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TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

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Annual Power Review 2020

ANNUAL POWER REVIEW 2020

Analysis

Robust GCC policy response
to COVID-19 crisis

Crucial role

HVACR sector assists
life-critical infrastructure

SURVIVING THE SHOCK

THE POWER SECTOR IS SWITCHED ON

INSIDE

Cables
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ELECTRICAL EQUIPMENT AND
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EDITOR'S NOTE

THE POWER INDUSTRY is slowly getting a sense of this uncertain new world. The good news is that some firms are finalising deals, showing signs of some progress compared with previous months (p14). While the cable firms are resorting to business continuity plans (p30), the HVACR sector is redefining its role (p24). We also take a look at how the GCC bloc is instilling confidence in businesses (p20). A report on 5G and its power needs gives a perspective about the emerging trends (p28). Elsewhere in this issue, we feature an expert insight on the benefits of autonomous drones for several industries. Other reports include emerging trends in warehouses and logistics, and a round-up of innovations. Also, do not miss our Annual Electrical Equipment Buyers' Guide (p42), offering a comprehensive guide to the region's power industry.

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



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TECHNICAL REVIEW

الخدمة التقنية - الشرق الأوسط

MIDDLE EAST

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Briefly

Turkey: Local, renewable resources contribute 66 per cent of electricity

TURKEY PRODUCED 66 per cent of its electricity from local and renewable resources in the first five months of 2020, said the country's Energy and Natural Resources Minister Fatih Dönmez.

"We continue to reap the fruits of our long-term investments," Dönmez wrote on Twitter, given that Turkey wants to fully utilise local and renewable energy resources efficiently to support its development and to reduce dependence on energy imports.

Last year Turkey's electricity production from local and renewable resources stood at 62 per cent, he noted.

But on May 24, Turkey saw an all-time daily record as local and renewable resources accounted for 90 per cent of the country's electricity generation, the minister added.

On May 24, hydro plants constituted the largest portion at 43.7 per cent, while local coal plants contributed 16.5 per cent to electricity generation. Wind plants powered 14.5 per cent and solar plants constituted 7.2 per cent. Geothermal and biomass plants added 5.3 per cent and 2.6 per cent, respectively.

Elsewedy Electric for Trading and Distribution signs US\$13.27mn deal

EGYPT'S ELSEWEDY ELECTRIC for Trading and Distribution has signed a contract to build Al Lahoon substation with a value of US\$13.27mn in Faiyum governorate on a turnkey basis. The engineering, procurement and construction (EPC) contract will be implemented over a six-month period.

Elsewedy Electric for Trading and Distribution is one of the leading wires and cables and integrated energy solutions providers in the Middle East and Africa.

The company has a portfolio incorporating traditional and renewable energy areas along with related services. Last year, the company signed an EPC contract worth US\$18.54mn to build a transmission line and an internal network for the Canal Sugar Company in Egypt.

Jebel Ali SWRO desalination plant achieves three million man-hours without LTIs

DEWA'S JEBEL ALI desalination plant in JAPS, Dubai, has achieved three million man-hours without lost time injuries (LTIs) as construction passes the 70 per cent completion mark.

This milestone has been attained while strictly observing all the international and local protocols put in place to mitigate the COVID-19 pandemic.

ACCIONA and BESIX are the EPC contractors for the Jebel Ali Seawater Reverse Osmosis (SWRO) desalination plant, which will produce 183,000 cu/m of potable water per day. It will serve a population of 500,000 inhabitants, making it one of the largest desalination plants in the Emirates. Jebel Ali SWRO desalination plant is expected to be completed by the end of 2020.

The zero LTIs record is the result of good teamwork by the client, the engineers and the construction consortium. Several health and safety measures are in place, including specific training for employees involved in activities that carry a relative risk such as working at height, driving and



Photo Credit: DEWA

Total desalinated water production in the Middle East will be 13 times higher in 2040 than it was in 2014, according to the latest ACCIONA Sustainability Report.

working in confined spaces.

The preventive measures at the construction site include regular coordination meetings with the subcontractors, weekly visits to analyse the state of work, and a training schedule during construction. All these initiatives have allowed the early detection of potential risky situations, and have prevented occupational accidents from happening.

Empower releases guidelines for uninterrupted cooling services

EMIRATES CENTRAL COOLING Systems Corporation (Empower), has urged its customers to apply simple steps to ensure the continuity in cooling services during the summer, a period when there is high demand for cooling services from consumers.

"We seek to provide best and sustainable district cooling services to our customers, and we have much confidence in them to avoid breakdowns and

apply the instructions that would ensure them the high-quality cooling services during this hot season," remarked its CEO Ahmad Bin Shafar.

The advanced technologies that Empower uses and develops year after year, help customers to monitor and plan their consumption of district cooling services, which in turn contributes to lowering energy consumption and achieving significant power savings, he stated.

PDO starts commercial operation of Amin PV Power Plant

PETROLEUM DEVELOPMENT OMAN (PDO) has begun operations of the 100-MW Amin Photovoltaic Power Plant.

The US\$94mn facility in the south covers an area of four sq km and can produce up to 100 megawatts of electricity through solar panels. The energy generated is sufficient to power 15,000 homes and could lead to an annual reduction of more than 225,000 tonnes of CO2 emissions – the equivalent of taking 23,000 cars off the road.

Using solar-generated electricity as an alternative to natural gas to support PDO operations, the project is expected to provide an equivalent fuel economy of 95.5 million cubic metres of gas per annum.

PDO Managing Director Raoul Restucci said, "Solar intensity in Oman provides an attractive platform to enable a lower carbon and more



Photo Credit: Adobe Stock

The 100-megawatt Amin facility will supply electricity for PDO's operations.

sustainable future. This flagship project is another building block in support of PDO's continued transition to a fully-fledged energy company. The Amin power plant represents an excellent example of Oman's outstanding potential in renewable energy."

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Briefly

Evolution II Fund partners with Building Energy in buyout deal

INSPIRED EVOLUTION'S EVOLUTION II Fund has closed a buyout of Building Energy's Africa and Middle East business to launch the newly-branded Red Rocket.

The JV will see the re-capitalisation and positioning of Red Rocket to become one of the region's leading emerging renewable energy independent power producers (IPPs).

Evolution II holds a majority shareholding in the reconfigured IPP platform and is advised by Inspired Evolution, an Africa-focused investment advisory firm that specialises in clean energy infrastructure and resource efficiency investments.

Red Rocket is an integrated renewable energy IPP that develops, designs, constructs, operates, and owns utility-scale grid-connected renewable energy projects (wind, solar, hydro and biomass) with operations in multiple countries across Africa.

The Group is developing a portfolio in excess of two gigawatts of additional wind, solar, hydro and biomass projects to bid under future rounds of South Africa's renewable energy independent power producer procurement programme (REIPPPP), and other procurement programmes across various African countries.

Red Rocket's management skills set offers unique agility and differentiated bid strategies with best-in-class demonstrated renewable energy bid success and subsequent implementation of the projects.

The team combines proven renewable energy technology selection with technical project development optimisation and innovation to offer full integration through its IPP platform solutions.

The hands-on active value creation from Inspired Evolution complements Red Rocket's capabilities to deliver on its African IPP expansion plans.

Matteo Brambilla, CEO of the Red Rocket Group, said, "Our auction successes under the REIPPPP in South Africa and in select countries across Africa are testament to the innovation we continually apply to our renewable energy public and private bid strategies."

Renewables continues to beat cheapest coal competitors on cost: IRENA

RENEWABLE POWER IS increasingly cheaper than any electricity capacity based on fossil fuels, according to a report by the International Renewable Energy Agency (IRENA).

Renewable power generation costs in 2019 showed that more than half of the renewable capacity added in 2019 achieved lower power costs than the cheapest new coal plants.

The report highlights that new renewable power generation projects now increasingly undercut existing coal-fired plants. On average, new solar photovoltaic (PV) and onshore wind power cost less than keeping many existing coal plants in operation, and auction results show this trend accelerating – reinforcing the case to phase out coal entirely. Next year, up to 1,200GW of existing coal capacity could cost more to operate than the cost of new utility-scale solar PV, the report shows.

Replacing the costliest 500GW of coal with solar PV and onshore wind next year would cut power system costs by up to US\$23bn every year and reduce annual emissions by around 1.8 gigatons (Gt) of carbon dioxide (CO₂), equivalent to five per cent of total global CO₂ emissions in 2019. It would yield an investment stimulus of US\$940bn, equal to around one per cent of global GDP.

"We have reached an important turning point in the energy transition. The case for new and much of the existing coal power generation, is both environmentally and economically unjustifiable," said Francesco La Camera, director-general of IRENA. "Renewable energy is increasingly the cheapest source of new electricity, offering tremendous potential to stimulate the global economy and get people back to work. Renewable investments are stable, cost-effective and attractive offering consistent and predictable returns while delivering benefits to the wider economy."

Renewable electricity costs have fallen sharply over the past decade, driven by improving technologies, economies of scale, increasingly competitive supply chains and growing developer experience. Since 2010, utility-scale solar PV power has shown the sharpest cost decline at 82 per cent, followed by concentrating solar power (CSP) at 47 per cent, onshore wind at 39 per cent and offshore wind at 29 per cent.

Costs for solar and wind power technologies also continued to fall year-on-year. Electricity costs from utility-scale solar PV fell 13 per cent in 2019, reaching a global average of US\$0.068 per kilowatt-hour (kWh). Onshore and offshore wind both declined about nine per cent, reaching US\$0.053/kWh and US\$0.115/kWh, respectively.



Electricity costs from utility-scale solar PV fell 13 per cent in 2019.

Photo Credit : Adobe Stock

India's SWSL commissions first solar PV project in Oman

INDIA'S STERLING AND Wilson Solar Ltd (SWSL) has commissioned its first 125MW solar photovoltaic (PV) project in Oman.

SWSL received the order from Amin Renewable Energy Company SAOC that is supported by the Japanese-Omani consortium designed by Marubeni Corporation, Oman Gas Company SAOC, Bahwan Renewable Energy Company LLC and Nebras Power.

Speaking on the project, Bikesh Ogra, director and global CEO, Sterling and Wilson Solar, said that through this project, SWSL aims to support the Omani government's vision for a clean and sustainable energy future.

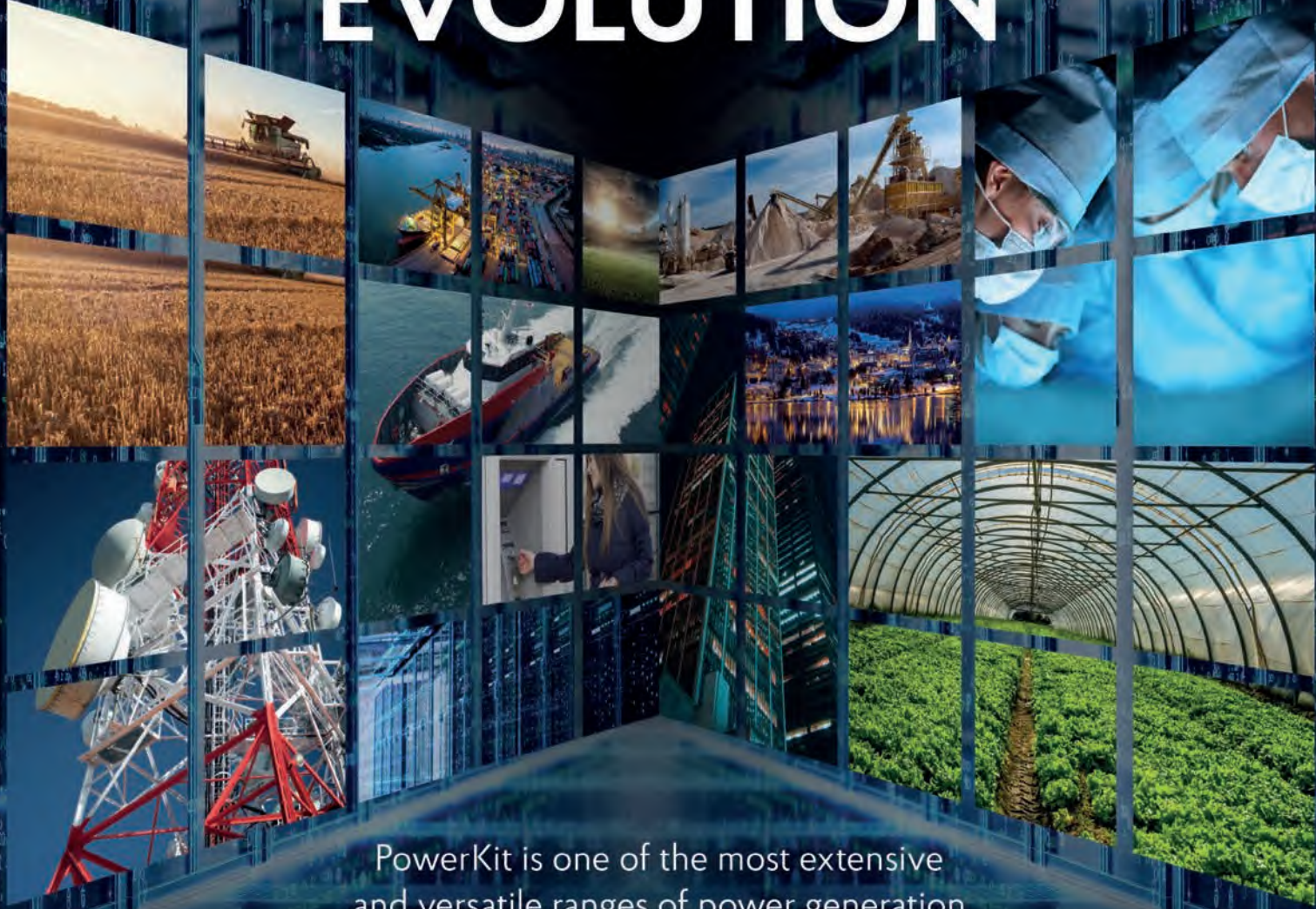
The project is one of the leading single-unit solar parks in the world to use bifacial modules. The aim is to produce less heat so that the plant can withstand the desert temperature fluctuations.



The project is one of the leading single-unit solar parks in the world to use bifacial modules.

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Briefly

Mohamed bin Zayed lauds Barakah plant progress

HH SHEIKH MOHAMED bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, visited the Barakah Nuclear Energy Plant in Abu Dhabi to witness its progress.

The plant is set to be a major driver of the UAE's transition to a new clean energy era, supporting the diversification of energy sources. Beyond clean energy, the Barakah plant aims to emerge as an engine of growth for the nation, through the creation of highly skilled careers and a new industrial sector to support the operation of the plant for the next six decades that it will operate.

To commence the visit, His Highness Sheikh Mohamed and his delegation received a briefing on the historic milestones achieved over the past eleven years by ENEC and its subsidiaries Nawah and Barakah One Company, alongside its crucial partners the Korea Electric Power Corporation (KEPCO), ENEC's Joint Venture Partner, and Korea Hydro and Electric Power (KHNP), since his visit in 2018 to witness the construction completion of Unit 1.

Following the briefing, the delegation visited the main control room of Unit 1, which is in the advanced stages of testing in preparation for start-up. This will be a major step forward for the UAE as it will produce clean electricity from nuclear energy for the first time in the nation's history.

HH met the operating crew, comprised of UAE national and international experts, who are certified and licensed to safely operate and control the reactor. The crew presented their operations process and expressed their commitment to deliver and operate the Barakah plant in line with the highest standards of quality and safety.

HH toured Units two to four of the plant where ENEC CEO Al Hammadi announced another crucial milestone: the construction completion of Unit 2, which has been completed in accordance with the highest global standards of quality and safety. The plant will be handed over to Nawah Energy Company to complete all of the operational preparations.

GE supporting Middle East with reliable power grids as summer arrives

AS GRID STABILITY is critical for seamless operations in infrastructure, GE is supporting the next phase of the fight against COVID-19 in the Middle East by ensuring power grids are ready.

GE technical professionals are working around the clock to maintain the reliability and efficiency of the region's power grids to meet peak demand brought on by soaring temperatures.

"We are working on many projects that are critical to our customers," said Mohammed Mohaisen, president and CEO of GE Renewable Energy's Grid Solutions business in the Middle East, North Africa and Turkey. "This work is important especially now, with many countries easing lockdowns as the summer arrives. Peak demand for electricity could be higher than usual this year since most people are staying at home with minimal plans to travel abroad."

GE's Grid Solutions continues to make use of its remote training modules to cross-train field engineers on new equipment and technologies. "We are taking different measures to continue supporting our customers across the region especially in such times. We are also training our professionals across all work sites in the region, and getting them up to speed with enhanced skillsets so we can continue to move ahead with projects despite limits on international travel," said Mohaisen.

Further, GE is driving localised manufacturing and innovation to support the industrial sector in general, and grid stability in particular. GE's Grid Solutions Khobar Integration Facility (KIF) in Dammam – which has evolved as a high-end Saudi-based manufacturing ecosystem helping to address gaps in the global supply chain through the pandemic – manufactures protection and

GE is leveraging digital technology in promoting frontline work safety including smart helmets for field engineers.



Photo Credit : GE

control panels that customers need in order to expand and upgrade substations ahead of peak summer electricity demand.

In Iraq, GE's Grid Solutions team has successfully energised two 132/33kv substations that will reduce bottlenecks in eastern Baghdad. The Baladiyat and Al-Ammari substations will support the transfer of energy from generating power plants such as Besmaya, the largest power plant in Iraq, into the community. This is part of GE's commitment to supporting Iraq in building a sustainable grid.

Even in the most complex of times, supporting the stability of the grid must be done with safety as a priority. GE is focused first and foremost on protecting its people, customers, and technology, through following strict protocols across its operations.

GE is leveraging digital technology in promoting frontline work safety including smart helmets for field engineers that have cameras which send data by secure high-speed internet to its facilities abroad. Remote grid asset experts can then provide insights on troubleshooting and resolving issues when it might not be available locally.

SEC awards five stars to Waad Al Shamal Power Plant Project EHS standards

SAUDI ELECTRICITY COMPANY (SEC) has awarded five stars to Waad Al Shamal integrated solar and combined cycle power plant project for Environment, Health and Safety (EHS) standards.

GE is providing turnkey services, including engineering, procurement and construction (EPC) works, and supplying four GE 7F gas turbines, one steam turbine and four heat recovery steam generators (HRSGs), as well as other equipment for the project. One of the turbines at the site is the first GE gas turbine rolled out locally in the Kingdom from GE Saudi Advanced Turbines (GESAT) – a joint venture (JV) between Dussur and GE.

Fahad H. Al-Sudairi, president and CEO of SEC,



Photo Credit : SEC

Strict measures have been implemented to enable project staff to continue working safely following the COVID-19 outbreak.

said, "At SEC, we continuously assess progress against strict measures meant to ensure occupational safety and health across all our offices, existing facilities and projects rating."

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Briefly

GCC wins JIIC contract

JUBAIL ISLAND INVESTMENT Company (JIIC) has awarded a continuing infrastructure works contract worth more than US\$54.45mn for Jubail Island to Gulf Contractors Company (GCC).

The works are part of the 18-month-long contract to complete the infrastructure required for the remaining residential villages within Phase 1 of the US\$1.36bn project – Nad Al Dhabi, Seef Al Jubail and Ain Al Maha.

The scope of the GCC contract comprises the construction of over 47.5 km of internal roads in the three villages. Infrastructure development, including electricity, water, sewage, irrigation, telecom and gas networks, as well as street lighting are within its ambit.

Mounir Haidar, managing director of JIIC, said, "Following the commencement of construction for the initial infrastructure works in early 2020, we are delighted to confirm the start of infrastructure works to complete the remaining Phase 1 villages on Jubail Island, demonstrating our dedicated commitment to on-time delivery of plots as early as Q3 2021."

COVID-19 shocks global energy system

THE COVID-19 PANDEMIC will have a fundamental impact on the world's energy systems and on the pace and direction of the global transition, according to the World Energy Council's global survey of energy leaders and experts.

Dramatic cuts in spending and a reallocation of funds into digital solutions and environmental sustainability are some of the most significant changes likely to emerge as a result of the crisis.

The energy industry was under strain even before the pandemic, which led to the biggest ever decline in energy demand and sharply lower oil and gas prices.

Dr Angela Wilkinson, secretary general & CEO, World Energy Council, commented, "The COVID-19 crisis is triggering the greatest financial capital re-allocation in history. Only by convening informed and diverse viewpoints can the energy world avoid a next global crisis and better prepare for the new normal. Now is the moment to shape a future of better energy for everyone and the environment."

APICORP invests in JWPC

THE ARAB PETROLEUM Investments Corporation (APICORP), has announced its first direct equity investment in a wind energy venture, the Jordan Wind Project Company (JWPC), the developer of the Tafila Wind Project in the Hashemite Kingdom of Jordan.

APICORP's 20 per cent equity stake in the project also marks its first equity investment in the country.

JWPC's mandate is in line with Jordan's ambitious target to have clean energy account for 20 per cent of the country's overall power generation by 2021, thereby developing new and sustainable energy sources as part of the country's energy mix. The US\$287mn

117MW wind farm connected to the national grid accounts for 12 per cent of Jordan's total operating renewable energy generation, generating around 350GWh of clean energy annually which can power 83,000 homes.

Tafila Wind Farm is owned and operated by the Jordan Wind Project Company PSC (JWPC), in which Abu Dhabi's renewable energy firm Masdar owns a 50 per cent stake. APICORP and Tamasuk Holding, the infrastructure and development arm of Al Blagha Holding for Investments Co., partnered to acquire the remaining 50 per cent stake, owning 20 per cent and 30 per cent beneficial stakes, respectively.

Officially inaugurated in December 2015, Tafila Wind Farm displaces nearly 235,000 tons of CO₂ emissions per year. It also undertook a comprehensive Environmental and Social Impact Assessment (ESIA) during its development period to identify environmental and social impacts the project may have in the surrounding areas, and continues to implement a strict social and environmental regime in accordance with lenders' requirements, Jordanian environmental guidelines and international best practices.

Dr Ahmed Ali Attiga, CEO of APICORP, commented, "This equity investment affirms APICORP's position as a trusted partner to the region's energy sector and underscores the strategic drive to enhance access to sustainable power, an area in which Jordan continues to be a regional leader. With the Arab world's abundant wind resources, we see wind power as a viable component and key technology in the region's future power generation mix, offering a sustainable, cost-effective energy source that will enable wider access to modern electricity to millions of people and spur employment and economic growth."



Tafila wind farm.

Photo Credit : APICORP

KIZAD breaks ground on new facilities

KHALIFA INDUSTRIAL ZONE Abu Dhabi (KIZAD), a subsidiary of Abu Dhabi Ports, has announced breaking ground for its new products to support the increasing demand for pre-built facilities in KIZAD.

The range of small-to-medium light industrial warehousing units comprise the fourth, fifth, sixth and seventh phases of the KIZAD Logistics Park and are set to be introduced to the market starting from the end of the year to cater to increasing customer demands for additional ready-to-move facilities.

Abdullah Al Hameli, acting head of Industrial Zones Cluster, Abu Dhabi Ports, said, "Industrial activity and warehousing demand has been quite resilient, and we are confident that launching these ultra-modern units will propel tremendous growth in



Mixed-use warehousing, showroom warehousing and light industrial units.

Photo Credit : KIZAD

Abu Dhabi's manufacturing base. Customers are looking for flexible and asset-light options, and we are expanding our portfolio to address these needs through the launching of a new modular, pre-built units in various sizes and configurations."

New reports highlight nuclear power as important pillar of post-pandemic recovery

THE ORGANISATION FOR Economic Co-operation and Development's Nuclear Energy Agency (OECD-NEA) has launched a series of policy briefs that examine nuclear energy's role in the post-pandemic economic recovery.

The policy briefs highlight that investment in nuclear energy is proven to create many highly skilled jobs, with every job in the nuclear industry generating a further 3.2 jobs throughout society. Investments into nuclear also deliver widespread economic growth, along with strengthening energy independence and security of supply.

On the issue of cost and financing, sometimes cited as a key obstacle to the development of nuclear power, they note that there are a number of financing models that can be applied for large-scale infrastructure projects. These models would be well-suited to support near-term nuclear new build projects and could in turn, significantly reduce the final cost of nuclear energy, helping ensure affordable and secure electricity supply.

Agneta Rising, director general of World Nuclear Association, commented, "Nuclear energy is a pillar of stability; nuclear reactors are the low-carbon backbone of many economies



Photo Credit: Adobe Stock

Nuclear power could help to build a clean and resilient energy system.

around the world, quietly operating in the background, providing incredible amounts of electricity so that we can focus on protecting lives and livelihoods during these uncertain and unsettling times."

"Investment into nuclear energy is a window of opportunity for governments to not only boost economic growth and create many highly valued and largely local jobs, but also fulfill our climate change commitments and build a clean and resilient electricity system."

Startup challenge

GULFTAINER, THE WORLD'S largest privately owned, independent port operator, has announced the launch of the Future of Ports Startup Challenge 2020 to identify startups from across the globe with the ambition to lead the transformation of the port management and logistics industries through the development of disruptive technologies.

The winning startups will be invited to present their projects to an audience of leaders from the port and logistics industry, along with investors. Gulftainer will also award a cash stipend to each of the winning startups and provide the opportunity to explore the deployment or co-development of their technology.

Applications are open for entrepreneurs and startups until 15 August through gtinnovationchallenge.com.

Trojan Holding launches digital training programme

TROJAN HOLDING, ONE of UAE's leading construction companies, has launched the fourth edition of its 'Trojan Young Engineers' programme to empower the next generation of engineers.

Since launching in 2016, the programme has benefitted more than 300 young engineers and is set to expand to universities across the Middle East by the end of the year.

The programme, which began on 23 June, is being offered online for the first time, and will focus on Abu Dhabi's new 'Water's Edge' development at Yas Island. The aspiring engineering students, selected from UAE universities, will understand how Trojan Holding's team of professionals are managing the planning, design and execution stages of the project. The students will virtually explore the under-construction project with the guidance of Trojan's engineers, learn about the day-to-day responsibilities and gain an insight of the career in both management and construction roles. Following the conclusion of the programme, Trojan Holding will award six-week internships to selected students.

Engineer Hamad Al Ameri, managing director of Trojan Holding, said, "While a university qualification can potentially open the doors to a career, experience remains one of the most important assets for a graduate. Trojan Holding is committed to giving back to the community and through the 'Trojan Young Engineers' programme, it will help UAE's future leaders of the construction industry gain the practical knowledge and understand the day-to-day responsibilities of the sector."



Photo Credit: Adobe Stock

The programme is being offered online for the first time.

Briefly

Water treatment partnership launched

ECOLOG INTERNATIONAL AND Siemens Energy's Water Solutions business have joined forces to provide an efficient and service-oriented treatment option to the water and wastewater industry.

Anthony Pink, CEO of Siemens Water Solutions, said, "Wastewater has to undergo a complex, energy-intensive process to reach the required level of purity. Siemens Energy's specialist technology supports this process, and our agreement with Ecolog enhances our technological portfolio with key treatment technologies and vast wastewater experience, aligned with local high-performance services, allowing Ecolog and Siemens to jointly serve the wastewater industry in a broader way, as required."

Ali Vezvaei, Group CEO of Ecolog International, said that the partnership is set to bring advanced and integrated solutions to the customers and enable them to focus more on managing production and less on waste management and side streams.

More renewable progress needed, says report

GROWTH IN RENEWABLE power has been impressive over the past five years, but too little is happening in heating, cooling and transport, according to REN21's *Renewables 2020 Global Status Report* (GSR). The journey towards climate disaster continues, unless we make an immediate switch to efficient and renewable energy in all sectors in the wake of the COVID-19 pandemic, the report says.

"Renewable power has made fantastic progress. It beats all other fuels in growth and competitiveness. But the progress in the power sector is only a small part of the picture. And it is eaten up as the world's energy hunger continues to increase. If we do not change the entire energy system, we are deluding ourselves," said Rana Adib, REN21's executive director.

The report shows that in the heating, cooling and transport sectors, the barriers are still nearly the same as 10 years ago. "We must also stop heating our homes and driving our cars with fossil fuels," Adib added.

EXECUTIVES' CALENDAR 2020

OCTOBER

5-8	Saudi Build	RIYADH	www.saudibuild-expo.com
10-13	Basrah Building Conference and Fair	BASRAH	www.basrahbuilding.com
12-13	Middle East Smart Lighting and Energy Summit	DUBAI	www.lightingsummit.com
14-15	Kuwait Green Build	KUWAIT CITY	www.kuwaitgreenbuild.com
26-27	BUILDIT	DUBAI	www.terrapinn.com/exhibition/buildit-middle-east/index.stm
26-28	CABSAT	DUBAI	www.cabsat.com
26-28	WETEX	DUBAI	www.wetex.ae

NOVEMBER

17-18	The Mining Show	DUBAI	www.terrapinn.com/exhibition/mining-show/index.stm
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DECEMBER

8-10	Gulf Traffic	DUBAI	www.gulftraffic.com/en/home.html
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Readers should verify dates and location with sponsoring organisations, as this information is sometimes subject to change.

Kuwait Green Building Forum 2020

Green building is the practice of creating structures and using processes that are environmentally friendly and resource-efficient throughout a building's life-cycle from siting to design, construction, operation, maintenance, renovation and deconstruction.

The International Energy Agency has estimated that the world's primary energy needs will grow by 55 per cent by 2030, also estimating that US\$33 trillion investment is required to meet expected demands.

With buildings currently consuming 40 per cent of the world's energy demands, 25 per cent of harvested wood and 17 per cent of water, many regional governments have been working to improve building energy efficiency and sustainability.

In this context, the 8th Kuwait Green Building Conference & Exhibition, a sustainable built environment focused forum, will take place on 14-15 October in Kuwait. It will bring together leading sustainability experts and stakeholders to debate and share best practices and innovative solutions to the construction industry.

The conference aims to promote sustainability and green practices as well as the use of suitable building materials, technologies, services and processes that improve the environmental performance and energy efficiency in buildings. It also aims to enhance cities' capacity to respond to climate change while at the same time improving the efficiency of the built environment.

New dates for Expo 2020 Dubai revealed

UAE'S EXPO 2020
Dubai has been postponed by a year due to the impact of COVID-19 and will officially take place between 1 October 2021 and 31 March 2022.

Given the impact of the global health crisis, the decision taken by the Bureau International des Expositions' executive committee to postpone the event was met with support from several international and regional organisations.

Dimitri Kerkentzes, secretary-general of the Bureau International des Expositions (BIE), said, "The difficulties raised by the COVID-19 pandemic illustrate the importance of sharing solutions and co-ordinating our actions."

"The time we spend apart leads us to reflect on the importance of being together, and reminds us that even in the digital age, shared experiences are the essence of our humanity. The world is now more than ever looking forward to Expo 2020 Dubai to connect, reflect and celebrate the future."



Photo Credit : Expo 2020 Dubai

The expo is expected to attract around 190 participating countries.

ON THE WEB

A round up of the leading developments and innovations recently featured on *Technical Review Middle East's* online portal. To read more or to stay up to date with the latest industry news, visit www.technicalreview.me

IMKAN awards US\$64.25mn contract for AlJurf development

ABU DHABI-BASED PLACE-MAKER IMKAN has awarded Al Dhabi Contracting LLC a US\$64.25mn contract to build the first phase of the master-planned



Photo Credit : IMKAN

The project is due to be completed by 2022.

development of AlJurf, its second home coastal destination set along the pristine coast of Sahel Al Emarat, the UAE's Riviera.

Scheduled for completion in 2022, the first phase of AlJurf, AlJurf Gardens, will see Al Dhabi Contracting LLC build 146 residential and two show villas over a total area of 57,851 sq m.

www.technicalreviewmiddleeast.com/construction

Netskope expands NewEdge network in the Middle East

NETSKOPE, GLOBAL SECURITY cloud provider, has expanded the Netskope NewEdge network to a new data centre in the UAE, serving customers across the Middle East.

Netskope NewEdge is a carrier-grade private cloud network that is reserved exclusively for Netskope customers.

The efforts to digitally transform enterprises have pushed the capabilities of the public internet to its maximum. Inherently unpredictable and unsecure, the public internet is strained by users who demand great web, cloud and private application performance and enterprises that demand more security. Compounding this challenge, legacy security tools often introduce delays to accessing these critical services.

www.technicalreviewmiddleeast.com/it/communication

SWPC signs US\$245mn financial closure for Dammam project

SAUDI WATER PARTNERSHIP Company (SWPC) and a consortium led by the Metito Group, comprising Metito, Mowah Co. and Orascom Construction, have confirmed the financial closing of the kingdom's first Independent Sewage Treatment Plant (ISTP).

The project will be awarded to the private sector, under the build own operate transfer (BOOT) concession model, with a tenor of 25 years, in Dammam West. The financial closing of this project comes despite the global lockdown, caused by the COVID-19 pandemic. The Dammam ISTP, with a designed capacity of 350,000 cu/m and an initial capacity of 200,000 cu/m per day, will serve the western region of Dammam.

www.technicalreviewmiddleeast.com/water-a-environment

Abu Dhabi Airport introduces touchless elevators

ABU DHABI AIRPORTS has partnered with Meta Touch, a groundbreaking UAE company, to deploy touchless technology across 53 elevators at Abu Dhabi International Airport (AUH), helping to prevent cross-infection from interacting with elevator buttons and enable a COVID-19-free airport environment. The new technology, TchK (Touch-less Keypad Technology), was designed and manufactured by Meta Touch.



Photo Credit : Abu Dhabi Airports

The aim is to prevent cross-infection from interacting with elevator buttons.

www.technicalreviewmiddleeast.com/hse

Volvo autonomous electric hauler wins Red Dot award

VOLVO AUTONOMOUS SOLUTIONS' TA15 autonomous electric hauler has won a Red Dot Product Design Award 2020 – a seal of high design quality from the world's largest and most distinguished design competition.



Photo Credit : Volvo

TA15 autonomous electric hauler.

The battery-electric load carrier is a new machine concept, compared to traditional off road hauling, and forms one element of Volvo Autonomous Solutions' TARA transport solution. It is designed to disrupt today's off-road hauling.

www.technicalreviewmiddleeast.com/logistics

SDRPY launches energy and water projects in Yemen

THE SAUDI DEVELOPMENT and Reconstruction Programme for Yemen (SDRPY) has launched a package of development projects in Socotra governorate to activate and operate two power plants in Hadibu and Qulansiyah and manage water resources. Tariq Al-Zaidi, director of SDRPY in Socotra, confirmed in a speech at the launch that the programme had built the Hadibu and Qulansiyah power plants to the highest international technical specifications, the same as for Saudi electricity stations.

SDRPY launched electricity services at Hadibu Station, which has a capacity of 3,750 kW and includes a building to house the plant and all accessories, such as transformers, tanks and cables. All electrical and mechanical work has been completed to feed the electrical network in Socotra Governorate.

www.technicalreviewmiddleeast.com/power-a-water



The IEA believes the energy industry that emerges from the current crisis will be significantly different from the one that came before

Photo Credit : Adobe Stock

Where crisis meets opportunity

Power firms are braced for a challenging year ahead but remain confident of the Gulf's long-term potential as major shifts, from industrial diversification to a transition to clean energy, open up fresh opportunities. Martin Clark reports.

The COVID-19 pandemic has set in motion the largest fall in global energy investment in history, the International Energy Agency (IEA) said in a new report

IT'S FAIR TO say that 2020 has not panned out the way power companies — nor anyone else for that matter — would've liked or expected.

Things had been moving in the right direction for big engine makers, suppliers and contractors at the start of the year, with the Middle East market enjoying steady growth.

That was until the coronavirus pandemic engulfed much of the world, shuttering economies and stifling demand for energy and pretty much all else.

The COVID-19 pandemic has set in motion the largest fall in global energy investment in history, the International Energy Agency (IEA) said in a report, with spending expected to plunge in every major sector this year, from fossil fuels to renewables.

It reckons total global energy investment will drop by 20 per cent — or almost US\$400bn — compared with last year.

The IEA's executive director Dr Fatih Birol called it a "deeply troubling" scenario.

For the Middle East, the collapse in oil prices brings with it further problems, spelling trouble for the likes of Saudi Arabia,

Kuwait and Abu Dhabi.

The gas sector has proved more resilient, though, which could work in favour of big LNG exporters like Oman.

Nonetheless, demand and investment is down right across the board, with expectations extremely subdued for the near-term future.

Subdued outlook

Against this backdrop of uncertainty and volatility, predicting what comes next is a bit like gazing into a crystal ball.

Still, the IEA notes in its World Energy Investment 2020 guide, published this May, a number of factors to watch for in the coming year. Its baseline expectation for 2020 is a widespread global recession that will undermine energy demand and investment globally.

A more rapid V-shaped recovery could spur a more optimistic scenario but, by the same token, there is the possibility of an even more profound slump in the event that a second wave of infections later in the year prompts renewed restrictions and lockdowns.



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Moreover, the IEA believes the energy industry that emerges from the current crisis will be significantly different from the one that came before.

That might include an acceleration to cleaner energy technologies and away from traditional thermal-based power generation.

More immediately, though, energy-related government revenues – especially in the main oil and gas exporting countries – have been profoundly affected, with knock-on effects on budgets available to state-owned energy enterprises.

This is likely to influence spending patterns in the Gulf states, though even here, there are examples where deals are still being done.

Business resilience

While it's hard to find examples of unbridled optimism right now, it's not all doom and gloom either.

Many of the well-known players in this field – the likes of Volvo Penta, MAN Energy Solutions, EFEN GmbH, Perkins Engines, Baudouin and Cantoni Motors – are no strangers in navigating through volatility, especially in the emerging markets.

While 2020 may have provided the ultimate test in business resiliency, work on existing projects still continues and new tenders are out there and up for grabs.

Remember, it was not so long ago – just a few months – that the Middle East was one of the most exciting and high-potential markets in the world for power companies.

Prior to the health crisis, the region was estimated to require US\$109bn in power infrastructure investment over the coming five years, according to the MENA Power Industry Outlook, prepared by Ventures Onsite for Middle East Energy, the annual Dubai-based business expo.

That value may have eroded sharply in

Prior to the health crisis, the region was estimated to require US\$109bn in power infrastructure investment over the coming five years, according to the MENA Power Industry Outlook.

the past few months or so, but the fundamentals of the region – a rising, youthful population, expanding economies and sustained energy demand – all looked encouraging, at least until the COVID-19 outbreak.

Deals being done

Indeed, the ability of major power projects such as the 500MW Ibri solar plant in Oman to achieve financial closure in the current climate bodes well for further deals – and perhaps points to stronger interest in the renewables segment.

The US\$400m project is lead by Saudi Arabia's ACWA Power, which successfully attracted pledges worth US\$275m in debt from a mix of local and international banks.

The largest utility-scale solar IPP in Oman, ACWA Power's chief financial officer Rajit Nanda hailed it as a triumph given the "trying financial and macroeconomic challenges" across the world.

In a further sign perhaps of the general shift to renewables, the company reported that it had won the 900MW photovoltaic fifth phase of Dubai's Mohammed bin Rashid Al Maktoum Solar Park offering a "world-beating" tariff.

Working again with Gulf Investment Corporation, a partner on the Ibri solar plant, it said the US\$570m project was awarded at a world-record tariff of 1.6953

dollar cent per kWh.

Despite the gloomy economic backdrop, it means business is still being done and contracts are still being signed.

This, of course, brings with it welcome news for the supply chain, with manufacturers and contractors still hunting for new business.

In May, for instance, Hyundai Electric landed US\$29m worth of new orders to supply power transformers and gas insulated switchgear to Saudi Electricity Co.

Tapping clean energy

Niche business opportunities are also presenting themselves amid the growing interest in cleaner energy.

Wartsila is to supply engineering services and equipment for a new 44MW plant at Saudi Arabia's Mansourah & Massarah gold mine.

It will be the first new-build power project in the country to utilise a hybrid energy concept, with both engine technology and solar energy.

The order was placed in March by India's Larsen & Toubro, the main contractor for the mining project.

The power plant itself will comprise six Wartsila 32 engines, with five in operation and one on constant stand-by.

The Wartsila 32 engine is already well known in the kingdom, with more than 100 units installed in 15 base-load power plants.

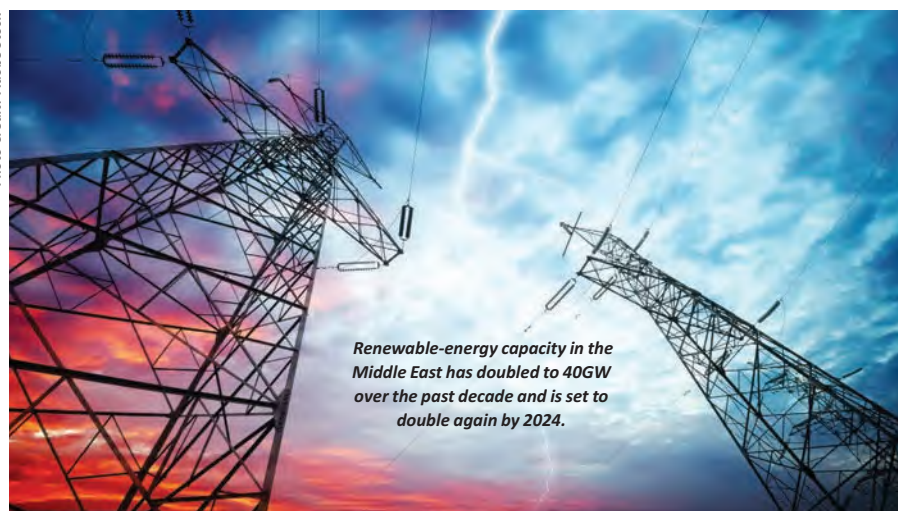
The new batch of equipment is to be delivered on a fast-track basis within just 10 months of contract signing, with the plant scheduled to be commissioned by May 2021, with commercial operations launching a year later.

Maximising the use of renewable energy is central to the projects strategy, noted Amit Swarnkar of Larsen & Turbo.

He said the Wartsila technology was chosen "because of its capability to enable the integration of PV solar into the system, which is important for this project."

Again, it highlights a clear trend towards cleaner energy technology that will no doubt gain momentum and shape the direction for all industry players in the years ahead.

Photo Credit: Adobe Stock



Industrial projects

As well as the trend towards renewables and hybrid plants, opportunities may continue to present themselves in the industrial sector as the big oil and gas states push for more diversification.

The Mansourah & Massarah gold mine — to be operated by a subsidiary of Saudi mining group Ma'aden — forms part of the Saudi government's Vision 2030 initiative to diversify the national economy away from oil and promote the mining sector.

It's possible to spot similar long-term trends elsewhere, irrespective of the current wave of economic uncertainty.

At the end of last year, MAN Energy

Solutions landed a major contract to provide power for drinks can factory in Iraq.

It will supply six MAN 18V32/40 CD engines, with a total capacity of 53MW that will generate power for the Royal Can Making Company manufacturing site in Baghdad and to other nearby industrial plants.

Local presence

Other major players have been taking the time during recent months to nurture customer relationships and



Photo Credit: Wärtsilä

Wärtsilä and Larsen & Toubro teams signed an engineering, equipment and technical advisory order for a 44 MW power plant at the Mansourah & Massarah Gold Project mine in Saudi Arabia.

In a further sign perhaps of the general shift to renewables, ACWA Power reported that it had won the 900MW photovoltaic fifth phase of Dubai's MBR Solar Park offering a "world-beating" tariff.

grow their regional networks. Perkins Engines appointed in early May a new distributor for Algeria, Onnyx Ltd, as it seeks to make gains in the North Africa market.

With pent-up demand for energy services across the Middle East and North Africa region — at least prior to the pandemic — the big hope is that these and other markets will spring back to life sooner rather than later. ■



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Key workers — Al-Bahar powers virus testing drive-through centres

AL-BAHAR, THE LOCAL Cat dealer in the UAE, is playing a critical role in the Gulf nation's fight against COVID-19. The UAE was the first Middle East country to report a coronavirus-positive case following the outbreak in January after a family of four arrived from Wuhan, China. Al-Bahar has been providing assistance ever since, supplying rental generators to the Abu Dhabi Distribution Company, which is managing the power supply to five drive-through COVID-19 testing clinics.

The Cat C13 gensets, delivered in April, are equipped with an Automatic Transfer Switch (ATS), which enables an automatic transfer of power in the event of grid failure. Each unit is capable of supplying enough power for the entire drive-through setup. The UAE has carried out various health tests on as many as 35,000 residents per day.

Mohamed Kaddour, vice-president of energy and transportation at Al-Bahar, said the company has received calls from various customers asking for assistance and help to support them with power solutions during the pandemic.

"We mobilise, deliver, install, maintain, and manage the generators to ensure they are running all the time. We are providing an end-to-end solution during this critical time," he said.

The Cat dealership also provided 17MW of rental power to two



Photo Credit: Cat

Cat dealer Al-Bahar has supplied critical power to several drive-through testing centers, field clinics, and quarantine facilities in UAE during the coronavirus pandemic.

quarantine facilities located 100km outside of Abu Dhabi for foreign workers who had recently travelled abroad.

Al-Bahar also operates in Kuwait, Oman, and Bahrain, where it has been engaged in additional projects. In Kuwait, it supplied generators to two COVID-19 field clinics run by the Kuwaiti Army. This includes two Cat C18 gensets and a C13. "Al-Bahar and Caterpillar are taking all necessary actions to provide uninterrupted access to the products and services our customers need to get the job done safely and effectively," said Kaddour.

Jobs in renewable energy could triple to 30mn by 2030: IRENA

GOVERNMENTS CAN ALIGN immediate economic stimulus needs with medium to long-term decarbonisation and sustainable development objectives by targeting policy measures and public spending towards the energy transformation, according to the International Renewable Energy Agency (IRENA).

Post-COVID recovery: An agenda for resilience, development and equality outlines immediate stimulus action for the next three years (2021-2023) as well as measures for a mid-term 2030 recovery perspective over the next decade. It provides practical insights and recommendations for governments as they drive investment and policy actions for post-COVID-19 economies.

The report shows that on an annual basis, scaling-up public and private energy spending to US\$4.5 trillion per year would boost the world economy by an additional 1.3 per cent, creating 19mn additional energy transition-related jobs by 2030. Jobs in renewables alone could triple to 30mn by 2030, creating three times more jobs than in fossil fuels.

"Renewables have proven to be the most resilient energy sources throughout the current crisis," said Francesco La Camera, director-general of IRENA. "This evidence should allow governments to

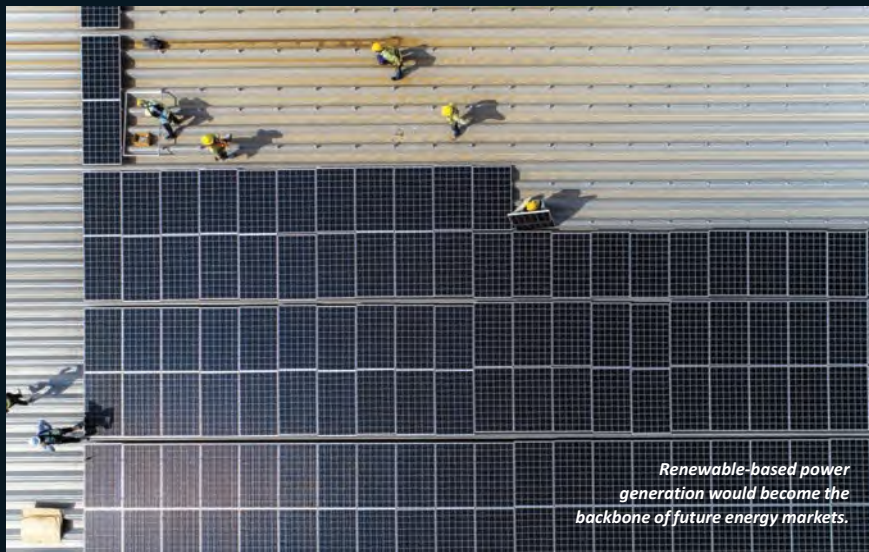


Photo Credit: Adobe Stock

Renewable-based power generation would become the backbone of future energy markets.

take immediate investment decisions and policy responses to overcome the crisis. With today's recovery plan for governments, IRENA uses its global mandate on energy transitions to inform decision-making at this critical time, while staying on course toward a fully decarbonised system by 2050."

Doubling annual transition investments to US\$2 trillion over the next three years will provide an effective stimulus and can leverage private sector investments by a factor three to four. Reforming fossil fuel

prices, retiring fossil fuel assets, driving green financing and bailouts, and strategically investing in energy transition must be immediate priorities, IRENA's report advises.

Any recovery strategy should include innovative solutions and emerging technologies such as green hydrogen with the potential to eventually deliver a net zero energy system. By investing in their commercialisation, governments and businesses can ensure sustained long-term growth.

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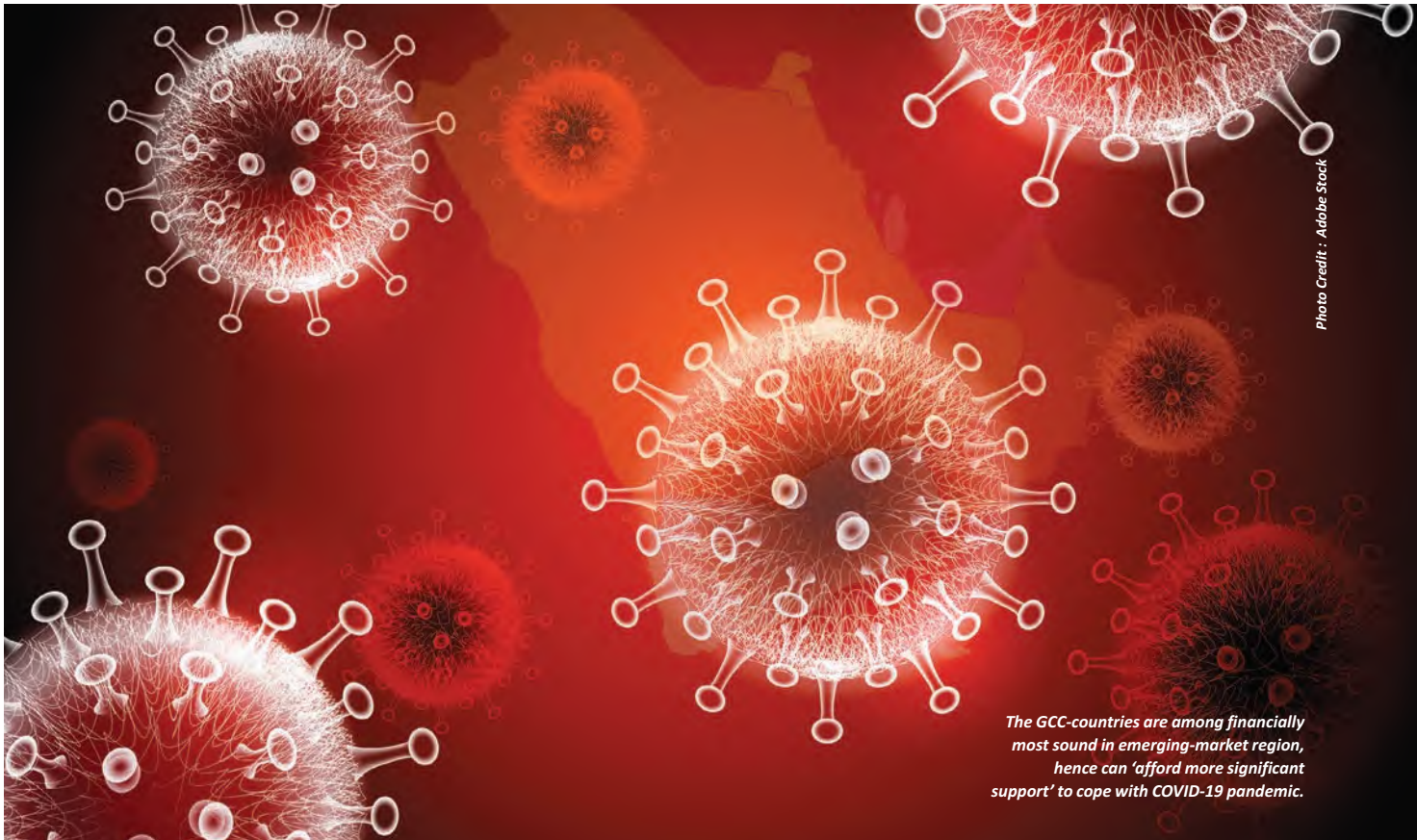
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The GCC-countries are among financially most sound in emerging-market region, hence can 'afford more significant support' to cope with COVID-19 pandemic.

Deft moves to weather COVID-19 storm

As the pandemic has inflicted tragic human and financial sufferings across the globe, the 'Positive response' to COVID-19 disruptions by GCC governments shows the way forward, says economist Moin Siddiqi.

The cumulative loss to world output over 2020-21 could stand at US\$9tn, greater than GDP of Japan and Germany, combined IMF data reveals.

THE WORLD'S MAJOR oil producers stand in uncharted waters, as they face simultaneous crises in the health, commerce and hydrocarbons sectors. The combination of these three crises – unprecedented in modern history – has impacted the Gulf Cooperation Council (GCC) region as governments seek to protect citizens and support private businesses against external headwinds.

The pandemic has inflicted tragic human and financial sufferings across the globe. The necessary containment measures have had detrimental effects upon global economy and world trade. The cumulative loss to world output over 2020-21 could stand at US\$9tn, greater than GDP of Japan

and Germany, combined (IMF data). Those reliant on tourism, travel, hospitality, and entertainment for their growth are experiencing colossal disruptions.

For the first time since the Great Depression (1930s) both advanced economies and emerging market and developing economies (EMDEs) have fallen into recession. The latter group faces additional challenges with large reversals in capital flows as global risk appetite decreases, and currency pressures, while coping with fragile health systems, and extremely limited fiscal buffers to provide support. The G20, currently under Saudi Arabia's Presidency, granted debt relief to low-income nations to help free up funds to flight the pandemic.

Temporary downturn

The dual shock (oil slump and lockdowns) has taken a toll upon GCC economy, raising challenges for those countries where services industry constitutes a larger share of output (Bahrain and UAE). Manufacturing has slowed, and final investment decisions (FIDs) on mega-projects are delayed. Oil GDP is also expected to decline in 2020 – in tandem with recent OPEC+ agreements.

The disruption of global value chains (GVCs) have reduced demand for crude oil, refined products and petrochemicals, while financial market volatility and uncertainty over the duration of the virus, too, curtailed domestic investment and consumption – reflected in weak aggregate demand.

“Under our base-case scenario, we assume that these measures will be relatively short lived and forecast a gradual recovery in non-oil activity from third-quarter 2020,” said Mohamed Damak, director of research at Standard & Poor’s (S&P).

Despite having exceptionally low production costs, GCC producers’ fiscal planning rely on much higher prices; for example, Saudi Arabia had assumed an oil price of US\$60 per barrel in its FY 2020 budget. The futures curve suggests that the market expects prices (currently at 17 years low) to recover slowly. If oil trades around US\$20/barrel for the rest of 2020 (though unlikely) GCC-states could lose an estimated US\$554mn/day, according to various estimates.

Timely policy action

Stiff containment measures such as controlling internal mobility, suspending local and international flights, and

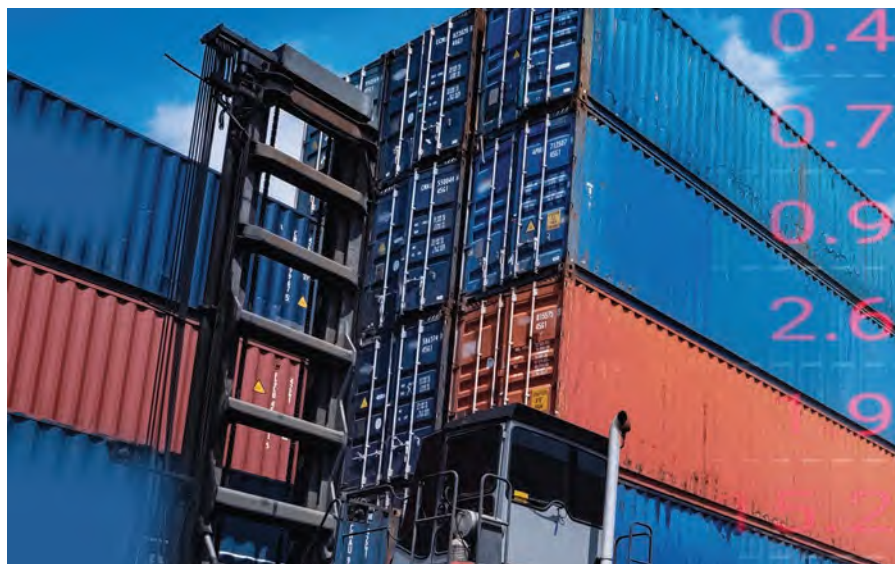


Photo Credit: Adobe Stock

GCC-states took measures such as direct cash transfers, suspension of rent and utilities bills, loan moratoriums as well as temporary exemptions and delays of fees.

“Under our base-case scenario, we assume that these measures will be relatively short lived and forecast a gradual recovery in non-oil activity from third-quarter 2020”

Mohamed Damak, director of research at Standard & Poor’s (S&P).

mandatory curfews in some places were enforced in GCC-bloc – far ahead of other countries – along with enhanced screening and adequacy supply of testing kits and personal protective equipment at hospitals.

The UAE's Minister of State, Dr Anwar Gargash told the BBC, "We knew back in January this was coming our way, that it was

not going to stay in China, so we moved very quickly to prepare for it."

The authorities have put ‘unprecedented’ policy responses in-place to soften corporate and household distress by strengthening existing social safety nets, improving consumer protection, and targeting specific needs of vulnerables.

GCC states took measures such as direct cash transfers, suspension of rent and utilities bills, loan moratoriums as well as temporary exemptions and delays of fees. They are also paying salaries of all private sector employees for the next few months and granted extensions for residency renewals. In addition, government guarantees have been deployed for small- and medium-enterprises (SMEs), while tourism-related businesses are exempted from tourism levies. Important consumer protection initiatives include banning profiteering on goods and services in high demand during the crisis.

Easier monetary policy, including interest rate cuts (Bahrain, Kuwait, Saudi Arabia, and UAE) and substantial liquidity support to banks, particularly those lending to SMEs and hard-hit sectors (Bahrain, Saudi Arabia, and UAE), have complemented fiscal-based

The GCC Region Vital Indicators

	2019	2020	2021
Real GDP growth *	0.6	-2.7	3.3
Non-oil GDP growth *	2.4	-4.3	3.2
Fiscal Balance //	-2.1	-10.4	-8.1
Current Account //	5.6	-3.1	-2.1

Memorandum

World Output *	2.9	-3.0	5.8
Advanced Economies *	1.7	-6.1	4.5
Emerging & Developing Economies *	3.7	-1.0	6.6
World Trade Volume (goods & services) *	0.9	-11.0	8.4
Oil-price ** (US\$ barrel)	61.39	35.61 #	37.87 #
LIBOR ~ US dollar deposits (six months)	2.3	0.7	0.6

* Annual percent change; // As percent of GDP; ** Average of prices of UK Brent, Dubai Fateh & West Texas Intermediate Crude. # Based on futures markets as of early April 2020.

~ LIBOR: London Interbank Offered Rate (percent).

Source: World Economic Outlook report, IMF, April 2020.

Note: Despite global turmoil, the growth downgrades for GCC countries are the smallest among Middle East & North Africa country groups. This shows the importance of public health systems, which are more advanced in the GCC and of timely-targeted policy responses.

Human Development Index (2020); ranked between 1-184 countries.
UAE: 33; Saudi Arabia: 39; Bahrain: 42; Oman: 47; Kuwait: 55.

measures. There has been direct support to domestic equity markets. "The support, with relevant conditions, will help firms survive the income crunch and prevent mass layoffs. Prioritisation on strategic sectors — most notably network industries and services such as transport, logistics, distribution and finance — is critical to protect production capacity and support a future recovery," noted the World Bank.

Supportive stance

The GCC-countries are among financially most sound in emerging-market region, hence can 'afford more significant support' to cope with COVID-19 pandemic. Although budget deficits have soared due to low oil prices, they can still dip into significant foreign assets (including sovereign wealth funds) to sustain economic activity and/or revive local markets. All GCC governments have already allocated substantial sums in stimulus packages ranging from around two to 30 per cent of GDP (IMF data).

Last April, the Central Bank UAE doubled the country's stimulus package to AED256.9bn (US\$70bn). Dubai unveiled a number of measures to reduce the cost of doing business and boosting its trade sector. These included 20 per cent customs duty refund for goods imported and sold locally—applicable to imports declared to Dubai Customs between 15 March 2020 and 30 June 2020; 90 per cent reduction of clearance fees - critical to large importers as each customs declaration is subject to a AED 90-110 fee (avg.); and the refund or cancellation of the AED 50,000 bank or cash guarantee for customs brokers and clearing companies so that businesses can use surplus credit for other purposes.

The Kingdom of Saudi Arabia (KSA) has implemented further fiscal stimulus worth over SAR120bn (US\$32bn) to support the economy as well as deferring excise, Zakat, income tax and the payment of some

Growth in GCC bloc is expected to rebound in 2021, reflecting a revival in trade/travel, uptick in oil prices and spillovers of global monetary policy easing.

government services charges and municipal fees for three-months. The government had also deferred payment of customs duties for 30 days, with a possibility of extension beyond 30 days for most affected business sectors. Saudi Arabia has tapped global bond markets twice this year – borrowing a total of US\$19bn.

Investments in technology (including digital) proved effective in virus fight. Gulf's banking sector remains vibrant to support the recovery thanks to strong capitalisation by international standards. GCC Islamic and conventional banks reported average Tier-one ratio of 17.9 and 16.6 per cent, respectively, at end-year 2019. S&P expects capitalisation to continue to underpin the creditworthiness of GCC banks in 2020.

Post-crisis recovery

Looking ahead, growth in GCC bloc is expected to rebound in 2021, reflecting a revival in trade/travel, uptick in oil prices and spillovers of global monetary policy easing. An increase in hydrocarbons output and infrastructure spending plans in the non-oil sector will also help much-needed growth revival. However, the dual shock highlighted the region's vulnerability to oil price volatility and underscored the need for structural reforms to lay the foundations for a more sustainable growth model. In essence, financial buffers have shielded GCC-states from the worst socio-economic impact of COVID-19 outbreak.

PricewaterhouseCoopers (PwC), global audit-consultancy firm, in a special report "The GCC way" suggested the challenges are building a resilient economy of the future. It identified a number of policy areas based on economic diversification and transformation, chief among which are:

- *Reconsider national development priorities, expenditures and investments, capabilities, and constituent engagement in the context of recovery plans;

- *Strengthen medium-term fiscal frameworks and activate performance-based budgeting, and link it to sustainable development goals;

- *Identify alternative forms of revenues to compensate for lower corporate earnings and enact tax reforms that promote robust growth;

- *Implement labour market programmes to boost job creation, skills upgrading and retraining for the unemployed; and

- *Improving government efficiency and fostering innovation, as well as promoting private-sector participation.

"The dual shock of the COVID-19 pandemic and lower oil prices will eventually end. By taking decisive steps now, GCC governments can prepare for the recovery and keep their long-term economic development on track. They can lay the groundwork for a sustainable economic recovery powered by diversification and innovation," noted PwC.

The UAE government is determined to regain its pre-COVID-19 glory "faster than any other country in the world". Sheikh Mohammed bin Rashid Al Maktoum, Vice President, Prime Minister and Ruler of Dubai said: "Our national priorities need to be reviewed to cope with the post-COVID-19 world. The door is open for new ideas. Our financial and human resources need to be redirected to strengthen our medical, food and economic security through new programmes and project. We are ready to rebuild all our sectors to secure the happiness, prosperity and stability for our society."

While governments around the world are trying to mitigate the economic damage, GCC bloc proved successful thanks to exceptional policy actions. ■





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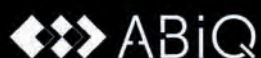
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Eurovent Middle East recommends allowing HVACR service personnel to operate as essential services.

Photo Credit: Adobe Stock

How HVACR aids essential services

Eurovent Middle East points to consequences of industry shutdowns on life-critical infrastructure in the healthcare, cold chain and data centre sectors. Abhishek Paul reports.

HVACR businesses are essential for the provision of critical equipment to healthcare, food supply chain and IT cooling.

WHILE THE COVID-19 lockdowns allowed functioning of only essential services, the heating, ventilation, air-conditioning and refrigeration (HVACR) industry has raised a pertinent question – why should governments around the world include the HVACR industry in the list of essential businesses?

In the light of an escalating pandemic and increased demand for critical infrastructure, the role of HVACR shouldn't be underplayed, according to the industry leaders.

Though such measures are necessary and widely supported to contain the pandemic, Eurovent Middle East, the region's industry association of HVACR manufacturers, underscored the ramifications of prolonged and trans-regional shutdowns would have on crucial infrastructure in the healthcare, cold chain and data centre sectors.

Eurovent Middle East, along with other

international industry organisations, has published a position paper to warn of severe consequences to critical infrastructure if the supply and servicing of HVACR equipment becomes stalled.

HVACR businesses, including manufacturing, distribution, installation, maintenance and repair, are essential for the provision of critical equipment to healthcare, food supply chain and IT cooling.

Brian Suggitt, president of Eurovent Middle East, said, "Governments currently imposing shutdowns on HVACR businesses need to keep in mind that this not only disrupts the supply chain in their own country, but cuts off other countries and regions dependent on imports of essential products. This is especially true for developing countries around the world that do not have the capacity to sustain the functioning of vital, life-critical infrastructure without the necessary products."

“Infection control is a primary purpose of HVAC systems in hospitals”

For the Middle East, the shutdowns in other countries, however, will have a significant impact on local production due to shortages in the supply chain. An even more severe effect is likely in those sectors where there is a high dependency on imports. This is specifically true for IT cooling equipment and refrigeration systems, where most of the products are manufactured in Europe.

Data from Eurovent Market Intelligence indicates that Italian factories alone provide about 20 per cent of all finished products to the European HVACR market. In the IT cooling segment, Italy's role is even more significant, with a share of production of almost 45 per cent in the EMEA region. It is estimated that more than 50 per cent of the HVACR production in Europe is directly affected by shutdowns, while a majority of the remainder are struggling with faltering supply chains and shortage of components.

To share the knowledge, ASHRAE offered the archived course ‘Designing and Operating High-Performing Healthcare HVAC Systems’, highlighting the role of HVAC systems in infection control in hospitals with a live Q&A session to cater to Europe, Middle East, Africa and Asia regions.

“Infection control is a primary purpose of HVAC systems in hospitals,” said course instructor, Dan Koenigshofer P.E., MS Public Health, HFDP, SASHE.

Maier H Mousa, director of product management, sustainability and energy efficiency policy, Al-Salem Johnson Controls (YORK), echoed similar views.

“When we think about pollutants, we often think about those found outside, whether in the air, on the ground, or in the water, even though indoor air quality (IAQ) is just as vital to our everyday lives and health, and the pollutants found inside buildings and closed public areas should concern us just as much, if not more, especially these days when the world is faced with the challenge of fighting the spread of the COVID-19,” *The Arab News* quoted Mousa.

According to Mousa, the design and operation of HVAC systems can help prevent disease transmission in several ways. When HVAC systems supply clean air to susceptible occupants, such as in crowded and closed spaces, it helps in reducing the possibility of disease transmission, he added.

Crucial solutions

Al Salem Johnson Controls (YORK) revealed that – so far – 21 government and private hospitals are benefitting from the YORK Hospitals Initiative, which launched in March and has been ongoing ever since.

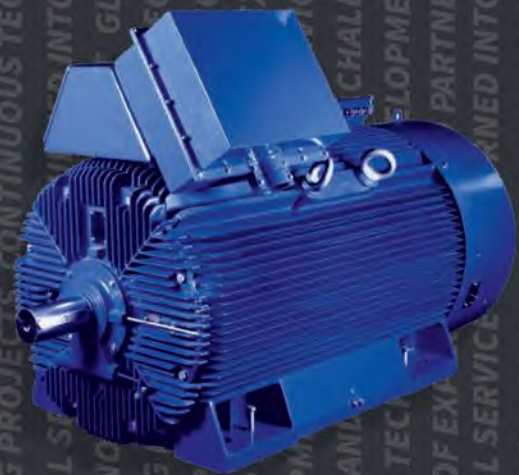
The company is providing free inspection and repair services for all types of commercial and industrial chillers and other HVAC Units located in hospitals across seven cities – Makkah, Riyadh, Dammam, Dhahran, Alkhobar, Jeddah and Madinah. This first-of-its-kind initiative is fast expanding to cover other cities as well.

Mohanad Al Sheikh, CEO of Al Salem Johnson Controls (YORK), Saudi Arabia, Egypt, Lebanon and Yemen, said the initiative is part of the company's corporate social responsibility and demonstrates its leading role in supporting hospitals and healthcare facilities, especially the government hospitals, to enhance their operational performance in the fight against COVID-19. ■

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Developing climate-friendly solutions

Daikin MEA's Paolo Nascetti, vice-president-applied and Paras Adhvaryu, general manager-applied talk to Technical Review Middle East about impact of COVID-19 on the HVACR sector, technology trends and market developments.

Technical Review Middle East (TRME): Can you give an overview of current trends, and developments shaping the Middle East HVACR System market in the COVID-19 era?

Paolo Nascetti (PN): The COVID-19 pandemic has not only created a global health crisis but posed a big challenge to the global economy. The HVAC sector is already playing a major role in fighting against the pandemic by supporting the healthcare sector in deploying cooling and air treatment solutions in upcoming new facilities.

The pandemic has brought intense focus on Indoor Air Quality (IAQ) not only in healthcare applications industry, but in hospitality and service sectors. The industry will see stringent implementation of IAQ standards as well as introductions of innovative technologies beside the traditional filter technology. We strongly believe that new HVAC construction technologies such as modular and offsite manufacturing (OSM) will become more popular and will bring in speed, quality, and cost competitiveness.

However, retrofit and replacement markets will see their share increase in the total HVAC market. Until now the focus on HVAC energy savings from ESCO projects was mainly on chillers. This focus will expand to include energy efficiency targets on air side systems while enhancing IAQ.

TRME: Can you elaborate on Daikin's new innovative technologies in development?

Paras Adhvaryu (PA): Daikin has been always pushing boundaries in terms of innovations in Chilled Water HVAC technologies with special focus on designing products for Middle East's specific climate conditions and market needs.

In 2017, we introduced the first and only Premium Efficiency Air-Cooled Screw Chiller with Refrigerant Cooled Inverter + Variable Volume Ratio (VVR), designed specifically for Middle East's high ambient conditions. While Inverter + VVR



Paolo Nascetti, vice-president – applied, Daikin MEA

technology gave the highest efficiency, refrigerant cooled design ensured reliability of the Inverter, even while operating in high ambient temperatures up to 55°C and extremely sandy environments. Recently, we have introduced the High Ambient Scroll Chiller and Heat Pumps with low GWP R-32 refrigerant along with Daikin's inhouse manufactured refrigerant-cooled Inverters for Water-Cooled Centrifugal range.

TRME: How is Daikin planning to maintain itself as the regional market leader with regards to introducing climate-friendly refrigerants?

PA: Daikin has remained true to its commitment to reduce the environmental impact of cooling, heating, and refrigeration systems. In support of this, we are now providing free access to the patents covering HVAC equipment using the low GWP R-32 refrigerant. On a regional level, we have been supporting the UN program to help



Paras Adhvaryu, general manager – applied, Daikin MEA

regional manufacturers in their evaluation of low GWP alternative refrigerants.

As Middle East countries had signed on the Montreal Protocol, we continue to follow this while making our offerings of premium efficiency chillers.

TRME: What makes the company unique in comparison to regional and international competitors?

PN: Daikin manufactures a diverse portfolio of HVACR products, from the smallest 1-tonne split system to the largest 3000-tonne chiller series, including other solutions such as controls, refrigerants, compressors, and off-site modular solutions.

We continue to increase presence in the region as part of our Fusion 20 management plan. These efforts have been quite successful, with key affiliates in Saudi, Egypt, Nigeria and Qatar, which had prompted further our sales expansion, strengthened our visibility, and ensured our competitive advantage. ■

Photo Credit : Daikin

How to enhance UPS energy efficiency?

Alex Emms, operations director at Kohler Uninterruptible Power, discusses the various techniques available to optimise UPS operating efficiency under all conditions.

WHEN DOUBLE-CONVERSION ON-LINE UPSs first appeared in the seventies, they used transformer-based designs. However, advances in power semiconductor technology have facilitated a general industry move towards transformerless solutions. This has brought several advantages, including some related to efficiency. Firstly, the topology is inherently more efficient. Even at optimal, near full load conditions, transformer-based designs remain well below 95 per cent – and as the load reduces towards 25 per cent, efficiency approaches just over 85 per cent. By contrast, the PowerWAVE 9250DPA can achieve efficiencies up to 97 per cent with loads from 25 to 75 per cent of nominal capacity.

However, the benefits extend further; the considerable size and weight reductions achieved by transformerless designs mean that complete UPS solutions can be implemented as small, rack-mounting modules rather than as large, monolithic units. The advantages of this can be explained by considering a PowerWAVE 9250DPA example.

This comprises the UPS supporting, say, a 200 kW load; it would use four of its 50 kW modules – or five, to provide N+1 redundancy. Then, if the load increases, incrementing the UPS's capacity by plugging in another 50 kW module (vertical scaling) is cost-effective, easy, and can be done without even interrupting power to the load. Further capacity can be provided by horizontal scaling, i.e. adding more racks in parallel. Note that both benefits – redundant capacity and scalability – are achieved with minimal excess capacity, space and cost, due to the modules' granularity.

By contrast, a monolithic system typically has to be significantly oversized for future-proofing. Additionally, N+1 redundancy must be implemented using two complete

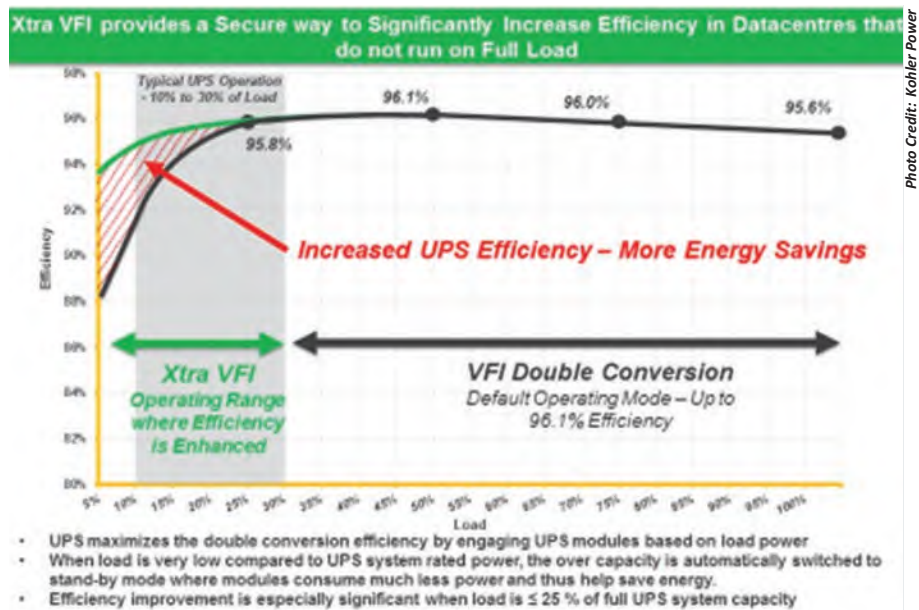


Fig.1: UPS Xtra VFI operating mode

systems, so neither can ever be more than 50 per cent loaded even in the best case. These factors force the monolithic system to work with low loads, where efficiency drops away sharply.

Maintaining high efficiency

We have seen how modular topology improves UPS efficiency, but it's crucial to maintain these high-efficiency levels under low loads. One way to facilitate this is to use a smart module switching technique called Xtra VFI.

Xtra VFI is an intelligent feature that minimises loss and improves efficiency on double-conversion modular systems like the PowerWAVE 9250DPA. With this mode enabled, the UPS automatically adjusts the number of active modules to match changing load requirements. Surplus modules are switched to standby but remain ready to transfer to active mode if the load increases or the mains fails. The active modules share the load equally.

The efficiency improvements are particularly significant when the load is less than 25 per cent of full capacity. Power availability is protected, as the system allows for desired redundancy levels in its module-switching calculations. Xtra VFI operation is summarised in Fig.1 below.

Eco mode

In eco-mode, power flows directly from the utility mains supply to the load during normal operation, so bypassing the rectifier and inverter inefficiencies. If a mains problem is detected, the critical load is switched to the inverter output.

While eco-mode efficiency can reach 99 per cent or more, it exposes the load to any incoming mains problems during regular operation. Accordingly, users should weigh the benefits of increased UPS operating efficiency against the risk created by operating in eco-mode. ■

– Source: KOHLER Power

Photo Credit: Kohler Power



Does lower latency, higher capacity and increased bandwidth mean more power?

Will power needs undermine 5G profitability?

5G is not just about finding new business models and making the best use of new spectrum. Power will be a challenge too. Phil Desmond talks to Matt Walker of MTN Consulting about a potential 5G power cost crunch for operators – and how to manage it.

“OPERATORS ARE FACING a power cost crunch. As 5G emerges, network operators face rising energy costs in their mobile and data centre networks and must adopt new approaches to thrive.” That’s the message at the heart of a new report from MTN Consulting*.

Of course, it’s difficult to be precise about this but the report suggests that 5G could double or triple energy consumption in mobile networks. Site power requirements are a particular concern, suggests the report. It says, “5G macro base stations may require several (new) power-hungry components, including microwave or millimetre wave transceivers, field-programmable gate arrays (FPGAs), faster data converters, high- power/low-noise amplifiers, and integrated MIMO antennas.”

In addition, the increased power

demands of a 5G site will make demands on AC power supply, backup battery capacity, high-power long-distance transmission and inevitably electricity bills.

Additionally, 5G will introduce hyperdense networks. The density of small cells needs to increase with 5G, especially if deployed on higher frequencies – and these

All of the RAN vendors are now including power efficiency topics within their marketing pitches.

small cells need to be powered.

Then there’s edge computing, which will bring applications nearer to the end user or device. It will play an important part in the development of new IoT services. In turn, the term ‘micro data centres’ will become current. However, powering these sites will add to the utility bills of operators, and add a layer of complexity to network operations as edge power costs need to be minimised.

The report also mentions 5G pioneer China Mobile, which has already seen its electricity costs rising fast with 5G. Network design might have some ameliorative effect, but 5G base stations will carry much more traffic and push up power consumption.

It’s not just about the network, either. Whether the battery life worsens with 5G or not, total device power consumption is expected to increase. That means users who upgrade to 5G handsets will be paying more

for the device, more for the service, and more for the power into the device.

There are many areas where power might be better managed. As Matt Walker, chief analyst with MTN, tells Technical Review Middle East, asset sharing, already an operator focus due to likely cost concerns, may help. But how could sharing – not just of towers but of many other assets such as sites, fibre, cloud systems and RAN equipment – enhance power efficiency?

Walker explains, “Operators scale their networks in order to cope with peak capacity, plus a buffer. Unless operators have identical traffic patterns, the pooling of resources can lower the total capacity required. There are other benefits, such as avoiding the cost of constructing or renting real estate assets – and benefiting from the scale and expertise of specialist companies.”

He also points out that pooling can lower the risk of bad forecasts. That is, if an operator expects traffic to grow at a certain rate in a specific cell or city, but actual growth is far less, the cost of this bad forecast is generally higher if you own the resources yourself. “Further,” he concludes, “there are benefits to scale, in multiple areas. Buying bulk power, for instance, or installing a larger (and lower cost/unit) generator.”

Has Walker seen MNOs trying to learn any useful lessons about managing 5G power consumption based on their experience of LTE rollout?

“LTE rollouts made clear to operators that power costs could quickly hit profitability without changes in the network. This problem created opportunities for vendors, which have developed more sophisticated software tools to aid operators in their network design efforts. The problem also fostered the growth of the independent tower sector.

Speaking of opportunities, the MTN report mentions Huawei’s Network Energy



In line with the vision of the UAE 2021, the telecommunications regulatory authority (TRA) aims to be the main driver in launching 5G mobile commercial service in the country.

product line. Are more hardware, software and consultancy groups moving into the energy efficiency space?

“All of the RAN vendors are now including power efficiency topics within their marketing pitches. They all need to help operators understand not only the initial capex of building the network, but the long-term operating cost implications of their buying decisions. Monthly utility bills are a major component of this opex.”

Of course to address power efficiency, network design is a key consideration – and that extends to in-building and campus coverage, where power costs can be significant.

“For instance,” says Walker, “Ericsson’s Radio Dot product: the (claimed) energy

A big part of power efficiency starts at the chip level.

efficiency of this product was a selling point with 4G, and it is a priority for the vendor in the 5G world as well.”

Good news – perhaps. But could energy issues potentially slow 5G rollout – notably to remote areas, a relevant consideration as 5G starts to roll out across the Middle East and North Africa?

“For some operators in areas with very high power costs, or where grid power is unreliable or unavailable, yes power costs could slow 5G rollout,” Walker agrees. Again, however, if vendors do their job in helping operators cope with the problem up front, the slowdown should not be significant. “The bigger issue could be down the road, when operators face unexpectedly high power costs that eat into the profitability of serving specific areas.”

We’ve barely reached 4G rollout in much of the world and yet we’re already discussing 6G. What does Walker advise when it comes to powering the generation after next?

“A big part of power efficiency starts at the chip level,” says Walker. “As 6G chips are being developed, power is likely to be a key differentiator from the outset. In addition, the frequency that is used for 5G (or 6G) will be a factor. So, operators are likely to be more aggressive in lobbying regulators for spectrum allocations that help them deploy services profitably. The ITU will have a role here with, for instance, its WRC event, held once every for years. The next one will be in 2023, and power will certainly come up.” ■

**MTN Consulting is an independent industry analyst firm founded in 2017. Its mission is to provide best-in-class data, insight, and strategic support to network operators and their suppliers. (For more on WRC, see <https://www.mtnconsulting.biz/5g-need-for-harmonized-spectrum/>) For more information, visit <https://www.mtnconsulting.biz/>.*



Some major operators of Kuwait are all offering LTE services as well as exploring 5G opportunities.

Photo Credit: Adobe Stock

Several new contract awards have been handed over to the major cable firms.

Photo Credit: Adobe Stock

Carry on cabling

Business continuity measures by power cable firms in the COVID-19 era suggest a recovery may be on the cards sooner rather than later. Martin Clark reports.

THE POWER INDUSTRY has shown remarkable resilience during the COVID-19 era, keeping energy supplies smooth at a time when all else seemed unsettled.

Nonetheless, it has presented great challenge for utilities and contractors.

That includes the leading power cabling firms such as Ducab, Elsewedy Electric and Bahra Electric, among others, who have had to adapt rapidly to new working and safety practices during the pandemic.

That includes a shift to working from home, the use of protective equipment, and social distancing measures where possible.

Saudi Cable Company (SCC) granted its employees over 55 years of age special leave because of the outbreak.

But on top of these practical shifts, there are potential long-term business ramifications too, including a now-changed market outlook.

Gauging how this will affect business in the latter half of 2020 and beyond is difficult to predict, though there are some hopeful indicators.

In March, prior to the main impact of the virus, Ducab Group reported a 5 per cent rise in profitability for 2019, highlighting a generally healthy business climate.

This was underpinned by strong energy

demand across the Middle East.

The Dubai-based cables firm likewise announced a raft of measures to protect its workforce and minimise business disruption, and managed to continue with essential operations on the ground.

A raft of new contract awards handed to Egypt's Elsewedy Electric suggest that things might not be too bleak at all, with underlying, long-term demand for electricity intact.

The largest of these deals, worth EGE475m, was to build a new network to electrify a 50,000 acre site in East Owenat.

In April, the company secured a deal with Dubai Electricity & Water for 22.5 km of new transmission lines as the emirate expands its grid system. Still, Elsewedy Electric's overall revenues and gross profits were down somewhat in the first quarter of 2020 compared to the same period a year earlier.

While it's too early to say to what extent business will bounce back in the region's biggest economy, Saudi Arabia, another major player Bahra Electric will have done its reputation no harm at all by donating funds to fight the coronavirus.

It was among the Saudi companies from the power sector to support the Ministry of Health with a contribution of one million Saudi riyals.

Oman Cables made a similar gesture in

Oman, underlining its solidarity and support for the Ministry of Health and frontline workers in the battle against COVID-19.

Analysts remain cautious upbeat about prospects going forward.

The issue on 27 April of a tender for the contract to develop Abu Dhabi's mega power transmission project provided a "major boost" to the market, according to Jennifer Aguinaldo of GlobalData.

The joint tender by the Abu Dhabi National Oil Company and Abu Dhabi Power Corporation sets out to develop the region's first high-voltage, direct current (HVDC) subsea transmission system, that will connect offshore production facilities to the onshore electricity grid.

The project will eventually provide a rich source of new work for cabling firms.

"Despite the seeming complexity and novelty of a subsea cable transmission project, it is a project investors will not want to miss, adds Aguinaldo.

"It will also likely reinforce the GCC infrastructure sector — particularly Abu Dhabi's — as a safer investment haven compared to other sectors or markets post COVID-19."

Rather than game over, it is very much game on for the Middle East power cables market. ■



How reliable and individual is your power supply?

Jürgen Pump, sales manager of Standard Aggregatebau Evers GmbH & Co. KG, one of Germany's leading generator set manufacturers, talks about reliable solutions for electrical power supply.

Technical Review Middle East (TRME): Your company's name 'Standard Aggregatebau' implies that you are a series manufacturer of generator sets, like numerous other generator set packagers worldwide. What differentiates you from the competition?

Jürgen Pump (JP): Our company's name resumes from the early days of generator sets manufacture in 1961 when we were one of the first to assemble diesel-driven generator sets in Germany. At that time, there were no technical regulations in place for the assembly of generator sets, so we set our own high standards of consistent design and quality. There are many packagers of generator sets in nearly every country of the world, from small garage companies to multinational corporations. What most of these enterprises have in common is their focus on serial production with standardised generator sets and firmly defined options. We set ourselves apart by successfully focusing on the right project-designed generator sets for applications with sophisticated requirements and individual manufacture.

TRME: But isn't individual manufacturing much more expensive?

JP: All too often apparent investment savings backfire and actual losses turn out to be much more costly than an adequate initial project design and execution. Many times it is in the news that an emergency generator did not work correctly in shopping malls, airports, data centres, and even hospitals – although the well-reputed engine and alternator brands were installed and often in redundancy. While lack of maintenance causes some incidents, others are simply due to improper design, system integration, or

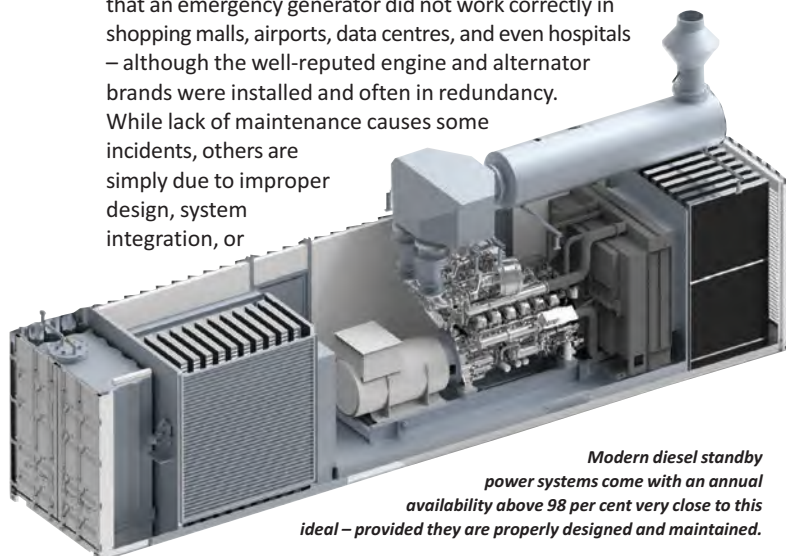
workmanship. Such failures can cause the operator at best "only" monetary losses, but fatalities in the worst cases. This is particularly bad as nearly all cases can be avoided by proper design and selecting suitable specialist firms with the execution of mission-critical projects instead of choosing just the cheapest offer from a dealer whose technical capability ends with presenting just datasheets. Although the business has become much more complex, the fundamental laws of business have not changed. Still, the gap between ambition and reality is quite significant when it comes to complete systems in which several companies are involved. We support project owners, design engineers, and contractors likewise throughout the whole project and successfully handle every order individually to achieve the best price-performance-ratio for our customers for almost 60 years.

TRME: So, diesel-driven generator sets are still the measure for reliable backup power?

JP: Yes. However, no mechanical system can be expected to perform with 100 per cent reliability over time. Modern diesel standby power systems come with an annual availability above 98 per cent very close to this ideal – provided they are properly designed and maintained. The vast majority of problems result from human error or neglect, both during system engineering and operation, while power system component failure is a relatively rare event.

TRME: But 98 per cent availability does not sound very impressive and reliable?

JP: This figure applies to a standard code compliance generator set commercially available from many manufacturers and dealers. The availability is not only determined by failures but also planned downtimes for maintenance. For mission-critical installations, SAB, as a specialist firm, can increase the availability of up to 99.999 per cent by implementing redundancies into the system design. This starts with quite cheap but effective measures for most vulnerable components, like adding a redundant starting facility, and goes up to completely redundant power lines, which are fault-tolerant as they have no single points of failure. As each project is different in its requirements, off-the-shelf solutions do usually not achieve the desired results. Close coordination between all parties and suppliers during design, installation, and commissioning is vital for maximising reliability, and this challenging task should be left to experienced professionals like ourselves. ■



Modern diesel standby power systems come with an annual availability above 98 per cent very close to this ideal – provided they are properly designed and maintained.

Project Databank

Compiled by Data Media Systems

Project Focus

Compiled by Data Media Systems

Project Summary

Project Name	MEW - Subiya Power Plant Expansion - Phase 3
Estimated Budget (US\$)	600,000,000
Facility Type	Power Plant
Status	Construction
Location	Subiya
Project Start	Q1-2014
End Date	Q4-2020
Main Contractor	Al Ghanim International
Contract Value (US\$)	581,000,000
Award Date:	Q2-2017

Background

The project calls for an expansion of Subiya power plant located at Subiya, Al Jahrah, Kuwait. The project includes combined-cycle gas turbine (CCGT) expansion to boost the capacity of the power plant by an additional 750MW. The scheme is part of The Ministry of Electricity and Water's (MEW) fast-track programme to boost the country's generation capacity as demand for power continues to grow at a rapid rate. MEW estimates an additional 10,500 MW will be required to meet the projected 2022 peak load.

Project Status

Date	Status
Apr 2020	The Subiya power plant expansion has reached 88.6 per cent completion.
Feb 2020	Al Ghanim International commences steam blowing procedure as part of the initial stage of start-up operation.
Sep 2018	The project is under construction and the General Secretariat of the Supreme Council for Planning and Development has revealed that Subiya project is 36.7 per cent complete.
Jul 2017	MEW awards Siemens a contract to supply the key power generation equipment for the project. Siemens will supply two SGT5-4000F gas turbines, two hydrogen-cooled SGen5-2000H generators, one SST5-5000 steam turbine, and a SGen5-2000H steam turbine generator.
May 2017	The EPC contract has been awarded to Al Ghanim International. Engineering works have started internally, and will be progressing after the signing of the contract.
Jun 2015	The Ministry of Electricity and Water (MEW) invites companies to submit their bids for the engineering, procurement and construction (EPC) contract to increase the capacity of the existing Subiya power plant.

Project Schedules

Project Announced and Feasibility Study	1Q & 3Q-2014
EPC ITB	3Q-2015
Engineering, Procurement & Construction	2Q & 3Q-2017
Completed	4Q-2020

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Project Databank

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MAJOR POWER PROJECTS, KUWAIT

Project	City	Sector	Facility	Budget	Award Date	Status	Start Date	Completion Date
KAPP - Al Abdaliyah Integrated Solar Combined-Cycle Plant (ISCCP)	Al-Abdaly	Power, Renewable	Solar	3,00,00,00,000		Feasibility Study	2008-Q1	2022-Q2
KAPP - Al Khiran Independent Water and Power Project (IWPP)	Kheiran	Power, Water	Independent Water & Power Project (IWPP)	4,10,00,00,000		Feasibility Study	2011-Q1	2023-Q1
KAPP - Al Zour North Independent Water and Power Project (IWPP) - Phase 2 & 3	Al Zour	Power, Water	Independent Water & Power Project (IWPP)	1,50,00,00,000		Feasibility Study	2017-Q3	2022-Q2
KAPP - Kabd Municipal Solid Waste Project	Kuwait City	Power, Industrial	Incineration Plant	79,00,00,000	2020-Q3	EPC ITB	2013-Q3	2021-Q1
KNPC - Al-Dibdibah PV Solar Project	Shagaya	Power, Renewable	Solar	1500000000	2020-Q3	EPC ITB	2014-Q1	2021-Q3
MEW - Al Zour Power Plant Conversion	Various	Power	Combined Cycle	22,00,00,000	2016-Q4	Construction	2014-Q1	2020-Q2
MEW - Infrastructure Development Of Fuel Receiving Systems At Doha West Station	Doha	Power	Power Plant	14,50,00,000	2017-Q4	Engineering & Procurement	2016-Q1	2021-Q2
MEW - Jeleia Power Plant	Ahmadi	Power	Power Plant	1,20,00,00,000		Feasibility Study	2014-Q3	2023-Q1
MEW - Nuwaiseeb Independent Water and Power Project (IWPP)	Nuwaiseeb	Power	IPWP (Independent Power & Water Project)	2,50,00,00,000	2020-Q3	Feasibility Study	2012-Q1	2024-Q1
MEW - Subiya Power Plant Conversion	Subiya	Power	Combined Cycle	23,00,00,000	2016-Q4	Construction	2014-Q1	2020-Q4
MEW - Subiya Power Plant Expansion - Phase 3	Subiya	Power	Power Plant	60,00,00,000	2017-Q2	Construction	2014-Q1	2020-Q4
MPW - Bubiyan Seaport Project - Phase 1 - Package 3D (Power Plant)	Bubiyan	Power, Infrastructure	Power Plant	10,00,00,000		Feasibility Study	2015-Q1	2021-Q4

GIQ Study: COVID-19 to push Middle East energy sector towards a digital tipping point

THE ECONOMIC DEMAND destruction triggered by the COVID-19 pandemic should propel the Middle East energy industry to accelerate its adoption of the 4th Industrial Revolution digital toolbox and embed greater operational efficiencies, according to Gulf Intelligence.

The global energy sector, and the Middle East in particular, have been slow adopters of digital transformation strategies, which offer a new chapter in human development, enabled by extraordinary technology advances that commensurate with those of the first, second and third industrial revolutions.

"It's a tipping point for the industry for a variety of reasons," Mark Moody-Stuart, a member of the Board of Saudi Aramco and the former chairman of the Royal Dutch Shell PLC, said in the GIQ Study. "This is a point where oil transforms into a normal commodity, like iron, nickel and copper, where low-cost producers dominate in market share and the higher-cost producers fill in the tail end – this has been coming for some time, but COVID-19 accelerated it," Mark added.

Global investment in the energy sector is expected to plunge 20 per cent this year, or by almost US\$400bn, compared to last year as the pandemic takes a beating on the energy sector, the International

Energy Agency reported last week. Before the pandemic, the global energy investor sector was on track for growth of around two per cent, which would have been its largest annual rise in spending in six years.

Gulf Intelligence, the UAE-based strategic communications and research firm, has published a GIQ Study – Middle East Energy Technology Dialogues – on how the COVID-19 pandemic will impact the Middle East's energy sector's adoption of digital technologies, such as artificial intelligence and robotics. The Special Report profiles a series of contributions from 16 digital experts in leading energy technology companies such as ABB, BASF, Halliburton and Schneider Electric to name a few.

Digitalisation is already improving the safety, productivity, accessibility and sustainability of energy systems. It is changing markets, businesses and employment. New business models are emerging, while some old models may be on their way out.

"While the world is going to be very, very different post-COVID-19, the only thing we don't know is how different it will be. I expect we will see a massive acceleration in the digitalisation of the Middle East power sector, a huge improvement that will represent a step-change as we go forward," said Paddy Padmanathan, CEO of ACWA Power.

Paradigm shift in logistics sector

Macroeconomic factors, tenant needs, last-mile delivery and ever-rapid technology developments are all factors that are reshaping the demand and design for warehousing and logistic networks. Abhishek Paul reports.

THE MATERIALS HANDLING webinar 'Forecasting future demand for logistics and warehouse space', hosted by Messe Frankfurt, has discussed the strategic evolution of supply chain strategies and focus on the growing demand to satisfy inventory controls, supply chain diversification and e-commerce needs in the COVID-19 era.

Giving a top-line overview of implications of COVID-19 on the UAE Industrial & Logistics market, Peter Haywood, Industrial & Logistics Agency MENA, JLL, noted that the trend is shifting from retailers to e-commerce platforms and sophistication of the supply chain.

"The impacts of COVID-19 have not fully materialised, but the initial impacts have been felt," said Peter. "There is optimism that the abruptness of these events has forced the markets into adapting, which will have a positive outcome for the future."

The future of retail is changing at an accelerated pace as the businesses are choosing advanced warehouses, new technologies, automation and re-shoring, he said.

Logistics firms offering services to hard-hit sectors such as retailers, manufacturing, automotive are facing challenges due to the pandemic, said Mohsen Ahmad, CEO, Logistics District, Dubai South. To mitigate the impact of COVID-19, it is imperative to look at reducing the operating costs, collaborating with customers, addressing cash flow challenges and finding innovative operational methods, according to Mohsen. How to keep the business functional even in the lockdown is a lesson learnt by many of the companies, he pointed out.

Ako Djaf, vice-president, Contract Logistics /SCM & Land Transport Middle East and Africa, DB Schenker, noted, "As a consequence of e-commerce growth and advanced technology, automation and innovation, we believe, will determine the future success in our industry."



Photo Credit: Adobe Stock

The future of retail is changing at an accelerated pace as the businesses are choosing advanced warehouses.

The growing shortage of labour in matured logistics nations and in our region in many locations and explosion in demand of online retailers will automatically drive automation and innovation, according to Ako.

However, re-skilling the labour force is needed to collaborate and maintain the new machines in the facilities, he said.

Talking about the strategies, he noted that advanced warehouse management system with AI features and interface capabilities is picking up rapidly. Enabling customers better material flow through visibility and traceability is increasing in terms of customers expectation, he added. Creating a value proposition and stable strategic partnerships remain vital for all the logistics firms, in Ako's view.

Another panellist, Alain Kaddoum, general manager of Swisslog Middle East, said, "The traditional retailers in the market are

expecting that 50 per cent of their transactions will be 30 per cent to 50 per cent on e-commerce for the next one year at least due to COVID-19 impact. People will get a habit of ordering online more than before."

Sharing his insights on the trends, Alain said that retailers are moving to the e-tailer approach having a smaller footprint of a retail shop and delivering more on e-commerce.

All the panellists have agreed that macroeconomic factors, tenant needs, last-mile delivery and rapid technology developments are all factors that are reshaping the demand and design for warehousing and logistic networks across the region.

As operators pivot to deal with the long-term ramifications of the pandemic, supply chain strategies will be overhauled and this will lead to a resulting boost in warehousing demand, according to the industry experts. ■

Radar is the better ultrasonic

German expert Jürgen Skowaisa, product manager at VEGA, talks to Technical Review Middle East about how radar technology is emerging as a real alternative to ultrasonic technology and offering greater compact level measurement in the wastewater industry.



Photo Credit: VEGA

Jürgen Skowaisa,
product manager, VEGA

RADAR TECHNOLOGY HAS established itself as a real problem solver in the field of level measurement.

So far, however, the price of the devices has prevented their general use in standard applications. Now, the compact radar sensor Vegapuls is also gaining the upper hand in price-sensitive applications in the wastewater industry.

Technical Review Middle East (TRME): Radar is the better ultrasonic – why?

Jürgen Skowaisa (JS): The nature of the wave makes the difference. Ultrasonic signals are sound waves, and as such, are greatly affected by temperature, gas composition, and pressure. The signals emitted by radar sensors, however, are electromagnetic waves, and for them, such process conditions are practically of no consequence. Radar sensors are thus independent of all typical process conditions and can be used universally.

TRME: If radar is more accurate than ultrasonic and available at the same price, why does ultrasonic still even exist?

JS: The way we see it, radar will completely replace ultrasonic in process measurement in the foreseeable future. There is no application where ultrasonic works better than the new 80-GHz radar sensors. That's why our radar sensors are equipped with the same typical connection components as ultrasonic sensors – so they can replace ultrasonic sensors 1:1.

TRME: How is it possible to produce radar measurement technology at the price of ultrasonic?

JS: By optimising the sensors for their designated applications and investing in the future. About three years ago we started the development of our own radar chip that



Radar sensors are independent of all typical process conditions and can be used universally.

Photo Credit: VEGA

exactly meets the requirements of level measurement. This, in combination with a sensor design that corresponds to typical ultrasonic applications, makes it is possible to offer very inexpensive radar sensors.

TRME: How much intelligence is built into VEGA sensors?

JS: All the experience of the past 30 years plus state-of-the-art technology. When

developing the new radar chip, we incorporated the extensive application experience gained from the more than one million radar sensors we have produced and sold. The powerful signal processors used for echo analysis can now distinguish interfering reflections from level signals very effectively. But the sensor must still be easy to operate and universally applicable – that is the greatest challenge.

Our radar sensors are equipped with the same typical connection components as ultrasonic sensors – so they can replace ultrasonic sensors 1:1

TRME: To what extent can VEGA sensors be connected to cloud solutions?

JS: For several years now we have been offering components that allow our sensors to transmit measured values to a cloud via radio. The new radar technology opens up completely new possibilities here as well. Our energy-saving radar chip, in combination with new, high-performance batteries and new radio modules, enables totally new sensor concepts. For example, we are currently working on a wireless radar sensor that can be easily mounted on an IBC container. At two measurements a day, the sensor will send level data to a cloud for ten years – something like this was unthinkable just a few years ago. ■

Making most out of autonomous drones

The impact of the coronavirus can be mitigated by autonomous technology, such as drones. Ariel Avitan, co-founder and chief commercial officer at Percepto explains how this technology could prove cost-effective and productive during challenging times.

THE CORONAVIRUS HAS exposed the soft underbelly of critical infrastructure and industrial sites worldwide – workforce availability. As more and more companies implement business continuity plans to deal with the outbreak, fewer and fewer employees are able to fully function. When facilities don't know who can and will show up for work, both planning and operations are seriously impeded. In Western Australia, for example, the coronavirus is potentially affecting some 60,000 fly-in, fly-out (FIFO) workers at remote mine sites and onshore and offshore oil and gas plants.

And this challenge is compounded by a flagging demand for commodities – oil, natural gas, ore, and other resources – as global industries and economies slow down or even grind to a halt. Given the ongoing price war between Saudi Arabia and Russia and the resulting price drops, the oil industry is particularly hard-hit, with companies bracing for lower revenues, diminished investment, and even large-scale layoffs.

Thus, even as companies are unable to produce at full capacity, they are also unable

to sell at full capacity – leading many to take a much closer look at current and future operational expenses and efficiency.

This is leading many companies to rethink the role that autonomous technology – and specifically autonomous drones – can and should be playing in their operations.

Large industrial sites are high-value assets that require constant maintenance and monitoring – independent of both production volumes and market conditions. Even when production is slowed or stopped, and when maintenance personnel are unable to function or even show up at work – critical components still need to be closely monitored, security perimeters need to be maintained, and scheduled maintenance needs to be conducted. The alternative to such monitoring and maintenance can be not only costly but also deadly.

Autonomous drones are an essential part of the contingency plans that support business continuity. Drones are always available, even if operators are under quarantine, and can help alleviate the challenges associated with volatile market trends and workforce availability.



Photo Credit: Percepto

Ariel Avitan, co-founder and chief commercial officer, Percepto

Multi-mission autonomous drones can conduct security, safety and inspection missions – and be quickly and flexibly re-tasked to meet changing operational demands. This makes them a force multiplier – since a single person operating autonomous drones can replace multiple security, safety and inspection employees.

Moreover, autonomous drones can be controlled remotely, from anywhere in the world. This means that – as long as companies have suitable regulatory permits – employees can work from home, yet operate autonomous drones as if they were on site.

Finally, even when a near-pandemic is not sweeping the globe – multi-mission, on-site autonomous drones have been proven to increase efficiency and reduce operational costs. By delivering consistent visual asset monitoring, autonomous drones provide true data-driven maintenance, which according to one study can result in up to 45 per cent less downtime and up to 60 per cent greater output or production. Without costly human pilots, autonomous drones provide a massive boost to existing efforts to improve preventative maintenance and reduce unexpected downtime – which can dramatically affect the bottom line in the best of times and help organisations better deal with the loss of revenues in the worst.

Although coronavirus will not, thankfully, be the new normal – it should be a business continuity wake up call. To adapt to the fluctuations of a truly global marketplace, companies need to prepare for all contingencies – including those where human employees cannot fulfill their roles on-site. Investment in autonomous technology today can help critical infrastructure and industrial companies smooth operational and financial bumps in the road both today and in the future. ■



Autonomous drones are an essential part of the contingency plans that support business continuity.

Photo Credit: Adobe Stock



Photo Credit: BKT



Photo Credit: BKT

The Award aims to become a source of information and updates

Tractor of the Year and BKT get connected

The four-year agreement sees the start of collaboration between the most prestigious award in agriculture given to the best European tractor and BKT.

TRACTOR OF THE Year (TotY) has a new partner: BKT, one of the leading manufacturers in the world of specialist Off-Highway tires. The partnership will last for four years and came into force on 6 May.

TotY is a historic award that started in 1988 and has “brought together” the main names from the media world of agricultural mechanisation, leading to the creation of a jury of 25 experts. Every year the jury studies technologies and solutions and gives the Tractor of the Year Award to the best European tractor.

TotY and BKT have a lot in common: the Award is a symbol of cutting-edge technology and a vision of the future, two concepts which are very dear to BKT. Uniting the Indian multinational with TotY are also the principles of the central role of sustainability, absolute quality and support for technological research.

Commitment, sharing and growth are the founding values of TotY and BKT, which the company has clearly expressed in its slogan, Growing Together.

The new partnership, in which BKT will act as an expert on the ‘tyre’ component, was created to disseminate know-how and expertise in agricultural mechanisation. The Award aims to become a source of information and updates, and there are numerous initiatives to follow in this regard.

The new partnership, in which BKT will act as an expert on the ‘tyre’ component, was created to disseminate know-how and expertise in agricultural mechanisation.

“I am enthusiastic about this project,” said Lucia Salmaso, CEO of BKT Europe. “I can’t wait to start. TotY is a genuine institution and a reference point in the agricultural world. We are proud to be part of this group. We have a lot to offer as regards the tire world, an essential component for the machinery-system. TotY looks to the future and so does BKT, this unites us.”

“This new edition of the Award is absolutely fascinating and we are only at the start,” said Fabio Zammaretti, chairman of Tractor of the Year. “It’s an honour to be able to start this new adventure alongside BKT, a very dynamic company with which we will work side by side to offer a range of innovations, starting from the first digital version of the TotY, which will culminate in the awards to the winning vehicles from four different categories. The best of luck to the team and may the best tractor win!”

‘Let the challenge begin’ has always been the slogan for the Tractor of the Year, now more than ever, and alongside BKT, it is ready to face the new journey into technology and the future. ■

Sandvik presents DR410i rotary blasthole drill

SANDVIK MINING AND Rock Technology introduces the Sandvik DR410i rotary blasthole drill to enhance safety, improve productivity and reduce cost.

Compact, powerful and technologically advanced, Sandvik DR410i is designed to deliver productivity and return on investment for 6-97/8" (152-251mm) rotary and DTH holes, with a standard mast offering a first pass capability of 10m or 33 ft and a max depth of 46.6m or 153ft. The extended mast option delivers a first pass option of 14m or 46ft with a total depth capacity of 32.3m or 106ft across all recommended pipe diameters.

The Sandvik DR410i is automation-ready, when equipped with the AutoMine solution module which provides functionality for on-board and off-board automated needs.

The Sandvik intelligent control system architecture (SICA) provides the operator with real-time feedback regarding the machine's performance and health, ensuring quality and consistency hole-to-hole.

Metso's My Plant Planner for designing efficient crushing and screening plants

METSO HAS INTRODUCED a unique drag and drop 3D crushing and screening plant configurator that enables professionals in the mining and aggregate industries to design more productive and efficient plants through real-time insights. The design and simulation tool, called My Plant Planner, is available on metso.com and is free for anyone to use.

"We are really excited about My Plant Planner. Our aim is to help our customers easily test different configurations and operating conditions to see how they affect process performance. The tool allows you to either design and simulate a new crushing and screening plant in 3D or test how upgrading your current equipment can improve performance," explains Guillaume Lambert, vice-president, Crushing Systems at Metso.

My Plant Planner is packed full of unique features and insights to help in the planning of



Metso My Plant Planner

optimised crushing and screening circuits. It is possible to download a detailed report of the designed plant. The tool is based on proprietary Metso software VPS and Bruno. Unique to My Plant Planner is the possibility to design and simulate the ideal crushing and screening circuit in the same tool in 3D. The configurator makes it easy to predict general power consumption of the system and to see the footprint of the circuit - a feature exclusive to My Plant Planner.

Photo Credit: Metso

Siemens unveils 80 GHz compact radar transmitters

SIEMENS HAS INTRODUCED Sitrans LR100 series 80 GHz radar transmitters, compact instruments with a narrow beam for flexible installations in existing vessel openings, or even non-intrusively through plastic vessels. The transmitters' 80GHz high frequency is capable of delivering reliable measurements even in challenging environments such as those with vapours, condensation, turbulence, or solids. The custom microchip technology offers fast response and high sensitivity to detect even the weakest of signals.

The series consists of three products: Sitrans LR100 for basic measurement to eight metre, Sitrans LR110 with communication and hazardous approvals options and range to 15 metre, Sitrans LR120 with communication,



Photo Credit: Siemens

The transmitters' dependable readings reduce workers' exposure to hazardous situations.

longest range to 30 metre and optional submergence shield for flooding protection.

Two-wire loop powered with HART or optional Modbus RTU connectivity consumes low energy and the fast start up is suitable for CSO (combined sewer overflow) applications.



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Eaton Middle East launches mobile app

POWER MANAGEMENT COMPANY, Eaton, has announced the release of a new mobile app, Eaton Asset Manager, to give customers the power to manage their Eaton products from the convenience of their mobile device.

In the office, at home or on the move, the new app, which is available from both the App store and Google Play, gives users the freedom to access product information, help manage products, and most importantly, authenticate genuine Eaton products.

With the global trade of counterfeits on the increase, the OECD estimated that the global trade of all counterfeit goods reached just over half a trillion dollars in 2016. Illegal counterfeit and unsafe electrical products and installations put lives and businesses at risk from death, injury and loss of property.

Using the Eaton Asset Manager app and a unique QR code on specific products users can authenticate genuine Eaton products.

Mitsubishi unveils Melfa Assista series of robots

Mitsubishi Electric Corporation has launched its Melfa Assista series of robots that work collaboratively with humans based on safety features such as collision detection and strict compliance with the international safety and robotic standards ISO 10218-1 and ISO/TS15066.



Melfa Assista Series collaborative robot

Photo Credit: Mitsubishi Electric

The series will introduce an intuitive engineering software, RT VisualBox, for quick, easy system deployment. Customers can use Melfa Assista and RT VisualBox to realise more efficient production, reduce the total cost of ownership (TCO) of robotic manufacturing systems, and meet new needs for adequate distancing of workers in manufacturing sites.

Cat's C18 diesel generator offers power density

CATERPILLAR HAS LAUNCHED three new power nodes for the Cat C18 diesel generator set that offer higher power density, occupying up to 55 per cent less floor space than a leading competitive product offering the same power outputs.

Available now, the new Cat C18 diesel generator set features three 60-Hz power nodes offering standby ratings from 650 kW to 750 kW and prime power ratings from 600 kW to 680 kW. It is designed for applications requiring certification to US EPA Tier 2 emission standards, and an enclosure is available for applications requiring noise attenuation or protection from the elements.

"Standby power is a considerable investment for most smaller enterprises, so it's critical to select an efficient, accurately sized solution that fits in the most compact space possible," said Jason Kaiser, general manager for Caterpillar Retail Electric Power Solutions. "Caterpillar's new generator sets with high power densities allow customers to get power when they need it most while substantially reducing upfront costs for site preparation, transportation, and installation."

The Cat C18 diesel generator set with high power density is designed to meet the NFPA power restoration requirement for Level 1 systems and accept 100 per cent block load in one step. It meets ISO 8528-5 requirements for steady state and load acceptance.

The Cat C18 generator set utilises the field-proven Cat ADEM A4 engine control module (ECM). This module seamlessly integrates all engine functions including ignition, governing, and air-fuel ratio control for optimal performance while protecting the engine.



Cat C18 diesel generator set with high power density

Photo Credit: CAT

Schneider Electric presents new public API to simplify management at Edges

SCHNEIDER ELECTRIC HAS released a public application programming interface (API) for cloud-based software EcoStruxure IT Expert. The first public API for EcoStruxure IT Expert, it enables IT solution providers and end users to seamlessly integrate a power and critical infrastructure monitoring platform into any preferred management system.

With the introduction of EcoStruxure IT Expert API, Schneider Electric is helping to simplify management at the edge for IT solution providers and end users who are managing distributed IT infrastructure.

Now enhanced with new public API capabilities, the platform keeps increasing its flexibility. For example, users can maintain a local data store and build custom applications that react to changes. With this increased access to energy and infrastructure resource data, users can make changes to increase efficiency and sustainability.

LOGO.3 with fewer tie points offers increase in efficiency

THANKS TO THE well-balanced range of panels and the stable construction of LOGO.3 formwork, there are many practical ways of significantly reducing the number of tie points so that installing the LOGO.3 system is even more efficient without compromising in terms of safety.

The LOGO.3 wall formwork system is designed to withstand a high maximum fresh concrete pressure of 70 kN/m² with just 0.62 ties/m².

Especially in the prosperous housing construction sector with storey heights of up to 270 cm and the usual wall thicknesses and concreting speeds, the permitted fresh concrete pressure is often not achieved. That's why the LOGO.3 wall formwork system has sufficient reserves to be exploited.

Concrete workers are good at this, for example,



LOGO.3 wall formwork system can withstand a high maximum fresh concrete pressure.

Photo Credit: Paschal

when installing a small LOGO.3 panel between large-size panels measuring 240 x 270 cm or 340 x 270 cm. Fewer tie rods are needed resulting in less clamping work for the concrete workers.

ABB augmenting technology to improve worker safety

ABB HAS LAUNCHED ABB Ability Augmented Field procedures with an aim to drive worker safety and efficiency across the energy sector.

Developed specifically to meet the needs of field operators, the ABB Ability Augmented Field Procedures support seamless integration between the field and the plant distributed control system offering improved safety.

With more than 20 per cent of industrial downtime reportedly due to human error, the technology is capable of enabling consistency when executing manual procedures, standardising operating procedures and maintenance or repair techniques in the field, tightening field to control room integration and digitally recording notes to ensure operational knowledge is captured and utilised.

Unlike traditional paper-based operating procedures, the technology enables interactive execution of procedures using a mobile device to guide operators through each step in a consistent, effective and safe way.

Operatives will be able to access hands-free, real-time data related to plant assets, processes or procedures using industrial tablets, smart phones and Microsoft HoloLens glasses, increasing real-



ABB Augmented Field Procedures HoloLens.

time collaboration and enabling immediate data entry from the user interface in the field.

Created in collaboration with industry majors, the system can be used in any industrial environment, in greenfield and brownfield sites, for start-up, routine maintenance, and shutdown activities.

Supporting operators across oil, gas, chemical, process, power and water sectors, it will help transform plant operational procedures, putting the power of digitalisation, mobility, and connectivity into the hands of field workers.

Photo Credit: ABB

Rotork unveils YT-3700 and YT-3750 digital smart positioners

ROTORK'S ENHANCED YT-3700 and YT-3750 digital smart positioners can be used for control and on/off valve applications where diagnostics are required.

The YT-3700 and YT-3750 pneumatic smart positioners employ monitoring and graphic display of valve position, set point target over time and internal circuit board temperature over time.

With single and double-acting configurations available, they provide reliable control of pneumatic valve systems for linear and rotary applications.



Photo Credit: Rotork

Suitable for all markets, the new enhanced YT-3700 and YT-3750 digital smart positioners can be used for both control and on/off valve applications where diagnostics are required.

Valve diagnostic information to NE107 standard is provided, with Hart seven communication protocol included as standard and a display for all settings and local device interaction. Commissioning can be handled locally without the need of an additional device. All indications are clear and simple to follow thanks to the clear visual identification on the local display and the four push buttons.

The enhanced diagnostic package offers position over time continuous monitoring, and graphical visualisation through device description (DD) and device type manager (DTM) files. Additionally, valve signature, advanced step tests and partial stroke testing (PST) can be operated from local or remote positions. Auto-tuning functionality and non-contact sensor are included for high frequency operating valves and an enhanced lifetime.

The steady state deviation analysis that they provide can detect friction in the valve or actuator, leakage in pneumatics and instances where there is insufficient supply pressure. A deviation time out alarm occurs when the difference between the target position and the actual position exceeds the pre-set deviation alarm point.

Photo Credit: Acciona

Acciona unveils BIONS platform for water management

ACCIONA, A PROVIDER of sustainable infrastructure solutions, has launched Business Intelligence Of Network Solutions (BIONS), a new intelligent cloud-based data platform that integrates data to improve the efficiency of water supply management systems.

This next-generation platform provides an in-depth vision of the water supply service in real time, for an overall view of the health of the network. A platform with a graphic and mobile interface displays all the data of the water distribution network in real time. Thanks to artificial intelligence (AI) and machine learning (ML) technologies, BIONS is able to not only detect, analyse and manage failures or incidents in the water supply network such as leaks, breaks or faulty assets – it can also predict when they are likely to happen as well.

As a result, BIONS predictive technologies help prevent water cuts and other system failures before they occur. One of the main advantages of this new platform – when integrated with ACCIONA's proprietary software "GOTA" – is the efficiency of the operations and maintenance of the network, with shorter cycles of repair and incident resolution. This can deliver considerable savings to the operator, be they public or private.

BIONS is a multi-channel platform, which can be accessed and operated from mobile devices, tablets and personal computers. The platform's cybersecurity architecture protects the water network's data securely in the cloud, and also the system itself from external attacks.



Business Intelligence Of Network Solutions (BIONS) is capable of detecting and predicting problems in water supply networks in real time.

Electrical Equipment and Materials Buyers' Guide

2020

The Middle East's annual where-to-buy guide

Section One: Listings by category

Section Two: Suppliers of electrical equipment and materials, page 43

Section Three: Contact details of Middle East agents & subsidiaries listed by country, page 46

Section One: Listings by category

AC Alternators

Mecc Alte UK Ltd.

AC Drives

Cantoni Motor S.A.

Mohammad Al-Ojaimi Contracting Est.

Air Compressors

Rotair S.P.A.

Air Conditioning / Chillers / Heat Exchangers

LG Electronics Gulf FZE

Rittal Middle East FZE

Auto Recloser

Mohammad Al-Ojaimi Contracting Est.

Automation Systems

Phoenix Contact Middle East FZ LLC

Batteries

Mohammad Al-Ojaimi Contracting Est.

Cable - Conductor Products

HellermannTyton UAE

Mohammad Al-Ojaimi Contracting Est.

Cable Fault Locator

BAUR GmbH

Megger Ltd.

Mohammad Al-Ojaimi Contracting Est.

Cable Handling Equipment

HellermannTyton UAE

Mohammad Al-Ojaimi Contracting Est.

Cable Jointing & Termination

HellermannTyton UAE

Mohammad Al-Ojaimi Contracting Est.

Mosdorfer GmbH

Cable Labeling

Brady Middle East FZE

HellermannTyton UAE

Mohammad Al-Ojaimi Contracting Est.

Cable Laying Equipment

HellermannTyton UAE

Mohammad Al-Ojaimi Contracting Est.

Rotair S.P.A.

Cable Protection & Support

HellermannTyton UAE

Mohammad Al-Ojaimi Contracting Est.

Cable Testing Equipment

BAUR GmbH

Megger Ltd.

Cable Trays

HellermannTyton UAE

Cables & Cable Accessories

Brady Middle East FZE

Cathodic Protection

DEHN SE + Co KG

Cogeneration

KOHLER SDMO

Components

HM Elektromekanik Uretim A.S.

Compressors

MAN Energy Solutions SE

Rotair S.P.A.

Conduit & Fittings

HellermannTyton UAE

Connectors and Fittings

HellermannTyton UAE

Control Equipment/Systems

HM Elektromekanik Uretim A.S.

MOTORTECH GmbH

Control System - Industrial & Residential

COELMO Spa

Conversion & Storage of Electrical Energy

HVR PENTAGON

Cooling & Heating Equipment

HVR PENTAGON

Copper Rod & Wire

DEHN SE + Co KG

John Deere Power Systems

Damper System

Mosdorfer GmbH

Detectors

VEGA Technique

Diesel Engines

Baudouin

Cummins Middle East FZE

John Deere Power Systems

Jubaili Bros

KOHLER SDMO

MAN Energy Solutions SE

Perkins Engines Co. Ltd.

Volvo Penta

Earthing / Lightning Equipment & Accessories

Cressall Resistors Ltd.

DEHN SE + Co KG

Phoenix Contact Middle East FZ LLC

Education & Training

VEGA Technique

Electric Cabling & Substation Technology

Mohammad Al-Ojaimi Contracting Est.

Electric Drives

Cantoni Motor S.A.

Electric Generators - Turbo Generators & Hydro Generators

AJ Power Ltd.

Cummins Middle East FZE

Linz Electric S.p.A.

Marelli Motori S.p.A.

Mecc Alte UK Ltd.

Electric Motors / Repairs Equipment

Cantoni Motor S.A.

Marelli Motori S.p.A.

Electronics

LG Electronics Gulf FZE

Enclosures

AP Lanka Pvt. Ltd.

Jubaili Bros

Rittal Middle East FZE

Energy Efficiency/Savers

IREM S.p.A.

Energy Management & Services

IREM S.p.A.

Lovato Electric S.p.A.

Energy Measurements

Lovato Electric S.p.A.

Phoenix Contact Middle East FZ LLC

Engineering Services

AP Lanka Pvt. Ltd.

COELMO Spa

Jubaili Bros

Mosdorfer GmbH

MOTORTECH GmbH

Engines/Motors/Engine Parts

Baudouin

Cantoni Motor S.A.

Cummins Middle East FZE

KOHLER SDMO

Marelli Motori S.p.A.

Volvo Penta

Equipment for Electric Motor Repair

Marelli Motori S.p.A.

Equipment for Power Transmission Lines

Cressall Resistors Ltd.

Mosdorfer GmbH

Explosion Proof Equipment / Lighting & Switchgear

Marelli Motori S.p.A.

Fault Recorder/Event Recorder

Mohammad Al-Ojaimi Contracting Est.

Field Instrumentation / Process

Control / Valves

MOTORTECH GmbH

VEGA Technique

Filters

Jubaili Bros

Gas & Power Equipment

COELMO Spa

FG Wilson

KOHLER SDMO

MOTORTECH GmbH

Gas Engines

Cummins Middle East FZE

MAN Energy Solutions SE

Gas Turbines

MAN Energy Solutions SE

Generating Sets

ABZ Aggregate-Bau GmbH & Co. KG

AJ Power Ltd.

COELMO Spa

FG Wilson

Jubaili Bros

KOHLER SDMO

Linz Electric S.p.A.

Lovato Electric S.p.A.

MAN Energy Solutions SE

Mecc Alte UK Ltd.

SAB, Standard Aggregatebau Evers

GmbH & Co. KG

Teksan Generator

Visa S.p.A.

Generating Technologies

FG Wilson

KOHLER SDMO

Teksan Generator

Generators

AJ Power Ltd.

Caterpillar SARL

COELMO Spa

Cummins Middle East FZE

FG Wilson

FLORIDIA SRL

KOHLER SDMO

Linz Electric S.p.A.

Mecc Alte UK Ltd.

Teksan Generator

Heat & Power Integration, Products & System, Co-Generation

Caterpillar SARL

Marelli Motori S.p.A.

Teksan Generator

High-Voltage Equipment of Distribution & Control

Cressall Resistors Ltd.

Hydro-Electric Power Plant

Marelli Motori S.p.A.

Indicators/ Controllers

VEGA Technique

Industrial & Power Automation

Lovato Electric S.p.A.

Industrial Electronics

Phoenix Contact Middle East FZ LLC

Industrial Power Engineering

AP Lanka Pvt. Ltd.

FG Wilson

KOHLER SDMO

Rittal Middle East FZE

Inspection and Testing

Megger Ltd.

Instrumentation & Calibration

VEGA Technique

Insulation Materials

HellermannTyton UAE

Inverters

AEG Power Solutions B.V.

Fronius International GmbH

Irrigations Systems

Visa S.p.A.

Isolators

Phoenix Contact Middle East FZ LLC

Junction Boxes

AP Lanka Pvt. Ltd.

Rittal Middle East FZE

Labeling & Identification

HellermannTyton UAE

Level Detection & Control

VEGA Technique

Lightning Protection

DEHN SE + Co KG

Limit Switches

VEGA Technique

Load Banks

Cressall Resistors Ltd.

Magnetic Cores

AEM Unicore Machinery

Measure & Test**Equipment/Systems/Monitoring**

BAUR GmbH

Megger Ltd.

Mohammad Al-Ojaimi Contracting Est.

Mosdorfer GmbH

VEGA Technique

Measurement, Control & Diagnostic Instrumentation, Diagnostic Equipment

BAUR GmbH

Megger Ltd.

VEGA Technique

Minor Hydro-Power Engineering

Marelli Motori S.p.A.

Motors & Motor Winding Equipment

Cantoni Motor S.A.

New & Renewable Energy

AEG Power Solutions B.V.

Fronius International GmbH

HellermannTyton UAE

Teksan Generator

Visa S.p.A.

Overhead Line Equipment Materials/**Hardware & Accessories**

DEHN SE + Co KG

Photovoltaic

Fronius International GmbH

Pipe Laying

Rotair S.P.A.

Pneumatics

MOTORTECH GmbH

Power Monitoring & Supplies

AEG Power Solutions B.V.

Power Plant Design

KOHLER SDMO

MAN Energy Solutions SE

SAB, Standard Aggregatebau Evers

GmbH & Co. KG

Power Transformers

AEM Unicore Machinery

HVR PENTAGON

Process Control & Process Automation

VEGA Technique

Process Control Equipment

VEGA Technique

Pumps, Compressors & Filters

Rotair S.P.A.

Sensors

VEGA Technique

Solar Energy Equipment

Fronius International GmbH

HellermannTyton UAE

Mohammad Al-Ojaimi Contracting Est.

Solar Power Engineering

Caterpillar SARL

Stand-Alone Sources of Energy

ABZ Aggregate-Bau GmbH & Co. KG

AJ Power Ltd.

Caterpillar SARL

SAB, Standard Aggregatebau Evers

GmbH & Co. KG

Visa S.p.A.

Switchboards & Switchgear

AP Lanka Pvt. Ltd.

HVR PENTAGON

SAB, Standard Aggregatebau Evers

GmbH & Co. KG

Switchgear Products, Low & Med Voltage

AP Lanka Pvt. Ltd.

Caterpillar SARL

HellermannTyton UAE

HVR PENTAGON

Rittal Middle East FZE

Telecommunication Equipment

Mecc Alte UK Ltd.

Visa S.p.A.

Testing & Inspection Services

Mohammad Al-Ojaimi Contracting Est.

Transformers

AEM Unicore Machinery

Transmission & Distribution

HM Elektromekanik Uretim A.S.

AEM Unicore Machinery

Turbines

IREM S.p.A.

Ultrasonic Systems

VEGA Technique

Uninterruptible Power Systems

AEG Power Solutions B.V.

Marelli Motori S.p.A.

SAB, Standard Aggregatebau Evers

GmbH & Co. KG

Voltage Stabilizers & Regulators

HM Elektromekanik Uretim A.S.

IREM S.p.A.

Welding Equipment / Electrodes / Services

Fronius International GmbH

Wind Energy

HellermannTyton UAE

Wiring Identification / Wire Markers

Brady Middle East FZE

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Saudi Arabia - Zahid Tractor & Heavy Machinery Co.
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Saudi Arabia - Naizak Power System
United Arab Emirates - Ali Haji Abdulla Awazi-Gargash LLC

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Saudi Arabia - Tamgo The Machinery Group LLC
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Agents:
United Arab Emirates - Fronius Middle East FZE

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**HM Elektromekanik Uretim A.S.**

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Email: ridvan.bayir@huaming.com.tr

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Agents:
Egypt - Orascom Trading SAE
Lebanon - Allied Diesel S.A.R.L.
Lebanon - Ghaddar Machinery Co.
Oman - General Engineering Services Est.
Saudi Arabia - Electrical Work & Maintenance
Turkey - AKSA Servis Ve Yedek Parca AS
United Arab Emirates - GENAVCO
Yemen - Abu Alrejal Trading Corporation

Jubaili Bros

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E-mail: jbdubai@jubailibros.com

Agents:
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Lebanon - Jubaili Bros (Lebanon)
Qatar - Jubaili Bros (Qatar)

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Agents:
United Arab Emirates - KOHLER SDMO MIDDLE EAST (Dubai)

LG Electronics Gulf FZE

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TECOM, Dubai Media City
Dubai
United Arab Emirates
Web: www.lg.com/ae

Agents:
Bahrain - AJM Kooheji and Sons
Oman - ASPIRE
Oman - Oman Gulf Enterprise
Qatar - LG Qatar Office
Qatar - Video Home
United Arab Emirates - Al Yousuf Electronics
United Arab Emirates - District Cooling Company
United Arab Emirates - Fortune International Trading LLC
United Arab Emirates - LG Electronics Gulf FZE

Linz Electric S.p.A

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Lovato Electric S.p.A.

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E-mail: info@lovatoelectric.com



MAN Energy Solutions
Future in the making

MAN Energy Solutions SE

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MAN Energy Solutions enables its customers to achieve sustainable value creation in the transition towards a carbon neutral future. Addressing tomorrow's challenges within the marine, energy and industrial sectors, we improve efficiency and performance systemically. Leading the way in advanced engineering, we provide a unique portfolio of technologies.

Agents:

United Arab Emirates - MAN Energy Solutions Middle East LLC

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Megger Limited

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Mohammad Al-Ojaimi Contracting Est.

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Mosdorfer GmbH

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Fax: +43 3172 250529
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MOTORTECH GmbH

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E-mail: sales@motortech.de



Perkins Engines Company Limited

Eastfield, Peterborough
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Phoenix Contact Middle East FZ LLC

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Rittal Middle East FZE

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Agents:

United Arab Emirates - Al Ghandi General Trading

Rotair S.P.A

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12023 Caraglio
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Tel: +971502600482
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SAB

SAB, Standard Aggregatebau Evers GmbH & Co. KG

Oststrasse 11
Norderstedt
22844,
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Web: www.generatingset.com
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Agents:

Egypt - Rich Uni (Triangle)
Iraq - KM Company
Libya - BELHAJ INTERNATIONAL COMPANY
Saudi Arabia - Abdul Latif Jameel Machinery
Turkey - Teksan



VEGA Technique

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North Entrance, Al Ittihad Road
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VEGA is a German manufacturer of Level and Pressure instruments for all applications such as in the chemicals, oil & gas, energy, water & waste water, bulk solids, food, pharmaceutical...
VEGA develops innovative sensors that offers maximum safety and reliability: Guide Wave Radar, Free space Radar, Radiation based technologies, Pressure and Differential Pressure Transmitters etc...



Visa S.p.A.

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Visa S.p.A. is one of the world's leading gensets supplier, based in Italy, designing and manufacturing diesel generators, from 9 to 3000 kVA, in standard or customized versions to meet your every need in a large variety of applications (telecommunications, construction and engineering industry, hospitals, data centers, etc.). With its network currently present in almost 100 countries worldwide, it provides versatile, high-tech energy solutions guaranteeing a highly operational flexibility and qualitative standards for which it has become a leader in the market for more than 60 years.



Volvo Penta

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IRAQ**KM Company**

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KUWAIT**Jubaili Bros (Kuwait)**

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LEBANON**Allied Diesel S.A.R.L.**

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Ghaddar Machinery Co.

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Noja Power unveils dual supply switchgear for renewables

ELECTRICAL SWITCHGEAR ENGINEERING firm Noja Power has launched the Dual Supply GMK. Designed to maximise renewable generation asset uptime, the Dual Supply GMK provides renewable operators with an option to increase their commercial viability. While the energy market is evolving to handle the demands of high renewable penetration, the NOJA Power Dual Supply GMK allows solar and renewable installation operators to split their generation capacity among two supply incomers, providing a staged mitigation to load shedding or asset maintenance.

At its core, the Dual Supply GMK is essentially two grid connections in a cubicle. It has two OSM Recloser solid dielectric insulated vacuum interrupting circuit breakers, supplied complete with the NOJA Power RC control system. This topology provides all protection, control and automation required for renewable connections, including rate of change of frequency (ROCOF) and voltage vector shift (VVS) protection. Additional options such as revenue metering can be incorporated in the customisation of the equipment, allowing for a fully customised solution to be factory tested, shipped and delivered complete to site.

These two reclosers provide the protection and point of connection to the grid, with the reclosers' outgoing busbars connected and unified to a single outgoing cable connection.



Photo Credit: Noja Power

HUBER+SUHNER enables continuous electric vehicle charging at 500 A

HUBER+SUHNER, A GLOBAL supplier of electrical and optical connectivity solutions, has launched the RADOX HPC500; a new addition to the RADOX high power charging portfolio. The cooled charging cable system allows continuous charging at 500 Amperes even in high-temperature environments.

The HPC500 cable and connector builds on the proven performance and design of the HPC400 family, as well as the extensive field experience and continuous innovation in cooled cable solutions for EV charging stations. Several improvements and new features make the system ready for existing and future requirements. These enhancements include continuous 500 A charging, an IP67 connector protection rating, the option of a ready-to-use metering system and replaceable contacts for longer service life.

Alongside the cooled cable system, HUBER+SUHNER has also developed a new 24 V cooling unit to increase cooling capacity and reduce operational temperatures of the power lines, enabling continuous 500 A charging at environmental temperatures of up to 50 °C.

The new plug-and-play cooling unit, which is pre-filled with coolant, fits into existing charging stations, significantly reducing installation time. The speed of both the ventilators on the heat exchanger and the coolant pump is automatically adjusted to achieve the most efficient performance, with normal operating levels requiring lower speed, significantly reducing noise level.



Photo Credit: HUBER+SUHNER



قطاع المرافق الخدمية في الشرق الأوسط يشهد تحولاً ملحوظاً نحو الطاقة المتجددة

وتؤكد أسعار المزارد المنخفضة للطاقة الشمسية الكهروضوئية في أبوظبي ودي (الإمارات العربية المتحدة)، وشيلي، وإثيوبيا، والمكسيك، وبيرو، والمملكة العربية السعودية، أن القيم التي تصل إلى 0,03 دولار / كيلووات ساعة ممكنة بالفعل. وللمرة الأولى، ينظر التقرير السنوي للوكالة الدولية للطاقة المتجددة أيضاً في قيمة الاستثمار فيما يتعلق بانخفاض تكاليف التوليد. حيث ينتج نفس المبلغ المستثمر في الطاقة المتجددة اليوم قدرة جديدة أكثر مما كانت ستفعل قبل عقد من الزمن. ففي عام 2019، جرى تشغيل مشاريع توليد الطاقة المتجددة أكثر بقيمة الضعف عما كانت عليه في عام 2010، لكن ذلك لم يتطلب سوى استثمارات أكثر بنسبة 18 في المائة فقط.

المرافق، بنسبة 13 في المائة في عام 2019، لتصل إلى متوسط عالمي يبلغ 6,8 سنتات (0,068 دولاراً) لكل كيلووات ساعة. وانخفضت الرياح البرية والبحرية بنحو 9 في المائة لتصل إلى 0,053 دولار / كيلووات ساعة و0,115 دولار / كيلووات ساعة على التوالي.

وتُظهر المزايدات الأخيرة واتفاقيات شراء الطاقة (PPAs) استمرار الاتجاه التنافسي للمشاريع الجديدة المقررة في عام 2020 وما بعده. ويمكن أن تصل أسعار الطاقة الشمسية الكهروضوئية القائمة على المشتريات التنافسية إلى 0,039 دولار / كيلووات ساعة للمشاريع المقررة في عام 2021، بانخفاض قدره 42 في المائة مقارنة بعام 2019 وأقل من خمس سعر منافس الوقود الأحفوري الأرخص وهي المصانع التي تعمل بالفحم.

وقال فرانشيسكو لا كامير، المدير العام للوكالة الدولية للطاقة المتجددة: «لقد وصلنا إلى نقطة تحول مهمة في تحول الطاقة. إذ أن قضية توليد الطاقة الجديدة، والكثير من طاقة الفحم الحالية، غير مبررة من الناحية البيئية والاقتصادية. فالطاقة المتجددة تعتبر أرخص مصدر للكهرباء الجديدة بشكل متزايد، وتوفر إمكانات هائلة لتحفيز الاقتصاد العالمي وإعادة الأشخاص إلى العمل. كما تعد الاستثمارات في مصادر الطاقة المتجددة مستقرة وفعالة من حيث التكلفة وجذابة وتقدم عوائد متسقة ويمكن التنبؤ بها مع تقديم فوائد للاقتصاد الأوسع».

وأضاف لا كاميرا قائلاً: «يجب أن تكون استراتيجية التعافي العالمية استراتيجية خضراء. فتوفر مصادر الطاقة المتجددة طريقة لمواءمة إجراءات السياسة قصيرة المدى مع أهداف الطاقة والمناخ على المدى المتوسط والطويل. ويجب أن تكون مصادر الطاقة المتجددة العمود الفقري للجهود الوطنية لإعادة تشغيل الاقتصادات في أعقاب تفشي جائحة كوفيد 19-، ومع تنفيذ السياسات الصحيحة المعمول بها، يمكن لانخفاض تكاليف الطاقة المتجددة أن يغيّر الأسواق ويساهم بشكل كبير في تعافي البيئة».

وقد انخفضت تكاليف الكهرباء المتجددة بشكل حاد على مدار العقد الماضي، مدفوعة بالتحسينات التكنولوجية، ووفورات الحجم، وسلاسل التوريد التنافسية بشكل متزايد وتجربة المطورين المتزايدة. فمنذ عام 2010، أظهرت الطاقة الشمسية الكهروضوئية، على نطاق المرافق، أكبر انخفاض حاد في التكلفة بنسبة 82 في المائة، يليها الطاقة الشمسية المركزة (CSP) بنسبة 47 في المائة، والرياح البرية بنسبة 39 في المائة والرياح البحرية بنسبة 29 في المائة.

كما استمرت تكاليف تقنيات الطاقة الشمسية وطاقة الرياح في الانخفاض على أساس سنوي. كذلك انخفضت تكاليف توليد الكهرباء من الطاقة الشمسية الكهروضوئية، على نطاق

مؤكدة الفعاليات 2020

سبتمبر/أيلول

14 - 16 معرض إدارة المرافق دبي

أكتوبر/تشرين الأول

5 - 8 معرض البناء السعودي الرياض

26 - 28 معرض تقنيات المياه والكهرباء - ويتكس دبي

نوفمبر/تشرين الثاني

17 - 18 معرض التعدين دبي



قدرة الطاقة المتجددة في الشرق الأوسط تضاعفت إلى 40 جيجاوات خلال العقد الماضي

المصادر المتجددة توفر طاقة أرخص من الفحم

كشف تقرير جديد صادر عن الوكالة الدولية للطاقة المتجددة (IRENA) أن الطاقة المتجددة أرخص بكثير من أية طاقة كهربائية جديدة تعتمد على الوقود الأحفوري. وتظهر تكاليف توليد الطاقة المتجددة في عام 2019 أن أكثر من نصف الطاقة المتجددة المضافة في عام 2019 حققت تكاليف طاقة أقل من أرخص مصانع الفحم الجديدة.

يصل إلى 23 مليار دولار أمريكي سنوياً، وخفض الانبعاثات السنوية بنحو 1,8 جيجا طن من ثاني أكسيد الكربون (CO₂)، أي ما يعادل 5 في المائة من إجمالي انبعاثات ثاني أكسيد الكربون العالمية في عام 2019. كما أنه سيسفر عن حافز استثمار بقيمة 940 مليار دولار أمريكي، وهو ما يعادل حوالي 1 في المائة من الناتج المحلي الإجمالي العالمي.

ويظهر التقرير أنه في العام المقبل، قد تزيد تكلفة تشغيل ما يصل إلى 1200 جيجاوات من الطاقة الحالية القائمة على الفحم عن تكلفة الطاقة الشمسية الكهروضوئية على نطاق المرافق الجديدة. سيؤدي استبدال 500 جيجاوات من الطاقة القائمة على الفحم، والأعلى تكلفة، بالطاقة الشمسية الكهروضوئية والرياح في العام المقبل إلى خفض تكاليف نظام الطاقة بما

يسلط التقرير الضوء على أن مشاريع توليد الطاقة المتجددة الجديدة تقوض، بشكل متزايد، المنشآت القائمة التي تعمل بالفحم. فتكلفة الطاقة الشمسية الكهروضوئية الجديدة وطاقة الرياح أقل، في المتوسط، من إبقاء العديد من مصانع الفحم الموجودة قيد التشغيل. وتظهر نتائج الإجراءات تسارع هذا الاتجاه، مما يعزز قضية التخلص التدريجي من الفحم بالكامل.

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الطاقة المتجددة أرخص من الفحم ٤



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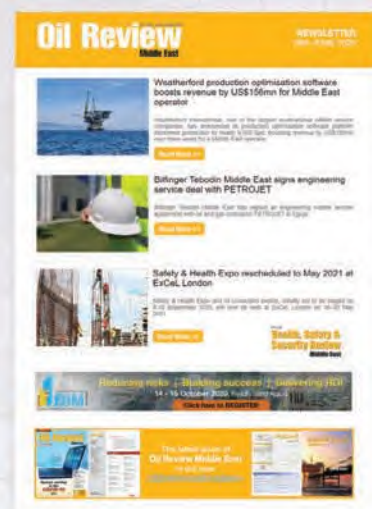
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أكثر من نصف الطاقة المتجددة المضافة في عام 2019
حققت تكاليف طاقة أقل من أرخص مصانع الفحم الجديدة.

التقرير السنوي للطاقة 2020