ-LLC
- ZAACK

Winner:
> Saif Air Tech by Fakhruddin

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ESCO OF THE YEAR

Shortlisted companies:

- Dalkia US Chiller Services
- Johnson Controls
- Taka Solutions
- Siemens Industrial LLC

Winner (Joint):
> **Dalkia US Chiller Services**

Winner (Joint):
> **Johnson Controls**

MANUFACTURER/ SUPPLIER OF THE YEAR (REFRIGERATION: INSULATION)

Winner:
> **Viessmann Middle East FZE**

MANUFACTURER/ SUPPLIER OF THE YEAR (REFRIGERATION EQUIPMENT: COMPRESSORS)

Winner:
> **Fawaz Trading and Engineering Services Co LLC**

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KEY PERSPECTIVES ON THE REGION'S HVACR INDUSTRY

CLIMATE CONTROL AWARDS

6 December 2023 Dubai, UAE

13th EDITION

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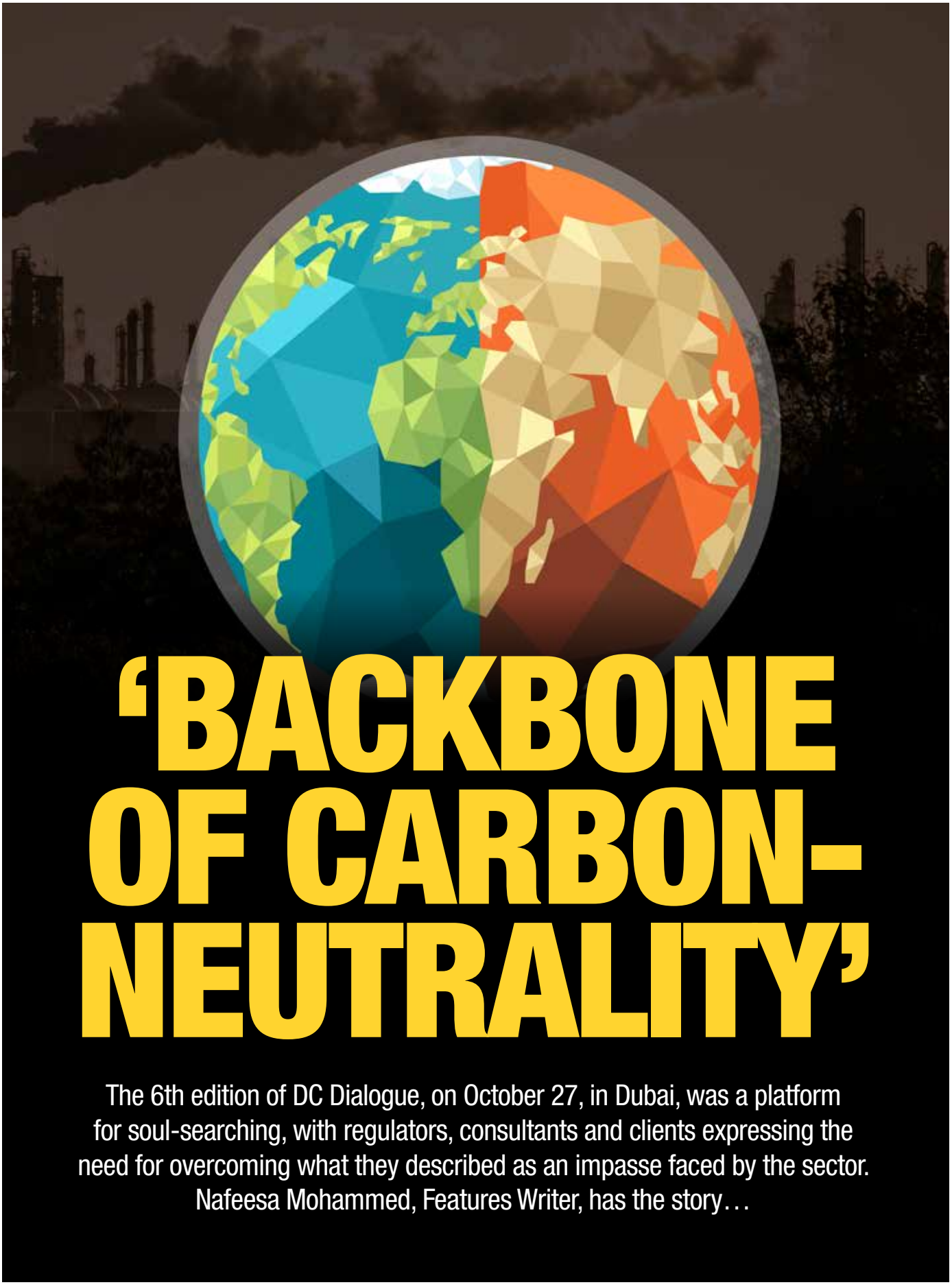
A CLIMATE CONTROL MIDDLE EAST WINTER EDITION SUPPLEMENT

CHILL

TRACKING THE DISTRICT COOLING INDUSTRY IN THE MIDDLE EAST

'We're simply dreaming if we don't include District Cooling among strategies to achieve carbon-neutrality'

'Sure, go for VFDs, but protect the motors'



‘BACKBONE OF CARBON-NEUTRALITY’

The 6th edition of DC Dialogue, on October 27, in Dubai, was a platform for soul-searching, with regulators, consultants and clients expressing the need for overcoming what they described as an impasse faced by the sector. Nafeesa Mohammed, Features Writer, has the story…

"WE are simply dreaming if we don't include District Cooling in the list of strategies to achieve carbon neutrality." That was George Berbari – CEO, DC PRO Engineering, and District Cooling pioneer in the UAE – driving home the mission-critical importance of the sector, during the 6th edition of DC Dialogue, on October 27, in Dubai.

Berbari was chairperson of the conference, who whilst giving the opening remarks, pointed out that since his first District Cooling project, in 1995, the energy sector has moved from fossil fuel to solar, and from there, to hydrogen as a source of fuel. The District Cooling sector, he chillingly added, had failed to keep pace and has remained stagnant, in terms of innovations that matter. "There have only been a few innovations that have been adopted that can possibly redefine the sector," he said, adding that at a time when it ought to have been more robust than ever, has been caught in a quicksand of issues, including providers incurring losses, end-users continuing to pay higher tariffs and technological advancements progressing at a snail's pace.

"The Gulf countries have committed to ambitious climate targets, but achieving them within the planned timeline means that 80% of cities should be served by District Cooling, and the chillers need to be powered by renewable energy," Berbari further said. "Unfortunately, today, District Cooling systems only provide 40% efficiency and consume almost 50% of the energy. On top of that, the construction sector has seen 17 consolidations since 2004, with 10 of them happening in the last two years; this has cut the District Cooling supply chain considerably, with many District Cooling providers requesting liquidation. There is an imminent need to redesign pricing, so it is profitable for providers and affordable for the end users."

Whilst Berbari's views pointed to a feeling that the District Cooling sector in the region has been a partial failure, Graeme Sims, Executive Director of the Regulatory & Supervisory Bureau for Water & Electricity (Dubai RSB), asserted that the future looks promising,

as investment is not an issue and that customers have expressed interest in wanting to adopt District Cooling for their projects. Sims was speaking as part of his presentation, which delved into the upcoming regulations, wherein he also noted that the RSB's current focus is on consumer protection. "Some of the early issues that the industry faced, like the lack of facilities to store water and alternative energy generation, do not exist anymore," Sims said. "Today, we (DEWA) have already achieved up to 30% energy savings through District Cooling. However, it was not done without setbacks – the reluctance of developers to adopt District Cooling, thinking they won't be able to make a profit, and having effective regulations have been the challenge."

Sims said there have been many favourable developments, with the Dubai Supreme Council of Energy reconsidering tariffs for companies coming up with innovations. Sims said the RSB is also working on standardising District Cooling project contracts, so that developers, District Cooling providers and customers may all benefit.

However, Dominic Mc Polin, Advisor, Office of The Minister, Bahrain Ministry of Works, pointed out that "what we have so far are just plans". The path ahead, he said, is riddled with complexities. Many countries have announced zero-carbon emissions and deadlines, he said. For example, the United States has a 100% clean energy target by 2035, whilst Saudi

Arabia aims to have 50% of its energy from renewables. “Achieving net-zero buildings by 2050 will require all countries to quadruple energy-efficiency efforts,” Mc Polin said. “Companies focus more on getting ESG credibility than putting in impactful sustainability efforts. We have done it again. The global ESG funds and targets are increasing, and so is the Earth’s temperature. By 2021, more than 400 climate-related equity funds were created to address climate change and ecological and technological innovations to attract conscious investors. However, an S&P study found that 89% of global funds are on a trajectory to overshoot a 1.5-degree temperature rise.”

Mc Polin said that sadly, most funds rely on sustainability language to attract investment as the industry sits back, waiting for a change.

Hassan Younes, Co-CEO & Co-Founder, GRFN, going into granular details on technological aspects of District Cooling, said that most inefficient District Cooling plants (DCPs) have similar issues, such as sizeable number of constant-speed-drive centrifugal chillers, fouling, higher approach temperatures and water treatment issues, as well as lack of tracking of data or reporting. “Most of these DCPs have reactive maintenance and manual control of the plant,” he said. “But today, we are addressing these issues with technology and creating awareness among owners. Best-in-class DCPs have real-time measurement and dashboard reporting, as well as fault analysis that assesses predictive maintenance, making the systems efficient. We are evolving from our role as infrastructure developers to collect data and update new requirements and coordinate with other stakeholders and regulators to work for a better future.”

Samer Abusaa, CEO, Saudi Tabreed District Cooling Company, after patiently listening to the convergent and divergent viewpoints, gave a District Cooling utility company perspective. He said the first step towards mitigating the impact of District Cooling systems is to utilise alternative energy resources, as their consumption is very high. “The Saudi government is investing in renewables to power District Cooling systems, as protecting natural resources and emission reduction should go hand in hand to be effective,” he said. “However, the financial models need to be relooked at for District Cooling services to be profitable for the providers and affordable for the end-users.”

All said, Abusaa agreed that slow innovation and the lazy attitude towards change needs to change. Voicing a similar opinion, Khalid A Al Mulhim, Business Development Director, Suhaimi Design - Protecooling, Saudi Arabia, said that monopoly is killing the District Cooling sector. From over 11 players in the initial years, District Cooling companies have shrunk to three he said. “The industry lacks knowledge sharing, with companies doing what they know best, ignorant about the latest innovations,” he said. “Open communication, data sharing, and training future generations will bring in true difference.”

Eid Mohammed, at the UAE Ministry of Energy and Infrastructure, called for more collaboration between regulators and District Cooling players. “We hope to share the responsibility in reinforcing the District Cooling sector in the UAE,” he said. “With regulations still being amended and improvised, we would like to receive the data and inputs from the industry so we can meet the industry’s requirements.”

Speaking on the way forward, Alejandro Subiza, Country Manager, Araner, said the industry needs to ensure not to repeat past mistakes, through seeking recourse to data and monitoring. “We will be able to plan the design and size of District Cooling plants to meet consumption without wasting capacity,” he said. “Secondly, we need to find a way to use the existing capacity. The fact that the market is becoming tough means that the industry is becoming increasingly mature.” ccme

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‘SURE, GO FOR VFDs, BUT PROTECT THE MOTORS’

With the proliferation of VFD energy retrofits on chillers and ancillary HVAC equipment, motor failures must be mitigated, says Dan Mizesko, President, Dalkia US Chiller Services

VARIABLE-frequency drive (VFD) retrofits for HVAC fans and pumps have been around in the GCC region for many years; however, over the past six years or so, with the regional as well as worldwide goals to reduce carbon emissions, save energy and "go green" intensifying, there has been a proliferation of companies installing VFDs on all types of HVAC equipment, including chillers, and the move often has resulted in premature motor failure. This article will provide some basic understanding of why the motors fail with VFDs installed and steps that you can take to avoid these motor failures.

The first question that ought to be asked is whether the motor you are applying the VFD to is able to have a VFD installed on it or not. For instance, a single-phase motor should not have a VFD installed on it.

Motor winding insulation

When considering a VFD on a three-phase motor, the insulation rating of the existing motor must be Class F or higher. Due to their internal functions, VFDs have been known to cause high-frequency voltage spikes in the motor windings. Class F or higher will help protect your motor windings. Check your existing motors' nameplate. It will indicate "Inverter Duty" for motors compatible with VFDs. If the nameplate is missing or damaged, you ought to contact the Motor OEM for verification that the existing motor is fit for VFD operation.

Bearings

The aforementioned high-frequency voltage spikes can cause damage to more than just your windings. AC motors operated by VFDs use pulse width modulation (PWM) to control the speed of the motor. This means that there are common-mode voltages, which are capacitively induced onto the shaft of the motor and can discharge in the motor's bearings, causing electrical discharge machining (EDM) pitting, frosting and fluting damage, which result in unplanned downtime and repair costs. In addition, larger motors over 100 HP (75 kW) and medium-voltage motors may also have high frequency circulating currents, which can also cause EDM pitting, frosting and fluting damage. In addition to this, bearing lubrication will break down, eventually damaging the bearings, as well.

Speed ratings

Since VFDs vary the frequency to manipulate the AC motor's speed and torque, they can run a motor outside of its rated speed; but that doesn't mean you should do so.

When running your motor at speeds lower than the manufacturer's rating, the cooling system's capability is decreased. If you intend to run your motor lower than base speed, an auxiliary cooling system may need to be installed.

When running your motor at speeds higher than the manufacturer's rating, the motor attempts to draw additional power from the VFD. This power draw can lead to overload situations and other critical damages.

Lead length

In your typical VFD-motor circuit, the cable length should not exceed 50 feet. However, sometimes, there is no available mounting space for the VFD in the vicinity of the motor. If you have a lead length of over 50 feet, you will need to install additional filters (load reactors or DV/DT) to mitigate voltage spikes.

What to do when retrofitting a motor to VFD operation

Some motors are specifically designed to run on VFD power, while others need a few components added to the system to be compatible. In that context, it is important to ensure that you understand your motor's capabilities and limitations before installing a VFD.

Proper high-frequency (HF) grounding of VFD-driven motor systems is vital to prevent earth-level discontinuities among system components. It is especially critical in applications involving a motor and coupled equipment that are not mounted to a common baseplate. In such cases, effective HF grounding of all system components is necessary to equalise the potential between equipment frames and to prevent ground loops between the motor and coupled equipment. Widely recognised as the most efficient path to ground for high-frequency currents, grounding straps are recommended by major motor and drive manufacturers. High-Frequency Ground Straps (HFGSs) ensure a very-low impedance path to ground from the frame of the motor for the high-frequency currents generated by VFDs.


Dan Mizesko

Shaft Bearing Rings conduct harmful shaft voltages away from the bearings to ground. Voltage travels from the shaft through the conductive microfibres, through the housing of the ring, and through the hardware (or conductive epoxy) used to attach the ring to the motor, to ground. The HFGS is a braided cable used to lower the impedance between the motor's frame and earth ground. Shaft Bearing Rings provide a safe path for damaging VFD-induced currents away from the motor's bearings to the motor's frame. HFGS bonding straps complete the path from motor's frame to system ground.

Inductive absorber cores act as a common mode choke by absorbing the damaging high frequency noise associated with VFDs, so you can maximise equipment reliability.

Measuring the shaft voltage on VFD-driven motors will provide you with valuable information to determine if there is a potential risk of bearing damage from electrical bearing discharges. Surveying and documenting shaft voltage readings and waveforms will assist in determining the appropriate mitigation or solution. The best time for shaft voltage measurements is during initial start-up in new or repaired motors operated by the VFD. Shaft voltage measurements should be incorporated into preventive and predictive maintenance programmes and may be combined with vibration analysis, thermography or other services.

As VFDs are without question a valuable tool in reducing energy in chillers and HVAC equipment, it's important to ensure that all that possibly can be done, is done to protect motors from the damaging effects of VFDs and reduce premature motor failures. cme

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IAQ: STILL FALLING SHORT ON DATA-DRIVEN STRATEGIES

Governments, consultants, industry leaders and end users need to arrive at data-driven strategies to have a meaningful action plan to combat poor Indoor Air Quality, says Dr Iyad Al-Attar, independent air filtration consultant

Dr Iyad Al-Attar

THE value of air quality arises from its impact on the wellbeing of human occupants and air filters' ability to capture pollutants at various desired efficiencies. First, however, one must pay attention to the critical importance of research, development, modern filter manufacturing technologies and certified labour to enable air quality to reach its due importance. However, common tendency suggests that air quality should be based on demand. In that case, air quality will become valueless, no matter how much R&D, know-how, manufacturing and labour costs went into producing air filters. Unless there is a pandemic, curfews and lockdown, no one is interested in raising the bar on air quality and associated air filter performance.

The quality of the air we breathe highly depends on our anthropogenic emissions and the air filtration technologies employed to lower pollutant concentrations, indoors. However, in today's mindset, air quality lacks the charm desired, as we fail to grant air filter performance the "value" it deserves. Instead, we miscalculate the price of air quality by equating value to price. Doing so reinforces the view that filter craftsmanship, quality, research, development and filter performance are peripheral to the selection criteria. We, thus, bluntly declare that such critical factors are on the wrong side of our balance sheet. Perhaps Oscar Wilde was right when he said, "Nowadays, people know the price of everything and the value of nothing."

Overcoming barriers to value creation

The value of air quality lies in the total cost of ownership of our built environment, HVAC systems and appropriate air filter selections. Therefore, air filter procurement can fully encompass a total cost of ownership strategy once filter performance becomes the main criterion by which potential air quality value is achieved, independent of price. Furthermore, the total cost of ownership is the lifecycle-based assessment and forecast of all direct and indirect costs, such as operation and maintenance, which should be considered in the overall sustainable filter performance.

Sustainable air filter performance

The grassroots of sustainable filtration cannot rely on moral forces and increasing awareness alone. For example, during the pandemic, we failed to protect built environments where our loved ones spend up to 90% of their time. In addition, we never included pandemics in our HVAC, air quality and filtration plans. Therefore, face masks played a tremendous role in helping us navigate the pandemic, not resolving air quality issues. Furthermore, the way we used the various types of facemasks during the pandemic varied perceptions of their acceptance and performance. Although dismissing the role of facemasks may imply the waning of the pandemic, cases are still high in certain countries.

In the early days of the pandemic, high-efficiency filter acquisition and installation were subjects of hype, but they were not necessarily the only solution. Other parameters influence the wellbeing of the built environment, such as heating, air conditioning, ventilating, filtration, installing and operating the entire HVAC system. In addition, our ways of living are wasting our human potential and driving current environmental challenges due to wasting resources and materials, and the horrendous way we commute, generate and use power. Furthermore, we need to consider and mitigate our anthropogenic emissions, which deteriorate outdoor and

A typical filtration stage illustrates corroded low-efficiency pre-filters [A] and conventional pocket filters [B] installed in air-handling units

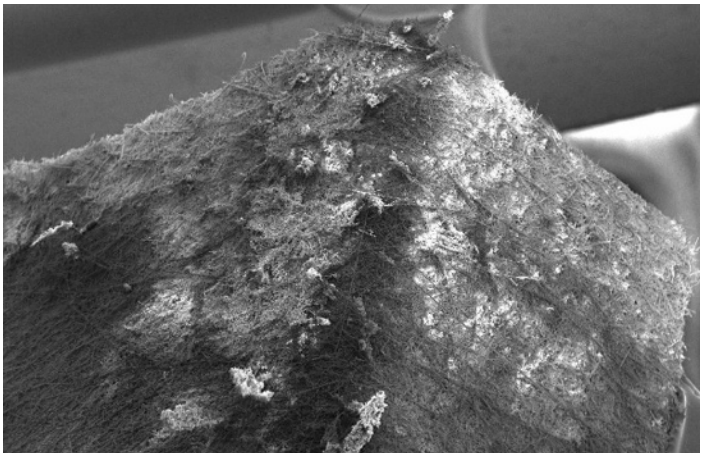

Figure 2: Premature particle deposition on the surface of fibrous filter media

indoor air through increasing concentration of pollutants, eventually challenging the built environment.

Although the ambition to achieve a modern built environment is grand, filters installed in our HVAC systems, generally speaking, are still thin and deficient (Figure 1). Multistage filtration represents a great solution if engineered and installed appropriately. In addition, pre-filtration is of paramount importance as it allows fibrous filter media to have the intended depth rather than premature surface deposition. That would, in turn, extend the lifetime of the filter and avoid early clogging (Figure 2). Furthermore, enhancing filter efficiencies may require retrofitting the existing HVAC systems to accommodate the new filter stages. This is particularly true when filter installations experience chronic failure due to inappropriate filter selection, insufficient pre-filtration, and reactive rather than preventative maintenance measures. Filter failure can occur due to geometrical deformation of the pleated media panel, which leads to the disintegration of the filter structure during operation, as shown in Figure 3.

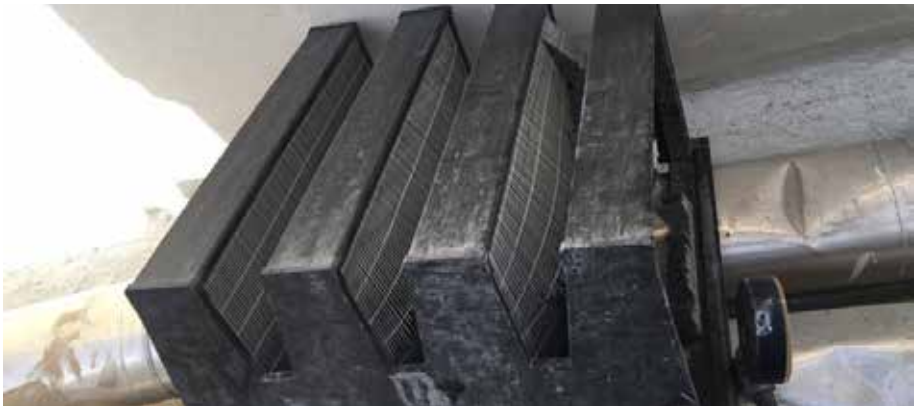

Figure 3: Ballooning and deformation of pleated media panels leading to disintegration from the filter frame

Define before defending

Air quality issues often need to be defined before they are defended, as the context of addressing every pollutant is constantly changing. As Aristotle stated, practical wisdom "is the combination of moral will and moral skill". However, the aim here is to come to grips with reality to realise the value of air quality and the role of filtration technologies in providing it. Our paradox today lies in dancing to the rhythm of pandemics and relying on reactive rather than predictive maintenance practices.

We continue to address our present and immediate needs and claim that our objectives include sustainability, circular economy, and Environmental, Social and Governance (ESG) considerations. However, we cannot go far if we pretend to speak the "sustainability" language but manipulate the pressing issues of air quality and then struggle to clean up. We underperform and then have to catch up, only to slacken our pace again and have to speed up once more. Therefore, continuous research and development of observation programmes to monitor the performance of our outdoor and air quality will prove invaluable. Realising that "business as usual" is no longer a valid option to live in and many maintenance practices will have to be phased out, other air quality enhancements and filtration upgrades require due diligence to justify their implementation.

It is essential to provide clean air to everyone regardless of socio-economic status. Therefore, we ought to liberate our minds and hearts from the conventional ways of living that have led to our environmental status quo and the recent pandemic. The task and paths of environmental leadership lie in reducing emissions and granting our planet a chance to regenerate itself. Given that all cities are heavily dependent on energy to operate their daily activities and support rapid population growth and urbanisation, our relationships with nature, the economy and one another have to change. These relationships for years have been so conventional and predetermined by the way we design and shape our cities. Therefore, urban and smart city design is critical to crafting our future landscape for sustainable healthy living. In 1943, Winston Churchill, while requesting the House of Commons be rebuilt exactly as before, said: "We shape our buildings, thereafter they shape us."

Roar, soar and grow

While surrounding ourselves with urban designs that aim to impress rather than enable sustainable living, we are now seeing that relying solely on evoking the pleasures of spectacular landscapes is

insufficient to render our built environment safe to occupy. Although we are equipped with all the tools that would make our air quality second to none, our indoor and outdoor air continue to be polluted through reckless environmental processes and irresponsible fossil fuel combustion. The time to challenge the emerging realities of climate change has passed; now, it is time to combat them. For air quality to roar, soar and grow, governments, consultants, industry leaders and end users must craft data-driven strategies and implement them to capture the last airborne particle. To embrace sustainable healthy living, we need air quality, filtration technologies and HVAC systems that speak to the highest aspiration of built environments. The authenticity and veracity of the new air quality strategies will, undoubtedly, shape modern indoor spaces and impact our wellbeing. Our commitment to the next generations is to draft strategies to craft a bright future and sustainable living environment. cc me

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THE FUTILE NATURE OF CURRENT CLIMATE CHANGE ACTION

Unfortunately, the efforts so far have been half-hearted if not non-existent, says **Rehan Shahid, Director, P&T Architects & Engineers**


Rehan Shahid

AFTER the COP27 Summit, in Sharm El-Sheikh, in end 2022, some would say that Governments need to do better to successfully address the issues with sincerity or, in some cases, even to comprehend them. I say this against the backdrop of the fact that the world again failed to reach an agreement to phase out fossil fuels.

A government is a group of people. In a reasonably perfect world, these are generally intelligent people governing an organised community. They don't get divine interventions, so they need to understand the issues and find feasible economic solutions and, in the case of Nature, they need to understand what it's telling us, or source scientists who do and then take decisions.

In Europe and the world, in general, we have witnessed that political institutions have either collapsed or are on the brink of collapsing, purely because there is no consensus about anything even within their own parties. When it comes to climate change, though, we can't afford to have such disarray… at least, not anymore.

The United States and the EU are the biggest emitters of greenhouse gases along with China. At COP27, US climate envoy, John Kerry announced the creation of a carbon-offset plan that would help developing countries speed their transition away from fossil fuels. Easier said than done!

So, what is carbon offsetting? It's a process by which funds are directed to projects that help reduce global emissions. It's a way for countries or organisations, to "neutralise" their proportion of carbon emissions by investing in carbon-reduction projects. Some common examples of projects include reforestation, building renewable energy, carbon-storing agricultural practices, and waste and landfill management. "Carbon offsetting apparently has benefits at both ends of the process: It helps environmental projects that can't secure funding on their own, and it gives businesses increased opportunity to reduce their carbon footprint"[1].

Historically speaking, countries of the West have been the major polluters. Gabon, considered the lungs of Africa, is being paid for not cutting its forests. Its forests store more carbon per hectare than the Amazon, absorbing the equivalent of around 30 million cars CO^2 emissions a year, and help regulate temperatures.

A comparatively small pay-out is being offered, so that countries like Gabon remain dependent on the Western economic powers; and these powers continue with their advancements and the riches they make from their industries. In return, they offer these countries some crumbs so that they don't starve to death. A bit harsh opinion, but it appears to be true for now.

And let's not forget – to replenish this fund, more fossil fuel will be used to keep their industries operative and produce even more, in order to make more money; it is kind of a vicious circle.

The money has to come from somewhere, and for now, there seems to be no sustainable, green way of making it.

What would be economical in the long term for these countries, then? Manage controlled cutting of their forests, followed by reforestation or getting fuel at exorbitant and ever fluctuating prices. But then, setting the

hand on the current fuel structure would play havoc on their respective national budgets and never-ending debt.

The Ukraine conflict has unmasked the truth and hypocrisy of some of these countries gassing African nations. Coal is making a comeback in Europe out of necessity, a complete U-turn in the policies, albeit temporary, as they put it. Nevertheless, it shows a lack of commitment... whether it will be temporary or not, the message it sends out is that it's okay for them to go off track if it suits them and that this small hiccup will not make a huge difference in the long term. In the meantime, they maintain to find other solutions or rather debatable distractions, such as the carbon-offset plan and the loss-and-damage fund.

"What happened in Pakistan will not stay in Pakistan." This is a quote from the Pakistan Prime Minister's speech at COP27. But let's admit it, as long as your front porch is not flooded, you are not bothered, believing you have enough time – that seems to be the general policy.

In the past year, devastating flooding overwhelmed Pakistan and Nigeria, and wildfires scorched dozens of other countries. These events led to thousands that were killed, displaced or made homeless. They led to infrastructure that was destroyed and economies that were destabilised. A key point to note is that most of these developing/underdeveloped countries are already heavily in debt. In most cases, the costs of rebuilding far exceed the financial capacity of the governments, which leaves these countries even more exposed to future climate impacts.

These countries are demanding progress on climate change loss-and-damage fund for obvious reasons.

At the summit, the United States and EU finally agreed to establish a fund for nations vulnerable to climate disasters; this had been long avoided, as it may expose them to legal liabilities and lawsuits. Therefore, the fund will not include liability or compensation provisions.

The apparent reason the outcome on a fund came in 2022 is because the G77 bloc of developing nations stayed unified, exerting increased leverage. But we need to understand that forced commitments don't really work, so we would have to wait and see.

There are so many questions that remained to be answered, such as: What shape and form will this loss-and-damage fund adopt? When will it be operational? Who will gain and benefit from it? Will the fund allow the developed and major developing nations to carry on with their current practices, assuming that just because they are paying into this fund makes them less accountable, and therefore, they may continue to pollute the planet at the expense of the countries who would be the recipient of aid from this fund? And when it comes to accountability, who will hold nations accountable?

Bureaucrats would soon demand another commission of some sort. Perhaps more conferences under another banner, a forum to blame each other but without any outcome.

There were over 600 lobbyists from the oil & gas industry at COP27, more than any other frontline community affected by the climate crisis. This indicates the growing influence of oil & gas interests at the climate talks. Is that good for the cause? I think not.

So, what may work, considering the past track record and the evident disharmony among the nations? Nothing, really! You may brand that as a pessimistic view, perhaps, but the recent U-turns amplify this notion.

It's just not possible to have the entire world in sync. Countries will support a cause as long as it does not undermine their political agendas, interests, goals and economic gains. Communities that are facing – and those

that are forecast to be facing – the brunt of the impact of climate change would have to take a stand; devise their own strategies, in line with their interests; and negotiate with the polluters on a level playing field.

There has to be a mechanism that does not originate from the countries that are causing the most harm. The time for debates is over. Really, debates are conducted when there are doubts, and there are certainly no doubts about the consequences of climate change.

Around 35,000 participants and 90-odd heads of state were at COP27. One big holiday camp, some would say.

Data from FlightRadar24 shows 36 private jets landed at Sharm el-Sheikh between November 4 and 6. Studies suggest 90 kgCO2e is produced per hour per passenger in flight[4]; that would amount to more than 31,500 tonnes of CO2 emissions for a return journey just to attend one conference.

Attending virtually would have generated less than one per cent of the emissions. There is obviously a lack of will and sense to address the climate crisis.

The apparent commonly pursued solutions to climate change and the difficulties in their implementation are:There is no one solution, perhaps, because there is no single source of CO^2 emissions. Therefore, efforts to tackle climate change have to be multi-faceted and, above all, collective. Unfortunately, the efforts so far have been half-hearted, if not non-existent. ccme

Keep fossil fuels in the ground.	Most difficult; in fact, impossible, at least in the foreseeable future.
Improve farming and encourage vegan diets.	Not easy. India is one of the major players and second in the world in the agricultural sector having 24% of its population as vegan. According to one recent survey, 48% farmers don't want the next generation to take up farming because of the low profits, high risk involved and lack of social status. And this seems to be the theme elsewhere, too. Agricultural reforms are needed.
Invest in renewable energy.	Possible, but first the innovations and technologies would have to be shared on affordable terms in order to truly make it sustainable. And these facilities should be nationalised. In Nov 2022, a solar energy company fell into administration after racking up more than half a billion pounds in debt to a local authority in Essex, southern England.3
Switch to sustainable transport.	Only possible for the developed nations for now, as they have the infrastructure. Poor countries are struggling to even provide electricity to their homes.
Restore Nature to absorb more carbon.	Possible, but a mammoth task. Who will be part of it and for how long?
Protect forests like the Amazon	Possible but not easy. A mechanism has to be in place where it's a win-win for all and not just for the polluters. There are countries who have maintained their forests but don't get any benefit in return.

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CLOUD AND CLEAR

Dr Amarjeet Singh

Dr Amarjeet Singh, Co-Founder & CTO, Zenatix, describes a specific instance of enhancing guest comfort and equipment operations in the hospitality sector…

The customer

The customer is a leading hotel owner and asset manager in India with a portfolio of more than 20 operating hotels – including three- and four-star properties, such as Hyatt, Holiday Inn and Sheraton – comprising over 4,000 keys. The properties have a diverse geographic presence in more than 10 Indian cities. The cumulative area of the properties is in excess of two million square feet that are home to various types of building equipment, like HVAC, diesel generators, UPS, cold rooms, chillers and freezers.

The challenge

The hotelier maintains an extensive portfolio of hotels which lacked centralised visibility into energy consumption, equipment health, and temperature and humidity compliance, amongst others. The operations team spent a lot of time and energy fixing unforeseen asset breakdowns. Furthermore, occupant comfort needed improvement, as there was no way to monitor temperature, humidity and air quality compliances across common areas, such as lobby, reception and hallways. Adding to the pain, the electricity department was levying hefty penalties on energy bills, as the power factor was not up to the mark at a few properties.

The hotelier acted in the swing and started looking for an energy and asset management solution to address the issues. He reached out to Zenatix.

The solution

In the initial engagement phase, the on-ground team of Zenatix surveyed the client's premises and prepared a solution to match the requirement. The team proposed a pilot project at one of the properties, which showed promising results within the first quarter.

The team proposed the flagship product of Zenatix, called ZenConnect, to get things done. ZenConnect is a full-stack IoT-based solution that helps in curbing energy losses, and delivering occupant comfort and operational compliance. It enables remote asset management through a centralised cloud platform.

Following the success of the pilot project, Zenatix deployed the solution across all the client's properties, which brought every hotel property and asset onto a single platform. In other words, Zenatix produced a web-based dashboard that enabled centralised visibility for chief engineers, general managers and operations teams.

Data is continuously collected by various IoT sensors installed throughout the properties, such as energy meters, and temperature, humidity and air quality sensors. The sensor data is pushed to the cloud for data processing through an industrial-grade gateway. The processed data is then presented as actionable insights on the centralised dashboard. As a result, the hotel operation managers are better equipped with tools to monitor the live status and download custom reports using several filters on energy consumption, comfort, food safety, electrical compliances and asset health monitoring.

The web-based dashboards provide them with the details at centralised, hotel and equipment levels, which were configured as per the needs of the client. Zenatix provided them with central-, brand- and hotel-level analytics on each parameter: Energy (monitored through energy meters), environment (related to ambient environment and monitored using temperature, humidity and air quality sensors) and equipment (pertaining to health of the HVAC equipment – monitored using input power consumption and output temperature).

A. Energy

The client can now track energy consumption, energy distribution and relevant trends at the regional level. It helped them conserve energy, replace energy guzzlers with energy-efficient equipment and analyse metrics like energy per occupied room and HVAC energy per delta temperature. It has created in-depth visibility into hotel energy consumption.

B. Environment

Air quality levels, and temperature and humidity levels of guest rooms and public areas are now trackable across all properties in real-time and mapped on a benchmarking chart. It helped the team maintain the desired temperature in over-cooled and under-cooled areas. It not only increased guest comfort but also optimised energy consumption.

C. Equipment

Each and every HVAC equipment can now be monitored at a very detailed level. Teams can view alerts associated with any ticket and details of each alert, allowing for predictive maintenance before an asset fails completely.

Centralised web-based dashboard

The client was able to monitor energy and manage assets across the portfolio on a centralised dashboard, which provided visibility on…

1. Electrical safety parameters – power factor, current imbalance, voltage imbalance
2. Temperature compliance across different areas at each and every property
3. Energy consumption at different property areas by different assets:
   a. Guest block – multiple floors
   b. HVAC – AHUs, chillers, exhaust systems
   c. Kitchen – cold room, deep cold room, dishwasher, scrubber
   d. UPS
4. Temperature monitoring and temperature profiles
   a. Guest rooms
   b. Public areas
5. Tickets and alerts, based on anomalies
6. Dashboard of actionable business metrics:
   a. Total energy
   b. HVAC energy
   c. Occupancy %
   d. Energy per occupied room
   e. Weather-normalised HVAC energy
   f. Built-up area normalised area (per square metre)
   g. Energy per occupied room
   h. HVAC energy per delta temperature

The result

ZenConnect was able to deliver 14% improvement in energy efficiency, 25% improvement in occupant comfort, and reduced assets and equipment breakdowns by 20%, along with operational efficiency and electrical safety.

Other key results achieved are as follows…

1. Better energy mapping through timely reports and dashboards
2. Better regulation of the HVAC systems using live temperature, humidity and air quality monitoring of different areas
3. Faster ROI realisation, driven by:

a. Regular monitoring and scheduling of HVAC systems

b. Reduced asset breakdowns through monitoring over-utilisation of assets and performing health checks

c. Increased visibility into operations by analysing parameters like power, energy and load throughout the day

d. Better engagement with different properties and property managers on a daily level

The writer is an expert in Embedded Systems, Data Acquisition/AI Algorithms and Energy Efficiency. He holds a B.Tech. from IIT Delhi, in India, and M.S. and Ph.D. degrees from UCLA, in the United States. He may be reached through Saurabh Mathur (saurabh.mathur@zenatix.com).

THE BIG SHOW

Here, we present a flavour of who amongst the HVACR community exhibited at The Big 5 Dubai 2022…

Giwee

AMCA


Genesis Air

Herz Middle East

Bry-Air


SKM


Fawaz Trading


DeltA Duct


Carrier

Doby Verrolec


Hira Industries


AU PURE

Photographs: Surendar Balakrishnan

Climate Control Middle East (CPI Industry)


Bock

Oxycom

Clivet


Zeco

Dwyer

BAPI


Portacool


DurkeeSox


Coolex


Abu Saeed Trading Company

Climatech

Mekar

Abu Dhabi Department of Energy assigns responsibilities to District Cooling service providers

New Consumer Protection Policy outlines regulatory framework

By CCME Content Team

ABU DHABI Department of Energy (DoE) has unveiled its new Consumer Protection Policy to protect the interests of energy and water consumers in the Emirate. Making the announcement through a Press release, the DoE said the policy outlines its regulatory framework, and assigns roles and responsibilities to companies that supply energy, water, sewerage, and District Cooling services in the Emirate.

According to the DoE, the aim of the new policy is to serve the community better and to safeguard its interests as a consumer of water, energy, sewerage, and District Cooling services. Its regulatory framework ensures the provision of the best possible services and supply safety at reasonable rates to all segments of society, the DoE said.

The new policy includes clauses that support and regulate the operations of companies and service providers within the water and energy sector in Abu Dhabi, the DoE said. It has oversight of agreements to supply energy and water services; ensures customer data and information privacy; and outlines principles for service disconnection, prohibition of service disconnections, service fees, customer complaint process, management of debts and customers in default, and services provided to people of determination and home care customers, among others, the DoE said.

H.E. Ahmed Mohammed Al-Rumaithi, Undersecretary at the DoE, said: "The new Consumer Protection Policy prioritises the interests of consumers in its letter and spirit and ensures that services provided by licensed companies operating in this sector comply with the highest international standards of quality. It is aligned with the Department's vision and mission to establish a regulatory framework for providing efficient and affordable energy services.

"Our Consumer Protection Policy presents a new approach to regulating the relationship between consumers and service providers in Abu Dhabi. It ensures efficiency in the provision of services as well as flexibility in dealing with consumers; and at the same time, it regulates the relationship with them in all situations. The new policy is the result of significant efforts by our teams that cooperated with relevant authorities in the Emirate. They have proposed the best regulatory standards to ensure the enhancement of customer service and its flexibility, drive the development of the energy sector, and meet our current and future needs for water and energy."

In a first move for the UAE, the policy has instituted the rules on Service Disconnection for customers, DoE said. Distribution companies must take due precautions to ensure the continuity of services for residential customers in critical situations, providing alternatives, if needed, it further said. It views disconnection of services as having a serious impact on consumer health and safety and on those who reside with them, it added.

According to the DoE, the policy also regulates monthly billing, mandating that

distribution companies provide a monthly bill to customers, along with actual readings reflecting their consumption. In certain cases, bills may be issued with rough estimations, but only where actual readings are not available, it clarified. The policy's Guaranteed Service Standards call on energy companies to set performance indicators that guarantee the provision of high-quality services to customers in the Emirate and provide for compensation to customers in case of standards violations, it said.

According to the DoE, the policy outlines procedures for Management of Debt and Customers in Default, whereby companies are urged to allow for the repayment of amounts owed to them in instalments. Companies shall investigate the financial status of such customers and inform them of the payment timeframe and plans according to which instalments can be made, it said.

Companies must also provide customers with a formal agreement while initiating their account, and outline terms and conditions that protect the rights of both parties and provide details related to restrictions on accessing the service, the DoE said.

According to the DoE, the policy says that customers must communicate with the distribution company as the first point of contact if they wish to file a complaint against the company and wait until their complaint is resolved. They can escalate it to the DoE only if they are not satisfied with the proposed solution from the service provider or company, or if they receive no response to the complaint within an agreed upon time frame.

If customers wish to discontinue the service, the DoE said, the company must ensure there are no pending payments and issue a certificate of acquittal. The company must also inform the customer in writing about disconnection of the service before the account closing process is initiated, the DoE said.

The policy prioritises People of Determination by mandating that companies update and develop their strategy to include their needs and requirements and ensure that they have access to all services, the DoE said. Companies must give priority to them when processing transactions and recruit specialised, trained and qualified professionals to serve them, the DoE said, adding that they must ensure that they send their representatives for service provision or other transactions, if required.

According to the DoE, the policy is available on clicking the following link: https://www.doe.gov.ae/-/media/Project/DOE/Department-Of-Energy/Media-Center-Publications/Policy/Consumer-Protection-Policy--EN-QMS-Final.pdf

Systemair further scales its Saudi Arabia operations

Establishes new regional headquarter in Riyadh

By CCME Content Team

THE Systemair Group announced a further scaling of its long-standing operations in Saudi Arabia. Amongst others, this includes significant financial investments, and the recently completed establishment of a new Middle East headquarter in Riyadh, the company said in a Press release.

Under the patronage of high-ranking Saudi officials, Systemair Group management representatives have outlined their vision and plans for Systemair and the ventilation and air conditioning sector in the Kingdom.

Olle Glassel, Vice-President and member of the Systemair Management Board, said: "Today marks a new era for Systemair's long-standing operations in Saudi Arabia. With the recent establishment of our Middle East headquarter in Riyadh and the strong investments we're making, our company underlines its strong commitment to the Kingdom and the GCC region as a whole."

Morten Schmelzer

Khalil El Ghazzi, Managing Director, Systemair Saudi Arabia, added: "Ventilation and air conditioning products are among the major energy users in Saudi Arabia. With our highly efficient solutions, we want to play a leading role in lessening the environmental impact of HVAC technologies while contributing to a better Indoor Air Quality benefitting people across Kingdom."

Khalil El Ghazzi

Systemair pointed out that it has been operating in the Saudi Arabian market since 2010 and is a member of Eurovent Middle East and AMCA. The company said that in addition to its Riyadh premises, it runs an office in Jeddah with plans for further locations. Systemair added it will be exhibiting at the upcoming HVAC R Expo Saudi, from February 18 to 21, in Riyadh.

Ladybird Nursery installs solar PV at its premises

Al Shirawi Solar engineers a solution involving 206 panels, each with the capacity of generating 545 watts of power, leading to an avoided 99,913 Kg of CO_2 a year

By Krish Reddy

Ladybird Nursery Al Barsha, in Dubai, has installed solar photovoltaic panels to harvest energy from the sun. The initiative by the school at its facility – a LEED Gold building – is in line with its aim of not only being a sustainable building but also a cost-effective one.

Ladybird undertook the solarisation in its school in partnership with Al Shirawi Solar. With the objective of saving an estimated 212,620 kWh, the project involved installing 206 panels, each with the capacity of generating 545 watts of power, leading to an avoided 99,913 Kg of CO2 each year. A key goal at the time of installation was to ensure longevity of the solar system, with a target of 20 years.

Once fully implemented, even the minimum amount of consumption using the lowest tariff (see below: DEWA tariff structure) would save approximately AED 50,000 a year, according to Ladybird.

However, implementing solar panels is not only about installing and receiving benefits, according to Ladybird; there are several other factors to be considered.

Electricity Tariff

Residential/Commercial

	Consumption (kWh)/ month	Slab tariff (fils/kWh)
G	0-2000	23
Y	2001-4000	28
O	4001-6000	32
R	6001 & Above	38

Industrial

	Consumption (kWh)/ month	Slab tariff (fils/kWh)
G	0-10000	23
Y	10001 & Above	38

First is the high cost of installation, ranging from AED 4,000 to 6,000 for only 1kW of rooftop electricity production. The cost doesn't end there, as the cost of maintenance should be considered, according to Ladybird. This is a recurring payment. It comes with an element of risk for workers on the rooftop – in the form of the possibility of electrical shocks and the extreme heat in Dubai – making maintenance payments expensive.

Additional risks for solar panel installations occur, post-installation, such as hot spots. When energy is not successfully transferred to the inverter, it would lead to an increase in temperature, posing a risk to the safety of those within the building. One of the main causes of hot spots is faulty maintenance, such as allowing for accumulation of dust.

Faulty maintenance not only increases the risk of hot spots, it also reduces the efficiency of the solar panels, as the photovoltaic cells can be blocked. Dust alone can reduce the output of a photovoltaic cell by up to 30%, highlighting why regular cleaning is essential for the use of solar panels.

An innovative product exists to combat the problem of dust – a robotic cleaning system (see Figure 4). While the cost of the innovation is significant, it would be especially successful at

locations where a large number of solar panels are aligned, as the cost would be less than hiring maintenance workers. The robotic cleaning system effectively cleans 99% of dust and dirt on the solar panel. However, where solar panels are unable to be placed in alignment due to the structure of the building, such as Ladybird, the process of installing a robotic cleaning machine would be a self-defeating one, as a worker would be required to move it between the solar panels.

According to Ladybird, the thoroughness of the solar project during the planning stage helped it overcome layout-related challenges. The eventual roof layout was such that inverters and the solar panels were placed in a manner where they would be most efficient.

Another important aspect of the project was the consideration given to safety. Case-in point was the use of rubber protections to cover the sharp edges on and around the solar panels. If rubber protections would feature in Safety 101, the installation of a switch for protecting from the electricity connection between the grid and the electricity in the building, was a vital one. The switch effectively disconnects and blocks the chance of conflicts from faults in electricity.

The writer is a Year 12 student at Dubai International Academy.

Amantra FM expects 10% industry growth in 2023

Differentiated services and demonstrable outcomes top priorities for UAE's integrated facilities management industry in 2023, the firm says

By CCME Content Team

AMANTRA FM is bullish on the UAE integrated facilities management industry's growth potential in 2023. The Dubai-headquartered FM company, specialising in bespoke services, said the industry looks poised to register a healthy growth rate of 10%, as trends shift in favour of differentiated services that lead to demonstrable outcomes such as energy and cost savings and reduced tenant churn. The industry's technology adoption will be attuned to national priorities, according to Amantra FM, which has been vocal about its commitment to the UAE Vision 2025.

Sangeetha B, the company's CEO, said: "The FM industry will be increasingly prefixed by the word 'integrated' in 2023, with stakeholders hoping to bridge silos between people, technologies and systems in facilities. It will lead to the standardization of computer-aided facility management (CaFM) adoption and IoT-led operations. The resulting impact on tenant experiences, energy conservation/management, sustainability goals, and cost savings will invite supportive government policies and incentives."

Sangeetha said her notions about widespread technology adoption in the industry are supported by a few tell-tale signs in 2022. FM operators and owners have been in the market for IoT and CaFM solutions, she said. The increased demand has, in turn, necessitated service providers to revamp their value propositions, she further said. Those developments have worked in favour of service providers, such as Amantra, who have operated within a business niche from the get-go, she added.

"Differentiated services, along with niche marketing, are increasingly getting the better of mass marketing FM models," Sangeetha said. "Though the pandemic was a causal factor behind this shift, there are structural trends, such as digital transformation. Owners and FM operators are inclined toward service providers who may not have broad-based solutions but show visible positive outcomes in their niche offerings."

Subsequent to the onset of the pandemic, Sangeetha said, building owners are prioritising hard services relating to HVAC systems. They are more cognizant of Indoor Air Quality (IAQ) standards, she said, adding that such developments complement frameworks such as Abu Dhabi's Safety and Security Planning Manual (SSPM) and bigger priorities like the UAE Vision 2025. "We are proud to support the UAE's aim of world leadership in sustainable development," she said. "Our commitment to the nation's vision is reflected in our endeavour to focus on sustainability through energy management, improving the air quality by using ion technology, and promoting the usage of green products."

Empower announces success in attracting Emirati cadres to District Cooling industry

Speaks of enhancing the role of women in driving economic development through the District cooling industry

By CCME Content Team

EMIRATES Central Cooling Systems Corporation (Empower) said it has achieved significant growth in its human capital in conjunction with its unprecedented expansion in the District Cooling industry and growth of assets portfolio.

Making the announcement through a Press release, Empower said it witnessed an increase in the number of its Emirati male and female employees in 2022, where the percentage of Emiratisation in the company exceeded more than 15% of its total employees. The company indicated that female citizens represent 46%, whereas male citizens represents 54% of the total Emirati employees; these figures, it added, highlight the company's approach to achieving gender balance in the work environment.

Empower said the new employment rates reflect its keenness to attract the best national talents, and enhance their role in driving economic development through the vital District Cooling industry. The workforce growth also fulfills the company's objective of increasing the number of male and female employees in the District Cooling sector, it said.

H.E Ahmad bin Shafar, CEO, Empower, said: "At Empower, we adopt the roadmap drawn up by the UAE cabinet, headed by His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to increase Emiratisation rate by recruiting and hiring more young national cadres in our organization year after year. The integrated system and strategic plan adopted by Empower has yielded outstanding successes and significantly contributed to achieving the strategic vision of the UAE government, which

Ahmad Bin Shafar

aims to raise Emiratisation annual growth rates by encouraging citizen's engagement in vital sectors. In the year 2022, Empower also witnessed an increase of seven per cent in the number of citizens in the senior management, compared to 2021."

The CEO indicated that Emiratisation and attracting qualified national expertise have been an integral part of Empower's recruitment strategy since its inception. "Investing in Emirati youth is the best option that supports the continuation of the comprehensive development witnessed by the UAE, because they are the key players in holding the first positions in various global indicators," he said. "Empower constantly strives to empowering Emirati women and making them part of the Emiratisation agenda and supporting their professional development in the District Cooling sector, in line with the vision of the wise leadership to support women as partners in the process of economic development."

CPI Industry, Waterloo Filtration Institute sign MoU

The two organisations are set to join forces to deliver the message of sustainable filtration solutions to a global audience

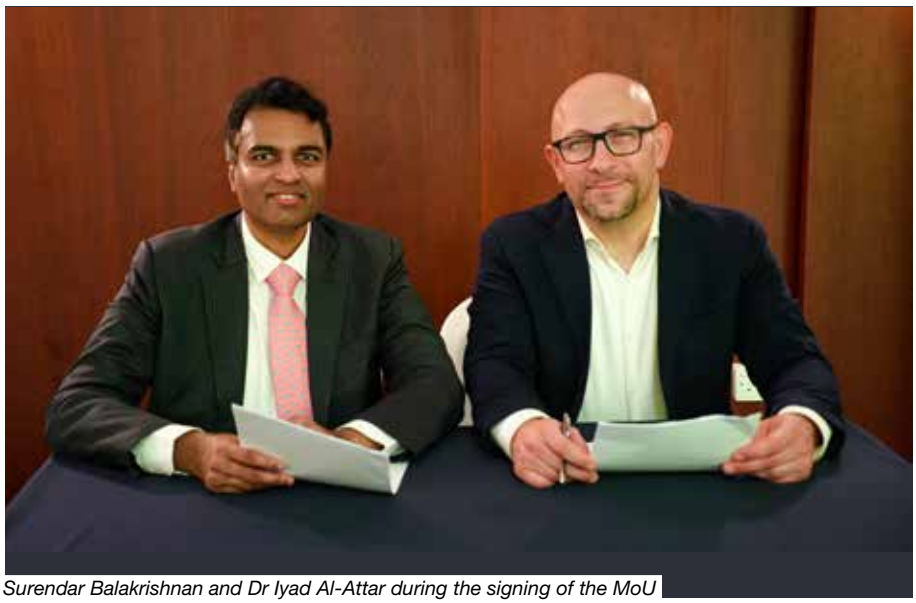
By CCME Content Team

CPI Industry, publishers of *Climate Control Middle East,* and Waterloo Filtration Institute (WFI) signed a memorandum of understanding (MoU) to collaborate in spreading focused global awareness on the importance and implementation of filtration technologies. Surendar Balakrishnan, Co-Founder & Editorial Director, CPI Industry, and Dr Iyad Al-Attar, Strategic Director, Waterloo Filtration Institute, inked the deal on December 7 on board the Queen Elizabeth 2, anchored in Dubai.

Filtration is the foundation of many applications humanity relies upon to conduct day-to-day activities. WFI is dedicated to developing advanced filtration and separation solutions to support the global filtration and separation industry for a cleaner, healthier and more sustainable world. WFI believes that education is the first step for people to gain the knowledge, creative thinking, empowerment and skills they need to make changes to an extraordinary life and make the world a better place to live.

Backed by the joint efforts of over 50 globally leading experts from Asia, Europe and North America, WFI supports the global filtration industry with the most comprehensive, efficient, practical, informative, flexible, cost-effective and updated education programs. It covers the global filtration market, filter media market and technologies, air & liquid filtration technologies, air filter design, liquid filter design, air filter testing and evaluation, liquid filter testing and assessment, and other filtration-related new developments, opportunities and trends.

CPI Industry (www.ccme.news) is a publisher of HVACR-specific publications, including the flagship *Climate Control Middle East* magazine, and a producer of HVACR-related conferences that focus on Indoor Environmental Quality, food and vaccine cold chain, District Cooling,



Surendar Balakrishnan and Dr Iyad Al-Attar during the signing of the MoU

variable refrigerants flow systems and refrigerants, among other topics. CPI Industry reports on a plethora of subjects, including policy and regulation, science & technology, business and finance, and legal and contractual issues related to the building construction and industrial sectors in the context of the HVACR industry.

CPI Industry operates on the principle of supporting global socio-economic and sustainable development targets aimed at ensuring healthy buildings and smart communities, lowering direct and indirect greenhouse gas emissions, ensuring stability of industrial processes (including data centre cooling), and strengthening cold chain networks in relation to food safety, food security and vaccine integrity.

"Given our emphasis on Indoor Environmental Quality, including Indoor Air Quality, through our publications and conferences, we are delighted to join hands with the Waterloo Filtration Institute, which we see as providing niche and expert air filtration solutions to combat growing incidences of Sick Building Syndrome and broad Building-Related Illnesses," said Balakrishnan. "The mission-critical importance of air filtration cannot be overstated, and it is incumbent upon us to intensify efforts towards establishing healthy buildings across multiple sectors."

Dr Chritine Sun, President, Waterloo Filtration Institute, said: "I believe collaboration with a professional body such as CPI Industry and its widely read *Climate Control Middle East* magazine, can help send the WFI message to a global audience. Promoting knowledge through public education and professional training will be the name of the game, as simply learned during the pandemic."

Dr Al-Attar said: "An MoU of such calibre is essential amidst the rising tide of air pollution and the lingering aftermath of COVID-19, which represents the historic calling of raising the bar of the built environment through sustainable living standards. The pandemic has emphasised the need to re-engineer the functionality of existing HVAC and filtration systems, as we envision sustainable ways of living to confront the new emerging realities of climate change and outbreaks."

Carrier Middle East conducts roadshow

Company shows its latest HVAC solutions, including its VRF technology and peak load and energy modelling software

By CCME Content Team

CARRIER Middle East conducted the Technology for the Future forum in Dubai – a roadshow it described as seeking to inspire confidence in more than 600 leading heating and air conditioning consultants and engineers. Making the announcement through a January 9 Press release, Carrier Middle East, a part of Carrier Global Corporation, said the roadshow was an opportunity for outlining its latest HVAC solutions, backed by digital controls and servicing.

Carrier Middle East said it used the roadshow to discuss its variable refrigerant flow (VRF) technology for residential and small commercial buildings. The technology, it added, is designed for reliable performance in the Middle East's harsh climatic conditions.

The company also identified how it continues to innovate with its proprietary BluEdge service platform, which it claimed provides customers real-time monitoring, diagnostic alerts and data analysis to help minimise losses from downtime caused by unknown failures. At a time where data centres are in great demand, consultants learnt about lifecycle solutions to optimise sustainability, while ensuring increased uptime and operation for critical technology, the company said.

Carrier Middle East said it also provided information on controls and building automation systems, demonstrating ways to visualise, analyse and display building parameters. Using a QR code on their own mobile phones, attendees viewed live data from the sustainability dashboard at Carrier's Center for Intelligent Buildings, located in Palm Beach Gardens, Florida, which displays Indoor Air Quality and energy status on the company's proprietary i-Vu building automation system with the EcoReports platform, Carrier Middle East said.

Sathya Moorthi, Managing Director, Carrier Middle East, said: "Carrier's customer-centric innovation was reflected in the second annual roadshow for consulting engineers. Carrier's digitally enabled products, systems and solutions align with our customer's sustainability goals, energy needs, operating specifications, changing business requirements, comfort needs and health concerns."

The company said the roadshow was an opportunity to train consulting engineers on the latest version of its Hourly Analysis Program (HAP v6), its peak load and energy modelling software. HAP v6, the company added, integrates a streamlined workflow with a wide range of advanced 3D building modelling features, all woven into a core design that is still simple to understand and use, to reduce the time and effort needed to produce high-quality building models.

Giwee promotes its GCHV brand CHP Pro Series VRF system

Company says participation in The Big 5 Dubai 2022 was part of a strategic move to give the product and the company more visibility

By Surendar Balakrishnan | Editor, *Climate Control Middle East*

CHINA-HEADQUARTERED Giwee said it is keen on promoting its new-generation GCHV brand CHP Pro Series of VRF equipment, which features the company's enhanced vapour injection (EVI) technology. Cindy Wu, the company's representative, speaking to *Climate Control Middle East,* described the VRF system as a single modular 32 HP unit, which uses gas cooling technology. The single modular unit, she added, uses a bigger inverter compressor – a new technology from Hitachi.

The VRF system runs on R410a, Wu said, adding that the company is still assessing R32 for VRF systems. "So far, only Daikin have announced that they are using it," she said. "There is news that more new refrigerants will

ASHRAE Falcon Chapter hosts Presidential Dinner

Chapter holds event in honour of Farooq Mehboob, ASHRAE President (2022-2023 Term) and Dennis M Knight, ASHRAE Treasurer

By CCME Content Team

THE ASHRAE Falcon Chapter hosted a Presidential Dinner in honour of Farooq Mehboob, ASHRAE President (2022-2023 Term) and Dennis M Knight, ASHRAE Treasurer, on November 22 at Westin Dubai – Mina Seyahi.

Moiz Ashraf, President, ASHRAE Falcon Chapter, in his address, welcomed and honoured Mehboob and Knight. In his remarks, he highlighted the importance of the Presidential Dinner and how the members look forward to hosting the President. Ashraf also presented a review of the Chapter's activities for 2021-2022.

Mehboob addressed the gathering, in which he elaborated on his presidential theme, 'Securing our Future'. He said: "A meaningful and powerful future will not come to us… we must collectively seek it, create it, secure it. And that's what we will do, because that's who we are.

It's in our ASHRAE DNA. We need to be diverse, equitable and inclusive to see, understand and take advantage of what is changing, for our success. The two key prerequisites for ASHRAE's diversity are transparency and participation."

The dinner saw attendance from MEP and HVAC-specific companies.

The event was an occasion for the Chapter to launch its mentorship programme for 2022-2023. The Chapter said five mentors will lead the programme and that all Chapter members are eligible to participate in it. Those interested, the Chapter said, could do so by contacting Mohammed Murtaza, Chair, Young Engineers Committee.

Cindy Wu

come, so as far as VRF is concerned, we are still in the stage of studying and assessing.

Speaking on innovation, Wu said Giwee is earnest about research. She said that the company spends about 4.5% of its yearly revenue on R&D. At the same time, Wu said, the company's main strategy is its OEM business. "We provide the products based on what the market needs," she said. "When it comes to innovation, we provide as per the needs of the US and European markets. For the US market, for instance, we developed the higher SEER series. And for the European market, the main demand is for heating, so for 2022, we focused our efforts and resources on developing the heat pump products. Our Monoblock is one of the highest-performing systems in the market."

Giwee was at The Big 5 Show in early December in Dubai. Wu said the motivation to exhibit at the show stemmed from a much-felt need to show the market that it is still a vital part of the global supply chain as a manufacturer. Wu said that COVID prevented the company from participating in recent previous shows, and that the 2022 edition was a comeback after its earlier participation, in 2018. "So, we participated after almost five years," Wu said. "For the Gulf, I think this is the only exhibition that provides an opportunity to showcase HVAC products."

Ziehl-Abegg invests €100 million in construction of new US production plant

German manufacturer of electric drives and fans says it is boosting its production and sales activities in North America

By CCME Content Team

ZIEHL-ABEGG said it is investing in the construction of a new production plant in the United States. Making the announcement through a November 23, 2022 Press release, the company quoted Joachim Ley, COO, as saying, "We are investing 100 million euros in a completely new production plant in the USA." The company said the plant is the largest single investment at one location in its 112-year history and is the result of the strong growth in quiet, robust and energy-saving fans in the markets in Mexico, Canada and the United States.

The company said growth in North America has enabled the Greensboro, North Carolina site to increasingly accelerate its rate of expansion since its inception in 2004. According to the company, the figures are impressive: In the first 10 years, the number of employees at Ziehl-Abegg in the USA only grew from 0 to 40; in the past eight years, it has already increased from 40 to 230. And by 2030, it is anticipated that there will be 800 people working for Ziehl-Abegg in the United States. The headquarters of Ziehl-Abegg USA is responsible for the whole of North America and has 11 sales offices serving the markets in the United States, Mexico and Canada, the company said.

Ziehl-Abegg makes products in the field of ventilation and in drive technology, in combination with the corresponding control technology. "In addition to data centres, areas of application for the products include heating and refrigeration systems, clean rooms and agricultural systems," said Mirco Herrmann, Managing Director, Ziehl-Abegg USA.

According to the company, the new plant, with administration building attached, will be constructed in Winston-Salem, also in North Carolina. This is about 20 kilometres away from the existing site, the company said. The building, covering an area of 46,500 square metres, is expected to be ready for occupancy in 2024, the company said. The existing production plant will then be relocated to the new site in 2025, the company added.

According to Ziehl-Abegg, the production plant will have a high level of vertical integration. Ley said: "We will not only be expanding capacities but also increasing the level of vertical integration. Thanks to a fully system of self-contained system of production, starting with the motors, we will be able to offer our customers a high degree of flexibility and short delivery times." The company said winding machines, welding robots and CNC machines haven been installed for this purpose. Due to the location's central function, the site will include a high-bay warehouse. Herrmann said, "And in the medium term, we will also be setting up a development hub with a laboratory in Winston-Salem." This, the company said, will require an extensive system of air measurement and motor test rigs.

ASHRAE commits to developing IAQ Pathogen Mitigation Standard

Society says the goal is to finalise the consensus-based, code-enforceable standard within six months

By CCME Content Team

ASHRAE'S board of directors announced its commitment to support the expedited development of a national Indoor Air Quality (IAQ) pathogen mitigation standard. Making the announcement through a December 7, 2022 Press release, ASHRAE said the goal is to finalise the consensus-based, code enforceable standard within six months.

"The health and well-being of building occupants are crucial factors that must be considered during the design, construction and operation phases of the building process," said 2022-23 ASHRAE President Farooq Mehboob, Fellow Life Member ASHRAE. "ASHRAE's long history of leadership in IAQ science and technology, will provide broad-reaching guidance through this standard to help ensure the use of best practices for pathogen mitigation, which will assist in creating safer indoor spaces for us all."

ASHRAE said it will set up a balanced team of internationally recognised experts to work on an accelerated timeline to develop the standard. ASHRAE said delivery of the standard will include:

- Both design and operation
- Alternative paths (prescriptive or performance), in which equivalent clean air would be the goal
- Testing, verification, documentation (commissioning) and periodic re-commissioning

ASHRAE said the increased focus on IAQ by governments and the public, along with the convergence of the flu, respiratory syncytial (RSV) and SARS-CoV-2 (COVID-19) threatening public health, makes ASHRAE's development of the pathogen mitigation standard of even greater importance, as jurisdictions and building owners look to a reputable and non-biased source for guidance and science-based building standards.

Airborne transmission of pathogens is of concern to the public writ-large, and governments are responding. ASHRAE said. In March 2022, the US government launched the National COVID-19 Preparedness Plan, which included recommendations to improve ventilation and filtration in buildings. The Clean Air in Buildings Challenge was also launched in the spring of 2022, along with a Summit on Improving Indoor Air Quality, in October 2022, ASHRAE pointed out.

ASHRAE also pointed out how the ASHRAE Epidemic Task Force, constituted in 2020, responded to the COVID-19 pandemic with the release of extensive guidance, including IAQ resources, referenced by governments, building owners, and facility managers in the United States and internationally.

LU-VE Group celebrates 20 years of its Poland plant

Company says the facility produces ventilated heat exchangers

By CCME Content Team

LU-VE Group, on December 9, celebrated the 20th anniversary of its Poland plant – SEST LU-VE – in Gliwice, in Upper Silesia. The company made the announcement through a December 16 Press release.

According to the Group, SEST LU-VE Polska was established on November 30, 2002, the same year in which the euro was introduced and 10 new countries, including Poland, joined the European Union.

Precisely in that year, LU-VE Group said, it decided to consolidate its leadership position in Europe, strengthening its presence in a strategic area. Today, the Gliwice plant is its largest, with around 1,000 employees and two factories, spanning an area of 92,000 m^2, the Group said.

In Poland, the LU-VE Group produces ventilated heat exchangers (unit coolers and condensers), and exchangers for refrigerated counters and display cases and other applications. With a turnover of over €100 million in 2021, and with 40% growth compared to the previous year, SEST LU-VE Polska spearheads its expansion, LU-VE Group claimed.

LU-VE Group said that after the construction of the first factory in 2002, it made major investments in Gliwice: The expansion of the first factory, construction of the second production plant and further expansion (in progress) of this facility. The expansion, it said, also involved the addition of seven new production lines.

The ceremony was attended by employees of the Polish company, local authority representatives, customers and suppliers. On behalf of LU-VE Group, Pierluigi Faggioli, Vice President, thanked "all those who have made this success possible". Michele Faggioli, COO, honoured the workers who have stayed with the company since its foundation. Fabio Liberali, CCO, presented the "Ermanno and Chiara Liberali" scholarships to the children of the employees of the Gliwice plant.

Epta furnishes new Edeka Treugut supermarket in Berlin

Project includes 60 metres of refrigerated cabinets, company says

By CCME Content Team

EPTA and its brand, Costan furnished the new Edeka Treugut supermarket in Berlin. Making the announcement through a December 16 Press release Epta said the supermarket was opened in the famous Bülowstraße, a district dedicated to Street Art, where artists from all over the world have created their artwork.

According to Epta, the neighbourhood inspired Sandra Treugut, the supermarket chain's Manager, to design an urban-style store in which graffiti, painted by Berlin authors, decorate the departments.

Epta said Edeka Treugut has partnered with it and its Costan brand to furnish a sales space of about 1000m^2, for a total of 60 metres of refrigerated cabinets. The department for pre-packaged fresh products has seen the installation of the vertical GranVista Next, which accompanies customers among the Milky Way, where a wide range of yoghurts, puddings and fresh cheeses are displayed, Epta said. The refrigerated solution guides the way to the Beef n' Fish zone, where customers would find cuts of meat and fish, and then proceeds along the organic aisle, called The Green Wave. The unit, in the closed version with full-height frameless glass doors, ensures the best visibility of the gastronomic selections, among which is ample space for the regionalities proposed by Berlin start-ups, Epta said.

The LED lighting incorporated in the cabinets contribute to defining the metropolitan and industrial style of the supermarket, in perfect harmony with the surrounding environment. In addition, GranVista Next is positioned in Class B on the energy scale, among the Costan's best-in-class, in terms of energy consumption, Epta said. A further focus is on the Epta Dual Airflow system in the supermarket. The system allows better management of aeraulics and reduces heat exchange among aisles, for superior buyer comfort, Epta claimed.

According to Epta, in the frozen food department, contemporary grey and orange lamps illuminate the Tortuga Reverse Island with sliding glass doors. The cabinet, with an increased volume, thanks to the upper loading line raised to 450mm, displays a vast number of ready-to-eat meals and delicious ice cream. Among the advantages of the solution is the ability to manage seasonality, thanks to Reverse technology for transcritical CO^2 systems, Epta said. The system allows to vary the temperature of use, from low to medium, ensuring complete food proposals inside the cabinet, with a consequent implementation of cross-merchandising, Epta said, adding that its contemporary layout also makes it the ideal choice to create harmony with the design of the store.

Joachim Dallinger, Product & Marketing Manager, Epta Deutschland, said: "The store is the touchpoint par excellence: The setting and sensory stimuli can constitute an effective lever to enhance the main performance parameters. In this sense, according to recent research, within it, more than 70% of purchasing decisions are made. For this reason, it is crucial that each place is designed and built not only based on the architecture of the space, but also depending on the process of interaction that the Brand wants to establish with their customer. Thanks to ad hoc solutions, Epta is able to ensure a unique shopping experience to enhance and optimally maintain the assortment."

Sandra Treugut, said "As a consolidated partner of the Treugut chain, Epta has succeeded in giving shape to all our ideas, with an impeccable pre- and post-sales service. The cabinets emphasize the display, and their layout is in perfect harmony with the urban style that we have chosen to characterize the supermarket. We believe it is essential that we continue to amaze our customers, also in terms of products and ambience. This is the element that differentiates an experiential approach from the traditional one. For this reason, on the one hand, we have given ample space to local products, and on the other hand, we have made the neighbourhood and its art an integral part of the shopping experience. As a matter of fact, we are convinced that nowadays, people are looking for something more than just products."

Baltimore Aircoil Company releases ESG report

Evaporative cooling company characterises report as a building block "to our mission of advancing truly sustainable cooling – inspired by nature and powered by our people"

By CCME Content Team

BALTIMORE Aircoil Company (BAC) announced the release of its 2021 Environmental, Social and Governance (ESG) Report. Making the announcement through a Press release, BAC said the Report highlights the key initiatives, accomplishments and targets necessary to achieve the company's vision of reinventing cooling to sustain the world.

"We are very proud to publish our inaugural ESG Report, where we, as the global leader in evaporative cooling, the most sustainable cooling technology in the market, have an obligation to innovate and lead the industry towards a more sustainable future," said Don Fetzer, President, BAC. "Our ESG Report is one building block to our mission of advancing truly sustainable cooling – inspired by nature and powered by our people."

BAC said that as the world faces increasing challenges, its customers, suppliers, employees and other stakeholders are seeking companies with sustainable practices. In support of these inherent requirements, BAC said, it has established five areas of focus for sustainability-related efforts:

- Develop and offer sustainable products
- Design and operate its facilities to minimise environmental impact
- Partner with suppliers to cultivate a sustainable supply chain
- Elevate diversity, equity, inclusivity and safety in its work environment to enable its employees to grow and make a positive impact on communities
- Be the recognised leading provider for sustainable heat-transfer solutions

BAC said the Report provides full transparency to its current efforts and identifies targets for the future. BAC said it began measuring the environmental impact of its facilities in 2015 and has established goals for 2030. Tim Vrints, Global Sustainability Leader, BAC, said: "In 2021, renewable electricity represented 21% of our total electricity consumption, and we expect to increase our renewable electricity usage to more than 50% in 2022. Decarbonizing our electricity supply, step by step, is one of the initiatives we take to achieve our target of reducing absolute Scope 1 and Scope 2 emissions by 50% by 2030. This is just one of our many goals to improve our future environmental impact."

BAC said the Report also highlights its commitment to diversity, equity and inclusion. BAC said it is evolving to reflect the diversity of its communities, its workforce and its customers. It said it has increased diversity within its leadership team, added novel resources for employee education around key diversity and inclusion topics and implemented social responsibility initiatives into employees' everyday experience. As an employee-owned company, BAC said, its culture inspires individual thought and continues to drive sustainability focused initiatives.

BAC said it has identified how transparency and corporate accountability go hand-in-hand and are necessary for lasting change. It said that the public would be able to access the Report by clicking on the following link: ESG-report-2021

Carrier releases HAP v6 HVAC software

Compony says the new version is a major upgrade to HVAC system design software and combines advanced automation with a streamlined, customisable workflow

By CCME Content Team

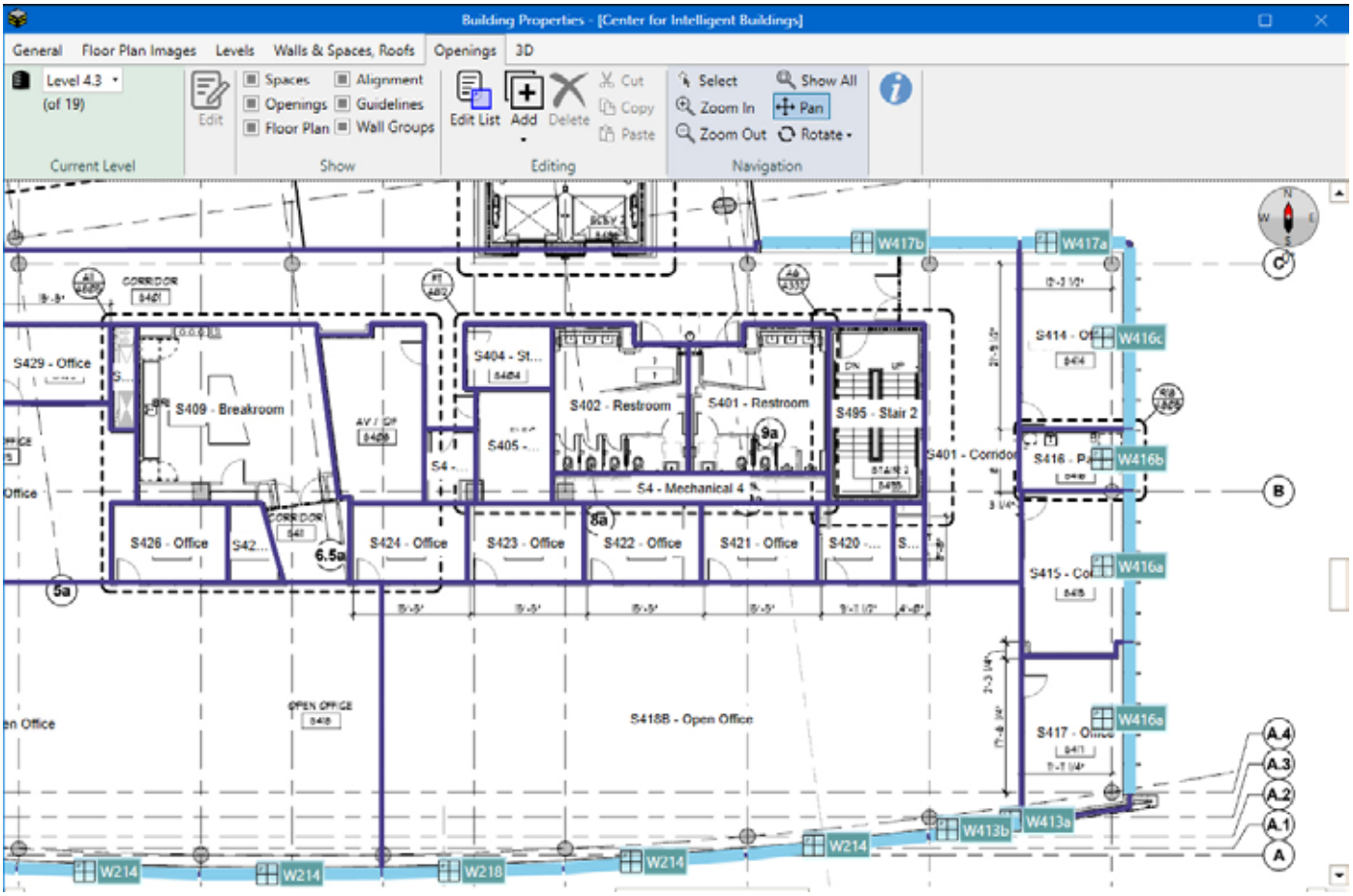
TO meet the needs of HVAC design engineers, Carrier launched a new version of Hourly Analysis Program (HAP), its peak load and energy modelling software.

To reduce the time and effort required to create high-quality building models, HAP v6 combines a streamlined workflow with an extensive array of advanced 3D building modelling features, all woven into a core design that continues to be easy to learn and use, Carrier said while making the announcement of the launch through a Press release.

"Throughout the development process, Carrier worked directly with engineers in mechanical, electrical and plumbing (MEP) design firms," said Jim Pegues, eDesign Software Development Manager, Carrier. "Some were using previous versions of HAP and some were users of other system design applications. We focused on the ways engineers actually work, and listened to what they like and don't like about their current software."

Out of the discussions with consulting engineers, design/build contractors, HVAC contractors and facility engineers arose the key features and approach for HAP v6, Carrier said. New powerful features were added for graphically defining the building model, the company further said, adding that an engineer sketches over building floor plans to define boundaries of rooms, and the software automatically calculates dimensions and areas.

According to Carrier, HAP v6 offers many technical upgrades to reduce what used to take a few days of labour to a couple hours of engineering time for building model creation. It integrates with the U.S. Department of Energy's EnergyPlus™ calculation engine to provide cutting-edge system simulation capabilities, the company said. It utilises the ASHRAE Heat



The new graphical building modelling workflow uses "smart" sketch-over tools to rapidly outline the boundaries of rooms in the floor plan, and makes it easy to drag and drop window and door openings into exterior walls, Carrier said

The HAP v6 offers visual, point-and-click features for rapidly grouping rooms into HVAC control zones, Carrier said

Balance load calculation method to represent building physics more accurately, the company added.

According to Carrier, HAP v6 features a global weather library, including 7,400 stations. Existing features for modelling the energy performance of modern HVAC equipment and controls have been upgraded to help building owners better meet their sustainability and environmental targets for greenhouse emissions, the company said.

According to Carrier, most current users can transition to HAP v6 for free at their own pace, continuing to use the current HAP v5 as long as necessary.

AHRI presents awards

Names 2023 Leadership

By CCME Content Team

AHRI, at its 2022 Leadership Forum, in San Antonio, Texas, in the United States, recognised several HVACR industry leaders for their contributions to the HVACR and water heating industry.

Making the announcement through a Press release, AHRI said awards were given in three categories: The Richard C Schulze Award, which recognises the industry-wide achievements of individuals also pursuing AHRI goals; the AHRI Public Service Award, for deserving individuals or organisations making a significant contribution to the HVACR industry and in furthering AHRI goals; and the AHRI Distinguished Service Award, the Association's highest honour, recognising industry leaders who have made considerable industry contributions throughout their careers.

According to AHRI, Richard C Schulze Award winners include:

- Kim Osborn, Nortek Global HVAC
- Craig Rushing, Trane Technologies
- Greg Wagner, Morrison Products
- Jim Walters, AHRI
- Dave Winningham, Lennox

Mark Stevens, formerly Executive Vice President of The Air Movement and Control Association (AMCA) received the Public Service Award, while Distinguished Service Awards were presented to past AHRI chairmen who have retired: John Gaylen of Danfoss and Mike Schwartz of Daikin Applied Americas.

Speaking on the occasion, Stephen Yurek, President and CEO, AHRI, said: "It is especially important to recognize the leaders who drive growth and success in the HVACR and water heating industry, as they serve as positive examples for others. AHRI congratulates this year's award recipients, and we are very appreciative for their dedication and hard work, which has helped make life better for Americans and people all across the globe."

AHRI said the AHRI Nominating Committee also named the Association's Officers and Board of Directors for 2023:

OFFICERS

- Kevin Wheeler, A.O. Smith, Chairman
- Chris Nelson, Carrier, Vice Chairman
- Brent Schroeder, Emerson, Vice Chairman
- Megan Fellinger, Morrison Products, Treasurer
- Ron Duncan, Magic Aire, Immediate Past Chairman

BOARD OF DIRECTORS

- Kevin Beckett, R.W. Beckett
- Gary Bedard, Lennox International
- Mike Branson, Rheem Manufacturing Company
- Bruce Carnevale, Bradford White Corporation
- Doug Schuster, Johnson Controls
- Donny Simmons, Trane Technologies
- John Swann, Weil-McLain
- John Thomas, Water Furnace
- Yogi Uemura, Daikin U.S. Corporation
- Philip Windham, Nortek Global HVAC

{Quoteyard}

We bring you a collection of some of the most interesting quotes, extracted from articles in this 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.

"By 2021, more than 400 climate-related equity funds were created to address climate change and ecological and technological innovations to attract conscious investors. However, an S&P study found that 89% of global funds are on a trajectory to overshoot a 1.5-degree temperature rise." p32

p32

"Most inefficient District Cooling plants (DCPs) have similar issues, such as sizeable number of constant-speed-drive centrifugal chillers, fouling, higher approach temperatures and water treatment issues, as well as lack of tracking of data or reporting.

p37

"**Furthermore, enhancing filter efficiencies may require retrofitting the existing HVAC systems to accommodate the new filter stages. This is particularly true when filter installations experience chronic failure due to inappropriate filter selection, insufficient pre-filtration, and reactive rather than preventative maintenance measures.**

"This means that there are common-mode voltages, which are capacitively induced onto the shaft of the motor and can discharge in the motor's bearings, causing electrical discharge machining (EDM) pitting, frosting and fluting damage, which result in unplanned downtime and repair costs.

p35

"Countries will support a cause as long as it does not undermine their political agendas, interests, goals and economic gains. Communities that are facing – and those that are forecast to be facing – the brunt of the impact of climate change would have to take a stand; devise their own strategies, in line with their interests; and negotiate with the polluters on a level playing field.

p41

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