

# climate control

MIDDLE EAST

KEY PERSPECTIVES ON THE REGION'S HVACR INDUSTRY

April 2022

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KEY PERSPECTIVES ON THE REGION'S HVACR INDUSTRY

April 2022

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Euan Lloyd

### ANALYSIS

Krishnan Unni  
Madathil

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Dan Mizesko

### HR CORNER

Alissa Paillé

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NISTELROOIJ  
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# 'COVID-19

# IS A HIT ON THE HEAD'

Report: 6th edition of the World IEQ Forum



MENA Climate Week galvanises momentum for COP27

Empower approves AED 500mn dividend to shareholders



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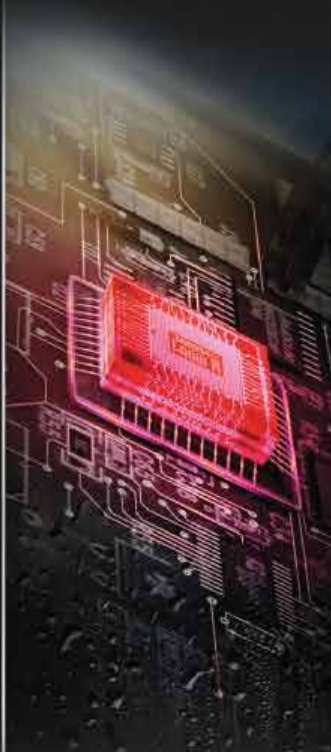


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# Between the lines...

**A**MONGST the Empanelled Guest Columnists we have recently introduced is Krishnan Unni Madathil, who writes a bi-monthly article analysing macro-economic and geopolitical trends. Krishnan has a singular mind with an ability to pull together diverse happenings and find a common thread running through them.

His column is not necessarily HVACR-specific, but it serves a vital purpose in presenting a broad picture of the circumstances we face and their impact on the building construction and other sectors with a strong HVACR intervention in them.

As Editor, I ask you to, therefore, read between the lines to benefit from the insight, suggestions and gentle recommendations. It would be trite to say we live in challenging times in the wake of the pandemic, and even otherwise, and that we need all the help we can gather to see us through the turbulence and the sudden twists and turns.

Our broad purpose as a magazine dedicated to the industry is to collect as many relevant perspectives as possible and present them to you for you to perhaps make informed decisions that impact business growth, help manage risk and strongly contribute to the efforts leading to socio-economic and sustainable development.

The columnists we have on board come with rich experience and expertise in their chosen fields of specialisation, be they related to legal affairs, HR, science, technology, regulation or policy. Considerable thought has gone into inviting them over to write, and we can only hope you find the magazine even more useful than ever before.

You may expect more in the coming days. We do believe we are on a mission to offer clarity on multiple subjects and to stoke discussions on even fledgling issues, which could have significant consequences for the way we function in the days to come. Do stay on the ride with us!

## climate control MIDDLE EAST

KEY PERSPECTIVES ON THE REGION'S HVACR INDUSTRY

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*Independent air filtration consultant, writes on specific science and technology issues relating to Indoor Air Quality, including airborne particles*



**Khalil Issa**  
*Executive Director – AHRI MENA, writes on regulation-related issues impacting multiple stakeholders in the building construction industry*



**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., carrying out an analysis of the market, writes on business opportunities for the HVACR industry*



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



**Alissa Paillé**  
*Founder, careersbay.com, writes on career opportunities, including typical KPIs by HR teams, in the HVACR industry*



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## A CONFLICT OUT OF NOWHERE

Russia and Ukraine having a go at each other offers multiple signals on global thinking, which may help us get a clue on the way forward



**Krishnan Unni Madathil**

Auditor, Bin Khadim, Radha & Co Chartered Accountants, writes a bi-monthly macro-analysis on geopolitics, incumbent political structures, global business and finance exclusively for Climate Control Middle East. He may be contacted at [krishnan.madathil@binkhadimradha.com](mailto:krishnan.madathil@binkhadimradha.com).



**WHEN** the world was finally hoping for some respite from violent conflict with the withdrawal of NATO forces from Afghanistan in August 2021, and barely holding together only just about limping out of a spirit-crushing, two-year global pandemic, out comes another conflict out of nowhere between Russia and Ukraine. It is a brutal conflict between two neighbouring countries, and it is widely expected that Russia will eventually win the war, even if at a tremendous physical cost to herself.

The Russia-Ukraine episode offers multiple signals as to where the world stands on so many issues which remained salient in the last few years; giving these their due recognition may help us get a clue as to the way forward.

Firstly, sanctions against Russia will not work, not without exacting a severe cost on the rest of the world. Russia is the geopolitical equivalent of a major American bank, such as JP Morgan or Goldman Sachs. It is a country that is

simply “too big to fail” or “too big to be allowed to fail”. Not only is it the largest country on earth, but it is also one of its leading economies, with a highly educated and extremely productive workforce, with some of the deepest and most competitive engineering, technical and scientific talent pools in the world. Russia is also a natural resources behemoth, supplying Europe with nearly half its natural gas, and is a major producer and exporter of wheat, a staple which feeds most of the world that is not Asia. Taken together with Ukraine, which will soon be under Russian control, these two countries together make up for one in every four grains of wheat produced on the planet.

Cordoning Russian scientific and technical talent from the rest of the world would make the entire world poorer in the medium to long term, precisely at the point when as many hands on deck are needed to take the world through the multiple challenges confronting it. Global cooperation on matters such as climate change, carbon emissions and trade flow

management would suffer mightily, were the largest terrestrial country on earth to be kept out of the conversation.

And it is not as if the United States and her allies in NATO+ have the wind of morality behind their sails in their opposition to the Russian action on Ukraine either. Let it be reminded that both the major wars of the first 20 years of the 21st century – in Iraq and Afghanistan – were waged by NATO on the flimsiest of pretexts, at least one of which turned out afterwards to be patent nonsense.

I am unsure if countries that have gained in economic heft in the interim, including China, India, those in the GCC region, Russia and Brazil, would be all too keen to blindly listen to NATO+, even when they are mindful of the military and economic heft of the NATO+ combine. In short, everyone stands to lose a lot from this incoming Great Schism.

As much as I empathise with the leadership and citizenry of Ukraine, the victory of the Russians is a matter of when and not if. It would be much more pragmatic for the rest of the world to try and hasten the end of the conflict by stopping military aid flows to Ukraine as opposed to prolonging the conflict out of a moral compulsion to play to the gallery of the fawning masses – that is, to be seen to be doing something. It is rather counter-intuitive of the West to, on the one hand, call for an immediate cessation of violence and, on the other, feed



weapons to one party to prolong the same conflict. I say this as someone with no bone to pick in the tussle between Russia/ CIS and NATO+.

Already, the stresses on the international system, brought about by the Russian war on Ukraine, have diverted much needed attention from other places of weakness across the world, which are just too many to mention at this point. The combined stress of accelerated desertification, changing climate patterns, stagnating societies, beleaguered social contracts, overpopulation, terrorism and outright civil war means that more people than ever are at risk of complete annihilation than ever before. Sanctions on a key world player at this juncture will merely increase the pressure faced by these hundreds of millions. Is it all worth it?

It is a great time for us to take stock of the past 30 years and see just how much progress has been made by the world; and more importantly, how this

improvement has come about. The most important characteristics of the past 30 years that have allowed more people than ever before to climb out of material poverty at the fastest clip ever in human history have been a willingness to plumb to never-before-explored depths of one's well of pragmatism and open-mindedness in order to accommodate people of violently differing views and opinions to come together and talk turkey.

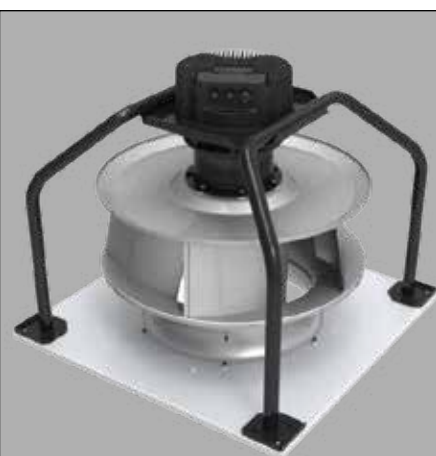
This is a world where capitalist United States shook hands with communist China and decided to alter world trade patterns forever. It is a world where capitalist United States picked the phone call from socialist India and said, "Okay". It is a world where the democratic world laid pipelines with authoritarian states such as Russia, slowly – but surely – egging them towards social reform and human rights.

The winners during this period, almost without exception, have been

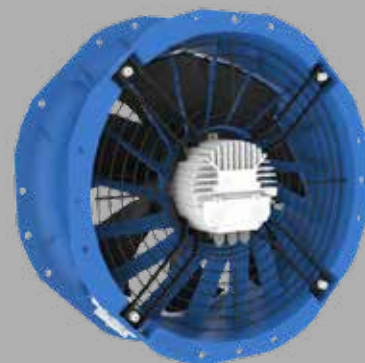
polities, such as the UAE, which have held their doors wide open for productive interactions from all over the world, and which have clung tenaciously to the promise of pragmatism and openness. If the 80 years since 1945 have taught us anything, it is that inward-lookers are on a road to ruin and perdition. We have all been winners of an environment of freedom and openness. And those continue to be the fuel for our hope as we face up to the challenges being thrown at us by the age, from financial crises to wars and from pandemics to irreversible climate change patterns.

As a member of that reviled generation, 'the millennials', I ask the powers that be, "Why in the world are you turning back on us?" [ccme](#)

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# LIQUIDITY ISSUES

With COVID-exacerbated cash flow issues to the fore in the building construction industry, what are the ramifications of insolvency of owner, main contractor and the supply chain?

**T**HE construction industry has always been susceptible to cash-flow issues, and these problems were inevitably exacerbated by the COVID-19 pandemic.

In this article, we briefly discuss some headline issues that key stakeholders in the highly inter-connected construction industry should consider in this regard as well as how they can potentially mitigate their exposure to such risks:

## **INSOLVENCY OF THE OWNER**

The insolvency of the Owner of the Project will inevitably cause very significant harm to the entire contractual chain.

From a Main Contractor's perspective, it is, therefore, important that it satisfies itself as to the adequacy of the financial arrangements that the Owner has in place in order to complete the project.

This is a critical point as, on account of prevailing retrospective payment mechanisms, the Main Contractor is essentially required to perform substantial components of the Works at its own cost, pending receipt of payment.

Although construction contracts can allow the Main Contractor to suspend performance in the event of failures to certify as well as on account of the non-payment of certified amounts, it is not unusual for such rights of suspension to be either deleted in their entirety or made subject to lengthy trigger periods.

This means that the Contractor may be forced to continue to perform without payment for a significant amount of time, during which time the Owner's financial health may significantly worsen, before being contractually permitted to suspend performance and, thus, 'stop the bleeding'.

This situation can, in part, be mitigated on the basis that various GCC region jurisdictions allow for one party to suspend performance at law in the event of a breach by the counterparty – that is, the Owner's failure to make due payments to the Main Contractor, or to certify. However, rights at law are not prescriptive, and there is, thus, an inevitable degree of uncertainty associated with exercising should rights.

## **INSOLVENCY OF THE MAIN CONTRACTOR**

The insolvency of the Main Contractor can be severely detrimental to the Owner as well as to the Main Contractor's subcontractors and supply chain.

From the outset, it is notable that a Main Contractor insolvency can, at least, partially emanate from a competitive tendering process that pressurises the Main Contractor into accepting an unrealistically low contract price.

While this is the Main Contractor's commercial decision whether to agree to participate and ultimately win a 'race to the bottom', the Owner should bear in mind that an unduly low contract price can strangle the ability of the Main Contractor to properly perform.

Leaving aside the issue of the adequacy or otherwise of the contract price, it is important that the Owner conducts financial due diligence on the financial standing of the Main Contractor before executing the Construction Contract.

Additionally, the Owner should be alert to any 'red-flag' signs, such as the Main Contractor's inability to provide a performance bond, as this can indicate



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that the Main Contractor's banks have lost confidence in the business, as well as industry knowledge regarding the Main Contractor.

From the perspective of the Owner, the insolvency of the Main Contractor will obviously mean that it will need to engage a replacement of the Main Contractor.

Given that an insolvent Main Contractor cannot be held responsible for the inadequate works that it may have performed, it will be the Owner's preference that the incoming contractor agrees to assume 'single point responsibility' so that it is responsible for the Works performed by the insolvent Main Contractor. However, this can be a complicated and expensive proposition for various reasons, as an incoming contractor may be reluctant to take over and assume the risk of a half-completed project.

It is, therefore, important that the Owner ensures that it has sufficient cash security – that is, in the form of retention and a performance bond – under the terminated construction contract to mitigate the cost and expense that will almost inevitably be incurred when engaging a replacement contractor.

A further and related point is that it is likely to be more efficient for the replacement contractor to engage some, or all, of the insolvent Main

Contractor's supply chain in order to complete the Project.

However, an insolvent Main Contractor will almost certainly have outstanding payments due to the supply chain, and it is likely that the Employer will need to settle such liabilities in order to entice sub-contractors to return to the site.

A final remark is that the insolvency of the Main Contractor will also almost certainly delay the completion of the Project and, therefore, the date upon which the Project becomes a revenue-generating asset. Amongst other things, this may have an impact on the Owner's financing arrangement, and as such, the Owner may wish to consider the availability of insurance to address this risk as well as building flexibility into its financing documents to reflect such a delay.

#### **INSOLVENCY OF THE SUPPLY CHAIN**

The insolvency of a critical member of the supply chain, such as the sub-contractor responsible for a major package – that is, MEP – or the provider of a long-lead item, can cause significant delays to the Project. Further, as the Main Contractor is fully responsible for the performance

of its supply chain, this can expose the Main Contractor to liability under the Main Contract, including in the form of delay damages.

It is, therefore, important that the Main Contractor carefully manages and keeps a close eye on the financial standing of its supply chain and is ready to take pragmatic preventative action, if it appears that a key member of its supply chain is in financial difficulty.

Notwithstanding the critically important role it plays, the supply chain is typically engaged under conditional payment arrangements, which provide that a sub-contractor is only entitled to payment provided that the Main Contractor has received payment for the sub-contractor's works under the Main Contract. This can be particularly problematic if non-payment to the supply chain is caused by disagreements between the Owner and the Main Contractor that have nothing to do with the works or services performed by the supply chain.

Payment arrangements of this nature have been prohibited by law in various jurisdictions, on account of the financial stress to which they can

expose the supply chain as well as on account of their susceptibility to abuse. While it can be very difficult for conditional payment regimes to be resisted in their entirety, sub-contractors may consider seeking to negotiate mitigants to lessen the harshness of an undiluted conditional payment mechanism.

Such mitigants may include: (i) Conferring transparency upon the sub-contractor to determine when payment from the Owner is received by the Main Contractor; (ii) Specifying that the conditional payment mechanism is not indefinite but is expressly subject to a definitive long-stop date; and (iii) Providing that the conditional payment regime is subject to prescribed thresholds.

Finally, the aforementioned points in relation to steps that the Main Contractor can take in respect of its arrangements with the Owner are generally applicable to the supply chain and should, therefore, be carefully considered by the supply chain. [ccme](#)

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# 'COVID-19

## IS A HIT ON THE HEAD'

Occupant health impact should be the epicentre of all building-related decisions, says **Dr Stephanie Taylor**, CEO, Building4Health, echoing the dominant sentiment during the 6th edition of the World IEQ Forum

Report by Surendar Balakrishnan | Editor, *Climate Control Middle East*



**T**HE 6th edition of the World IEQ Forum, on March 16 at the Sweden Pavilion at the World Expo, in Dubai, was as much an opportunity for soul-searching as it was for sharing insights and recommendations, and it delivered on both counts.

The event, held against the backdrop of a receding pandemic, its chastening effect still strong on the psyche, saw a greater-than-usual sense of intensity, when compared to previous editions, and an unrivalled willingness and urgency to seek out solutions. As Dr Stephanie Taylor, CEO, Building4Health, who gave

the Plenary Address, put it, “COVID-19 is a hit on the head.”

She epitomised the sense of urgency in implementing IAQ-related interventions, when she said: “We should acknowledge how powerful the indoor environment is on our health. We know we have issues with IAQ (Indoor Air Quality), and we can’t hide from it. Occupant health impact should be the epicentre of all building-related decisions.”

Dr Taylor pointed out that the living conditions of the human race have changed significantly and that our buildings and technologies are more

sophisticated. “By the 19th century, unless in agriculture, most worked indoors,” she said, adding that many buildings became tightly sealed spaces, and windows were no longer operable. “This saw a rise in certain categories of diseases, despite advances,” she said. “We saw the re-emergence of some pathogenic infectious diseases, and so the question in front of us is, ‘How do we manage our buildings and infection rates?’”

By way of answering the question, Morten Schmelzer, Group Technical Marketing Director, Head of Public Affairs, Systemair, whilst giving the pivotal Industry ▶





Morten Schmelzer



Tobias Zimmer

Leadership Address of the conference, said it's time to place ventilation and IAQ at the forefront of sustainable HVAC. He pointed out to how many believe that an air conditioning split unit provides fresh air. They don't understand that it is providing recirculated air, he said. "That is why we believe we need to strengthen the V in HVAC," Schmelzer said. "We are used to fresh air in forests and deserts, and so let's give importance to fresh air in the built-environment.

At the same time, Schmelzer said, focusing on IAQ need not be at the cost of ceding the hard-earned ground related to greater energy efficiency. He spoke of the need for dispelling some common misperceptions that better IAQ is possible only through energy-intensive means. "Achieving fresh air indoors with minimum energy use is not contradicting itself," he said. "Energy recovery systems help recover heat and cooling. They can reduce cooling demand in building. This Sweden Pavilion is a prime example of utilising this technology. Sixty per cent of cooling is recovered, and only 40% has to be addressed with compressor cooling."

Schmelzer said it is important to carefully consider the volume of fresh air introduced in the built-environment. He said it is ideal to achieve a figure greater than 30 cubic metres of fresh air per hour per person and that it is worth debating whether we should aim for 100 cubic metres of fresh air per hour per person.

Highlighting another misperception, Schmelzer said having a high-efficiency filter with lower energy consumption is

not contradictory. Carrying Schmelzer's narrative forward and bemoaning the common practice of using washable filters to save first cost, Tobias Zimmer, Vice President, Global Product Management & International Standards, Camfil, said: "When you wash a filter, it clogs, and energy consumption is tremendous." Higher efficiency filters,

**“The hospital had issues with mildew and fungus, so I introduced run-around coil and double heat recovery, and we managed to bring the Relative Humidity to a bearable 60%, instead of 80%, but we still suffer.**

he said, do not equate to higher power consumption.

Yet another misperception, participants pointed out, is that there is little wrong in adopting a homogenous approach to IAQ intervention. Climatic zones constitute an important aspect of consideration, and IAQ interventions need to be adapted accordingly. Indeed, what would work for a temperate zone might not apply to regions that experience high humidity. Speaking from a North America perspective as a member of the audience, Dr Mark Ereth, Mayo Clinic Emeritus Professor, said whilst ventilation and air filtration are important, it is no use if the sole focus is on ventilating to dilute the air if the built-environment has a low Relative Humidity.

So, it is not advisable to look at ventilation and air filtration in isolation. Responding to this, another member of the audience pointed out that the challenge in the Gulf has to do with high humidity which needs to be controlled. He spoke of how the common practice of oversizing of the cooling equipment leads to high humidity in the built-environment. "So, the problem," he said, "is a bit different here."

George Berbari, CEO, DC PRO Engineering, elaborating on high humid conditions in the Gulf region, spoke of how a hospital in Abu Dhabi – one of the most humid cities in the world – allowed for 100% fresh air, and made provision for sensible heat recovery. The hospital, he said, installed 100 Refrigerated Tons (RT) of air conditioning to achieve 10 square metres of cooling per ton. The actual performance, he said, was 12 square metres per ton, and the Relative Humidity was 70-80% for the whole year. In such humid conditions, he asked, can we increase fresh air indefinitely? Should we aim for 100 cubic metres per hour per person? "My biggest challenge in the region is to control Relative Humidity," he

said. "Normally, it should be around 60-65%. The hospital had issues with mildew and fungus, so I introduced run-around coil and double heat recovery, and we managed to bring the Relative Humidity to a bearable 60%, instead of 80%, but we still suffer."

Berbari pointed out to how LEED called for 30% above ASHRAE Standard 62 and asked why this is the case. "We put constant flow fresh air without any demand control ventilation," he said. "Why should we not have demand control ventilation in all buildings?" Earlier, we had 60 people occupying the floor, today we have five people, he pointed out, emphasising the need for a responsive approach to ensuring proper building performance.



# 'The need for extraordinary IAQ'

Excerpts from a panel discussion aimed at tackling extremely contagious bio-agents with a view to protecting lives in the built-environment. . .

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### **OMNIA HALAWANI:** How have buildings changed since COVID-19?

**JEREMY MCDONALD:** I am from the United States. People know they have problems, they know we have issues with AHUs and controls. The K12 facilities are pretty good and have improved. Hospitals are pretty good. We are struggling in nursing homes and multi-family homes. We have high density populations and low RH, which is a prescription for a pandemic.

### **HALAWANI:** Simon, what efforts has AD QCC taken when it comes to COVID-19?

**DR SIMON HUGH MILLER:** Most buildings are not good for infection control. In two years, we have had time to

adjust to how we operate our buildings, but in the case of majority of the buildings we have now, it will be difficult to adjust. Lot of technology has been brought in to increase ventilation to control future pandemics. And I know it is a knee-jerk reaction. We need time to understand the right interventions to problems we have had before with IAQ, and in the near future.

**DR JENS THOMSEN:** The Abu Dhabi Public Health Centre (ADPHC) is the lead entity in Abu Dhabi, when it comes to public health. The ADPHC has done a great job. I am in the Communicable Diseases Department. We were leading the response of public health in Abu Dhabi. The UAE was leading the response to COVID-19 in terms of vaccinations, and

of course IAQ is also an important aspect of that response. So, we have had a multi-faceted approach to the problem, including providing guidance, face masks, social distancing, etc. Maybe we have not had too much direct involvement with HVAC, but more of healthcare professionals, the general public and we need to work more closely with the HVAC industry. We are not engineers, we are doctors, epidemiologists, surveillance experts and microbiologists, and we need to work closely together.

### **HALAWANI:** Iyad, what would be a holistic approach to improve IAQ?

**DR IYAD AL-ATTAR:** The first issue really is that IAQ never gained political traction to become a national priority. The penalty we have paid in this pandemic is

bigger, although humanity is equipped with many tools to respond in a better manner. Every time, an enhanced or upgraded IAQ approach is proposed, it is frustrated by structures and decision-makers at all levels. Every time, we have tried to upgrade filters, and it has a high pressure drop it has been rejected, so we have to bring renewables into the energy mix. We have an addiction of washable filters. If not washable, it is not going to be used. We have paid a hefty penalty by sticking to such a strategy. The rising tide of air pollution has been on for many years, and we have never tackled it. We demand filtration standards but they are poorly followed and poorly understood. We are asking for smart buildings. We need to answer the new question this pandemic has brought upon us today.

**HALAWANI:** Dr Rohit, could you give us a clinical perspective. Are we ready for countering the next pandemic? We would like to hear your thoughts on prevention versus cure.

**DR ROHIT PRADHAN:** COVID-19 in the last two-and-a-half years has demanded a lot of effort from the medical society and has taught us that we need to be better prepared for the future. The indoor environment has provided a good opportunity for the spread of germs, so we need better planning of ventilation in hospitals, though I have been fortunate to work in a hospital with good-infection control measures. In many countries, though, there is big scope to develop. It is very important to achieve a pollution-free and trigger-free environment, so we need better preparation.

**HALAWANI:** Dr Rohit, do you feel FM has adapted and has made any changes from pre-COVID to post-COVID?

**DR PRADHAN:** FM has geared up adequately and definitely changed.

**HALAWANI:** Dr Stephanie, if we are to quantify IAQ, how can we do it?

**DR STEPHANIE TAYLOR:** It is a very complicated question, but it is critical we aim to do that. With COVID, the concept of IAQ has moved from hospital to

everyone. I think we have to create visibility on IAQ.

**HALAWANI: Regulation or visibility?**

**MCDONALD:** I believe carrots and sticks would work. In US, we have both. A T&B contractor has to certify. But what happens after occupancy? Nothing happens. The maintenance person is well-meaning but is helpless if he does not have the budget. The folks at the ground level know the problem. I would like to see some sort of an annual check, just like with fire protection. Unless we have a system in place where can we check?

**DR AL-ATTAR:** Quantifying is key, but it is half the job done. The second part that is essential is having an HVAC system that responds to the IAQ changes. I think sensors, filter performance and HVAC performance needs to be holistic performance. Filtration is not the only reason why IAQ is getting worse, and it is not the only solution. We need the right coordination to start on what we are up against.

**DR THOMSEN:** Quantification of IAQ? I cannot directly answer that, but in the last couple of years, we have quantified health effect of poor air quality. So, it is possible to attribute burden of diseases owing to pollutants. The University of North Carolina and Abu Dhabi have developed the UAE Burden of Disease Model. And we have tried to estimate what the effect of these are. We call them episodes. For example, the Burden of Disease model has been updated, and [we were able to conclude that] 46 people in Abu Dhabi died due to [poor] IAQ. The work involves epidemiological studies, the study of the relation between pollution and diseases and validating international studies with local data. We conducted the '500 Households Survey', where we went to 500 households. And from all of these, we tried to find out the correlation. So, we can quantify not IAQ but the health effect of poor quality. It is available in the public domain.

**BASSEL ANBARI (Energy International; member of the audience):** With this pandemic, everyone's attention was on

IAQ. Has Abu Dhabi or the UAE enforced or developed an IAQ-related standard? And how is the government enforcing the standard during the construction period?

**DR MILLER:** It goes to Dr Stephanie's point on how you tackle the situation. It is acceptable to have viruses in the air. To design a specific policy for schools, malls and other public buildings is difficult, because you have to put a lot of interventions, which are costly. So, it is easier to stop people from coming in – if having COVID, they can't enter. Whether that is the approach going forward to the next pandemic is a question.

**MARK ERETH (Mayo Clinic Emeritus Professor; member of the audience):** Excellent panel! I am wondering if we could consider proposing something to monitor. PM 10 is monitored. We know particle tests are reasonable surrogates for pathogens. With PM 2.5, it is a bit non-specific.

**DR TAYLOR:** It is fairly large. If PM2.5, it reaches our alveoli. The virus itself is teeny tiny, but while useful to have surrogate metrics like 2.5, to control that would be useful. I would do a lot of testing. The particle count we are trying to establish... buildings are like human bodies. Check the oxygen level pressure, etc. Likewise, check the particle count, VOCs. So, we need to think about buildings like human bodies and establish a benchmark and tackle it.

**ERETH:** Certainly, instantaneous results are not going to be possible. Commissioning standards and ongoing standards are needed. With ultrafine particles, I might push to have monthly standards and continuous measures to look at the average. Eight-hour exposure of burst of CO<sub>2</sub>.

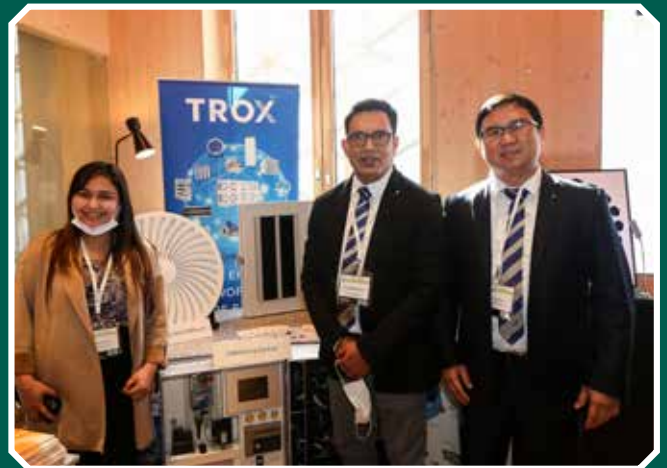
**MCDONALD:** I 100% agree. In the US, there is a practice of monitoring all variables, and people are talking about PM, VOCs, just like we are talking about heart rate. So, we don't have another terrible pandemic!

**HALAWANI:** That is why we need to capitalise on increased talk to effect change.

**ccme**

*(To be continued in the May 2022 issue of Climate Control Middle East)*







# HUMIDIFICATION – ONE SIZE DOES NOT FIT ALL

Most HVAC contractors do not regularly undertake humidification projects, so acquiring enough experience to avoid the possible pitfalls can be difficult. **Mahmoud Widyan**, General Manager, Condair Middle East, elaborates on what any contractor taking on a humidification project ought to consider



**O**NE size does not fit all when it comes to humidifiers. When deciding whether to install a lower cost alternative to a specified system, it is important to fully understand the reasons behind the initial selection. We often see manufacturing applications that need very precise humidity control being served with electrode boiler humidifiers that are not capable of providing the required level of control.

Typically, humidity control of 2-3%RH needs resistive steam humidifiers. Installing an electrode boiler humidifier is less expensive, but this technology can usually only deliver around  $\pm 5\%$  RH. Although this type of humidifier is ideal for many applications, not sticking to a higher specified unit without first researching and considering all the selection criteria can cause headaches for clients and contractors.

## HOW TO SAVE COSTS

Traditionally, humidifiers have been seen as expensive to run due to the most popular technologies generating steam with electricity. However, there are several alternatives now for building operators looking to reduce the operating costs of humidification. Gas-fired steam humidifiers present at least a 60% saving on energy costs when compared to electric steam. They have higher capital

costs but for any application needing more than 40kg/h with average use, this technology presents a rapid return on investment.

In-duct adiabatic humidifiers, which either spray or evaporate moisture, present a similar saving when combined with gas-fired pre-heating. For further savings, combining adiabatic humidifiers with heat recovery, such as thermal wheels or run-around coils, to provide the pre-heating can reduce the ongoing cost of humidity control to less than 10% of electric steam systems.

Adiabatic humidification also offers the benefit of evaporative cooling. This means the humidifier can be used in the summer to provide very economic cooling to reduce the load on mechanical chillers.

## PLAN EARLY

There are many things that need to be considered when deciding on product selection and humidification strategy. The earlier in the project the humidification is thought about, the more are the options available for providing a potentially better solution.

For instance, what is the available duct section length to accommodate the absorption distance? Steam introduced into a duct will need space to fully absorb in order to prevent condensation.

This distance can be shortened by using specialist short-evaporation steam lances, but the overall length will depend on the quantity of steam being introduced, the air velocity and the air-on condition.

Considering the available energy sources can lead to a dramatic reduction in overall operating costs. In certain circumstances where an existing steam supply is available, a live-steam humidifier can be utilised to provide dry steam to an AHU.

If a building has capacity in its gas-fired heating system, fitting an adiabatic humidifier could be more economical from an operational cost perspective, when taking into consideration the additional pre-heating requirements. This is, of course, necessary to ensure enough moisture from the cold-water humidifier can be fully absorbed for the desired supply air condition to be achieved. Without this available heat capacity, often steam humidification is the only practical solution when retrofitting.

High air velocity may prevent evaporative humidifiers being an available

option, due to unevaporated droplets being carried into the airstream.

#### WATER QUALITY

The quality of the mains water in a building must be reviewed prior to humidifier selection. An average water quality of between 125 and 1250 $\mu$ S/cm is required for an electrode boiler steam humidifier. Below or above this level, and an electrode humidifier may experience issues either boiling the water or producing too much scale. Gas-fired or resistive humidifiers can cope with a wider range of water qualities. RO water treatment is also a good solution for humidification in hard water areas, as most of the minerals are removed from the supply water before being introduced to the humidifier.

#### CONTROL LEVEL

The level of humidity control needed is a major determining factor in humidifier selection. Although resistive steam humidifiers are a popular choice for close control, recently developed cold water adiabatic systems can provide a similar level of control. Hybrid humidifiers combine spray and evaporative technology and can deliver  $\pm 2\%$  RH control. Gas-fired, electrode boiler or evaporative humidifiers are all capable of delivering around  $\pm 10\%$  RH, which is fine for most applications related to human health.

#### EXPERT ADVICE

One of the most important things to consider when setting out on a humidifier



project is to get good advice from a competent supplier. Initially, this obviously includes the product selection, so approaching a supplier with a comprehensive range allows for the most appropriate product to be proposed for a project. Also, review what support will be provided prior to and during an installation. Being able to obtain clear guidance throughout the project will not just reduce the time on-site but also reduce the possibility of errors resulting in a return visit. Lastly, all humidifiers need to be maintained, so check whether the supplier has spare parts available for

critical installations and can undertake to service the humidifier directly or provide technical assistance, should you wish to continue to support the client in the long-term. [ccme](#)

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# THE BROAD AND THE GRANULAR OF RETROFIT

Summit enables the sharing of progress in the MENA region, writes **Surendar Balakrishnan**, Editor, *Climate Control Middle East*

**T**HE MENA Retrofit Tech Summit and Awards 2022, on March 22 and 23, in Dubai, presented a broad annual report card on building-retrofit activities in the MENA region and, at the same time, enabled the sharing of specific details that highlighted energy and water savings, amongst other sustainable development benefits.

Faisal Rashid, Senior Director, Demand Side Management, Dubai Supreme Council of Energy, for instance, gave a broad perspective on Dubai's initiatives. Speaking after him, his colleague, Graeme Sims, Executive Director – RSB Dubai, presented a





granular view, highlighting the progress the Bureau has made in regulating district cooling in Dubai.

In the past year, Sims said, the Bureau has been putting flesh on the bones of the regulatory framework.

The RSB is a regulatory body for energy and water, and for private sector involvement and licencing of power projects. It has licenced over 5,000 MW of power projects, with a majority of them being solar projects. It was given the responsibility of regulating the district cooling sector relatively recently. Sims said the Bureau had been working on the district cooling sector for

a good few years before being given the responsibility of regulating it. He said the team at the Bureau realised it would be successful in regulating district cooling and being able to see its full economic potential only if three stakeholders came on board: District cooling providers; customers, who will want to occupy only if they see value of money in quality and service and cost; and developers, who choose district cooling as their cooling options, as marketable to potential property buyers.

Sims enumerated what he called as six areas of focus of the regulation...

- 1) Contracted capacity
- 2) Tariffs, fee and charges, which tend to sit at the heart of any regulatory regime
- 3) Contracts
- 4) Complaints handling
- 5) Energy and water efficiency
- 6) Customers in arrears

The protection of customers, he said, is at the heart of the regulation.

Speaking on the specific work to date, Sims said the Bureau is collecting data from billing agents, has established health and safety regulations and is finalising procedures for customers in arrears. ▶



The work still in development, he said, includes cooling services agreement for supply to buildings, and the standards for establishing contracted loads.

Sims said cooling projects have offered superior performance in terms of payback. “All ECMs have been fairly steady over the year, but cooling projects perform better than average, with a payback period of 2½ years,” he said. “Lighting, on the other hand, has a payback of 4½ years. So, cooling projects retrofit is feasible.”

Later, Dr Pablo Izquierdo, Manager, Energy Services Section, Reem, Ras Al Khaimah Municipality, presented an overview of retrofitting activity in Ras Al Khaimah. Speaking specifically on the Municipality’s Building Retrofits program, one of the key pillars of the Ras Al Khaimah Energy Efficiency & Renewable Energy Strategy 2040, he said it addresses the main building types, with the initial focus being on government buildings and gradually extending to commercial and residential segments. In all, he said, the Municipality is targeting 3,000 buildings for retrofitting by 2040, with an investment of AED 500 million.

Dr Izquierdo spoke of how it is more difficult to tackle the residential segment and added the Municipality is determined to target doing a few of that sector. Overall, he described the governmental initiative as being ambitious in scale.

Elaborating on the specifics of the programme, Dr Izquierdo spoke of how it is supported by eight enablers. The first of these, he said, is the resolution for energy audits and retrofits. The second enabler is a Super ESCO,

which facilitates retrofit projects and related activities. The third enabler is awareness building to generate interest in retrofit projects, and the fourth is M&V and reporting, which Dr Izquierdo said established measurement and verification standards and a reporting mechanism to collect information on completed projects. The fifth enabler is the accreditation of ESCOs. Dr Izquierdo said the Municipality had accredited 22 ESCOs by the end of 2021. The sixth enabler is incentives for ESCOs and auditing firms to set up their practice in Ras Al Khaimah and develop the retrofit market. The seventh enabler, Dr Izquierdo said, is the creation of standard processes and tools for the efficient management of retrofit projects. And the eighth enabler, he said, is establishment of standard templates for contracts and tender documents. “So, we have a good ecosystem of companies and activities,” Dr Izquierdo said. “And of the 3,000 buildings by the 2040 target, we have done 150 buildings so far.”

Dr Izquierdo said the building retrofits programme of Ras Al Khaimah is interesting, because it involves the active participation by the government and is driven by a resolution mandating minimum energy and water savings and because it has a Super ESCO in place, with the role of a facilitator, which ensures smooth completion of retrofit projects. It is interesting, because it also has a simplified tendering process, he said. The program is also integrated with an energy management process, which supports continuous improvement. Further, group financing methods have

been adopted to ensure scale, he said. Also, the programme has involved the developing of incentives on the demand side and the supply side, to encourage adoption of retrofit projects and supply developments, such as financial incentives and set-up incentives.

Speaking on the role of the Super ESCO, he said it is based on a spirit of collaboration. “We are technical advisors,” he said. “We are not contracting parties. We do not sign contracts. We provide technical advice. The customer signs an energy performance contract, and the ESCO does the investment-grade audit, the retrofit project work, and the operations and maintenance. We help them with initial energy audit and contracting support.”

Dr Izquierdo said the Municipality has executed retrofit projects since 2018. In 2020, it made its foray into the education sector, where it implemented retrofitting – including energy conservation measures – in 15 school buildings, overall comprising over 20,000 square metres and spread across four locations, under a guaranteed savings contract of five years.

The entire project involving the schools had innovation as its backbone. For instance, to minimise costs and payback times, some chillers were relocated from one school to another, Dr Izquierdo said. Further an ML algorithm is used to optimise the operation of chiller plants in the schools, he said. Multiple sensors provide information to the chiller plant manager, which continuously optimises the chillers, pumps and valves to maximise the efficiency of the plant, considering outdoor climatic conditions, he said, adding that cloud-based intelligent controls manage demand based on occupancy and work schedules, and connected smart meters allow central monitoring. “We have centrally monitored meters,” he said. “We can see exactly what is being consumed.”

Dr Izquierdo said the energy savings in the schools is not owing to any behavioural change involving the students. “Kids are mostly unaware of what’s going on,” he said. “No one is being told to save energy. It is more of a technical achievement that is resulting in greater savings.” [CCME](#)



# FACE TO FACE

Panel discussion, titled 'Regulatory and Super ESCO outlook on incentivising retrofits and enhancing energy and water efficiency in buildings' provides an interesting insight into MENA retrofit activity...

## MODERATOR



**Hassan Younes**  
Co-Founder and Co-CEO, GRFN



**Ramiz Hamdan Alaileh**  
Sustainability and Energy Efficiency Director, Abu Dhabi Department of Energy



**Faisal Al Raisi**  
Acting Chief Executive Officer, Etihad ESCO



**Andrea Di Gregorio**  
Executive Director, Energy Efficiency and Renewables Office (Reem) - Ras Al Khaimah Municipality



**Said Mouline**  
Director General - AMEE - Moroccan Agency for Energy Efficiency



**Faisal Rashid**  
Senior Director, Demand Side Management, Dubai Supreme Council of Energy

**HASSAN YOUNES:** The past year has been interesting in the energy space, with the UAE announcing a net-zero target by 2050, and the next two global COPs scheduled to take place in the MENA region. Is it difficult to achieve net-zero energy in the region, which is characterised by high temperatures and high humidity?

**RAMIZ HAMDAN ALAILEH:** From an Abu Dhabi's perspective, the Department of Energy is the policy-maker, regulator and custodian for the mandate of Abu Dhabi emirate. Focusing on retrofit, in particular, there is regulation with regard to new products. We have recently announced a government retrofit programme and are focusing on 39 buildings. The aim is to achieve 30% savings in energy. The Abu Dhabi Super ESCO has announced a lot of projects

with UAE University, and the Department of Culture and Tourism. What is unique is that we have a vast range of projects, including schools; health facilities, especially after COVID-19; and a cultural landmark fort in Al Ain. We are also working with one of the major real estate developers, Aldar. We want to achieve 20% savings in eight of their facilities.

The Department of Energy's focus is on driving energy and water efficiency and developing the right guidelines. The Department is not only focusing on energy and water but also all aspects of society and long-lasting change.

**YOUNES:** Engr Faisal Rashid, could you please highlight the main initiatives and emphasise on the ones with the most impact in Dubai in the next few years?

**FAISAL RASHID:** I can speak only from

a macro level. The UAE government has pledged to achieve net-zero carbon by 2050, and Dubai has aligned with NDCs (Nationally Determined Contributions), in line with the Paris Agreement. And within, we have an ongoing programme in terms of supply and demand, where supply side share of renewable energy is set to increase. All the premature piloted projects are being tried, and the more mature projects, like solar, electric vehicles and CSP (concentrated solar power) are being scaled and going to different levels. Solar and green transport will represent 50% of next-zero target, and the other 50% will be from other sectors, such as shipping, aviation and manufacturing. And we need to use different approaches, like green hydrogen, and carbon capture and storage.

We have a platform for district cooling, and the objective is to increase the ▶



penetration of district cooling in Dubai and to increase the standard of efficiency within the plant. And we also have an FM platform to promote FM operation within buildings. Also, recently, we launched a circular economy initiative.

**YOUNES:** Said, could we have your insight?

**SAID MOULINE:** We are focusing on decarbonisation of industry. It is urgent because carbon tax is underway in 2023 in Europe, and it is important that mining, steel and cement industries align themselves on how to decarbonise, and we are helping them in different fields. In Morocco, 88% of electricity is coming from renewables. There are many wind parks in the country. And heat from the fertiliser industry is being used in desalination process.

We believe in green hydrogen projects, and we can produce green hydrogen. Wind is highly appealing. The cost is 2-3 cents per kWh from the wind sector, so it is the cheapest way to produce electricity.

**YOUNES:** Andrea, could you share Ras Al Khaimah's initiatives?

**ANDREA DI GREGORIO:** In 2018, RAK introduced the Energy Efficiency & Renewable Energy Strategy 2040, and most programmes under it were introduced in 12-18 months. We are at a stage where the programme is giving concrete results. By the end of 2022, we expect several 1,000 buildings to be built according to the new regulation. The UAE's net-zero target by 2050 is a remarkable commitment, and it requires all territories in the UAE to rethink our strategy and upgrade our efforts. The RAK programmes involve depth and breadth of intervention. Depth includes savings for current participants in the retrofit programme, and breadth means more customers. These are platforms that are meant to upgrade savings, and more will come as a federal strategy.

**YOUNES:** Faisal Al Raisi, we would like to hear from you.

**AL RAISI:** Etihad ESCO aims to retrofit 30,000 buildings by 2030. We still have a long way to go, and Etihad ESCO is there to support local and international ESCO businesses; and last year, we succeeded. We focused on majority of stakeholders that act as master developers. We entered into a collaboration agreement with DP World,

and they have introduced 30 different projects in various different setups in DP World. As Etihad ESCO, we signed up with DMCC for their own setup and sub-developer properties in DMCC. We also signed up with KHDA, involving about 50 schools, and we are going to tackle those schools.

We are working with various different ministries within the UAE with assets all over the UAE. For instance, the Ministry of Interior is in charge of Civil Defence, and we will be signing with their assets in Dubai, and as we go, to the other parts of the country. We are cooperating with the Ministry of Energy and Infrastructure to support the Ministry with our energy retrofit, so that they can focus on their core work.

**YOUNES:** A key piece of the puzzle in net zero is the private sector's support. While there are inherent benefits from energy retrofit, the payback is 3, 4 or 5 years. In the case of net-zero, we are perhaps talking of longer payback periods. What incentives do you have for private sector retrofits, and how can we involve ESCOs, consultants and manufacturers and push through the barriers to have more net-zero projects?

**RASHID:** It is very significant to know that monetised grant is not very popular. Subsidy has short benefits, and then when stopped, it will basically have negative impact on the initiative itself. If we look at the balance sheet of any organisation, the electricity cost is 20-30%. Dubai Airport engaged with Etihad ESCO and a short payback period, and they benefitted. The benefit of a single retrofit project is not just one year but will continue for years to come.

The more you delay energy efficiency measures within building, the more will be the losses down the road. The other aspect is social responsibility. Reducing the carbon footprint is key in assets, and also the energy intensity. So, these are some of the benefits for the private sector.

**YOUNES:** Ramiz, within your role in the Department of Electricity, how can we push the private sector?

**ALAILAH:** We can incentivise the private sector in a number of ways, and we look at it from that perspective. As part of

DSM strategy 2030, we have street lighting projects which have been initiated with the power sector in the government. We are able to attract investors and are able to deliver these projects.

**AL RAISI:** The private sector asked, 'How much is it going to cost?' Clients will not have to worry about capex and opex, and I am guaranteeing savings as Etihad ESCO. So, what's the catch? There is no catch. Incentivising and supporting the private sectors include different hotel operators and private residential developers, as well.

**YOUNES:** Andrea, from your point of view and that of Ras Al Khaimah, how do you engage the private sector?

**DI GREGORIO:** It is a very relevant question. After engaging government customers, it is relevant to expand to the private sector. We have two types of incentives – one for ESCOs, in terms of set-up support and elimination of set-up fees, and the other for renewable energy companies, in terms of non-financial incentives and simplified procurement processes.

On demand side incentives, we are trying to come up with an energy rating scheme. Is this enough? I don't think so. Around the world, countries that are successful in retrofits – such as in Europe – offer 100% incentives. Ninety-five per cent of the costs will be returned in the next 10 years in terms of tax rebates, as is the case with my house in Italy.

Another is mandates. In UK, there are mandatory requirements, if the owner wants to rent the apartment.

**YOUNES:** We need to think of other ways to get to that target. In Morocco, how are you pushing for deep retrofits?

**MOULINE:** For PPP, you need confidence, you need transparency in contract and governance. And if you want decarbonisation, the payback may not be 5 years, but 7-10 years, so we need transparency and also governance. [ccme](#)

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# DC

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## SHARED SAVINGS ENERGY PERFORMANCE CONTRACTING IS THE WAY FORWARD

SSEPC can deliver substantial reductions in total cost of ownership, argues **Henrique Pereira**, CEO, Taka Solutions...



**T**OTAL Cost of Ownership (TCO) is a concept that aims to analyse the actual full cost of purchasing a product, beyond the mere purchase price. It includes factoring all the costs associated with a product or piece of equipment right from the initial purchase price through its maintenance, use and disposal, including operational costs, such as energy consumption, among others, thus combining direct and hidden costs. Therefore, it is a much more accurate basis for determining the true value of an investment. Reducing TCO is a widely used strategy adopted by companies, as it directly impacts the company's financials. Subsequently, a reduced TCO can:

- Lead to enhanced long-term financial performance
- Act as a guidance tool for optimising direct and/or indirect costs
- Help determine ROTI (Return on Time Investment) or ROI (Return on Investment)

Over the years, as more and more companies in different industries have adopted the practice of evaluating TCO, many methodologies have been formulated. While there is no global solution for determining TCO, it is recommended to consider the specifics of each activity sector for a more accurate analysis.

Most TCO methodologies, in general, normally include the following significant factors:

- Purchase price: Cost price, including the supplier margin
- Acquisition cost: Purchasing department operations
- Associated cost: Custom duties, packaging, logistics, etc.
- Cost of ownership: Depreciation costs, inventory management, warranty, etc.
- Operation cost: The cost of usage, including utility costs (electricity, water, gas, etc.) and consumables
- Maintenance costs: Preventive and reactive maintenance, spare parts, etc.
- Disposal cost: Costs of recycling or resale, etc.
- Non-quality cost: Non-compliance in processes, etc.

Some of the common challenges we see with the calculation of TCO include companies adopting numerous methodologies and tools; failing to define a singular methodology, which proves to be a challenge for fair comparisons; difficulty in determining the exact scope of operating costs for equipment; and the lack of foresight relating to unpredictable increase in costs over time. This, in turn, significantly impacts the accuracy of the TCO, misleading professionals into poorly informed procurement or maintenance decisions of their equipment.

### TCO and the Energy Services industry

When considering new equipment for energy efficiency and retrofit programmes, clients generally feel the initial cost is too high, and thus, finance – or the lack

of capital – becomes one of the biggest barriers in commercial energy efficiency programmes. The initial price often causes confusion or does not depict a true picture, as it only reflects one small part of the big picture. Few consider the operational costs – namely, energy costs – namely energy, repair and maintenance costs, which are usually many times higher than the initial cost.

It is important to gradually change this landscape, through the provision of Energy Performance Contracting (EPC), a form of financing for capital improvements that provides funding for retrofits by leveraging the associated cost reductions.

By implementing a Shared Savings EPC (SSEPC), it is possible to provide all engineering, equipment, capital expenses (CAPEX) and operational expenses (OPEX) for an energy efficiency project. All project costs are subsequently paid for from the savings generated by the project and shared with the owner from day one. Once the project fees are paid in full, the facility owner will continue to benefit financially from the energy savings. Through this model, the ESCO retains ownership for any new equipment that was installed and financed, which is then transferred to the customer upon contract conclusion or early exit.

The most attractive part of an SSEPC is that there is an ESCO that will finance the project and make sure



the customer has the new equipment needed, assuring that the savings will occur, without any initial capital expenditure to the organisation. Facility owners and operators find much value in this type of ESCO service, because it improves operational efficiencies, improves indoor air quality and comfort conditions, reduces maintenance costs over time and provides new equipment by monetising operational savings streams. By leveraging operational cost reductions, one benefit to the facility owners is that these desirable technologies, which would typically be capital expenditures, can be paid for through savings. The larger benefit is reducing operating costs without capital budget expenditure. This type of EPC approach is based on the transfer of technical risks from the customers to the service providers, based on performance guarantees from the service providers. This agreement allows facility owners to optimise their existing facility's energy capabilities, enhancing profitability while dramatically reducing their organisational carbon footprint.

Delving further into equipment, it is a fact that in most cases, upgraded or new equipment is needed to implement energy efficiency measures (EEMs). In this scenario, an ideal approach would be for the service provider to finance, design, install and manage energy efficiency measures (EEMs), the equipment for which is leased to customers through the contract period, with the customer not incurring any costs for new equipment repairs or replacements. The service provider would fund the new equipment, tools, construction equipment, transportation, labour, and other direct and hidden costs. Through the contract term, the service provider would then manage the performance of the EEMs. In this result-oriented approach, energy efficiency savings bring down the equipment costs, thus offering the customer a blended product/service price. Equally important, by considering all aspects of the equipment TCO in the scope of the EEM, from design to engineering, and from procurement to operation and maintenance, the true return of that investment can also be correctly captured by the savings generated by the EEM, leading to a much more accurate financial calculation of ROI.



For the purpose of this article, let us consider the replacement of high-value equipment – chillers, which in most existing facilities are generally poorly maintained. In this example, the chillers consume AED 200,000 per year in operation cost and AED 50,000 in maintenance cost. They are also not performing as per expectations in the summer, leading to unaccounted for non-quality costs. A new replacement chiller system costs approximately AED 600,000, and since new chillers are more efficient they bring consumption down to AED 125,000 per year; they also bring annual maintenance costs down to AED 25,000. A typical ROI calculation would only account for the benefit in operation costs (AED 75,000 per year) to offset against the investment cost (AED 600,000), leading to a simple payback of eight years. In the current market context, this project would never see the light of day.

However, if we factor in the additional yearly maintenance savings (AED 25,000), the simple payback is reduced to six years. Moreover, if an ESCO would now be engaged into an SSEPC project, the customer's initial investment would be reduced to zero, as would be the maintenance costs (since they are taken care of by the ESCO). The customer would have a yearly benefit of AED 125,000, considering both operational savings and maintenance savings, and would share this benefit with the ESCO. Assuming the ESCO would take 80% of the savings, the customer would pay AED 100,000 to the ESCO every year, while keeping AED

25,000 in their own pockets. The ESCO would finance the full TCO for this project, leading to an eight-year contract with the customer.

This means that the full TCO of the EEM has been accounted for in the project, with the customer benefitting from AED 25,000 per year of net savings. The customer would receive brand new chillers, meaning postponing future capital expenditures by at least another 15-20 years, without any CAPEX or OPEX costs for the chillers for the next eight years of the contract. This value-proposition represents a major incentive for the customer to retrofit their facilities with the support of an ESCO.

Without TCO analysis, most companies grossly miscalculate their operation and maintenance budgets, which results in uncontrolled downtime, slower decision-making and other site complications. A sophisticated service provider can strive to break the finance barrier that challenges energy optimisation projects. Through financing, it is indeed possible to help other ESCOs, equipment suppliers, services providers and building owners reduce their TCO. **ccme**

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## REACHING FOR THE SKIES

As Techem, our work at Cayan validates our lofty capabilities and ambitions

**As** Techem, our achievement in planning and implementing a customised, client-specific solution by presenting a one-stop shop tailored to serve one of the most iconic buildings in the world and one of the most recognised in the Dubai Marina skyline in record time is truly a success story.

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Through robustly supporting Cayan Tower with our big capabilities as Team Techem, we are, indeed, aiming high – pardon the pun! We not only provide the general services of Reading, Billing, Maintenance and Cash Collection

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Kingfield Owner Association Management Services, which availed of Techem Financial Service to fund the sub-metering installation and services, was able to eliminate the client's need for immediate cash outlay!

So, how do we do it? We provide comprehensive services for Thermal Energy Metering, Installation, Billing and Services. Not only that, but we also distinguish ourselves by doing it fast and doing it right the first time around. In Cayan's case, from Mobilisation to Execution took just six weeks.

To top it all, we have successfully

gained the trust of the Cayan Tower management team – so much so that we have coagulated a Direct Access Account, where we withdraw Techem invoice payments instantly. This means less paperwork for the client and no more overdue payments.

The accolades have come pouring in. Here's what Tim Crowe, Director of Owners Affairs, Kingfield Owner Association Management Services, said: "Techem were most understanding with our particular contractual requirements and executed the BTU metering system installation in good time without disruption to the Community. The transition process with the residents has been handled efficiently and diplomatically, overcoming some delicate accounting issues."

All these benefits under one roof! Now, this is forward thinking! We are Techem Dubai! And we are justifiably proud! **ccme**



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# 'BUILDINGS SHARE COMPLEX SET OF COMPETING PRIORITIES TO BALANCE'

**Kristen Cetin**, the Conference Chair of the 2022 ASHRAE Annual Conference, from June 25 to 29 in Toronto, Canada, in conversation with **Surendar Balakrishnan** of *Climate Control Middle East*. Excerpts...

## **What outcomes would you like to achieve through the conference?**

The conference will address the changes to buildings created by the pandemic and will present papers and programs that are pertinent to the future of the built-environment, including decarbonization.

In 2022, we continue to face climate extremes and natural disasters along with the aftermath of the pandemic. As we spend the large majority of our time in buildings, they continue to be critical to our everyday lives. Yet these – commercial, industrial and residential buildings – face an increasingly



complex set of competing priorities to balance, as well as an increasing number of technologies and solutions to use and implement. The 2022 ASHRAE Annual Conference focuses on such diverse priorities and methods to address them, while considering the dynamic nature of such priorities over time.

The hope is the outcome of the conference is the sharing of knowledge and information across the building and HVAC&R industry to support improvements to our built-environment in the face of current challenges.

**In what way has the pandemic forced a change in thinking when it comes to MEP design and installation?**

The pandemic has brought to public awareness of, and appreciation for, the importance of IAQ, filtration, ventilation and HVAC&R topics, in general. During and in the wake of COVID-19, there has been/is substantial motivation to make changes in how IAQ is managed. This is

an opportunity to improve and support better IAQ practices in buildings while also supporting energy efficiency and resilience.

**Is there a greater emphasis on IAQ than ever before, given the fact that energy efficiency traditionally has received disproportionate importance on the back of strong climate change mitigation and Total Cost of Ownership narratives?**

There is more public awareness and appreciation of IAQ now than pre-pandemic. We now have the opportunity to join the IAQ and energy fields to support healthier and more efficient buildings. There are emerging technologies, controls and best practices that support this. We should take this opportunity to achieve more sustainable IAQ.

**Earlier talk of IAQ revolved around the presence of excessive CO<sub>2</sub>, CO, radon and those allergens that triggered allergic rhinitis**



**and asthma. Has the pandemic heightened awareness on infectious disease control in the built-environment to not only protect occupants from life-threatening illnesses but also minimise economic disruption, in the case of commercial buildings?**

Yes, I would say so. [ccme](http://ccme.com)



**HAVE YOUR SAY!**

We welcome your views on the Q&A. Write to [editor@cpi-industry.com](mailto:editor@cpi-industry.com)



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# CHANGING OF GUARD AT ebm-papst

Marco Duarte replaced Koen van Nistelrooij as Managing Director of ebm-papst Middle East on April 1. Here, in this interview with *Climate Control Middle East*, Duarte and van Nistelrooij, who will be switching to ebm-papst Benelux from August 2022, elaborate on the transition...

## What does this change in personnel mean for ebm-papst Middle East and its customers?

**Koen van Nistelrooij:** Since Marco has worked for the company here in Dubai already for more than seven years, he knows the region, customers and projects. Due to this, the personnel change won't have any impact on our customers. They can still expect the same support as they had in the past.

**Marco Duarte:** An extra value is the learning curve I had over the last two and a half years as CEO of IKOR, developer and manufacturer of electronics with sites in Spain, Mexico and China and over 800 employees. I will bring all the experience I have acquired in different business areas at global range. Our Dubai team's focus is on helping our customers in being better. What we are doing well today, we want to do even better tomorrow.

## How will ebm-papst Middle East develop strategically in the next few years?

**Duarte:** Our region is going in the right direction as per energy efficiency, Indoor Air Quality, and digitalisation, and we see a lot of potential for EC technology and our data-driven products, not only in OEM level but also in retrofit with all the energy-related companies existing in the region.

We will continue to provide a high level of support for our customers and interlink



Koen van Nistelrooij

their roadmap with ours. We do not make any compromises when it comes to quality. So, despite the war of prices, based on material shortage and the long lead times, the customer can always expect from ebm-papst Middle East to be their right-hand partner.

**van Nistelrooij:** Marco will continue the strategy we had for the past years. We have recognised the high demand for EC technology and included it in our service-oriented focus. We continue to see great potential in this market area for the future.

## Marco, what is your connection to Dubai?

**Duarte:** For me, it is an honor to return to this region and this subsidiary. The



Marco Duarte

contacts with customers and colleagues were never interrupted over the last years. Moreover, I am fascinated by the United Arab Emirates, especially Dubai. This region is so much more than many people's preconceptions show. In a short period of time, the country has achieved a lot and set standards in the education and health care system, the economy and the integration of cultures. It is one of the best regions in the world regarding opportunities, safety and cultural comprehension. [ccme](#)



## HAVE YOUR SAY!

We welcome your views on the Q&A. Write to [editor@cpi-industry.com](mailto:editor@cpi-industry.com)





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## WHY THIRD-PARTY IS THE WAY FORWARD

Independent, industry factory-trained and certified chiller service specialist organisations offer superior services and solutions

**A FEW** months ago, a local energy services company (ESCO) in the UAE approached my team and I with the stated objective of wanting to save energy at a site featuring a few air-cooled screw chillers, a mix of two OEMs.

It didn't really matter to my team and I which OEMs the ESCO was talking about, as the story is all too often the same. Anyway, the ESCO informed us it wanted to install VFDs on the screw chillers. We responded by saying we could help, as we have an engineered package under which we would install the VFDs, a new chiller microprocessor-based control system and other accessories required to successfully perform the energy retrofit. The ESCO immediately approved the project, and the subsequent result was a success story with over 30% savings to the customer when compared to the chillers' previous energy consumption.

During our discussions with the ESCO, we learnt that the company had approached the two OEMs and requested their assistance; and what followed is always the same story. The OEMs said they did not have a factory upgrade package for the chillers and suggested that the ESCO purchase new chillers with VFDs already installed.

This did not make sense, as the chillers were not even five years old, and installing new chillers would have been cost-prohibitive, to say the least. Not to mention that this would have defeated the purpose of the sustainable approach to retrofit the chillers, as opposed to replacing them. A retrofit results in reducing waste and allows for continued use of resources already in service, which would not have been possible by resorting to the easy but unsustainable decision of disposing of the chillers.

Professional independent chiller service specialist companies offer aftersales services second to none. Independent chiller service organisations have dominated the chiller after-sales market in the United States since the 1980s but were yet to appear anywhere in

the Gulf until recently. Properly structured independent service organisations are vastly more well-rounded, with their chiller engineers working on all OEM chillers and are factory- and industry-trained and certified on the equipment they service.

Independent chiller service organisations protect the customers. To be frank, we have found many potential customers informing us they would like to utilise our services but due to a chiller "being under warranty" not being able to use us. First of all, utilising the services of an outside third-party specialist chiller organisation does not void any warranties. It's truly disturbing that this myth is being perpetuated. Second and most important is that during this most critical point in time – I am referring to the warranty period – it is vital a third-party independent specialist chiller organisation be engaged to protect the chiller owner's best interests.

In the case of my team and I, since we aren't tied to any of the chiller manufacturers, we serve the customer, not them – the factory. We are able to provide recommendations that benefit the customers not the chiller manufacturer. During the warranty period, we come in and verify that the chiller commissioning has been performed correctly, including its efficiency per Kw/ton and its capacity and tonnage production.

A few months ago, I wrote that chiller commissioning is the most critical part of the chiller being put into beneficial service. I think it important that I revisited this topic, so that its significance is not overlooked.

### FACTORY WITNESS PERFORMANCE TEST

Most companies who purchase centrifugal chillers for their facilities, demand a Factory Witness Test of the chillers they are buying before accepting delivery and payment. The OEM Sales Engineer would select the chiller with a software selection program to predict the chiller's performance. The



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buyer agrees to purchase the chiller based on the program's predictions of the chiller performance, including capacity part load and full load and also kW/ton, to name just a few of the parameter performance predictions. The Factory Witness Test confirms that the chiller performance matches the predicted performance and the results serve as a benchmark.

### AHRI STANDARD 550/590

The witness testing standard requires specific types of instrumentation and specifies chiller testing procedures and tolerances. It also requires that accurate measurement is an integral part of Witness Performance Testing. All of the following instrumentation must be calibrated and traceable to the National Institute of Standards and Technology (NIST): Power meters, temperature sensors, flow meters and pressure transmitters. This ensures the instrumentation meets the accuracy requirements of AHRI Standard 550/590. A copy of the latest calibration report is made available to the attendees of the Witness Test. As per industry standards, the factory test loop must have redundant measurement devices designed into test loops to verify test data. Redundant sensors are used to measure evaporator water flow, evaporator water temperatures, condenser water flow, condenser water temperatures and chiller power consumption. Agreement between the calibrated sensors confirms that the data taken is accurate.

Some companies even require a zero-tolerance witness test to be performed. In other words, the chiller must perform at its predicted

design performance; if not, the buyer is at liberty to cancel the sale.

I have been involved in many Factory Witness Tests over the years, and I can tell you it takes the factory days to prepare the chiller for the test, getting everything right so that the chiller performs as designed. Even with the days of preparation, the chiller will often not perform to design kW/ton. More days of adjustments must be done to finally achieve design performance, sometimes including changes to the chiller's design. When the chiller is certified and meets design conditions, a printout is given to the buyer to benchmark that the chiller performs as predicted.

### CHILLER START-UP AND COMMISSIONING IN THE FIELD

Does anyone reading this think that when a chiller is started and commissioned in the field, it receives the same amount of attention, care and diligence as a Factory Witness Test? Are the proper and precise tools and equipment utilised in the field as during the factory Witness Test? Is the same data looked at during the field startup as during the Factory Witness Test? Is the chiller kW/ton even checked during a field startup as it is during a Factory Witness Test? Finally, is the Field Startup Technician as trained and aware of how the chiller should perform as the Factory Witness Test personnel? Of course, the answer to all the above questions is a big 'no'.

After answering all the above questions as 'no', how could chillers ever operate as efficiently as designed? As the data shows, chillers do not operate as efficiently as designed. The first reason is ineffective startup and commissioning from Day One of beneficial usage.

The above is a small section taken from an OEM commissioning manual. I want the reader to understand the design condition that the startup technician is to record. Does it mention kW/ton? No. Also, what's interesting is that the flows are to be determined by pressure drop readings. The Factory Witness Test is performed with a calibrated flow meter; however, the startup technician sets design flow with an instrument that is not nearly as accurate as a flow meter. My point is that energy efficiency is not a priority or even checked during the initial startup and commissioning of the chillers.

It is in every owner's interest that an independent third-party chiller specialist organisation be engaged to determine that the start-up and commissioning have been performed to above the "industry standards". In addition, during the warranty

### Take a look at an OEM field startup and commissioning sheet

DESIGN CONDITIONS

	TONS	BRINE	FLOW RATE	TEMPERATURE IN	TEMPERATURE OUT	PRESSURE DROP	PASS	SUCTION TEMPERATURE	CONDENSER TEMPERATURE
COOLER									
CONDENSER								---	---

RECORD PRESSURE DROPS: Cooler \_\_\_\_\_ Condenser \_\_\_\_\_

period, the third-party organisation can make you aware of a warranty issue that a factory chiller service company may have overlooked and not spotted. Here's another case-in point: Over a year ago, we were called in by a client to determine the root cause of many compressor failures at a site with well over 20 air-cooled chillers. After analysis, we determined that the compressor cooling lines, owing to a design shortfall, were to have been factory-retrofitted to improve the cooling. We informed the customer of this and, subsequently, the customer approached the OEM factory to perform the factory retrofit. The fact is that if we, an independent, unbiased third party, had not been engaged, it never would have come to light that the factory had not performed the retrofit, and it never would have been performed.

I will not speculate why the factory warranty retrofit was overlooked; however, I can say that had it not been for us identifying the issue, the retrofit would not have been performed – and free of cost at that.

Independent third-party chiller specialist organisations in the United States are often members of large independent service organisations, such as the Independent Contractors Exchange Group (ICE), which is a group of contractors specialising in installation, operation, repair and maintenance of large commercial and industrial cooling systems and building and process control systems. The ICE group's mission is to improve the people, the companies and the industry through technical support and training, sharing of best practices and through maintaining positive relationships with strategic partners in the industry.

#### The ICE group's objectives are:

1. Improve our people through education and training, technical support and sound leadership
2. Improve our companies through education, sharing of best practices and best management practices
3. Improve the industry through positive engagement with stakeholders and partners

4. Assemble a group of the best companies with the highest quality people doing the highest quality work and with the highest ethical standards in the industry

Through the group, independent, third-party specialists in the United States receive the very same training as the factory technicians. What's also powerful is that the training is on all OEM chillers, whereas the factory technicians do not get cross-trained on other OEM chillers.

The power of the group is unprecedented. The group consists of members from the 50 most proficient independent chiller services companies in the United States, who work together to share technical and business best practices so that the group members' customers receive the finest solutions and services available in the industry. What is also very interesting in this is that all major OEMs of chillers participate in the ICE group and introduce their latest technologies and training to the group. In fact, the group receives preferential training from all the major OEMs that no other service organisations have access to.

The group also supports each member with sharing of human resources, parts, service bulletins, manuals and technical solutions that no single organisation could amass on each and every major chiller manufacturer's equipment. The group also has a "Technical Questions" service, whereby any situation regarding chiller service, repair or troubleshooting can be sent via email, and someone who specialises in the subject within the group's over 1,200 individual members would respond with the answer to support the other group members. There is a power of having the ability to reach out to over 1,200 of the most highly skilled and trained engineers and technicians worldwide, and only an independent contractor has access to this group.

Obviously, I recognise the fact that there are good factory service offices out there and bad independents. But by and large, the notion that the "OEM knows best" is simply not true. If you're looking for more solutions from a capable organisation, you will win nearly every time by choosing an independent specialist chiller organisation in your city. [ccmce](http://www.ccmce.com)



## DO NOT BITE MORE THAN YOU CAN CHEW

Caution ought to be the byword for employee and employer, given the volatile nature of the market



Alissa Paillé is the Founder and CEO of careersbay.com, a headhunting and recruitment agency specialising on the HVACR industry. She writes an exclusive bi-monthly column for *Climate Control Middle East*, and can be reached at [alissa@careersbay.com](mailto:alissa@careersbay.com).



**W**ITH the embers of COVID-19 still burning bright and a highly strained geopolitical situation, the business environment is a highly unstable one for employees and for employers. The best advice to anyone wishing to shift jobs is to hold on to the current position. If that is not feasible, make sure you are able to sustain yourself financially, as there is no guarantee the probation period in the new position would be successful. In some cases, it might have nothing to do with your performance or personality – such is the volatile nature of the market that the new employer might not be able to guarantee the offered position for long.

Another dismal truth is that salary levels are still way below those that were offered a few years ago. We are still quite a way away from a true recovery, at least in the Middle East market, and it is too early to predict for how long oil prices would increase owing to the current crisis in Europe.

So, hang in there, and try to do your utmost to consolidate and secure your position. And do pay heed to trends.

A key trend is towards acquiring multidisciplinary skills. More than ever before, employers are asking candidates to be skillful in more than one discipline. For instance, traditional engineers with sales skills would be at

a distinct advantage. The message is loud and clear – do not be content with your existing skillset; instead, you might want to consider learning new skills in your existing role, as you never know when they might be in demand.

As for employers, given the fact that the market is still in recovery mode, I would encourage you to start the recruitment process only once you see confirmed order books increasing to a level that the existing workforce cannot fulfil them, as opposed to taking human resources on board on the basis of trends or sentiments of a recovery. I would like to underscore this point, as I have seen many companies making the mistake of recruiting people, only to lay them off a few months later, because the project they were banking their hopes on did not come to fruition, or because they had the representation agency cancelled in a certain territory for which they were recruiting.

I ask you to pay heed to this, because recruitment is an extremely sensitive process and, if not handled carefully, will lead to the company's reputation being downgraded in the job market, as word travels fast amongst candidates on which companies are reliable and which are not. As the adage goes, do not bite more than you can chew, and hold on to what you have.

Hope to meet you again, in June! [ccme](#)

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**DEBATE:**

# CHW Vs VRF SYSTEMS

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**30 May 2022**  
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**Theme: Through the Looking Glass of  
lowering emissions, costs, reliability  
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# MENA Climate Week 2022 galvanises regional momentum for COP27

Event provides important momentum for a successful COP27 in Sharm el-Sheikh, Egypt, at the end of 2022

By CCME Content Team



level rise, and threats to water and food security. They also agreed that climate action opens opportunity for new business in the region, with good jobs and economic mobilisation. Financial support, innovative technologies, increased sustainability action and coordination among all stakeholders are crucial to achieve change. And regional action is an opportunity to build on local knowledge and improve global resilience.

Mariam bint Mohammed Almheiri, UAE Minister of Climate Change and Environment, said: “The urgent need to upscale climate action in the region was the focus of MENA Climate Week. We have reaffirmed our continued commitment to the 2030 Agenda for Sustainable Development, especially SDG13: Climate Action, and aligned our efforts to achieve our common climate goals. We have agreed that climate

action goes beyond a simple energy transition. We must take a holistic, cross-sectoral, economy-wide approach with multi-stakeholder engagement to the transition of societies and economies to a more sustainable future.”

Patricia Espinosa, UN Climate Change Executive Secretary, said: “The inaugural MENA Climate Week showcased the readiness of leaders and stakeholders from the region to build momentum towards COP27 and accelerate implementation of the Paris Agreement in this crucial moment. Without urgent action, the MENA region will see impacts of climate change that put at risk the region’s ability to develop and thrive. Over four days in Dubai, we heard how leaders from across the region are stepping up to address this grave threat and how stakeholders are

**T**HE first-ever Middle East and North Africa Climate Week, MENACW 2022, concluded on March 31, building on the outcomes of the UN Climate Change Conference COP26 in Glasgow at the end of last year and providing important momentum for a successful COP27 in Sharm el-Sheikh, Egypt, at the end of this year.

Around 4,000 participants joined more than 200 sessions at MENA Climate Week, with around 500 speakers from 147 countries. Conversations included participants from the host Government of the UAE, governments at all levels, private sector leaders, academic experts and engaged stakeholders.

MENA Climate Week organising partners led discussions on themes that

are crucial to meeting the world’s climate challenge. The World Bank examined how to integrate ambitious action across key economic sectors in national planning. UNDP, along with partner organisations, led sessions on adapting to climate risks and building resilience into development strategies. The UN Environment Programme (UNEP) led discussions on seizing transformational opportunities through technological innovation and breakthrough solutions. All of this contributes to progress in the UN Climate Change process.

At a series of ministerial round tables and panel discussions at the beginning of the week, ministers from the region agreed that the MENA region is facing a number of growing climate change impacts, including desertification, sea



creating new economic opportunities in the transition to net-zero. Together, we can reduce climate risks and get on course to a more secure, inclusive and sustainable future.”

Sameh Shoukry, Egypt’s Foreign Minister and incoming COP27 President, said: “Holding the Climate Week for the first time in the Arab region has been clear evidence of the priority that the countries of the region give to international climate action and ways to combat the negative effects of a phenomenon that has seen its repercussions and impacts extend to multiple aspects of life in our countries. Egypt seeks to make the twenty-seventh session of the United Nations Framework Convention on Climate Change a milestone in the field of international climate action, in which pledges and promises are transformed into actual implementation on the ground.”

Saeed Mohammed Al Tayer, Chairman of the World Green Economy Organization (WGEO), and MD & CEO of Dubai Electricity and Water Authority (DEWA), said: “The timely MENA Climate

Week served as the first event focusing on the international climate agenda for 2022. It built on the momentum of the Paris Agreement and the COP26 in Glasgow, the UK last year. It is a driving force for regional and international stakeholders to collaborate for the implementation of recommendations and the UN Sustainable Development Goals 2030. The MENA Climate Week took place at the beginning of a critical decade in terms of climate protection and combating global warming. The event has galvanized regional support and collaboration among regional government entities, private organizations and civil society to pave the way for hosting COP27 in Egypt this year and COP28 in the UAE next year.”

Also in Dubai, the UN High-Level Climate Action Champions set out their vision of ambitious climate action on the route to COP27 in Sharm el-Sheikh, this year, for non-state actors, including cities, regions, businesses and investors. Nigel Topping, COP26 Champion and Mahmoud Mohieldin, the newly appointed Egyptian Champion for COP27, said

in a joint statement: “It has been a great pleasure to launch the 2022 Work Programme of the Marrakech Partnership at MENA Climate Week in Dubai, especially because one of its major priorities is ‘regionalization’ and the necessity to make our agenda regionally and nationally relevant. As we look towards the Global Stocktake in 2023, this Work Programme will help support our mandate from non-State actors in a manner that gives impetus to the implementation of national commitments.”

As we approach COP27 in November, the Global Stocktake in 2023 and net-zero commitments by mid-century, events like MENACW 2022 will be important venues for transformative change. In 2021, regional collaboration emerged as a driver of global progress. In 2022 and 2023, Regional and Climate Weeks in Latin America and the Caribbean, Asia-Pacific and Africa open further opportunities to make progress towards implementation of the Paris Agreement and accelerate action to achieve internationally agreed climate goals.

## Eurovent Middle East holds annual meeting

### Introduces news faces to the Board

By CCME Content Team

**H** VACR association, Eurovent Middle East conducted its annual meeting on March 22 in Dubai. It re-elected into office Tariq Al Ghussein, Chairman and CEO, Taqeef, as President; and Rafael Van Eijcken, General Manager, Baltimore Aircoil Middle East, as Vice President, during the meeting. It also introduced three new members to the Board – Marco Duarte, who took office as Managing Director, ebm-papst Middle East from April 1, 2022; Matteo Zanesco, Managing Director, CAREL Middle East; and Ismail Serhan Ozten, Business Development and Technical Support Director – TMA region, Danfoss.

The other members of the Board are: Andrea Cavalet, General Manager, Epta

Middle East; Dani Elamana, Technical Director, Camfil Middle East; Frank Taaning Grundholm, VP – Global HVACR Sales, ABB; Morten Schmelzer, Head of Public Affairs, Systemair; and Rangan Srinivasan, Director of Marketing and Product Management, Rheem MEA

Markus Lattner, Managing Director, Eurovent Middle East, said the meeting represented a happy occasion, as the association was able to bring together members for an in-person event for the first time since the outbreak of the pandemic. In all, 40 representatives gathered for the meeting, which Lattner said shows everybody is eager to get back to physical interaction.

The meeting, he said, was an opportunity to analyse the association’s activities and was a validation of the fact

that it had weathered the pandemic with resilience. The association is celebrating its fifth anniversary later in the year. Lattner pointed out that of the five years, two years were under the shadow of the pandemic and that it was commendable that the members showed their support to keep the momentum alive. “The purpose to fulfil the needs of the market is answered with such interest, and it gives us confidence that we have reason to be here,” Lattner said.

He said there was much to look forward to in the course of the year. Eurovent Middle East, he said, will soon introduce new interesting projects to the public. “We are planning to have our industry summit in September,” he said. “It will take place under the theme: ‘HVACR next gen: Rethinking policies and strategies’.”

# District cooling company approves AED 500mn cash dividend to shareholders

Empower says it has paid AED 3.15 billion in total dividends to shareholders since 2004

By CCME Content Team

**E** **MIRATES** Central Cooling Systems Corporation (Empower) announced a dividend of AED 500 million to its shareholders for the fiscal year ending on December 31, 2021. Making the announcement through a Press release, the utility company said the dividend payout represents 53.4% of AED 936 million, the total net profit achieved by Empower for the last fiscal year, which increased by four per cent compared to 2020. Empower also reported an impressive total revenue of AED 2.464 billion in the same year, with an increase of 9.3% compared to 2020. The total dividends to shareholders amounted to AED 3.15 billion since its inception in 2004, the company said.

Ahmad bin Shafar, CEO, Empower, said: “Empower’s performance and its financial results, in general, and the profits achieved, in particular, reflect its outstanding leadership in the district cooling industry locally and globally. At the same time, it highlights the effectiveness of its proactive strategy to maximize its investments in district cooling infrastructure by developing assets that guarantee sustainable revenues on one hand and higher flexibility to keep pace with the increasing demand on the other hand.”

Bin Shafar affirmed Empower’s commitment to offering added value to Dubai’s economy, the company’s shareholders and its customers across 1,413 buildings, including real estate developers, owners and end users. He pointed out that the 2021 results represent a new chapter in the record of successes that have continued for nearly two decades; he promised a more deliberate growth path.

Bin Shafar also indicated that the expected results of Empower for 2022 are more promising than the previous years, especially after the three deals it

concluded recently to acquire the district cooling schemes of Nakheel, Meydan and Dubai International Airport for more than two billion dirhams, in addition to the commencement of operations of the new-generation district cooling plants in densely populated areas, most notably in Za’abeel and Dubai Production City. As part of its expansion plans, the company said it has awarded contracts for various activities, including engineering consultancy, construction, design and operation of district cooling plants. The contracts also cover the expansion of the service transmission network, which reached a total length of 369 kilometres in 2021, as well as the extension of new networks to serve the latest projects in Dubai, in addition to building thermal energy storage facilities and others, the company said.

Bin Shafar added that Empower is focused on continuing its leadership in providing district cooling services with high quality and efficiency, in accordance with the highest international standards and best practices.

“Our diligent work is inspired by the vision of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to achieve sustainable development at all levels, including the UAE Centennial 2071 and the Dubai Clean Energy Strategy 2050, to make Dubai the city with the lowest carbon footprint in the world by 2050.”

Bin Shafar pointed out that Empower has strengthened its business portfolio in 2021 by expanding its distribution networks to new urban areas to meet the demand for its services from mixed-



Ahmad Bin Shafar

use projects, including residential, commercial, healthcare, hospitality, education, entertainment and retail sectors.

“The year 2021 was an important milestone in the history of Empower at all levels, and the successes achieved during the past year are unprecedented in quantity and quality, thanks to many factors, most notably the strategic business model that is based on increasing investment in infrastructure, and being proactive in adopting and developing modern technologies,” Bin Shafar said. “These factors collectively paved the way for the success of our expansions in the district cooling market in Dubai, driven by the significant growth in service supply networks and the largest diversified projects in the emirate, which significantly increased the quantity and quality of the projects portfolio and the beneficiaries of our services.”

## Armstrong launches new single-phase pumps in Middle East

The pumps are designed for light-duty installations and help to enhance performance and efficiency, company says

By CCME Content Team

**A**RMSTRONG Fluid Technology has launched a new version of its Design Envelope pump for the Middle East region. Making the announcement through a Press release, the company added that the pumps are intended specifically to serve in light-duty installations, where the available power is single-phase.

Many smaller commercial and residential buildings use single-phase power, Armstrong said, adding that the conventional approach for these applications is often to install a low-cost, light-duty circulator. While this meets the application requirements, many circulators are not repairable, and are designed for only a few years of operation, the company further added.

The new pumps provide practical and economical solutions for those

installations and are now available for single-phase power (200-230 V) in sizes ranging from 0.25 to 1.5kW, Armstrong said.

Kevin Laidler, Sales Director, Middle East and Africa, said: "These pumps are designed to deliver increased reliability, which in turn helps to reduce costs. They are built to follow the design standard for commercial pumps, so they are manufactured to last and can be economically repaired."

As mechanical room piping for light-duty fluid-flow applications is often installed vertically, the new single-phase pumps can also be installed and operated in vertical piping, Armstrong said. Compared to conventional pumps that often rely on wall-mounted drives and standard induction motors, the new pumps provide savings of up to 30% on operating costs through adjustable design point and setpoint to match on-



site conditions, quadratic pressure-control curve for maximum efficiency in variable-speed applications, and constant flow function for maintaining a precise flow rate in recirculation applications, the company added.

As with all its Design Envelope pumps, the new single-phase pump includes built-in intelligence and connectivity to support Active Performance Management, Armstrong said. The subscription-based Pump Manager service, the company said, allows users to track pump status and performance, and will send alerts identifying issues, such as cavitation and dead-head, and enables performance optimisation through cloud-based analytics.

## robatherm joins Eurovent Middle East

HVACR association says air-handling unit manufacturer is the latest addition to its base of members

By CCME Content Team

**R**obatherm, a German manufacturer specialising in the production of customised air-handling units (AHUs), has joined Eurovent Middle East with a commitment to joint industry initiatives in the fields of energy efficiency and Indoor Air Quality (IAQ). Making the announcement through a Press release, Eurovent said that with its recently opened office in Dubai, robatherm has underlined the strategic importance of the Middle East for its future growth.

According to Eurovent, robatherm

has production facilities in Germany and Thailand, serving high-end customers around the globe with high-technology AHUs. Among its prestigious projects in the region, Terminal 2 of the Kuwait International Airport – expected to be opening soon – has been of specific significance. For this project, robatherm provided 225 AHUs and close to 15,000 air filters, which deliver 15 million cubic metres of clean air per hour, Eurovent pointed out.

Benjamin Gorge, Sales Director Middle East, robatherm DMCC, explaining the motivation to join

Eurovent, said: "Recently, we all learned that safe and clean indoor air is essential to our wellbeing. Thanks to our personal experiences with sensitive air requirements within hygienic and cleanroom applications, robatherm was able to adapt to the changing needs and expectations of the industry and end consumers. We are excited to join Eurovent Middle East and actively contribute to raising awareness and shape regulatory frameworks for ventilation."

Markus Lattner, Managing Director, Eurovent Middle East, said: "We are very happy to welcome robatherm to our association. The past two years have shown us how important our work towards better standards and quality levels is. We expect an increase on regulatory developments in the ventilation sector, which is long overdue. Thus, we greatly appreciate the support of robatherm for our future activities."



## French transport refrigeration rental company aims for UAE market-share

Petit Forestier points to its ATP-compliant fleet of leasable vehicles, which promotes greater food safety, and lower carbon footprint and costs, as decisive factors for market acceptance

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

**F**RENCH transport refrigeration rental company, Petit Forestier, announced its intention of garnering market share in the UAE's food cold chain sector.

Speaking to *Climate Control Middle East*, Petit Forestier, which also manufactures its refrigerated boxes, pointed out that its entire fleet of vehicles is ATP-certified, which enhances food safety, and ensures a low carbon footprint and cost-savings for the customer. ATP stands for "Accord Transport Perissable" (Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for such Carriage). It comes under the purview of the Transport Division of the United Nations Economic Commission for Europe (UNECE).

Stanislas Przyklang du Chassin, its Managing Director for UAE operations, highlighted that the company is the first to supply ATP-certified boxes in the UAE. "We are trying to push everybody and explain to everybody that it is really important for food safety that we install these here," he said. "These boxes are between 900 kilograms and one ton lighter than locally available boxes. Imagine how green they are. Lighter means they consume less petrol – the fuel consumption is 20-30% less than locally available boxes – which means lower CO<sub>2</sub> emissions. So, we are working on the cold safety and the green side of the vehicle."

Przyklang du Chassin admitted that ATP-certified boxes are 25-30% more expensive than locally available boxes. However, when all aspects are considered, they would guarantee greater cost savings for clients. "Yes, the cost of purchasing is higher, but at the end, the vehicle is one ton lighter, which means we can save 20-30% on fuel costs," he said. "We have customers who are doing one petrol tank per day, which means they get their money back in one year. Also, a lighter



Stanislas Przyklang du Chassin

vehicle means you don't have to replace your brakes that often, which will mean a reduced cost of maintenance."

Petit Forestier, which has factories in France and Poland, manufactures 7,000 insulated boxes a year. It said it is the only rental company that has an innovation department, working every day to find solutions related to green transportation and food safety. Dimitri Doinet, its Sales Director, said innovation is a key strength of the company. Pointing to the vehicles, he highlighted the use of fewer metallic parts in the chassis, which make them lighter and, hence, more fuel efficient. He also highlighted that the insulation of the boxes is six centimetres in thickness, as compared to 10 centimetres in boxes available in the country. This, he said, allows for carrying more foodstuffs per load. He further highlighted the use of door sensors, which cut off the cold units on opening the doors of the truck, thus preventing exposure to hot ambient conditions.

From a food safety perspective, Doinet pointed to the use of unique antimicrobial air strips for preventing the ingress of hot ambient air to the vehicle. This, he said, was only the beginning, though. Adding to this, Przyklang du Chassin said the company offers vehicles fitted with mechanical air curtains. They are currently



Dimitri Doinet

available only in Europe, though. He said customers are happy with the innovation, for they do not have an obstruction while entering the vehicle.

Przyklang du Chassin said the company would eventually offer air curtains in vehicles in the UAE. "This is something we have to test," he said. "We have plans of bringing them here in the next five years."

Speaking on the rental model of the business, Przyklang du Chassin said the company was proposing renting its vehicles for 5-6 years, during which it would offer commitment to the customer to manage every aspect of the assets. That way, he said, the customer would know that cold safety is respected. Petit Forestier, he said, offers a full complement of aftermarket services, including maintenance, repair and replacement.

Speaking on the speed of service and reaction time, Przyklang du Chassin said the company has the ability to give a replacement vehicle within a short duration. "If the client has any issue on the road, we can give a replacement vehicle in 20-30 minutes, so as to be able to continue delivering perishable foodstuffs," he said. "With refrigerated vehicles, if you have a breakdown, you can lose everything, especially here. So, we have developed a full service to replace vehicles very quickly."

## Netix receives Amazon's approval for supplying its open-source controllers

Smart buildings solutions provider says it will be optimising the retail giant's fulfilment centres across the globe

By CCME Content Team

**N**ETIX Controls, a subsidiary of the SB Group and a smart buildings solutions provider, announced the approval of its open-source controllers by global retail giant, Amazon. Making the announcement through a Press release, Netix said the approval has implications for its outreach as well as Amazon's worldwide centres, which it added stand to maximise their efficiencies and optimise their building and asset management.

Netix said this approval from Amazon, executed through real estate services company, CBRE, will see it work on the BMS of 59 fulfilment centres across Europe, starting with France and Germany. Netix said it will shoulder the BMS responsibilities in Amazon's centres, ensuring seamless integration and connectivity with IoT platforms and the IT infrastructure across their warehouses and offices in these locations.

According to Netix, the global approval comes on the back of Amazon's observations of Netix's edge as one of the only providers of an open-source, open-protocol system, as well as successful implementation in four of Amazon's centres in India and one in Jeddah. Similar approvals, Netix said, were also extended

for its controllers for Amazon centres in Dubai, Riyadh, and Egypt, which are currently underway. Netix said its quality of work and its expansive global network of operations led to Amazon inviting it to expand the scope of the partnership to Europe, as well.

"Organizations do not come bigger than Amazon, which is a household name across the globe," said Sanjeev Bhatia, Chairman, SB Group International and CEO, Netix Global BV. "We bagged its approval by demonstrating the multi-fold value that our open-protocol controllers can unlock. This is to say, our partnership is built not just on promises but on demonstrable positive outcomes. Soon, Amazon centres across Europe will be enjoying similar benefits."

Netix said it has carved out a niche for itself at the intersection of technology and real estate by championing the open-source, android approach, across full-suite BMS solutions and maintenance services, including but not limited to intelligent Integrated Building Management System (iBMS) and its Konnect platform. Netix said its model offers clients flexibility as well as significant savings by improving processes, eliminating OEM dependencies and optimising resources.

Keeping the open-protocol framework as its unique value proposition, Netix said it has also launched the Novus Partner Program to ignite a Brownfield Revolution – a movement to unlock greater efficiencies and optimize energy usage in old buildings grappling with multi-vendor, legacy systems – across the Middle East region, by sharing best practices and knowledge from successful implementations. In doing so, Netix, along with Novus partners, has enabled owners/operators in old buildings to unlock significant savings in resources, energy and labour, and to increase efficiencies, reliability and the life span of connected assets.

Netix said the approval by Amazon, one of the largest and fastest growing companies in the world, with billions of dollars invested in ecommerce, logistics and service delivery, serves as a testament to its state-of-the-art technology strengths, robust solutions and expansive global operations. "In a proptech ecosystem crowded by software-only, piecemeal solutions providers, we have carved a niche as a provider of an end-to-end portfolio of hardware as well software and IoT solutions that are delivering immediate quantifiable savings for our clients," Bhatia said. "Based on multiple case studies, we have unlocked a 50% reduction in OpEx, on average. Our years of painstaking R&D and the constant pursuit of excellence in service delivery have led to this approval by a global giant like Amazon. It's a proud moment, and we are confident of exceeding expectations."

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# Poppy introduces IT-based IAQ solution at EXPO 2020 seminar

Bin Dasmal Group to distribute Poppy devices in the MENA region

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



Mohammed Bin Dasmal

Nader Arafat and Sam Molyneux

**CANADA-HEADQUARTERED** Poppy, which calls itself the world's first biosafety intelligence company, introduced its IT-based IAQ devices to the MENA region during a seminar at the Canada Pavilion, at the World Expo in Dubai.

Opening the seminar, Nader Arafat, Strategic Advisor, MENA Region, Poppy, spoke of the pandemic ushering in a mindset shift towards Indoor Air Quality (IAQ). Speaking after him, Mohammed Bin Dasmal, Managing Director, Bin Dasmal Group, called Poppy's devices as focusing on IAQ as well as on energy savings.

Sam Molyneux, Co-Founder & Co-CEO, Poppy, elaborated on Bin Dasmal's pithy description during his presentation. Saying that the world needs to protect itself from future pandemics, he said it is important to understand indoor safety and the cost of enhancing safety. Making clean air in a cost-effective way is a global priority, he added.

Referring to the high-profile Guangzhou restaurant, the site of the precipitous outbreak of COVID-19, in

the period starting from January 26 to February 10, 2020, Molyneux highlighted how a small air conditioning system was able to propagate the virus and raised ventilation concerns. In view of that, he said, in some senses, ventilation is the last stand against COVID-19. Poppy systems, he said, help in making ventilation decisions, including demand-control ventilation, as a means to achieving IAQ goals without compromising on energy efficiency targets.

The devices, Molyneux said, available on subscription basis, detect and identify over 1,000+ pathogens, including SARS-CoV-2 and its variants, using genomic sequencing and molecular assays. They allow the company to collect data related to human breath, which in turn, allow understanding on how human breath moves, which he said is crucial, considering everyone is constantly breathing out particles that contain viruses. The data, and the understanding of the data, he said, enable the company to validate how air conditioning systems are performing and, broadly speaking,

provide insights and a direction for action to protect indoor spaces and occupants.

Molyneux said the company has deployed Poppy systems in 50 sites across North America and Europe, including factories, financial institutions, schools and entertainment venues. He gave the example of Poppy systems at work at the largest investment bank in Manhattan, in New York City, where the company is able to monitor the air quality in the trading floor, among other zones of the building and identify if any zones have high transmission issues that need to be looked into. He also gave the example of the Four Seasons Center for the Performing Arts, in Toronto, Canada, where Poppy systems are at work monitoring and providing recommendations, so that the Center is able to run its operas again. "We are able to recommend increasing the ventilation rates in hotspots, which is a localised approach, and reducing ventilation rates globally," Molyneux said. "So, we are able to achieve energy savings."



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# European Investment Bank, Solas in energy efficiency initiative

The two are joining forces to invest in energy efficiency in buildings across the European Union, EIB says

By CCME Content Team

**T**HE Solas Sustainable Energy Fund ICAV, a new EU-focused fund targeting energy efficiency investments, has reached its first close with €140 million. Making the announcement through a Press release, the European Investment Bank (EIB) said it has committed a €30 million cornerstone investment to SSEF, backed by the European Fund for Strategic Investments (EFSI), the main pillar of the Investment Plan for Europe. EIB said that as one of the largest providers of climate finance, it supports projects that promote the priorities and objectives of the European Union.

According to EIB, the SSEF also signed an agreement with the Private Finance for Energy Efficiency (PF4EE) support scheme, a joint initiative launched by the European Commission via the LIFE programme and the EIB. One of the goals of PF4EE is to encourage private institutional investors, such as insurers and pension funds, to invest in European energy efficiency infrastructure, particularly in the small- and medium-sized (SME) sector. Further cornerstone investors of SSEF are the Ireland Strategic Investment Fund (ISIF), IDEAL insurance as well as MEAG, the asset manager of the Munich Re group.

EIB said that by virtue of being a specialist investment advisor in the energy efficiency sector, Solas Capital will advise the fund. EIB said Solas Capital partners with a wide variety of leading energy service companies, project developers, equipment manufacturers, and public-sector bodies across the European Union to help facilitate their access to tailor-made financing and enable new investment in energy efficiency.

According to EIB, SSEF will offer



Thomas Östros

funding for energy-saving business models focusing on the renovation of existing infrastructure, particularly buildings, using established and reliable energy-efficient technologies, such as modern heating and cooling systems, combined heat and power units, solar rooftops, building fabric and LED lighting. Projects in both the public and private sectors will be supported, including the SME sector, which faces more challenges in securing finance, EIB said.

According to EIB, the project would entail an initial investment into a project portfolio of energy efficiency measures in buildings. It added that buildings are responsible for 40% of the European Union's energy consumption, and 36% of its CO<sub>2</sub> emissions. To achieve near zero emissions in buildings, crowding-in private institutional capital will be essential, as public funding is not sufficient. SSEF, EIB said, is offering the market a unique financing solution and is closing the gap between energy efficiency funding needs and institutional investor requirements.

Kadri Simson, The Commissioner for Energy, said: "Investing into energy efficiency, renewable energy generation



Kadri Simson

and building renovation is at the core of the European Green Deal and key to bringing down energy bills. The Solas Sustainable Energy Fund will combine the financial support from EFSI and PF4EE to mobilise affordable private financing for investments in the energy performance of buildings, including onsite renewable energy production. The PF4EE guarantee will set the gold standard for equity investment fund initiatives and engage institutional investors in green assets. This will bring us one step closer to achieving the EU's Green Deal ambition of becoming climate neutral by 2050."

Thomas Östros, Vice-President, European Investment Bank, who is responsible for energy financing, said: "As Europe's climate bank, the EIB is proud to be a cornerstone investor in the Solas Sustainable Energy Fund, which will help bridge the major financing gap for energy efficiency projects. Reducing the energy use in buildings is crucial to achieving a carbon-neutral economy in Europe by 2050. We believe that our commitment in this fund will catalyse further investments to meet the immense building renovation challenge."

# ASHRAE opens registration for its Annual Conference

Five-day event, in Toronto, includes eight tracks, over 70 sessions and over 200 speakers, Society says

By CCME Content Team



**A**SHRAE said registration is now open for the 2022 ASHRAE Annual Conference, from June 25 to 29, at the Sheraton Centre Hotel, Toronto.

According to ASHRAE, the five-day conference includes sessions addressing current trends and technologies in the HVAC&R industry, as well as tours, social events and a keynote message from Fredi Lajvardi, STEM educator and subject of IMAX film, *Dream Big*.

“ASHRAE’s Annual Conference offers a unique combination of education, technology and networking in an effective format where industry professionals can share best practices, insights and real-world experiences with peers from around the world,” said Mick Schwedler, 2021-22 ASHRAE President. “We’re excited to come together in Toronto – a vibrant city known for innovation – and know the conference will be a worthwhile experience for all in attendance.”

According to ASHRAE, the conference’s technical programme comprises eight tracks, with over 70 sessions and over 200 speakers. Topics include decarbonisation, environmental health and energy system integration and building performance, the Society said.



Mick Schwedler



Farooq Mehboob



Fredi Lajvardi

#### According to ASHRAE, tracks include:

- Fundamentals and Applications
- HVAC&R Systems and Equipment
- 9th Annual Research Summit
- IAQ, Energy Use, Comfort and Health of Sustainable Buildings
- Connected Buildings, Connected Communities
- Buildings in the Aftermath of COVID-19
- Professional Development and Education
- Cold Climate Building System Design, Operation and Resilience

ASHRAE said it will also conduct business, committee and technical meetings in the weeks leading up to and during the conference. It said members will be recognised for Society and industry achievements, and Farooq Mehboob, 2022-2023 ASHRAE President, will present the inaugural Society theme address on “Securing Our Future”.

#### According to ASHRAE, registration includes:

- Access to technical programme from Sunday, June 26 to Wednesday, June 29 (seminars, workshops, paper sessions, debates and panels)
- Access to conference proceedings
- Networking opportunities

The ASHRAE Ventilation 2022: 13th International Industrial Ventilation Conference for Contaminant Control will immediately precede the ASHRAE Annual Conference at the same location, from June 22 to 24, the Society said, adding that dual registration opportunities will be available at a discounted rate. It encouraged those interested in attending the events to visit [ashrae.org/2022annual](http://ashrae.org/2022annual) and [ashrae.org/ventilation2022](http://ashrae.org/ventilation2022).



# LU-VE Group: 2021 a year of records

Company says its order book is close to € 200mn (+124%) in February 2022

By CCME Content Team

**L**U-VE's Board of Directors described 2021 as a year of records, following a review and approval of the Group's consolidated financial report as of December 31, 2021.

"The year 2021, the 35th year of LU-VE Group activity, was very positive, characterized by an active demand, despite a sharp increase in the prices of materials and supply difficulties," said Iginio Liberali, President, LU-VE Group. "We have achieved a turnover of € 492 million, we have grown by 22.6% on the previous year, and our net income has more than doubled. The 2021 turnover was 50 times that of our first year of activity. It is the result of constant growth, organically and through acquisitions, based on the professional values of an international working community that unites cultures in a blending process, guided towards the innovation of products and business processes. Thanks to the entire LU-VE team who made all this possible."

According to LU-VE, the 2021 financial year saw the Group experience organic growth in product turnover (+23.0%), more than double the average of the last five years and, at the same time, growth in the order book at levels never recorded in the history of the Group (€ 180.2 million, +134% compared to December 2020). The very strong trend in orders, starting from the second quarter of 2021, is attributable to the general post-pandemic recovery scenario and is the result of investments in previous years, both in research and development aimed at developing new heat exchangers for the use of natural "green" fluids with low environmental impact, and in new production lines dedicated to these innovative heat exchangers that have made it possible to intercept a rapidly growing demand, the Group said. Thanks to these activities, therefore, the Group has managed to increase its reputation, but above all its market share in the segments that are most innovative and sensitive to issues of energy efficiency



and low environmental impact solutions, LU-VE said.

The year 2021 was a very complex year on the supply chain front, not only due to the huge increases in the prices of raw materials, components, logistics services and energy, but above all due to the constant need to face and monitor shortage risks in the availability of critical materials and components, for the correct supply of production processes, the Group said. This situation, combined with an occasional impossible demand, has forced the Group and production companies the world over, in general, to review their storage solutions inspired by rigorous compliance with the "just in time" principles, LU-VE said. Furthermore, the new waves and the spiking of the spread of the pandemic in different areas of the world – with different temporal trends and containment measures – have further aggravated the logistics crisis, especially for goods from Asia-Pacific countries, generating production inefficiencies due to the high, and sometimes sudden, increases in workers' absence rates in the Group's plants, LU-VE said.

In this difficult scenario, good supply to production sites and adequate levels of customer service were guaranteed

by the strategy of widening and differentiating supply sources, which had been implemented for some time, and by growing organizational flexibility, LU-VE said.

In 2021, the Group recorded a strong growth in product sales (+23%), which reached € 483.1 million and, at the same time, a continuous and progressive increase in the order book, LU-VE reported.

Revenues and operating income rose by 22.6% (+ €90.6 million), +23.5% at constant exchange rates, LU-VE claimed. The growth is largely due to increased volumes and the change in the sales mix, while 8.8% derives from the increase in prices, it said. The value of the order book, after reaching the value of € 100 million for the first time at the end of March 2021, progressively grew to exceed € 150 million at the end of July, to then reach a record value of € 180.2 million at the end of the year (+134% on 2020), it said. These trends confirm the resilience of the business model and the validity of the Group's strategy, aimed at the progressive expansion of the fields of application and the extension of its international presence, with the aim of reducing dependency on individual market segments or individual countries, it added.

The Group's turnover does not depend

to a significant extent on individual commercial or industrial contracts, LU-VE said. At the end of 2021, sales revenues from the Group's top 10 customers represent just over 32% of the total: The largest, an international group served in several countries, accounts for 4.6%, LU-VE said.

The European Union, with € 373.8 million in turnover and an impact of 77.4% on total sales, remains the most important geographical area for the Group, LU-VE said. By virtue of the very strong growth in sales achieved in Italy in 2021 (+39%, equal to € 90.8 million), the percentage of exports dropped slightly to just over 81%, it said.

In 2011, the "Components SBU" achieved a turnover of € 275.6 million, with a growth of 38.6% in all application segments, LU-VE said. Performance was mainly driven by heat exchangers applied to refrigerated display cabinets for supermarkets, heat pumps, refrigerated transport and energy-efficient dryers, it added.

The "Cooling Systems SBU", on the other hand, grew by 7.1% with a turnover of € 207.5 million, by virtue of an uneven trend in the various application segments, LU-VE said.

Commercial and industrial refrigeration, once again the result of the growing presence in highly energy-efficient natural fluid applications and data centre applications, recorded growths of +20% and +17%, respectively, LU-VE said.

There was a sharp slowdown in "district heating" projects, linked to the lack of incentives in a very specific market, LU-VE said. The "industrial cooling" segment, after a bad start due to the dragging of the negative effects of the pandemic (-18% at the end of the first half), then showed a good recovery in the second half of the year, reducing the decrease to minus seven per cent, but with an order book (at the end of 2021) back in line with historical averages, thanks to the unblocking of some large projects that had been subject to continuous postponements since spring of 2020, LU-VE said.

On the sales side, the extraordinary supply conditions led for the first time in the history of the Group to increase sales price of ventilated products three times

during the calendar year and again at the beginning of 2022, LU-VE said.

The "Components SBU" applies an automatic sales price adjustment mechanism, which LU-VE said, proved its validity during the year, but was started, together with customers a process of revision of some rules and operating parameters, to take into consideration the changed market conditions.

During 2021, LU-VE said, the rationalisation program continued for the range of ventilated appliances for commercial and industrial refrigeration, with the launch of new "indoor" product lines and with the creation of a shared platform for "outdoor" appliances that use natural fluids. In the United States, construction of the first lot of the new plant was completed in March 2021, LU-VE said. In May 2021, in full compliance with the schedule, the production of exchangers was started, for which a multi-year agreement with an important customer had been signed in the previous months, it said.

The Group's operating working capital, equal to the sum of inventories and trade receivables net of trade payables, as of December 31, 2021 amounted to € 70.8 million, equal to 14.4% of sales (€ 35.8 million and 8.9% in 2020), LU-VE said.

The increase is linked to the strategic choice of investing, in a significant manner, in the increase of safety stocks of raw materials, without the risk of obsolescence, to guarantee customers delivery terms in line with their expectations and, therefore, to be able to take full advantage of

the strength of market demand, LU-VE said. Normalising this effect, the operating working capital as of December 31, 2021 would have been approximately € 56.6 million (11.5% of sales).

The net financial position of the Group was negative for € 121.9 million (€ 106.8 million as of December 31, 2020, with an increase of € 15.1 million, primarily due to capital expenditures (€ 33.5 million), the increase in the net working capital (€ 35.0 million) and the distribution of dividends (€ 6.5 million), net of approximately € 58.0 million in positive cash flows from operations. Normalising the net financial position in consideration of the extraordinary effect on the level of inventories, the figure as of December 31, 2021 would have been negative for € 107.7 million (with a worsening of € 0.9 million compared to December 31, 2020). In 2021, LU-VE said, the cash flow from operations adjusted by non-recurring items totalled € 15.8 million. The debt, it added, is all medium and long-term, and liquidity as of December 31, 2021 totalled around € 248.3 million.

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## Danfoss: 'A year above expectations'

Company reports sales of EUR 7.5 billion, up 29% against 2020

By CCME Content Team

**DANFOSS** reported an increase in sales by 29% to EUR 7.5 billion in 2021. Making the announcement through a Press release, Danfoss described the performance as a record sales level.

The company said organic growth reached 18% year-over-year. The five-month period of ownership of Eaton's hydraulics business added EUR 786 million to the top-line, the company said, adding that it delivered extensive growth in all regions. Investments in innovation (R&D) increased 23% to EUR 328 million, the company said. At the same time, it said, operating profits reached the highest level ever, with EBITA of EUR 969 million and EBITA margin of 12.8%. Net profit reached EUR 631 million, up 45%, it added.

"We have never seen better opportunities for Danfoss," said Kim Fausing, President & CEO, Danfoss. "It is our ambition to be the leading technology partner for our customers in the green transition – decarbonising

through energy efficiency, low emissions, and electrification. After all, the greenest energy is the energy that we don't use. Our momentum is clearly reflected in our 2021 annual results. Danfoss has delivered the best results in our history, and we are in a strong financial position.

"What makes me most proud is how our teams continue to deal with the pandemic and the significant challenges with the supply chain while delivering a transformational, record year. Unfortunately, these considerable challenges affected our customer service. In addition, all three segments were affected by inflationary pressure. We will continue to do everything we can to serve our customers, and we will continue our high investments in capacity expansion, innovation and digitalisation of Danfoss."

Danfoss said it assumes a positive outlook in the market in 2022, with a continued ambition to expand or maintain market share. The outlook includes a full year ownership of Eaton's hydraulics business, it said. Sales are expected to be in the range of EUR 8.8-9.8bn for the full year, it said. The EBITA margin



Kim Fausing

is expected to be in the range of 11.4-12.9%, following continued investments in the development of new products and solutions, it said. The expected growth and profitability performance is dependent on the development of the pandemic, the global supply chain disruptions as well as the continuation of the current strong growth rates in the world economy, it added.

Regarding the conflict between Ukraine and Russia, the company said its first priority is to keep its people safe. We are monitoring the situation carefully and will act accordingly.

## Talks on for USD 1.5bn renewables-powered Egypt desalination plant

A consortium of Metito Holdings, Scatec and Orascom Construction is discussing with the Egyptian government about developing the plant

By CCME Content Team

**A CONSORTIUM** of Metito Holdings, Scatec and Orascom Construction are in talks with the Egyptian government about developing a USD 1.5bn renewables-powered desalination plant, according to a report in *Energy & Utilities*.

The consortium is in discussions with Egypt's sovereign wealth fund, the Egypt Fund, about the project, which is part of Egypt's plans to meet the growing water requirements of its population, the report said.

*Energy & Utilities* reported in August 2021 that the Egyptian government was seeking to secure USD 2.5bn of private investment by 2025 to deliver 17 solar-powered seawater desalination plants to meet the growing demand for water and reduce reliance on water from the Nile river.

Ayman Soliman, Director General, Egypt Fund, said the European Bank for Reconstruction and Development and International Finance Corporation will provide technical advice and support of the bidding process for the projects, which are likely to be tendered under a



public-private partnership (PPP) model, the report said.

The report quoted Soliman as saying that several investors had expressed interest in the desalination programme.

According to the report, the 17 proposed desalination plants would have the capacity to provide up to 2.8 million cubic metres a day (cm/d) of potable water for the Egyptian population.



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# ASHRAE issues call for abstracts for 2023 HVAC Cold Climate Conference

Submission deadline is June 13, Society says

By CCME Content Team

**A**SHRAE issued a call for abstracts for the ASHRAE and SCANVAC HVAC Cold Climate Conference 2023, to be held from March 6 to 8, 2023, in Anchorage, Alaska, in the United States.

Making the announcement through a Press release, ASHRAE said the conference will address unique challenges and solutions for climate change in cold and Arctic communities.

“Net-zero energy and sustainability goals pose special challenges for cold climates, climates with large swings in temperature and where shifting weather patterns result in colder temperatures in areas where winters are typically mild,” said Erich Binder, Chair, HVAC Cold Climate Conference 2023. “Harmonizing human comfort with the climatic realities of these environments is a balancing act, and strategic design is key to building, commissioning and operating efficient and long-lasting cold-climate structures.”

According to ASHRAE, the conference seeks papers focused on the following topics and subtopics:

#### Innovation in Equipment and Application

- Impacts of Data Centres Bitcoin Mining on Cold Climates
- Industrial Energy and Resource Development
- Utilities and Infrastructure
- District Heating and Cooling
- Heat Pumps/Heat Recovery

#### Sustainability and Resiliency

- Smart Buildings
- Energy Conservation
- Thermal Storage
- Decarbonisation
- Overheating/Climate Models
- Maintenance and Operations

#### Building Environments

- Indoor Environmental Quality
- Critical Environments/Airborne Virus Transmission/Cross Contamination

- Building Envelope
- Humidity Impacts on Building Envelope
- Occupant Comfort
- Residential, Commercial, Institutional, Manufacturing
- Healthcare, Assisted Living, Senior Residences, Elder Care Home, Senior Housing Retirement Homes
- Digitalization and Controls
- Unique Locations, Underground Spaces, Walkways, Shopping Centres
- Sports Facilities

According to ASHRAE, Abstracts should be 300 words or less and should concisely present the problem statement, the novelty of the work, the methodology, the impact and applicability in cold climates, and the findings. Abstract submissions are due June 13, 2022, ASHRAE said, adding that if accepted, final conference papers, running to a maximum of eight pages, are due on October 31, 2022.

ASHRAE said that those interested in submitting could visit [ashrae.org/2023hvaccoldclimate](http://ashrae.org/2023hvaccoldclimate) to access more information.



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# UNIDO, European Investment Bank sign climate change joint declaration

The two organisations seek to enhance cooperation on promoting inclusive and sustainable industrial development, with a focus on circular economy, clean energy, climate change action and access to finance

By CCME Content Team

**G**ERD Müller, Director General of the United Nations Industrial Development Organization (UNIDO), and Werner Hoyer, President of the European Investment Bank (EIB), signed a Joint Declaration to enhance cooperation, related to investment operations in the field of private sector development, with a particular focus on inclusive and sustainable industrialisation, and innovation and resilient infrastructure.

Making the announcement through a Press release EIB said joint areas of cooperation include circular economy, notably through the switch to Circular Economy Value Chains programme; clean energy and climate change action; small and medium enterprise development; access to finance and investment support; pharmaceutical and vaccine manufacturing; sustainable transport and e-mobility; and digitalisation and the fourth industrial revolution.

Müller told Hoyer: “We have a long-standing and excellent personal and professional relationship. I am



very glad to strengthen the partnership between our two organizations to provide innovative and concrete solutions for a global recovery from the COVID-19 pandemic and a green energy transition. Together, we can build bridges between developing countries, emerging markets and European partner countries and foster global solidarity. This is urgently needed.”

Hoyer said: “Multilateral cooperation is vital to leverage private investment and make economies across the world resilient and sustainable. I am delighted to renew our collaboration with UNIDO, who is a key partner to promote an inclusive green transition globally. Via EIB Global, our new branch for international development and partnerships, we will join forces to reduce poverty and enhance investment in sustainable infrastructure. I look forward to

continuing our long and fruitful cooperation in your new role as Director General of UNIDO.”

According to EIB, the two institutions intend to explore cooperation opportunities, especially in Africa, in the countries of UNIDO’s Programme for Country Partnership (PCP), as well as in the context of the Africa, Caribbean and Pacific (ACP) countries, where the EIB is particularly active. Other possible geographical areas could include Eastern Europe and the Mediterranean, Central Asia, Asia and Latin America, where both institutions already operate.

EIB said UNIDO and the EIB also agreed to develop and implement crisis- and fast-response operations when needed, such as COVID-19 support initiatives or activities to ensure resilient industrial production and sustainable economic growth.

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# Johnson Controls joins World Business Council for Sustainable Development

Company says it has committed to achieving net zero Scope 1 and 2 carbon emissions by 2040

By CCME Content Team

**J**OHNSON Controls joined over 200 companies as the newest member of the World Business Council for Sustainable Development (WBCSD).

Making the announcement through a Press release, Johnson Controls said it continues to take significant steps to further improve its environmental impact and has committed to achieving net zero Scope 1 and 2 carbon emissions by 2040 – 10 years ahead of the Paris Climate Agreement goal. By 2030, the company said, it aims to cut its Scope 1 and 2 emissions by 55% and reduce Scope 3 emissions by 16%. These ambitious 2030 emissions reduction targets have been approved by the Science Based Targets initiative, it added.

Johnson Controls said it also recently became the first S&P500 industrial company to release an Integrated Sustainable Finance Framework as well as issue a Sustainability-Linked Bond. This, it said, builds on its green finance initiative,

following its prior green bond issuance and the linking of its senior credit facility to sustainability metrics. As part of its Integrated Sustainable Finance Framework, Johnson Controls said, it further committed to achieving interim absolute emission reduction targets by 2025.

Johnson Controls said it is a member of both the WBCSD decarbonization and circular economy working groups for the Built Environment. With an integrated focus on designing buildings with low to no carbon, standardizing measurement across the industry and delivering nature-positive solutions, the two working groups are on the forefront of designing the future of sustainable, equitable cities, it said.

“We are delighted to join WBCSD,” said Katie McGinty, Vice President and Chief Sustainability and External Relations Officer, Johnson Controls. “The building sector accounts for nearly 40% of global annual CO<sub>2</sub> emissions, so there is no tackling climate change

without substantial investment in buildings. We look forward to working with, and learning from, fellow WBCSD members, leading the way to a low carbon, nature positive, sustainable economy, together.”

Peter Bakker, President and CEO, WBCSD, said: “WBCSD is working to accelerate the system transformations needed for a net-zero, nature-positive, and more equitable future. To achieve our vision of creating a world in which nine+ billion people are living well, within planetary boundaries, by mid-century, we need to engage executives and sustainability leaders in business. Therefore, I am delighted to welcome Johnson Controls as the newest member of WBCSD. As a global leader in the built environment sector, with an ambitious goal to achieve net-zero carbon emissions by 2040, we are excited to work alongside Johnson Controls to solve the intertwined sustainability challenges of the climate emergency, biodiversity loss, and mounting inequality.”



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# IEA: Global CO<sub>2</sub> emissions rise to all-time high

## Corporate sector must step up, As You Sow says

By CCME Content Team

**A**s You Sow, an advocacy non-profit that promotes environmental and social corporate responsibility, quoted the International Energy Agency (IEA) as saying that global carbon dioxide emissions (CO<sub>2</sub>) from energy combustion and industrial processes rose to their highest ever level in 2021. Making the announcement through a Press release, As You Sow added that a six per cent increase in 2021 pushed emissions to 36.3 gigatonnes, erasing the five per cent reduction in 2020, owing to the COVID-19 pandemic.

As greenhouse gas emissions continue to climb higher when the effects of climate change are increasingly being felt it highlights the need to go beyond targets and implement immediate tangible emissions reductions, As You Sow said.

More than 70 countries, accounting for more than 80% of global CO<sub>2</sub> emissions and 90% of global GDP, have committed to net-zero, as have more than 5,000 companies, As You Sow said. In order to see progress critical for keeping global temperatures from rising beyond 1.5 degrees C, there is a need for companies to pursue ambitious near-term targets, robust transition plans detailing steps

to achieve targets and leadership in advocating for sweeping climate policy, As You Sow added.

As You Sow's recent report, *Road to Zero Emissions* scores companies on net-zero progress and is in step with the Intergovernmental Panel on Climate Change's findings that near-term action is needed by prioritizing year-over-year emissions reductions aligned with 1.5 degrees C.

Danielle Fugere, President, As You Sow, said: "Investor value is being put at greater risk as emissions continue to rise. It is imperative for the safety of human society and the global economy that emissions are reduced immediately in line with the Paris Agreement. When it comes to climate change, we will not be given second chances, so the private sector must create climate transition plans that prioritize accountability and transparency."

# ASHRAE announces call for abstracts for 2023 Winter Conference

## Says it is expanding manufacturing to meet global demand

By CCME Content Team

**A**SHRAE said it has begun accepting abstracts for the 2023 ASHRAE Winter Conference, to be held from February 4 to 8, 2023, in Atlanta, Georgia.

Making the announcement through a Press release, ASHRAE said the conference will address improving energy efficiency and decarbonisation in the built environment.

According to ASHRAE, the technical programme comprises the following eight tracks and a mini track:

The "Fundamentals and Applications" track will provide opportunities for papers of varying levels across a large topic base. Concepts, design elements and shared experiences for theoretical and applied concepts of HVAC&R design are included.

The "HVAC&R Systems and Equipment" track will focus on the development of new systems and equipment, improvements to existing systems and equipment and the proper

application and operation of systems and equipment.

The "Refrigerants and Refrigeration" track will explore refrigeration systems, which generate and use cold for a range of processes, from food preparation and conservation to vaccine preservation, and to long-term protection of fragile ancient inks of historical documents and others.

The "Grid Resilience and Thermal Storage" track will highlight the advancements in grid resilience and thermal storage systems and how they are tied to resilience and energy conservation efforts.

The "Pathways to Zero Energy Emissions and Decarbonization" track will highlight methods being developed to reduce carbon impact on the global environment and the efforts ASHRAE and its members are taking to advance these efforts.

The "Multifamily and Residential Buildings" track will cover programmes and papers on best practices, utility and above-code incentive programmes, field studies, and codes and standards requirements. The track also welcomes

programmes and papers for single-family housing and other residential buildings.

The "Operations and Maintenance" will address an array of topics, including lessons learned, improvement of process and team communications and effort to improve the installation, startup, O&M and commissioning of HVAC systems.

The "Building Simulation and Virtual Design in Construction" track will focus on the practices of energy modelling and building performance simulation using existing simulation tools, software development, and future simulation research and applications for building simulation & virtual design in construction.

The mini track, "Innovative Responses to Supply Chain Challenge" is intended to help members plan for the future disruptions and develop resiliency plans around supply chain by highlighting effective and innovative strategies to mitigate supply chain challenges.

According to ASHRAE, final conference papers (eight pages, maximum) are due July 25, 2022.

For more information on the call for abstracts and the 2023 ASHRAE Winter Conference, ASHRAE suggested visiting [ashrae.org/2023Winter](http://ashrae.org/2023Winter).

# {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.

“

**A new replacement chiller system costs approximately AED 600,000, and since new chillers are more efficient they bring consumption down to AED 125,000 per year; they also bring annual maintenance costs down to AED 25,000.”**

**p25**

“

We now have the opportunity to join the IAQ and energy fields to support healthier and more efficient buildings. There are emerging technologies, controls and best practices that support this.

**p31**

“

Strong IoT-based energy management systems showcase expedited ROI, achieved in 18-14 months.

**p27**

“

When you wash a filter, it clogs, and energy consumption is tremendous. Higher efficiency filters do not equate to higher power consumption

**p12**

“

Global cooperation on matters such as climate change, carbon emissions and trade flow management would suffer mightily, were the largest terrestrial country on earth to be kept out of the conversation.

**p06**

“

In the last couple of years, we have quantified health effect of poor air quality. So, it is possible to attribute burden of diseases owing to pollutants.

**p14**





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