

SERVING THE REGION'S BUSINESS SINCE 1984



USA: \$16.50, United Kingdom: £10

Vol 36/Issue Three 2020

Fine-tuning growth

The UAE banks on diversifying innovation-driven industrial sector

Water strategy

Addressing challenges with smart solutions

CRUCIAL CARRIER

HOW THE GULF'S CARRIERS ARE RESPONDING TO TOUGH TIMES

INSIDE Road Building

Cables Facilities Management Middle East Energy www.technicalreview.me



1984 - 2020 Serving Middle East Business



Stay one step ahead of your competitors with the DMS Projects Matrix



REGIONS COVERED

- Asia Pacific
- North America
- Middle East
- Latin America
- Central America
- Russia & CIS
- East Africa
- North Africa
- West Africa
- India
- China
- Europe

SECTORS COVERED



SUBSCRIBE TODAY

or contact us for further information

- www.dmsprojects.net
- info@dmsglobal.net
- +971 249 161 71 (UAE Headquarters)
- +973 1740 5590 (Bahrain Office)
- A Division of The DNA for Success

CONTENTS

BUSINESS & MANAGEMENT

Market News

MAWANI and SGP sign the largest single BOT agreement in Saudi Arabia, Tabreed acquires stake in Emaar's Dubai cooling business, Uniper and Siemens collaborate to decarbonise power generation, L&T bags power deals in Oman, Kuwait and Egypt

ANALYSIS

New Priorities

Infrastructure upgrades and rapidly expanding manufacturing capabilities to boost the UAE economy.

LOGISTICS

Steady Supply

In the wake of the coronovirus, vital elements of the supply chain remain intact and are, in fact, thriving.

CONSTRUCTION

Knowledge Sharing

Addressing skills shortages in the age of digital construction.

WATER AND POWER

Improving Efficiency

How smart water network solutions offer a continuous and frequent flow of data.

Safety First

Importance of the global fight against counterfeit and non-compliant electrical products.

26

30

33

Δ

COUNTRY FOCUS

Oman

4

10

14

17

22

Overview of major industrial and construction projects in the sultanate.

COMMUNICATIONS & IT

Emerging Technology

Nuanced digital tools and data show the way to minimise the impact of a pandemic.

EVENTS

Middle East Energy	35
INNOVATIONS	
Latest Product Launches	38

Featuring new launches and innovative products from RMD Kwikform, Kohler, Steinert, Caterpillar, Olympus, Schneider Electric, Komatsu, Nidec, Bauer, Manitowoc, Brady, Caparol Arabia, AVEVA, Chauvin Arnoux

ARABIC

Analysis

EDITOR'S NOTE

THE COVID-19 OUTBREAK took the world by storm, springing unprecedented challenges for industries as they struggle to keep business as usual. The Middle East is no exception. Amid such a health crisis, the logistics sector plays a crucial role in delivering essentials. We take a look at how the regional governments and cargo handling entities are pushing the boundaries during this pandemic (p14). While every sector has taken a hit, it is

firms are reworking their strategies to keep the momentum (p24). Also read how an IoT-connected world can help to make operations safer (p33).

Elsewhere in this issue, we feature an expert insight on non-compliant electrical products (p34), a report on the new metal subsidiary of Ducab, and a round-up of Middle East Energy. **Stay safe. Stay healthy.**

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







معرفة المعرفة ا

Editor: Abhishek Paul - Email: abhishek.paul@alaincharles.com

Editorial and Design team: Prashanth AP, Fyna Ashwath, Mariam Ahmad Miriam Brtkova, Praveen CP, Manojkumar K, Nonalynka Nongrum, Samantha Payne Shalaka Paradkar, Rahul Puthenveedu, Deblina Roy and Louise Waters

Managing Editor: Georgia Lewis

Publisher: Nick Fordham

Sales Manager: Richard Rozelaar - Email: richard.rozelaar@alaincharles.com Special Projects Manager: Jane Wellman - Email: jane.wellman@alaincharles.com

Tel: +44 (0) 20 7834 7676, Fax: +44 (0) 20 7973 0076

Production: Srinidhi Chikkars, Swati Gupta, Nelly Mendes and Arjun S Email: production@alaincharles.com

Subscriptions: circulation@alaincharles.com

Chairman: Derek Fordham

Head Office: Alain Charles Publishing Ltd University House, 11-13 Lower Grosvenor Place, London, SW1W 0EX, UK Tel: +44 20 7834 7676, Fax: +44 20 7973 0076

Country	Representative	Telephone	Fax	Email
India	Tanmay Mishra	+91 98800 75908		tanmay.mishra@alaincharles.com
Nigeria	Bola Olowo	+234 8034349299		bola.olowo@alaincharles.com
UK	Richard Rozelaar	+44 20 7834 7676	+44 20 79730076	richard.rozelaar@alaincharles.com
USA	Michael Tomashefsky	+1 203 226 2882	+1 203 226 7447	michael.tomashefsky@alaincharles.com

US MAILING AGENT: Technical Review Middle East ISSN 0267 5307 is published eight times a year for US\$99 per year by Alain Charles Publishing, University House, 11-13 Lower Grosvenor Place, London, SW1W 0EX, UK. Periodicals postage paid at Rahway, NJ.

POSTMASTER: Send corrections to Alain Charles Publishing Ltd, c/o Mercury Airfreight International Ltd, 365 Blair Road, Avenel, NJ 07001. US Agent: Pronto Mailers International,

200 Wood Avenue, Middlesex, NJ 08846.

Printed by: Buxton Press Printed in: April 2020
Arabic Translation: Ezzeddin M. Ali - Email: ezzeddin@movistar.es

Arabic Typesetting: Lunad Publicity, Dubai

© Technical Review Middle East ISSN: 0267-5307

Middle East Regional Office: Alain Charles Middle East FZ-LLC Office L2-112, Loft Office 2, Entrance B, Dubai Media City, Dubai, UAI Tel: +971 4 448 9260, Fax: +971 4 448 9261



Briefly

Renewables sector continues to expand

THE RENEWABLE ENERGY sector added 176 gigawatts (GW) of generating capacity globally in 2019, marginally lower than the (revised) 179 GW added in 2018. However, new renewable power accounted for 72 per cent of all power expansion last year, according to new data released by the International Renewable Energy Agency (IRENA).

IRENA's annual Renewable Capacity Statistics 2020 shows that renewables expanded by 7.6 per cent last year, with Asia dominating growth and accounting for 54 per cent of total additions. While expansion of renewables slowed last year, total renewable power growth outpaced fossil fuel growth by a factor of 2.6, continuing the dominance of renewables in power expansion first established in 2012. Solar and wind contributed 90 per cent of total renewable capacity added in 2019.

"Renewable energy is a costeffective source of new power that insulates power markets and consumers from volatility, supports economic stability and stimulates sustainable growth," said IRENA director-general Francesco La Camera. "Enabling policies are needed to increase investments and accelerate renewables adoption."

Renewables accounted for at least 70 per cent of total capacity expansion in almost all regions in 2019, other than in Africa and the Middle East, where they represented 52 per cent and 26 per cent of net additions respectively. The additions took the renewable share of global power capacity to 34.7 per cent, up from 33.3 per cent at the end of 2018.

The Middle East saw a 12.6 per cent increase in renewable generating capacity, to 23 GW, although its global share remained low at just one per cent.

Solar added 98 GW in 2019, 60 per cent of which was in Asia. Wind energy expanded by close to 60 GW led by growth in China and the USA.

The two technologies now generate 623 GW and 586 GW respectively – close to half of global renewable capacity. Hydropower, bioenergy, geothermal and marine energy displayed modest year-onyear expansion.

MAWANI and SGP sign the largest single BOT agreement in Saudi Arabia

SAUDI PORTS AUTHORITY (MAWANI) and Saudi Global Ports (SGP) have signed a new 30-year Build, Operate and Transfer (BOT) agreement to develop and operate the container terminals in the King Abdulaziz Port in Dammam in a virtual signing ceremony. It represents the largest single BOT Agreement in the Kingdom, with investments exceeding US\$1.87bn.

The BOT Agreement represents a major step toward achieving the strategic objectives and development plan of the Saudi Ports Authority by conceding some of its services in partnership with the Ministry of Transport, and with the support of the National Centre for Privatisation.

SGP will embark on a development and modernisation programme to transform King Abdulaziz Port into a mega container hub and more than double the Port's container handling capacity to an estimated annual handling capacity of 7.5 million TEUs when the planned expansion works are fully completed. It will provide more than 4,000 job opportunities in the port and logistics sector, and is a part of the continuous developments carried out by MAWANI in the Saudi ports.

The investments will focus on environmentally friendly and technologically sophisticated systems, including the adoption of automation to develop a modern Saudi workforce.

Saleh Al-Jasser, minister of Transport and chairman of the Saudi Ports Authorit, said, "The continuous developments in Saudi ports come in line with the national efforts to achieve goals and pillars of our country's ambitious vision to promote



The virtual signing ceremony.

sustainable economic development and raise competitiveness."

He indicated the importance of this agreement in raising the operational and logistical performance level and developing the infrastructure of Saudi ports, contributing to reaching regional leadership and international competition.

Al-Jasser explained that it enhances logistics, raises the reliability of supply chains, supports local and international trade and contributes in raising the rank of the Kingdom at the logistics performance index to become among the 25 best countries around the world. This agreement aims attract new investments to the national economy, support local content and national industries, and increase the national exports and imports that contribute to creating promising investment opportunities.

Tabreed acquires stake in Emaar's Dubai cooling business

NATIONAL CENTRAL COOLING Company PJSC (Tabreed), the UAE-based international district cooling developer, has announced the acquisition of a 80 per cent stake in Emaar Properties PJSC's (Emaar) Downtown Dubai district cooling business at a cost of US\$680mn. Emaar will retain a 20 per cent stake as part of

the long-term partnership with Tabreed.

The long-term concession is set to provide up to 235,000 RT of cooling to one of Dubai's most prestigious developments with the largest integrated energy-efficient cooling scheme in the world.

The district cooling scheme provides 150,000 RT of contracted capacity through a network that distributes chilled water produced in three already built interconnected district cooling plants. It is followed by a fourth state-of-the-art plant that is a under construction.



Downtown Dubai is Emaar's flagship development at the heart of the city.

Following the completion of the transaction, Tabreed's presence in Dubai has increased to 278,801 RT and its total capacity has increased by 12.6 per cent to 1,338,602 RT from 83 plants.

Uniper and Siemens collaborate to decarbonise power generation

UNIPER AND SIEMENS Gas and Power have signed a cooperation agreement for the development of projects on the decarbonisation of power generation and promoting sector coupling. One focus is the production and use of "green hydrogen" – ie, hydrogen from renewable energy sources. The companies intend to implement projects in this field together, addressing the entire value chain.

Siemens Gas and Power offers all core technologies for a long-term CO_2 -free energy supply – from power and heat generation by renewable energies or gas-fired power plants, to power transmission and distribution, to efficient



Siemens supports global decarbonisation.

electrolysis for hydrogen production.

Uniper intends to gradually increase the share of "green" gas or "green hydrogen" in its conventional gas business, in power generation and energy trading. It is a pioneer in the use of power-to-gas technology, which makes "green hydrogen" possible.

Siemens and Uniper have been partners for many years in integrated products, solutions and services along the entire energy value chain. In addition, the companies share a pioneering role in power-to-gas plants in which hydrogen or methane are produced from renewable energies. The aim of this cooperation is to contribute to improving the economic efficiency and thus the marketability of power-to-gas plants.

Jochen Eickholt, Siemens Energy executive board member, said: "'Green hydrogen' can contribute to achieving climate targets and is thus a key to a successful energy turnaround. And it can do so across sectors in industry, mobility, and heat and power generation. Joint projects with our customers, such as the partnership with Uniper focusing on 'brownfield transformation' and the design of the 'green hydrogen' value chain, are extremely important here."

Supply chain disruption

THE CORONAVIRUS (COVID-19) pandemic disruption on Chinese solar photovoltaic (PV) manufacturing companies has had a major impact on the global solar PV supply chain, according to GlobalData.

Somik Das, senior power analyst at GlobalData, commented, "Many solar PV developers in Asia and other parts of the world have experienced prolonged delays in importing solar PV modules as the manufacturing capacity of the countries is concentrated in a few major markets such as China, the US, Taiwan and Japan. Most of these nations have been impacted by the pandemic. In addition to this, many of the developers around the world are dependent on the Chinese manufacturers to provide the PV modules."

Trina Solar supplies modules to Al Raebi

TRINA SOLAR HAS signed a sales agreement with the Yemeni photovoltaic firm Al Raebi to supply six megawatt of Vertex series modules to highefficiency distributed PV projects in the Middle East

The Vertex series modules, with a conversion efficiency reaching 21 per cent, produce power output exceeding 500W. The modules come in bifacial double-glass and back sheet versions, incorporating 210mm cells and integrating advanced three-piece, non-destructive cutting and high-density



packaging technologies that feature high power output, high reliability, high efficiency and high power generation.

Yemen is well positioned to benefit from the huge potential of PV applications because it boasts rich light resources. The country is in urgent need of best-of-breed PV products and solutions to address the domestic electricity shortage.

Jimenez Antonio, head of the Middle East and Africa markets at Trina Solar, said, "With the Vertex series, Trina Solar has taken an important step towards maximising customer value and setting a new benchmark for ultra-high module power. We look forward to joining with our partners in the global photovoltaic industry to embrace the 5.0 era as the 500W+ Vertex series continues to attract attention worldwide."

Briefly

Dentons advises on largest solar plant in Oman

DENTONS HAS ADVISED ACWA Power and the consortium of sponsors in reaching financial close on the US\$400mn 500-MW Ibri II photovoltaic (PV) solar independent power project (IPP), in Oman. The plant will become the largest utilityscale solar park in Oman.

ACWA Power led the consortium of sponsors, which includes Kuwait's Gulf Investment Corporation (GIC) and Alternative Energy Projects Co (AEPC). The power project, financed on a 70:30 debt to equity ratio, has received US\$275mn in senior debt funding from a group of six lenders. The lending consortium includes the Asian Infrastructure Investment Bank (AIB), Bank Muscat, Riyad Bank, Siemens Bank, Standard Chartered Bank and Warba Bank.

Partner Udayan Mukherjee commented, "We are delighted to have been able to assist the sponsors to close this transaction, particularly given the challenges in the current environment. This is a landmark project as it is the largest renewables project in Oman and will be the first renewables IPP for AIIB in the region, with a consortium of international and regional banks also participating".

Saudis confident of bouncing back

81 PER CENT of Saudi Arabian citizens are confident that the Kingdom will recover from the global COVID-19 pandemic more quickly than other countries in the region, according to new research from APCO Worldwide, which surveyed more than 500 Saudi citizens from major population centres.

"As the strongest economy in the Middle East and the chair and host country of the 2020 G20 summit, the Kingdom of Saudi Arabia has an important role to play in restoring regional economic growth postcoronavirus," said Liam Clarke, managing director, Saudi Arabia for APCO Worldwide. "Our research shows that Saudis recognise this and are confident in the country's ability to recover from the pandemic, but are split on the Government's response."

Actions taken by the Government include closing malls, implementing curfews and introducing a US\$34.4 billion stimulus package to support the economy.

ACWA Power supports Saudi Arabia in combating COVID-19 pandemic



Mohammad bin Abdullah Abunayyan is the chairman of ACWA Power.

ACWA POWER HAS pledged a

contribution of around US\$13.29mn to support national health endeavours and efforts in fight against COVID-<u>19.</u>

Aligning with the Saudi Ministry of Health to support its efforts in addressing the repercussions of this global health crisis, ACWA Power has submitted a proposal to develop and construct a mobile hospital that is equipped with the necessary medical tools and equipment.

Mohammad Abunayyan, ACWA Power chairman, said, "We are cooperating closely with all local authorities in the kingdom to support their tireless efforts in containing the spread and impact of this pandemic, and have hence volunteered deploying ACWA Power's human and technical expertise towards the quick establishment of suitable facilities that require the highest standards of security and safety."

Nexans and Ingram Micro sign Middle East distribution agreement

NEXANS, ONE OF the worldwide leaders in cables and cabling systems, has signed a value-added distribution agreement with Ingram Micro for the Middle East region including the UAE, Bahrain, Kuwait, Oman, Jordan and Yemen.

With this agreement, Ingram Micro is authorised to sell and promote Nexans' LAN solutions through its channel network in these countries.

"End customers in critical infrastructure, large and medium enterprises, public sector, digital businesses, service providers, strategic hubs, are looking at moving to the next level of network performance. With the upcoming roll out of 5G, the number of use-cases and types of use-cases leveraging internet of things, industrial internet of things, smart cities, edge computing, connected and autonomous vehicles, amongst others, is going to grow exponentially," explained Arafat Yousef, managing director of Nexans Data Network Solutions (DNS) business unit in Middle East and Africa.

"End users wanting to disrupt themselves to take advantage of a whole new universe of business models and customers experiences, will need to begin upgrading their networking and data centre infrastructure."

Nexans and Ingram Micro aim to embark of these disruptive market opportunities in the networking, connectivity and data centre sector across the region, added Arafat Yousef.

Bahaa Salah, managing director of Ingram Micro, for the Gulf and Near East region, commented, "Their advanced technology and the complete end-to-end solutions from Nexans enable us to expand our offering to the market and meet the increasing demand for cabling solutions in the region. We are confident and believe that with our strong channel community we will be able to take Nexans' business to new heights."



SDC International Shipping expands into GCC countries

SDC INTERNATIONAL SHIPPING, an international moving company, is expanding to some Gulf Cooperation Council countries including Kuwait, Oman, Saudi Arabia and the UAE.

SDC, an FMC licensed international mover, has been in the market for more than 10 years now, helping Americans relocate to more than 70 countries all over the world.

SDC International Shipping is aware that

their clients will face specific regulations when shipping their belongings to a GCC country.

In the case of, for example, Saudi Arabia, some works of art, toys and books cannot be brought into the country. Therefore, the company has prepared a moving checklist specific to each country.

Additionally, a personal moving consultant assisting with paperwork is assigned to each client. SDC aims to consult on the documentation that clients need to bring to the country — copies of the family's medical history, updated immunisation documentation, marriage and birth certificates and others.

SDC is a fully licensed and insured moving company that offers household shipping by air and by sea and covers the entire moving process.

They provide a packing option for their clients, as an additional service.

Wärtsilä to supply hybrid power plant to Ma'aden's gold mine in Saudi Arabia

WÄRTSILÄ WILL SUPPLY the engineering, equipment, and technical advisory for a 44MW power plant to be installed at the Mansourah & Massarah gold project mine in Saudi Arabia.

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

The order with Wärtsilä was placed in March by Larsen & Toubro Ltd, India-based main contractors for the project. The power plant will comprise six



Wärtsilä 32 engines, with five in operation and one on constant stand-by. The built-in flexibility of the Wärtsilä engine technology, which allows full power output to be reached within minutes of being started, will allow the plant to efficiently utilise renewable solar energy.

"The dedicated power plant will ensure that the mine can operate on a reliable and economical supply of electricity," commented Amit Swarnkar, MENA business unit head, metallurgical and material handling division, Larsen & Turbo Ltd.

"Maximising the use of renewable energy is central to Wärtsilä's approach to enabling sustainable energy supplies. We enhance this energy transition by optimising energy systems for our customers, and have extensive experience in providing power for mining operations, so this project fits our capabilities perfectly," said Alexandre Eykerman, energy business director for the Middle East, Wärtsilä.

The Wärtsilä equipment will be delivered within 10 months from the contract signing. The plant is scheduled to be commissioned by May 2021, with commercial operations beginning a year later.

STATS Group expands operations in Oman

PIPELINE SPECIALIST STATS Group has opened a workshop, storage and testing facility in Muscat.

The expansion comes after the pipeline technology specialist secured a two-year extension to a master services agreement with Petroleum Development Oman (PDO) to provide pipeline isolation and hydrostatic testing services.

In the Middle East, STATS has trebled the size of their operation in Abu Dhabi in a move to a larger workshop and office facility in the Mussafah district.

STATS Group Middle East director, Angus Bowie, said that the facility in Oman will providea platform to extend the company's footprint in the Sultanate and wider Middle East region.

Sharaf DG Energy installs 6,500 solar panels in 500 Dubai villas

SHARAF DG ENERGY, a unit of UAE business conglomerate Sharaf Group, has installed more than 6,500 solar PV panels in 500 Dubai villas Each villa will produce 6,220 kilowatt-hours of electricity in one year – equivalent to CO₂ emissions from consuming 1880 litres of gasoline or growing 70 trees for 10 years.

This is in line with Dubai Electricity and Water Authority's (DEWA) project to install solar PV panels on the homes of UAE nationals in Dubai. DEWA has contracted Etihad ESCO to oversee the project.

A major challenge of the project, on the engineering front, was the orientation and the size of the buildings, each villa had different positioning with respect to the sun and different roof size. Sharaf DG Energy engineers designed custom solar PV panel layouts for these roofs in order to receive maximum sunlight and thereby produce maximum energy.

Sanjay Dabur, vice-president, strategic business, Sharaf DG, said, "We want to empower communities to achieve higher levels of sustainability."

It is now more important to protect from utility tariff increases and the volatility of oil.

Briefly

News

Nozomi Networks and Deloitte set to deliver IT, OT services in EMEA

DELOITTE'S EMEA CYBERSPHERE Center and Nozomi Networks Inc have partnered to address growing demand in Europe, the Middle East and Africa (EMEA) region for managed security services and solutions designed to holistically address IT, OT and IoT cybersecurity requirements.

Deloitte will provide Nozomi Networks' advanced solutions for OT and IoT visibility, operations monitoring and threat detection to customers in EMEA.

"With this partnership, our customers immediately gain access to OT and IoT network monitoring and threat detection that is fully supported by Deloitte's cyber risk services," said Nicola Esposito, risk advisory partner at Deloitte Spain.

"With more than 25 Deloitte engineers now trained and certified on Nozomi Networks technology, we are equipped to support custom deployments for our clients. Additionally, customers have the option to leverage Nozomi Networks solutions as part of a full suite of IT, OT and IoT security services now available through Deloitte's Cyber Intelligence Centers in EMEA."

Recognised as the market leader in OT and IoT security in the latest Frost & Sullivan Radar report, Nozomi Networks aims to provide superior operational visibility, advanced OT and IoT threat detection and strength across EMEA deployments. The company's products span IT, OT and IoT to automate the hard work of inventorying, visualising and monitoring industrial control networks through the innovative use of artificial intelligence. Use cases stretch beyond cybersecurity, and include trouble shooting, asset management and predictive maintenance.

In an increasingly digital world, cyber brings new opportunities and threats. Deloitte's Cyber Risk services aims to provide customers with customisable suite of cyber solutions and managed services.

www.technicalreview.me

Technical Review Middle East - Issue Three 2020

EXECUTIVES' CALENDAR 2020

OCTOBER 2020					
5-8	Saudi Build	RIYADH	www.saudibuild-expo.com		
10-13	Basrah Building	BASRAH	www.basrahbuilding.com		
12-14	Saudi Energy	RIYADH	www.saudiarabia-energy.com/en/home.html		
14-15	Kuwait Green Build	KUWAIT	www.kuwaitgreenbuild.com		
26-28	WETEX	DUBAI	www.wetex.ae		
NOVEM	IBER 2020				
2-4	Egypt Energy	CAIRO	www.egypt-energy.com/en/home.html		
3-5	Solar-Tec	CAIRO	www.solartecegypt.com/en/home.html		
17-18	The Mining Show	DUBAI	www.terrapinn.com/exhibition/mining-		
			show/index.stm		
23-26	The Big 5	DUBAI	www.thebig5.ae		
DECEM	IBER 2020				
8-10	Gulf Traffic	DUBAI	www.gulftraffic.com/en/home.html		

Readers should verify dates and location with sponsoring organisations, as this information is sometimes subject to change.

GCC economies forecast to recover in 2021, says IMF report

AS THE CORONAVIRUS (COVID-19) pandemic sweeps across the world, growth in the Middle East and Central Asia region is projected to fall from 1.2 per cent in 2019 to -2.8 per cent in 2020— lower than the growth rates during the 2008 global financial crisis and the 2015 oil price shock — before rising to 4.0 per cent in 2021, as threats from the virus recede and global policy efforts spur recovery, according to an IMF report.

In line with the rest of the world, the regional forecast for 2020 has been significantly revised down from the October 2019 World Economic Outlook (5.7 percentage points lower), mainly reflecting the expected economic fallout from the pandemic that has spread to almost every country in the region, it says.

In GCC countries, growth is projected to contract by 2.7 per cent in 2020. Non-oil activity is expected to be a major drag on the near-term outlook, contracting by 4.3 per cent this year, a significant downward revision from the 2.3 per cent growth projected in the October 2019 Regional Economic Outlook for the Middle East and Central Asia.

The service, retail, hospitality and tourism sectors have been particularly hard hit by the spread of COVID-19 and containment



The pandemic has resulted in severe trade disruptions and losses, affecting job-rich sectors and businesses.

measures, raising challenges for those countries where these industries command a large share of output (Bahrain, Qatar, and UAE). Manufacturing has slowed, and investment plans have been delayed across most of the region. Oil GDP is expected to slow in 2020, contracting in all countries except for Kuwait, Saudi Arabia, and UAE. Overall, oil GDP is expected to contract by 0.3 per cent, though overall oil production is set to fall further with the latest OPEC+ agreement, underscoring downside risks to oil GDP growth, the report stated.

In addition to the devastating toll on human health, the COVID-19 pandemic is causing significant economic turmoil through simultaneous supply and demand shocks – plunging oil and commodity prices, dropping domestic and external demand, falling consumer confidence, tightening financial conditions, and disruption in production and global supply chains, the report said.

The outlook for the region is driven by a sizable economic fallout from the COVID-19 pandemic. While higher oil prices – for example from a faster recovery in global oil demand following the recent agreement on production cuts – can improve the region's outlook and is an upside, risks around the forecast, especially in the near term, are skewed to the downside, and highly dependent on the duration and severity of the pandemic.

A more severe and protracted Covid-19 pandemic in the region or in its major trading partners could cause a prolonged production disruption, wider supply chain spill over, larger collapse in confidence and demand, and further deterioration in financial conditions. At the same time, banks and nonbank financial institutions, especially those that are not well capitalised, could come under stress through exposures to the affected sectors and households. All these can lead to a more severe downturn in 2020 and weaker recovery in 2021.

Abengoa to construct desalination plant in Saudi Arabia

ABENGOA HAS BEEN selected, in a consortium with the engineering and construction company SEPCOIII, to construct a 600,000 m³/d desalination plant for ACWA Power. The value of Abengoa's stake in the project exceeds US\$200mn.

Specifically, the company will be responsible for the engineering, supply and construction of the Jubail 3A reverse osmosis desalination plant in Saudi Arabia.

With a capacity of 600,000 m^3/d , this plant will be the second largest

plant with reverse osmosis technology in the country (it will have the same capacity as already under construction Rabigh III plant) and will guarantee the supply of drinking water to Riyadh, Qassim and Eastern Provinces throughout the year. The project includes the construction of tanks for the storage of treated water with a capacity of one day of production, as well as a photovoltaic solar field.

The scope of the project includes seawater intake, pumping, pre-treatment, reverse osmosis



system with energy recovery, post-treatment, pumping station, product water storage, effluent treatment, discharge by outfall and field solar photovoltaic, as well as the associated electrical installations that comprise the construction of an electrical substation of 380/33 kV.

The developer consortium is formed by ACWA Power, Gulf Investment Corporation and Al Bawani Water & Power Company. The desalinated water will be supplied to the state-owned Saudi Water Partnership Company, promoter of this project.

Briefly

L&T bags power deals in Oman, Kuwait and Egypt

THE POWER TRANSMISSION and distribution business of L&T Construction has bagged major power deals.

In Kuwait, a order has been awarded to upgrade substations and related power facilities in KNPC's Mina Al Ahmadi oil refinery. The revamped network of distribution substations with the latest technology will enhance the reliability of power supply.

The business has won a 400 kV grid station order in Oman which will be a crucial element in the sultanate's major transmission initiative to interconnect the grids in the south and north with the PDO Area. In Egypt, an order to design, supply, construct and commission a 220 kV gas insulated substation has been received from a reputed client.



www.technicalreview.me

Technical Review Middle East - Issue Three 2020



Vew priorities for the UAE economy

A concerted push for diversification to foster a diverse knowledge - and innovation-driven economy is bearing fruit, says economist Moin Siddiqi.

A fast diversifying innovation-driven industrial sector is expected to comprise one-fifth of GDP by 2030.

ysis

御田 かちかち

HE UNITED ARAB Emirates (UAE) is one of the most open economies worldwide. KPMG's 2019 Growth Promise Indicators (GPI) reported that the UAE offers the best growth prospects among the Arab countries, even surpassing bigger Asian economies, notably China, India and South Korea.

Multinationals cite UAE's world-class infrastructure and logistics, growing purchasing power, highly efficient markets, robust regulations, vibrant capital markets, macro prudential policies and proximity to strategic Gulf Cooperation Council (GCC) markets, among factors that woo global investors. Internationally, the World Bank rated UAE 16th out of 190 countries, above many industrialised nations, on the ease of doing business (see Table 2).

The country also ranks among the top 20 for global service business, according to A.T. Kearney Consultancy. The continuous infrastructure upgrades, rapidly expanding manufacturing capabilities, and a thriving services industry, coupled with regulatory reforms and business promotion, have made the UAE the most diversified of the GCC economies. A new foreign direct investment law permits 100 per cent foreign ownership in selected sectors. There is currently US\$350bn worth of active construction projects underway across the Federation.

A concerted push for diversification to foster a diverse knowledge - and innovationdriven economy is bearing fruit. The UAE is successsfully moving away from heavy reliance on petroleum, which represented over 85 per cent of GDP in 2009. The Ministry of Economy predicts non-oil sector will constitute 80 per cent of GDP by 2021, compared to 70 per cent in 2017.

Non-oil economy on upturn

Industrial activity is one of the main engines of UAE development, helped by a relatively diversified export base. The latter includes manufactured goods, machinery/equipment, chemicals and fabricated metal products – representing two-fifths of merchandise

exports. A fast diversifying innovationdriven industrial sector is expected to comprise one-fifth of GDP by 2030. The UAE's advancement in diversification has been highlighted by a number of global indicators. The nation ranked 42 (of 150 countries) on the United Nations Industrial Competitiveness Index 2019, compared to 54th in 2010. It was also ranked first regionally and 12th globally among the most competitive economies in the IMD World Digital Competitiveness ranking 2019 report.

Over the past two decades, the UAE's diversification strategy has developed several non-oil sectors, including the 'New Economy' such as e-commerce, business consultancy, media, leisure, renewable energy and innovative healthcare services. Abu Dhabi's Vision 2030 has encouraged investments in aerospace, high-end

The UAE's specialised industrial zones are pivotal in attracting homegrown and foreign companies to establish themselves as major contributors to global value chains (GVCs).



The vital pillars of new industrial strategy are supporting innovation, entrepreneurship, high-end manufacturing trade, nurturing advanced skills through greater emphasis on science, technology, engineering and mathematics (STEM).

manufacturing, space sectors and fintech – aimed at boosting the non-oil sector contribution to Abu Dhabi's GDP to twothirds by 2030. The energy-rich emirate is also developing a new Masdar City: a smart city/tech innovation hub project, while positioning itself as a financial services centre through newly created Abu Dhabi Global Markets. Meanwhile, Dubai is vibrant economy has benefited from megainvestments linked to Expo 2020.

Another strategic sector is the aviation market that is projected to grow 170 per cent by 2037 while supporting 1.4mn jobs and contribute US\$128bn to the national economy, according to the International Air Transport Association (IATA). Presently, the domestic aviation industry supports about 800,000 jobs and contributes US\$47.4bn to

Table 1: UAE Selected Macroeconomic Indicators					
			Projections		
	2017	2018	2019	2020	2021
Nominal Gross Domestic Product, US\$bn #	378	414	411	415	439
Real GDP growth, % annual	0.5	1.7	1.8	2.6	3.0
Real non-oil GDP growth, %	2.0	1.3	1.7	3.0	
CPI Inflation (average), %	2.0	3.1	-1.8	1.3	1.5
Fiscal Balance, % of GDP	-1.6	1.2	-1.3	-1.0	-0.6
Central Govt. Gross Debt, % of GDP	20.0	19.1	20.1	20.3	20.3
Merchandise Exports, % nominal change	6.3	1.1	3.8	1.5	5.2
Merchandise Imports, % nominal change	8.7	-4.5	6.5	5.5	5.6
Current Account Balance, US\$bn	27.6	37.6	30.4	25.7	25.0
Foreign Direct Investment, US\$mn	8,551	9,605	10,354	10,385	12,700*
The Emirati Dirham per US\$ (period average) /	3.67	3.67	3.67	3.7	3.67

Structure of output, % of 2018 GDP: Agriculture (1%); Industry (47%); Services (52.5%). # The second-largest Gulf Cooperation Council (GCC) economy after Saudi Arabia.

*Net inflows between January and June 2019.

The Dirham is pegged to the dollar at a rate of 3.67 since November 1997, supported by central bank reserves and foreign assets held in sovereign wealth funds.

Sources: World Bank, IMF, Institute of International Finance, World Investment Report 2019.

GDP. The emirate has so far invested US\$270bn into airport infrastructure development projects, according to the General Civil Aviation Authority (GCAA). "I believe there is a need to inject more money in order to keep pace with massive and successive developments in the sector," Saif Al Suwaidi, director-general GCAA said.

UAE's specialised industrial zones are pivotal in attracting homegrown and foreign companies to establish themselves as major contributors to global value chains (GVCs) in a variety of advanced industrial sectors, such as aviation, defence, aluminium and electronics as well as launching pioneering projects. The authorities have implemented a comprehensive national small and medium enterprise (SME) development strategy. It focuses on lowering business startup costs; operationalising a new insolvency framework; and promoting greater financial inclusion through improved access to credit for SMEs.

Embracing the 4th Industrial Revolution

The government is reviewing a new strategy that seeks to raise the industrial sector's contribution to GDP and boost job creation for Emiratis. Suhail bin Mohammed Faraj Faris Al Mazrouei, UAE minister of Energy and Industry explained, "The goal is to build a diversified and sustainable knowledgebased economy in which the industrial sector plays a pivotal role led by qualified national cadres." The overarching objective is to raise national productivity.

The vital pillars of new industrial strategy are supporting innovation,

entrepreneurship, high-end manufacturing trade, nurturing advanced skills through greater emphasis on science, technology, engineering and mathematics (STEM), reducing carbon emissions and increased participation of local businesses in GVCs in order to boost non-oil exports, as well as the adoption of Fourth Industrial Revolution (4IR) technologies or Industry 4.0.

Looking ahead, the UAE has unveiled an

Table 2: The UAE Ranks Top in MENARegion's Doing Business Indicators

End-June 2019 score (1-190 countries)					
	MENA	average			
Ease of Doing Business		16			
Starting a Business	17	84.0			
Dealing with Construction permits	3	61.7			
Getting Electricity	1	72.4			
Paying Taxes	30	75.1			
Enforcing Contracts	9	55.6			
Registering Property	10	63.4			
Source: World Bank Doing Business 2020 Report.					

Table 3: The UAE the Most Competitive Economy in MENA Region

Rank (1-141 countries)

National competitiveness [1]			
Transport infrastructure [2]	8		
Utility infrastructure [3]	44		
ICT adoption [4]	2		
Macroeconomic stability	1		
Domestic competitiveness [5]	6		
Trade openness [6]	7		
Financial system depth [7]	31		
Innovation capability [8]	33		
Skills of current workforce [9]	15		
Labour market flexibility [10]	22		

Source: The Global Competitiveness Report 2019.
 Defined as the set of institutions, policies and factors influencing the level of productivity.
 Road, railroad, airport and liner shipping connectivity, plus efficiency of transport services.
 Electricity supply quality and reliability of water

supply within the country. 4. Internet users, the number of cell phone, mobilebroadband and fixed-broadband internet, and fibre internet subscriptions per 100 population. 5. Distortive effects of taxes and subsidies on competition and market domination by a few business groups and the extent of competition in services - mainly network sector (telecoms, utilities, postal, transport, engineering and retail business). 6. Prevalence of non-tariff barriers (e.g. health and product standards, technical and labelling requirements) that limit the ability of imported goods

to compete in domestic markets, trade tariffs applied by a customs authority on imported goods and border clearance efficiency.

7. Domestic credit to private sector, financing of SMEs and venture capital availability.

8. The state of cluster development, geographic concentrations of firms, suppliers and specialised institutions in a particular field.

9. The quality of staff and vocational training, plus skillset of graduates - possessing the skills needed by businesses.

10. Hiring and firing practices as well as the ease of employing foreign labour.

ambitious 'Centennial 2071' project, which underlines the nation's inspirations to lead globally in various fields by establishing itself as a regional hub and open laboratory for the applications of Industry 4.0. The latter is driven by state-of-the art innovations, i.e. using 'disruptive' technologies such as the Internet of Things, artificial intelligence, virtual reality, robotics, 3D printing, nanotechnology, biotechnology, machine learning, energy storage, autonomous vehicles, quantum computing and Blockchain. The 4thIR combines both 'cyberphysical' system and 'Internet of Everything' to change the way we live and work - thus representing new ways in which technology becomes embedded in wider societies.

Investing in human resources is central to the National Agenda. The Emiratisation plan

includes setting new targets to provide 20,000 job opportunities for Emiratis in strategic sectors over the next three years.

Dr Ahmad bin Abdullah Humaid Belhoul Al Falasi, minister of State for Higher Education and Advanced Skills, said, "Science, knowledge, and innovation are the foundational cornerstones for shaping the future and accomplishing the UAE's grand aspirations and objectives." This statement is echoed by the International Monetary Fund (IMF), "Innovation, creativity and constant refreshing of skills are rewarded well in a globally competitive system."

The UAE is on track to become a US\$500bn economy over the medium-term on the current growth trajectory and with a series of public investment programmes.

The UAE in perspective

*It ranks as the second largest economy in Middle East and North Africa (MENA) region after Saudi Arabia and 33rd highest worldwide – with Gross National Income (purchasing power parity basis) estimated at US\$725.2bn in 2018 (World Bank data). Land Area (1,000 sq. km): 84.

*Socio-economic development: high level of economic resilience; UAE is ranked third globally in the Economic Diversity Index and 35th worldwide on Human Development Index 2018.

*2019 Index of Economic Freedom (compiled by US's Heritage Foundation) rated UAE ninth out of 169 countries.

*Population: 9.84mn, January 2020 (U.N. data), second highest in the GCC-bloc. *GDP per capita: US\$40,859, 2018 – high-income group.

*10-year average annual GDP growth: 3.2 per cent (IMF data).

*Labour force: 6.9mn, 2019; 85 per cent of which are expatriates.

*Main industries: Petroleum, Petrochemicals, Aluminium, Cement, Fertiliser, Shiprepair, Construction, Material, and Textiles.

*Manufacturing Value Added: US\$36.93bn, 2018 (World Bank data).

*FDI inward stock: US\$140.32bn, 2018 – second highest in MENA after Saudi Arabia (UNCTAD data). Top five investors: USA (US\$13,355mn); UK (US\$6,066mn); India (US\$5,385mn); Japan (US\$564mn); France (US\$432mn).

* More than a quarter of global 500 largest companies have chosen the UAE as their operational headquarters to access Middle Eastern and African markets.

*Hydrocarbons reserves, January 2020: Crude oil (105bn barrels); Natural gas (273 trillion cubic feet) – putting UAE in sixth position in terms of global oil and gas reserves (the Supreme Petroleum Council data).

*Crude oil production, 2019 (average): 3.07mn bpd – OPEC's third-largest producer after Saudi Arabia and Iraq. Abu Dhabi National Oil Company (ADNOC) has officially set an overall production capacity target of 4mn bpd by 2020 and 5mn bpd by 2030, respectively. *Installed power generating capacity: 27 gigawatts (official data). Natural gas accounts for over 95 per cent of total electricity generation in 2018. The UAE has set itself a target of 30 per cent clean energy by 2030.

*Access to electricity and clean water: 100 per cent of population, 2018. *Sovereign credit ratings: Moody's Investors Service (Aa2); Standard & Poor's (AA);

Fitch (AA) – high grade on par with UK and France. *Abu Dhabi is home to two sovereign wealth funds—the Abu Dhabi Investment

Authority (ADIA), and Mubadala Investment Company—with estimated total assets of approximately US\$1 trillion.

*The financial sector is well-developed – the final stages of implementing new central bank guidelines regulating the capital adequacy of commercial banks operating in the Federation in line with "Basle 111".

Push for wind turbine materials

HE INCREASING DEMAND for energy worldwide and traditional energy independence due to volatile oil prices is encouraging governments throughout the world to harness the potential of renewable energy, driving the global market for wind turbine materials. Expanding at a compound annual growth rate (CAGR) of 8.9 per cent, the wind turbine materials market is likely to almost double, reaching US\$19.57bn by 2026 from US\$10.76bn in 2019.

"With the increasing population and economic development, global energy demand is rising rapidly. Many countries across the globe have been experiencing an energy gap, which is being broadened by the deliberate depletion of fossil fuels," said Sayantan Sengupta, visionary science research analyst at Frost & Sullivan. "These factors urgently call for transforming the world's traditional energy system with excessive uptake of energy-efficient renewables. In turn, this is expected to enhance the investments in the renewable energy sector, such as wind power, thereby driving the demand for both structural and non-structural materials."



Innovation and increased government spending will boost the market to nearly double by 2026.

Frost & Sullivan's recent analysis, *Global Wind Turbine Materials Market, Forecast to 2026*, covers global market trends, including market drivers and restraints, regional technology trends, and vital market participants.

The Middle East and Rest of the World

(ROW comprises countries in Africa, Latin America, and others, including Russia and Turkey) are expected to be the two fastestgrowing wind turbine materials markets, with increasing government spending and favourable policy targets for wind energy deployment in these regions. "Due to the complexity of the production process and application areas, brand equity, global presence, manufacturing expertise, and supply reliability, long-term relationships with OEMs are extremely critical in the wind turbine materials market," noted Sengupta.



Now there's an easier way to monitor and manage your assets, no matter where they're located.

Subscribe to Cat[®] Connect and let our expertise in energy turn your data into insights that can **improve your profitability**.

Contact your local dealer or visit cat.com/catconnect





Keeping the supply chains open

How the Gulf's carriers have responded to challenging times, drawing on idle passenger aircraft to boost air cargo capacity both within and outside the region. Martin Clark reports.

Air cargo carriers are working closely with governments and health organisations around the world to safeguard public health, while also keeping the global economy moving.

International Air Travel Association (IATA) bulletin HE MIDDLE EAST'S cargo handling and logistics capabilities form a vital part of the regional and global supply chain.

That may have been tested to the limit in the wake of the Coronavirus pandemic, but key elements of the chain remain intact and are, in fact, thriving.

That's true even in the air cargo transportation segment, which has never faced such a rigorous test as in recent months.

With the evaporation of passenger demand and cancellation of passenger flights, vital air cargo capacity disappeared from the skies, potentially disrupting vital shipments of medicines and medical equipment.

Air cargo is also instrumental in transporting food and other products purchased online in support of quarantine and social distancing policies implemented by states worldwide.

But the airlines of the Middle East, like all others, have been squeezed, losing some

US\$7.2bn in revenues as at 11 March 2020, the International Air Transport Association (IATA) estimates.

Regional governments such as Saudi Arabia, the UAE and Bahrain have stepped in to offer support to airlines, while IATA led the call to exclude air cargo operations from COVID-19-related travel restrictions to ensure life-saving medical products can be transported without disruption.

"Air cargo carriers are working closely with governments and health organisations around the world to safeguard public health while also keeping the global economy moving," it said in a bulletin.

The pandemic was, however, already eating away demand even from the very start of this year.

Middle Eastern airlines' cargo volumes decreased 1.4 per cent in January 2020 compared to the year-ago period, while capacity increased by 2.9 per cent, IATA noted.

It said that given the Middle East's

oto Credit: Adobe Stocl

position connecting trade between China and the rest of the world, the region's carriers have "significant exposure" to the impact of COVID-19 in the period ahead.

The Middle East region overall accounts for around 13 per cent of total world air cargo during normal times.

Cargo capacity

Among those to rise to the challenge was Emirates SkyCargo, which deployed additional capacity to ensure constant supply and replenishment of products in the UAE, despite passenger flights drying up seemingly overnight.

The airline group put in place a range of measures, including additional freighter flights, and using connecting road feeder services to help transport essential cargo such as pharmaceuticals, medical supplies and equipment, perishables, and other raw materials to the UAE and other markets.

Between mid-January and mid-March 2020, Emirates SkyCargo had transported more than 225,000 tonnes of cargo in total, out of which 55,000 tonnes were food items including fruits, vegetables, meat and seafood, and more than 13,000 tonnes were pharmaceutical cargo.

Emirates' fleet of 11 freighter aircraft flew a number of ad hoc and charter flights in addition to scheduled operations, to match the increased demand for air transportation of cargo.

During one charter operation, it transported close to half a million units of hand sanitisers in a single Boeing 777 freighter aircraft.

"We have been able to establish a new network and schedule for our cargo operations within a very short period of time, utilising lower deck capacity on our wide-body Boeing 777 passenger aircraft which supplement the cargo capacity we offer on our freighter aircraft," said Nabil Sultan, divisional senior vice president, Emirates SkyCargo.

The company has been operating its freighter fleet at full capacity across six continents with a combination of scheduled

<complex-block>

and ad-hoc operations, he added.

In order to consolidate operations and reduce costs in this new scenario, it also temporarily shifted all cargo handling operations to Dubai International Airport (DXB) as of 1 April 2020, temporarily suspending operations at Emirates SkyCentral DWC, the terminal handling Emirates' freighter aircraft.

Freighter aircraft typically operate at Al Maktoum, a smaller airport in Dubai's south.

Prior to the pandemic, DXB handled 659,167 tonnes of cargo in the fourth quarter, with the annual airfreight volume reaching 2,514,918 tonnes during 2019.

"Taken together we are making sure that we react more quickly to requests coming in from every part of the globe from our customers," Sultan added.

Unsung heroes

Etihad Cargo likewise has played a vital role in connecting key cargo markets and

Given the Middle East's position connecting trade between China and the rest of the world, the region's carriers have "significant exposure" to the impact of COVID-19 in the period ahead. ensuring the UAE's import and export needs are adequately covered.

To complement its fleet of Boeing 777 Freighters, it introduced a fleet of Boeing 787-10 aircraft as passenger freighters to operate 34 weekly flights, serving 10 markets initially.

Each aircraft provides capacity for 12 lower deck pallets and four containers, carrying up to 45 tonnes of payload.

"In the current environment...it is essential these trade lanes remain open, and with the addition of this capacity we are able to serve those constrained markets that face decreased passenger freight operations, offering a strategic cargo lifeline and supporting the continuity of the global trade ecosystem," said Abdulla Mohamed Shadid, managing director cargo and logistics at Etihad Aviation Group.

It has been a similar story elsewhere up and down the Gulf region.

Ground support

Efforts to keep air cargo movements on track have been met on the ground by dedicated teams of logistics and handling experts.

Etihad Cargo in February extended its global alliance with dnata, one of the world's largest air service providers.

It means dnata now provides warehouse and cargo handling services to manage 180,000 tonnes of air cargo carried annually across 15 gateways in Etihad Cargo's global network through to 2023, including at the existing Etihad Cargo-dnata warehouse and cargo handling operations at DXB and DWC airports.

In addition to cargo, dnata provides Etihad Airways with passenger ground and ramp handling services at nine global locations.

No doubt further challenges are ahead though as the world not only gets to grips with the coronavirus pandemic, but starts to move forward beyond the current state of emergency.

"It is widely expected that cargo will recover much faster than the passenger side of aviation, and this will impose additional requirements on the handling side of cargo operations," noted Vladimir Zubkov, secretary general of The International Air Cargo Association.

On the ground, the role of every pushback driver, load controller and despatcher has been as valuable as any other frontline or key worker, he noted.

Logistics sector

Airfreight has always been an essential

"It is widely expected that cargo will recover much faster than the passenger side of aviation, and this will impose additional requirements on the handling side of cargo operations"

Vladimir Zubkov, secretary general of The International Air Cargo Association

pipeline for goods that are too urgent, too fragile or too valuable for other modes of transportation – that has never been more apparent than in the current climate.

While markets may be diminished for a time, they are unlikely to disappear, and will most likely return to normal or perhaps higher volumes in the months or years to come.

Even now, the pandemic continues to drive demand for transportation of medical supplies and PPE, which mostly depend on rapid-moving airfreight.

Indeed, the long-term outlook for the UAE's logistics sector remains just as strong

despite current challenges, reckons advisory firm Knight Frank.

It says the UAE's modern transport infrastructure and central location between East and West means the country remains every bit an attractive proposition for global businesses looking for a regional supply and re-distribution gateway.

"Despite the challenges brought about by the COVID -19 outbreak, the long-term fundamentals underpinning the industrial and logistics sector in the UAE remain steadfast," commented Matthew Dadd, partner, Occupier Solutions Commercial Agency.

UAE logistics: major market events

Abu Dhabi Airports and Etihad Cargo have launched a new cargo terminal at Abu Dhabi International Airport. As part of this project it is expected that circa 3,500 sq m of temperature-controlled pharmaceutical logistics space to become available by the end of 2020.

Airbus has opened its first service centre in the Middle East and Africa for cabin electronics, repairs and spare part servicing in Dubai Airport Free Zone.

Badia Farms is to construct a state of the art vertical farm in Dubai Industrial City over an area of over 4,600 sq m.

Bollore Logistics, in partnership with dnata, is looking to build a new facility in Dubai World Central (DWC) in order to provide long-term regional logistics support. The facility is expected to be ready by late 2020.

Corys Plastic Industries, a part of Hepworth PME, has signed an agreement with ZonesCorp to expand their existing facility in ICAD III to cover a total area of approximately 53,000 sq m.

Daikin, the provider of conditioning, heating, ventilation and refrigeration products have relocated to a new facility in JAFZA. Its new 7,500 sq m manufacturing and office facility will feature a training academy, fully air-conditioned AHU factory and the flagship experience centre.

DB Schenker has opened its first solar-powered logistics centre in Dubai South. The 33,000 sq m is its second facility located in Dubai South and by 2021, DB Schenker is expected to operate around 80,000 sq m of logistics space in Dubai.

DHL Express has opened its 4,820 sq m facility in Dubai South.

DHL Express is to occupy a facility with a total area of 30,000 sq m in Abu Dhabi Airports Free Zone, the project is set to be completed by Q4 2021.

Dubai Airport Free Zone Authority and Wasl have undertaken a joint venture to develop Dubai CommerCity in the Umm Ramoul area of Dubai. The development, set to span a total area of over 195,000 sq m, will be divided into three sectors, a business cluster, a logistics cluster and a social cluster.

Dubai Multi Commodities Centre (DMCC) and Jebel Ali Free Zone (JAFZA) have signed an agreement where DMCC members will have access to JAFZA's warehousing and logistics facilities ranging from 300 sq m to 700 sq m.

Dubai South has continued the development of an E-commerce zone, named EZDubai, as part of Dubai South's Logistics District. The area will be home to a range of warehouse and logistics products including facilities that offer in-facility customs clearing. One notable facility is Dubai South's E-Fulfilment Centre, which will provide a 32,600 sq m temperature controlled facility and is expected to be completed by Q3 2020.

Expo 2020, supported by UPS, has opened the first of three warehouses in Dubai South. The warehouse is over 10,000 sq m in total area with an additional 10,000 sq m of land for breakbulk cargo.

In late 2019 there were a host of changes to employment laws in JAFZA, these include the replacement of bank guarantees with workplace protection insurance, reducing costs associated with new hires. Secondly, historically only limited term contracts have been available for employees in JAFZA, this restriction has now been removed and unlimited contracts are now available. This move aligns employment contracts in JAFZA in line with UAE federal regulations as well as other Free Zones in the UAE.

In March 2020 Jaguar Land Rover began construction on a 19,000 sq m parts distribution centre in Jebel Ali Free Zone, with an option to expand to 30,000 sq m in the future.

In March 2020, JAFZA announced up to a 70 per cent reduction in licence registration and administration costs, this move is expected to assist more than 7,500 existing firms which operate in JAFZA as well as attract new firms to the Free Zone.

KIZAD continues the construction of Phase 3 in its Logistics Park which is set to deliver an additional 44,000 sq m of warehousing space.

Michelin has opened its new regional headquarters for Africa, India and the Middle East in Dubai Airport Free Zone.

Kerry Logistics Network has expanded its operations in Dubai with a new bonded facility in Dubai South. This new facility, with an area of over 6,500 sq m, offers solutions to electronics and technology customers alongside e-commerce fulfilment services.

Landmark Group has opened its Mega Distribution Centre in JAFZA in order to further strengthen its supply chain and serve as its distribution hub for the region. The fully-automated high bay warehouse will feature 36 docks, and the warehouse bays stand at 43 metres high, making it the tallest facility in the region.

Pinar, a subsidiary of Yassar Group, opens its first international food production factory in Khalifa Industrial Zone Abu Dhabi (KIZAD) with an initial investment of US\$27mn. Source: UAE Industrial & Logistics Market Review Q1 2020, Knight Frank

It is vital to digitally plan, monitor and control earthworks, hauling, and cut and fill quantities through digital software.

Constructioneering: Bridging the knowledge gap

Skills shortages are a major challenge facing digital construction. Topcon is helping address the gap with its knowledge sharing platforms.

IX YEARS AGO, Greg Bentley, CEO of Bentley Systems visited Topcon Positioning System's California facility to chat about what the two companies could do to move towards a more digital future in the construction industry.

Thus was born their academy for constructioneering – a portmanteau of construction and engineering, which saw companies from both fields start to work together.

In October 2019, Digital Construction Works, a 50-50 joint venture between Topcon and Bentley was launched to advance constructioneering. Today, it has 60 staff and offices around the world.

"We saw the divide between construction and engineering as an opportunity. What we really needed to have is somebody who can go out and educate these companies in how they can create a digital workflow," said Carsten Frantzen, senior direct construction, EMEA at Topcon Positioning Group.

Frantzen was speaking at a seminar

organised by Topcon, Bentley and ICE that showed the audience how to digitally plan, monitor and control earthworks, hauling, and cut and fill quantities through digital software.

Bentley and Topcon have collaborated since 2016 to integrate their Magnet and ProjectWise cloud services. The two companies have developed and introduced several 4D solutions for surveying, reality

Digital Construction Works, a 50-50 joint venture between Topcon and Bentley, was launched to advance constructioneering. modelling, scheduling and logistics, work packaging, machine control and progressive assurance for construction. They also collaborate on constructioneering Academies, located at Topcon's 'sandbox' facilities around the world – including Dubai – for construction professionals to get hands-on time with new digital tools and best practices.

"The solutions have been with the construction industry for the past 20 years – we have been using GPS, machine control and positioning systems. It's very established in Europe and USA, but the UAE isn't a mature market. For a couple of years here, however, there has been an interest in optimising production, reducing productivity costs, and saving time," Frantzen added.

"There is more awareness of technology as digitisation is everywhere today: in smart homes, smart cars, and a smart job site is the logical next step. In the future, we can expect increased digital planning, 3D models, and digital twins.

Technology advances such as BIM and automation are making construction more sustainable, shrinking carbon footprints. With fewer engineers and construction workers required on site, contractors are able to take on larger projects with confidence.

However, technology alone can't solve the skills shortages required to implement automation, digital modelling and new ways of building. Frantzen believes companies like Topcon have a crucial role to play in unlocking the potential of digital construction and being a change catalyst.

"While we simulate a project before we start to execute it, the question is can people who are on site, doing the work follow? There is a knowledge gap in the construction industry and we recognise we need to do something that people can follow. We need to train people using different technologies, e-learning platforms, seminars, send our specialists to the university to give lessons as guest professors – I've taught for 12 years at the university – all this has to be done."

Changing deeply embedded behaviours can be a challenge, particularly as digital construction demands transparency from all stakeholders. The other challenge is closing



Carsten Frantzen, senior director construction, EMEA at Topcon Positioning Group

the skills gap, with knowledge sharing across all levels.

"Topcon works around the world and entering new markets also requires intercultural skills. We need to be prepared: you need market knowledge and to utilise organisations such as the local Chamber of Commerce or get a local partner. We all have to keep the learning going and take it to a higher level of technical knowledge."

The two companies have developed and introduced several 4D solutions for surveying, reality modelling, scheduling and logistics, work packaging, machine control and progressive assurance for construction.

Overview of projects

OF ALL THE active infrastructure projects that are being developed, roads, highways and bridges represent the highest proportion, with 1,069 road projects currently underway. With a combined value of US\$122.6bn, these projects are emblematic of the region's desire and commitment to forging new, intelligent and highly-connected infrastructure, according to *Redefining road infrastructure in the Middle East* report.

MOST PRESSING CHALLENGES OF STAKEHOLDERS WORKING ON ROAD INFRASTRUCTURE PROJECTS



Topcol

Photo Credit:

Shaheed Rahman, marketing manager at Topcon Positioning Middle East and Africa

Inside the Dubai sandbox

TOPCON, BENTLEY AND ICE organised an industry event showcasing its earthmoving solutions. Invitees could experience how to digitally plan, monitor and control earthworks, hauling and cut and fill quantities through software.

Speaking on the sidelines of the event, Shaheed Rahman, marketing manager at Topcon Positioning Middle East and Africa said, "Today's event is about construction machinery and machinery control; focusing on the railway and construction industry. Since we are offering solutions, not just a product, we believe it's our responsibility to educate the market about the availability of such solutions.

"If you compare the European and American markets to the UAE, there is an element of education required here as we need to communicate the benefits. There are also different rules and regulations for different markets. Considering these factors, we targeted the railway industry with speakers, such as Duncan McCormick (business development manager of Topcon Europe), who shared their case studies from Europe. We also wanted to provide a hands-on experience of the software to everyone attending the event, largely private sector contractors.

"These latest releases strengthening the earthmoving portfolio are part of our commitment to continually developing greater connectivity and automation for today's job site to accelerate efficiency across all aspects of a project."

Source for inforgraphic: Roads, Bridges and Highways Forum



Your one-stop supplier.

> www.wirtgen-group.com/technologies

VÖGELE

CLOSE TO OUR CUSTOMERS

ROAD AND MINERAL TECHNOLOGIES. With leading technologies from the WIRTGEN GROUP, you can handle all jobs in the road construction cycle optimally and economically: processing, mixing, paving, compacting and their rehabilitation. Put your trust in the WIRTGEN GROUP team with the strong product brands WIRTGEN, VÖGELE, HAMM, KLEEMANN and BENNINGHOVEN.

намм

KLEEMANN

> www.wirtgen-group.com

BENNINGHOVEN

WIRTGEN

Bahra Electric: Optimism prevails

Eng. Talal Idriss, CEO of Bahra Electric, one of the GCC's largest cables manufacturing companies based in Saudi Arabia, in conversation with Shalaka Paradkar on the business outlook for 2020 and the company's plans for diversification and expansion.

N INTEGRAL PART of Saudi Arabia's economic diversification, Bahra Electric has expanded its product portfolio to include Instrumentation Cables, as well as Transformers, Busways, Earthing products, Wiring Devices, Load Centre, Enclosure, Busbars, Aluminium Rod, Cable Management System, Conduits, Switchgears, etc.

Technical Review Middle East (TRME): Please tell us about your business outlook for 2020. What is making you optimistic and how would you characterise the state of the industry right now?

Eng. Talal Idriss (TI): As you know, we have been in a stagnant market, not a recessionary one, since 2016. I believe 2018 was the bottom, 2019 was a bit better and 2020 has stabilised. So I think we've turned the corner and will start to build on that momentum going forward. I've been talking to various people, including the Saudi Electricity Company. They are also very optimistic about the future. We're moving forward.

The demand from the Oil and Gas sectors never stopped, really. It continues to grow there is now the new Jafurah gas field project that will start, as well as Saudi Aramco's Marjan Development Programme, and a lot of other projects. So, Oil and Gas have never really stalled, even if the general market and payment issues have stalled. I believe construction will continue to grow, but at a much slower rate. Housing will grow at a faster rate. Housing and oil and gas will be growth areas.

In terms of the next big things for us, I see further implementations in electric solutions and opening markets in Egypt, Africa and Iraq.

TRME: How has the push towards renewable energy in Saudi Arabia impacted your business? Are you making more products for the renewable sector now? TI: We have developed our own solar



cables for solar projects, and we are talking to international companies to build our own inverters. So, yes, we are starting to make components in the solar and renewable field.

TRME: What are the challenges you foresee in this push towards manufacturing?

TI: Our goal is to reach 50 per cent exports next year. We started two years ago and we are now at 18 per cent exports. So we hope to increase exports over the next three years. In the east, we export from Bangladesh to Singapore and Australia while in the West, it's all of Europe, and now, even the USA.

Challenges are always there. If you don't have the know-how, it's hard to do your own thing. And that is a challenge. Of course, financing is always a huge challenge. Saudi Arabia has many funds to help. And now there's such a big push for exports and a lot of funds to help with this too. If you have a valid project, you can get financing for working capital for it. Recently, the Saudi EX-IM bank started to develop the Kingdom's non-oil exports. So, they will develop exports and give a big push by financing both foreign and local projects.

TRME: Along with the expansion in your production facilities, has digitalisation transformed your operations and processed?

TI: If we see the statistics, Saudi Arabia is the fastest-growing country to digitalise. Now, almost everything is digitalised. So I think Saudi Arabia is leading a big push towards digitalisation in the region. The pace of change has been astonishing. This is encouraging the young generation, to stay, invest and build. I think Saudi Arabia is in a trajectory and there is no way back to the old ways of doing business.

We also have a lot of digitalisation in our own company. When we started the company, we were a paperless factory, with everything running barcodes throughout. Now, that has extended to a lot of aspects. For example, inbound trucks now log-on to an app to schedule deliveries. They enter and wait for 10 minutes; before they waited five hours because of the 50 trucks waiting to load.

It has tremendously increased efficiencies and not just from a logistics point of view. Everybody knows what to expect.

We have just finished building what I think is one of the most state-of-the-art factories worldwide for Transformers. It is fully robotic and was completed just under two years ago and better than any factory I've seen in my life. That's been completed about a year and a half ago, in Bahra region in Saudi Arabia between Jeddah and Makkah cities. That was a big shift for us to go into automation and robotics. Other than this, we've also expanded our instrumentation capability.

Ducab opens new metals subsidiary

Ducab Metals Business (DMB) is the only company in the region to provide copper and aluminium solutions. Ducab CEO Andrew Shaw discusses its business outlook with Shalaka Paradkar.

UCAB, ONE OF the UAE's largest manufacturing businesses, has consolidated its metal operations into a new subsidiary - DMB, a dedicated business unit within the Ducab group of companies supplying "Made in UAE" copper and aluminium solutions

Ducab Aluminium Company (DAC) and Ducab Copper Rod Plant, which has more than 160 employees between them are included under the DMB umbrella.

DMB exports 75 per cent of its production to more than 35 countries in the wider Middle East, Africa, Asia, Europe and the Americas. In 2019, Ducab's copper and aluminium business generated more than US\$544mn (AED 2billion) in revenue.

Speaking exclusively to Technical Review Middle East (TRME) at Middle East Energy, Ducab CEO Andrew Shaw said, "DMB is taking the metal assets within the company (Ducab) and giving them their own legal entity. Our sales of copper rods and aluminium is an approximately AED 2 billion business and it's big enough to warrant its own legal structure. It's already got its own management team.

"By giving it its own identity, we acknowledge that DMB as a metals business is different. It's selling to a lot of cable companies and other electrical

DMB exports 75 per cent of its production to more than 35 countries in the wider Middle East, Africa, Asia, Europe and the Americas.



equipment manufacturers, but DMB has its own customers. It's a business with its own rhythm, because it has its own customer base and products. So the new ground really enables the management team led by Mohammed Al Ahmedi to make its own path. Ducab will be transferring about Dhs340 million worth of balance sheets, fixed assets plus working capital into the new company. The management team of DMB will run both the aluminium business, which is still within DAC, and the copper business; thus offering both products to our customers."

DMB, a stand-alone company within Ducab group and the only company in the region to provide copper and aluminium solutions, will be focused on serving the needs of all its customers – principally companies in the electrical manufacturing industry. DMB will have the capacity to design solutions which will be manufactured in DMB's existing copper rod and aluminium factories, both of which are based in Abu Dhabi, UAE, it added.

Ahmad Bin Hassan Al Shaikh, chairman of Ducab, said, "The launch of DMB aligns with the growth of the metals segment within Ducab and gives us the opportunity to focus a dedicated team on the needs of our metal customers."

Mohamed AI Ahmedi, the newly appointed general manager of DMB, added, "By further developing our capacity for metals solutions and services, DMB can contribute to the UAE's flourishing industrial supply chain and contribute to the UAE's strategy to champion industrial investments."

Shaw said the coronavirus epidemic had not had a significant impact on the business. "We buy a few raw materials from China, but with a combination of orders that were already in transit and stock that we have, we haven't been adversely impacted. We're seeing the impact in some unexpected places: we had to postpone bringing in technicians from Asia. We're installing our own solar PV farm in Jebel Ali, and some of the components coming from China were delayed, but now the factory is running again. So it's hitting us in unexpected places because China is a big supplier of material and people. In our core business of manufacturing cables and metals, we're not seeing a significant impact yet, but it is beginning to affect it.

Shaw predicted the significant projects of the year would be in the oil and gas sector in Abu Dhabi and in Saudi Arabia, that were already announced last year and awarded this year. "Overall we're expecting 2020 in the cable business to be roughly similar to 2019. We're going to see some growth in the metal business. We added new capacity last year in the copper business and are running at full capacity in aluminium already.

"For high voltage cables, it will infer a better year in 2022. This is a long cycle business, admittedly at least three years from start to finish. We entered the year with a full order book and running at full capacity. So far that's going ahead. As long as the projects continue according to plan, we'll be making the cables for those projects. Overall, a flattish year with some growth spots within the mix."

Addressing water challenges

Francois Frigaux, regional director, Sensus, a Xylem brand, explains how smart water solution can ease off the pressure on water networks across the region.

Focus on ensuring the sustainability of water and energy resources is a top priority for the Middle East governments.

OST COUNTRIES IN the GCC region are facing multiple water challenges at a scale, pace and level of investment that is unprecedented. The scarcity of natural water resources and growing gap between demand and available supply makes this the ideal time for smarter water management solutions.

According to a report by PwC, the GCC is one of the most highly urbanised parts of the world with 85 per cent of the population living in cities today, expected to rise to 90 per cent by 2050. This places growing pressure to develop an adequate infrastructure for utilities – both power and water – to meet the needs of the growing population and to meet the requirement of the industry. Alongside, there must be a concerned focus on ensuring the sustainability of water and energy resources and combating climate change.

Extremes in unpredictable weather are increasingly becoming the norm, putting intense pressure on water networks across the region, which will only exacerbate if the current pace of climate change prevails. The recent instance of waterlogging witnessed by areas in the UAE is an example of the impact of weather-change patterns that call for smart water management solutions.

With sustainability being a key pillar of the UAE's Vision 2021 initiative, the government is leading renewed efforts to reuse 100 per cnet of its wastewater by

The recent instance of waterlogging witnessed by areas in the UAE is an example of the impact of weather-change patterns that call for smart water management solutions. 2020. In the region, Saudi Arabia also aims to reuse 100 per cent of its wastewater by 2025, demonstrating that local governments are serious about safeguarding water, and minimising the repercussions to the environment.

The major cause of water loss is the aging infrastructure that is overly stressed. This is the root cause of leaks and burst pipes, amplifying water losses that our region simply cannot afford – reiterating the need to deploy and integrate Smart Water networks.

Smart water networks help utilities in addressing the challenging task of securing precious water resources. A Smart Water network enables accurate data collection.

Using advanced analytics, this data leads to securing insights that help in not just maintaining the networks but also minimising leakages, cutting down maintenance costs and extending the lifetime. These actionable insights also help to minimise water wastage and conserve the environment for generations to come.

An overarching framework for efficient water management, therefore, must

Water Managment 23

consider several factors such as finding adequate capital to increase supply, mastering advanced water technologies, securing reliable supplies and reducing the negative impact of desalination projects on the environment.

The top five benefits of a complete Smart Water solution are:

Minimise leakage and pressure management

One-third of utilities around the globe report a clean water loss (non-revenue water) of more than 40 per cent due to leaks. By pinpointing the exact location of a weakened area that could be a future leak or one which is occurring, in a network, no matter the size, is vital in ensuring minimal losses of this precious resource.

Improve operational efficiency and maintenance

The critical data delivered by a full smart

water solution enables remote operations that can lead to the automation of tasks related to routine maintenance and the operation of the water distribution system, resulting in increased efficiency overall. This is a triple win for businesses and customers as it helps save money, increase operational efficiency and conserve the environment.

Improved accuracy

Smart meters help enhance measurement, accuracy and data collection frequency. Using combined data analytics to identify and pinpoint the location of the leak more accurately allows for multiple data sets to be cross-referenced in order to eliminate false alarms.

Reduce energy consumption

Collecting regular and precise data provides utilities with an accurate water balance. This allows them to provide in a more detailed manner the demand for water, which can

A smart water network solution offers a continuous and frequent flow of data being read, collected and transmitted, ensuring a continuous flow of information about a network.





then be used for producing and pumping only the required amount, reducing energy consumption needed for the water plant.

An accurate and frequent network data adds to the efficiencies in water production. In all, it helps to reduce the carbon footprint, one of the top priorities of water producers.

Improved water quality and forecast demand

Customer safety is of the utmost importance, so ensuring that correct water health information is being transmitted is imperative. Data collected using Smart Water network data allows utilities to oversee their network in near real-time, as well as being able to detect unusual levels of any unwarranted particles and in maintaining the optimal temperature to mitigate microbial contamination. This is important for public health – and thereby assumes significance.

A smart water network solution offers a continuous and frequent flow of data being read, collected and transmitted, ensuring a continuous flow of information about a network. This gives utilities comprehensive insight into network activity and helps them identify issues that can potentially cause lasting damage. Utilities have a large amount of data at their fingertips; however, this is often held in different data sets across a number of teams. If data and analytics are integrated across the organisation, better data-driven business decisions can be made - improving operational efficiency and helping combat the water stress that the region faces.

Power of evolution: Baudouin's new diesel and gas engines

Fabrizio Mozzi, president of Baudouin, one of the leading manufacturers of power generation engines, talks about how the Baudouin range is evolving to fit new markets and meeting the challenging emission restrictions.

Baudouin's 12M55 gas engine features super-high fuel supply system for more peak fire pressure.

Technical Review Middle East (TRME): What is Baudouin's strategy this year for the Middle East? Which of your innovative solutions/products are the most popular in the Middle East, and why? And for which industries?

Fabrizio Mozzi (FM): Now an established brand in the market, Baudouin is actively doing business on six continents. Europe remains a very important market for us, as Baudouin was born and raised in France, but the most significant growth for 2020 will certainly come from new opportunities in the Middle East and Africa. Baudouin PowerKit engines are designed for the most demanding environments, with 50°C radiators, heavy duty air filters, redundant oil and fuel filtration systems, and some of the highest power densities in the industry. That's why PowerKit engines can prove their performance, durability and reliability in every condition - hot, cold, wet or dry, high altitude, sandy or dusty environments, and accept variations in fuel quality. The engines have excellent single step load acceptance and provide high transient response and operational stability allowing for unrivalled power quality, an important feature for prime (PRP) and continuous power (COP) applications which are in high demand in the Middle East. In particular, 2020 will also see the introduction of our competitive new range of Gas engines, with which we will be able to respond to more power generation projects. In areas like the Middle East where natural gas is readily available, PowerKit gas engines offer a cost-effective fuel option compared to other sources, while keeping Baudouin's trademark of performance, low operating costs and serviceability for a competitive total cost of ownership.

Our ongoing ability to remain close to our customers will remain a key area of focus,

"2020 will also see the introduction of our competitive new range of Gas engines, with which we will be able to respond to more power generation projects." ensuring our detailed understanding of the markets across multiple regions. Our use of this understanding will further drive developments to our product range through both ongoing improvements and new product investment, while continuing to offer highly competitive products.

TRME: Has the coronavirus epidemic made you rethink your plans for entering the gaspowered market? How has the epidemic affected your business and supply chain?

FM: At Baudouin, our core values are responsibility, commitment and diversity. We are committed to delivering our valued partners our best product availability possible through this difficult period. The coronavirus pandemic will certainly have an effect on the global economy in the short to medium-term, however, the products that we are developing will continue to support vital sectors which the world needs right now - hospitals, telecom, and data centres amongst others. To support our customers, production has been re-organised in order to guarantee product availability while keeping our employees as safe as possible. Currently, we do not expect any delays in production or deliveries, and we will keep

monitoring developments in the logistics sector to find solutions as necessary. We are backed by Weichai, one of the world leaders in the power business, so you can rely on us and our availability in the uncertain months ahead of us.

Our responsibility to our customers is also to aniticipate long-term trends for power generation. The constant drive for a general reduction in environmental footprint is one of these trends. The gas engine range we are presenting this year responds to many of today's challenges in lowering emissions, while maintaining operating costs under control. Our electronically controlled highefficiency gas engines produce lower NOx emissions, while maintaining a best-in-class TCO. The fuel flexibility of our lean burn engines also makes them ideal in cogeneration cycles such as agriculture, hospitals and wastewater treatment where the biogas produced can be repurposed as fuel. They are an excellent partner of renewable energy infrastructure, as their operating reliability can balance the intermittency of these sources of power generation. We are looking forward to developing gas-powered projects with our current and new partners.

TRME: In which sectors do you anticipate the greatest demand in the months to come?

FM: Energy demand and global electrification are continuing to grow worldwide and while electrical grids are adapting, they are also more likely to come under stress from the growing loads, aging infrastructure, natural events and the



integration of alternative sources of power. The whole energy system is evolving, from large singular energy sources to more flexible models using distributed sources of power generation. We expect to see continuing trends for data resiliency, reduced operating expenditure and environmental responsibility across all sectors. Our engines are specifically designed to respond to this evolving market, and we are releasing a full range of Data Center Power (DCP) and Continuous Power products (COP) with a very competitive total cost of ownership. With one of the most extensive ranges available on the market today, from 18 to 4000 kVA, we offer power specifications fit for every application.

TRME: What gives Baudouin an advantage over its competitors?

FM: Continuous improvement, our "power of evolution" as we call it, is a core part of our DNA. In fact, our customers



tell us that our strength as a brand is that we listen to them, understand what is going on in their markets and react quickly to offer the most suitable power solutions by constantly developing new products and improving the current ranges. Last year, we launched PowerKit VS, variable speed engines for industrial applications. These engines can adjust the output power for applications needing agile and precise performance, such as firefighting, irrigation, ground power units, gantry cranes or variable speed generators. These same features also enable highly competitive running costs, as our customers demand. This year, we are launching two new engine series for telecom and data centre applications. We have worked on all significant aspects of these engines including maintenance schedules, starter redundancy, power density, single step load acceptance, and total operating costs, to propose a tailored solution for these specific segments.

As I said before, we have also developed the totally new Gas engine range. This electronically controlled COP range aims at responding to our customers looking for high efficiency, low operating costs and a reduced environmental footprint.

We provide to our OEM customers: agility in product availability, optimisation of their inventory of engines and spare parts, and, for the end customer, peace of mind with best-in-class warranties for proven, reliable products and low total cost of ownership. It's clear that our competitive advantage lies in our vast offering of high quality, robust power products for many different applications and emissions requirements.

TRME: Anything else you would like to add? What key message would you like to share?

FM: These new products will help our customers address the evolving power requirements across a number of segments and applications, but Baudouin is also looking further into the future. As the green power revolution continues to gain pace globally, with the backing and expertise of Weichai Power, we are also investing for the long term in technologies such as electrical energy storage and fuel cells to ensure we continue to offer innovative power solutions for a long time to come.

As you can see, we are constantly developing new products adapted to our customers' needs and ready for the robust challenges of delivering power, while meeting emission regulations worldwide. And we are evolving fast.

Genuine reputable companies struggle to compet with these cheap dangerous counterfeits

Working together for a safer future

Simon T Bircham, chair BEAMA Anti-Counterfeit Working Group; and Brand Protection manager, EATON Electrical Sector EMEA, discusses the global fight against counterfeit and non-compliant electrical products.

Technical Review Middle East (TRME): As an industry expert and chair of the BEAMA Anti-Counterfeit Working Group, can you elaborate on the challenges facing the electrical industry right now?

Simon Bircham (SB): Within the electrical industry there are really two major areas of concern right now: the proliferation of counterfeit products and growth in noncompliant lookalike products. If we think about the types of products of our BEAMA members it quickly becomes evident why, as an industry, we take these issues very seriously. Power distribution products such as Miniature Circuit Breakers (MCBs), Moulded Case Circuit Breakers (MCCBs) and Residual Current Circuit Breakers (RCCBs) are designed to protect buildings and the people inside them; and although on the surface these products may appear to be quite simple, they are anything but. These products are the result of decades of research and development, ongoing evolution; and the establishment of important safety standards and rigorous testing. Unfortunately, when it comes to counterfeit copies and non-compliant lookalikes, we can't be sure they will live up to these standards and function properly. If these counterfeit and non-compliant lookalikes are installed in homes, commercial or

Technical Review Middle East - Issue Three 2020

industrial buildings, then they may lead to fires, electrocution, loss of property and sadly even loss of life.

TRME: You highlight counterfeit and noncompliant look-alikes as being an issue, what is the difference between these two?

SB: It's important to note that counterfeit and non-compliant look-alike electrical products are a danger for people, through the risk of serious injury or even death; and to property, through the risk of fire and loss of property and/or business. However, there are some important distinctions between the two types of products. Firstly, noncompliant look-alike electrical products do not meet the necessary safety standards designed to protect people and property, making them highly dangerous. These substandard non-compliant products are also often made to look like well-known brand products but are either unbranded or marked with an unfamiliar name; or use a similar sounding name to the original genuine product. Often sold at a much lower price than compliant products, the intent is to deceive the buyer into thinking they are purchasing safe product by passingoff the non-compliant product as somehow related to the original genuine product. Counterfeiters take this one step further

through the unauthorised representation of a registered trademark on products that are identical or similar to the products of the genuine manufacturer. The intent is to deceive the purchaser into believing they are buying original products; however, counterfeit electrical products are also often found to be non-compliant putting building owners and users at risk.

TRME: How can responsible companies safeguard against non-compliant look-alike products?

SB: There are three simple checks that can help reputable companies to identify potentially non-compliant electrical products. First check the general quality of the product. Look out for poor mounding, excess material and rough edges. Poor quality printing, poorly aligned markings and misspelling are indicators of suspect product; as are visible corrosion and discolouration of metal components. Second, check if the product has the correct markings for the type of product. There are quite number of items to look out for here, and BEAMA have developed a range of very useful guidance documents for checking the product markings. Third, there are several other factors to consider that can give rise to suspecting the product may be noncompliant. For example, consider the selling channel. Where is the product being sold, where did it come from, is the sales channel unusual for the type of product? Check the weight of the product, lightweight product can be an indication of missing components. Check if the product has the correct and valid documentation such as product test certificates or declaration of conformity. Also consider if the product being sold is 'second-hand'. With second-hand products there is no way of knowing the condition of the internal components. While not completely fool proof as comprehensive testing of the product, these simple checks should act as basic indicators to raise the alarm that something may not be right; and further investigation and evaluation is needed before committing to buying, installing or using the product.

TRME: How big and widespread is the problem of counterfeit and what impact does it have on the electrical industry?

SB: The global trade in all counterfeited goods is steadily growing, and the OECD and the EUIPO estimated it reached just more than half a trillion dollars in 2016.* This is a global problem affecting all well-known brands, with the electrical market being no exception. In China, the Middle East and Africa this is an industry wide problem with counterfeiters tending to focus on perceived low cost. low-complexity items such as circuit breakers, fuses, switchgear, distribution boards, and wiring accessories. Intent on illegally using trademarks to deceive customers, counterfeiters of these products typically use substandard materials, often miss out safety critical components, or provide no testing; meaning these counterfeit electrical products offer little safety protection. In addition to the



real dangers of installing and using counterfeits, there is an overall negative impact on the whole electrical industry. Genuine reputable companies struggle to compete with these cheap dangerous counterfeits; and installers and building owners can be faced with potentially costly repairs, loss of reputation, and even litigation.

TRME: What is the industry doing to prevent to counterfeit electrical products?

SB: Concerned about the growing levels of counterfeit seen in the markets, and the risk to safety and impact to local businesses; the electrical industry formed the Anti-Counterfeit Working Group (ACWG) as part of the BEAMA trade association in the year 2000. Made up from many of the industry leading brands, the ACWG is a proactive group focused on taking action to reduce the proliferation of counterfeit electrical products in China, Middle East and Africa. This industry coordinated approach has enabled the BEAMA ACWG to successfully raid over 850 illegal factories and warehouses, and seize an incredible 22 million counterfeit electrical products during its twenty years of operation. In addition to acting on the ground, the ACWG has provided training and awareness with enforcement and customs authorities throughout the region.

TRME: What actions can responsible companies take to avoid buying counterfeit electrical products?

SB: Installers, distributors and building owners also have a role to play as responsible companies to prevent becoming a victim of counterfeit product. First be sure you know the products you are buying or installing; for example, check that they are consistent with product from an authorised distributor. Second, think about where the product is coming from and how it is being sold.

Many genuine brand owners will sell product through recognised authorised distribution channels; if the product is coming from an unknown source ask questions first. Do not get drawn in by the lure of cheap product, stop and think first. As highlighted earlier, counterfeiters don't care about quality and safety, and will often miss-out critical safety components or use substandard materials to entice buyers into purchasing cheap product.

Remember, if you are a building owner or specifier, always insist on and specify genuine products. If you are an installer or contractor, always buy genuine products through authorised distributors; and if in any doubt, check with the original brand owner first.

*Source: Trends in Counterfeit and Pirated Goods. OECD/EUIPO, 2019



STANDARD AGGREGATEBALI Evers GmbH & Co. KG Oststrasse 11 22844 Norderstedt | Germany P: + 40 [0] 40/522 50 11 - 0 F: + 40 [0] 40/522 50 11 - 44 infoggeneratingset.com www.generatingset.com

for Emergency Power, Peak Power and Continuous Power

DIESEL GENERATING SETS

Tailor-made System Solutions from Design to Commissioning

Our Range of Service: Diesel-Power Generators + stationary and mobile + mobile Light Towers 400 Hz Ground Power Units + Control Panels/Switchgears + Rental Units/Spare Parts + Service



Technical Review Middle East - Issue Three 2020



Ways to drive sustainability

Matt Smith, associate head of the School of Energy, Geoscience, Infrastructure and Society (EGIS) at Heriot-Watt University Dubai provides insight into how facilities management can help drive commitment towards a new ecofriendly vision for a corporate organisation.

With energy demands expected to increase steadily over the next coming years, it has been predicted that consumption rates will increase by 1.4 per cent each year until 2035. **USTAINABILITY HAS BECOME** highly topical in corporate organisations, and many companies have hired facilities management professionals in order to implement, lead and educate staff in sustainable practice throughout the organisation. In the area of facilities management, sustainability involves smart decisions being made in order to reduce an organisation's impact on the environment while remaining profitable.

Government initiatives have been put in place to ensure that buildings implement sustainable practices. An example of this would be Abu Dhabi's 'Demand Side Management and Energy Rationalisation Strategy 2030'. In addition, The Abu Dhabi department of energy (DoE) aims to reduce electricity consumption by up to 22 per cent and water consumption by 32 per cent by 2030. There have been a number of piloted sustainable builds that have been implemented recently. The Abu Dhabi DoE has announced the completion of the emirates' first Energy Saving Performance Contracting (ESPC) project which consists of eight retrofitted buildings.

With energy demands expected to increase steadily over the next coming years, it has been predicted that consumption rates will increase by 1.4 per cent each year until 2035. With this in mind, the consequences of carbon footprints are acknowledged by organisations and are being addressed with stringent regulations.

Waste management

Sustainable practices across organisations tend to start with recycling and waste management. Facilities managers can create a significant impact by driving corporate social responsibility, which will ultimately contribute to a sustainable quality of life in the region. According to Dubai Municipality, there are at least 4.8 million tonnes of waste going into landfills annually and waste management officials are on a drive to cut the city's domestic waste by 15-20 per cent a year. With this factor in mind, it is vital for facilities managers to support a circular economy without landfilling unprocessed waste. Additionally, examples of sustainable practices that can be implemented in organisations include the deployment of waste-to-energy projects. These projects can be addressed through recycling and thereby contributing to a robust thermal waste-to-energy facility. Facilities managers can enforce minimising the amount of waste used initially by incorporating biodegradable products.

> Technology-run buildings can enable efficiency and sustainability at an organisation

Integrated data-driven management

Data-driven facilities management encourages the use of technology to drive solutions and offer new ways to manage buildings. IoT and AI continue to shape the landscape of tech-driven benefits in FM, which results in Facilities managers delivering services optimally with reduced inefficiencies and greenhouse gas emissions. Innovative use of technologies can decrease unprecedented energy consumption within an organisation, and drive energy management efficiently and effectively. Infrastructure plays a vital role in global energy consumption and buildings produce 36 per cent of all carbon emissions globally.



Matt Smith, associate head of the School of Energy, Geoscience, Infrastructure and Society (EGIS) at Heriot-Watt University Dubai.

Technology-run buildings can enable efficiency and sustainability at an organisation. For example, smart building technology is used to monitor environmental factors such as temperature and humidity as well as asset performance. This includes, automation-built sensing technology deployed through a building management system that can target temperature and lighting changes only to the rooms that require adjustment. This can be highly beneficial to organisations as energy can be used selectively. In addition, facilities managers can implement further technology driven structures, for example, the use of radio-frequency identification (RFID) which allows for the real-time monitoring of people entering and leaving a building, a smart way to initiate a no carbon footprint.

Decarbonisation

Buildings represent 40 per cent of carbon emissions due to the mechanics in buildings which result in a copious amount of pollution. Decarbonisation is a way for facilities managers to bring viability and credible efforts to lessen a buildings contribution to climate change. There are several ways in which FM can drive this and increase energy efficiency in infrastructure. An example of this at an organisation would be consolidate servers, storage and data centres which reduces energy used in power supplies, fans and networking. Additionally, microgrids are zones where energy can be managed autonomously - a university or factory space are examples of where this can be used. A microgrid consists of a generation unit including wind turbines and solar panels and the microgrid will generate the outcome of power in a single unit creating a balance of power from internal production and outside power sources. Measures such as these can generate a sustainable and self-sufficient future. Furthermore, to this energy saving tactic, facilities managers can implement the use of IT equipment with high-efficiency power supplies.

Educating current and future generations

Directions and initiatives can be applied from FM, but the ethos of sustainability in an organisation must be inculcated into the company's culture. Facilities managers can educate and train staff regarding offset projects and drive a more sustainable corporate life. However, it is not only those who are currently within organisations that should gain knowledge in sustainable corporate practices. The education field is moving towards a curriculum that works harmoniously with the needs of modern day organisational structures. For instance, programmes such as the facilities management course offered by Heriot-Watt University in Dubai are taught from the perspective of sustainable practices in FM and are fully accredited by the Royal Institution of Chartered Surveyors (RICS). The course equips future students with the necessary skills and competencies needed to drive FM sustainability in the corporate world.

Imdaad launches new disinfection tunnel

IMDAAD, A DUBAI-BASED group of companies that provide integrated facilities management services, has announced the launch of its new disinfection tunnel, 'ViroSheild by Vision Safety', to help create cleaner and safer communities and businesses.

The fully automatic tunnel, which is equipped with motion sensors, sprays users with a mist that disinfects clothes as they walk through it, the company said in a statement. The tunnels can be used in malls, hospitals, construction sites, labour accommodations and residential areas, among others.

Imdaad has developed two variants of the tunnel, one with high pressure and another with low pressure to fit different requirements. The heavy-duty variant is meant for industrial fogging, while the low capacity one is designed to meet the needs of communities. Commenting on the launch, Jamal Abdulla Lootah, Group CEO, Imdaad, said, "The development of our ViroSheild by Vision Safety disinfection tunnel represents our unremitting commitment to contributing to the UAE government's efforts to create a clean, healthy and sustainable urban environment in the country."

Project Databank

Compiled by Data Media Systems

MAJOR INDUSTRIAL & CONSTRUCTION PROJECTS, OMAN

Project	City	Facility	Budget (\$ US)	Status
Al Madina Real Estate - Multi-Specialty Hospital	Muscat	Medical/Health Facilities/Spa	50,00,00,000	Design
Al Mouj Muscat - The Wave Muscat Mixed-Use Development	Seeb	Mixed-Use Development	1,10,00,00,000	Construction
Al Raid Group - Al Araimi Walk	Barka	Malls/Retail Outlets	29,10,00,000	Engineering & Procurement
Al Sahwa Cement Company - Duqm Cement Plant	Duqm	Cement	58,50,00,000	Feasibility Study
Alargan Towell Investment Company - Al Nakheel Integrated Tourism Complex (ITC)	Barka	Mixed-Use Development	68,80,00,000	Design
Alfardan Group - The St Regis Al Mouj Muscat Resort	Seeb	Beaches and Resorts	25,00,00,000	Project Announced
AQAR - Mixed Use Development	Duqm	Mixed-Use Development	1,00,00,00,000	Design
Asaas - Al Hafa Waterfront	Dhofar	Mixed-Use Development	40,00,00,000	Design
Asaas - The National Leisure & Tourism Destination (Hayy al Sharq) - Overview	Barka	Theatre/Entertainment/ Leisure Facilities	1,20,00,00,000	Construction
Dhofar Tourism Company - Mirbat Beach	Dhofar	Beaches and Resorts	20,00,00,000	Design
Eagle Hills Muscat - The Mandarin Oriental Muscat	Muscat	Hotels	35,10,00,000	Construction
Elixir United Investment - Specialty Hospital	Muscat	Medical/Health Facilities/Spa	26,00,00,000	Design
Gulf Mining Group - Um al Samim Desert Potash Mining	Central Oman	Potash	50,00,00,000	Feasibility Study
Iskan Oman Investment Company - Duqm University City	Duqm	Education/Training Facilities	30,00,00,000	Design
Karwa Motors Duqm - Auto Assembly Factory	Duqm	Auto Assembly Factory	41,60,00,000	Construction
Khazaen Economic City - Khazaen Economic City - Dry Port	Batinah	Port	20,00,00,000	Construction
Khazaen Economic City - Khazaen Economic City - Overview	Batinah	Mixed-Use Development	50,00,00,000	Engineering & Procurement
Little India - Integrated Tourism Complex (ITC)	Duqm	Hotels	74,80,00,000	Construction
Madinat Al Irfan Development Company - Al Irfan Urban Development	Muscat	Mixed-Use Development	2,00,00,00,000	Design
Majid Al Futtaim - Mall of Oman	Baushar	Malls/Retail Outlets	46,75,00,000	Construction
Mazoon Dairy Company - Dairy Farm	Buraimi	Food Processing Plant	26,00,00,000	Construction
Ministry of Health - Barka Medical City	Batinah	Medical/Health Facilities/Spa	80,00,00,000	Feasibility Study
Ministry of Health - Sultan Qaboos Hospital	Salalah	Medical/Health Facilities/Spa	35,00,00,000	Construction
MISCO - Sohar Steel Plant	Sohar	Steel Plant	27,00,00,000	Construction
MOTC - Batinah Expressway - Package 7	Batinah	Roads	30,00,00,000	Engineering & Procurement
MOTC - Diba - Lima - Khasab Road - Section 2	Musandam	Roads	1,00,00,00,000	EPC ITB
MOTC - Dualization of Adam - Thumrait Road - Overview	Adam Ad Dakhliya	Roads	80,00,00,000	Construction
MOTC - Dualization of Adam - Thumrait Road - Part 1	Dhofar	Roads	30,00,00,000	Construction
MOTC - Dualization of Adam - Thumrait Road - Part 2	Dhofar	Roads	25,00,00,000	Construction
MOTC - Dualization of Bidbid - Sur Road - Section 2 (Alsharqiya Expresso	way)	Sur	Roads	40,00,00,000 Construction
MOTC - Muscat International Airport	Seeb	Airport	2,50,00,00,000	Commissioning
MOTC - Muscat International Airport and Salalah Airport - Cargo and MRO Facilities (MC12)	Muscat	Airport	53,00,00,000	Construction
MOTC - New Musandam Airport	Musandam	Airport	25,00,00,000	Feasibility Study
MOTC - Port of Salalah - Phase 3	Salalah	Marine Terminal	26,00,00,000	Feasibility Study

Project	City	Facility	Budget (\$ US)	Status
MOTC - Rusayl - Bidbid Road Improvement	Nizwa	Roads	40,00,00,000	Engineering & Procurement
MOTC - Salalah - Thumrait Trucks Road	Salalah	Roads	20,00,00,000	Project Announced
MOTC - Salalah Airport	Salalah	Airport	76,60,00,000	Construction
MOTC - Sinaw - Duqm Road - Overview	Al Wusta	Roads	50,00,00,000	Construction
MRMWR - Salalah Dams - Scheme	Dhofar	Dam	40,00,00,000	EPC ITB
Muttrah Tourism Development Company- Mina Sultan Qaboos Waterfront	Muscat	Mixed-Use Development	1,00,00,00,000	EPC ITB
Mwasalat - Muscat Light Rail Network	Muscat	Mass Transit Systems	1,00,00,00,000	Project Announced
Nakheel Oman Development Company (NODC) - Dates Complex	Nizwa	Food Processing Plant	23,90,00,000	EPC ITB
National Steel Industries - Steel Industries Plant	Salalah	Steel Plant	50,00,00,000	Project Announced
Oman Aquaculture Development Company - Barr Al Hikman Shrimp Farn	n Barr Al Hikman	Food Processing Plant	39,00,00,000	Project Announced
Oman Sugar Refinery Company - Sugar Refinery	Sohar	Food Processing Plant	20,00,00,000	EPC ITB
Oman WanFang - Sino-Oman Industrial City	Duqm	Industrial Park	10,00,00,00,000	Construction
Omani Brazilian Co for Steel Products - Steel Plant	Sohar	Steel Plant	40,00,00,000	Project Announced
Omran - Oman Convention & Exhibition Centre - Package 3	Muscat	Convention and Exhibition Centres	28,00,00,000	Construction
ORC - National Railway Network - Mineral Line (Segment 4D)	Duqm	Railway	50,00,00,000	Feasibility Study
ORC - National Railway Network - Overview	Oman	Railway	15,00,00,00,000	Design
Petiva Group - Natural Sugar Factory	Salalah	Food Processing Plant	20,00,00,000	Project Announced
Philex Pharmaceuticals - International Pharmaceutical Complex	Salalah	Pharmaceutical Factory	36,50,00,000	EPC ITB
Port of Duqm - Infrastructure & Buildings at the Commercial Pre-Gate and Gates and Inspection Zone (IP3)	Duqm	Commercial Buildings	20,30,00,000	Construction
Port of Duqm - Infrastructure and Buildings Port of Duqm (IP2)	Duqm	Commercial Buildings	20,00,00,000	Construction
Qatari Diar Ras Al Hadd Development Company - The Diar Ras Al Hadd - Overview	Ras Al-Hadd	Mixed-Use Development	65,00,00,000	EPC ITB
Qatari Diar Ras Al Hadd Development Company - The Diar Ras Al Hadd - Phase 1	Ras Al-Hadd	Mixed-Use Development	35,00,00,000	EPC ITB
Qatari Diar Ras Al Hadd Development Company - The Diar Ras Al Hadd - Phase 2	Sur	Mixed-Use Development	30,00,00,000	Design
Quriyat Development Company - Quriyat Integrated Tourism Complex	Muscat	Mixed-Use Development	1,00,00,00,000	Construction
Royal Court Affairs - Oman Across Ages Museum	Manah	Theatre/Entertainment/ Leisure Facilities	37,10,00,000	Construction
Royal Oman Police - Royal Oman Police Hospital	Muscat	Medical/Health Facilities/Spa	67,00,00,000	Construction
Sandan Development - Sandan Industrial Park	Muscat	Industrial Park	25,80,00,000	Construction
SCTP - Batinah Coastal Road - Phase 2	Batinah	Roads	70,00,00,000	Construction
SEZAD - Dual-Carriageway Road & Bridges For Nr32 at Duqm - Overview	r Duqm	Roads	28,00,00,000	EPC ITB
Shumookh Mining Industries - Shumookh Mining Complex	Duqm	Industrial Production	24,70,00,000	Construction
Sohar Calciner - Sohar Calciner Plant	Sohar	Coke Calciner	70,00,00,000	FEED
Sohar Port and Freezone - Freezone Sohar	Sohar	Duty Free Zone (DFZ)	2,00,00,00,000	Construction
Sohar Port and Freezone - Freezone Sohar - Phase 2 (Sohar Port South)	Sohar	Duty Free Zone (DFZ)	20,00,00,000	EPC ITB
Suez Ports Oman - Sur Seaport	Sur	Port	2,50,00,00,000	Engineering & Procurement
SV Pittie Sohar Textiles - Cotton Yarn Plant	Sohar	Textiles	30,00,00,000	Engineering & Procurement
Trescorp - Bunkering Services Terminal	Sohar	Marine Terminal	60,00,00,000	FEED

Project Databank

Compiled by Data Media Systems

Project Focus

Compiled by Data Media Systems

Project Summary Project name Suez Ports Oman - Sur Seaport Name of Client Suez Ports Oman Estimated Budget (US\$) (US\$) 2.500.000.000 **Facility Type** Port Status Engineering & Procurement **Project Start** Q2-2016 End Date Q4-2023 CHEC - China Harbour Engineering Company Main Contractor Subcontractors Idom (engineering consultants); HMR Consultants (environmental consultants); FGT Consulting (design consultants); CHEC Award Date: Q3 2018

Background

The seaport planned at Sur on the South Al Sharqiyah coast is a world-class transshipment port that leverages its proximity to the Indian subcontinent, Iran and Central Asia to create an international logistics hub. Its strategic location is ideal for the development of a free zone, heavy and light industry park, mining initiatives, and food and water security initiatives.

Project Status	
riojeci status	
Date	Status
30 Mar 2020	Suez Ports Oman is in the process of obtaining necessary approvals from various authorities in order to begin the construction phase. Early works are expected to begin by CHEC before the end of 2020.
19 Jul 2018	China Harbour Engineering Company(CHEC) has signed a MoU with Suez Ports Oman for the EPC contract.
14 Jun 2018	Suez Capital has completed and presented the Final Bankable Feasibility Study and the preliminary design of the Port. The project has now moved to the financing stage - the raising of capital of US \$1.5 billion.

Project Finance

In November 2016 Suez Capital and Suez Ports Oman Ltd signed a MOU with Shumookh Investment Services, the investment arm of The Public Establishment for Industrial Estates (PEIE), to design, finance, build and operate the Port of Sur in Oman. IN April 2018 Suez Capital Ltd was granted the exclusive mandate by the Omani government to design, finance, build and operate the Port of Sur on a 50-year concession basis. PEIE and Shumookh are key partners in the project. PEIE is overseeing the development of the seaport. The shares of the project are divided as follows: PEIE – 20 per cent; Shomookh investment – 20 per cent; Suez Capital – 60 per cent.

www.technicalreview.me

Staying connected in a crisis

As the coronavirus storm grips the world, Jeremy Potgieter, regional director - Africa, Eseve, explains how emerging technology and data can reduce the impact of a pandemic.

HE WORLD IS facing a once-in-ageneration crisis, its scale matched only by the Spanish Flu pandemic of 1918 to 1920. Citizens face huge restrictions on the way they live their lives, cut off from loved ones and their livelihoods threatened. Meanwhile, governments the world over battle with huge challenges trying to project and plan for the scale of the crisis, hoping to save as many lives as possible.

From a technology standpoint, the 2020 Coronavirus pandemic has focused the world's attention on how we're overcoming social isolation using technology, as well as how it's helping to reduce the scale of the tragedy and save lives.

From co-working apps allowing us to work remotely and online shopping orders to help us stay at home, to robots treating critically ill patients and deep cleaning the streets, the world, and people, are having to adapt fast in multiple ways both big and small.

IoT has the power to connect the dots between the devices we use in our everyday lives, industry, healthcare, and our cities, for enormous benefit. But what specific benefits can IoT have on mitigating the impact of global pandemics - and what innovation needs to be adopted to ensure the world is prepared should it happen again?

Pain points in a pandemic

Firstly, it's important to look at the different pain points during a pandemic where human contact needs to be limited, and that IoT and emerging technology may be able to address. Some of these include:

- A lack of real-time data on the number of those infected, the rate the virus is spreading and how it's being transmitted in the environment. This data is vital in planning a response and choosing where to focus resources.
- The economic impact of leisure, hospitality and retail businesses having to close their doors to the public and other

industries having to ensure their staff can work remotely

- An overburdened medical system and the need to monitor patients remotely to balance care with the availability of beds
- The spread of the virus through physical contact and in public places

A connected response

So how could an IoT-connected world work to solve these challenges? While IoT devices may not be able to test potential carriers, they can help to spot potential symptoms of a virus. By gathering data on both a micro and macro level, governments can identify unusual trends before they become a problem and generate more accurate modelling. This can range from smart city cameras that detect the number of patients with high temperatures, to devices such as a smart ring that can identify coronavirus symptoms from a wearer.

Thanks to cloud computing, data from remote devices all across the world can be managed and interpreted quickly and then made accessible to scientists everywhere, to identify patterns and develop learnings to combat the disease faster.

Much of the world's critical infrastructure is unconnected or provides little in the way of remote diagnostics and status updates, let alone the ability to remotely fix these issues. In a pandemic, when physical contact needs to be limited and workforces are depleted, it's vital that the requirement of having engineers on-site is reduced to a minimum. Fully IoT connected devices enable fewer visits and a better ability to solve technical issues remotely.

The coronavirus crisis is forcing businesses to innovate at an incredible rate. Retailers and other non-essential businesses that rely on customers physically entering their stores or outlets are now having to rethink their business models in order to generate revenue. There are several ways IoT can help with this.

and delivery methods for example, can ease the burden on eCommerce operations which are struggling to cope with the increased demand and create a 'zero-touch' approach that makes it easier and safer for business to manage in a quarantine or lockdown situation.

For food and beverage companies, smart vending machines, such as the Costa Express units, can be placed in critical stores such as corner shops, grocery stores and petrol stations which are still allowed to remain open. These companies are already future-proofing their devices with voice ordering and NFC payments to ensure the whole process is touchless. Connecting these devices using IoT allows for greater business intelligence gathering, live performance monitoring (and alerts to top up consumables to maintain service levels) and the ability to push marketing promotions to devices.

During a pandemic, healthcare services clearly bear much of the burden as their limited resources are stretched past capacity. IoT can help here in various ways. Remote patient monitoring, for example, means that patients can be monitored from their homes by doctors. One such innovation is Philips Motiva, an interactive TeleHealth platform designed to allow people with chronic conditions to be monitored from the comfort of their own home.

Reducing the need to touch is essential for reducing the spread of viruses. This means mobile ordering and contactless payments, or MachineSense's low-cost, infrared temperature scanning system that negates the need for a human to hold a temperature gun. The MachineSense system can be installed in the form of a gate or retrofitted to be installed at entrance location for the automatic scanning of human body temperature. It allows for proper social distancing and it makes operation safer and less expensive.

Jeremy Potaieter. regional director – Africa, Eseye Smart lockers and innovative pick, pack





Smart solutions for hazardous areas

Teijo Kärnä, global product manager, ABB Ability Smart Sensor, explains how the chemicals, oil and gas industries can benefit from cost-effective condition monitoring of powertrain equipment in hazardous areas.

Motor with ABB smart new senor.

ONITORING THE CONDITION and performance of rotating machinery operating in hazardous areas is a costly and time-consuming activity. Normally, this requires maintenance engineers to manually gather data, analyse it and generate status reports. However, access to this data is critical in order to prevent unexpected downtime and the loss of production. ABB has addressed these challenges with a new generation of its well-established smart sensor developed specifically for hazardous areas.

The wireless, battery-powered smart sensor monitors key parameters to provide detailed insights into the performance and health of assets such as motors and pumps. Remote monitoring means that equipment installed in difficult or dangerous to access locations can be safely monitored from a distance. Combining connectivity and data analytics enables operators can plan their maintenance activities in advance, reduce downtime and extend equipment lifetime.

Because the sensor will be deployed in demanding hazardous area environments, the key focus was to develop a robust design that can withstand the high levels of vibration, corrosion and physical impact that might be experienced in a harsh



industrial installation. The development process also focused on monitoring capability, communication range, and extended battery life.

The result is a smart sensor with ATEX and IECEx certifications for hazardous areas. Class I/II Div. 1 certifications for the North American market are also underway and other certificates will follow over the coming year. It offers a battery life of up to three times longer than the typical three to five-year battery life of competing designs. The sensor is sealed for life, with an IP66/67 rating and can be mounted

directly to the equipment in a matter of minutes using a simple mounting bracket.

Extended range and improved sensitivity

The sensor communicates with smartphones, tablets, PCs and plant gateways using low energy Bluetooth or WirelessHART. A new antenna design has extended its range by a factor of three to four. That means reliable communication over distances of several hundred meters (line of sight) is now possible.

Another crucial upgrade, in addition to the improved user experience with range and ease of use, is that the sensor has greater sensitivity to small changes in the condition of the equipment it is monitoring. This includes a 10 kilohertz (kHz) accelerometer that can detect bearing damage at a very early stage with a higher confidence than competing solutions. Feeding this data into ABB's advanced algorithms can produce meaningful information to predict potential failure months ahead, enabling remedial action to be taken before breakdown occurs. Photo Credit: ABB

Wireless design reduces installation costs

The ABB Ability Smart Sensor, which was introduced to the market in 2016, is now installed in thousands of applications worldwide. Customers have confirmed its cost and operational advantages. For example, they reported that when they want to install a classic sensor, such as for vibration monitoring, they have to take the equipment out of service. Then they need a qualified electrician to carry out the wiring for power and data. The typical cost is several thousands of dollars, before they even see data on a screen. In contrast, the ease of installation and commissioning of a wireless smart sensor provides a wealth of condition monitoring intelligence at a fraction of the cost.

Efficiency, finance and focus to the fore

Sector changemakers use 45th Middle East Energy to set the course for the future of power generation.

IDDLE EAST ENERGY 2020, once again reaffirmed its status as the true global energy platform and underlined Dubai's position as a gateway to the future for an industry in the midst of transformative change with a series of energetic and enlightening discussions, coupled with powerful insights from the sector's luminaries during its three-day run at Dubai World Trade Centre (DWTC).

With energy demand in the MENA region set for annual growth of 6.4 per cent through 2022, the sector faces the dual challenge of meeting demand while moving to low-carbon systems, according to the *Energy & Utilities market Outlook Report 2020*, produced by Informa Markets, organiser of Middle East Energy.

Three days of thought-provoking discussion complement exhibition where industry pioneers showcased innovative products and ground-breaking energy sector technologies.

While industry innovators showcased the latest industry breakthroughs on the main exhibition floor, discussion on how to chart the future of energy was met with vigour during three days of highprofile dialogue with industry changemakers agreeing that the Middle East region is primed to lead the charge against the global challenge.

The general consensus was that while clean energy targets and policies are driving desire for change across the Middle East and North Africa (MENA) region from a government level, progressive private sector entities, from energy services companies, technology leaders and financial institutions have an increasingly important role to play, according to several industry experts at Middle East Energy.

"There is a huge desire to support customers who are into low carbon initiatives and banks are also actively helping customers to transition to low carbon alternatives. 20 years ago, this was not a focus area but now it very much is with almost 177 billion bonds present globally in sustainable initiatives," said Pri McNair, regional head of Client Coverage, MENAT, HSBC.

With investment in renewable energy investment across MENA on track to surpass US\$35bn annually by the end of 2020, McNair outlined how banks such as HSBC are now placing a greater focus on finance solutions for renewable initiatives.



Region's power players can drive dual global challenge to meet rising energy needs and reduce carbon.

Meanwhile, Nasser Saidi, chairman, Clean Energy Business Council (MENA) added that with financing available and an abundance of renewable energy sources, such as solar, the MENA region is primed to make the switch from energy consumers to exporters, adding that ending subsidies would result in greater innovation.

Pradeep Kumar Singh, assistant business development director, Etihad Energy Services Company (ESCO), pointed out that in 2018, there were only three energy services operators in the market but thanks to effective government policies there are now more than 30 companies driving energy efficiency. Singh added, "The government is taking very aggressive steps to reduce the overall carbon footprint, and the results are visible."

The free-to-attend conference series and the main exhibition, a technology showcase spread across the event's five product sectors – power generation, renewables, transmission & distribution, energy conservation & management, and digitalisation - drew a strong response with visitors thronging the various pavilions and stalls.

"Middle East Energy is extremely useful in terms of gathering crucial insights into the industry. Networking with the with the right people and having access to the latest technological innovations in the industry are two other big benefits of being here. My responsibility is promoting the dissemination of renewable and efficient energy in the region and Middle East Energy is a very important stop in understanding the extent of focus on these aspects in the region," said Mohammed Dabbas, senior advisor for the Arab Renewable Energy Commission.

Middle East Energy 2020 also hosted the seventh edition of Future Generation – the ultimate engineering competition which gives university students a unique opportunity to showcase their innovative projects.

Improving the efficiency of transformers

EGYTRAFO GROUP IS a Cairo- based manufacturer of oil transformers, dry transformers and nickel cadmium batteries. It was established as ETCO, trading in electrical equipment such as insulators, HRC fuses, lighting arrestors and transformers.

Hany Abusalem, business development sector manager, spoke to Technical Review Middle East, during the Middle East Energy 2020 conference in Dubai, about the group's aim to boost sales as well as the export share, this year.

"Through our participation in Middle East Energy 2020, we are interested to increase our distributor network in Africa and gain strong partnerships of agents within the UAE."





He talked about the latest product improvement of Egytrafo, the auto transformers with OLTC, ranging up to 600 A, 22 kv, which can be used as a safely starting machine such as induction motors and synchronous motors. It helps compensate the drop in voltage. In 2019, the group added some features, providing an On Load Tap

Hany Abusalem, busin<mark>ess dev</mark>elopment sector manager, Egytra<mark>fo Grou</mark>p

Peter Berghaus GmbH Safety products for work zones





Changer that can be operated manually, remotely and automatically. The company's projects include the Bait Al Watan and Sports city in New Capital, Egypt.

Abusalem further shed light on the organisation's community service initiatives, such as the plan to establish technical schools.

To ensure its dedication towards helping its products compete locally and globally, the group ensures the adherence to the latest IEC and ISO standards.

Boosting performance in monitoring electrical networks

THE 126 YEAR old Chauvin Arnoux Group is the European market leader specialising in testing and measurement of electrical and physical quantities. It operates

through subsidiaries around the world,



Lebanon being the hub in the Middle East region. The organisation believes that its vast network of specialised distributors helps to communicate better with customers.

The product range includes general electrical measurement (testers, multimetres, current clamps etc) electrical safety testers, wattmetres and electrical network quality analysers and oscilloscopes.

"What sets us apart is our ability to compete against bigger companies," Jean Farah, general manager of Chauvin Arnoux Middle East, told *Technical Review Middle* East during the Middle East Energy 2020, speaking about the fourth generation family business. Design and production has been Chauvin Arnoux's core business - allowing professionals to test the reliability, safety and efficiency of electrical distribution systems and equipment connected to them.

Chauvin Arnoux has been exhibiting at the Middle East Energy event for the last 20 years. Farah revealed plans of the organisation to diversify into other business sectors in the Middle East region.

Technical Review Middle East - Issue Three 2020



Energy solutions to power the future

Walid Ibrahim, Sales Director, Al Masaood Power Division, talks to Technical Review Middle East about the company's latest product for the power generation industry and its commitment to reduce emission levels.

Technical Review Middle East (TRME): What progress has been achieved by the Al Masaood Power Division over the last months and what are the plans for this year? Walid Ibrahim (WI): The Al Masaood Power Division represents three major manufacturers – MTU (solution of Rolls Royce Power Systems), Leroy Somer and Volvo Penta in the UAE and Bahrain.

In 2019, the business produced good results across all areas including integrated solutions engineering, design and procurement. We will continue to ensure that superior power generation solutions are delivered to meet customer needs.

This year 2020, Al Masaood will continue offering complete turnkey solutions, integrating the latest technologies to keep our customers successful and retaining their highest level of satisfaction.

> Al Masaood Power Division highlighted the features of Volvo Penta's flagship 16-litre diesel engine, the D16.

TRME: What was the focus of Al Masaood Power at Middle East Energy 2020?

WI: Al Masaood Power Division showcased Volvo Penta's latest power generation engines and for the first time in the Middle East, the D8 GE, a compact size engine model designed with the highest standards of emission levels. The D8 Stage II and IIIA / Tier 3 features technology and charging systems with low internal losses, supporting excellent combustion, low fuel consumption and noise levels.

In addition, Al Masaood Power Division highlighted the features of Volvo Penta's flagship 16-litre diesel engine, the D16.

TRME: What solutions are Al Masaood emphasising on, for future growth?

WI: Microgrid systems that integrate multiple power sources which can significantly boost the efficiency and ensure uninterrupted power with lower emission, noise and economical operation. Power sources could include gas or diesel genset, renewable energy and storage systems. They combine the optimal use of different energy forms for the use in off-grid and/or on-grid applications.

TRME: What are the plans of Al Masaood, for the region?

WI: We are working to build greater awareness about Al Masaood's range of solutions and commitment to provide high



standards in power generation solutions and after-sales services. We are also working on building a profitable relationship with all of our stakeholders and enhance the utilization of the local industry capabilities and resources through our local partners and suppliers. We will continue using the latest range of products to promote sustainable power solutions that are more energy-efficient, have low fuel consumption and low noise levels. We will continue to emphasise on mobile and stationary power generation applications in line with local regulations and contribute towards global sustainability goals.

Kohler Power marks 100-year legacy

One hundred years ago, the first Kohler modern-day generators hit the market, providing electricity to homes, boats and businesses in rural America, and setting the stage for a century of growth around the world.

compliant with EPA Tier2

New J130 - industrial range

OHLER AND SDMO has been a global force in power solutions since 1920, Kohler is committed to reliable, innovative products, advanced engineering and responsive after-sales support. Over the years, they have extended their global reach, acquiring SDMO Industries in 2005, a worldwide leader known for its high quality generating sets.

Together, they have built on the legacy of two leading brands to create one of the largest generating set manufacturer in the world, setting the standards for power generation with an unwavering focus on reliable power systems and innovation.

Today, all KOHLER-SDMO entities in Europe, Middle East and Africa come together under the same name Kohler Power EMEA alongside Kohler Power China, India, SEA and Kohler Power Americas. They win as one: Kohler Power Group.

KD4500: the new line of KD Series

Photo Credit: Kohler-SDMO OHLER

Long maintenance interval to optimise your total cost of ownership.



KD series, the most powerful choice for large diesel power generation, was launched in October 2016, utilising Kohler's diesel engines ranging from 800kVA/800kW to 3500kVA (@50Hz)/ 3250 kWe (@60Hz).

Based on a strong worldwide market response and an increasing demand on power in mission critical applications, KOHLER-SDMO is officially expanding the KD Series with the rollout of four new models ranging up to 4500kVA (@50Hz)/ 4000 kWe (@60Hz).

Their global team of engineers developed two sophisticated engine blocks – K135 and K175 – that deliver a large range of power. And the largest engine of the KD SERIES range, the KD103V20 is now ready to power your needs.

User benefits:

- Low fuel & oil consumptions
- High power density, compact design
- Power quality in accordance to G3 performance class
- (ISO8528-5) and transient response
- Designed to run in high ambient conditions
- Available in both fuel optimised and emission optimised versions

The new KOHLER range of generating sets powered by Baudouin engines offer five models from 900 kVA up to 1500kVA.

The engine technology and the ability of KOHLER design office to develop solutions that maintain efficiency levels in ever more compact generators.

Thanks to the engine performance and the development of the new industrial range, KOHLER presents a 130 kVA generator in the same enclosure as the 88 and 110 kVA generators.

User benefits:

- Low fuel consumptions
- Very clean and compact design
- High power quality in accordance to G3 performance class
- Designed to run in high ambient conditions
- More compact and sound-attenuated canopied solution in the market
- Base frame with retention to protect the environment
- Long maintenance interval

New value range

KOHLER is the only genset manufacturer in the market to offer such a flexibility: a premium range powered by technologically advanced KOHLER engines, and a value range powered by robust and reliable traditional engines.

While, their premium product range meets the most complex requirements, our competitive value range, offers a high quality alternative, easy to serve on the field.

The new KOHLER range of generating sets powered by Baudouin engines offer five models from 900 kVA up to 1500kVA in open or enclosed versions.

Technical Review Middle East - Issue Three 2020

RMD Kwikform launches Prop Tableform for Middle East

RMD KWIKFORM, A global formwork, falsework and ground shoring solutions provider, has launched Prop Tableform system for the Middle East and Indian construction markets.

The Prop Tableform shoring system aims to provide versatile solution for multi-storey construction of slabs up to 600mm in thickness.

Designed to improve cycle times for high-rise buildings and other tall commercial projects such as residential developments, hospitals and hotels, Prop Tableform uses a small number of components to help keep installation and striking times to a minimum.

Additionally, Prop Tableform is set to help speed up construction cycle times considerably. Plus, with formwork fixed at all times, the damage normally associated with stripping and re-erecting systems is reduced.

According to RMD Kwikform, Prop Tableform can be wheeled into position via a multi-purpose trolley or caster wheels, or crane-lifted to higher floors, offering a range of methods for transporting the system on-site. For contractors wishing to fly the system with a crane, Prop Tableform features single and double-height C-Hooks, thus enabling easy lifting of tables to higher floors, allowing two floors of tables to be utilised at the same time.

Wassim Daher, chief engineer for the Middle East and India at RMD Kwikform, said, "The system is ideally suited for projects that require



The system is ideally suited for projects that require the construction of slabs across multiple floors.

the construction of slabs across multiple floors, thanks to its simple design and ease of installation. This makes it an ideal solution for many upcoming projects in the Middle East and India, with projects in the high-rise, residential, healthcare and leisure markets able to take advantage of the benefits that Prop Tableform can help deliver. With Prop Tableform offering contractors the opportunity for improved cycle times, which could result in fewer labour requirements and reduced costs, making a big difference to the bottom line."

Steinert unveils UniSort Film for light weight 2D objects

STEINERT HAS LAUNCHED UniSort Film EVO 5.0 that aims to provide solutions for sorting lightweight 2D objects, maintenance enhancements for high availability and operational reliability, with innovative belt cover.

A range of detail improvements in maintenance have been adopted from the UniSort PR EVO 5.0 sister model, such as dynamic calibration and automatic white balance. The complete solution for 2D sorting offers new belt coverage, aiming to make it easier to access machines with minimum downtimes.

Similar to the mechanics of a garage door, it can be easily folded. Service hatches and ventilation plates are easy to reach and clean from maintenance access points. This ensures a high level of sorting purity in the long term, while optimising personnel management.

A targeted airflow right at the beginning of the sorting process – before the material to be sorted reaches the conveyor belt – ensures an even, overlap-free distribution of objects over the complete belt width. Synchronising the flow with the belt speed aims to ensure a stable position on the belt, thereby enabling material to be detected



and sorted reliably via the high-resolution hyperspectral imaging (HSI) technology.

A specially developed sealing airflow is set to hold the 2D objects in an ideal position, even after leaving the belt. This design produces a circular airflow that reduces emissions while ensuring resilience.

The EVO 5.0 model focuses on high availability and operational reliability.

AURAK students to launch greenhouse gas monitoring satellite

A SATELLITE THAT American University of Ras Al Khaimah (AURAK) students are helping to develop, build and test is planned for launch on a Soyuz-2 rocket from Russia in June 2020, said Dr Abdul-Halim Jallad, director and assistant professor, Center of Information, Communication and Networking Education and Innovation (ICONET).



The MeznSat Nano-satellite is designed to detect greenhouse gas concentrations from an orbit of 565km above the Earth.

The project has successfully passed the Critical Design Review stage with the satellite currently undergoing the final stages of construction in the purpose-built cleanroom at AURAK's Space Lab before it moves on to the testing phase in March 2020.

The project is a collaboration between the UAE Space Agency, AURAK and Khalifa University of Science and Technology (KUST).

MeznSat will be the first studentbuilt scientific satellite in the UAE. The project aims at providing the UAE space industry with qualified well-trained graduates through hands-on experience, while at the same time opening windows for advanced space-oriented research relevant to the UAE. The project has seen undergraduate students design and construct the MeznSat which will be used to collect and analyse data on carbon dioxide and methane levels around the UAE.

The project seeks to realise the Space Agency's strategic goals of capacity development, promoting scientific research and coordinating national space sector activities.

The students will monitor, process and analyse the data from a ground station in the UAE. The processes and expertise involved in monitoring the atmosphere are similar to those employed during conventional Earth Observation programmes. The project is aimed at supporting emirati young people in developing the skillsets necessary for the UAE's National Space Programme.

Briefly

Olympus presents next-gen XRD with SwiftMin software

THE OLYMPUS NEXT-GENERATION TERRA II and BTX III mobile X-ray diffraction (XRD) analysers offer faster quantitative mineralogy results in the field and lab.



Olympus' TERRA II XRD instrument features a battery life up to six hours and a rugged, weatherproof case.

The XRD instruments feature SwiftMin software, which provides automated mineral/phase ID and quantification in real time directly on the analyser.

The intuitive software interface comes with time-saving features, including:

- One dashboard for data to see results, calibration and analysis information to speed up workflow.
- Wireless capabilities to get realtime results and operate the instrument using wirelesscapable device.
- Automatic data transfer to automatically send data to the network when the operator hits stop or after a preset amount of time.
- Easy data export to export quantitative mineralogy/phase ID results for visualisation or further data analysis and access raw data files using a network folder to analyse diffractograms.

In conventional XRD instruments, a large quantity of sample must be finely ground and pressed into a pellet. Ideally crystallites must be randomly oriented, yet samples prepared for conventional XRD typically suffer from preferred orientation effects.

In contrast, the TERRA II and BTX III analysers feature a unique small sample holder to provide a portable, lightweight and virtually maintenance-free alternative to conventional XRD

Caterpillar announces new line of backhoe loaders

CATERPILLAR HAS

ANNOUNCED four backhoe loader models Cat 428, 432. 434 and 444 models, replacing the 428F2, 432F2, 434F2 and 444F2 machines respectively.

The 422F2 will cease production and the 426F2 remains unchanged.

The Cat backhoe loaders offer similar model platforms throughout the line to deliver component commonality and operating similarities throughout range. These

machines will also display the new Cat trade dress and nomenclature, which removes model suffixes.

Achieving greater performance and versatility

The Cat 3054C and C4.4 engines remain on the new series. All models in the new backhoe loader line feature standard four-wheel drive with rear differential lock for improved traction in poor ground conditions.

A new four-speed powershift transmission is available as an option on the 428 and 434 and is as standard on the 432. The new powershift option enables easier on-the-go gear shifting for the operator. The 444 will continue to be fitted with a fully automatic transmission as standard.

The 432 and 444 models are equipped standard with low-effort electro-hydraulic (EH) loader and



Available from May 2020,

pilot backhoe controls. To meet customer preference, standard mechanical backhoe controls on the 428 and 434 models can be optionally upgraded to pilot controls.

The optional performance boom cylinders are available on the 428 and the 434, offering up to 25 per cent more boom lift capability to enhance operating performance. Performance boom cylinders are standard on the 432 and 444 models.

To increase machine utilisation, the Cat backhoe loader line can be equipped from the factory or as a field installed kit with optional Integrated Tool (IT) carrier loader couplers for fast work-tool changes. These new backhoe loaders are compatible with F2 series attachments, eliminating the need to purchase new attachments, lowering operating costs.

Schneider Electric launches two new UPS solutions for IOT and edge computing applications

SCHNEIDER ELECTRIC HAS announced the availability of two new categories of UPSs from APC by Schneider Electric.

The first is Smart-UPS Lithium-ion, which offers power protection to ensure network and data availability.

Designed for local edge environments and micro data centers, the Smart-UPS with Lithiumion is capable of ensuring consistent and reliable connectivity at the most critical moments. Increased UPS battery life, lower maintenance service costs, and fewer onsite visits provide up to a 50 per cent lower total cost of ownership over 10 years.

Benefits of Smart-UPS Lithium-ion include:

- Smaller size and weight: Due to higher energy densities, Li-Ion batteries have a much smaller footprint and weigh about 30 per cent less than sealed lead acid batteries.
- Lower maintenance and total cost of ownership: With double the battery life, the amount of maintenance and associated



costs required over the life of the UPS is reduced by up to 53 per cent.

The second UPS launch is for the APC Easy UPS 1 Ph Online, which is developed to handle a wide voltage range and inconsistent power conditions.

The APC Easy UPS 1 Ph Online is capable of protecting critical equipment and connected loads from unpredictable power disturbances such as spikes, surges, blackouts, and brownouts, providing assurance, reliability and certainty.

Nidec introduces next-gen alternator TAL 0473

NIDEC LEROY-SOMER ANNOUNCES the launch of TAL 0473, its latest next-generation alternator based on the ".3" technological platform.

The TAL 0473 is the latest addition to the range based on the .3 platform. It replaces the TAL 047 and benefits from improved performance.

The TAL 0473 delivers a nominal power between 400 and 660 kVA at 50 Hz (from 495 to 825 kVA at 60 Hz). The alternator features a SHUNT excitation



The TAL 0473 delivers a nominal power between 400 and 660 kVA at 50 Hz.

system and an R150 regulator as standard. An AREP+ auxiliary winding excitation system with R180 regulator version is also available to further improve transient performances and provide high overload capacities. It is interchangeable with the TAL 047 (shaft height and feet configuration), and can therefore be coupled with all diesel engines on the market for this power range. The TAL 0473 will be available for orders in April 2020.

The TAL 0473 offers the following power nodes: • 400, 410, 455, 500, 550, 600 and 660 kVA at 50 Hz

495, 510, 570, 625, 690, 750 and 825 kVA at 60 Hz

Like the entire TAL product range, the TAL 0473 is suitable for all electric power generation applications, excepted marine. It can deliver high performance, thus offering new possibilities to manufacturers of generator sets.

With the new AREP+ excitation system, the TAL 0473 offers improved transient performance especially with start-up kVA improvements of up to + 15 per cent. The ".3" technological platform was first introduced in 2010, allowing significant performance improvements with help of a cooling system which optimises the air flow in the machine, limiting hot spots that can damage windings insulation. The achieved level of performance and efficiency makes it possible to offer compact alternators. To match the evolution of customer needs, the rotor system of the TAL 0473 has been revised to further improve its inertia characteristics.

Caparol Arabia rolls out antimicrobial solution to prevent spread of microbes

PAINT MANUFACTURER CAPAROL Arabia has launched a sustainable solution that provides better protection against harmful micro-organisms. Called 'CapaCare Protect', the new solution is an anti-microbial product that secures walls and surfaces from bio-harm. The product, which contains advanced 'SILVERbac' technology, uses silver ions to bind and destroy the cell membrane of biological contaminants, including bacteria and viruses.

"We've all seen the Superman films or read the comic books where he comes up against kryptonite and is severely weakened. Well, to harmful microbes like bacteria and viruses, silver is their kryptonite. It damages them, it destroys them, it helps to defeat them. That's why we are so keen to introduce this new paint for schools, hospitals, hotels and renovation and facility management sectors, to protect their homes and defend the walls," said Martin Rosocha, managing director, Caparol Arabia.

'SILVERbac' has been extensively tested through an International Antimicrobial Council accredited laboratory to ensure the highest quality in antimicrobial testing.

Since the outbreak of novel coronavirus (COVID-19), Caparol Arabia has launched further testing to check its antimicrobial paint effectiveness at reducing the spread. However, the antibacterial, antifungal and antiviral properties of silver ions and silver compounds have been extensively studied for years.

A silver nanoparticle is less than 100 nanometres wide – it's so small you'd need over 600 of them to coat the very tip of a single human hair. These tiny silver ions prevent DNA replication of bacteria and viruses and attack the structure and permeability of the cell membrane.



SILVERbac has been extensively tested through an International Antimicrobial Council accredited laboratory.

Bauer Mat Slurry Handling System unveils mixing container

BAUER MAT SLURRY Handling Sytems has presented the container mixing system (CMS) 45 in UL version at the Conexpo.

As a special feature, the mixer, the water tank, the agitator container, and the control cabinet are permanently installed in a 20-foot container frame and connected via flexible hoses. This makes the equipment compact, space-saving, and easy to move, which saves time during assembly and dismantling.

The centerpiece is a 1.8 m³ colloidal mixer with an eccentrically mounted mixing tool and an external circulation pipe for optimum dispersion of the slurry with simultaneous enhancement of the mixing capacity. A 15-inch touch display allows for the input of up to ten different formulations with ten sequences each and provides the operator with access to the current batch data at any time.

The integrated booster pump automatically cleans the mixing tank and protects against unwanted deposits that are inevitable when using bentonite or other binding agents.

The powerful batch mixing system is suited to soil mixing applications, in the construction of diaphragm walls and in jet grouting techniques.

Wacker Neuson expands battery-powered product liner

WACKER NEUSON HAS released battery-operated ACBe backpack concrete vibrator. The cordless, portable backpack vibration system is ideal for the consolidation of thick interior concrete slabs with and without reinforcing steel and is recommended for job sites that have strict guidelines for noise and emissions.

The three-part modular system consists of the backpack with integrated converter,

removable/replaceable battery and internal vibrator. The backpack itself was engineered by a leading hiking backpack company that understands the need for comfort. It is fully adjustable for varying heights, chest, shoulder and waist sizes. The lightweight fabric, padded shoulders and even weight distribution allow for extended working periods. The vibrator shaft connects to the bottom centre of backpack that allows for easy left-hand or righthand operation.

Technical Review Middle East - Issue Three 2020

Manitowoc announces new Potain MDT 569 at CONEXPO 2020

MANITOWOC HAS INTRODUCED the new Potain MDT 569, the latest model to join its MDT topless crane range. Designed to be one of Potain's most high-capacity and versatile cranes, the MDT 569 crane's modular design features optimised component sizes and weights, facilitating easy transport and assembly.



Thibaut Le Besnerais, vicepresident of global products for tower cranes at Manitowoc, said the MDT 569 combines smart design with above-the-competition performance. "We have seen strong demand for larger topless cranes in recent years," he said.

The MDT 569 can lift large loads of material at a time: Options for its maximum hoisting capacities are 22 USt (20 t), 27.6 USt (25 t) and 35.3 USt (32 t), while its maximum jib length is 262 ft (80 m). Tip capacity is up to 4.6 USt (4.2 t) when using the 27.6 USt (25 t) capacity model and working with 262 ft (80 m) jib. Maximum line speed is 640 ft/min (195 m/min) when the crane is equipped with the 150 HPL hoist. The crane can be equipped with a new 26 ft (8 m) cross-shaped base that is simple to assemble and more cost effective compared to previous bases

The MDT 569 is more compact for transport than previous cranes, needing only nine standard containers to transport the crane's upper assembly. The topless design adds flexibility to sites where multiple cranes overfly the construction zone at the same time. Operators will find comfort and efficiency when using Manitowoc's crane control system, as well as the crane's ergonomic controls and ultra view cab. Plans are for the first crane to be shipped in July 2020.

"Our focus is to bring to the market a robust crane in a compact design, offering multiple transportation options without compromising performance," Le Besnerais said.

Flag a cable in five seconds with the new BradyPrinter A5500

WITH THE NEW Brady A5500 Flag Printer Applicator, experienced operators can significantly increase production output by flagging cables in five seconds.

The BradyPrinter A5500 helps increase production output and enhance identification quality by automatically printing and applying flag labels. It can save quite a lot of money by identifying cables in five seconds and by eliminating the need to print labels in advance and the time needed to apply them by hand. The BradyPrinter A5500 enables 300 dpi prints for barcodes, logos and diagrams, and applies reliable cable flags that can communicate a lot of information.

A wide range of cables

The BradyPrinter A5500 is flexible and, without any adjustment, can identify cables with 1.52 mm





Increase production output and save money with Brady A5500 Flag Printer.

up to 15.24 mm in diameter and apply labels with widths up to 50.8 mm and lengths between 19.05 mm and 76.20 mm. Its full colour touch screen and modern user interface further enhance the printer's flexibility and ease of use.

Easy to implement

USB-ports and ethernet connectivity make the BradyPrinter A5500 practical to implement in a variety of production environments. Coupled with Brady Workstation apps for easy flag label design, barcoding and serialisation, the BradyPrinter A5500 becomes a highly practical process efficiency increaser.

AVEVA's sustainable software for ship engineering and design

AVEVA HAS ANNOUNCED update to its AVEVA E3D design software that addresses the needs of the marine sector.

The AVEVA E3D design software combines three-dimensional graphics and user interface technologies with latest data management.

This software increases shipping vessel design and accelerates retrofits of ships to reduce emissions. The new capabilities demonstrate AVEVA's proactive innovation for the International Maritime Organisation's (IMO) emissions regulations, IMO 2020, providing tools to anticipate market needs and offering new capabilities and greater efficiency for ship engineering and design

Shipbuilding excellence is heavily reliant on design-to-production, agility and efficiency across all project streams, effective resource management and design quality leading to right-first-time, error-free production.

AVEVA's capabilities tailored to the marine sector will address these requirements and include the first release of the AVEVA Hull Basic Design Module. This module is used for the preliminary design of a ship's hull structure, and supports vital decisions regarding naval architectural characteristics, space management, outfitting design and drawings. AVEVA's new module represents the most integrated 3D environment for working with asbuilt and as-designed data in the marine market.

Ravi Gopinath, chief operating officer at AVEVA, said, "Using our software, marine operators will now be able to realise up to 40 per cent gains in engineering efficiency while moving to operating paradigms that will ultimately help protect the environment."

Check water quality with Chauvin Arnoux

CHECKING WATER QUALITY, in applications as diverse as swimming pool maintenance and regulatory testing of drinking water, is easy with the new CA10141 portable conductivity meter from Chauvin Arnoux.

This compact, handheld instrument, which features a fully waterproof design with an IP67 ingress protection rating, offers fast and reliable measurement of conductivity, TDS (total dissolved solids), salinity and temperature with all results clearly displayed on a large backlit LCD screen.

Simplicity of operation and rugged construction combined with

high accuracy make this instrument an ideal choice for use wherever it is necessary to monitor water quality. Typical applications include checking drinking water in compliance with the Drinking Water Directive 98/83/EC, checking salinity and conductivity of water used in food manufacturing processes, measuring the conductivity of water in industrial boilers,



It records the temperature at which the measurements are made over the range -10.0 to + $120 \,^{\circ}C$.

standard USB link, to a PC for analysis, reporting or archiving.

confirming water quality in swimming

pools and monitoring water in natural

pools and rivers as an aid to detecting

measure conductivity over the range

0.001 mg/l to 499.9 g/l, and salinity

from 2.0 to 42.0 psu. It records the

measurements are made over the

range -10.0 to +120 °C. In addition to

screen, the instrument also records

store up to 30,000 time and date-

subsequently be transferred, via a

stamped measurements which can

them in its internal memory. This can

showing the results on its integral LCD

temperature at which the

0.050 µS/cm to 500.0 mS/cm, TDS from

The CA10141 conductivity meter can

pollution.

Equally suitable for use in the laboratory or on site, the Chauvin Arnoux CA10141 portable conductivity meter is supplied as standard in a rigid padded carrying case, together with an XCP4ST1 Capec four-pole conductivity cell with built-in Pt1000 temperature sensor.

Komatsu launches WA900-8 wheel loader

KOMATSU HAS LAUNCHED WA900-8 wheel loader, which is designed for more operating comfort.

The WA900-8 proposes many customer advantages, among which a modulation clutch and variable traction control, an auto kick down and an RPM set. Combined with Komatsu's redesigned extra-large 14,5 m³ bucket and its optimised maximum fill factor, the WA900-8 offers more productivity of any wheel loader in its class - and up to 17 per cent higher fuel efficiency.

The all-new Komatsu WA900-8 gives the

operator a safe and comfortable work environment. With a 116 tonnes operating weight, the WA900-8 allows for 23,200kg rated load capacity in a standard boom configuration and for 20,500kg rated load capacity in high lift boom configuration.

The Komatsu WA900-8 meets the latest EU Stage V emission regulations with Komatsu-designed, developed and manufactured engine and aftertreatment systems.

Two diesel particulate filters, two variable geometry turbos, a heavy duty and cooled exhaust gas recirculation system, new engine control modules, a closed crankcase ventilation system - and no AdBlue required, can allow WA900-8 customers to be competitive in tenders and keep their Komatsu machine at work for many years.

As standard, Komatsu offers up to 14,5 m³ buckets, that have a redesigned spill guard, increased radius and floor angle, and provide better penetration and higher fill factors to boost productivity and income. Their ultra-strong teeth and enlarged sweeper wings increase up time and reduce tire damage to also reduce maintenance costs.

A standard high accuracy Payload Meter (PLM) lets operators easily monitor and track work productivity and efficiency within 1.5 per cent accuracy, to avoid overloading dump trucks.

The modulation clutch system gives operators precise control of rim pull, for fast work equipment speeds, and a smooth approach for truck loading. The variable traction control system optimises rim pull on all ground conditions, minimises tire slippage and lowers maintenance costs.

The new generation WA900-8 wheel loader's hydraulics are improved with a CLSS hydraulic system that delivers power on demand via the variable displacement piston pumps.

VTT RESEARCHERS HAVE successfully demonstrated a new electronic refrigeration technology that can enable major leaps in the development of quantum computers.

Present quantum computers require extremely complicated and large cooling infrastructure that is based on mixture of different isotopes of helium. The new electronic cooling technology could replace these cryogenic liquid mixtures and enable miniaturisation of quantum computers.

Researchers at VTT Technical Research Centre of Finland have developed a new purely electrical refrigeration method where cooling and thermal isolation operate effectively through the same point like junction. In the experiment the researchers suspended a piece of silicon from such junctions and refrigerated the object by feeding electrical current from one junction to another through the piece. The current lowered the thermodynamic temperature of the silicon object as much as 40 per cent from that of the surroundings. This discovery can be used, for example, in the miniaturisation of future quantum computers as it can simplify the required cooling infrastructure significantly. The discovery has been published in Science Advances magazine on 10th April 2020.

"We expect that this newly discovered electronic cooling method could be used in several applications from the miniaturisation of quantum computers to ultra-sensitive radiation sensors of the security field," says research professor Mika Prunnila from VTT Technical Research Centre of Finland.

Several sensitive electronic and optical devices require low temperature operation. One timely example is quantum computer built from superconductive circuits, which require refrigeration close to the absolute zero of thermodynamic temperature (-273.15 oC).

The electronic cooling technology develop by the VTT researchers could replace the complex coldest parts and, thereby, lead to significant reductions in complexity, cost and size.



Technical Review Middle East - Issue Three 2020

المؤسسات الغرنسية متعددة الجنسيات: كَشَرْكَة إنجاي وشرّكة موه المحلية لتحلية المياد.

وقد ذكر بيانُ صادرٌ عن الشركة السعودية لشراكات المياه (SWPC) أنَّ مخطفة تحلية مياه السعر بالتناضح العكسى (RO)، والتي ستقام في محافظة بدر منطقة المدينة المتورة، ستتميز بطاقة إنتاجية تبلغ 450 ألف متر مكعب/ يوم عند الانتهاء منها. فللحطة الجديدة تقع على ساحل البحر الأحمر في المملكة العربية السعودية، وسوف تغذي منطقتي مكة والمدينة بالمياه الصالحة للشرب. كما ستشمل معطة مياه ينبع الميودية، وحدات طاقة شدسية لتقليل استهلاك المياه الشركة، بالإضافة إلى خزانات مياه يسعة الكهرباء من الشيكة، بالإضافة إلى خزانات مياه يسعة المياه (الفركة السعودية للمياه والكهرباء، سابقا).

مشروعات محطات المياه العمانية المستقلة

بنوسع سوق تحلية المياه في عمان بنسبة 5 في المائة سنويا، إذ أن الدولة تتطلع إلى تعزيز احتياجاتها من الطاقة المائية على المدى البعيد. ومتلك غمان حاليا ما مجموعه تسع محطات تحلية كيرة و47 محطة صغيرة، وهي توفر ـ مجتمعة ـ حوالي 86 في المائة من مياه الشرب في البلاد. وتقوم العديد من المؤسسات الحكومية العمائية والشركات الخاصة، بتطوير سنة أنحاء البلاد. وقد تم الإعلان عنها في أواخر عام 2019 أنحاء البلاد. وقد تم الإعلان عنها في أواخر عام 2019 أنحاء البلاد. وقد تم الإعلان عنها في أواخر عام 2019 أكثر من 350 ألف متر مكعب في اليوم من الطافة الإضافية لتحلية المياه عندما تندأ في العمل خلال السنوات الأربع المقبة.

المشروعات الجديدة

مشروع تحلية مياه هيئة كهرباء ومباه الشارقة (SEWA) - الشارقة الإمارات العربية المتحدة: أعلنت هيئة كهرباء ومياه الشارقة في مارس/آذار عزمها على بناء محطة جديدة ملرها الشارقة بسعة 60 مليون جالون إمراطوري يوميا، ومن المقرر أن تكون جاهزة للعمل بحلول عام 2023.

مجمع جبل علي - الإمارات العربية المتحدة: من المقرر افتتاحه في عام 2020، وستوفر هذه المحطة طاقة لنتاجية قدرها 150 ألف متر مكعب من المياه يوميا، ويعمل خط الأنابيب الحالي لمشروعات تحلية المياه في الإمارات العربية المتحدة مجتمعة على تحديد مسار دينامية السعة المستقبلية التي تجرب تقنيات وأساليب تحلية المياه المتقدمة.



اصبحت الإعارات اكبر منتج للعياء للحلاة في العالم.

محطة الطويلة - أبو ظبي، الإمارات العربية المتحدة: يتوقع اكتمالها وتشغيلها في الربع الرابع من عام 2022، وستكون محطة الطويلة أكبر بنسبة 44 في المائة من أكبر محطة تناضح عكسي موجودة حاليا في العالم، وستكون لها طاقة معالجة تبلغ 909,200 متر مكعب من المياه يوميا. وقد أعلنت شركة أكوا باور وبنك ناتيكسيس أن محطة الطويلة المستقلة للمياه حصلت على أول مؤهل للحصول على -قرض مستدام» على الإطلاق لمشروع لتحلية المياه على مستوى العالم.

وسوف يول هذا القرض لتمويل المشروع، الذي تبلغ قيمته 758 مليون دولار أمريكي والذي تم إغلاقه في سبتمبر/أيلول 2019، بعدة تعاقدية تبلغ 32,4 سنة، ما يجعلها أكبر محطة للتناضح العكسي في العالم عند اكتمالها في عام 2012.

وقد أكدت شركة فيرجو إيريس، والتي قدمت رأباً مستقلاً من طرف ثان حول أوراق اعتماد الاستدامة وإدارة قرض قويل المشروع هذا، أنها نتماشى مع المكونات الأريعة لمبادئ القرض الأخضر (التي نشرتها جمعية سوق القروض في عام 2018) ومبادئ السندات الاجتماعية (تم نشرها من قبل الرابطة الدولية لسوق رأس لمال في عام 2018، وللمستخدمة في هذه الحالة في غياب هبادئ القرض الاجتماعي المنشورة).

وقد عمل بنك نائيكسيس كمنسق رئيسي ومفوض آولي وبنك التوثيق وموقر النحوط ووكيل التسهيلات العالمي ومنسق القروض المستدامة، كما قام بنك نائيكسيس بدور الوكيل الوحيد ووكيل الاستثمار في إطار القرض قصع الأجل الإسلامي لحصة أسهم شركة أكوا باور.

إن قرض هويل المشروع هذا مخصص لتمويل تصميم وإنشاء وتشغيل وصيانة 200 مليون جالون إمبراطوري من محطة التناضح العكسي والبنية التحنية والمرافق ذات الصلة. وسيتم بناء المحطة في مجمع الطويلة الحالي، في أبو ظبي، في الإمارات العربية المتحدة. ويتضمن المشروع محطة طاقة كهربائية ضوئية تبلغ ذروة قدرتها 68 ميجاوات لتكملة إمدادات الطاقة من شبكة الجهة المنتجة.

مفكرة الفعاليات 2020

	يونيو/حزيران
الكويت	14 – 15 – منتدى الكويت للصحة والسلامة والبيئة
ya	21 ـ 29 منتدى دي للصحة والسلامة والبيئة
	أكتوبر/تشرين الأول
الرياض	14 ـ 15 - منتدى يُذَجة معلومات للبال ـ BIM
4 ²	26 ـ 28 – معرض المياه والطاقة والتكنولوجيا والبيثة ـ ويتكس



مَشَروع اللبة الشمسية، يسمح تتعيد الكربون مسية 100 ق اللالة

تحقيق الأمن المائمي فمي دول الخليج

تحتل التهديدات المتمثلة في الحفاف واستنزاف المياه الجوفية وتلوث مياه اليحر عن طريق إزالة الملوحة، المدارة لدى اهتمامات قادة الحكومات والقافين على التخطيط المدني في جميع أنحاء دول مجلس التعاون الخليجي. وليس ذلك لألهم ينطلعون إلى نوسيع القدرة على نئيبة الطلب المتزايد فحسب، بل لألهم ينطلعون أيضا إلى نطبيق تقنيات -التحول النموذجي-، والتي ستحول تحلية إلياه من حل مؤقت لمياه الشرب إلى مصدر قابل للاستمرار على المدى البعيد، ومع وجود الأمن الماني ألوعدمه)، والذي يشكل أكر تهديد فردي لشعوب دول مجلس التعاون الخليجي واقتصاداتها ومستقبلها على المدى البعيد، كيف بسنى لهذه الدول نعزيز مكافحة الاحتياج المالي؟

> عَمَّل منطقة الشرق الأوسط وشمال إفريقيا، ما في ذلك خط الأنابيب الحالي للمشروعات قيد النطوير، ما يفرب من نصف (48 ق المائة) الطاقة الإجمالية لتحلية المياه في العالم. إذ نتفرد دول مجلس التعاون الخليجي مركز الصدارة في هذا الصدد.

> فعلى مدى العامين المقبلين، تُظهر طفرة استثمارية متوقعة بقيمة 4.3 مليار دولار أمريكي إضافية في هذا القطاع، مدى التزام الدول التي تعاني من الاحتياج الماق بتأمين إمدادات موثوقة للمستقبل.

> وفيما يلي جولة في مشروعات التحلية في دول مجلس التعاون الخليجي، سواء تلك التي تم الإعلان عنها، أو المشروعات الجديدة أو التي توشك على الانتهاء في عام 2020

المشروعات المعلن عتها

تعتر المملكة العربية السعودية مسؤولة عن حوالي خمس إحمالي إنتاج المباه للحلاة في العالم بحوالي أربعة ملايين متر مكعب من المباه المحلاة في اليوم وتوقع التقارير الجديدة في عام 2020 أن تستثمر الدولة 80 عليار دولار أمريكي أخرى في نحلية المياه على عدار العقد الحالي، وتسعى المملكة العربية السعودية، التي تنتج حوالي 4 ملايين متر مكعب من المياه المحلاة في اليوم، إلى مضاعفة قدرة إنتاج التحلية للات مرات، وذلك بحلول عام 2025، لكي تصل إلى 8.5 مليون متر مكعب في اليوم.

ويتصدر فاتمة المشروعات المعلى عنها في المملكة العربية السعودية مشروع «القبة الشمسية» لمشروع ليوم, والذي ثم الاتفاق عليه مؤخرا بن صندوق

الاستثمارات العامة السعودي المدعوم، وشركة سولار ووتر في المملكة المتحدة. ومن المتوقع أن يتم الانتهاء منه قبل تهاية هذا العام، وسيكون هذا المشروع معلماً بارزاً، لأن تقتيته ـ الأولى من نوعها ـ تسمح بعمليات تحييد الكربون بنسبة 100 في المائة، ولن تقوم القبة الشمسية فقط بإلتاج المياه المحلاة بشكل أكثر استدامة من الطرق السايقة، بل ستقوم أيضا بإدارتها بتكلفة أقل تبلغ 9,00 دولار أمريكي لكل متر مكعب. وإذا لححت في ذلك، فإنه من الممكن أن يوفر ذلك غبوذ جا للمشروعات المستقلية في المطقة.

كما وقعت الملكة العربية السعودية على الفاقيات مشروع محطة ينبع 4 المستقلة للمياه (IWP)، وهي منشأة لتحلية مياه البحر يتم تطويرها باستخدام تقنية التناضح العكس (RO)، مع اتحاد يضم مجموعة من



ملخص محتويات القسم الانجليزي

القارير: تقرير النثرة التقنية عن معرض طاقة الثرق الأوسط المقام ق دي.

مرافق خدمية: المكتنات.

إلْاللها عال: استخدام غذجة معلومات المباني في البنية الأساسية.

لمحات عن بعض البلدان: دولة الإمارات المربية المتحدة.

لمحات عن بعض القطاعات؛ الخدمات اللوجيستية.

		00	
1	10	170	
the second lit	00		

القسم الحربي

تحليلات

تحقيق الأمن الماني في دول الخليج .

CHARTY.	Begardoorgitation	Trippen	Rel	Situal.		de a d
Augu-	Taxenty Minles	(91) 08 (5804-80)	(91) 1040580791	commission of the inclusion of	01101	النشاة ا
Monte	Role Oliver	(204) 00043 (4099		latardown/bikeletarleczywy		FAST do well as all
Stell Alter	Kaly Yorg	+ 77 (0) (24 10)	987	adly proving galanche after scene	SERVING THE REGION'S BUSINESS STATE 1	1984 MAS LOADSHITTER AND AND A
185	Richard Reveluer	(44) 28 1914 7916	314) 26797(0876	tichardsondunjula-industriacces)	Contraction of the Property of Station of Contract, Stationers, Statio	مدور التغرير: حـــوحـــالوــــــ
184	Milas/DealeSig	(1) 203 326 2007	(1)3(0.226/2447	perior paraderisis (faid a house sole	mentalectaria	الفحورية بأبيشيك بسوابد الزبة إذكارول والا
Th A	eharpa) koreen Middi Ada Charles Palailaika	اد تیم (With Carly) یار ی University Tree	الفرز الأربان المارية. بالريز الأربان المارز ال مربان المارز المارز المارز الم	الوليل البريني بالولايات للعندة الترة الشية التقريرا من برات في النام الأم (19) (الري) weave Race Looker, SM 110 (18), UK بدر براد أن أنجالت ادر: Stahway, ST	ى ئىيىرخىرىك بىرى بولىدە سانڭ يايىن مېلىرە روي	اريق الحرير والمعين دروم دينانية دارات بونينده ا بيا البوات يتبين من بي مادي كوبار الواليكة بياجروم - الناقي اسماد فورهمسام معرة ميحك الإعلاقات ميرياساره ورومائر
		Abio Chide Artes Agent: Postas H	n Pohlishing, I.M. 17 Ight Innovational In a law Internetional,	n Mintery ("J. 240,000) (ad.) (ad.) ad. 2011 Blair Band, Annual 193 (2011) (23 200 Wood Arceyse, Viddlance, NY (1011)	يريد (لكريزي: inne induite like line cone) للكتب الرئيسي الذا ومقاطرة Phalaise Phalaise	الدية ليهان الجلسلة البرائتسان رويسان الالت ١٩٦٠ (Charles ، بأنى 2011 (Charles) مكتب الثرة الأوصل الإليمي 1921 - 192 ومالا بالبلالة ماسماك بلمالة
		يناتويار م	الإطاع مريدي تباكرر، في ميديز طالقيت ت بريد (كارين: colument-uiseico.com	Luisenity Bane, 11-19 Loose Giosennei Piara	در نومه بالدر المراجع منهم منها منها منها منها منها منها منها	
Ala	ain		circulation in	Patricitation on gaptit 4.4 Calling	-ELI-OPSWEVER LIEB	-Yes Marker
Cha Publi	irles	e	ىك قوردهما	رئيس مجلس الإدارة: در ي	لالين، ١٧٦،١٣٩٩ (١) (١٩٤). الطياطة عليمة المارات راين. الموسفة	اللاني (۲۷۱ میلاد) ۸۸۰ اللوجو مرادين و علي Alexandric اللمنده. اللمنديو والابراو الفتي بديند سيان البدار Alexandric الله
and the second	and the second se	01	echnical Review h	fiddle East 155%; 0267/5 307		

ADVERTISER INDEX

CompanyPage	CompanyPage
Caterpillar Inc - Energy13	Standard Aggregatebau Evers GmbH & Co. KG27
DMS Global WLL2	Wirtgen GmbH19
Peter Berghaus GmbH36	Yanmar Europe B.V9

Oil Reviews

One success leads to another

Oil Review Middle East, the region's leading oil and gas publication, has been putting sellers in touch with buyers for almost two decades. The magazine makes sure that it strikes a balance between respected editorial and your advertising message, to maximise the return on investment for your business.

Oilreview.me

Website-Monthly Statistics 121,656 Unique Visits

E-newsletters

Circulation: 28,000+ The Oil Review Middle East fortnightly e-newsletters can deliver your marketing message directly to decision makers.



OII Review







MENA Tel: +97 ASIA Tel: +91 USA Tel: +1 2 EUROPE Tel: +44

Tel: +971 4 448 9260 Tel: +91 98000 75908 Tel: +1 203 226 2882 Tel: +44 20 7834 7676 E-mail : post@alaincharles.com Web : www.alaincharles.com www.oilreview.me



تُحقيق الأمن الماثيي في دول الخليج

استثمارات ضخمة في مشروعات المياه في كل من الإمارات والسعودية وعُمان