

TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

MIDDLE EAST

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EDITOR'S NOTE

HAPPY NEW YEAR! The year 2019 looks to be optimistic for the UAE and rest of the GCC region, with projects linked to Expo 2020 Dubai and Saudi Vision 2030. Read economist Moin Siddiqi's expert analysis on the fiscal stance and public funded projects in the region that are reviving the economy (p16). On the other hand, alternate energy sources, such as renewables, are not only cheaper but also sustainable. Tim Armsby explains why is it 'an exciting time for renewables today' (p24). Sustainability is also at the core of building management. Grundfos' Ronak Monga explains how can pumps achieve higher energy efficiency (p13). Also, take a sneak peek at our upcoming 3rd Annual Refrigeration Conference scheduled to take place on 24-25 February in Dubai (p34).

At Technical Review we always welcome readers comments to trme@alaincharles.com

Cover image: Barakah nuclear plant in the UAE

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TECHNICAL REVIEW

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Briefly

Saudi Arabia to break ground on entertainment hub this year

CONSTRUCTION OF THE recreational megaproject – Qiddiya – in Riyadh will begin this year, according to Mike Reininger, CEO of the Qiddiya project. “Planning and design were completed in 2018 and will be implemented this year,” Reininger told *Arab News*.

Qiddiya will be located about 40km from the city centre.

The project targets local, regional and international tourists and will be Saudi Arabia’s entertainment, sports and cultural destination. It is expected to be the world’s largest entertainment city by 2030, with a total area of 334 sq km, surpassing Walt Disney World in Florida, which is only 110 sq km.

Developing the entertainment sector by creating high-quality domestic and international investments within the kingdom is one of the main goals of Saudi Arabia’s Vision 2030, according to the news report. The youth will be the main contributor to Qiddiya’s success since two-thirds of the population is under the age of 35.

Bahrain voted second best country in the world for expats

BAHRAIN IS THE second best country in the world for expats to work, according to a new survey from HSBC. The Middle East nation overtook the UK, Switzerland and the UAE in terms of career opportunities, progression and fulfilment. The survey revealed that the top five countries for expat workers were all outside North America and Asia. The number one spot belongs to Germany.

Based on responses from 22,318 expats working in 163 countries, the report measured those destinations deemed best for international workers along a series of metrics — such as work/life balance, earnings prospects and career development. It found that select nations in the Europe, Middle East and Africa (EMEA) region scored most highly.

John Goddard, head of HSBC Expat, the offshore banking arm of HSBC Group, said the ranking could provide inspiration for those looking to boost their careers with a move overseas.

‘UAE GDP to see a rise of 3.7 per cent in 2019’

A NUMBER OF economic officials and analysts have affirmed that the outlook for the UAE economy is highly positive despite global headwinds.

The country’s real gross domestic product (GDP) is expected to grow 3.7 per cent this year, higher than the 2.9 per cent forecast for 2018 and the 0.8 per cent growth achieved in 2017, according to the latest economic outlook figures from the International Monetary Fund (IMF).

The International Monetary Fund (IMF) in October hiked the UAE’s growth forecast for 2018 and 2019 on the back of higher oil prices, continued reforms to promote the private sector and increased government spending.

“With oil production and government spending set to rise, overall growth is projected to strengthen to 2.9 per cent this year and 3.7 per cent next year,” IMF had said.

Speaking to the *Emirates News Agency*, Juma Mohammad Al Kait, assistant Under-Secretary for foreign trade affairs at the Ministry of Economy, said that the geopolitical developments are unlikely to moderate the economic growth of the UAE, a trend in line with IMF projections of strong growth in the country in 2018 and 2019.

“The positive outlook for the country’s economy has been affirmed by the advanced ranking across several global competitiveness indices,” he said.

“The UAE jumped 10 places in the World Bank’s Ease of Doing Business ranking to 11th position globally in 2019 from 21st position last year to lead



Photo Credit: Eramda/Adobe Stock

the Arab world for the sixth consecutive year. The country is fast closing in to become one among the top 10 in the Ease of Doing Business ranking of 190 countries by the World Bank.”

He added that UAE jumped in the competitiveness rankings in 2018, after having made tremendous progress in the last few years.

Radhwa Radhwan, an economic expert, noted that the UAE economy has gone a long way in 2018 and survived several economic headwinds, generated by the current geopolitical developments, growing 2.8 per cent in 2018, higher than the 0.7 per cent growth achieved in 2017.

According to World Bank’s January 2019 *Global Economic Prospects*, growth among oil exporters is expected to pick up slightly this year, as GCC countries as a group accelerate to a 2.6 per cent rate from two per cent in 2018.

“Higher investment and regulatory reforms are anticipated to support stronger growth in the GCC. Iran is forecast to contract by 3.6 per cent in 2019 as sanctions bite,” World Bank said.

FDI in Kuwait hits US\$24bn, survey reports

A SURVEY BY the Central Statistics Bureau on direct investment in Kuwait in 2018 revealed that foreign direct investments (FDIs) increased in 2017 by 2.6 per cent annually to take the total to US\$24bn, which is the highest in five years. Meanwhile, FDIs formed 40.6 per cent (US\$10.23bn) of total investments in 2017, increasing by US\$643.56mn in 2017 compared to only US\$24.42mn in 2016.

Other investments formed 35.6 per cent (US\$8.91bn) by the end of 2017 compared to 33.1 per cent in the previous year. Also FDIs in financial derivatives formed 21.8 per cent of the total investments (US\$5.28bn), followed by financial portfolios with two per cent (US\$512.54mn).

In addition, FDIs in Kuwait had showed slight increases in the period of 2013-2017 by reaching US\$10.23bn by the end of 2017

compared to US\$9.9bn in the previous year – an increase of US\$106.6mn.

Relative distribution of FDI assets in Kuwait as per beneficiary sector by the end of 2017 showed the telecommunication sector had the lion’s share of 38.4 per cent (US\$3.93bn), followed by investment companies with 27.4 per cent (US\$2,811.88mn), industrial companies with 12.4 per cent (US\$1,274.59mn) and the banking sector with 9.7 per cent (US\$997.36mn).

Central Statistics Bureau director Sami Al-Ali said the survey is a local and regional statistical requirement that effectively affects building databases and statistical indexes that contribute in executing statistical goals and policies related to development as well as supporting the Vision 2035 of turning Kuwait into a commercial and financial hub.

Dubai achieves global milestone in saving water



Saeed Mohammed Al Tayer is the MD and CEO of DEWA.

DUBAI ELECTRICITY AND Water Authority (DEWA) has made a new world record by reducing losses in its water networks to 6.6 per cent, compared to 15 per cent in North America, making it one of the lowest in the world.

“At DEWA, we work in line with the vision and directives of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, to further develop Dubai’s competitiveness and strengthen its global position across all areas. DEWA’s latest achievement in reducing losses in water transmission and distribution networks, from 42 per cent in 1988, to 6.6 per cent, confirms the success of its strategy in preparing for the future through scientific planning, innovation, using the latest technologies in water production, transmission and distribution, as well as control of water networks.

“It also highlights its strategy to increase the efficiency and reliability of Dubai’s electricity and water networks. This contributes to meeting the rapid growth in Dubai, thereby contributing to the social and economic prosperity of the emirate. This achievement comes shortly after the UAE, represented by DEWA, was ranked first globally, for the second consecutive year, with scores of 100 per cent in all ‘Getting Electricity’ indicators in the World Bank’s Doing Business 2019 report. The report measures the ease of doing business in 190 economies around the world,” said Saeed Mohammed Al Tayer, MD and CEO of DEWA.

Al Tayer said that DEWA will continue its efforts to enhance Dubai’s entire water network by updating old connections and meters, and developing new transmission and distribution networks that conform to the highest international standards.

It has introduced a supervisory control and data acquisition (SCADA) system to monitor the water network, enabling an optimal and efficient network operation. It also uses the latest equipment to scan the transmission and distribution networks to prevent cracks from causing leaks in the system.



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UAE unveils 'Abu Dhabi Integrated Energy Model'

THE UAE DEPARTMENT of energy has launched the 'Abu Dhabi Integrated Energy Model' at Abu Dhabi Sustainability Week (ADSW) 2019 to provide a roadmap for the energy sector in the upcoming period, in line with the Abu Dhabi Economic Vision 2030.

The model helps outline a holistic plan for the energy sector, determine the main tenets of sustainability in collaboration with all partners, set strategies and action plans to promote sustainability in various sectors to ensure efficient use of all energy resources, drive the transition towards renewable and clean energy, and promote new consumption habits.

Eng. Awaidha Murshed Al Marar, chairman of the Abu Dhabi department of energy, said, "It draws inspiration from the vision and directives of HH Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi, Deputy Supreme Commander of the UAE Armed Forces, and Chairman of the Abu Dhabi Executive Council. We strive to lead the energy sector, rallying local and international talent and maintaining flexibility in the face of global transformations, which we embrace and transform into success stories that inspire the world and cement Abu Dhabi's active role in redrawing the map of traditional and renewable energy sources.

"We are at a pivotal stage in redrawing our strategies for the future," Al Marar added. "We are committed to collaborating with our strategic partners to set a new model for the energy sector that is unprecedented in the region. The Abu Dhabi Integrated Energy Model includes a new approach to the future that resonates with the major transformations sweeping across the sector, as well as a dynamic vision for optimising the use of renewable resources by tapping smart technologies and solutions that improve efficiency."

The model presents a framework that lays the groundwork for expanding the energy sector while still bringing it together as one integrated unit, encompassing everything from oil, gas and nuclear energy to water, electricity and renewable, clean energy. It asserts the department of energy's critical role in integrating efforts from all strategic partners in the sector, paying special attention to the issue of energy security, which will be a priority over the coming period, where various scenarios will be outlined to balance supply and demand in Abu Dhabi's energy sector. It also covers all aspects of energy production, distribution and consumption, allowing for harmony and integration among all institutions and partners in the energy sector, all while clearly defining roles and responsibilities.



Photo Credit: Department of Energy

The first of its kind in the region, the model was launched under the theme 'Energy: A Power that Shapes the Future'.

The new model will bring about drastic transformations in the energy sector in Abu Dhabi through a set of new policies that will enhance productivity in the sector over the coming two decades, boosting its contribution to the national economy and development efforts. It will help reduce carbon emissions by advocating for cleaner and renewable energy sources, as well as advanced technologies that curb waste in energy, all while creating new job opportunities.

The new model provides an analytical tool that compares potential policies for Abu Dhabi in order to address such issues as cost, supply chain security, economic development, and environmental impact, among others. This, in turn, provides decision makers with accurate data to use in order to overcome challenges and achieve Abu Dhabi's vision. The decision makers draw a holistic picture covering all aspects of the energy sector.

Higher Committee for Energy

The committee would include strategic partners and relevant authorities in Abu Dhabi to harmonise efforts towards ensuring the success of the Abu Dhabi Integrated Energy Model and to inform policy options – in collaboration with a taskforce from the Abu Dhabi department of energy – raising awareness of the benefits the model provides, which, in turn, maximises value and return for all partners.

Morocco allocates US\$14bn for energy projects

MOROCCAN MINISTER OF Energy, Mines and Sustainable Development, Aziz Rabbah announced that Morocco has earmarked US\$14bn of investment for the energy sector between 2017 and 2023.

The projects are underway and concern mainly renewable energy, Rabbah said at the ninth General Assembly of the International Renewable Energy Agency (IRENA) in Abu Dhabi.

Major companies from Asia, Europe, the US, and the Arab world, in addition to Moroccan companies are carrying out the energy projects, which indicates the attractiveness of the Moroccan market,

Rabbah added.

The strategy aims to enhance security in the energy sector in Morocco and to respond to the increasing demand for energy.

"We have an annual energy demand increase of two to four per cent, and more than 93 per cent of Morocco's energy needs are imported, compared to 98 per cent in 2008," he added.

Speaking to the *Emirates News Agency* (WAM), the minister said, "Our energy strategy targets increasing use of renewable energy to 52 per cent by 2030, while reducing consumption of conventional energy sources by 15 per cent."

Morocco is continuing its efforts in rural electrification. This will include the implementation of the last phase of the Generalised Rural Electrification Programme (PERG), which will electrify the remaining villages, schools, mosques and clinics. Target: achieve a rural electrification rate of 99.85 per cent by 2020. The programme plans to cover about 1,047 villages with 27,699 housing units over the period 2018-20, according to the document on major construction sites and programmes of the Ministry of Energy and Mines 2019-21.

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Isotope hydrology for water management in Kuwait

ARID COUNTRIES LIKE Kuwait are increasingly focusing on techniques using stable isotopes to assess their groundwater resources and meet the challenge to manage these freshwater resources in a sustainable way for their growing population.

National efforts focus on investigating groundwater resources using isotope hydrology in combination with physico-chemical methods, evaluating precipitation recharge and establishing an optimum water production strategy.

<http://www.technicalreviewmiddleeast.com/power-a-water>



Photo Credit: Español / Pixabay

The technique is based on the natural "tagging" water carries of various isotopes.

ENOC extends RFID technology to DP World terminals

ENOC GROUP HAS extended its RFID-based technology to fuel terminals two and three of DP World to serve its fleet of vehicles.

The expansion of the service follows the successful implementation of RFID technology at Terminal one, which has helped DP World in monitoring diesel fuel consumption, increase operational efficiency and manage scheduled vehicle maintenance.

The RFID system will reduce fuelling time for DP World's fleet and enhance the efficiency of operations at DP World's container terminals. The integration will enable more efficient process for fuel management, enhancing operational efficiency of commercial fleets.

<http://www.technicalreviewmiddleeast.com/logistics>

Ma'aden selects thyssenkrupp technology

THE SAUDI ARABIAN Mining Company (Ma'aden) has announced to use the dual-pressure ammonia process developed by thyssenkrupp Industrial Solutions in the new Phosphate 3 ammonia plant at its fertiliser complex.

As a subcontractor of the South Korean company Daelim Industrial Co Ltd, thyssenkrupp is providing the process licence and extensive engineering, supply and monitoring services.

<http://www.technicalreviewmiddleeast.com/manufacturing>



Photo Credit: thyssenkrupp

thyssenkrupp ammonia plant.

ACWA Power to develop largest water desal plant

SAUDI ARABIA-BASED INVESTOR and developer ACWA Power has won the deal for the largest independent water desalination plant Rabigh 3 IWP – further expanding its desalination capacity in Saudi Arabia.

The water purchase agreement was signed by Abdulrahman bin Abdulmohsen Al-Fadley, minister of environment, water and agriculture and chairman of water and electricity company (WEC) as it will act as the off-taker of the project.

Amongst 55 expressions of interest and five bidders, ACWA Power submitted the lowest tariff at US\$0.53 per cu/m and was selected to develop the desalination plant alongside the Saudi Brothers Commercial Company (SBCC) in Rabigh, Saudi Arabia.

<http://www.technicalreviewmiddleeast.com/power-a-water>

US\$36.17mn contract for Bahrain's water network

DR LIAM FOX MP, international trade secretary in the UK, has announced a US\$36.17mn contract to upgrade Bahrain water treatment plant with support from the UK Export Finance (UKEF).

The aim is to support water and wastewater specialist Bluewater

Bio's contract with Bahrain Ministry of Works. This project aims to improve the lives of people living in the Tubli Bay area.

<http://www.technicalreviewmiddleeast.com/power-a-water>



Photo Credit: Flickr

The initiative aims to improve Bahrain's water treatment network.

Dubai crowned 'Champion City' for district cooling solutions

DUBAI HAS BEEN crowned as the 'Champion City' of the district cooling sector globally at the eighth edition of the International District Energy Association (IDEA) District Cooling Conference and Tradeshow 2018, showcasing a cooling capacity of about two million refrigerator tonnes.

Ahmad Bin Shafar, CEO of Empower, was named 2018 IDEA Global leader. The conference was held for three days under the patronage of Sheikh Ahmed Bin Saeed Al Maktoum, chairman of the Dubai Supreme Council of Energy as well as chairman of Emirates Airlines Group.

Bin Shafar said, "District cooling is recognised as a proven and key climate solution for cities, and we are pleased that the conference this year has been a strategic learning opportunity for industry experts to acquire global expertise, innovation and solutions."

<http://www.technicalreviewmiddleeast.com/power-a-water>



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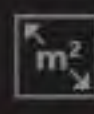
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24-25	3rd Edition Refrigeration Conference	DUBAI	www.refrigeration-forum.com
25-26	Mining Investment Middle East	DUBAI	www.abmec.org.uk/events

MARCH 2019

5-7	Middle East Electricity	DUBAI	www.middleeastelectricity.com
5-9	Kuwait Construction Week	MISHREF	www.kuwaitconstructionweek.com
10-13	The Big 5 Saudi	JEDDAH	www.thebig5saudi.com
25-27	The Big Show Oman	MUSCAT	www.thebigshow-oman.com

APRIL 2019

15-17	Oman Mining Expo	MUSCAT	www.omanminingexpo.com
22-24	Oman Energy & Water Conference	MUSCAT	www.energyandwateroman.com

JUNE 2019

10-12	Hardware+Tools Middle East	DUBAI	www.hardwaretoolsme.com
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Readers should verify dates and location with sponsoring organisations, as this information is sometimes subject to change.

Building construction innovations in focus at The Big 5 Saudi

WITH MORE THAN 5,200 construction projects worth US\$819bn currently rolling out in Saudi Arabia, these account for 35 per cent of the total value of active projects across the GCC, according to a BNC Network report.

Saudi Arabia's construction industry is recording a 4.1 per cent increase. A BMI research forecasted that the annualised average growth for the construction sector stands at 6.13 per cent from 2018 to 2022.

According to BNC's analysis, the urban construction sector is the largest contributor to the expansion, with 3,727 active projects valued at US\$386.4bn. The utilities sector is the second largest with 733 projects worth US\$95.6bn, followed by transportation, with 500 projects worth US\$156.2bn.

In light of this, dmg events is set to organise The Big 5 Saudi in Jeddah from 10-13 March 2019, focusing on the main influencers of the GCC's construction sector growth, challenges and future opportunities.

Some of the points of the event will include:

- Building interiors and finishes
- Construction tools and building materials
- Plant, machinery and vehicles
- Building envelope and special construction
- Construction technologies and innovations
- MEP services

The visitor profile includes architects, building consultants, engineers, facilities managers, purchasing and procurement managers, government officials, interior designers, main contractors, manufacturers, MEP contractors, operations and logistics managers,



The event will explore challenges and opportunities in GCC's construction market.

Photo Credit: Michael McDonough/Flickr

project managers, real estate developers, sales and business development managers and others.

The Big 5 Saudi will also organise free workshops supporting the construction scenarios of Saudi Arabia and the GCC region. The theme for this year is 'Educating and empowering construction professionals to achieve Saudi Vision 2030', which is split further into four major areas such as project management; sustainability, solar, technology and smart city; general construction; HVACR, urban design, architecture and women in construction.

Gathering global construction expertise into one place, the event is further set to provide opportunities to the visitors to interact with global construction professionals.

Creating the perfect world

Grundfos' leading energy efficient pumps and motors sync with sustainability as well as profitability goals in the Middle East. *Rhonita Patnaik* in conversation with its business development manager – HVAC – *Ronak Monga*.



Grundfos facility in
Jebel Ali, Dubai.

MORE THAN A luxury, air conditioning is a basic necessity in the hot summer months in the Middle East, one of the hottest regions in the world. And every year, consumers spend thousands of dollars on electricity bills that affect both the environment and their pockets.

The rapid economic growth and development in countries such as the UAE, Saudi Arabia, Egypt, Oman, Bahrain, Kuwait has led to the rise of many opportunities that, in turn, has led to the influx of people from across the globe. This will directly 'heat up' the HVAC market in the region as demand increases.

Grundfos' business development manager – HVAC – Ronak Monga emphasises the role of efficient pumping technology in HVAC systems that can help achieve efficiency and sustainability. The

Danish company is one of the biggest manufacturers of pumps and water application systems in the world.

"When I started in the Middle East 10 years ago, sustainability and energy efficiency were mere buzzwords. Today, they are a reality, thanks to the efforts of the government legislations and adoption of green strategy. This gives an advantage to Grundfos because we believe in a sustainable future and constantly work towards creating better technologies and solutions towards that goal."

This means that one cannot undermine the importance of pumps in the HVAC system. "The pumps are the heart of an HVAC system. They send chilled water to the building and bring back water after absorbing the heat. Pump designs can greatly improve the operating efficiency of a system. If pumps do not operate properly,

all other parts in the plant, namely the chillers, fans, air handling units can fail. Pumps absorb only about five to 10 per cent of the total system energy but its importance should not be overlooked."

With a market as important as the Middle East, Grundfos is continually innovating and manufacturing highly efficient motors and pumps to adhere to the sustainable goals of the governments in the region as well as the United Nations' Sustainable Development Goals (SDG). "Grundfos has adopted SDG 6 – ensuring availability and sustainable management of water and sanitation for all – and SDG 13 – to take urgent action to combat climate change and its impacts. This means that we are not talking just about a sustainability report at the end of the year but taking steps that focus on creating a better world."

Bigger is better

For Monga, adopting advanced cooling technology is not the end means to achieve lower bills but to go about it the right way. An ardent supporter of district cooling, Monga lauds the efforts of the UAE government as well as the country's leading district cooling utility companies Empower and Tabreed. District cooling is being implemented in many countries around the world. However, the UAE and, Dubai in particular, along with Empower – the world's largest district cooling company have embraced new technologies as a part of their operations.

Apart from cost efficiency, district cooling can help achieve a reduction in electricity as well as water consumption by using treated water for district cooling and the reduction of loads on the electricity and water network. "District cooling means centralised production and distribution of cooling energy. Bigger plants mean bigger chillers and hence bigger pumps. When mechanical equipment becomes larger, it becomes more efficient."

Another advantage of district cooling over air conditioning in individual houses is that if 30 premises are connected to a district cooling plant, the operator can efficiently manage the supply of cooling to the premises without a direct impact on the former's operational costs.

Energy efficiency also incentivises cooling providers to maintain and operate at the highest possible efficiency level. This is the reason why district cooling is growing in the Middle East.

With adoption comes innovation

Monga reveals that Grundfos holds highest number of patents for pumping systems focusing on three areas – reliability, robustness and efficiency.

"And the next step, which is at the heart of our R&D movement in the company, is digitalisation that enables Grundfos products to be more connected than ever before. Products share their data through the internet to the Cloud. IoT and cloud



Ronak Monga.

computing empower machine learning and artificial intelligence to deliver true customer value and help us work more closely with the customers. All our IoT is built on Microsoft Azure. We are also working in partnership with Siemens for drive systems to achieve optimal performance.

"When it comes to digitalisation, we are taking small steps on a daily basis but if you compare us to the rest of the pump industry you would see us sprinting," adds Monga.

Involving all parties

Creating pump and motor technologies is in the hands of producers but it is up to the developers and end users to put that into practice.

Consumers today look at saving the CAPEX and reaching out to the lowest cost equipment. But what they do not understand is that they have to pay back dearly over the years with surmounting bills. "We are bringing the future right now and the sooner you adopt, the better gains you will achieve."

"Being a pump manufacturer for more than 70 years, we know that saving on

buying a pump can only be profitable in the short run. The tricky part about contractors – the people we sell to – is that they are cost-focused. They look at delivering a project in the lowest possible cost to achieve the budget and profit.

"Yes, the improved technology might cost more but the lifecycle cost is lower and the return on investments bigger."

Monga elaborates – CAPEX is only five per cent of a pump's lifecycle cost, 10 per cent is the cost of maintaining it, the remaining 85 per cent is the energy you spend running the pumps. "How do we make all of our business decision purchasing today only based on that five per cent?"

"We are here to change that perspective in the mindset of the buyers. This is where our innovation has been driving us, we have been making better controls and more intelligent pumps solutions which can really protect and reduce the 95 per cent of your lifecycle cost."

Efficiency related to economy?

Given the Middle East economy being heavily influenced by the oil prices, sustainability has become a high priority agenda for most governments in the Middle East due to the fluctuating oil prices. Sustainability has been converted from words into actions because of the economy, and because of the foresight of the leaders in the UAE and Saudi Arabia. We can see governments in the Middle East proactively taking this on as a practicable agenda. This is boosted by increasing cost of electricity due to reducing government subsidies, which is also making the end-users more aware and increasingly adopting electricity and water-saving methodologies.

Groundbreaking

On the HVAC side, motors play an important role in pump efficiency. Not many are aware that Grundfos is also one of the world's largest motor manufacturers. One of the innovative products that Grundfos launched in 2016 was the new MGE-motors performing to the highest standards that are rated for IE5, the highest energy efficiency rating worldwide. This can be used to speed up energy savings.

The MGE-motors are equipped with state-of-the-art intelligent components, which allow it to adapt to the system. Along with other energy-saving constructional elements as for instance, a permanent magnet motor and a high efficiency frequency converter, this puts the motors at the top of their class.

Grundfos also launched the world's most efficient extra-large vertical multistage XL

Given the Middle East economy being heavily influenced by the oil prices, sustainability has become a high priority agenda for most governments in the Middle East due to the fluctuating oil prices.

CR pumps last year, that are mainly used in water treatment, water works and water supply sectors where very high flow rates and pressures may be achieved with a very small footprint and extremely high efficiency.

Then we have the Grundfos Control MPC that, with the Grundfos CU 352 controller, permits monitoring and control of up to six pumps connected in parallel. Control MPC helps minimise energy consumption and cut energy costs straight out of the box. With application-optimised control logic, you have complete control over the pumps in your system. Features such as automatic cascade control ensure the highest possible system energy efficiency.

As one of the best control systems in the market, Control MPC knows exactly which – and how many pumps to control and will optimise performance and minimise energy consumption based on pump curve data.

The Control MPC is designed and built to the same exacting quality standards as all other Grundfos products. Features such as standby pump allocation, forced pump changeover and dry-running protection help to increase your system reliability and decrease downtime and costly maintenance.

Misfit to retrofit

As the UAE is moving to achieve zero and near zero energy buildings, retrofitting has proved to be a fantastic avenue for Grundfos. In the world of retrofits, installing energy efficient HVAC systems; LED lighting; and building controls can help building managers and owners lower the levels of



Photo Credit: Grundfos

The HS horizontal split case is the giant in the Grundfos product range. It combines double volute design with high flow and in-line pipe connection. The pump covers a wide range of application areas and continuously provides efficient and reliable performance due to its robust design.

energy consumption of building systems.

As the Middle East, and especially the UAE, is becoming more aware about energy saving, the need for technology adoption is gaining ground.

“Energy optimisation and retrofits have been a fairly new arm in our organisation and it has already proven its worth. We offer

services such as energy checks and pump audits. But our main role is to educate the market on the importance of analysing the energy consumption by pumps.”

Grundfos is able to help out clients and facility management companies, analyse these savings and provide solutions with quick returns on investments. “Sometimes, the intent is there but it’s not actionable due to the investment and cost factor. Through TAKA solutions, our ESCO partner, Grundfos can offer a solution to finance based on the share-and-save model. The cost will be borne by the ESCO and the clients can repay them from their savings.”

Master of all trades

Grundfos’s business models involve HVAC, district cooling and retrofits in the region. In the UAE, Sharjah Electricity and Water Authority (SEWA) has partnered with Grundfos to cut waste water and improve the reliability of water handling systems.

In the Middle East, Grundfos has been operating for more than 30 years. Starting the Middle East business in Saudi Arabia and currently headquartered in Jebel Ali, Dubai, the Danish company has been a part of regional ‘smart’ transformation. Grundfos also works with Dubai Electricity and Water Authority, Abu Dhabi Water and Electricity Authority and several other government entities throughout the Middle East. ■



Photo Credit: Grundfos

In 2016, Grundfos introduced one of the world’s most efficient motors, the new MGE with IE5 motors, which offers 10 per cent energy savings and up to 25 per cent reduction in payback time of controlled E-pumps compared to IE3 solution.

As home to the globe's wealthiest countries, the financial muscle is available to develop/upgrade infrastructure and growth uptick in 2019-20 is conducive for project spending.



Photo Credit: Adobe Stock

GCC 'diversifies' in unity

A combination of factors such as expansionary fiscal stance, higher oil revenue and publicly funded projects in priority sectors are supportive of growth revival across the GCC bloc. Economist *Moin Siddiqi* reports.

Despite economic diversification efforts, the correlation between oil prices, public accounts and commercial activity in GCC remains strong.

STRENGTHENING ECONOMIC ACTIVITY in the Gulf Cooperation Council (GCC), the regional trade bloc is good news for global businesses and the wider MENA region in terms of increased financial support and as a source of much-needed foreign direct investment (FDI) in non-oil producing Arab countries.

A combination of factors such as expansionary fiscal stance, higher oil revenue and publicly funded projects in priority sectors are underpinning growth revival across the GCC-bloc – projected at three per cent this year after contracting in 2017, according to the International Monetary Fund (IMF).

“Domestic demand should strengthen with [the] easing of fiscal consolidation,”

noted Washington-based Institute of International Finance (IIF). The sources of growth will be roughly balanced, with the contribution of private consumption to gross domestic product (GDP) growth doubling from 2016 to 2019 and that from fixed investment nearing a percentage point higher by 2020 (World Bank data). The IIF expects non-hydrocarbon growth to accelerate to 3.2 per cent by 2020. Overall, rebalancing the composition of public expenditures toward capital spend should help improve infrastructure, support non-oil growth, and spur productivity gains in GCC economies.

Moody's Investors Service echoed government spending on infrastructure and strategic projects, which contribute to

economic diversification, will support non-oil businesses. It said, “The GCC corporate sector is dominated by state-owned enterprises, many of which benefit from strong business positions, good access to funding and supportive shareholders, and this has helped offset recent economic volatility. We have a stable outlook for credit conditions for GCC corporates.”

But monetary tightening in context of the pegged exchange rates in GCC (except Kuwait), may offset anticipated gains from expansionary budgets. GCC central banks followed recent US central bank’s move by also hiking key policy interest rates. The real estate and construction sectors are most exposed to higher borrowing costs. However, GCC’s banking systems, which comply with international codes of the Basle Committee, are sound as capital adequacy ratios exceed 16 per cent. The share of non-performing loans (NPLs) to total loans stands at only two per cent in Saudi Arabia, Qatar, Kuwait and Oman, and between four and seven per cent in Bahrain and the UAE (IIF data).

A one-third surge in average oil price in 2018 led to a marked turnabout in external and fiscal balances for oil-exporters that should continue this year. The combined current account surplus of 10 MENA oil-exporters rose by about US\$150bn to US\$197bn in 2018; of this, US\$169bn was accounted for by GCC countries (World Bank data). Steady oil prices will slow recent debt build-up, whilst increasing official foreign reserves in the GCC-bloc (Table1).

Despite economic diversification efforts, the correlation between oil prices, public accounts and commercial activity in GCC remains strong. Fitch Ratings noted, “These are concentrated, narrow economies where government spending plays a significant role in economic growth.” The degree of oil exposure varies. The IMF calculated that ‘break-even’ oil price at which GCC states could balance their 2019 budgets fluctuate from an average of US\$108 per barrel in Bahrain to US\$44 and US\$47 respectively, in

On current growth trend, the GCC’s aggregate GDP should exceed US\$2 trillion mark by 2020.

GCC countries rank highest in MENA on global indicators

	Ease of Doing Business* 1-190 countries	National Competitiveness Index / 1-140 countries	Quality of Infrastructure # 1-137 countries
Bahrain	62	50	25
Kuwait	97	54	69
Oman	78	47	32
Qatar	83	30	22
Saudi Arabia	92	39	30
UAE	11	27	4

* Overall ranking based on days and procedures for business start-ups, getting construction permit, electricity connection, property registration. / National competitiveness factors market size, financial sector development, business sophistication, efficiency of goods and labour markets, capacity of state institutions and technological innovation, among other factors. # Utilities (power and water supplies), ports, air and road transportation.

Sources: World Bank 2019 Doing Business Report and Global Competitiveness Report 2018

Data on GCC hydrocarbons reserves and production

	Proved Oil Reserves 2017 Billions of barrels	Oil Output Million bpd 2018	Proved Gas Reserves 2017 Trillion cubic feet	Natural Gas Output 2017 Billion cubic metres
Bahrain	***	0.2	5.5	15.1
Kuwait	101.5	2.75	59.9	17.4
Oman	5.4	1.0	23.5	32.3
Qatar	25.2	0.6	879.9	175.7
Saudi Arabia	266.2	10.33	283.8	111.4
UAE	97.8	2.98	209.7	60.4
GCC Total	496.1	17.86	1462.3	412.3
% of World Total	29.2	18.0	21.4	11.2

*** Crude oil production from Bahrain’s newly discovered 80bn-barrel shale reserves (reported in May 2018) – potentially supplying 200,000 bpd – should the reserves be developed – is not expected to start until 2023 at the earliest.

Sources: BP Statistical Review of World Energy 2018 and OPEC Dec 2018 Report

Qatar and Kuwait. Also struggling with a high break-even is Saudi Arabia (US\$73) and Oman (US\$70). While the UAE (most diversified economy) needs US\$67 to balance the federal budget.

Strategic development plans

The stimulus initiatives underpin GCC’s broader diversification strategy.

Factors such as demographic demand drivers and public/private funding combined with firm oil prices are catalysts for spend on capital/ infrastructure projects. The Arab Petroleum Investment Corporation (APICORP) envisages oil trading at US\$60-70/barrel range by mid-2019. The ‘long-term’ vision agenda of each GCC country targets priority sectors such as logistics, tourism, energy, financial services, healthcare and manufacturing to deliver on economic diversification and job creation. About one million new jobs per year are needed in the GCC-bloc to absorb new entrants into the labour market over the next five years, according to the IMF.

The GCC still boasts some of the best project opportunities in the world. As home to the globe’s wealthiest countries, the financial muscle is available to develop/upgrade infrastructure and growth uptick in 2019-20 is conducive for project spending. “There are huge opportunities in the region and it is a reassessment of how we plan for those [opportunities] and how

we deliver them. We need to evaluate the return on investment for these assets,” said Deloitte Middle East. Though challenges have beset the market in recent years, with regional slowdown and weak oil prices affecting non-oil sectors and expansion.

Cross-country examples

As Saudi Arabia moves ahead with Vision 2030 based on greater private sector investments in non-oil ventures, local and foreign contractors can look forward to participating in mega-projects identified during last October’s Saudi Arabia Conference – those will have huge ‘multiplier-effects’ both in Saudi Arabia and neighbouring countries. The kingdom is actively seeking to upgrade its transport-related infrastructure, as well as increase residential supply, healthcare and leisure facilities driven by the development of major schemes, notably The Red Sea Project, Neom, The Qiddiya Entertainment City and Maritime City. The value and quantum of building work to be awarded over the medium to long-term makes the kingdom a prime Middle East market with capital projects worth over US\$1.2 trillion in pre-execution stages, according to Deloitte.

The UAE (led by Dubai) is laying the foundation for deepening a ‘knowledge-driven’ economy and is increasing competition, boosting energy efficiency and promoting technology entrepreneurship,



Photo Credit: Neom City

Saudi Arabia will start building the first residential area in a proposed US\$500bn futuristic city Neom in Q1 2019.

aiming to attract diverse global investors and start-ups. Dubai has allocated US\$7bn for new construction and upgrading related to hosting Expo 2020 Dubai, which will feature companies from 132 countries and is expected to boost private consumption and services. Abu Dhabi, the major oil-exporter, has unveiled an US\$13.6bn stimulus package for infrastructure and is focusing on industrial and SME projects. Deloitte estimates the value of various UAE projects in pre-execution stages at US\$713bn.

In Kuwait, plans to invest US\$115bn in the oil sector over the next five years – aimed at boosting output capacity by one-third to four million bpd by 2020 – will also spur non-oil growth (via multiplier-effects). Kuwait's flagship diversification venture, the Northern Gulf Gateway project with a new US\$12bn airport, an industrial hub, tourism and education zones, plus an US\$18bn railway system and building new residential cities (currently in pre-development stages) will increase both internal and intra-regional connectivity.

In Oman, the development of Special Economic Zones in Duqm and Sohar will drive project activity, together with planned investments in oil/gas sector while Bahrain

is focusing on transport and housing areas. The Ministry of Transport owns two mega planned projects – the airport expansion and light rail system (estimated worth US\$18bn) and are anticipated to be awarded in late 2019.

Major project owners

Saudi Arabia's Public Investment Fund (PIF) remains number one GCC project developer, with a portfolio estimated at US\$534bn and its biggest under-development assets include the Neom City, Rou'a Al Madinah and Rou'a Al Haram. It is followed by King Abdullah City for Atomic and Renewable Energy's nuclear power reactor (KA-CARE), worth some US\$60-70bn and Saudi Aramco valued at US\$36bn. PIF, Aramco, Saudi Electricity Company, Makkah & Medina Development Corp, and Saudi Railways Organisation are top project owners in the kingdom, owning around 70 percent of the total amount of planned projects. PIF has taken a key role in delivering Vision 2030.

Dubai Aviation Engineering Projects ranks the fourth largest in GCC top-10 developers' list, with its most prized development being phase 2 of the Al Maktoum International Airport Expansion scheme, worth US\$31bn – split last year into various phases and

packages. Kuwait Authority for Partnership Projects also makes the list of 10, with pre-execution projects worth US\$31.5bn, followed by public authority for housing, with a total pre-execution pipeline worth US\$29.3bn. The housing authority's assets include the US\$13.9bn Al Khiran City, and the US\$13.5bn South Al Mutlaa City.

GCC member states are keen to develop and strengthen public-private partnerships (PPP) frameworks as a model for private sector involvement in project delivery with sound commercial returns, whilst lessening the burden on public finances. The current US\$2.5 trillion transportation, logistics, energy (including renewables) and industrial as well as new cities' projects planned across the GCC-bloc offers huge opportunities for construction businesses and global investors in the coming years.

On current growth trend, the GCC's aggregate GDP should exceed US\$2 trillion mark by 2020. However, the likelihood of oil prices trading significantly below pre-2014 peaks of US\$100 per barrel underscores the need for Gulf region to continue with structural reforms to diversify the economy, improve the business environment and boost productivity in non-oil sectors – key to job creation and FDI. ■

Natural gas can create a lower carbon economy

“POLICY MAKERS WORLDWIDE have a proven solution for cutting carbon emissions by switching electricity generation from coal and oil to natural gas,” Majid Jafar, CEO of Crescent Petroleum, said during the recently concluded World Future Energy Summit (WFES) in Abu Dhabi.

As global demand for energy rises, natural gas is emerging as a fuel of choice for power generation in the 21st century, serving as a central ingredient in a more sustainable energy mix in combination with renewable energy sources such as solar and wind, Jafar added.

“The switch to natural gas from coal and oil for baseload power generation could result in the kind of rapid emissions reductions that are needed and could have a definitive impact on global carbon footprint. The growing use of natural gas has been estimated to have avoided over two billion metric tonnes of carbon dioxide between 2005 to 2016, and its impact will only increase as gas adoption expands in developing regions like Asia,” he added.

Jafar, who leads the Middle East’s oldest private oil and gas company and serves as board managing director of Dana Gas and vice-chairman of the Crescent Group of companies.

Speaking on a panel entitled “Setting the Energy Agenda for 2019”, Jafar joined Suhail Al Mazrouei, UAE minister of energy; Lisa Davis, managing board member and CEO, energy, of Siemens AG in discussing the future of energy, OPEC and the latest developments and outlook for the industry worldwide.

“The Middle East and North Africa region contains almost half the world’s proven reserves of natural gas but still only one sixth of global production, so the potential for growth is clear. Almost every government in



To be truly sustainable, energy solutions must be affordable, reliable and scalable, while contributing to lowering global carbon emissions.

Photo Credit: Adobe Stock

the region and across Asia is looking to boost its gas supplies, much of it for internal consumption as natural gas becomes synonymous with electricity generation and fuelling industry for economies with growing populations and energy needs.”

Forward looking governments have embraced the changeover from coal or oil to gas as an opportunity. He cited, for example, the UAE’s announced the national energy strategy, which targets that by 2050 the power generation needs of the country will be supplied about 40 per cent each, by natural gas and renewables.

Policymakers around the world will continue to grapple with slowing, if not reversing CO₂ levels. To be truly sustainable, energy solutions must be affordable, reliable and scalable, while contributing to lowering global carbon emissions. And oil and gas companies must confidently show the way forward and embrace their role as central players in the debate.

“In a rapidly changing world, this transition must be approached as an opportunity and not a threat,” he said. “The future of the industry, and indeed that of sustainable energy supply worldwide, depends upon it.”

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Making headway on nuclear energy

Population pressures and economic growth are strengthening the case for nuclear energy across the GCC though it remains unclear when the region will achieve first production. Martin Clark reports.

By 2030, the Middle East and North Africa region is expected to have added 15.8 GW of nuclear capacity.

IT MAY BE the world's top oil and gas producing region, but the Middle East is still facing a crippling power deficit.

Strong economic growth and rising populations have heightened the region's demand for electricity, in some cases, rapidly.

While the push towards renewables continues apace, as Gulf states seek to take a lead in the climate change battle, it does so at a time when all options are on the table.

That includes nuclear energy, now seen as a prime solution in the medium and long term for meeting the region's fast-rising power demand, which presently depends on homegrown oil and gas resources.

And it's not far off either, though precisely when the GCC will get its first injection of much-needed nuclear generated electricity remains in question.

News earlier this year that the UAE's first nuclear reactor is running behind schedule was not altogether a surprise given the complexities and regulatory hoops involved.

"Nuclear is coming (but) there will be a bit of a delay," the country's energy minister, Suhail al-Mazrouei, was quoted as saying by Reuters in January, without providing any timeline.

The country's nuclear regulator said last year that the start-up of a reactor at the Barakah plant in Al Dhafra, originally set to open in 2017, would depend on the outcome of further reviews of the project. Its launch date is still far from clear.

Still, the UAE remains the regional frontrunner in developing its own nuclear capacity, as it seeks to keep pace with rising domestic energy demand.

In 2009, a South Korean consortium led by state-run utility Korea Electric Power Corp. (KEPCO) won a US\$18.6 billion deal to construct four nuclear plants in the country.

Saudi Arabia, the region's biggest economy, has scaled back its hugely ambitious nuclear project down to just two reactors, from an original 16 over the next 20-25 years at a cost of US\$80bn.

It originally projected 17 GWe of nuclear capacity by 2040 to provide 15 per cent of the nation's power, along with more than 40 GWe of additional solar capacity.

What is beyond dispute is just how much the kingdom needs the extra power.

It is the main electricity producer and consumer in the Gulf, with 345 TWh gross production in 2016, of which 140 TWh (41 per cent) was from oil — it consumes over a quarter of its own oil production — and 205 TWh (59 per cent) from gas, according to the World Nuclear Association (WNA).

Yet it is facing tremendous demographic pressures and accelerating demand for power.

Saudi Arabia's population jumped from just four million in 1960 to over 33mn today, while demand for electricity is growing at a rate of 8-10 per cent per year.

Current generating capacity is more than 60 GWe, according to the WNA, and peak demand is expected to be 70 GWe by 2020 and 120 GWe by 2032, driven partly by a rise in desalination.

As well as its main reactors, the kingdom is also developing plans for smaller reactors for desalination purposes.

The Saudi nuclear energy project is being developed by King Abdullah City for Atomic and Renewable Energy (KA-CARE), established in 2010, and is expected to provide a rich source of work for international contractors and specialists.

Saudi Arabia has shortlisted companies from France, China, South Korea, Russia



As of the end of November 2018, the overall construction completion rate for the Barakah plant is more than 91 per cent.

Photo Credit: ENEC

and the United States to build the reactors, with a winner expected to be chosen during 2019.

Australia's WorleyParsons announced a contract with KA-CARE at the end of last year to provide various project management and consultancy services.

And, it seems, the kingdom is moving slowly but surely into the construction phase.

The International Atomic Energy Agency (IAEA) conducted a visit last year to assess the country's progress.

This included signing off the second phase of its Integrated Nuclear Infrastructure Review (INIR), which marks the readiness of a country to invite bids or negotiate a contract for its first nuclear plant.

"Saudi Arabia is well placed to finalise its plans for construction of its first nuclear

power plant," IAEA team leader Jose Bastos, said at the time of the visit last July.

Strong demand for electricity has fuelled interest in other parts of the Middle East and North Africa (MENA) region as well, though high costs, as well as regulatory and environmental challenges, have held back some projects.

That includes Jordan, which signed a US\$10bn deal with Russia in 2015 to build a large-scale nuclear power plant with a total capacity of 2,000MW.

A country that imports nearly all of its energy, the case for homegrown power is strong, but Jordan has scaled back its ambitions and is instead focusing on a smaller modular reactor plant.

Elsewhere in the Gulf, Qatar and Kuwait have likewise shown an interest in rolling out nuclear energy programmes to diversify and add new electricity sources, as have Egypt, Algeria and Morocco in the North Africa region.

Despite early teething troubles, it seems certain that nuclear energy is set to enjoy significant growth in the region over the coming decade, leading with the launch of the UAE and Saudi projects.

By 2030, the Middle East and North Africa region is expected to have added 15.8 GW of nuclear capacity, according to 2018 research by Arab Petroleum Investments Corporation (Apicorp).

Whenever, and however, the electricity is produced, there is a ready market waiting — and growing. ■

The world's supply of uranium is more than adequate to meet projected requirements for the foreseeable future, regardless of the role that nuclear energy ultimately plays in meeting future electricity demand and global climate objectives.



Photo Credit: Schneider Electric

The future is all-electric

Vincent Petit, senior vice-president — global thought leadership, Schneider Electric, tells us why.

ENERGY IS AT the heart of our civilisation. As far back in history as we can trace, major economic developments have emerged each time new sources of energy were discovered. A few striking examples: the first industrial revolution in the early 19th century was propelled by steam and coal. The second industrial revolution at the dawn of the 20th century saw the rise of electricity and oil. On both occasions, major opportunities arose to do things better and faster, and more importantly to do new things that were unimaginable before.

We live today in an energy system which was discovered during the second industrial revolution. This energy system consumes around 150,000TWh of energy yearly, with 80 per cent of it coming from fossil fuels (oil, natural gas, coal). A century ago, this was 10 times less, an indication of the tremendous economic developments that this new energy system has enabled. Today, a large chunk (40 per cent) of this “primary” energy is used to produce electricity, the rest being transformed and refined.

Present system is not sustainable

This energy system shows major limitations as the world’s development accelerates at an ever-faster pace. First, it is heavily carbonised. Today, energy represents around 80 per cent of the total CO₂ emissions, an issue which has taken centre stage in recent years. It also creates significant dependencies, as fossil fuel reserves are not

equally distributed across the globe. Finally, it is massively inefficient. Sixty per cent of the fossil fuels extracted are wasted, with half of it being lost in the production of electricity, and another half from the use of these fuels in inefficient combustion engines.

These issues continue to create major imbalances and risks going forward. But, they also present a significant opportunity for change.

The solution to tackling these increasing challenges can be broken into two steps. First, decarbonise the power sector with renewable energies. Second, electrify massively the end-uses of energy. There are several advantages to this new all-electric renewable-based energy paradigm:

1. Renewable energies will trigger the power sector decarbonisation. In addition, electrification of end-use will enable migrating other traditional fossil-based energy uses to clean electricity.
2. Wind and solar are obviously distributed across the globe, even though not completely equally. Accessible “reserves” correspond to three times the total of fossil fuels retrievable on the planet and they renew daily.
3. The migration towards an all-electric renewable based system could nearly double the overall energy system efficiency, through the combination of a power sector relying on renewable energies and electrification of major uses of alternative energies (transportation, heating, etc. — traditionally up to five times less efficient depending on the application).

A new energy paradigm

That’s not all. The key underlying question is whether this transition will lead to a more economical energy system, which accelerates economic development to the next level.

Numerous studies have shown that the transition to a renewable-based energy system would not significantly increase the overall current capital expenses dedicated to energy. In addition, renewable-based electricity production has very low operating expenses (operation, maintenance and fuel costs), typically ranging two to four times lower than traditional power technologies.



Photo Credit: Schneider Electric

We live today in an energy system which was discovered during the second industrial revolution.



Photo Credit: Schneider Electric

When traditional fossil-fuels based energy uses are electrified, the efficiency gain proves also to be net worth.

This new all-electric renewable-based energy paradigm, therefore, has the potential to make energy more accessible – fostering economic development, as well as new uses of energy which were unimaginable before.

Let's pick just one example – the accelerated development of digital technologies which are creating a new surge for energy demand, as discussed in one of my recent blogs.

A growing consensus

Many large organisations in the world are today converging towards this probable future. BNEF has estimated that by 2040, 50 per cent of global power capacity could already be of renewable sources, while electric vehicles (EVs) could represent more than 50 per cent of total annual car sales. The Energy Transition Commission has estimated that power decarbonisation combined with electrification could lead to a 25 per cent reduction in CO₂ emissions by 2040. Shell, has recently presented a likely future (Sky scenario) where net CO₂ emissions could be zeroed by 2070, with electricity (80 per cent renewables) to represent close to 60 per cent of the total energy mix (versus 20 per cent today).

Many companies around the world have acknowledged this and are taking the necessary steps to be ahead on the curve. HP has chosen Schneider Electric to help them reach their goal of reducing

greenhouse gas emissions by 40 per cent by 2020. HP now can power 100 per cent of its Texas-based data centre operations with renewable energy.

A complex transition

The future is undoubtedly electric. The transition to it remains, however, a key topic of our generation. Surprisingly enough, the greatest challenge is not so much about supply side transformation, even though this is what most headlines today refer to.

Renewable energies are by nature distributed, mixed with local consumption. Electrification also significantly changes the way energy is used. This new all-electric renewable-based energy system is undergoing a 'deep' revolution on where and how energy is being consumed, and to which extent it can get self-powered locally. ■

Sustainable debt market sees record activity in 2018

THE SUSTAINABLE FINANCE market surged in 2018, with a record US\$247bn worth of sustainability-themed debt instruments raised during the year, according to research company BloombergNEF (BNEF). Green bonds issuance amounted to US\$182.2bn in 2018, whereas one new product, sustainability-linked loans reached US\$36.4bn.

The sustainable debt market comprises of labelled bonds and loans that finance projects with green benefits, social benefits or a mixture of both. Many investors target these debt offerings in order to meet their own objectives or mandates on environmental and social impact.

The focus of the market has historically been on green bonds, which were first used by European banks around 2007 to finance clean energy projects and have since also been issued by governments and a wide range of industrial businesses. While green bonds continue to make up the largest part of the market, attention is now shifting to a broader range of sustainable bonds and loans.

As a result, growth in green bonds slowed to five per cent in 2018 y-o-y compared to 68 per cent in 2017 while sustainability-linked loans surged 677 per cent. Sustainability-linked loans are term loans or credit facilities that come with a sustainable pricing mechanism. The pricing mechanism is typically tied to the sustainability score or performance of the borrower, which can go up or down.

Dan Shurey, head of green and sustainable finance at BNEF, said, "More investors in debt markets are demanding dual social and green benefits, and more investors are demanding customised sustainability options. The markets are responding, with new products emerging such as green loans, green commercial paper and sustainability-linked loans. This helped to make 2018 the seventh consecutive year of record issuance in sustainable finance since the green bond market began."

Corporations are not the only ones pioneering sustainable debt – a growing number of governments are issuing their own debt instruments with a sustainable label, meaning that the money raised will be earmarked to go into environmental or social projects.

Aiman Mallah, sustainable finance research analyst at BNEF, said: "Green sovereign debt hit US\$17.6bn in 2018 – a 64 per cent increase from 2017, thanks to inaugural issuance from countries like Belgium and Ireland, as well as further taps on the French sovereign bond. These governments are raising the debt to meet national and international environmental goals, particularly on climate change mitigation and adaptation."



Photo Credit: Schneider Electric

'Exciting time for renewables in the Middle East'

IT IS ONLY in the last five years or so that the uptake of renewable projects in the Middle East has been significant, and the region has benefited from coming late to the game, says Tim Armsby, regional head of energy and infrastructure, Pinsent Masons.

"The last ten years have been an interesting phase in terms of the roll-out of renewable energy in the Middle East," he says. Despite measures such as the launch of Masdar City complex in the UAE and Saudi Arabia's announcement of a 54 GW renewable energy programme, until 2014 project delivery was slow for various reasons, including the glut of conventional fuels. That period is over, with many Middle East countries now having to import gas.

"In the meantime renewable energy costs, in particularly solar have declined exponentially, and the Middle East has benefited from that. We have seen a trend project by project for lower prices. Solar power costs are competitive or even cheaper than a combined cycle power plant, dropping from US\$0.14 per kw/hr to US\$0.03 per kw/h in less than five years. Now a number of Middle East countries are looking to roll out solar plants because the costs are too cheap to ignore."

Many companies set up in the UAE in the hope of benefiting from Saudi Arabia's renewable energy programme, the largest in the world to be launched, but when that proved slow moving, mobilised on other schemes such as utility-scale projects launched in Morocco and Jordan.

"As a result the UAE has become a hub and centre of excellence for serving the Middle East and Africa. This is why WFES has become such a good event, as you have a big local base and many companies coming in to network from across the globe."

"It's good to see that Saudi Arabia is now back in the market with the launch of Round 1 of the REPDO programme in 2016 and the first two projects tendered in 2017 – a large 300MW solar project and a 400MW wind farm. Round 2 was supposed to have launched last year but nothing has happened, in part because of challenges getting to



Tim Armsby, regional head of energy and infrastructure at Pinsent Masons.

commercial close on these initial two projects. The announcement this week (with the wind farm project being awarded to Masdar) seems to indicate they are ready to push out Round 2, and they've raised the overall capacity of the programme from now to 2030 towards 50GW. Other GCC countries are also looking to roll out schemes."

Armsby highlights two key approaches to rolling out utility-scale projects. The first is using a feed-in tariff, the advantage being that in theory capacity can be rolled out quite quickly with limited involvement of government in managing procurement. However Egypt and Jordan launched their feed in tariffs at a time when prices were declining, which in the case of Egypt in particular resulted in internal difficulties and a reduced incentive to help projects close. "My sense is that the feed-in tariff is over," Armsby comments.

"The second approach is a government pre-package procurement approach where they are entering into a long-term PDA with a build-own-operate (BOO) or build-own-operate-transfer (BOOT) arrangement, which seems to have won out in how most renewable projects will be delivered.

"If you look at the development of renewables in other markets, particularly Europe and the USA, the reliance on regulatory frameworks means projects are

delivered quickly and the private sector is relied on to put together and deliver them. The knock on effect is the creation of new home-grown industries and companies.

"However in the Middle East, we are now regularly seeing huge projects tendered at 500MW and above, which means that smaller companies can't compete as they don't have the balance sheet to deliver. In Saudi Arabia, for example where local content pays a key role in project requirements, it is difficult for new companies, particularly local companies, to play a role, as they don't have the track record or the balance sheet to compete.

"The trend is for bigger and bigger projects, but they are missing out on other benefits that are important for oil economies looking to diversify."

Another issue is storage. "Currently most utility projects being delivered, particularly solar, cover the peak demand in the day, but capacity is not being replaced, and it needs to remain there to deal with the peaks and troughs. The big question globally is whether we can move to an efficient system combining renewables with storage, which would reduce the conventional capacity in the system. It is still early days; we are working on Dubai's Phase 4 700MW CSP project, which has been expanded to include 250MW PV and has a storage component using molten salt technology. The only other country in the region where there is significant roll-out of this technology is Morocco, which has a number of CSP projects. However it is still relatively expensive."

There is potential for battery storage, but no significant roll-out in the Middle East, he adds, and Dubai is looking at hydro for storage.

"So there are different options but they are at an early stage, and there is insufficient capacity in the market to encourage innovation and reduction in costs to get wider uptake. It is inevitable that will happen; it's a question of when. The Middle East could take the lead and build the expertise and technology to be able to export that elsewhere globally, because there is clearly a niche for it." ■

Bobcat exceeds its 10,000 flagship mini-excavators in 10 years

IN 2018, BOBCAT announced that its market-leading E10 one tonne mini-excavator saw the production of its 10,000th unit in the same year as it celebrates its 10th anniversary.

The E10, now renamed the E10z, is ideal for a variety of applications including rental, construction, demolition, refurbishment, landscaping, trenching and drainage work.

According to the company, the launch of the E10 mini-excavator in April 2008 was a landmark moment in Bobcat's history and in the development of the company's compact excavator range. The E10, along with the E08, were the first excavator models designed and built from start to finish in Europe. The goal was to replace and greatly exceed previous models by meeting the expectations of customers in Europe and beyond. The 10,000 plus sales and the reputation the E10 has earned over the last 10 years confirm that this objective has been more than achieved.

The E10z reflects a zero tail swing mini-excavator with a maximum digging depth of 1.82 m and a machine weight of 1,066kg. Bobcat's E10z is designed and engineered to provide the best combination of high performance, stability, operator safety, ergonomics and durability in this segment of the mini-excavator market and offers the ability to retract itself to easily pass through standard 80cm door openings.

The main feature which differentiates the E10z from other machines on the market is the patented side adjustable consoles which accommodate hydraulic pilot pressure controlled joysticks. This design is unique in its class, allowing the operator to enjoy the comfort and feel of much larger machines, whilst being able to adjust the width of the consoles for easy passage through narrow openings.

Compact

The second smallest model in the Bobcat excavator range, the E10z is easy to transport. In addition to the access provided by its retractable undercarriage reducing its width to only 710mm, the integrated foldable Tip Over Protective Structure (TOPS) facilitates passage through openings with low headroom, for work inside



The design of the E10z ensures that the boom offset cannot reach the feet, providing maximum protection in this area.

Photo Credit: Doosan Bobcat

buildings and in basements. Once the excavator is positioned and ready for work, the undercarriage on the E10z can be expanded to 1,100mm, for maximum stability in all working conditions. The E10z's minimal width enables excellent manoeuvrability in confined spaces, while the zero tail swing design is an additional advantage when working in tight areas. Thanks to a standard second speed range, the E10z is also able to move quickly around job sites, to complete projects faster and work more efficiently.

Increased safety and comfort

In this category of machine, the E10z offers several important safety features for operators. A grab bar provides assistance for getting onto and off the machine. Entry and exit from the excavator is also made easier thanks to the completely open, flat area for the feet in the operator station. This design makes it easier to clean the area for the feet. ■

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Liebherr upgrades machines to reduce cost per tonne

LIEBHERR MINING EQUIPMENT
Colmar SAS officially launched its B-versions of the R 9100 and R 9150 in January 2019.

Both the machines were showcased during Bauma China in November 2018 and have proven to be reliable and productive partners in the mining industry over the years.

With the newest upgrades, these hydraulic excavators take a step forward to clearly exceed the performance and reliability compared to other players in this class while lowering the cost per tonne.

The Liebherr R 9100 (first launched in 2010) and R 9150 (first launched in 2012) are based on 60 years of Liebherr experience in the development and construction of hydraulic excavators. Innovative technologies from the manufacturer's large hydraulic excavator program, together with well-proven Liebherr components, make these updated models ideal for the mining and construction industry's needs.

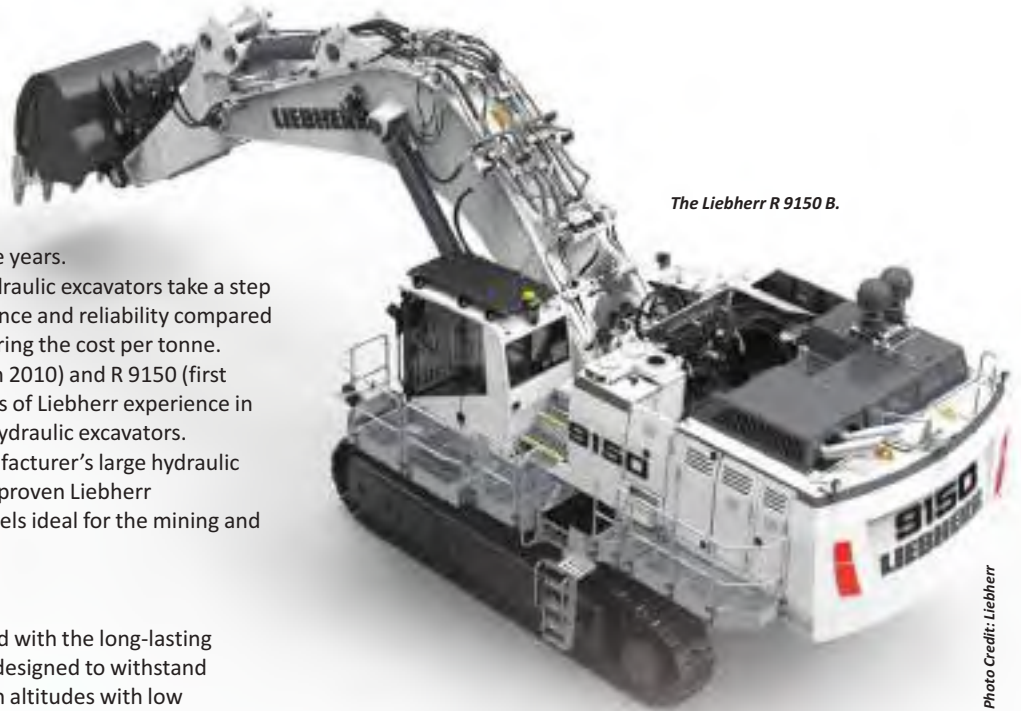
Productivity increase

The R 9100 B and R 9150 B are equipped with the long-lasting Liebherr V12 diesel engine specifically designed to withstand extreme outside temperatures and high altitudes with low atmospheric pressure. Integrating the latest engine management system, these machines are built for extreme conditions.

The Liebherr D9512 diesel engine is the latest generation of Liebherr diesel engines and is now USA/EPA Tier 4f compliant. It has been upgraded on many levels with an increased engine lifetime (SMU target of 15,000 hours) and new features that facilitate and improve the engine maintenance.

Furthermore, the new B-versions come with the exclusive EVO Bucket Solution with patented Liebherr design to maximise the loading capacity and ensure optimal penetration efficiency. Due to the contoured sidewalls and the augmented depth, the EVO Bucket backhoe bucket has now a capacity of 7.5 cu/m for the R 9100 B and 8.8 cu/m – 9.6 cu/m for the R 9150 B (*for a material density of 1.8 t/cu/m).

The new buckets also make both excavators the perfect working partners in terms of shovel match for the Liebherr T 236 truck and all other articulated and rigid trucks in the 50 to 100-tonne class.



The Liebherr R 9150 B.

Photo Credit: Liebherr

Safe service access and superior operator comfort

The R 9100 B's and R 9150 B's upper structure is accessible via a robust fixed ladder or 45° access stair in option and integrates one large central platform equipped with slip resistant surfaces. This new arrangement with wide catwalks facilitates maintenance and ensures comfort during all the operations. These excavators are fitted with ergonomic access for fast and safe maintenance. All service points are within reach from one side and at machine level.

The modern and large cab provides ideal working conditions and optimal operator's comfort. Mounted on silent blocks, the optimised cab design reduces vibrations. The new headliner limits noise pollution to provide a quiet working environment: decrease of two dB in the cab compared to previous version.

Connectivity Kit

The new B-versions are serially equipped with GSM data transmission functionalities to collect operating parameters, error codes and machine faults. The data is accessible through the Liebherr-Mining Data (LMD) platform on which the user can generate customised reports to track and analyse machine data.

The accurate information collected through the Connectivity Kit is recorded in a worldwide database and enters a systematic assessment and resolution process to continuously improve existing and new products and components.

Vertical integration

Liebherr's vertical integration practice means Liebherr designs and builds components that meet the specific operational requirements of both the customer and mine site. Genuine Liebherr components ensure the best interaction within the machine to encourage optimal performance. Most effective machine operation with lowest costs.

During the development of the B-series, several of those genuine Liebherr components like the swing pump, went through an upgrade to provide optimal reliability, superior productivity and a longer service life.



The Liebherr R 9100 B.

Photo Credit: Liebherr

Building solid foundations

Saeed Al Abbar, managing director at AESG, reviews the building industry in 2018 and predicts the year ahead.



Photo Credit: Adobe Stock

With the current market conditions, it is inevitable that developers and building owners look more closely to their existing assets to maximise their value and revenue potential.

LAST YEAR, I predicted that firms which measure 2018 as a success would be those that best adapt to the rapid evolution taking place not only in the sector but also the regional and global economy. For us at AESG, 2018 was a milestone year. Despite challenges in the market, we managed to grow by more than 60 per cent through evolving our services to meet new market demands as well as diversifying our offerings in new verticals and geographies. As we start the new year, I take this opportunity to revisit some of the sector predictions made for 2018 and take stock of where we are and what we can expect in 2019.

Zero and near-zero energy buildings

The urgency of transitioning to near-zero or net-zero energy buildings has come to the fore in 2018 with the Intergovernmental Panel on Climate Change (IPCC) releasing a report last October seen as “a final call to save the world from climate catastrophe”. This dramatic report on keeping global

temperature rise under 1.5°C says the world is now completely off track, heading instead towards a 3°C rise.

With its revised code, the UAE has taken a positive step in this direction by clearly defining the responsibilities of the various stakeholders in ensuring safety.

Adhering to the preferred target of 1.5°C above pre-industrial levels will mean “rapid,

far-reaching and unprecedented changes in all aspects of society”. This new study says that going past 1.5°C is gambling with the planet’s liveability. And the 1.5°C temperature “guard rail” could be exceeded in just 12 years, which is a frighteningly short timescale.

On the positive side, 2018 saw the start of far reaching actions necessary to achieve the targets of the Paris Agreement as leaders from some of the world’s biggest cities have committed to enact regulations and/or planning policies that will require all new buildings within their jurisdiction to operate at net-zero carbon from 2030; and all buildings, including existing, to operate at net zero carbon by 2050, under the World Green Building Council’s Net Zero Carbon Buildings Commitment.

We have already seen the first movers in this space and are working with some forward-thinking clients on near-zero schemes. We anticipate that in line with global trends, this will be an area that will

continue to gain significant momentum in the Middle East in 2019.

Fire and life safety

Despite increased attention being drawn to the issue, the number of high-profile façade fires, both globally and regionally, highlights that there is still room for improvement. Façades remain a focal area. The UAE Life and Fire Safety Code and the Saudi Building Code were renewed with special emphasis on façades.

Besides, it is vital for building owners and facility management teams to manage their liability and safeguard their investments. With its revised code, the UAE has taken a positive step in this direction by clearly defining the responsibilities of the various stakeholders in ensuring safety. As a result, this year, we have started to see the positive effect as various stakeholders has begun to acknowledge the seriousness of their roles. Furthermore, with the consequences of failure or negligence including possible legal implications and more repressive action against violators, there has been clear reason for these stakeholders to ensure compliance.

Ultimately, I expect that this will lead to the stronger involvement of property insurers asking for stricter fire safety implementation. This will also result in greater involvement of fire consultants in more and more in fire safety reviews and in the assistance of fire safety upgrades.

Performance and commissioning

I predicted that 2018 would see acceleration in the demand and delivery of high-performance buildings, defined as buildings that integrate and optimise all major high-performance building attributes, including energy efficiency, durability, life-cycle performance, and occupant safety and productivity. Whilst we have definitely seen more clients demanding this at the design stage, unfortunately there is still a lot more to be done to ensure the realisation of these goals through construction and operation.

This can only be achieved through greater accountability for the performance objectives of the building and having a robust process to ensure that the design performance intent is achieved through operation.

In 2018, we definitely saw the demand for third-party commissioning and handover services, from being almost negligible in previous years, experience encouraging increase. There still remains a lot of misunderstanding regarding the purpose and scope of this exercise however. The market is yet to reach the desired level of maturity to ensure a robust and independently verifiable



Saeed Al Abbar.

handover regime is in place to ensure that all building assets begin their operational cycle in a state of high performance.

Value engineering

Economic challenges last year continued to drive the need for value engineering (VE) though all too often, clients opted to do so too late, resulting in the VE exercise being reduced to mere cost cutting at the expense of quality. Often, clients wait until they finalise their building layouts with the architectural teams before engaging the rest of the team. However, having the engineers work closely with the architect to optimise the building design and distribution, and details such as the location of main plant rooms provides the greatest likelihood of ultimately achieving the best value. Or take for example MEP works wherein there is a lot of repetition and abortive works between the consultant and contractor. The current design process has to change to avoid this and the conflicts that arise from it.

To be truly effective, VE has to commence at the start of a project and involve close collaboration between teams and should be woven into the project development process rather than begin treated as a cost cutting exercise carried out only once designs have been completed.

Management of existing assets

With the current market conditions, it is inevitable that developers and building owners look more closely to their existing assets to maximise their value and revenue potential. This is coupled with the market reaching a maturity level wherein there is an increasing number of aging assets that are in urgent need of refurbishment.

Last year, I predicted that this would be a growth area for the industry as clients looked to ensure that their assets meet

modern standards and codes and also explore opportunities for renovation or change of use for older or distressed assets. We certainly saw this trend come to the fore in 2018 and we conducted a large number of projects to upgrade and re-commission existing assets to ensure compliance with updated life safety codes, health and well-being criteria and energy efficiency goals. We were also requested to conduct a number of building surveys for clients that are looking at a major upgrade of existing assets or change of use to better suit changing market conditions.

I definitely see this being a continued growth area in the market as the region's property sector evolves to a more mature market status. One challenge that has been evident in this process is the lack of accurate documentation and records for existing buildings, including those that have been recently handed over.

A BIM model with asset data attached is the best method for managing data throughout the project, from concept to handover to the facilities management (FM) team. Unfortunately, the use of BIM is still concentrated on visual elements rather than information, so this needs a mindset change before it can work successfully. Logging and reporting on this information could be used to draw comparison with predictions from the design. This would then give building owners the ability to correct operating issues quickly and reduce their OPEX while also increasing the life of their investments.

Overall, through 2018, we saw the industry make strides in the right direction. Change will continue to be the only constant in the year ahead, which is why keeping a keen eye and reacting rapidly to evolving building trends will be essential to success.

EmiratesGBC new report reflects Dubai's sustainable efforts

While several schools, malls and hotels in Dubai are way ahead in achieving high levels of energy and water use efficiency, others need to pace up their sustainability commitment to ensure they are aligned with the sustainable development vision of the nation.

This was revealed in the results of the Building Efficiency Accelerator (BEA) project report, prepared by Emirates Green Building Council (EmiratesGBC), an independent forum aimed at conserving the environment by strengthening and promoting green building practices.

The BEA project is led by the World Resources Institute (WRI) under the UN programme – Sustainable Energy for All

(SEforAll), which aims to accelerate implementation of building efficiency policies and programmes, and double the global rate of improvement in energy efficiency by 2030.

Dubai is the first and only city in the Middle East committed to the BEA, and EmiratesGBC serves as the BEA City Liaison in partnership with Dubai Supreme Council of Energy (DSCE) to evaluate the energy performance of hotels, schools and malls in the city.

EmiratesGBC's BEA team assessed the energy and water performance of existing buildings against similar buildings within the same typology as part of the study since January 2018. A total of 121 properties, including 85 hotels, 27 schools and 9 malls, submitted data on their energy and water use.

The study revealed that the best hotel and hotel apartment performers consume 58 per cent less energy and 65 per cent less water per unit area than the worst performers in the category. Older hotels are likely to consume more energy and water per unit area further highlighting the importance of retrofits. Higher star-rated hotel properties are also likely to consume slightly more energy and water per unit area with hotels and hotel apartments consuming 12 per cent less energy and 36 per cent less water, on average, per area than resorts.

The best performers among schools consume 61 per cent less energy and 84 per cent less water per unit area compared to the worst with newer schools likely to be higher consumers of energy and water.

Al Abbar, also the chairman of EmiratesGBC, said, "The project's main objective is to promote energy efficiency within Dubai's existing building stock by providing performance benchmark data to the

industry and public sector. We believe this will provide vital information on the performance of existing buildings to policy makers and building owners and will accelerate the uptake of energy retrofits. The findings reveal that there is a strong potential for savings and operational efficiencies that can be achieved through remedial actions such as audits, retrofits, energy management and the use of awareness campaigns or trainings to drive changes in behaviour. The report also highlights the importance of deep retrofits as a substantial measure in advancing towards 100 per cent Net Zero Carbon Buildings by 2050 and to achieve the goals of the Paris Agreement of keeping global warming well below 2 degrees Celsius."

The BEA project report provides easy-to-adapt recommendations for facility managers, operators and building owners to assist them in accurately measuring their buildings' performance. Among the recommendations is the importance of having a sufficient number of sub-meters within malls to track and measure energy and water use.

The report also recommends building on Dubai's existing strategies and policies to encourage benchmarking across all types of buildings. This will help future mandates for building audits and retrofits for poor performing buildings, thereby paving the way for decarbonisation and net zero buildings.

Among the leading entities that participated in the benchmarking project are: Accor Hotels, Middle East & Egypt; Hilton, Middle East & Africa; Taaleem, Inspiring Young Minds; Majid Al Futtaim; Marriott International, Middle East & Africa; Millennium Hotels & Resorts, Middle East & Africa; Movenpick Hotels & Resorts, Middle East & Africa; and Nakheel. ■

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Operation Cleanup

Dow is playing a lead role in the formation of a new alliance of global companies to advance solutions that eliminate plastic waste in the environment.

DOW IS A founding member of the alliance to End Plastic Waste (AEPW), a newly formed organisation committing more than US\$1bn with the goal of raising US\$1.5bn over the next five years to develop and scale solutions that manage plastic waste and promote post-use solutions of plastic. The alliance, currently comprised of nearly 30 companies, will develop and bring to scale solutions that will minimise and manage plastic waste and promote solutions by transitioning to a circular economy for plastics. The alliance membership represents global companies and organisations located throughout North and South America, Europe, Asia, Africa, and the Middle East.

“Keeping our environment free of waste is important to the future of Dow and our industry, but more importantly, it’s important to the future of our planet,” said Jim Fitterling, chief executive officer of Dow.

“This initiative brings together companies, governments, NGOs and consumers to accelerate efforts to drive innovation, provide much-needed resources, and take decisive action to put an end to plastic waste in the environment.”

The alliance is a not-for-profit organization that includes companies from across the global plastics and consumer goods value chain, including chemical and plastic manufacturers, consumer goods companies, retailers, converters, and waste management companies, along with a strategic partnership with the World Business Council for Sustainable Development.

The alliance will make investments and drive progress in four key areas:

- Infrastructure development to collect and manage waste and increase recycling;
- Innovation to advance and scale new technologies that make recycling and recovering plastics easier and create value from all post-use plastics;
- Education and engagement of governments, businesses, and communities to mobilise action; and,
- Clean up concentrated areas of plastic waste already in the environment, particularly the major conduits of waste,



Photo Credit: Adobe Stock

Another step Dow is taking to complement its circular economy activities is to drive development of new commercial recycling business models and growth strategies to monetise plastics waste recycling streams globally.

like rivers, that carry land-based plastic waste to the ocean.

“Solving this critical world challenge will require a diverse set of solutions developed by an equally diverse group of stakeholders,” said Fitterling. “The alliance to End Plastic Waste brings together some of the most innovative minds in the world, allowing us to explore, develop and implement those solutions.”

In October 2018, Dow became a founding investor in Circulate Capital’s US\$100mn effort to incubate and finance companies and infrastructure that prevent waste in oceans. Circulate Capital’s mission is to demonstrate the viability of investment in the waste management and recycling sectors to attract the institutional investment capital needed to scale integrated recycling and waste management companies and infrastructure across South and Southeast Asia.

Dow is a member of the World Economic Forum’s Global Plastic Action Partnership, designed to bring businesses, civil society, national and local governments, community

groups and world-class experts together to collaborate on solving plastic pollution. This partnership is initially funded by the governments of Canada and the UK, along with Dow and several global brands, with the objective to have investable localised solutions in place by 2020, which can then be adapted and implemented in other countries. The first project is a collaboration with the government of Indonesia.

In 2014, Dow initiated the Hefty EnergyBag recovery initiative which collects hard-to-recycle plastics and converts them into valuable resources. As of July 2018, the programme collected more than 176,500 bags and diverted more than 115 tons of plastics from landfills, the equivalent of approximately 92mn snack-sized chip bags or 546 barrels of diesel fuel.

Dow’s recent #PullingOurWeight campaign, which began in fall 2018, included more than 5,600 Dow employees, families and friends participating in 55 cleanups globally, removing more than 52,500 pounds of trash and litter from beaches and waterways. ■

Nearly 30 per cent of EMEA organizations have introduced AI technologies to customer service.

Trendy in 2019

Sami Abi Esber, president of information and technology company MDS Gulf, explores the advancements that technology in business is undergoing at the moment.

Photo Credit: Peshkova/Adobe Stock

WE ARE LIVING in an era of unparalleled innovation. As new and emerging technologies continue to redefine IT and business, the pace of change and technological advancement is accelerating. Today, we are looking at a smarter, intelligent future driven by technologies such as cloud, artificial intelligence, blockchain, internet of things, and more. While the industry has already embarked on its digital transformation journey, businesses are yet to realise the full potential of these technologies and how they will shape the way we do business in the future.

In the coming years, new digital businesses and brands will bring greater focus into the region and will help accelerate the ICT business. Here we define the top technologies that regional organisations can leverage to transform their business in 2019.

Internet of Things

With the acceleration of digital transformation in the region, more and more devices are getting connected. Although the adoption of IoT will be massive, it is still slow as the devices are not standardised. From autonomous vehicles to drones to sensors in oilfields, healthcare, transport, oil and gas, IoT will have a huge impact on enterprises and consumers. MDS Gulf is developing innovative IoT solutions and is working with IBM and other major players like Microsoft, Cisco and GE to implement solutions like predictive maintenance instead of the traditional preventative maintenance model for oil and gas assets and real estate facilities based on Maximo. One of our affiliated companies recently signed an agreement with Etisalat to jointly offer smart integrated

facility management solutions to achieve cost savings, operational efficiencies and enhanced customer satisfaction.

Artificial intelligence

The use of AI technologies is now penetrating many aspects of business. A recent survey by ServiceNow across Europe, Middle East and Africa indicates that customer service is an area that is showing a fast return on investment. Companies across these regions are deploying AI technologies to revolutionise customer service as more and more consumers are showing an acceptance to AI-driven experiences. Nearly 30 per cent of EMEA organisations have introduced AI technologies to customer service and 72 per cent of those are already seeing benefits that include freeing up agent time, more efficient processing of high-volume tasks and providing always-on customer support.

Across the Middle East, Africa and Turkey, banking, finance, healthcare and utilities are taking the lead in driving digital transformation.

Blockchain

Interest in blockchain technologies in the region is growing rapidly. The pace is being

set by the government and public sector including education, healthcare, finance, distribution and services. The most popular blockchain use cases in the coming years will be cross-border payment and settlements, asset and goods management and identity management. Across the private sector, we have seen announcements of recent initiatives by The Atlantis, Jordan Investment Bank, Noon Capital, DIFC, Halal Guide, amongst others.

Multi-Cloud

Enterprises in the region are now using multiple cloud solutions whether on-premises, public cloud, or a hybrid of both. In the coming years, upfront costs will become less important as cloud vendors continue to produce convincing use cases. AI and machine learning will be fundamental in increasing the levels of automation. Corporate cloud literacy is becoming an operational prerequisite as technological progress accelerates in EMEA. With a multi-cloud strategy, businesses can decide how to distribute workloads to cloud platforms that are best suited for specific tasks.

Big Data

With massive volumes of data being generated every second from connected devices, machines and IoT, Big Data is definitely a trend to watch out for. Big Data is the new oil as it has the potential to empower organisations to make better business decisions, in real time. By unlocking the organisation's data, they can fundamentally change the way it operates and steer the transformative, digital journey the company's stakeholders expect. ■

A viable refrigerant alternative

Dr Omar Abdel Aziz, vice-chair at ASHRAE Falcon Chapter, discusses the role of the CO₂ refrigeration system to achieve energy efficiency targets with *Deblina Roy*.

NATURAL REFRIGERANTS, BEING at the forefront of sustainable freezing and chilling solutions, have been used since the start of the chilling technology. Ammonia and carbon dioxide (CO₂) were among the first to be used in the early days of refrigeration in the 19th century. Now ammonia, CO₂ and hydrocarbons continue to be the natural refrigerates of choice for freezing and chilling applications.

CO₂ in energy-efficiency

CO₂ as a refrigerant is a very good heat transfer fluid, which significantly reduces the heat transfer area and improves its performance compared with other refrigerants. However, one issue with CO₂ refrigerant is that it has low critical temperature, and as such can only operate at mild ambient conditions or in air conditioned spaces; its performance degrades significantly in hot environment due to the transcritical operation.

To overcome this issue, a cascade system can be used where a secondary chilling system can be used outside the building. Here, the CO₂ is used inside the store where it run throughout the store in small diameter pipe network. Another high efficiency refrigeration unit running with a reduced charge of another refrigerant is installed on the rooftop or outside the building to cool down the CO₂.

In the cascade configuration, CO₂ is used as the heat transfer medium inside the store. Therefore, instead of distributing the refrigerants inside the store, the operator can have the CO₂ throughout the store. Then the operator has another refrigeration cycle outside the store that cools the CO₂. This system can be ammonia or hydrocarbon or a synthetic refrigerant like R404A.

The good thing is that the operator has more control over the design of this outside equipment. It is much smaller refrigerant charge than the convenient system. So the



Dr Omar Abdel Aziz.

Photo Credit: CEEE

overall global warming potential of the system is much reduced compared to traditional refrigeration.

Economically friendly too

For the UAE, CO₂ as a refrigeration system are made up of welded pipe network instead of brazing; this would significantly reduce the potential for refrigerant leakage and the need to top of the system to maintain proper performance. Secondly, CO₂ systems require smaller real estate size. They are much more compact, so the operator can have more sales volumes. In addition to this, in the CO₂ system, there is a trade-off between the cost of the pipe and the high pressure, which lowers the installation cost.

Environmentally speaking, CO₂ is friendly because it has global warming potential of one than compared with the conventional R22 refrigerant which has a global warming potential of 1760 and R404A which has global warming potential close to 4,000.

Next-generation natural refrigerants

Globally, there is a push for natural refrigerants because natural refrigerants are eventually thought to be crucial in keeping environmental sustainability. Ammonia is a toxic flammable refrigerant, hydrocarbons are flammable refrigerants, CO₂ has some limitations as I described earlier plus it is a high-pressure refrigerant.

In the meantime, the industry has answered this problem by developing an intermediate synthetic refrigerant that is based on hydrofluoroolefins or unsaturated olefins which have very low global warming potential and zero to extremely low ozone depleting potential. Some of these hydrofluoroolefins compound include R1234ze(E) which is acceptable for refrigeration as well as R448A and R449A that are introduced for the refrigeration as replacements for the high global warming potential refrigerant R404A.

In regard to the CO₂ refrigeration system, it is important that each application be well-designed. They are mostly custom-made designs, especially for the UAE's arid climate. Also, the operator should look at the good demonstration of the technology in the Middle East and try to get this technology into the regional marketplace.

ASHRAE in the UAE

ASHRAE as a global organisation is developing a lot of standards that help countries and organisations achieve their sustainability and energy-efficiency targets. These include the ASHRAE 90.1 standard and the refrigeration commissioning guide as well as the different test standard for refrigeration equipment.

In the UAE, ASHRAE helps educate the contractor by doing lot of activities in this regards. Most recently, the ASHRAE Falcon Chapter has translated the ASHRAE standard 90.1 and the ASHRAE standard 62.1 into Arabic. These are two of the most relevant standards in terms of energy efficiency. ■

Hamon joins Eurovent Middle East

HAMON COOLING TOWER Company, one of the market leaders in the cooling tower sector for the manufacturing of large cooling systems, has become member of the Eurovent Middle East Association.

Hamon focuses on system and equipment design, manufacturing of crucial components, project management, on site installation and aftermarket sales and service. The company also provides innovative systems, aiming to ensure that cooling solutions are provided for the benefit of the client.

Talal Damerchi, general manager of Hamon Cooling Tower Company FZCO, commented, "Eurovent Middle East gives us this opportunity, seeing that more and more manufacturers join this association with the same motives. We are looking forward to be part of this growing family and to sharing our expertise with others."

Markus Lattner, managing director of Eurovent Middle East, added, "The strength of an association lies in the specialisation and expertise



The Middle East's HVACR industry association expands its membership base.

of its members. We share Hamon's call for closer cooperation among the industry for the benefit of the region and are constantly working to improve our outreach and offers to the market."

Eurovent Middle East is the region's leading industry association representing leading manufacturers of Indoor Climate (HVAC), Process Cooling, Food Cold Chain, Industrial Ventilation and Building Automation Technologies, as well as sector associations and industry initiatives active in these fields.

New app from Danfoss compares chiller ROI

DANFOSS HAS LAUNCHED a new mobile app ChillerROI that aims to help the customer to compare chiller solutions and simplify the process to estimate the best long-term investment.

According to Danfoss, it is very crucial to choose the right chiller for large building projects including offices, schools, hospitals and data centres, etc. The new ChillerROI app is expected to simplify the return on investment (ROI) using basic information. The customer needs to enter the parameters into the app, which will show a side-by-side comparison displaying the expected long- and short-term costs.

The ChillerROI app calculates ROI based on chiller efficiency data (IPLV), CAPEX cost (US\$/tonne), chiller capacity, initial cost, local electrical rates, and expected hours of operation.

The aim is to purchase a cost-efficient chiller in the long run that help pay for the initial investment in the chiller itself. "High-efficiency chillers can have a payback time as fast as two to three years, and then continue to deliver energy savings over their lifetime," Danfoss noted.

How it works

The customer needs to input the basic data for the project such as capacity, running time and cost of energy. Then, the customer needs to input the IPLV and CAPEX cost for chiller A. Finally, the same

information should be entered for chiller B, the more efficient chiller. The app will display the ROI in a graphical form at the top of the screen.

The app is in line with Danfoss' ambitious aim to achieve energy efficiency, cold chain reliability and reduce overall cost of ownership, providing user-friendly solutions available on the market. Some of the new HVACR technologies include Turbocor compressors, scrolls with IDVs, Optyma condensing units, micro channel and micro plate heat exchangers, ETS colibri expansion valves, TU/T2 valves and EVR solenoid valves.



The app is in line with Danfoss' ambitious aim to achieve energy efficiency, cold chain reliability and reduce overall cost of ownership, providing user-friendly solutions available on the market.

New LG air purifier delivers all-round air quality

LG ELECTRONICS USA has launched the PuriCare 360° Air Purifier, aiming to provide a unique purification method that promotes 360° of clean air delivery, HEPA filtration, LoDecibal quieter operation and superior energy efficiency.

The certified LG air purifiers are set to help create a healthier and cleaner home, said Michele Cassalia, director of marketing for the asthma and allergy friendly certification programme.

For even distribution to these areas, LG has designed the Clean Booster feature, which delivers clean air up to 24 feet farther than before, covering rooms up to 512 sq ft.

The PuriCare 360° captures six different types of particles including the indoor allergens to deliver purer and cleaner air. The HEPA filtration system traps 99.97 per cent of ultra-fine dust and needs two filters compared to other industry leading air purifiers that require three. In addition to capturing allergens, the deodorisation filter also removes odours like food and smoke, smog and harmful airborne chemicals.

Carrier unveils new high speed screw compressor to address GWP

AIR CONDITIONING MANUFACTURER Carrier has introduced a high speed screw compressor that has been tested with a new low pressure, non-flammable HFO refrigerant. This aims to address the global shift towards refrigerants with low global warming potential (GWP).

In a research paper, Carrier engineers Masao Akei, Vishnu Sishtla and Scott MacBain said that addressing global warming concerns is one of the largest challenges facing the HVAC industry. Although A2L refrigerants are important options to consider for certain sizes of HVAC units, there are many systems that require A1 category refrigerants.

The refrigerant R32, in addition with Honeywell's R466A, aims to provide a lower GWP option. Carrier's newly-developed prototype screw compressor employs a new rotor design and a high speed permanent magnet motor to obtain a flow volume of 19.8 litres per second.



The inaugural edition of the Annual Refrigeration Conference was held in Dubai in 2017 with more than 100 delegates participating.

Photo Credit: Technical Review Middle East

Fight carbon challenges with CO₂

The 3rd Annual Refrigeration Conference, from 24-25 February, will address the critical need of improved storage facilities to meet the rapid population growth in cities like Abu Dhabi and Dubai.

A S WE INCH closer towards Expo 2020 Dubai, the increased pace of the ongoing construction activities is directly proportional to a bigger workforce coming to the UAE.

Simultaneously, tourists' inflow continues across the country with the federal government launching several initiatives to boost the sector.

The rise in demand for ready-to-eat products, beverages and frozen food rise, has resulted in large amount of food imports and consumption, most of which are perishable. Due to this, the UAE witnesses tonnes of food wastage along with a sizeable amount of products deteriorating by the time they reach the consumers. Then there is a lack of proper refrigeration facilities, inadequate temperature control, low-grade food handling standards, refrigerant leaks and inefficient supply chain.

The country is already working towards using highly reliable, quality-controlled and eco-friendly temperature regulation

With the implementation of refrigerant regulations like the Kigali Amendment to the Montreal Protocol, CO₂ is now recognised as the most viable and efficient solution among natural refrigerants in food retail applications.

processes. Now, as the UAE joins the COP24 'rulebook' guidelines to fight climate change, there is a critical need to address refrigeration-related challenges as well as to efficiently run the supply chain.

Under the patronage of the Ministry of Health and Prevention, UAE, and Ministry of Climate Change and Environment, UAE, Technical Review Middle East will be hosting the 3rd Edition Refrigeration Conference for food manufacturing, packaging and distribution industries in the UAE, and beyond, on 24-25 February to highlight food safety through adoptive and preventive measures.

Some of the important topics that will be covered during the conference are:

- Using thermal methods to maintain the original freshness and flavour of food products
- Energy efficient cold storage facilities
- Blockchain for tracking and monitoring food
- AI and robotics to track products and match consumer demand
- Carbon dioxide (CO₂) refrigeration systems

The advisory panel includes ASHRAE's president Liju Thomas Eapen and Dubai Municipality's principal food microbiology specialist Munira Ismail Alsayegh. Other noteworthy speakers come from the Ministry of Health and Prevention, Abu Dhabi Food Control Authority, Abu Dhabi Quality and Conformity Council, Alshaya Food, Binladin Contracting Group, Bateel International, National Association Of Freight And Logistics (NAFL), Arab HVAC Code Committee and Foodie Brands.

In addition to these, the conference will further explore the future trends in the commercial refrigeration system while addressing the need of optimal energy control strategies that are potentially enabling supermarkets to transition towards a more intelligent use of environment-friendly and energy-saving systems. ■

To register, visit www.refrigeration-forum.com/registration

Identifying sustainable opportunities

The WFES Energy Transition Forum outlined the future of energy provision and examined the best practices.

WORLD FUTURE ENERGY Summit (WFES), a key enabler of Abu Dhabi Sustainability Week 2019 (ADSW), featured WFES Energy Transition Forum and the WFES Green Buildings Forum as two essential gatherings of thought leaders exploring opportunities for business and innovators to advance sustainable solutions.

The WFES Energy Transition Forum saw leading industry players outlining the future of energy provision and highlighting the latest opportunities provided by emerging best practices and technologies.

The forum's panellists assessed the full complexity of emerging energy transition challenges and opportunities. These included managing the evolution of a decentralised energy environment, specific applications of individual advances like blockchain, the future role of hydrogen in storage and energy management, and the reduction of greenhouse gases in electricity transmission.

"The WFES Energy Transition Forum assesses global responses to the urgent issues arising from disruptive change in the energy sector, challenging policy makers, thought leaders, academia and businesses from around the world to find solutions that advance diversification and new technologies in the pursuit of sustainable development," said Mohammed Al Ta'ani, secretary general of the Arab Renewable Energy commission AREC.

"The forum serves to map out the full implications of acceleration of energy transition and unite multiple technology, policy, academia and investment perspectives from experts seeking to cross-pollinate ideas, share learning and move the industry forward."

"The WFES Energy Transition Forum focuses on the fourth energy generation and artificial intelligence as the entrance of the sustainability for all, as the expectations of decrease for primary energy demands to 2050 in comparison with energy demands today and higher demand



The participants at the forums examined public/private sector collaboration, the potential for incumbent firms to diversify into exciting new areas, and opportunities for ambitious start-ups.

Photo Credit: WFES

of electricity nowadays for electric vehicles (EV) revolution."

Speakers addressing the forum included Mohammed bin Jarsh Al Falasi, Undersecretary, department of energy, Abu Dhabi; Faisal Ali Rashid, director, demand side management, Supreme Council of Energy, Dubai; Nick Carter, senior advisor, PwC and convener, EU-GCC Clean Energy Network.

Supported by the Emirates Green Building Council, the WFES Green Buildings Forum is a platform for government authorities, developers, building owners, consultants, contractors and suppliers offering insights on integrating innovative and efficient energy management solutions with sustainable, technical solutions suitable for both new and existing buildings.

Key sessions explored targeting net-zero energy, retrofitting to net-zero, baseline performance data of UAE buildings, benchmarking building performance evaluations, smart financing for deep retrofit projects based on a case studies, and improvements to indoor air quality.

"Enhancing building performance through increasing energy efficiency and switching to clean, low carbon resources offers substantial business opportunities while also enabling new developments to thrive as engines of economic growth and prosperity," said Graeme Lindsay Sims, executive director, RSB, UAE.

"The WFES Green Buildings Forum highlighted both essential industry requirements and the promise of new technologies. With urban areas accounting for an ever-larger share of the world's population, its energy and its carbon emissions, the sustainable development of our buildings and the sustainable development of the planet are two sides of the same coin."

Held under the patronage of HH Sheikh Mohammed Bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, WFES is a global industry platform connecting business and innovation in energy, clean technology and efficiency for a sustainable future. ■



Genset market recovering 'cautiously'

Transformative technology trends to come under scrutiny at Middle East Electricity 2019.

TRANSFORMATIVE TECHNOLOGY AND practices, which are evolving in the power sector, are to come under detailed scrutiny in Dubai in early 2019 with the staging of the two-day 'Revolutionizing Power Generation Conference', a part of Middle East Electricity (MEE) that will be running from 5-7 March at Dubai World Trade Centre (DWTC).

A key feature of MEE 2019, the conference is the highlight of the show's expansive knowledge programme, which features 94 hours of free CDP-accredited conferences and seminars including case-study-led sessions.

This year will be better for the diesel generator market due to 'modest' oil price rise and the positive construction market outlook.

Speakers from 10 nations are lined-up for the conference, which puts operations and maintenance of large-scale utilities, as well as independent power producers, into sharp focus. Some of the biggest names and emerging players in the business will address the challenges, pinpoint growth opportunities and identify technologies and tactics needed to survive in a rapidly changing industry.

With various experts preparing to drill down into how the industry can improve profitability through advanced technology migration and new methodology implementation, one speaker has already sounded an optimistic note of a "cautious" generator upturn for the region.

Romain Mocaer, director of the forecaster PowerGen Statistics, believes the unique Middle Eastern generator sector – which represents 10 per cent of the global market – has huge growth opportunity and expects an uptick in the short term. Mocaer pinpoints the UAE, Saudi Arabia and Iraq as growth drivers with expansion filtering through oil and gas, construction and infrastructure projects.

"The generator market has recovered in Europe and North America, but there has been a slowdown in some emerging markets, including the Middle East, which has significantly decreased in the last few years. However, the diesel generator market can look

forward to a cautious recovery in 2019, as the modest rise of oil prices and the positive construction market outlook should drive growth in the generator market, especially in Saudi Arabia. The region will also host many major global events, such as Expo 2020 Dubai, in coming years to further drive growth,” said Mocaer.

Issues to be explored at the conference include digital retrofits; refining power plant performance with air-cooled condensers and cloud-based analytics; reliability-centred maintenance, and investments that can alter the levelised cost of electricity for power generation. Experts are aligned on one aim - to explore how the industry can improve profitability through advanced technology migration and new methodology implementation.



Photo Credit: Informa

The show will also offer a diverse range of professional education and training opportunities where attendees can learn about the latest technologies at exhibitor-led technical seminars and advance professionally with CPD accredited workshops.

Conference speaker Engr. Mahmoud Zeineddine, co-founder and manager of the Organisation for Safety & Sustainability (OSAS), maintains technology will not only impact bottom-line but will improve regional safety records as smart-sensor mobile tracking becomes the norm.

“Throughout the session, we will be discussing measures to be taken to prevent human losses and injuries in workplaces. The key trend we are witnessing in the sector is the use of social interactions - mobile applications - to monitor and audit the safety work in the industrial zones,” adds Zeineddine.

The conference will also feature case studies from Saudi Arabia, Egypt, Lebanon and Ghana, as well as the unveiling of new research on preventative maintenance for international combustion engines using AI and big data.

“We are aiming for the conference to really shine the light on breakthroughs which will change not only the burgeoning generator market but the face of the industry. All of the sessions in the power generation content stream are free-to-attend and CPD accredited,” states Claudia Konieczna, exhibition director – Informa Industrial Group.

The conference is being held against a backdrop of the bullish forecast by the Arab Petroleum Investment Corporation (APICORP). The multilateral development bank has predicted the MENA region’s power capacity will expand by an average of 6.4 per cent per year by 2022, corresponding to an additional capacity of 117 GW and requiring US\$152bn of investment in generation capacity.

The 2019 edition will also host the global launch of breakthrough automated transmission and distribution (T&D) technology.

ETAP, the US-headquartered power technology giant, says it will

APICORP has predicted the MENA region’s power capacity will expand by an average of 6.4 per cent per year by 2022, corresponding to an additional capacity of 117 GW.

use the annual showcase to introduce the world to unique, multiple enterprise T&D solutions which, it claims, can massively shave costs of commercial overheads.

According to Shaikh Sahid Hossain, V-P, ETAP, the breakthrough automated solutions, which require minimal supervision, can operate, monitor, analyse and optimise power in real-time and save huge costs for businesses.

ETAP’s major Middle East push comes as it predicts a buoyant future for T&D in the GCC, where smart grids are being pursued to control power loss, increase efficiency and reduce emissions.

Recent research from APICORP says the GCC is expected to require US\$34bn for T&D over the next five years. ETAP says next-generation solutions, such as its modelling-to-optimisation on a single-platform technology, will be needed by the region to realise its projected smart grid market growth to US\$1.68bn by 2026.

“The region’s renewed power focus has opened up huge opportunities and the GCC market is poised for huge growth with renewable energy taking precedence,” added Hossain.

“Looking at the growth in demand and the shortfall of supply, the initiatives taken by governments are rapidly increasing with innovations happening and more IPPs coming into the picture.”

Other dedicated MEE sectors cover power generation; lighting and energy storage and management. The show will also offer a diverse range of professional education and training opportunities where attendees can learn about the latest technologies at exhibitor-led technical seminars and advance professionally with CPD accredited workshops.

More than 1,600 leading manufacturers and suppliers are committed to the 41st edition Middle East Electricity 2019, which is being held under the patronage of HH Sheikh Maktoum bin Mohammed bin Rashid Al Maktoum, Dubai Deputy Ruler, and is hosted by the UAE Ministry of Energy. ■



Security takes centre stage at Intersec 2019

The annual security expo in Dubai reflected the need in the region owing to future mega events and projects.

MORE THAN 1,300 exhibitors from 59 countries, including 18 of the world's top 20 commercial security providers, took part at Intersec 2019 from 20-22 January at the Dubai International Convention and Exhibition Centre.

The annual event organised by Messe Frankfurt Middle East covered the seven sections of commercial security, fire and rescue, perimeter and physical security, safety and health, homeland security and policing, information security, and smart home and building automation.

More than 500 companies in the field of safety, security and fire protection from across the globe showcased their innovative products and solutions at the expo. One of the vital points of the mega event continued to be commercial security, which formed the largest section at the expo. The event took place as the Middle East markets for commercial security is set to grow to US\$7.4bn by 2024, according to 6W Research.

The research indicated that demand for IP-based video surveillance systems, access control and intrusion detectors would continue to drive the market, which is fuelled by increased government spending on infrastructure projects and the imposition of stringent regulatory policies, creating increased opportunities for global security brands.

Upcoming mega events in the region such as the Expo 2020 Dubai and the expected influx of millions of additional visitors are also expected to create demand for the latest video surveillance systems and intelligent surveillance devices.

Access control systems continue to be in high demand in the Middle East, registering a market revenue of US\$300mn in 2017. Increasing awareness of security threats and a growth in IT spending is said to keep the market driving ahead.

The demand for biometric access controlled systems has surged across the Middle East with the growing adoption of



Photo Credit: Intersec

The International Monetary Fund further estimates that the GCC's GDP is expected to increase by 1.9 per cent in 2018 and 2.6 per cent in 2019, overcoming a dip of 0.2 per cent in 2017.

“The new age surveillance is all about automation, intelligence, and resource efficiency.”

fingerprint and eye scanners across the region. Most of the deployment of such systems in the region remains in the commercial sector.

Andreas Rex, Intersec show director, said, “Commercial security continues to be one of the chief driving sectors of Intersec as companies across the region continue to invest in cutting-edge intelligent security systems to protect their investments and facilities in an increasingly complex security scenario.”

“As the most influential and significant international trade platform for safety, security and fire protection in the wider region, Intersec 2019 showcases a wide spectrum of the latest developments in the commercial security sector,” he added.

CP Plus, an international security solutions provider, displayed their latest range of intelligent surveillance products. The company's director Gaurav Khemka said, “Video surveillance has evolved manifold over the years and as a market leader we have always strived to stay ahead of the competition. The new age surveillance is all about automation, intelligence, and resource efficiency.”

The three-day Intersec Future Security Summit raised important issues on artificial intelligence, security integration, emergency preparedness and response, data protection, IoT and much more. The SIRA Forum returned with the latest updates in security law and industry regulations in Dubai. ■

Raising the bar

In its fourth edition, HVACR Expo Saudi showcased prominent international brands from more than 15 countries.

THE HVACR EXPO Saudi, held from 28-30 January 2019, at the Riyadh International Convention & Exhibition Center (RICEC) featured prominent international brands from more than 15 countries. The fourth edition was organised by dmg events, and co-located with FM Expo Saudi and Saudi Clean Expo.

Backed by the Saudi Standards, Metrology and Quality Organisation (SASO) and GCC Standardisation Organisation (GSO), and in response to the popularity of workshops conducted in the previous edition, the expo increased its education offer in the January edition.

Arif Hussain, national product manager at Al Salem Johnson Controls, said, "In view of the 2030 initiative, the Saudi government enacted SASO regulations to improve the efficiency level of all air conditioning equipment. Moreover, they have introduced a district cooling framework for new developments exceeding 15,000 tonnes, and the Saudi Building Efficiency Code has been recently revised and implemented. In addition, Saudi government is encouraging efficiency improvements in existing buildings through registered ESCO companies."

Another solution set to tackle sustainability target is district cooling, quite popular in Saudi Arabia. According to AbdulRouf Pandith, senior mechanical engineer at KEO International Consultants, "District cooling consumes 50 per cent lesser power compared to conventional cooling systems. District cooling is considered not only to be feasible but also necessary in Saudi Arabia. HVACR service providers in Saudi Arabia and other Middle East countries are reporting elimination of thousands of tonnes of CO₂ emissions from the installed district cooling plants in the region.

Extreme climatic conditions in Saudi Arabia, changing lifestyles and rising number of government initiatives towards restructuring the country's oil-dependent economy are expected to boost demand for HVAC systems in the country.



The HVACR market in Saudi Arabia is expected to reach a total value of up to US\$6.36bn by 2022.

Photo credit: dmg events

"By inviting and bringing together government stakeholders, policy and decision makers, and leaders from the district cooling and utility sector across the country, HVACR Expo Saudi marked a new era in the cooling sector," he added.

With the HVACR market in Saudi Arabia expected to reach a value of up to US\$6.36bn by 2022, the region's HVACR event gained interest from global industry leaders looking to invest in the kingdom.

Exhibitors included Carrier, Zamil AC, YORK, Midea, Samsung, Alessa Group, LG, SKM, Caleffi Hydronic Solutions, VTS Clima, Hitachi, Haas, Gibson, Rheem, RIG, BNF and many more.

Roni El Haddad, event director for the HVACR event, commented, "Saudi Arabia contributes close to two per cent of the global HVACR market and this has not gone unnoticed by major industry players abroad.

We are witnessing a growing interest from these brands to present the latest HVACR products to the Saudi Arabian market, and to offer the technologies capable of pushing forward this sector."

"Thanks to the development of new regulations, and ongoing discussions between local market leaders and Saudi Authorities, international brands planning to enter the market or to expand their local production opportunities can look forward to strong business relations going forward," he explained.

Faizal Babu Pallathody, managing director of VTS Clima, noted, "Extreme climatic conditions in Saudi Arabia, changing lifestyles and the rising number of government initiatives towards restructuring the country's oil-dependent economy is expected to boost demand for HVAC systems in the country."

"Growth in the market is anticipated to be driven by increasing integration of HVAC systems in smart products and continuously rising demand for energy-efficient HVAC systems," he stated.

The expo offered a record number of free-to-attend continuing professional development (CPD) certified workshop sessions.

The event brought together industry heavyweights from Turkey, China, USA, France, Italy, UAE, Singapore, Egypt and more. ■

Cat's new Aggregate Handler for greater payloads

CATERPILLAR HAS LAUNCHED the 990K Aggregate Handler designed to handle greater payloads in aggregates yard applications.

With as much as a 25 per cent payload increase, as compared to the standard 990K, the new aggregate handler enables customers to load trucks and railcars faster and to move more material in load-and-carry and stockpile management tasks.

The Cat 990K Aggregate Handler has a payload of 20 tonnes and a full turn static tipping load of 43,738kg. Additional counterweight maintains machine stability, and robust 990K structures ensure durability in the Aggregate Handler configuration. The loader makes best use of general purpose and coal buckets for increased volume.

The 990K Aggregate Handler is available in standard lift configuration with 4,108-mm dump clearance and in high lift configuration with 4,569-mm dump clearance. Increased capacity and high dump clearance enable customers to load railcars and large trucks with a better pass match for faster material handling at lower cost per ton.

It complements the smaller 986K and 988K Aggregate Handlers in the Cat large wheel loader line. The Aggregate Handler, however, is not designed for use in quarry face or other shot rock applications.

Building on the 990K

The new 990K Aggregate Handler is built on the proven features of the 990K Wheel Loader. The 990K powertrain provides powerful operation with superior fuel



Cat 990K Aggregate Handler loads truck.

Photo Credit: Cat

efficiency. The Cat C27 engine powers the loader and delivers net power of 699hp. Lower engine speed helps drive economical fuel use. Additional fuel savings accrue with the ECO Mode (on-demand throttle), engine-idle shutdown system, and engine-idle kickdown/auto-resume system.

The Cat exclusive, field-proven impeller clutch torque converter uses a lock-up clutch, providing direct drive to boost fuel economy, trim cycle times, and reduce heat—especially in load-and-carry applications.

A number of drivetrain options are available. The integrated axle cooling and ride control options are particularly beneficial in load-and-carry work.

The operator station features the Cat Vital Information Management System (VIMS)

3G, which provides customisable operator profiles, a cycle timer and an integral payload control system, which provides on-the-go payload weighing. The graphical information display is easy to use and keeps key information in front of the operator. The Cat Comfort III seat provides integrated seat-mounted controls for smooth and comfortable operation. Transmission controls, integral with the STIC steering lever, allow convenient travel control.

The Cat Detect object detection system, available as an option, builds on the camera system with radars and in-cab software that provide notification to the operator when an object is detected within the radar coverage area. The systems are designed to enhance operator awareness, especially in congested loading areas.

Continental commissions first driverless tyre test vehicle

CONTINENTAL, PREMIUM GERMAN tyre and technology company, has commissioned the first driverless tyre test vehicle using pioneering technology based on the company's automated Cruising Chauffeur.

Launched at the Continental test site in Texas, USA, the system will see newly developed tyres being tested under real-life conditions across a wide range of road surfaces. Controlled through a satellite-based navigation system, the new test vehicle is equipped with camera and radar sensors allowing the vehicle to react immediately to people, animals, or other unexpected objects on the road without a driver. This contributes to making Continental's Vision Zero strategy for accident-free driving a reality.

Nicolai Setzer, Continental executive board member and head of tyre division said, "In critical situations, the tyres' level of technology is the deciding factor in whether a vehicle brakes in time. With tyre tests which use an automated vehicle, we achieve highly conclusive test results and thereby ensure the premium quality of our tyres."

Driving test vehicles place huge demands on the drivers and the smallest deviations on the test track can have a huge impact on the quality and comparability of the test results. Therefore, newly developed rubber compounds and tyre models will be tested under real-life conditions to show just how well they perform on different road surfaces.

In addition to the significantly improved comparability of the results, the tyre test using automated vehicles will also reduce the maintenance work required for the test tracks as there will be fewer route variations.

Thomas Sych, head of tyre testing at Continental, added, "We want to automate and standardise tyre tests to such an extent that we can identify even the smallest differences in the tyres. The automated vehicle enables us to reproduce processes precisely, meaning that every tyre in the test experiences exactly the same conditions. This way, we can ensure that differences in the test are actually caused by the tyres and not by the test procedure."

Volvo CE launches EC210D excavator for Middle East and Africa

BUILDING ON A strong tradition, the new EC210D crawler excavator from Volvo Construction Equipment is equipped with a range of robust features to ensure a superior performance.

The EC210D crawler excavator is designed with Volvo's extensive experience and expertise for productivity and efficient operation in a wide variety of tasks. This machine features a robust frame combined with optimal engine power and hydraulic pressure to provide superior digging forces and fast cycle times for excellent productivity in all operations.

A powerful Volvo engine works together with the machine's proven hydraulics to provide high torque at low rpm for the ultimate combination of performance and improved fuel efficiency. For fast cycle times and optimum fuel consumption, the EC210D is equipped with intelligent work modes, including the new G4 work mode. Operators can choose the best mode to suit the task at hand, selecting from I (Idle), F (Fine), G (General), H (Heavy) and P (Power max) mode. Choosing the correct mode according to working conditions helps with added versatility and increased productivity.

The EC210D features increased hydraulic flow for responsive, accurate control in grading and combined operations. Operators benefit from smoother, easier movement when travelling and lifting simultaneously as well as better grading quality from the harmonised boom and arm movement.

For a productive work shift, this excavator is equipped with a spacious and safe operator environment, offering enhanced all-around visibility, an adjustable seat and ergonomic controls. The improved cab interior features a new I-ECU monitor that displays a range of information for efficient operation.

Dig in to profitability

The Volvo EC210D is designed for optimum profitability. Featuring best-in-class fuel efficiency and Volvo's ECO mode, this excavator lowers fuel consumption and reduces operating costs. Excellent service access and a durable design guarantee a long machine life.

The intelligent ECO mode contributes to the machine's total improved fuel efficiency, without any loss of performance. The design optimises flow and pressure while maintaining digging power and swing torque. Built with durable components for outstanding results in all applications, the EC210D is designed to secure lasting machine value and an excellent return on investment.

Built to ensure servicing is safe, quick and easy, this machine features anti-slip plates, grouped filters, ground-level service access and centralised lubrication points. Long service intervals enhance machine availability and increase uptime for maximum productivity.

Volvo versatility

Volvo CE offers a comprehensive range of attachments for use in a wide variety of tasks. The EC210D can be fitted with a selection of buckets and breakers that work in harmony with the machine to

The new excavator is ideal for variety of tasks.



Photo Credit: Volvo CE

ensure optimal performance and profitability in any application. With a sturdy design and built-in durability, all compatible buckets are equipped with Volvo teeth to handle the toughest applications.

The EC210D can be equipped with either a top- or side-mounted hydraulic breaker built to break even most demanding materials, delivering consistent power and high breaking force. The Volvo-designed hydraulic breaker/shear piping and quick coupler piping option provide optimum flow to the hydraulic attachments. State-of-the-art auxiliary lines allow the correct flow and pressure for special attachments.

A password-protected management system allows the operator to pre-set and adjust the hydraulic flow from a monitor inside the cab, providing storage for up to 20 different attachments for increased versatility. The operator can select one or two pump flow to maximise productivity.

Built with high quality genuine Volvo parts, the EC210D is a durable and efficient partner in a range of applications. And, with an extensive infrastructure of technicians, workshops and dealers, Volvo has a comprehensive network and a variety of service options to ensure maximum uptime and lower the total cost of ownership.

The EC210D is valid for all markets in Africa and Middle East (excluding Turkey) and Cuba. ■

New HIMOINSA generators with Stage V engines

HIMOINSA IS WORKING on the design of a new range of generator sets with STAGE V engines, based on EU Regulation 2016/1628 for off-road mobile machinery (NRMM).

The new S5 Generators will incorporate all manner of design and innovation features that will make it one of the most technologically advanced and competitive products in the European rental market.

HIMOINSA will continue to offer generator sets with Stage IIIA engines for a period of up to 24 months after the new regulation goes into effect. The transition period for generator sets with powers of less than 56kW and more than 130kW will last until December 2020. However, models with powers between 56 and 130KW, with Stage IIIA engines, will continue to be marketed until December 2021.

S5 generator sets

The new generator sets range comprises models with Yanmar, FPT and Scania engines, and incorporates a new canopy design to accommodate the machine's new post-treatment system as well as the electrical installations. One of the greatest innovations in the S5 generator sets will be their control panels, meticulously designed to ensure a reliable and efficient coordination with the control panels of the new Stage V engines.

Regulation (EU) 2016/1628: Emissions from engines in non-road mobile machinery

In order to gradually reduce air pollution, Directive 97/68/EC, which established requirements relating to emission limits (stages I, II, IIIA, IIIB and IV) and type-approval procedures for engines for non-road mobile machinery, was adopted in 1997.



The new generator sets range comprises models with Yanmar, FPT and Scania engines.

In January 2017, Directive 97/68/EC was repealed and superseded by Regulation (EU) No 2016/1628, which establishes emission limits for gaseous and particulate pollutants (known as Stage V) for engines of non-road mobile machinery, as well as administrative and technical requirements relating to type approval. This regulation affects products marketed from 1 January 2019. However, it provides for a 'transition' period, in which equipment with engines manufactured in 2018, so not Stage V-approved, may be sold.

Specialised waste management vehicles from UD Trucks

AS SOLE DISTRIBUTOR of UD Trucks, UAE-based Al Masood displayed the Quester UD truck, a new generation of heavy-duty trucks launched in 2016 in the region and used for waste management purposes, during the World Future Energy Summit in Abu Dhabi from 14-17 January.

The Quester is a multi-purpose truck range for a wide range of applications, including off and on-road use, waste management, construction, distribution and long-haul transportation. It is a robust, strong and heavy duty truck with a combination of global technology and Japanese craftsmanship, according to the company.



The Quester from US Trucks.

Quester's two engine alternatives are designed with proven fuel-efficiency and superior performance for various applications. The eight-litre diesel engine (GH8E) offers excellent performance and is ideal for distribution and construction work. The 11-litre engine (GH11E) is based on the Volvo Group's global technology resources in combination with Japanese manufacturing quality. ☐

Mohamed Nabih El Zeftawi, general manager of Al Masood's CV&E Division, said, "Our goal is to provide products that are created with forethought for the environment and are focused on the effective use of resources and reduced environmental impact. We felt obligated to offer a brand-new UD truck that will become a benchmark with regards to fuel economy moving forward. The Quester carries less fuel per ton than any other vehicle that precedes it and is a real testament to our commitment to devise and execute effective solutions to help the process of waste management."

Mourad Hedna, president of UD Trucks MEENA, added, "After years of extensive quality control tests conducted by UD Trucks and the Volvo Group, the Quester range was developed with a Japanese hands-on, field-oriented approach established on a customer and factory floor perspective. It performs impressively, provides good value and satisfies owners' expectations in every aspect. Quester is built and refined based on insights from customers' day-to-day needs and cutting-edge knowhow gained from UD Trucks' experience in the Middle East."

PTM 4.40 software version available from OMICRON

THE PRIMARY TEST Manager (PTM) software from OMICRON supports diagnostic tests on circuit breakers, current and voltage transformers, rotating machines, grounding systems, power transformers, as well as associated equipment such as bushings and on-load tap changers (OLTC).

The software guides users through the testing process with comprehensive procedures and detailed wiring diagrams. Tests can be automatically assessed in accordance with the applicable international IEEE and IEC standards. PTM also provides powerful reporting functionalities such as customised, individual reports about the test object, test results and assessment.

General improvements and new features include: new PTM start page including direct access to recent jobs, data management functions and important application or product information; new PTM screen design in order to improve software usability; new data visualisation for PTM DataSync 'Web' module users via a web browser, for example, a dashboard showing all existing data on the server and its history.

New power transformer testing functionality with TESTRANO 600

- New cooldown test to determine the winding temperature at the end of the heat run procedure



Photo Credit: OMICRON

- Various improvements of existing tests and functionalities

New power transformer testing functionality with FRANEO 800

- Smaller improvements of existing tests and functionalities

New circuit breaker testing functionality with CIBANO 500

- New circuit breaker testing library (CBTL) which facilitates and speeds up data

entering, asset specification, test preparation and reporting

- Various improvements of existing tests and functionalities

New rotating machines testing functionality with the CPC 100 + CP TD1

- New partial discharge high-voltage source test including high-voltage sweeps suitable for partial discharge measurements using OMICRON's MPD systems

Manlift introduces first rental app for Middle East and India

MANLIFT HAS INTRODUCED the first app for powered access rental in the Middle East and India markets.

The region's largest specialist in the area of working safely and efficiently at heights, Manlift has developed the Manlift Rental to make ordering equipment easier for its customers.

David King, managing director of Manlift Group, said, "This new online platform provides our customers with a digital tool to simplify their way of interacting with us.

"We are committed to delivering the best customer experience, which now includes the rental app. We have created a self-service rental experience that is information-rich and is mobile and user-friendly to our customers, who will increasingly operate in a more digital way. The rental app is a breakthrough technology product, because it enables customers to browse and place an order at any time and from anywhere using an app on their smartphones."

Users can explore Manlift's entire rental fleet and gain immediate insights into the availability of a diverse range of booms, scissors and spider lifts.



Photo Credit: Manlift Rental

The Manlift Rental App is now available on Google Play and App Store.

For every machine, there is a list of technical questions that help the app user to ensure that they are selecting the correct access platform for the task at hand. On completion of this process, one click will place an order for delivery – and puts the user in touch with Manlift's rental experts if they have any further questions.

The Manlift Rental is part of the company's digital strategy to enhance customer connectivity and engage in new markets. The app's user-friendly interface also includes live-chat functionality for additional customer support. Ultimately, the app will enhance job-site productivity and the customer experience.

The Rental App is available in Android as well as iOS, and can be downloaded from Google Play and iOS App Store.

Headquartered in Abu Dhabi, Manlift specialises in aerial work platforms such as access equipment rental lifts, scissor lifts, boom lifts, articulated boom lifts and vertical lifts.

BT Beton-Technik used Wirtgen's cutting-edge paving technology to build 14.5m-wide dual-layer concrete pavements precisely, economically and quickly.

The 'exquisite' road technology from Wirtgen

Photo Credit: Wirtgen

THE WIRTGEN PAVING train, comprising two SP 1500 slipform pavers and the TCM 180i texture curing machine, is a key player when placing dual-layer concrete on the A7.

The A7 is being widened between Hamburg and Bordesholm in Germany from four lanes to six, and in some places to eight, to ensure that the motorway remains an efficient traffic artery.

Aiming to create a pavement which would offer a high degree of driving comfort while withstanding the loads of heavy-goods traffic, the motorway consortium via Solutions Nord and the joint venture ARGE A7 Hamburg-Bordesholm opted for steel reinforced concrete paving with an exposed aggregate concrete surface when widening the 60km stretch located in the Schleswig-Holstein region.

BT Beton-Technik GmbH, commissioned with the job, are specialists in concrete pavement construction for many years. Managing director Mirko Pokrajcic relies on technologies and machines from Wirtgen. "I insist on 100 per cent quality – and this is precisely what Wirtgen have been delivering for more than 25 years."

The work

The concrete paving work was carried out by two Wirtgen SP 1500 slipform pavers. As the first paver advanced, its inset mould laid the concrete slab as specified, 14.5m wide and 23cm thick. A total of 41 curved electric internal vibrators ensured optimum material

compaction by means of high-frequency vibrations. Dowel bars were inserted into the fresh, pre-compacted bottom-layer concrete at 25cm intervals parallel to the direction of travel, and tie bars were inserted transverse to the pavement. The top-layer concrete was simultaneously loaded by excavator into the receiving hopper of the belt conveyor, transported over the top of the first SP 1500 and deposited directly on the bottom-layer concrete in front of the second SP 1500. The second machine compacted the material by means of 29 electric T-vibrators, as they are known, while paving it in a 5cm-thick layer. The duo from Wirtgen paved some 4,000 cu/m of concrete each day in this way.

The real player

The TCM 180i self-propelled curing unit followed hot on the heels of the pavers. With working widths up to 18m, it is an ideal team mate for the two SP 1500s and is the team's technical player. Its task is to spray a special combination of anti-evaporation agent and surface retarder onto the new concrete pavement. The anti-evaporation agent protects the fresh concrete from premature drying during its hardening phase.

The retarder enables the surface mortar to be swept off, exposing the high-grade broken aggregate in the top-layer concrete. Depending on weather conditions, this can be done four hours or more after paving. This gives the concrete pavement the required peak-to-valley depth and lasting grip. A curing agent is once again sprayed over the exposed aggregate.

Key in concrete paving

Unlike in the process selected for the A7, in other countries, the TCM 180i is also used to create the desired texture. In this process, the machine moves a brush across the entire concrete surface. When used in this way, the Wirtgen texture curing machine can create a range of different surface textures to meet requirements. In addition to the well-established functions of transverse brushing and spraying – and even the application of a diagonal finish – are possible. Meander spraying is a special option: this method permits transverse spraying during uninterrupted travel. What is more, Wirtgen are continually advancing the associated components to ensure an optimum surface texture. The brush-cleaning unit of the TCM 180i is one prime example.

Hot cleaning

Cleaning the spray systems of curing machines economically is something of a challenge. Wirtgen have integrated a hot-water system with a 90-litre tank in the TCM 180i. With this system, curing agent adhering to the inside of the pipes can be completely removed with water up to 60°C hot and the entire spray system quickly and reliably cleaned – all at the push of a button.

"Wirtgen have struck gold with the new hot-water system. This added practical benefit will be a great asset to us in the future, too," Deni Pokrajcic, site manager BT Beton-Technik GmbH, stated. ■



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Identify the right machine with Haulotte app

IN DECEMBER, HAULOTTE launched an app dedicated to help rentals, distributors and workers identify the right machine for the job.

The Quick Positioning application guides the user in finding the most suitable machine for its applications.

Taking a picture of the worksite, defining the working areas with the potential outreach and working conditions (inside or outside), these few clicks are enough to identify the right access platform. Then, the user can virtually position the machine in the working site and confirm the machine adequacy. A report including the main technical information is established.

Thanks to the Quick Positioning app, users are more accurate in their needs definition and machine choice. They will be able to increase productivity by identifying the appropriate mobile elevating work platform more quickly. They reduce the additional costs generated by using an inadequate aerial work platform, and cut time-wasting caused by looking for other models and organising replacements. Additionally, transport costs due to machinery changes can be reduced, and it helps eliminate possible safety consequences from using inappropriate machinery.

The app is available in several languages and free to download from Google Play and Apple Store.

Masdar rolls out first all-electric bus service in Abu Dhabi

MASDAR, THE ABU Dhabi future energy company, has officially launched the first fully electric passenger bus – Eco-Bus – in the region in partnership with the department of transport in Abu Dhabi (DoT), Abu Dhabi-based bus manufacturer Hafilat Industry LLC, and Siemens.

The vehicle will serve a six-stop route between Marina Mall, Abu Dhabi

Central Bus Station and Masdar City, Abu Dhabi's flagship sustainable urban community.

The Eco-Bus will be seamlessly integrated into the DoT's existing fleet, while the service will be free until the end of March 2019. The Eco-Bus has been designed to withstand the heat and humidity of the UAE climate, key performance challenges for electric vehicles.

Jointly developed by Masdar, Hafilat Industry LLC of Abu Dhabi and Siemens Middle East, it seats 30 passengers and has a range of 150km per battery charge. Solar panels are used to power the Eco-Bus's auxiliary systems.

"The launch of the Eco-Bus is a milestone for the UAE in a number of ways," said Yousef Baselaib, executive director for Sustainable Real Estate at Masdar.

"Masdar City has been an incubator of sustainable mobility technologies, including the iconic personal rapid transport system and the NAVYA AUTONOM shuttle vehicle. Now we are exporting solutions beyond the city limits with our partners for the benefit of the wider community."

"Helping the UAE deliver on its sustainability targets, including more environmentally friendly mobility solutions, is a key part of our mandate at Masdar and high on the agenda at Abu Dhabi Sustainability Week 2019, which will showcase opportunities for further convergence of knowledge and technologies in the pursuit of cleaner and more energy-efficient transport," Baselaib said.

Abu Dhabi's DoT was heavily involved in the pilot phase of the Eco-Bus, which carried out extensive tests of the vehicle's technical performance as well as the user experience. Siemens provided the vehicle's propulsion technology, while Hafilat designed and built the Eco-Bus.

The Eco-Bus has a lightweight aluminium body and a unique water-cooling system to optimise battery life and efficiency, even when the outdoor temperature is at its highest. The vehicle also has a highly energy-efficient on-board air-conditioning system.

The Eco-Bus is driven by a Siemens traction system, which includes a gearless PEM motor. Highly efficient, quiet and virtually maintenance-free, the traction system has been designed to last the lifetime of the Eco-Bus.

"This technology has been proven around the world and we're pleased to be bringing it to the UAE for local innovation in efficient, sustainable transportation," said Uwe Troeger, senior executive vice-president, digital factory and process industries and drives, Siemens Middle East.



Jointly developed by Masdar, Hafilat Industry LLC and Siemens Middle East, Eco-Bus seats 30 passengers and has a range of 150km per battery charge.

Photo Credit: Eco-Bus

IGEL expands solutions in Middle East and North Africa

IGEL PLANS TO expand product lines for the multi-motor starter system and the draw-out module. It also will set up its medium-voltage products for a new '4.0 ready' control and regulating electronic system.

Existing IGEL customers will benefit from the downward compatibility of the innovative control electronics. It is based on the well-known and proven control algorithms, while offering an expanded range of functions, more user friendly, and provides easy connectivity with automation systems.

Michael Kleiböhmer, chief executive of IGEL Electric, said, "The draw-out module as well as the multi-motor starter system has been very well received in the market this year, so that we will be

expanding both product lines in 2019. In addition, we will be expanding and rolling out the new controlling and regulating electronics next year in order to equip both existing and future customers for Industry 4.0 applications."

Last year, the soft starter specialist signed new contracts for the installation of its innovative drive solutions in the UAE, Kuwait and Saudi Arabia. The first multi-motor starters with integrated power factor correction have already been installed in Dubai. The starter system facilitates a sequential start-up of several motors using a single soft starter. In Morocco, IGEL has implemented the medium-voltage switching system MV-CW for its clients in the field of water transportation, featuring the newly developed draw-out module.

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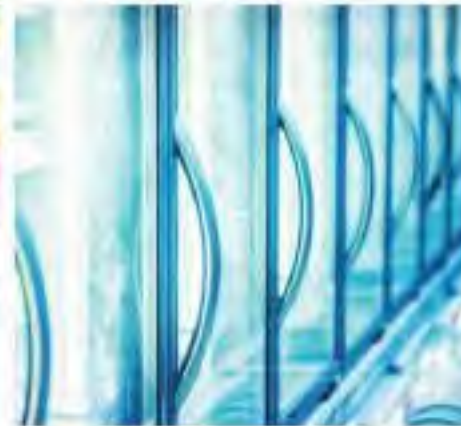


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كريستين لاجارد،
رئيسة صندوق
التقنية الدولي،
معرض الفن
على أرض صبة

المصرية. وقد استكملت الآن قناة إثنية بطول 35 كلم تسمح بحركة مرور موازية عبر القناة.

وتأمل الحكومة في تعزيز حركة المرور والأرياح من القناة، من خلال عبور ما بين 49 إلى 97 سفينة في اليوم الواحد، ومضاعفة حركة المرور اليومية وزيادة الإيرادات السنوية إلى 13 مليار دولار أمريكي بحلول عام 2023. وهذا لم يتحقق بعد فعلياً، وسط التباطؤ العام في التجارة العالمية، ومع ذلك، ارتفعت إيرادات السنة المالية 2017-2018 بنسبة 11.5 في المائة لتسجل مستوى قياسياً مرتفعاً بلغ 5,585 مليار دولار أمريكي، حسبما قالت هيئة القناة في يونيو/حزيران (مقارنة بمبلغ 5,008 مليار دولار أمريكي في العام السابق). في الوقت نفسه، بدأت مصر في توفير مساحات لمحطة جديدة لتوليد الطاقة لتلبية متطلبات الطاقة المحلية المتزايدة. وقد ساهم ذلك - نوعاً ما - في زيادة الاستثمار في إنتاج الغاز من حقول النفط البحرية، حيث تحول الكثير من إنتاج الطاقة في البلد الآن إلى الغاز الطبيعي. كما أصبحت الطاقة المتجددة أولوية، لا سيما الطاقة الشمسية، نظراً لوفرة ضوء الشمس الساطع في البلاد. وبالإضافة إلى الاستثمار في البنية التحتية الجديدة للسياحة، تحرص الحكومة أيضاً على توجيه المزيد من أموال الاستثمار إلى مجالات مثل الاتصالات والنقل والرعاية الصحية والتعليم.

- كتبه: مارتن كلارك

اختلالات في التوازن المالي والاقتصادي بصورة أكبر. ومن المتوقع أن ينمو الناتج المحلي الإجمالي الفعلي بنسبة 5.3 في المائة خلال العام المالي 2018 (مقارنة بنسبة 4.2 في المائة في عام 2017)، إذ ستنتقل إلى 5.8 في المائة بحلول عام 2020، حسب التقديرات.

ومن المتوقع أن يكون هذا النمو مدفوعاً إلى حد كبير بالاستهلاك والاستثمار الخاص والمزمن، بالإضافة إلى حدوث انتعاش تدريجي في الصادرات، لا سيما من قطاع السياحة الهام للغاية، فضلاً عن قطاع صناعة الغاز. ويجدر بالذكر أنه يقف وراء كل ذلك، برنامج إصلاح جريء ونحويلي، بدأت الحكومة في عام 2014، يهدف إلى تحفيز الاقتصاد، وتعزيز بيئة الأعمال في البلاد، وتهيئة المسرح لنمو أكثر لولنا وشمولا.

فقد ركزت الموجة الأولى من الإصلاحات على إعادة توازن الاقتصاد الكلي، بما في ذلك تمرير قانون شريفة القيمة المضافة، وتخفيض عمليات الدعم المقدمة للطاقة، واحتواء فاتورة الأجور وتحرير الجنيه المصري، بينما ركزت الموجة الثانية من الإصلاحات على تحسين الحكومة وبنح الاستثمار، بما في ذلك قانون إصلاح الخدمة المدنية (تم إصداره في أكتوبر/نوفمبر الأول 2016) وسياسات أخرى لإزالة عوائق الاستثمار وجذب الاستثمارات المحلية والأجنبية.

في الوقت نفسه، قامت الحكومة، في إطار حرصها على التخفيف من الآثار السلبية للإصلاحات على الفقراء، بتوسيع نطاق تدابير التخفيف قصيرة الأجل للحماية الاجتماعية الرئيسية، بما في ذلك من خلال زيادة مخصصات البطاقات الذكية للأغذية وبرامج التحويلات التقديرية المستهدفة.

قطاع السياحة

لقد بدأت السياحة تتعافى تدريجياً منذ النفاضة عام 2011، وساعدت على طول الطريق من خلال تعويم العملة في أواخر عام 2016 والذي قلص قيمة الجنيه المصري إلى النصف، مما جعل البلاد وجهة أرخص نسبياً للزوار الأجانب. فزادت أعداد الزائرين، ففي النصف الأول من عام 2018، فزت أعداد الزائرين بنسبة 41 في المائة عن العام السابق لتصل إلى خمسة ملايين زائر. وقد يعني ذلك أن أعداد السائحين السنوية تصل إلى 10 ملايين شخص للمرة الأولى منذ عام 2012.

علماً بأنه في عام 2010، وقبل الربيع العربي، زار ما مجموعه 14.7 مليون سائح مصر، وهذا يعمل على زيادة العائدات من العملات الأجنبية. مرة أخرى، فزت إيرادات السياحة في النصف الأول من عام 2018 بنسبة 77 في المائة إلى حوالي 4.8 مليار دولار أمريكي، مقارنة بالفترة نفسها من العام الماضي. وإذا تضاعفت هذه الأرقام للنسبة التوجمية الكاملة، فإنها ما تزال تضع مصر دون المستويات التي كانت عليها قبل عام 2011، ولكنها تشير إلى أن الاتجاه في تصاعد.

تعزيز البنية التحتية

انخفض إجمالي الدين الحكومي من 103 في المائة من الناتج المحلي الإجمالي في 17/2016 إلى نمو 93 في المائة من الناتج المحلي الإجمالي في 18/2017، كما يشير إلى ذلك صندوق النقد الدولي، مدفوعاً بالدمج المالي وزيادة النمو. وبالمثل، ساعدت السياسات التقديرية الحكيمة للبنك المركزي المصري على خفض معدل التضخم السنوي من نسبة 33 في المائة في يوليو/تموز 2017 إلى 11.4 في المائة بحلول مايو/أيار 2018.

ولكن ما يزال العمل مستمراً على جميع الأصعدة، فقد كان توسيع البنية التحتية للبلاد جزءاً مهماً آخر من إعادة تقديم البلد إلى العالم في أعقاب عام 2011. ويشمل ذلك توسعة كبرى بقيمة 8 مليارات دولار أمريكي لقناة السويس الاستراتيجية. وهي للممر المائي الشيق الذي يربط البحر الأبيض المتوسط بالبحر الأحمر. وتعتبر هذه القناة أسرع طريق للشحن بين أوروبا وآسيا، وأحد المصادر الرئيسية للعملة الأجنبية للحكومة

معرضة الضعفاءات 2019

مارس/آذار

- 7-5 ... معرض الشرق الأوسط للكهرباء، دبي
- 9-5 ... أسبوع الكويت للبناء والإنشاءات، الكويت
- 13-10 ... معرض بيع قابض السعودية، جدة



توسيع البنية التحتية أصبح من أهم الأولويات في البلاد

مصر تنهض ثانية مثل طائر الفينيق

عقب صخب الربيع العربي عام 2011، والإطاحة بالرئيس السابق حسني مبارك، هدأت الاضطرابات، وبدأ المصريون يتطلعون نحو المستقبل مرة أخرى متسلحين بمزيد من الثقة، وبالرغم من استمرار حالة التقلّب وعدم الثبات التي شهدتها بعض الدول على نطاق المنطقة الأوسع، ولا سيما في اليمن التي مزقتها الحرب، وسوريا والتوترات المستمرة في إسرائيل/فلسطين، فإن فترة من الاستقرار الأكبر في ما تبقى من الدول الأكبر نفوذاً في الشرق الأوسط سيحقق بعض الارتياح، خاصة بالنسبة للمستثمرين.

لقد غيّرت وكالة موديز لخدمات المستثمرين توقعاتها ونظرتها المستقبلية بشأن تصنيفات المُصدّر على المدى الطويل للحكومة إلى «إيجابية» من «مستقرة» قبل بضعة أشهر. في ذلك الوقت، قالت وكالة موديز إن القرار يعكس «استمرار تحسينات الهيكلية في أرصدة الحسابات المالية والحساب الجاري، الناتجة عن التنفيذ المستمر لبرنامج الإصلاح المدعومة من جانب صندوق النقد الدولي».

لقد لعب صندوق النقد الدولي، والوكالات الأخرى المتعددة الأطراف، دوراً أساسياً في المساعدة على الانتقال بمصر - مرة أخرى - إلى وضعها الطبيعي من جديد، وبالرغم من أن التحديات التي تواجه حكومتها عديدة، وملحة وواقعية جداً، فإن هناك على الأقل مساراً واضحاً، ويتم إحراز الآن بعض التقدم القابل للقياس.

توقعات النمو

من حيث النمو الاقتصادي، من المؤكد أن الأمور تسير قدماً إلى الأمام، ولكن ربما ليس بالسرعة التي يرغب فيها الكثيرون. ويرى البنك الدولي أنه مع استمرار زخم أجندة برنامج الإصلاح الحكومي، فمن المرجح أن يتحسن النشاط، ومن المتوقع أن تضيق أي

لقد لعبت مصر - إحدى أقدم الحضارات في العالم - دوراً مركزياً في سياسة الشرق الأوسط على مدار العصر الحديث، ومن المتوقع أن تستمر في القيام بهذا الدور، كما أن اقتصادها يعتبر أيضاً ثاني أكبر اقتصاد في العالم العربي، بعد المملكة العربية السعودية. رغم أنه يكافح من أجل دعم عدد كبير ومتزايد من السكان يبلغ حوالي 96 مليون نسمة، قد لا يكون الأمر دائماً بسيطاً وسهلاً، فالجياة نادراً ما تكون سهلة، ولكن هناك شعوراً بأن هذه الدولة الاستراتيجية في شمال إفريقيا، والتي تعد موطناً لأكبر مدينة في أفريقيا، القاهرة، ستبوء مكانتها مرة أخرى.

وهذا لا يتضح بشكل أفضل إلا مما يظهر من خلال قطاع النفط والغاز: فبعد فترة توقفت فيها صادرات الغاز تقريباً وواجهت البلد حالات نقص، أصبحت الأمور الآن دائرة كاملة. لقد أدى الاستثمار الضخم في قطاع الطاقة في البلد، طلب حصوله على الحرية، إلى تعزيز مجموعة من الاكتشافات الجديدة لحقول النفط البحرية في منطقة دلتا النيل الغنية، مما أدى إلى زيادة إنتاج النفط والغاز وفتح فرص جديدة للتصدير.

لقد بوأ هذا القطاع شرق البحر الأبيض المتوسط مركزاً بوصفه إحدى المناطق الهامة للتنقيب في العالم، ولم يهر هذا الانتعاش دون أن تلاحظه وكالات التصنيف.

المحتويات

القسم العربي

تحليلات

مصر تهبط ثانية مثل طائر القيقب



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مراقب خدمية: مفاعلات نووية، الشبكة الذكية.

خدمات لوجيستية: تداول المواد، التغليف.

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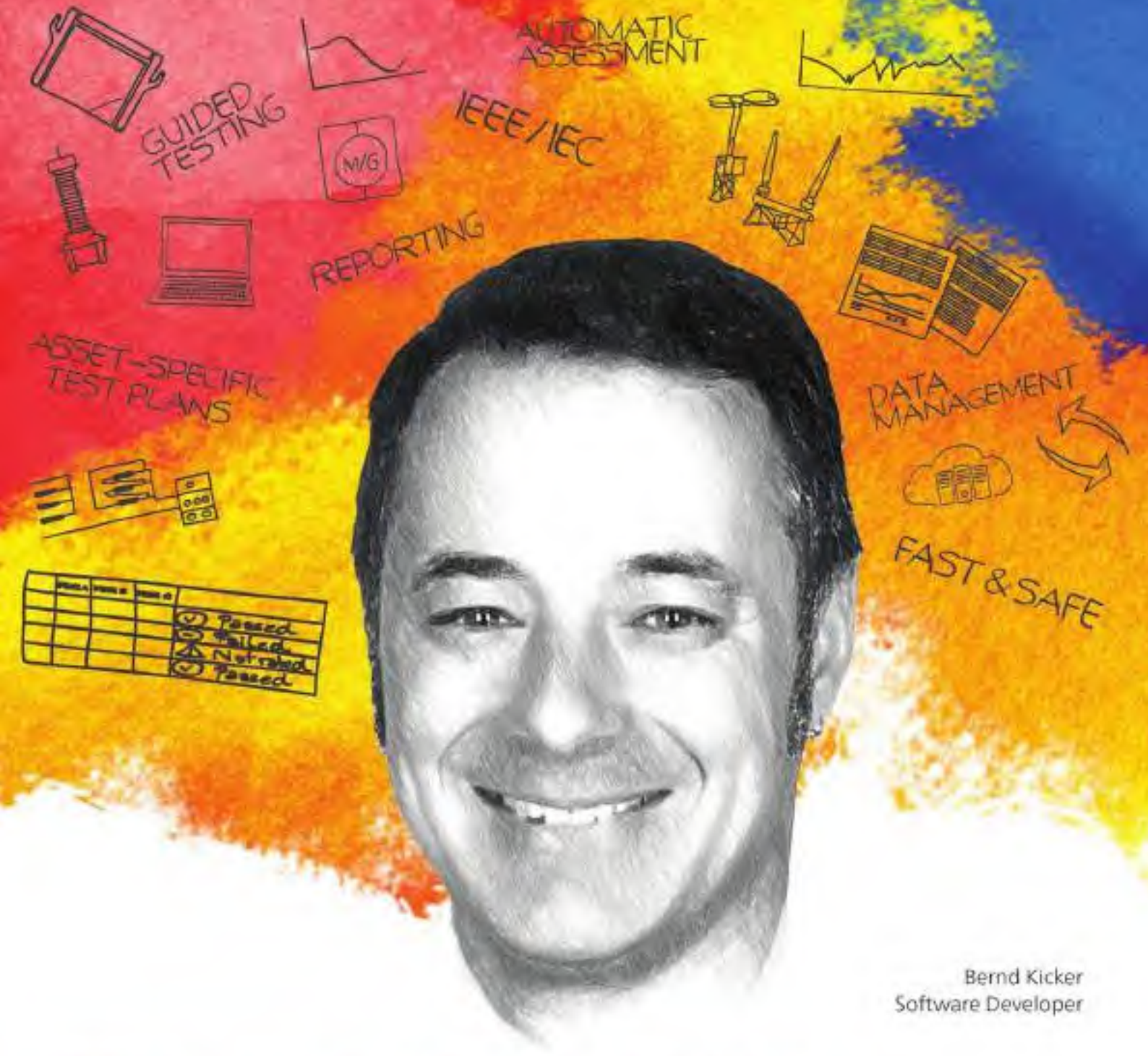
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