

TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

MIDDLE EAST

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Road Building

New asphalt compactors
from Volvo CE

Manufacturing

Making progress with
AI-enabled tools

HVACR DEVELOPMENTS

FOCUS ON ENERGY EFFICIENCY, SUSTAINABILITY
CHALLENGES AND NEW TECHNOLOGIES

INSIDE

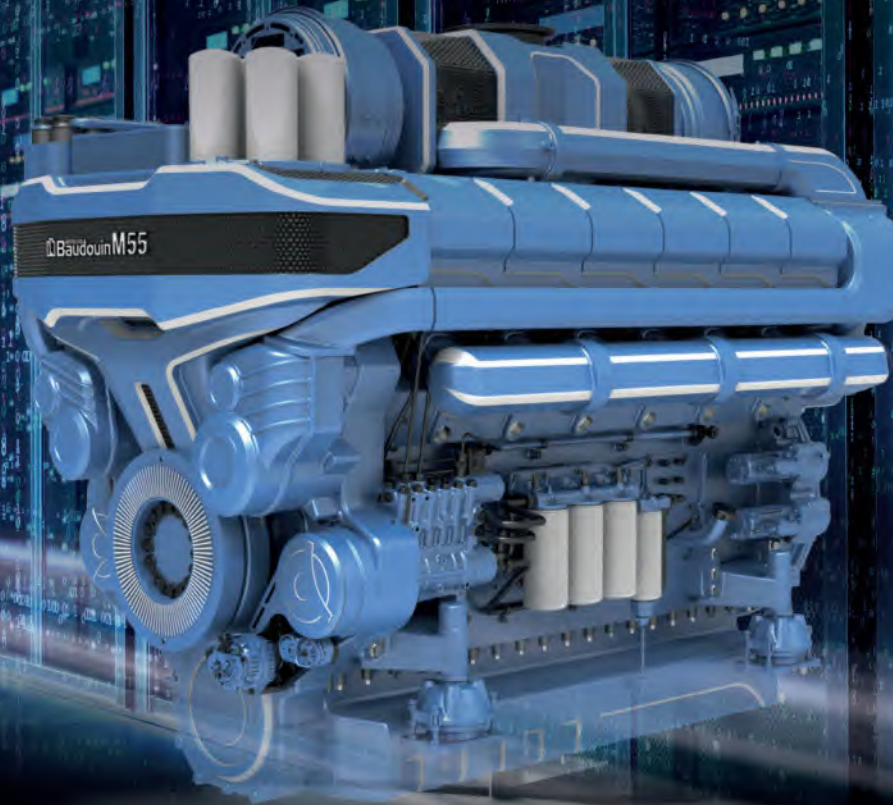
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CONTENTS

BUSINESS & MANAGEMENT	
Market News	4
Hyperloop vision comes closer to becoming a reality, OMAN Shell launches Qabas solar plant, ENOC expands fleet with eight new Renault trucks, Hitachi Construction appoints ATEC as its exclusive distributor	
ROAD BUILDING	
New solution	16
Volvo CE rolls out 10-tonne asphalt compactors	
HVACR	
Annual Review	18
HVAC industry rises to sustainability test	
Case Study	20
Using flowmeters in energy monitoring applications	
Qatar Embargo	22
Easing diplomatic ties give boost to HVACR sector	
CONSTRUCTION	
Going Digital	24
How to harness big data value to improve design, construction and operation	
Smart Cities	26
Covid-19 drives adoption of digital twin technology	
Material Processing	28
Trends and challenges in sand washing and demolition waste recycling	

Facilities Management	30
Leveraging predictive maintenance and internet of things to improve efficiency	
POWER	
Energy Storage	31
How to find the right energy storage technology	
Key Insights	32
What every independent power producer needs to know about the future of energy	
Renewables	34
Forecast: The promising outlook for the solar industry	
MANUFACTURING & LOGISTICS	
AI Matters	36
Many advantages of AI-enabled ERP tools	
Equipment	38
New Forklift models with higher capacity	
INNOVATIONS	
Products and Progress	42
Caterpillar, KOHLER-SDMO, Bobcat, Magni TH, Atlas Copco, Grieve, Electri-Flex, LG Electronics, Reiwa Engine, GHH, Honeywell, Signify, ALEC, Hilti, MAN, Metso Outotec, Edgematics.	
ARABIC	
Analysis	4

EDITOR'S NOTE

WE FOCUS ON the HVAC-R industry for our cover story in this issue as it witnesses a flurry of activity in the region. Major companies such as Empower, Tabreed and Siemens have been busy across the region, launching new district cooling projects. It's interesting to see how this industry is shifting towards a more sustainable model (pg 18). Similarly, while oil and gas will still play an important role in the Middle East energy mix for many years to come, solar is clearly emerging as an effective and efficient alternative energy (pg 34). Also, contractors are always seeking new ways to work more efficiently so we have a special feature on leveraging big data in the construction industry (pg 24). Elsewhere, we report on the lifting of the Qatar embargo, energy storage solutions, 3D printing and smart cities.

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

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TECHNICAL REVIEW

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Briefly

Madayn Vision 2040 launched

OMAN'S PUBLIC ESTABLISHMENT for Industrial Estates – Madayn – has launched Madayn Vision 2040, which aims at creating world-class business cities while maintaining the Omani identity to contribute to economic growth. The vision revolves around promoting comprehensive and sustainable economic and social development through strengthening public-private partnership, developing and operating business cities with integrated services, and adopting best solutions and technologies to meet business requirements while conforming to environmental standards.

Hilal bin Hamad Al Hasani, CEO of Madayn, pointed out that Madayn Vision 2040 is derived from the national priorities and goals of Oman Vision 2040 for the upcoming period. "Through this vision, we aim at achieving RO 15bn of investment volume, and localising projects that shall touch 10,000 projects in various fields towards the end of the plan. Of these projects, we aim at localising 6,500 industrial projects (factories) that shall provide around 270,000 job opportunities," Al Hasani elaborated.

EGA completes Potline 3 refurbishment

EMIRATES GLOBAL ALUMINIUM (EGA) has completed a major periodic refurbishment of its Potline 3 at Al Taweelah, one of the longest and most productive potlines in the world.

The reduction cells (or 'pots') in which aluminium is smelted require re-lining after several years of production. During the refurbishment of the 444 reduction cells in Potline 3, EGA installed steel collector bars with copper inserts, designed within the company to improve performance.

Reduction cells elsewhere across EGA's sites at Al Taweelah and Jebel Ali are also being upgraded. Abdunasser Bin Kalban, EGA's CEO, said, "We are committed to finding every way to enhance the sustainability, energy efficiency and safety of our aluminium production process. We will leave no stone unturned and take every opportunity to make even small improvements like this."

Hyperloop vision comes closer to becoming a reality

VIRGIN HYPERLOOP HAS unveiled its vision for the future hyperloop experience, following passenger testing. The newly-released concept video takes the viewer through a hyperloop journey, from arriving at the portal to boarding the pod.

Virgin Hyperloop is the only company in the world that has successfully tested hyperloop technology with passengers. The company successfully operated an occupied hyperloop vehicle using electric propulsion and electromagnetic levitation under near-vacuum conditions, realising a fundamentally new form of transportation that is faster, safer, cheaper, and more sustainable than existing modes. The company is now working with governments, partners, and investors around the world to make hyperloop a reality.

DP World is a major investor in Virgin Hyperloop. Sultan Ahmed Bin Sulayem, group chairman and CEO of DP World and chairman of Virgin Hyperloop, said, "Showing the passenger experience of Virgin Hyperloop is a glimpse of the future, following the success three months ago when people rode in a hyperloop pod for the first time. We have demonstrated the maturity of our technology. We are getting closer to commercialisation of what will be the first new mass-scale transportation mode in a century."

Virgin Hyperloop worked with partners across various industries – including Bjarke Ingels Group (BIG) for the portal designs, Teague for the pod designs, SeeThree for the video and animation, and Man Made Music for the score and sonic identity – to design a comprehensive, multi-sensory passenger experience that surpasses that of any other form of mass transit.

"Virgin Hyperloop can accelerate the future of



Photo Credit : Virgin Hyperloop

The hyperloop system would be able to transport thousands of passengers per hour.

mobility on land. The new mode of travel at supersonic speed rethinks transportation and the perception of space, landscape, time, and distance," said Bjarke Ingels, founder and creative director, BIG-Bjarke Ingels Group. "Virgin Hyperloop provides holistic, intelligent transportation for a globalised community to travel across vast distances in a safer, cleaner, easier, and faster way than airlines."

On demand and direct to destination, the hyperloop system would be able to transport thousands of passengers per hour, with vehicles able to travel behind one another in the tube within milliseconds, controlled by Virgin Hyperloop's machine intelligence software.

Following their successful passenger testing, Virgin Hyperloop is currently paving the way for the regulation and certification of hyperloop systems around the world. The company aims to achieve safety certification by 2025, with commercial operations beginning in 2030.

Continental sets out strategy for tyres business area

CONTINENTAL, THE WORLD'S third largest manufacturer of passenger tyres and fourth largest truck tyre manufacturer, has set out its new strategic programme for the Tyres business area. 'Vision 2030' is focused on the systematic customer-centric alignment of the organisation. In particular, the tyres business area is looking to expand its share of the growth markets of Asia and North America.

"With our 'Vision 2030' strategic programme, we are setting the stage to build on what is already a position of strength. Going forward,



Christian Kötz, head of the Tyres business area and a member of Continental's Executive Board.

Photo Credit: Continental

smart digital tire solutions and the realisation of ambitious sustainability goals will be decisive for our success and as differentiators in the marketplace," said Christian Kötz, head of the Tyres business area and a member of Continental's Executive Board. "The new 'Vision 2030' strategic programme underlines our aspiration to systematically align our

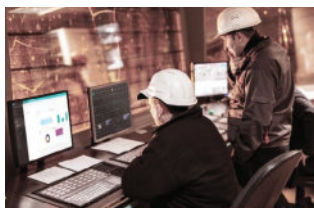
organisation with the development of customer-oriented solutions and to put customer needs at the centre of all our activities."

Bahrain: SULB and SMS digital join forces to optimise energy efficiency in integrated steelworks

SULB AND SMS digital, a company of SMS group, cooperate in identifying and tapping potentials for energy savings in SULB's integrated steelworks in Bahrain. Alongside SMS group (www.sms-group.com), Brazil-based SMS group company Vetta and Midrex Technologies, based in North Carolina, USA, are partners to the project.

SULB operates an integrated steelworks in Hidd, Bahrain. This steel complex covers the complete production chain from direct reduction to finish-rolled products. A key asset of the mill is the flexible combi-caster, designed to produce a wide range of cast formats and sizes, ranging from billets to heavy beam blanks.

SMS has set up a consulting team made up of its top process



SMS supports SULB on the path to energy-efficient steel production with a holistic optimisation project.

(Module A of the cooperation agreement) was performed, SULB took a first key step in making its operations more efficient and more cost-effective. The aims of that first phase of the project were to identify the focus areas and specific measures to reduce the energy consumption, including natural gas, electricity and process gas.

and metallurgy specialists from its various plant technology areas, energy experts and specialists in AI-based digitalization. Other partners in the project – alongside SMS digital and SMS group – are Vetta, an SMS group company specialised in energy management and related solutions, and Midrex Technologies, a leader in direct reduced iron technology.

As early as in spring 2020, when the "Quick Assessment"

With Module B "Deep Dive Analysis and Implementation", the second phase of the project has been kicked off. This phase will see SULB and SMS digital draw up a strategy to achieve a fast and significant Return on Investment. Module B concentrates on four areas: direct reduction plant, electric arc furnace and ladle furnace, heavy-section mill and integrated energy management.

Emirates Waste to Energy Company to develop the UAE's first solar landfill project

EMIRATES WASTE TO Energy Company, a joint venture between Bee'ah, the Middle East's fastest-growing environmental management company, and Masdar, one of the world's leading renewable energy companies, will undertake a project to develop Bee'ah's landfill into a solar farm — the first of its kind in the UAE.

The agreement was announced jointly by Khaled Al Huraimel, Group CEO of Bee'ah and chairman of the Emirates Waste to Energy Company, and Mohamed Jameel Al Ramahi, CEO of Masdar, during Abu Dhabi Sustainability Week which takes place virtually this week.

Emirates Waste to Energy Company will deliver the solar photovoltaic (PV) project that will comprise up to 120MW and will be constructed on top of Bee'ah's Al Sa'jah landfill in close proximity to the Sharjah Waste to Energy facility and Bee'ah's Waste Management Complex. The solar landfill project will be delivered across three phases, with the first phase due for completion in 2023.

Finding productive uses for closed landfills is a global industry issue due to stringent environmental monitoring and remediation requirements that can take up to 30 years. Redeveloping the landfill into a solar farm will add to Sharjah's renewable energy generation, and it is also economically and environmentally beneficial.

Emirates Waste to Energy Company will be responsible for the financing, design, procurement and construction. Under the terms of the lease agreement, operation and maintenance services will also be provided by the company for a 25-year period.

"As a pioneer of zero waste solutions, Bee'ah is looking to create new value from capped landfills while supporting the deployment of renewable energy in the UAE and I am confident that we can replicate this same model of success for other cities in the Middle East. Through Emirates Waste to Energy Company, we are proud to be partnering with Masdar to support the UAE's pioneering sustainability vision," said Khaled Al Huraimel.

"Waste is a growing issue in the Gulf Cooperation Council region. However, this project highlights how we can utilize closed landfills to deliver clean energy, while simultaneously supporting the UAE's clean energy targets and UN Sustainable Development Goals. We are confident that this project can become a benchmark for other landfill sites in the region," said Mohamed Jameel Al Ramahi, Chief Executive Officer of Masdar.



Masdar and Bee'ah sign the agreement to develop the UAE's first solar landfill project.

Briefly

SirajPower boosts distributed solar portfolio to 100MWp

SIRAJPOWER, UAE'S LEADING distributed solar energy provider, has reported significant growth as it doubled its solar assets in 2020 to achieve 100 MWp distributed solar portfolio. The company currently operates and maintains more than 180 facilities in the UAE – this covers an area of 600,000 sqm of roofs, the equivalent of 112 football fields, and displaces 65,000 metric tons of CO2 emissions. With the largest portfolio in the market, SirajPower expects to bolster its leadership in the UAE and accelerate its development to take the regional distributed solar sector to new heights.

"Amid the global headwinds, SirajPower has proven the resilience of its business model and continued to grow and generate important savings to its clients. Thanks to the team's hard work, we were able to continue our aggressive growth with minimal impact on our operations. We have expanded our market focus by making forays into new sectors such as Education, Real Estate, and F&B. We are witnessing a snowball effect in the market with an increase in volume of demand for our solar solutions. We are highly encouraged by the number of businesses accelerating their shift to sustainability and supporting the UAE's long-term green objectives. We are changing the way the country is powered and looking forward to doing the same on a regional scale," said Laurent Longuet, CEO at SirajPower.

To maintain its market dynamic and achieve its ambitions to become the regional green champion, SirajPower began to provide new technologies such as solar hybrid systems with battery storage for distributed generation. Furthermore, the company started offering O&M services to other solar plant owners beyond its own portfolio.

SirajPower's performance this year was also marked by the innovative financial transaction signed with Apicorp, which established the GCC's largest lease-funding platform for distributed solar energy – also the first non-recourse finance deal for the commercial and industrial market.

Briefly

Abu Dhabi Executive Council approves capital projects framework with Aldar Properties

THE ABU DHABI Executive Council has given the green light to a framework between the Abu Dhabi government and Aldar Properties for the development of capital projects across the Emirate.

The agreement follows the recommendation of the Abu Dhabi Executive Committee to establish a public-private partnership framework for such projects.

The framework includes the management of AED30bn worth of prospective projects including Riyadh City, Baniyas North and developments across the Al Ain and Al Dhafra regions.

The projects will deliver approximately 25,000 homes for UAE Nationals, as well as Aldar providing management oversight in AED10bn worth of Musanada's projects in education, healthcare, infrastructure, social services and facilities management.

ENGIE acquires Saudi Arabia's Allied Maintenance Company Ltd

LEADING PROVIDER OF low carbon energy and services, ENGIE Solutions, has completed its acquisition of Allied Maintenance Company Ltd (AMC), a Saudi-based facilities management company.

AMC employs more than 1,300 staff, and currently manages multiple projects in strategic locations throughout Riyadh, Al Khobar, Dammam, Jubail, Khamis Mushayt, Taif, Jeddah, and Tabuk.

The acquisition allows ENGIE to expand its presence across Saudi Arabia, by leveraging AMC's nationwide coverage and customer base whilst also offering customers ENGIE's low carbon energy services. ENGIE hopes to expand in energy efficiency and digitisation.

ENGIE's Saudi portfolio includes performance-based energy services focused on expertise and cutting-edge technology. ENGIE's growing presence in Saudi Arabia aims to elevate technical capabilities, upskill local workforce and deploy modern, sustainable solutions to optimise energy consumption, asset performance and operating costs.

OMAN Shell launches Qabas solar plant

OMAN SHELL HAS launched the 25-megawatt Qabas solar plant, designed to aid the port and freezone in Sohar in its pursuit of sustainability, and demonstrate the commercial benefits solar power can bring to the industrial landscape of the Middle East.

Owned and operated by Shell, the new facility, named Sohar Solar Qabas, serves as the company's first-of-its-kind industry scale photovoltaic solar project in the Middle East and in Oman, serving as a landmark in the Oman Vision 2040, The Sultanate's national economic plan.

The plant operates within a 50-hectare site within Sohar Freezone in Northern Oman. 88,000 solar modules are used across the site, fuelling the renewable electricity output from Qabas.

The power generated on the site is supplied to a large-scale ferrochrome production facility, where it displaces the equivalent gas-fired power generation taken from the grid. This displacement helps the facility avoid more than 25,000 tonnes of CO₂ emissions a year as it shifts its power reliance to renewable sources.

The facility's opening reflects the future ambitions of Oman Shell to facilitate further solar energy development within The Sultanate, and play a key role in the development of renewable energy in industry.

Oman Shell's vice president and country chairman, Wali Hadi, explained: "This is an incredible project and the first of its kind for Shell in the Middle East and in Oman, while being in line with our ambition to become a net-zero emission energy business by 2050 or sooner. I thank the Omani government, particularly the Sohar Port and Freezone, for their collaboration and support



Photo Credit : OMAN Shell

The site was marked with a plaque unveiling.

on a project with potential for long-lasting economic value for the Sultanate."

Chairman of the Public Authority for Special Economic Zones and Free Zones (OPAZ), His Excellency Dr. Ali bin Masoud Al Sunaidi, added: "I would like to congratulate Oman Shell and Sohar Free Zone for inaugurating this solar project in Sohar. The facility is an important milestone and it aligns with Oman Vision 2040, the Sultanate's national economic ambition. It is the first step for the Public Authority of Special Economic Zones and Free Zones' plan for solar projects equating to 1 gigawatt in Sohar. This will help free up natural gas for other industrial use."

The opening of the Sohar Solar Qabas was marked with a plaque unveiling, attended by H.E. Dr. Ali bin Masoud al Sunaidi, chairman of the Public Authority for Special Economic Zones and Free Zones, Walid Hadi, Oman Shell's VP and country chairman and Omar bin Mahmood Al Mahrizi, CEO Sohar Freezone and deputy CEO for Sohar Port.

EDF, Jinko Power reach financial close of solar project

FRENCH EDF GROUP subsidiary, EDF Renewables, and Chinese Jinko Power HK, subsidiary of Jinko Power Technology Co. Ltd, both leaders in renewable energy, have reached the approximately US\$1bn financial close for the 2 GW Al Dhafra solar project in Abu Dhabi. The operation has been finalised alongside TAQA Group and Masdar, the Abu Dhabi-based shareholders.

The transaction, worth approximately US\$1bn, has been funded with private project financing, with BNP Paribas as bookrunner along with Bank of China, Crédit Agricole, HSBC, MUFG, Sumitomo Mitsui Banking Corporation and Standard Chartered listed as mandated lead arrangers of the deal.

The solar project will be the first of its scale to deploy bifacial module technology, capturing light on both sides, benefitting from light reflected from the ground to increase



Photo Credit : Pexels

The project will generate equivalent power of 160,000 households.

generation and, upon commission in 2022, provide the electricity to power over 160,000 households.



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Briefly

Asia-Pacific saw 114 solar technology contracts and 34.4% shares in Q4, 2020

ACCORDING TO GLOBAL Data's power industry contracts database, as many as 331 solar technology contracts were announced in Q4 2020, which marks a 28% drop from the last Q4 average of 458. Looking at global power contracts activity, divided by the technology, solar power held the top position, with a 41.4% share of contracts during Q4 2020. The proportion of contracts held by different categories in the last quarter of 2020 include:

- Power Purchase Agreement: 118 contracts and a 35.6% share
- Project Implementation: 103 contracts and a 31.1% share
- Supply & Erection: 90 contracts and a 27.2% share
- Electricity Supply: 13 contracts and a 3.9% share
- Repair, Maintenance, Upgrade & Others: four contracts and a 1.2% share
- Consulting & Similar Services: three contracts and a 0.9% share.

Compared to different regions of the globe, Asia-Pacific held the top position with 114 contracts in solar technology, and a share of 34.4% during Q4 2020, followed by North America with 101 contracts and a 30.5% share, and Europe with 60 contracts and an 18.1% share.

In the fourth place was Middle East and Africa with 33 contracts and a 10% share.

Thales deploys hitech security systems

Global technology leader Thales said it had played a major role in the launch of Bahrain's new hitech passenger terminal with the supply of an integrated solution covering security, communication, airport operation and infrastructure as part of the US\$1.1-bn Airport Modernisation Programme.

Built in two phases, the Bahrain airport expansion covers 210,000 sq m, quadrupling the size of the existing terminal and increasing its capacity to 14 million passengers per annum.

Thales said it had through its local company, Thales Bahrain SPC, implemented the state-of-the-art technology to enhance operations and overall security experience for passengers.

ENOC expands fleet with eight new Renault trucks

ENOC GROUP HAS taken the delivery of eight new C 380 Renault Trucks models, which will be used to deliver fuel to the Group's service stations across the UAE ENOC Renault Trucks.

All vehicles are supplied through United Diesel, a member of the Al Rostamani Group, Renault Trucks' exclusive authorised distributor for Dubai and Northern Emirates.

The purchase is in line with ENOC's plans to partner with leading global brands that offer customer-friendly and cost-effective solutions. Renault Trucks and United Diesel will be delivering the highest standards of specialist after-sales support to ENOC, including 24/7 support, driver and technician training, and a comprehensive repairs and maintenance contract.

The Renault Trucks C 380 Tractor Head 6x2 with rear liftable axle offers superior driver comfort, exceptional reliability and optimal fuel efficiency, making it ideal for regional and long-haul applications. It is equipped with a range of features ensuring a high level of safety, for the driver as well as for other road users.

Some of the major safety features include, an automatic parking brake, Electronic Braking System (EBS) and Electronic Stability Control (ESC),

to help maintain route stability control in difficult conditions, and Advanced Emergency Braking System (AEBS), which uses a radar unit and a camera to detect an imminent risk of collision.

The Lane Departure Warning System (LDWS) alerts the driver when it detects the vehicle deviating unintentionally beyond the lane markings, so they can react in time to avoid an accident.

Guillaume Zimmermann, commercial director of Renault Trucks Middle East, commented, "The C 380 is an ideal truck for fuel tanker applications, where a robust chassis is an essential factor in its selection, while offering equally unbeatable standards of safety, reliability and cost-effectiveness."



The Renault Trucks C 380 Tractor Head with rear axle offers superior driver comfort.

Photo Credit: ENOC

Hitachi Construction appoints ATEC as its exclusive distributor

ARABIAN TRUCK AND Equipment Company (ATEC), a business division of Saudi-Arabia-based ZMS Group, has been appointed as the exclusive distributor for Hitachi Construction Machinery Middle East Corporation (HMEC) in Saudi Arabia.

The new distributor will cover the full Hitachi machinery product line, including mining equipment, heavy lifting and services.

ATEC offers a nationwide coverage of service and parts centres and will start their Hitachi



Sudairi, president ZSM – Group and Toshitaka Uchida – president HMEC signing the agreement.

Photo Credit: HMEC



Mike Fritz SVP-ZMS, Ahmed Refaat GM -ATEC, Taka Aoyagi -VMEC, Toshitaka Uchida President- HMEC, Piet van Bakergem GM Marketing -HMEC, Koichi Mori GM -Itouchu Middle East, Tumiya Inoue Manager Sales - HMEC

Photo Credit: HMEC

Construction Machinery operation with branches in Riyadh, Jeddah and Dammam.

In January 2019, HMEC appointed ATEC as the sole supplier for HSC cranes in Saudi Arabia, to cover the heavy lifting market in the country.

HMEC focuses on upgrading their dealer network and improving performance of dealers by offering training and support services. It is expected that the presence of Hitachi Construction Machinery in the MENA territory will become more prominent and respected for expertise and quality.

UD Trucks reports positive growth in key markets

UD TRUCKS CONTINUED its journey of growth across the Middle East in 2020. Despite the challenging business environment caused by the pandemic crisis, the Japanese commercial vehicle brand improved its market share in the majority of its regional markets.

It also registered increased sales in many of the countries. Total sales across the year rose by 6% versus 2019, in a market that experienced an overall decrease.

UD Trucks' full range of modern heavy-duty and medium-duty vehicles, which introduced new features to the region, combined with a total solutions approach for trucks and services, were key to this growth, and will continue to play a critical role as the company pursues further growth in the future.

Against the backdrop of extremely challenging economic conditions, UD Trucks succeeded in almost doubling its sales in the key market of Saudi Arabia, while also growing by an impressive 14% in Qatar. At the same time, the brand maintained stable sales in other key regional markets, including the UAE, Oman, Bahrain and Ethiopia.

With the confirmation of Zahid Tractor as UD Trucks' new exclusive importer and distributor in Saudi Arabia shortly before the start of the year, 2020 was always going to be a transition year for the brand in the Kingdom. There was a focus on raising customer service standards and support to the highest levels, reflecting UD Trucks' ambitions and Zahid Tractor's long-standing reputation as a customer-centric organisation. The new partnership was marked by a series of celebratory launch events in Jeddah, Dammam and Riyadh.

Strategy for 2021

With attention now firmly on 2021, UD Trucks is set to launch its "Better Life" long term strategy to demonstrate the brand's commitment to provide a better life for people and the planet by delivering sustainable logistics solutions.

Mourad Hedna, president of UD Trucks MEENA, said, "In 2021,



UD Trucks succeeded in almost doubling its sales in the key market of Saudi Arabia.


Photo Credit : UD Trucks

our focus will be on continuing to deliver our core business objectives by ensuring that the customer feels supported and satisfied at all times. We will continue to work with our local partners to ensure the right partnership mindset and the required flexibility to adapt to each market's needs."

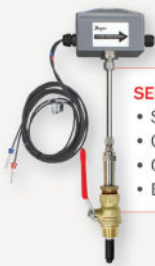
Taking the digital path

THE PANDEMIC HAS been a trigger for disruption in many industries and businesses. And digitalisation is a key for the adoption and acceleration of this disruption. As a smart-thinking, modern company, UD Trucks accelerated its focus on implementing a digital approach to stay connected and keep its partners informed of the latest news and announcements. Several systems were made available to partners, allowing unlimited access to E-Learnings and online module and virtual training sessions. Remote commercial and technical training sessions were delivered to over 450 participants around the region.

UD Trucks shifted its focus to take measures during the pandemic outbreak to support customers and business partners. Warranty terms were extended for customers whose contracts expired within the lockdown period to alleviate any concerns they may have had regarding vehicle maintenance and repair needs during these challenging times.




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Briefly

STAMFORD® AVR's protected from counterfeiters

SINCE 1904 CUMMINS Generator Technologies has been a world leader in the design and manufacture of the world renowned NEWAGE™ STAMFORD™ AvK™ brands of alternators and has been at the forefront of the design of AVR control systems, used to control the output of the alternators, that are known and used globally.

One unfortunate outcome of this success of the MX range is the frequent examples of copy AVR's coming onto the market that attempt to pass off as genuine Cummins Generator Technologies products by using the MX range unique identifiers. These copy AVR's risk the quality, robustness, and the durability that genuine products bring. Likewise, customers do not benefit as a result from the years of experience gained by Cummins Generator Technologies in the successful deployment of AVR systems. The unauthorised use of the well-recognised MX range of unique identifiers on these counterfeit devices causes confusion and misrepresentation in the market place.

Cummins Generator Technologies relentlessly seeks to protect all aspects of its intellectual property, including trademarks and copyrights. As part of this, they have announced that they are taking steps to further secure their rights in the MX range. The protection of these well-known trademarks - now marked as MX321™ and MX322™ - not only serves as another means by which customers can check and be assured they are buying genuine, it also equips the company with the means to pursue even more robustly those companies who seek to fraudulently copy the products. The trademarks MX321™ and MX322™ are the intellectual property of Cummins Generator Technologies and cannot be used without authorisation by any third party in conjunction with any such AVR control device or systems.

This development strengthens the message launched with the 2011 anti-counterfeit campaign, as seen in 2020 with the recent legal success of a trademark infringement in China.

Al Masaood CV&E receives 'UD Trucks MEENA Importer of the Year 2020' award

AL MASAOOD COMMERCIAL Vehicles & Equipment (CV&E) Division has been awarded the 'UD Trucks MEENA Importer of the Year 2020' at the recently concluded 'Annual UD MEENA Partner's Conference 2020'.

The honour was bestowed on Al Masaood CV&E, alongside nominations for during the virtual conference for its contributions and efforts to overcome obstacles in a highly challenging market environment. The event also took note of the division's new strategies for 2021 to help it thrive under the prevailing global situation. Al Masaood CV&E also made it to the top three of numerous award categories, namely the 'Parts Salesman of the Year', the 'Service Salesman of the Year', the 'Best Sales Team of the Year', the 'Best Marketing Team', and the 'Best Marketing Initiative of the Year'.

In 2020 the division embarked on numerous initiatives to help the UAE Government fight the raging pandemic. It supported the government's National Sterilisation Programme, with its team of front liners working to provide on-ground maintenance and periodic checks for its fleet being utilised by Tadweer (the Abu Dhabi Waste Management Center). Additionally, in partnership with UD Trucks and Bridgestone, Al Masaood CV&E launched the 'Serving our Heroes' CSR campaign to educate truck drivers about the importance of health and hygiene practices.

Apart from its pandemic-related campaigns, the division took part in the UD Trucks Extra Mile Challenge as a host of the competition's Abu Dhabi edition in January 2020. For this, the expertise and agility of competing UD truck drivers were put to the test to take their abilities to the next level and enhance their creativity and innovative skills to improve their respective transport operations.



Al Masaood CV&E were awarded the 'UD Trucks MEENA Importer of the Year 2020'.

Photo Credit : Orient Planet

Also in 2020, Al Masaood CV&E closed several deals with strategic customers such as Al Ain Coop, Trojan, and Western Bainoona Group. Its most prominent agreement was a deal of six UD Trucks Quester 6x4 units with Emarat Aloula Contracting (EAC).

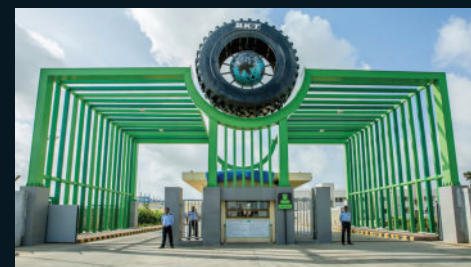
Mohamed El Zeftawi, general manager of Al Masaood CV&E, said, "This award is not only a testament to Al Masaood CV&E's resiliency and commitment, but, more so, it reflects the dedication, hard work and persistence of our employees. Without them, this achievement would not have been possible. Our appreciation goes to the entire Al Masaood CV&E team. We would also like to thank UD Trucks MEENA for its confidence and trust in us as evidenced by this award. We look forward to continuously building our long-standing partnership in keeping with our mission to consistently transform the experience of our clients in the region."

Caterpillar awards BKT SQEP gold certification

CATERPILLAR HAS AWARDED BKT's Bhuj plant SQEP (Supplier Quality Excellence Process) gold certification, an important acknowledgement reserved for suppliers who have stood out during the year for achieving the highest levels in terms of quality and control over processes.

At the Bhuj plant the radial tyres of the EARTHMAX range for CAT vehicles are made. Specifically, they are tires designed to facilitate better ground load distribution for dump trucks, wheel loaders, dozers, graders and some multi-purpose vehicles. In addition, the tyres in the EARTHMAX range stand out for their All Steel, structure, which guarantees resistance for the casing of these products and better distribution of ground loads.

The SQEP Gold certification obtained by BKT,



BKT Bhuj production plant.

Photo Credit : BKT

besides rewarding the Indian multinational's commitment in logistics and its range of innovative products, is further confirmation of the successful collaboration between Caterpillar and BKT, which lays the basis for even stronger synergies and partnerships in the future.

Mubadala and Siemens Energy to accelerate green hydrogen capabilities

MUBADALA INVESTMENT COMPANY (Mubadala) and Siemens Energy have signed a MoU to create a strategic partnership to drive investment and development of advanced technology, manufacture of equipment and green hydrogen and synthetic fuel production.

The initial focus of activity will be in Abu Dhabi and it is expected that this will be expanded to international markets over time.

Together with Masdar and other energy players in the Mubadala Group, the companies will work closely towards the following goals:

- Utilising renewable energy to produce green hydrogen and synthetic fuels, providing clean and



Photo Credit: Neil Doodhia/Pixabay

The aim is to leverage Abu Dhabi's strong foundations for the production and sale of green hydrogen.

transportable energy to fuel new hydrogen-based ecosystems that are supplied from the UAE.

- Establish an Abu Dhabi-headquartered world-class player in the synthetic fuels sector.
- Jointly advance technology and drive down the costs of green hydrogen and synthetic fuel production.
- Enable Mubadala and Siemens Energy to access emerging hydrogen markets and create value for both parties.

Commenting on the importance of the MoU, Musabbeh Al Kaabi, CEO of the UAE Investments, Mubadala, said, "Through this strategic partnership, we expect to be able to leverage Abu Dhabi's strong foundations for the production and sale of green hydrogen, prove a strong business case and attract investment for the development of new facilities, and establish Abu Dhabi as a reliable supplier of green hydrogen to global markets."

"This strategic partnership highlights the UAE's visionary commitment towards developing a sustainable green hydrogen economy," said Dietmar Siersdorfer, managing director Siemens Energy Middle East.

Ducab appoints Mohammed Abdul Rahman Al Mutawa as group CEO

DUCAB GROUP HAS appointed Mohammed Abdul Rahman Al Mutawa as the new Group chief executive officer, beginning January 2021.

Al Mutawa has been with Ducab since 2015, and has served as the CEO of Ducab Cable Business in the past few years.

He succeeds Andrew Shaw as the Group CEO, who led Ducab Group for the past 13 years, and has now taken up the role of board advisor of the company.

Ducab's first Emirati Group CEO appointment is the result of a carefully planned succession strategy, in line with Ducab's UAE National development programme.

Siemens Gamesa and Siemens Energy to develop offshore green hydrogen

SIEMENS GAMESA AND Siemens Energy are joining forces to address one of the major challenges — decarbonising the economy to solve the climate crisis. Both the organisations are set to develop offshore green hydrogen. The companies are contributing their developments to an innovative solution that fully integrates an electrolyser into an offshore wind turbine as a single synchronised system to directly produce green hydrogen.

The aim is to provide a full-scale offshore demonstration of the solution by 2025/2026. The German Federal Ministry of Education and Research announced today that the developments can be implemented as part of the ideas competition "Hydrogen Republic of Germany."

"Our wind turbines play a huge role in the decarbonisation of the global energy system, and



Photo Credit: Oimheidi/Pixabay

Siemens Energy aims to develop a new electrolysis product to meet the needs of the harsh maritime offshore environment.

the potential of wind to hydrogen means that we can do this for hard-to-abate industries too. It makes me very proud that our people are a part of shaping a greener future," said Andreas Nauen, Siemens Gamesa CEO.

Christian Bruch, CEO of Siemens Energy, explained, "With these developments, the potential of regions with abundant offshore wind will become accessible for the hydrogen economy. It is a prime example of enabling us to store and transport wind energy."

Briefly

Dentons advises Tabreed on SeaWorld Abu Dhabi district cooling

DENTONS HAS ADVISED National Central Cooling Company PJSC (Tabreed) on the contractual arrangements for the supply of district cooling to the new SeaWorld Abu Dhabi development, a marine life theme park being developed by Miral on Yas Island.

Dentons' legal advice included the scope of the long term supply arrangements through the connection of the theme park to Tabreed's existing district cooling asset network, as well as the construction of a new dedicated plant to expand that system.

Tabreed has signed an agreement with Abu Dhabi-based real estate development, management and investment company Miral to provide district cooling services to SeaWorld Abu Dhabi. Tabreed will connect the SeaWorld Abu Dhabi development to its existing Yas Island district cooling scheme and will deliver a cooling capacity of up to 15,000 refrigeration tons (RT). Tabreed also plans to build a new dedicated plant by 2022 at the SeaWorld Abu Dhabi site, which will benefit the development from a reliable, technologically-advanced and sustainable source of cooling interconnected to the Yas Island centralised cooling scheme.

This is the second Yas Island based scheme Dentons has advised Tabreed on in recent months, having advised the company on the contract arrangements for the district cooling of media freezone, twofour54's new flagship development on Yas Island.

Additionally, Dentons has advised Tabreed on its acquisition of Aldar Properties' district cooling assets on Abu Dhabi's Saadiyat Island.

Abu Dhabi-based energy and infrastructure partner Jon Nash, who led the UAE team, commented, "This was a challenging deal to close due to the uniqueness of the cooling requirements for the SeaWorld development and the incorporation of the new plant into Tabreed's existing cooling network at Yas Island. However, we are delighted to have assisted Tabreed to sign off on a hugely successful 2020 with a second major capacity expansion at the leisure and entertainment district at Yas Island."

Briefly

UAE is world's first nation to produce aluminium using solar power

DUBAI ELECTRICITY AND Water Authority (DEWA) and Emirates Global Aluminium (EGA) announced that the UAE has become the first country in the world to produce aluminium using the solar power. DEWA and EGA today signed an agreement under which DEWA will supply EGA's smelter with solar power from the Mohammed bin Rashid Al Maktoum Solar Park.

The milestone supports the vision of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to make Dubai the most sustainable city in the world and become a global leader in the development of scientific and technological advances in the energy sector.

The agreement was signed remotely by His Excellency Saeed Mohammed Al Tayer, managing director and CEO of DEWA and vice chairman of Emirates Global Aluminium (EGA) and Abdul Nasser bin Kalban, CEO of EGA, in the presence of His Excellency Abdullah bin Kalban, managing director of EGA, Walid Salman, executive vice president for Business Development and Excellence at DEWA and officials from both sides.

DEWA will supply EGA's smelter with 560,000MW hours of solar power annually from the Mohammed bin Rashid Al Maktoum Solar Park, sufficient to make 40,000 tonnes of aluminium in the first year, with growth expansion

EGA will supply solar aluminium to global customers under the new product name CelestIAL.

HE Saeed Mohammed Al Tayer, managing director and CEO of DEWA and vice chairman of EGA, said, "This global achievement of both DEWA and EGA confirms our firm commitment to achieving the vision of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, in building a green economy in UAE, and achieving the goals of the Dubai Clean Energy Strategy 2050 in diversifying energy sources and providing 75% of Dubai's energy production capacity from clean energy sources by 2050."

Axalta announces partnership with ASAS Auto Parts in Jordan

AXALTA COATING SYSTEMS, a leading global supplier of liquid and powder coatings, announced a partnership with ASAS Auto Parts Trading Co., LLC in Jordan. ASAS will distribute Axalta's Spies Hecker and Nason brands in the region.

Spies Hecker, one of Axalta's premium refinish brands with its innovative product systems and cutting-edge paint technology, is used in more than 80 countries across the globe. Nason is a cost-effective coating solution for the mainstream segment of the market in the Middle East.

Fadi Medlej, managing director, Axalta Middle East and North Africa, said, "We are extremely happy to partner with ASAS Auto Parts to bring two of Axalta's proven and high quality products to customers in Jordan. We have always committed to providing innovative products to support our customers' and partners' success. And we believe that through this partnership we can provide Axalta's industry-leading products and services to customers in the region."

"As one of the leading companies in the auto parts and service industry in Jordan, we are delighted to have this partnership with Axalta,"



Photo Credit : Axalta Coating Systems

Spies Hecker is one of Axalta's premium refinish brands.

said Rafiq Humudah, CEO of ASAS. "We are confident that this new partnership will allow us to provide high quality products to our valued customers along with great services for many years to come."

ASAS is one of the first companies in Jordan that has focused on the auto parts and service industry since its establishment in 1983, under the name of Humudah Trading Company. This is after a long legacy in the automotive paint business that spanned more than 22 years in the Arabian Gulf since 1961.

Solar panels on Ibn Battuta Mall and Dragon Mart rooftops

NAKHEEL MALLS, THE retail arm of master developer Nakheel, has joined forces with Total, through its affiliate Total Solar Distributed Generation (DG) Middle East, dedicated to the development of distributed solar energy solutions, to solarise the rooftops of Ibn Battuta Mall and Dragon Mart with solar photovoltaic (PV) panels.

The solar solution, provided by Total, will allow Nakheel Malls' to reduce its carbon footprint, contributing to its sustainable development efforts in the UAE. The PV panels can generate around 9 GWh of clean energy with an estimated reduction of over 3,500 tons of CO2 yearly. Around 12,000 PV panels will be installed at both the malls, spanning around 35,000 sqm.

The partnership agreement was signed in the presence of Omar Khoory, chief hospitality and assets officer, Nakheel, as well as Marin de Montbel, managing director, Total Solar DG Manager, Total Solar DG Middle East.

Omar Khoory, chief hospitality and assets officer, Nakheel, said, "As part of our ongoing alignment with the leadership of Dubai, Nakheel Malls are committed to supporting efforts of the city's clean energy strategy 2050. We are doing this through our partnership with Total by installing PV Solar panels at Dragon



Photo Credit: Nakheel Malls and Total

The project commenced in January.

Mart and Ibn Battuta Mall with the aim to support a circular economy."

Marin de Montbel, managing director, Total Solar DG Middle East, said, "Our solar rooftop project in partnership with Nakheel Malls is part of our commitment to address climate challenge by providing more energy with less emissions. It is fully in line with both our long-term growth strategy and our ambition to become a world leader in renewables."

The project is set to commence in January while the shopping malls will remain fully operational throughout, with little to no disruption to customers.

EXECUTIVES' CALENDAR 2020-21

FEBRUARY

15-17	Water and Energy Congress Week	UAE	www.alleem.com/portfolio-items/water-and-energy-congress
17-18	Smart Data Summit	UAE	www.expotradeglobal.com/events/smartdatasummit

MARCH

15-16	Retrofit Tech MENA	UAE	www.retrofittechmena.com
22-24	5G MENA	VIRTUAL	https://tmt.knect365.com/5g-mena/
24-26	Minexpo Africa Tanzania	TANZANIA	http://minexpo.expogr.com/
31 March – 1 April	Middle East Smart Landscape Summit	UAE	www.landscapesummit.com

APRIL

5-7	COMEX	OMAN	https://comex.om/2020
6-8	Building Materials and Construction Technologies	UAE	https://bmctdubai.org/

MAY

24-27	HVAC R EXPO SAUDI	SAUDI ARABIA	www.hvacrexposaudi.com
24-27	The Big 5 Saudi	SAUDI ARABIA	www.thebig5saudi.com

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

HSE UAE Forum 2021 to discuss latest regulatory developments and best practices

THE HIGHLY ACCLAIMED Health, Safety & Environment UAE Forum returns to Dubai with its sixth edition. Taking place from 6-7 April 2021, the forum has a stellar line-up of confirmed speakers from Ministry of Health & Prevention, UAE, Dubai Municipality, DEWA, Dubai Civil Aviation Authority as well as senior executives from leading international and regional companies. On the agenda for this year's forum are sessions addressing the most business critical aspects of HSE in the UAE. With a vision of 'sustainability being key to the UAE's future readiness', an investment of US\$1.8bn is currently under implementation by Dubai Municipality for environment and sustainable projects in an effort to preserve environment and protect the health and safety of people in the UAE.

The forum will focus on six key sessions that include exclusive regulatory updates to optimise organisational HSE performance, best practices on HSE operations post COVID-19, sustainability to reduce carbon footprint for your business, digital

transformation and the impact of disruptive technologies and high speed communication, working in hazardous environments and transformative technologies that are having an impact on HSE projects. The topics that are crucial for major sectors such as oil and gas, construction, utilities, logistics and transportation, manufacturing, and entertainment present an opportunity for attendees to gain deep insights on policy, strategies and technical expertise. The forum brings together industry experts from across the region; including health and safety professionals, government regulators, policy makers and solution vendors.

Expert speakers from the industry include Eng. Raed Marzooqi, head of Safety Engineering and Accidents Investigation, UAE, Hafidh Masoud, Head of Aerodrome Safety, Dubai Civil Aviation Authority, UAE; Dr. Maisoon Ali Al Shaali, head of environmental section, UAE Ministry of Health and Prevention; Dr. Mona Shawki, specialist-occupational Medicine, UAE



The forum brings together industry experts from across the region.

Ministry of Health and Prevention; Salem Salmeen Alnuaimi, head of safety, National Crisis & Disaster Management Authority, UAE and more.

"These events are becoming increasingly necessary in the existing business environment. The need for education and orientation to the safety culture has risen and companies are gradually learning the need of using standardised/certified products," said Syed Faroukh Ali, Sr.Territory Manager, Ansell who attended the 2019 edition.

For more information visit: <https://hse-forum.com/dubai/conference-brochure>

Photo Credit : Alain Charles Publishing

ON THE WEB

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

UAE announces new effort to diversify energy sources

THE UAE MINISTRY of Energy and Infrastructure has announced it will cooperate with federal and local authorities to achieve goals 6,7 and 11 of the Sustainable Development Goals (SDGs), through implementing projects and initiatives aimed at making cities and communities safe, flexible and sustainable by 2030.

www.technicalreviewmiddleeast.com/power-a-water/renewables/uae-announces-new-effort-to-diversify-energy-sources



In 2017, the UAE launched its 2050 Energy Strategy.

Photo Credit : Adobe Stock

ADP halts rent increases for industrial and economic zone customers

ABU DHABI PORTS has announced a freeze on rent escalation during 2021, for all businesses in its Industrial Cities and Free Zone cluster. The move is aimed at providing further relief to its customers in the KIZAD and ZonesCorp during these challenging times. The freeze on rent increase for the entire year is in line with Abu Dhabi Ports' core philosophy of enabling businesses to remain competitive within their target markets. The initiative will benefit more than 1,400 companies within Abu Dhabi Ports' Industrial Cities and Free Zone cluster.

www.technicalreviewmiddleeast.com/construction/buildings

Komatsu to develop electric construction equipment

PROTERRA, A LEADING innovator in commercial vehicle electrification technology, and Komatsu, a global leader in construction equipment, have agreed to leverage Proterra's battery technology for the development of Komatsu's first battery-electric middle class hydraulic excavator.

The collaboration represents Proterra's entry into the off-road vehicle market and the company's first Proterra Powered battery-electric construction equipment.

<https://www.technicalreviewmiddleeast.com/construction/machinery/komatsu-partners-proterra-to-develop-electric-construction-equipment>



A concept image of the construction equipment.

Photo Credit : Proterra

MB Crusher solutions create new revenue streams

AS THE INDUSTRY faces many challenges with high hauling and material disposal costs while also protecting the environment, MB Crusher is helping companies to recycle old asphalt and create new revenue streams. Anyone with an ongoing road construction project knows this industry's hurdles on any job scale, from the reconstruction of a main road to a small side road. The same restrictions also affect those who process and distribute bituminous conglomerates. Thanks to MB Crusher's presence on job sites worldwide, the company has focused on this weakness and transformed it into a new advantage.

www.technicalreviewmiddleeast.com/construction/machinery/mb-crusher-solutions-create-new-revenue-streams

Volvo Group creates business area to accelerate electrification

VOLVO ENERGY'S NEW business area will strengthen the Volvo Group's business flow of batteries over the life cycle as well as its customer offering for charging infrastructure. At the same time, the environmental impact from electric and hybrid electric commercial vehicles and machines will be reduced by giving used batteries a second life in different applications.

www.technicalreviewmiddleeast.com/logistics/automotive/volvo-group-creates-business-area-dedicated-to-accelerating-electrification



Joachim Rosenberg, executive vice-president, Volvo Group

Photo Credit : Volvo Group

The Red Sea Project secures first stage of LEED platinum certification

THE RED SEA Development Company (TRSDC) has completed the first stage of the LEED for Cities (Leadership in Energy and Environmental Design) platinum certification in the 'Plan & Design' criteria for the Red Sea Project.

Upon completion in 2030, The Red Sea Project will comprise 50 hotels, offering up to 8,000 hotel rooms and around 1,300 residential properties across 22 islands and six inland sites. The destination will also include a luxury marina, entertainment and leisure facilities.

The award recognises TRSDC's execution of practical and measurable strategies and solutions aimed at improving the sustainability and standard of living for those involved in the project.

www.technicalreviewmiddleeast.com/construction/buildings/the-red-sea-project-secures-first-stage-of-leed-platinum-certification

“All of Riyadh’s features set the groundwork for job creation, economic growth, investment, and many more opportunities. We are therefore aiming to make Riyadh one of the 10 largest city economies in the world – today it stands at number 40, the fortieth largest city economy worldwide.”



Photo Credit : vision2030

HRH CROWN PRINCE MOHAMMED BIN SALMAN

Deputy Prime Minister, Chairman of the Council of Economic and Development Affairs Saudi Arabia

“In the short-term, cash management and financing/lender considerations are some of the main priorities across all real estate sectors. Macro-economic and demographic factors as well as related government initiatives are likely to define the shape and pace of recovery for the real estate sectors in 2021.”

OLIVER MORGAN

Director and head of development Deloitte’s Real Estate team, Middle East

“We expect new investments will take a back seat in most sectors over the next 12 months. Aviation, tourism, real estate, hospitality, non-staple retail, and oil and gas remain the most exposed sectors. Telecommunications, utilities, and food retailers, meanwhile, are relatively better protected.”

S&P GLOBAL RATINGS

GCC Corporate And Infrastructure Outlook 2021: Proceeding With Caution

“PIF will invest a minimum of US\$40 billion annually in domestic projects and investments, contribute US\$320 billion to non-oil GDP cumulatively through its portfolio companies, grow assets under management to over US\$1.07 trillion, and create 1.8 million direct and indirect jobs by the end of 2025.”

THE PUBLIC INVESTMENT FUND

(On the launch of its five-year strategy, including its Vision Realization Program (VRP) 2021-2025.)

“In line with the vision of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to achieve a low-carbon economy, the green aluminium initiative is the first of its kind in the world to produce aluminium using solar power in the Emirates Global Aluminium (EGA) operations. DEWA will supply electricity from the Mohammed bin Rashid Al Maktoum Solar Park. This project supports the competitiveness of EGA in the global market. Aluminium produced from solar power is an important element and ideal for industrial uses. We expect this product to have an added market value, as it supports our efforts to reduce carbon emissions and promote sustainable development in the UAE.”



Photo Credit : DEWA

SAEED MOHAMMED AL TAYER

Vice-chairman Dubai Supreme Council of Energy

“Our pioneering technologies and global experience will help Qatar to diversify its power generation resources by safely and securely integrating utility-scale solar power generation into its grid.”



Photo Credit : Hitachi ABB Power Grids

MOSTAFA AL GUEZERI

Chairman and managing director Hitachi ABB Power Grids, GCC (On winning major order to support the integration of renewable generation from Qatar’s first solar plant)

“The breakbulk, and the project cargo sector that represents a complex market encompassing commodities as varied as steel and forest products, to heavy-lift shipments for wind turbines and equipment for construction work, plays an essential role in the Middle East. The UAE is a front-runner in this sector, occupying a predominant position as a transshipping centre. Several factors such as the quality of the port infrastructure and the country’s strategic location that enables it to serve as a link between the East and West, have led the UAE to achieve a leading status.”

SHEIKH NASSER MAJID AL QASSIMI

Assistant undersecretary, Infrastructure and Transport sector Ministry of Energy and Infrastructure, UAE



Ergonomically positioned controls and joystick offers effortless maneuverability.

Image Credit: Volvo CE

Volvo CE rolls out 10-tonne asphalt compactors

The DD105 and DD105 OSC asphalt compactors from Volvo Construction Equipment now come equipped with Tier 3/Stage IIIA engines for emerging markets.

The rear-mounted engine combined with a curved front glass panel and padded floor contributes to low levels of noise and vibrations within the cab – for a smooth and quiet ride.

THANKS TO THE integration of a Tier 3/Stage IIIA engine, the DD105 and oscillatory variant DD105 OSC double drum compactors are now available in emerging markets. These fuel-efficient and productive machines are equipped with an 86.3kW Tier 3/Stage IIIA engine that automatically adjusts output according to jobsite requirements, delivering power only when needed. Other smart features include Eco mode, which cuts fuel consumption by up to 30% without affecting performance, and an auto-idle function that reduces engine speed when the roller is stopped.

Comfortably productive

These robust machines are built to work hard but that does not mean they cannot be comfortable. Volvo Construction Equipment (Volvo CE) prides itself on designing machines with the operator in mind. The company makes some of the most comfortable – and therefore productive –

machines in the industry and the DD105/DD105 OSC is no exception.

The ergonomically positioned controls and joystick guarantee effortless maneuverability, while the efficient climate system also helps keep the operator comfortable. The rear-mounted engine combined with a curved front glass panel and padded floor contributes to low levels of noise and vibrations within the cab – for a smooth and quiet ride. Safety and ease of operation are enhanced by the expansive front windshield which maximises the view down to the drum and spray bars. The structural pillar supporting the roof is located at the rear of the cab, meaning the three front glass panels provide operators with an entirely unobstructed view of the road. When working close to obstacles, the fully adjustable operator station can rotate, and slide to the side of the cab to easily provide a view down the edge of the asphalt – increasing safety and rolling precision.

Smart technology, efficient compaction

The 10-tonne compactors come fitted with a 1,680 mm wide drum. The drum's unique design halves the power needed to start the vibration system with no compromise on productivity. This reduces the operator's exposure to machine vibration while also ensuring a smoother finished mat.

Fitted with the flexibility of the Volvo oscillation technology – which eliminates vertical vibrations – the DD105 OSC offers high compaction performance while producing a non-damaging oscillation movement. This transfers less stress to the surrounding surface, enabling compaction in more delicate application areas, such as bridges, over pipes and close to residential areas. Additionally, when compacting against a cold joint, the risk of damaging the cold surface is reduced, and the material can be more effectively compressed to seal and protect the surface. The oscillatory movement of the drum can also improve surface smoothness, by re-aligning the material. To account for the

increased wear on the drum surface, the Volvo DD105 OSC roller has a hardened, abrasion-resistant alloy steel drum shell, which increases longevity.

Also helping operators to achieve a high mat quality in less time is the Compact Assist function. Powered by the Volvo Co-Pilot display, Compact Assist provides access to a set of work-enhancing apps – including pass mapping and temperature mapping – which provide real-time insight into the work being undertaken. With easy access to clear and detailed data, the operator can eliminate any damaging over-compaction and ensure complete coverage of the working area.

Unrivaled uptime

The Volvo DD105 and DD105 OSC both feature an automatic water spraying system with triple filtration that provides uniform coverage and variable flow, as well as helping prevent material pick-up. Furthermore, the two water pumps alternate during normal operation. In the rare event of a pump malfunctioning, a constant flow of water to the drum surface is

automatically retained. The large 740-litre water tank allows for increased refill intervals, also helping to keep downtime to a minimum. Moreover, the tank's low positioning affords the machine a low center of gravity for excellent stability and can be quickly and easily refilled at ground level.

The double drum compactors are designed for simple servicing and maintenance. The swing-up hood provides complete access to the engine and hydraulic components for efficient service inspections. Using a single key, technicians can access exterior service hatches, while fuses and relays are safely stored in the cab. With ground-level access to the engine, radiator, battery, and filters, daily checkpoints are unobstructed. When it is time to leave the jobsite and load into the truck, operators can rely on the Anti-Slip Control to avoid damaging the pavement.

To further optimise machine availability, customers can use CareTrack, the Volvo telematics system, to access a wide range of machine monitoring information designed to save time and money. ■

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HVAC industry rises to sustainability test

Business is thriving in the Gulf's HVAC market, though energy efficiency and sustainability challenges are coming to the fore, fuelling interest in district cooling and other new technologies. Martin Clark reports.



THE GULF HAS long been an integral market for the heating, ventilation and air conditioning (HVAC) industry — and the high-growth economies of the region continue to present plenty of opportunities for key players.

But it's an energy-intensive business and that has presented challenges for manufacturers, suppliers and customers in an age of environmental concern.

Saudi Arabia is the third-largest consumer of electricity for air conditioning (AC) in the world after the USA and China.

However, environmental shifts have meant it is no longer burning as much oil to keep cool thanks to domestic energy reforms and stronger AC energy efficiency standards.

These are all trends that will continue to shape the HVAC market in the coming years, experts reckon. With environmental awareness gaining ever-more prominence, energy efficiency has never been more important. In Saudi Arabia, AC accounts for more than 50% of total annual electricity consumption in buildings and for around 70% at peak cooling demand.

In 2018, this was the highest use of AC in the world, with 101 terawatt-hours (TWh) used by households and 70 TWh by businesses.

Industry challenges

In an August report — *The Future of Cooling in Saudi Arabia: Technology, Market and Policy Options* by The King Abdullah Petroleum Studies and Research Center (KAPSARC) — these shifts are highlighted, among others including trends toward district cooling.

“District cooling and phasing out obsolete technology, such as window units, can achieve major reductions in electricity consumption and carbon dioxide emissions,” the report notes.

“For example, fully implementing the kingdom's high-efficiency AC incentive programme for households could yield 35 TWh in annual electricity savings at a cost of US\$6bn to the government.”

The report says innovative business models, such as selling cooling as a pay-per-use service, could further increase market efficiency and competition in both the

commercial and residential cooling sectors.

Covid-19 has also brought with it food for thought, highlighting the need for AC systems to provide clean air as well as cool air, though this has the potential again to drive up energy usage.

“Whether through increased use of fresh versus recirculated air or various filtration techniques, this is likely to increase energy use from cooling systems,” the KAPSARC report notes.

Saudi market

Despite the challenges, the Saudi market continues to present lucrative business opportunities for well-known players.

This year, Zamil Air Conditioners was awarded new contracts by the Saudi Electricity Company (SEC) for the maintenance and repair of HVAC systems at various power stations in the country's western region.

Under the agreements, Zamil CoolCare will supply, install, and replace vast HVAC systems at the Shoiba and Rabigh power plants, as well as at several sites in Jeddah.

It follows a further job with the National

Grid SA company for the maintenance and repair of HVAC systems at SEC substations in the eastern region.

The Covid-19 pandemic also sparked innovation, with Zamil Air Conditioners last year launching customised mobile AC units specifically designed for healthcare applications, such as hospitals, labs and emergency rooms.

These are fitted with special air filtration systems that help curb the spread of diseases.

The units are equipped with a technology for achieving optimum air quality, along with a HEPA filter with 99.99% efficiency that contains moisture-resistant micro-glass paper media, which can prevent microbial growth and can easily remove air contaminants, such as fine dust, smoke, vapour, pollen and bacteria.

The antimicrobial flexible air ducts offer a hygienic, safe ventilation system that protects indoor air quality, the company says.

GCC potential

While Saudi Arabia represents the biggest single market, other Gulf states also offer huge scope for HVAC suppliers — but again face similar environmental and sustainability pressures.

The UAE market, for instance, was worth US\$1.9bn in 2019, but is projected to grow to US\$2.8bn by 2030, according to analysis by ResearchAndMarkets.com.

It says this will be on the back of the growing residential, industrial, commercial, and hospitality sectors, although these areas may have been dampened by Covid-19-related related lockdowns. The quest for cleaner air quality is also apparent, rather than simply a focus on temperature.

Singaporean firm SensGreen formally launched its UAE branch in 2020 to tap into this emerging niche, offering high-tech solutions for monitoring and improving indoor air quality (IAQ).

Eurovent Middle East, the industry association for manufacturers of HVAC and associated technology, is calling for governments to further incentivise retrofitting systems to improve ventilation and air filtration in buildings.

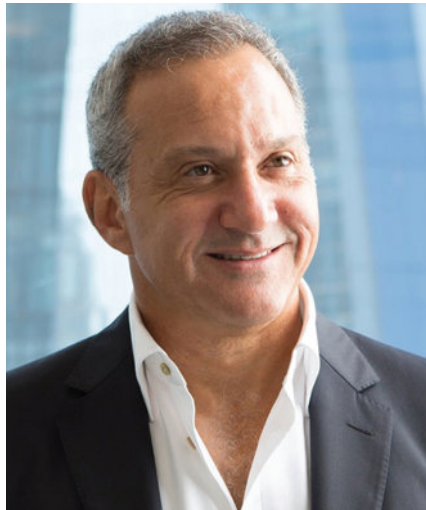


Photo Credit: Eurovent ME

Tariq Al Ghusein, president, Eurovent Middle East.

It says the Covid-19 pandemic flagged the importance of IAQ to the health and welfare of building inhabitants, from office blocks and malls to residential apartments.

“Retrofitting in the region has historically gained traction for energy conservation reasons,” notes Tariq Al Ghusein, the trade body’s recently-appointed president.

“However, its ability to improve ventilation and the provision of safe, clean air should now become a key focus.”

He cites the example of Germany, which has provided funds to upgrade ventilation systems in state-owned buildings, from offices to schools and hospitals.

“Supported by a framework of incentivisation and acceleration, retrofits could be a key driver for healthier and cleaner-built environments, helping to improve energy efficiency as well as ventilation and filtration in the region,” Tariq added.

District cooling

Another major dynamic is the move toward district cooling, which can provide a more sustainable model for a region that needs to be smart about its energy use.

According to Siemens, which is active in this segment, every ton of district cooling capacity installed can save one ton of CO₂ emissions.

Its project list includes automation technology for two district cooling plants supplied to Dubai-based Emicool.

Water chilled to 4.4°C is delivered from Emicool by pipeline to customers, where it is used by the AC system to cool the building before being returned to the Emicool plant where the process begins again.

This centralised district cooling model benefits building owners and developers with reduced capital and operating cost, lower maintenance overheads and energy efficiency gains over traditional AC systems.

In 2020, Emirates Central Cooling Systems Corporation (Empower) awarded contracts worth of AED1.4bn — 23% higher than the previous year — for new district cooling plants and associated works.

Empower says it holds roughly three quarters of the district cooling market in Dubai city.

Its chief executive, Ahmad bin Shafar, said the company is seeing “an increasing and rapid growth in demand for district cooling services” alongside the growth in new buildings and other projects.

As well as completing its own new headquarters in Dubai’s Al Jadaf area, it has awarded construction work worth AED354m to build two new district cooling plants in Za’abeel and Business Bay, with a total capacity of 100,000 refrigeration tonnes (RT) on completion. ■

SeaWorld Abu Dhabi district cooling contract

UAE-BASED NATIONAL CENTRAL Cooling Company (Tabreed) signed a deal in January to provide district cooling services to SeaWorld Abu Dhabi, a new marine life theme park being developed by Miral on Yas Island.

Tabreed will connect the new development to its existing Yas Island district cooling facilities and will deliver a cooling capacity of 7,500 RT with a total concession capacity of 15,000 RT. It also aims to build a new dedicated plant on the site by 2022.

Yas Water World, Warner Bros. World Abu Dhabi and Ferrari World Abu Dhabi, along with Yas Marina and the iconic flagship Hotel, W Abu Dhabi – Yas Island, already benefit from Tabreed’s district cooling services.

In total, it currently serves more than 59,000 RT of contracted capacity at Yas Island, with the island as a whole holding potential overall capacity of more than 100,000 RT.

Innovative business models, such as selling cooling as a pay-per-use service, could further increase market efficiency and competition in both the commercial and residential cooling sectors.

Dwyer uses flowmeter in energy monitoring applications

DWYER INSTRUMENTS HAS met with a customer in India who needed to replace a flowmeter in an Energy Monitoring System (EMS) application in a commercial shopping mall.

Energy Monitoring Systems continuously monitor and record chiller operating data. The EMS utilises flowmeters installed in each chiller to measure flow. Temperature sensors are located in the inlet and outlet of the evaporators and condensers. A kWh meter measures the power consumption of each chiller.

The data from each of these devices is collected and recorded within the control panel, which is then sent to a report generated in the cloud. This kind of system can accurately report the data used to manage energy and operating costs.

Because the space was occupied, the application couldn't be shut down for maintenance or repairs. This meant that Dwyer needed to look into alternative solutions that would not affect system operations with unnecessary downtime.

Hot tapping, or pressure tapping, is a method of making a connection to existing piping or pressure vessels without interrupting or emptying of that section of pipe or vessel. This means that a pipe or tank can continue to be in operation whilst maintenance or modifications are being done to it.

The Insertion Electromagnetic Flow Transmitter, Series IEF, is an adjustable insertion flowmeter featuring electromagnetic technology that accurately and reliably measures fluid velocity, as well as provides several continuous signal outputs.



Photo Credit: Dwyer Instruments

IEF chiller and energy monitoring system application.

This series is specifically designed to offer superior performance paired with simple installation and use. One unit is adjustable to fit pipe sizes from 4 to 36" on most pipe materials, and offers several output options, including selectable BACnet MS/TP or Modbus RTU over 2-wire RS485; as well as standard analog, frequency and alarm outputs.

The easy-to-use setup display guides the installer through a step-by-step wizard configuration process to suit an assortment of applications. A unique process



Photo Credit: Dwyer Instruments

connection collet allows for the unit to be installed easily or removed when the flow system is pressurised with the use of a full port valve.

The Insertion Electromagnetic Flow Transmitter, Series IEF, is the suitable solution for this application, because it can be installed quickly without system downtime via hot tapping.

The customer noted that he "would normally be here for a good four to five days installing six units. [He] was shocked when installation was completed 15-20 minutes after the valve assembly was ready." ■

To see how quick and easy it is to install the Series IEF, please watch the installation video on the Dwyer website.

The Insertion Electromagnetic Flow Transmitter, Series IEF, is an adjustable insertion flowmeter featuring electromagnetic technology that accurately and reliably measures fluid velocity.

A LONG WAY TOGETHER



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Qatar embargo ends: An opportunity for growth

The three-year embargo between Qatar and other GCC nations, which had a domino effect on the construction supply chain, has now been lifted, presenting new prospects for growth in the Middle East HVACR industry.

THE ONSET OF the economic embargo on Qatar in 2017 by three Gulf states (Saudi Arabia, UAE, Bahrain) was certainly an unprecedented change that disrupted the flow of regional trade. Now that it has been lifted, new and exciting opportunities await HVACR businesses across the region.

Due to the complex nature of businesses in the manufacturing and construction industry, the embargo implicated a new set of challenges across the supply chain. Operating in a small marketplace, with little competition, the construction industry in Qatar looked to rely on local companies or foreign investors, which resulted in risks to quality, quantity and price.

Prior to the embargo, Qatar was largely dependent on imports, with an estimated 60% coming through the countries that implemented the blockade. This included re-exports; foreign goods arrived in the ports of neighbouring countries, such as the UAE, and were then shipped to Qatar.

Following the embargo, Qatar was compelled to reshape its typical trade links. Government entities sought to show that the economy was still robust, with efforts to build diplomatic relationships outside of the Gulf and drive foreign investment.

Increased support was also placed on local commerce, and rightly so, with hopes to foster a more self-sufficient economy. Supporting local commerce across industries, such as FMCG and retail was proving to be effective.

For the construction industry, however, this was not always the case. Disruption to the supply chain had knock-on effects in Qatar's construction industry. Developers were obligated to use what was available in order to avoid project delays. In a relatively small country, however, that relied heavily on imports for key construction materials, the best possible solution for a given project may not have always been available.

Developers in the country were forced to



Photo Credit: Conex Bänninger Middle East

I believe the lifting of the embargo will simplify exports into Qatar, which had presented a significant challenge by causing additional delays and costs.

Chris Meir, strategic sales director, Conex Bänninger Middle East

quickly find new suppliers to avoid shortages and disruptions. Using local suppliers who were not prepared for an influx meant that the quality of available

products could be compromised. Whereas using foreign suppliers incurred additional time and costs.

With the embargo lifted, the supply chain has been rejuvenated. This allows developers in Qatar to once again produce the high level of projects they always have, and work with manufacturers and suppliers that offer long-standing regional expertise, instead of looking to foreign companies. It gives developers access to the best possible solutions and the ability to benefit from procurement options across the region.

Furthermore, the construction industry, which was already hit hard by the global pandemic and drop in oil prices, can now anticipate a flood of investments from projects in Qatar. A much-needed reinvigoration for the UAE construction industry may be in store, which had slowed down over the past couple of years.

For the HVACR industry in particular, the re-establishment of trade routes will offer a great benefit from a logistics points of view. In my experience with Conex Bänninger Middle East, I believe the lifting of the embargo will simplify exports into Qatar, which had presented a significant challenge by causing additional delays and costs. HVACR players now have the immediate opportunity to be part of key projects in Qatar such as supporting infrastructure for the 2022 Football World Cup, including opportunities in hospitality and retail.

Essentially, companies working in HVACR will now be able to source their products from a much broader range of procurement options, and potentially at a much faster speed. This not only benefits industry players, but also developers, creating mutually beneficial relationships across the supply chain and throughout the industry as a whole.

The lifting of the embargo provides new hope for major players in the HVACR industry to continue to expand their presence in the region and grow. ■

BAUER completes 10 years operation of reed bed treatment plant in Oman

IN THE MIDDLE of a desert landscape in Oman, BAUER Nimr LLC, a local subsidiary of BAUER Resources GmbH, has now been operating the world's largest commercial reed bed treatment plant for ten years.

With an area of 13.5 sq km, it is roughly the size of 1,600 football fields. It can even be seen on satellite images. The plant is a multi-award winning flagship project for the biological cleaning of polluted water from oil production at the Nimr oil field in the south of the country, with the first phase of the project completed by Bauer Nimr in 2011.

After just three weeks, the plant achieved its first milestone. "We were able to significantly outperform the contractually agreed cleaning capacity of 45,000 cu m per day," reports Ulrich Emmer, managing director of Bauer Nimr.

Construction work was successfully completed in 2019 with the third and final expansion. At peak times, up to 175,000 cu m of polluted water currently runs through the plant in one day, and a total of 370 million cu m water has been cleaned so far with an excellent cleaning performance: At the end of the process, a hydrocarbon content of less than 0.5 mg/l is achieved. Nearly 95% of the crude oil in the water can be removed or recovered without the use of energy or chemicals.

What makes this innovatively constructed wetland one-of-a-kind is not only its size and remarkable cleaning performance, but also the new standards it sets for sustainability: By treating contaminated water using natural flow processes in the form of graduated settling pits and reusing the purified waste water on the surface, it is no longer necessary to use energy-intensive pumps for circulation or for



Photo Credit : BAUER Resources GmbH

With an area of 13.5 sq km, the world's largest commercial reed bed treatment plant is roughly the size of 1,600 football fields.

discharging residual amounts into the subsoil.

"After ten years of operation, a total of approx. 1.275 million tonnes of CO2 emissions have been saved – according to estimates, by the end of operations in 2044, it will save 4.5 million tonnes of CO2," explains Dr. Roman Breuer, managing director of BAUER Resources GmbH.

In addition to this, with approx. 1.5 billion reed plants, the former desert landscape also provides a habitat for more than 140 animal species including numerous birds, fish and reptiles.

"With an order volume of roughly US\$600mn over its entire period of operation, the reed bed treatment plant in Oman is one of the most significant projects run by Bauer Resources and we will continue operation for another 23 years," concludes Dr. Roman Breuer.

Doosan bags US\$707mn order for RO desalination plant in Saudi Arabia

DOOSAN HEAVY INDUSTRIES & Construction has won a US\$707mn (KRW 780 billion) order to build seawater desalination plant in Saudi Arabia.

Doosan has announced that it had signed a contract to construct the Yanbu4 seawater desalination plant with a consortium, consisting of the French energy company Engie as the project developer and Saudi Arabian companies Mowah and Nesma as partners. The Yanbu4 seawater desalination plant will be constructed in Ar Rayyis, located about 260km north of Jeddah and will be applying the reverse osmosis (RO) process, which removes salt from seawater.

Doosan plans to construct the Yanbu4 seawater desalination plant on an EPC basis, taking on the responsibilities of engineering, procurement and construction. The desalination plant will supply 450,000 tonnes of potable water daily to the Ar Rayyis region, the western part of Saudi Arabia.

"This order shows that Doosan's technology has once again received recognition in the Middle East, where we expect to see more seawater RO desalination plants constructed. We plan to

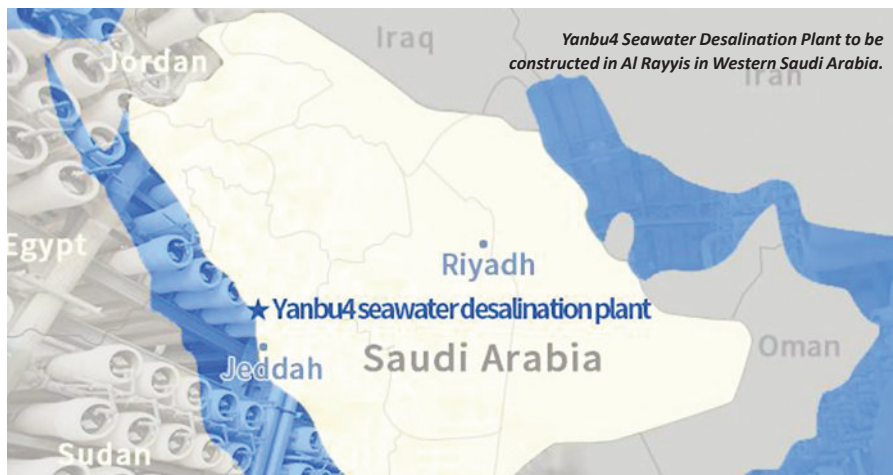


Photo Credit : Doosan

penetrate the Middle East's seawater RO desalination market, as it is forecast to reach a value of USD\$2.8bn by 2025," said Inwon Park, CEO of Doosan Heavy's Plant EPC BG.

Following the Doha Phase 1 project in Kuwait in 2016, Shoaiba project in Saudi Arabia in 2017, and Sharqiyah seawater desalination project in Oman in 2018, Doosan continues to gain grounds in the Middle East's seawater desalination market,

by embarking on the Yanbu4 Seawater RO Desalination Plant project.

Upon the request from Engie, the French company, which is acting as project developer, Korea Eximbank has provided project financing amounting to USD\$238mn. This is the first time that Korea Eximbank has provided financial support for a seawater RO desalination project. The company plans to expand financing for projects in this sector.



Photo Credit : Adobe Stock/sirisakbalaew

The data is constantly increasing, with new and additional sources coming to the market daily.

Going digital with big data

Mark Coates, industry marketing director, project delivery, Bentley Systems explains how to harness big data value to improve design, construction and operation.

In the construction industry, big data refers to the huge quantities of information that have been stored in the past and that continue to be acquired today.

THE BRITISH GOVERNMENT believes that the data economy is crucial to the United Kingdom's growth and future prosperity, with data benefitting the economy by up to GBP£241bn(US\$295bn) by 2020. In addition, the British government believes that the effective use of data could create GBP£66bn (US\$80bn) of new business and innovation opportunities in the United Kingdom.

In the construction industry, big data refers to the huge quantities of information that have been stored in the past and that continue to be acquired today. This data can and will come from a range of people, sensors, computers, machines, and any other data-generating device.

These many access points are what make data so big.

Exploiting big data

Big data in the construction and design industry already exists in numerous silos of plans and records about everything ever built. Some of these early plans look more like works of art than the information floating around in one of today's design offices. The data that we can now access is constantly increasing, with new and additional sources coming to the market daily. Look at places like Japan, for example, where drones race across the sky scanning the site below, where diggers are working semi-autonomously by digging ditches or levelling previously excavated land.

It all sounds as if it is straight out of Tom Cruise's Minority Report. However, the idea of harnessing big data for better insights and better decisions is nothing new in the design and construction industry. However, as we

access significantly more data, we need more experienced analysis to draw better and more practical project decisions. To create data, we have to capture it so that we can understand how our business processes are performing and how we can improve them.

Looking at “the big data,” on-site information on materials like steel or drainage pipes does not give a clear picture of the project status. It is what we do with the data that counts. Look at products like SYNCHRO. Recently, FC Barcelona wanted to conduct a major renovation of its Espai Barça sports arena in Barcelona, Spain. To do so, the organisation worked with SYNCHRO to recreate a cloud-based 4D construction model of the Camp Nou stadium. The model will help designers visualise the stadium upgrade and ensure that work processes are more efficient.

The project team could interact with a holographic representation of the stadium data using Microsoft HoloLens technology at any moment in the construction process and digitally track actual progress. When completed, the stadium will accommodate more than 100,000 fans.

How do we make the most of data and mobilise it in the short-term and long-term?

We should not dismiss the usefulness of historical data. The information already available can be analysed to pick out patterns and probabilities of construction risk, steering new projects towards success and away from pitfalls. To create the most useful data, we need to make sure that the system collects and analyses the necessary data, instead of siloing that data, in one system – an open source. To have an open source, organisations should undertake a data audit to ensure that the useful information is captured.

This useful data can be:

Design data: The use of historical data will help the team guide any projects towards success and away from peril and risk by analysing and looking for certain issues,



Organisations should undertake a data audit to ensure that the useful information is captured.

patterns, and probabilities within a project, focusing on risks.

Construction data: Construction activity operates in a complex environment, especially when working in a built-up area. Collecting data that relates to traffic or pedestrian flow can help the team work out the perfect time for deliveries or certain construction activities. This information can also be analysed for fully-informed decisions on which elements of a building would most benefit from off-site construction and which elements are best left to traditional construction.

Operational data: Information from sensors built into assets and other forms of infrastructure make it possible to monitor

anything from traffic flow and stress to pollution levels in the environment. These sensors make sure that each asset achieves peak performance and that the required maintenance is preventive not reactionary by linking the data to the BIM model. Energy conservation in public and commercial buildings can also be analysed by using sensors to see if the design actually conforms with the goals set at design stage. With some cities considering implementing their own regulatory legislation on buildings, such as New York Mayor Bill de Blasio’s proposal for certain energy-efficient standards on glass and steel skyscrapers built in the city, these sensors will become more important than ever.

Focusing on what is essential and actionable

With the vast amounts of data available for collection, we need to focus on what is essential and actionable. If you look at any of the surveys carried out in the last five years, most of the results are similar to the one shown below: the data shows that we need to move forward.

In our recent survey, Bentley discovered that almost half of businesses (48%) still have limited or no project insight. Thus, business leaders need to ask themselves whether their business has moved on in the past five years in terms of the level of insight that is being generated and the efficiencies that are being created.

If your business has not moved on in the past five years, there is a huge chance that your competitors have.

For those sceptical business leaders, it is time for them to look at data again and ask themselves if their business is always working in the most efficient and effective way. ■

Take the Bentley going digital assessment and see how you could progress your business. www.bentley.com/en/goingdigital



Mark Coates, industry marketing director, project delivery, Bentley Systems

Looking at “the big data,” on-site information on materials like steel or drainage pipes doesn’t give a clear picture of the project status. It is what we do with the data that counts.

Smart City materials

US\$400bn market

The IDTechEx report has identified more than 50 gaps in the market for smart city materials, many of which are capable of creating billion-dollar businesses.

SMART CITIES ARE now much more ambitious. That means new materials are their biggest enabler, with information and computer technology dropping to an important supporting role. The major new IDTechEx report, “Smart Cities Emerging Materials Markets 2021-2041” has explained. Consider the US\$0.5tn NEOM smart city being reclaimed from the Saudi desert and the US\$0.1tn Forest City being reclaimed from the Malaysian sea. They will gain energy, food and water independence, zero emissions, resilience and verdant, affordable, delightful living from next-generation materials and good design. Forest City names smart materials as pivotal.

Raghu Das, CEO of IDTechEx advises, “Of the trillions of dollars being spent on smart cities, the advanced materials part is rising to hundreds of billions yearly over the next twenty years. Newly multipurpose buildings make food and surplus energy, eventually with no service infrastructure to them because they treat sewage, for example, and are otherwise independent.”

He adds, “Multifunctional infrastructure, equipment, and materials are making possible independence in city energy, food, and water with zero-emissions, greater security and empowerment of the disadvantaged with free travel, electricity “too cheap to meter”. Welcome the wooden high-rise building, but also the 3D printing of buildings using mud, trash, or green concrete. 3DP vehicles arrive, such as the Olli robot shuttle replacing ten existing vehicle types. 3D parts even use metals, inorganics, and composites, even creating 3D printed electronics nowadays.”

Das believes, “Smart cities will widely deploy multifunctional composites, structural electronics, smart glass, flexible glass and transparent electronic-electric plastic such as headlamp RadarGlass. A smart window can have a large microLED display,



Photo Credit: Elnur / Adobe Stock

darken when the sun shines, saving air conditioning, heat insulate and make electricity at the same time. Bear in mind that residential and commercial buildings currently use 74% of all electricity and 39% of all energy in the United States, most of that for heating and cooling. That could be zero.”

Green concrete, newly possible recycling (wind turbine blades, fluoropolymers, batteries) collapse the 16% of global

Newly multipurpose buildings make food and surplus energy, eventually with no service infrastructure to them because they treat sewage.

warming caused by regular concrete and steel. Partly, this is because they eliminate massive tidal barrages, power stations, hydro dams outside cities, and toxigens. Grasp the flexible organics, membranes, bioplastics, advanced polymers, thermal interface materials, thermal insulation, 2D and 3D molecules, graphene, CNT, materials for 5G, 6G, and THz electronics.

A huge US\$35bn market is ahead for the varied materials providing ubiquitous photovoltaic power that silicon cannot serve. For example, a high rise will have those solar windows hopefully with something less toxic than methylammonium borate on lead perovskite, but the façade and roof would be different. Lightweight flexible copper indium gallium diselenide facades are already a multi-billion dollar business, with ones eliminating the tiny amount of cadmium yet gaining best silicon-level efficiency are on the way. However, the roof may justify sun-tracking multi-junction III-V compounds twice the amount of electricity per unit of area. ■

More demand for digital twin technology

Covid-19 drives international smart cities market boom with 500 urban areas around the world expected to adopt digital twin technology by 2025.

THE NEED TO increase resilience and optimise resource management in light of Covid-19 will be among the key drivers for the growth of digital twins over the next five years, according to ABI Research.

The global tech market advisory firm expects the number of urban digital twins to exceed 500 by 2025, and that implementation will expand beyond limited pilots to widespread multi-purpose deployments.

The latest quarterly report from ABI Research entitled *Smart Cities and Smart Spaces* positions Cityzenith alongside Bentley Systems and Microsoft as businesses best placed to capitalise in this expanding market.

It is estimated that the digital twin market will grow from US\$3.8bn in 2019, to US\$35.8bn per year by 2025, at a CAGR of 45.4%, according to *Global Smart Infrastructure Industry Market Research Report* by Market Research Explore.

Dominique Bonte, vice-president, End Markets at ABI Research, said, "Real-time 3D models of cities-built environment allow scenario analysis through the simulation of the potential impact of natural disasters like flooding, [adoption of] generative design principles for new city developments [which optimise] energy savings and solar capacity, and saving costs by operating cities more efficiently and effectively."

He noted that since the first digital twins were deployed in cities, such as Singapore around three years ago, features have quickly expanded to enable a much wider range of application areas including infrastructure coverage planning and green infrastructure management. Boston is one city to have already employed the use of digital twins, alongside Helsinki, Jaipur and Dublin.

"The digital twin ecosystem system activity is growing quickly with more suppliers announcing more deployments in



Photo Credit: Cityzenith

more cities," said Bonte. "Vendors like Dassault Systèmes and others are paving the way for extending urban digital twins to marketplaces and opening access to key metrics and dashboards to the citizens themselves, increasing their overall involvement and helping gain approval of city government decisions and policies."

In order to help cities achieve carbon neutrality, Cityzenith announced in October 2020 that it will donate its digital twin

Real-time 3D models of cities-built environment allow scenario analysis through the simulation of the potential impact of natural disasters.

software to up to 10 cities over the next year as part of their Clean Cities – Clean Future campaign.

Additionally, Bentley Systems partnered with Microsoft to integrate Azure IoT Digital Twins and Azure Maps into its iTwins platform.

Michael Jansen, CEO and founder of Chicago-based Cityzenith who are currently raising capital through Regulation A+ crowdfunding, said, "We at Cityzenith welcome this news and are delighted to be a part of the growing digital twin industry. We believe our Clean Cities – Clean Future campaign can be a key component of this global effort towards cleaner cities and a safer environment." ■

What is digital twin technology?

A digital twin is a digital representation of a physical object or system. The technology behind digital twins has expanded to include large items such as buildings, factories and even cities, and some have said people and processes can have digital twins, expanding the concept even further.



The high amount of silt content in the natural sand means it is unsuitable for construction and means sand washing is necessary.

CDE symposium examines trends and challenges

CDE experts, together with a host of guests and industry figures, facilitated a series of dynamic, educational and informative presentations and panel discussions covering multiple sectors, including sand and aggregates, construction and demolition waste recycling, industrial sands, mining and wastewater.

CDE believes that shared approach to knowledge and expertise is a better way to aid the progression of the industry.

TO MAINTAIN MOMENTUM and to support the continued progression of the industry, CDE, harnessing the global reach offered by digital conferencing, recently programmed its Engineering Insights symposium to deliver the tradeshow experience virtually.

Sand washing challenges

Ruchin Garg, CDE regional manager in the Middle East and Africa, was joined by Ali Ahmed Al Theeb, general manager at Sandco, to discuss how CDE hydrocyclone technology can overcome sand washing challenges.

“Older technologies have limitations when it comes to the loss of sand due to overflow,” Garg explained.

“You lose a good amount of particles into the sludge. It requires a larger footprint, higher maintenance and availability of these machines in terms of downtime is much higher.”

“Typically, we see anywhere from 10-30% of material lost in sludge pits using a combination screw/classifier or bucket wheel,” he said, adding that CDE provides a solution with filter press and thickeners.

Ali Ahmed Al Theeb said, “In Kuwait, sand has a high amount of silt and fine content, almost 15-20%. It is a huge challenge to try and reduce this amount of silt.”

The high amount of silt content in the natural sand means it is unsuitable for construction and means sand washing is necessary.

“Until 2008,” he said, “we were using traditional technologies for sand washing, which depended on gravity for the separation process.”

“Traditional methods were so limited in terms of productivity,” he said, adding that fine content still existed after washing, how waste of raw material was high and the high cost of water loss in stockpiles and sludge.

In 2005, the needs of the market changed. Many construction projects came up that required high strength concrete requiring high quality components, including washed sand.

"We started exploring alternative technologies for sand processing to improve the quality of SandCo's washed sands," he explained. After researching options, SandCo opted for CDE hydrocyclone and dewatering technology. "This technology was totally new to the Kuwait market," he added.

Today, SandCo produces high quality sand to industry specifications with increased productivity and efficiency.

"Fine content now is under control... moisture content in the product is low," Ahmed Al Theeb explained.

SandCo is now a certified supplier for many projects, producing premium washed sand and supplying the greatest market share of construction sand in Kuwait.

Sustainable Cities

Ruchin Garg, CDE's regional manager in the Middle East and Africa, was joined by Eunan Kelly, head of C&D Waste Recycling at CDE, and Ahmed Taher, general manager at Al Dhafra Recycling Industries, to discuss the role of construction, demolition and excavation waste material in the sustainable city agenda.

At the outset of the discussion, Eunan Kelly asked, "What do we need to do next in order to get the innovative processes which we have a lot of confidence...to hit sustainable development goals number 11 and 12?"

Ahmed Taher said, "Mandating usage of recycled products supports the vision of the UN Sustainable Development Goals."

"One of the key features that's making us successful in Abu Dhabi and UAE is that it's by law a minimum of 40% on each and every infrastructure project must use recycled products."

Mandating usage of recycled products supports the vision of the UN Sustainable Development Goals.

Ruchin Garg agreed, "Legislation will make the business idea more feasible."

Referencing landfills in Dubai, Kelly said there is a need for legislation but also behavioural changes.

"Legislation will drive usage, but a behaviour change is needed...we need to have a logical approach to how we use the material."

Taher agreed, "You change the mindset, teach people how to recycle and reuse instead of using the virgin quarried material."

Garg highlighted three key strands: legislation, technology and keenness.

"We have shown keenness, definitely. There is an appreciation of technology also...legislation is moving. There is a green bill in discussion."

Sharing knowledge

The two-day programme featured almost 90 sessions involving more than 100 speakers. CDE's Ruchin Garg said, "In these unique and challenging times there are many restrictions that have prevented CDE, our customers, and others in materials processing from coming together at industry events to discuss the prevalent

issues of the day and the latest technological advances.

"Utilising our global network, we decided to programme the major two-day Engineering Insights symposium, which proved to be a huge success with almost 1,500 industry professionals from around the world registering.

"We firmly believe this shared approach to knowledge and expertise is a better way to aid the progression of the industry."

He says it is important to ensure these discussions can continue even though the industry is unable to come together in the same space.

"The challenges facing our industry – sand depletion, water management, sustainable mining and much more – have not gone away. As an industry leader in these fields we felt a responsibility to convene the very best in the business to facilitate these important conversations." ■

The full Engineering Insights programme is now available to view on-demand for registered attendees. For more information, please visit cdeglobal.com/vevent.

Al Khawaneej road improvement project reaches 60%

MATTAR MOHAMMED AL Tayer, director-general, chairman of the board of executive directors of the Roads and Transport Authority (RTA), has announced that the completion rate in Al Khawaneej Road Improvement Project had reached 60%. The project works include the construction of three intersections, service roads extending 23km along Al Khawaneej and Al Amardi Roads.

"The completion rate reached 82% at the underpass intersection of Al Khawaneej Road and Sheikh Zayed bin Hamdan Al Nahyan Road. The contractor completed the construction works at the closed section of the tunnel and is currently working on the supporting walls of the open section of the tunnel. Works are expected to be completed and the tunnel to be opened for traffic this March," said Al Tayer.

"Work progress rate also reached 60% on the bridge leading to Al Awir, following the installation of precast bridge parts across the Emirates Road in Abu Dhabi- Sharjah direction. Works are currently underway for the installation of other parts at Al Amardi, which are expected to be completed by the end of this month. Then the contractor will undertake the remaining construction works, such that the bridge will be ready for opening by the end of March this year," announced Al Tayer.

Improved links

"The Improvement of Al Khawaneej Roads Project is one of the key strategic projects for improving the links between Dubai and Sharjah through the improvement of vertical roads linking with the Emirates Road and Sheikh Mohammed bin Zayed Road up to the Airport Street. The project will also accommodate the current and projected growth of traffic. Upon completion, it will slash the travel time between the Emirates Road and the Sheikh Mohammed bin Zayed Road from 25 minutes to nine minutes, and the waiting time at the junction of Al Khawaneej-Sheikh Zayed bin Hamdan Al Nahyan Roads (Al Khawaneej Roundabout) from 330 seconds to 45 seconds. It will double up the capacity of the junction from 8,000 to 16,000 vehicles per hour. Replacing the roundabout at the intersection of Al Khawaneej-Al Amardi Roads by a surface junction will halve the waiting time from 120 seconds to 60 seconds," explained Al Tayer.

The growing trend of predictive maintenance

In a webcast, Adrian Turner, former director of IoT, Accruent talks about the growing trend of predictive maintenance and internet of things in the facilities management sector. Vinita Tiwari reports.

IN A RECENT webcast, titled 'Facilities Management and Coffee Talk Series', Adrian Turner, former director of IoT, Accruent, outlines the scope and utility of predictive maintenance and remote monitoring.

Data: True asset lifecycle management looks at the maintenance cost from the cradle to the grave of the asset, and 90% of lifecycle management is within operational maintenance of that particular asset. It starts with having the data all around the asset. The maintenance cost, and the maintenance visit, enables customers to have a more holistic programme and more intentional maintenance regime for assets.

Break-fix: Lifecycle management is more about break fix service, how long can one expect the asset to last and trying to buy a benchmark across different assets. By taking a much more data driven approach we can extend benefits of the customers, whether those customers are in a park or tenants in an office building.

Monitoring the lifecycle of an asset: There's been an increase in the number of connected devices, and there are equipment coming out with different senses or probes or gauges, or those that can be connected back to the internet. The ability of those assets to communicate their health and their state constantly is driving the biggest sea change, in how customers are starting to manage the asset across its lifecycle.

Predictive maintenance: The issues that can occur with unexpected breaks, can be catastrophic. They can disrupt the customer experience. If customers try and get ahead of those issues, and really understand the data of the asset, they can fix it before even it becomes a problem. That kind of predictive maintenance will manifest in



A data-driven approach to overtake unexpected breaks can manifest in long-term benefits.

benefits, and in the longer run, accelerates the work order that translates into lower costs of attendance, or may be not having to stock a particular asset.

Key indicators of disaster: Getting an idea about the key indicators of disaster is a continuous process- once we are able to understand or interpret a system, we can build really good predictive models that help customers on this journey, and that's not a one-time thing. The process helps in solid predictive maintenance. A lot of our clients make that jump from the manual reactive approach to being preventive and predictive. People are reporting about the benefits of the IT, of the connected devices, that can bring to the organisation and not just intangible resources, but those affecting programmes, and the customers are happy to make the investment necessary to bring that benefit to the forefront and drive that sort of improvement in maintenance across the organisation.

Costs and benefits: We have seen a lot of improvement in terms of the quality and the support of the infrastructure during recent

years. So even five years ago, the communication with the devices wasn't particularly viable for equipments like commercial refrigeration and transmission problems, whereas now with high speed internet available almost everywhere, that has become a viable solution and it reduces the overall cost. So all of a sudden the number of devices that were previously unsuitable, or needed a big cabin programme, can be brought back now with as little expenditure. The possibility of these things is constantly expanding, dramatically over the next few years.

Timing and readiness: Customers should always go with what they already have got. For example, a legacy commercial refrigeration can be fused with controllers in the warehouse and can be brought across a platform, for remote monitoring- that drives its own intangible benefits. Customers don't necessarily need a lot of capital investment to replace the programme. Clients need to have some idea about the biggest pain points in the organisation, and whether there is a control system installed, which is communicable with the platform. ■

Photo Credit : greenbutterfly/Adobe Stock

Energy storage solutions for the Middle East

Yuan-Sheng Yu, research director, Lux Research, discusses the relative merits of energy storage technologies.

DESPITE ITS LONG history and reliance on oil and natural gas, the Middle East is quickly emerging as a potential global leader in the energy transition.

While access to low-cost oil and natural gas reserves will continue to be a competitive advantage of the region, several countries in the region continue to diversify into the renewable energy space with utility-scale projects with record low prices, such as the US\$17.8/MWh Sakaka Solar Project in Saudi Arabia.

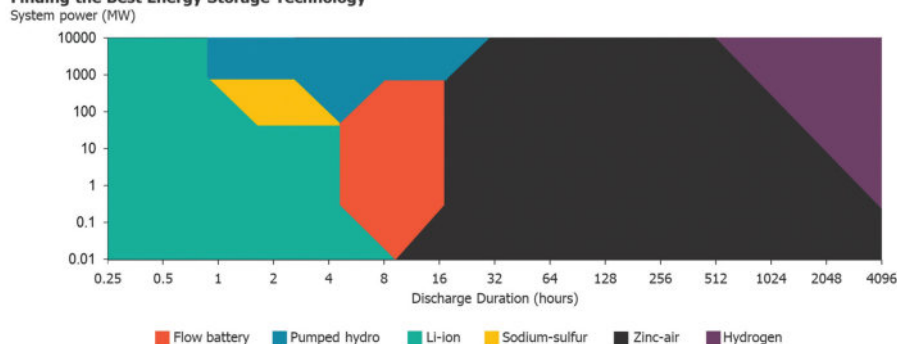
With several countries announcing ambitious plans to increase the use of renewable energy in its energy mix in the next two to three decades, energy storage will be a key enabling technology in the Middle East's energy transition. With greater penetrations of wind and solar capacity on the grid, there will be a growing demand for energy storage solutions.

Grid-scale energy storage encompasses a suite of battery chemistries and technologies, each with their unique advantages and disadvantages for various applications. Here are some examples:

Li-ion batteries: Li-ion batteries used in grid-scale energy are not dissimilar to those used in consumer electronics or battery electric vehicles. Grid-scale applications have benefited from the economies of scale provided by the parallel markets, with costs falling considerably in the last few years. However, its technical capabilities largely limit them to smaller system sizes (less than 100 MW) and for discharge durations below four hours, frequency regulation, behind-the-meter applications, and peaker plant replacement.

Sodium-sulfur batteries: Unlike Li-ion batteries, sodium-sulfur batteries typically use very inexpensive electrode materials, bringing down system costs. However, the ceramic separator and high temperature operations make manufacturing a challenge and have slowed commercial adoption.

Finding the Best Energy Storage Technology



While sodium-sulfur provides an alternative to Li-ion batteries in the same applications, only in niche projects of approximately 100 MW in system size and discharge durations between one and four hours, does it present a lower cost option.

Flow batteries: Flow batteries store energy in liquid electrolytes where the volume of electrolyte dictates the energy of the flow battery system. Because of this separation of power and energy, flow batteries are well-suited for storing larger amounts of energy and scale easier than Li-ion and sodium-sulfur batteries. This makes flow batteries a desirable energy storage technology for applications requiring discharge durations between four to sixteen hours and up to 1,000 MW in system size.

Zinc-air batteries: Zinc-air batteries store energy in the electrochemical reduction of a negative zinc oxide electrode to zinc metal and the evolution of oxygen at a porous positive air electrode. During discharge, the battery consumes oxygen from the air and

oxidises the metallic zinc to zinc oxide.

Despite the promise of low-cost energy storage for applications, such as microgrid support and renewables backup that require discharge durations greater than 16 hours, development of a functional rechargeable zinc-air battery remains challenging.

Pumped hydropower: Most pumped hydropower systems pump water from a lower natural source like a lake or river up to an elevated, artificial reservoir. While largely geographically restricted, unconventional pumped hydropower projects are being explored, such as abandoned mines or ocean-based systems. It remains to be seen if pumped hydropower can break away from its geographical limitations, but when it becomes available, it will serve as a key energy storage technology for large-scale applications with system sizes up to 10,000 MW, such as renewables integration.

Hydrogen: Hydrogen remains the most versatile form of energy storage as an energy vector for storing renewable electricity via electrolysis. While numerous GW-scale electrolyser projects are being deployed, costs remain heavily dependent on renewable electricity prices. However, despite the challenges in scale-up, the ability to store and transport hydrogen

Energy storage will be a key enabling technology in the Middle East's energy transition.

Continued on page 33

Photo Credit: Lux Research

Five key insights into the future of energy

Aytek Yuksel, content marketing leader - Power Systems, Cummins, discusses how independent power producers (IPPs) can bring solutions to address the increasing demand for energy and electricity.

IT IS FORECAST that the world's installed electrical capacity needs to grow by 80% from 2018 to 2040 to fulfil our increasing need for electricity. There are technologies such as renewables and efforts such as energy efficiency to manage this increase in demand. Meanwhile, independent power producers (IPPs) play a key role in bringing the actual solutions to expand the installed electrical capacity to life.

The International Energy Agency annually releases its World Energy Outlook, with the aim of deepening our understanding of the future of energy. This report is over 800 pages long and has great insights around the future of energy. Here we summarise five insights every IPP needs to know when it comes to the future of energy:

1. Electricity use grows faster than energy demand

Demand for energy is forecast to grow 1% a year until 2040, while electricity use is forecast to grow twice as fast. While the use of electric vehicles is one of the most highlighted reasons for this increased demand, there are three other more impactful drivers, namely industrial motors, household appliances and cooling needs.

This increased demand for electricity will strengthen its position as the second most popular choice of energy in final consumption, challenging oil's position at the top. A mix of technologies will fuel this transition, where solar photovoltaic (PV) and wind will take the lead. By 2040, more of our electricity will be through renewable sources than fossil fuels.

2. Demand for power infrastructure flexibility grows faster than the demand for electricity

Renewable technologies bring astonishing benefits in terms of zero carbon emissions, but also introduce the challenge of flexibility. The continually increasing share



Photo Credit : Cummins

The world's installed electrical capacity needs to grow by 80% from 2018 to 2040.

of renewables in our energy infrastructure translates into an increasing share of variable electricity generation. Meanwhile, consumers are increasingly using electricity for cooling and to fuel their cars, changing the electricity demand profile. A combination of these two, results in an increased need for power-system flexibility.

As traditional power plants and interconnections continue to be the key levers to deliver flexibility, gas-fired generation grows across most regions. The expanding availability of natural gas and its relatively cheaper price fosters this growth. IPPs bring to life the solutions to address the

increasing demand for energy and electricity.

3. Africa offers vast opportunities for power producers

Demand for electricity generation is forecast to grow in Africa faster than any other region. A mix of factors, including more than half a billion people to join the continent's urban population, increased access to electricity and expanding mineral extraction activities, drive this demand.

Africa is also well-positioned to find the fuels to fulfil this need. On the renewables side, Africa is solar-rich, yet only less than 1% of the world's installed solar capacity is in Africa, offering vast opportunities for power producers. When it comes to low-carbon fuels, Africa has benefited from recent discoveries of gas deposits. In fact, 40% of global gas discoveries from 2010 to 2018 were in Africa.

4. There are two sides of the scalability story for renewables

The installed base of PV has grown over

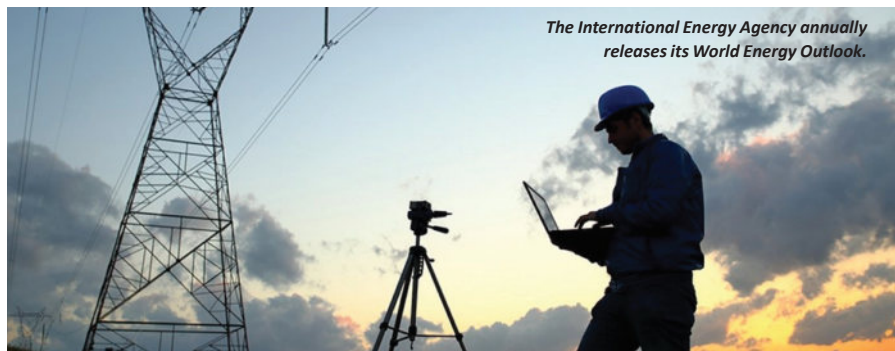
**By 2040, more of
our electricity will
be through
renewable sources
than fossil fuels.**

recent years and is forecast to account for more installed capacity than any other energy source by 2040. Meanwhile, scaling up solar PV results in more electricity produced around the same time of the day in a given region. This could be interpreted as decreasing the value of additional electricity production as the solar PV installed capacity increases (according to Hirth), unless there is enough installed base of energy storage batteries to redeploy electricity produced for another time of the day.

On the other hand, offshore wind becomes the star performer when it comes to scalability, thanks to its high average annual capacity factor. Offshore wind's annual average capacity factor is already comparable to gas-fired power plants in many regions and better than other variable renewables. This means the growth in installed base in offshore wind would not result in a diminishing value of electricity output.

5. Battery storage technologies will become an integral part of energy infrastructure

Energy-storage batteries are projected to be



The International Energy Agency annually releases its World Energy Outlook.

Photo Credit: Cummins

the rising star in building our energy infrastructure, thanks to advancements in battery technologies and decreasing costs. It is estimated there will be a forty-fold increase in battery storage capacity by 2040, faster than almost every other mainstream technology.

Increased use of energy-storage batteries will also impact how we manage the intermittent nature of solar and wind. As mentioned, scaling up solar PV results in producing more electricity around the same time of the day in a given region and could reduce the value of additional

electricity production. Meanwhile, a combination of solar PV and batteries could address this challenge. While the addition of batteries increases the levelised cost of electricity (LCOE), the LCOE for solar PV and batteries is forecast to be competitive with fossil fuels.

With the rapid changes in energy markets, new insights emerge continuously. IPPs that stay current with the latest insights could outperform others in bringing the ideal solutions to address our increasing need for energy and electricity to life. ■

Energy storage solutions for the Middle East (continued from p31)

remains promising for all energy storage applications, but more specifically seasonal energy storage where discharge durations are greater than 500 hours and up to 10,000 MW in system size.

While cost is an important factor in analysing the "best" energy storage technology, it is not the only one. Regulatory support for energy storage remains critical in improving the economics of projects, especially through the enablement of application stacking – the use of the energy storage asset for multiple applications. While application stacking does not reduce the upfront cost of the energy storage system, it enables multiple revenue streams through various services it can provide as transmission and distribution (T&D) deferral, demand management, and ancillary services. Without changes in regulation to open the market to energy storage systems, widespread deployment will remain difficult.

The most disruptive form of energy storage – and one that aligns well with the Middle East's low-cost renewable electricity and expansive gas networks – is the emergence of a hydrogen economy. While Li-ion and flow batteries are currently the



The Middle East has ambitious plans to increase the proportion of renewable energy in the energy mix.

Photo Credit: Adobe Stock

desired solution for shorter discharge duration energy storage applications, the development of a hydrogen economy will result in a potentially more sophisticated value chain that can push battery-based energy storage systems to niche applications. Due to its versatile nature, hydrogen will impact numerous industries, such as oil and gas, automotive, utilities, and the industrial sector. However, the roll-out of a hydrogen economy will require significant investments and collaboration

amongst all stakeholders in the energy landscape. ■

Yuan-Sheng Yu is a director at Lux, and leads the Asia research team in deconstructing and analysing the region's innovation ecosystem. Yu also leads Lux Research's 'Owning the Energy Transition' programme, providing strategic advice on technology and business model innovations impacting the global energy system. www.luxresearchinc.com

MESIA forecasts bright future for solar industry

Covid-19 may have stifled investment in the short term, but the latest report from MESIA claims this has not dampened resolve to pursue solar power in the long term.

CONCLUDING 'THE NEW Energy Economy' webinar, part of the World Future Summit, Martine Mamlouk, secretary general at the Middle East Solar Industry Association (MESIA) and Ahmed Nada, president of MESIA, provided a summary of the MESIA Annual Solar Outlook Report 2021.

The MESIA representatives began by noting the negative effects of COVID-19 on the solar industry. Growth in the Middle East is projected to fall from 1.4% in 2019 to -6.6% in 2020, which is lower than the growth rates after the 2008 financial crisis and the 2015 oil price shock. In 2020 there was an estimated decline in power demand of 5% and alongside this the reduced cost of oil and gas also lowered the incentive to make the transition to renewable power. Across 2020 the sector witnessed a slowdown and frequent postponements of projects with problems mainly around supply and human resources.

Resilience of solar power

Despite these difficulties, the solar industry also proved its durability throughout the year. Supply chains found many ways to overcome the challenges; there was great strides take in digitalisation and technology

Now all countries in the MENA region are re-evaluating their plans and moving ahead to accelerate solar implementation and adoption.



The MESIA Solar Outlook Report is published annually.

to make solar power more efficient and affordable; and fear of the crisis raised an awareness on the necessity to ensure that long term sustainability and security is secured.

As a result of this, the global solar capacity continued to grow by almost 128GW in 2020, so that the installed estimate has now reached 719GW. In the MENA region, around 4.3GW of solar capacity came online, only slightly less than in 2019, so that the region now boasts 15GW of solar capacity. MESIA expects this to grow exponentially so that by 2024 this figure could be as high as 35GW. This trend will continue over the next decade; figures from the IEA suggest that between 2020 and 2030 solar power will grow at an average of 13% and meet one third of the electricity demand for the decade.

Nada commented, "When we started this project five years ago the rate of expectation on how fast we would be able

to adopt solar energy was much slower than it is now. Now all countries in the MENA region are re-evaluating their plans and moving ahead to accelerate solar implementation and adoption."

Driving the solar expansion

The MESIA representatives noted that the availability and affordability of solar producing facilities has caused a marked reduction in the price of solar power (the price of solar modules has declined by 99.7% since 1976), illustrated by the Al Dhafra Solar Project which hit a world record low price of US\$0.0135/kWh last year. As a result the market has become increasingly competitive encouraging further development.

The current growth in solar power in the MENA region has also been achieved without the penetration of some key technology advances. When new advances such as cleaning robots, sophisticated data management systems, the bifacial PV module, solar tracking systems, refined storage systems, are utilised they will have a huge positive impact on the sector. Nada recalled how five years ago there was a big concern over how solar power would support the grid and whether the technology would ever become available to enable this, but now this is not considered an issue.

Another reason that solar power is expected to grow so significantly in demand is hydrogen power. Nicknamed 'the new oil' the hydrogen market is expanding by 6% per year and is expected to reach around US190\$bn by 2025. Within this, renewable energy, such as wind and solar can be used for the electrolysis of water to create completely carbon free green hydrogen, a prospect that is gaining much attention. In this way, solar power has a future not only in producing energy itself, but also by supplementing the hydrogen market, and according to the MESIA representatives, it is a very bright future indeed. ■

Photo Credit: MESIA

Transforming how we build

3D printing is set to play a crucial role in the future of many sectors from construction, medical, and aviation to everything in manufacturing.

Sharjah 24 was completed in two weeks using 3D printing.



Photo Credit: WAM

FEATURING NETWORKING, PRODUCT showcases, and knowledge sharing between thousands of industry professionals from around the world, The Big 5 Digital Festival hosted a panel discussion on the role of 3D printing in the construction sector.

Henrik Lund-Nielsen, founder and general manager, COBOD International A/S – Denmark, was the first of the panel to speak, immediately looking at why the adoption of 3D printing is slow in the Middle East when compared to Europe. He pointed to more long-term thinking as the solution.

“People need to have a long term view of this technology. We see a lot of people wanting to buy printers and then make money straight away on the first build. Like this, it will always be very difficult to be competitive for the technology, because there’s so much perceived risk with new technology. That means that everyone involved, from the structural engineers through to the architects, actually charge enormously for their services related to 3D construction printing. When you then take these additional high costs because of risk, and you allocate them on one single building, obviously that building becomes horrendously expensive.

“So we need to have projects where you allocate the technology on 20, 30, or 40 buildings. Competitiveness will then show itself.”

Ghaith Bakir, lead regulatory engineer – Building and Life Safety Technologies, UL –

UAE, spoke heavily about the recent UL 3401 code when addressing how to mitigate the perceived risk of 3D printing.

“The UL 3401 evaluation for 3D construction itself is going to be adopted in the International Residential Code in the 2021 edition. This would provide the authority, code officials, or the building officials, the confidence to approve this kind of buildings. They will have a report where it specifies the material that’s being used, the process, the fabrication, the evaluation, and all the testing matched with the requirements.

This way you’re giving [decision-makers] a report of findings where they can at least understand what this building has, instead of just throwing everything to them, and they have no idea about those kinds of materials and how they are going to behave in the future.”

Prof. Carlos Banon, co-founder and

director, AIRLAB – Singapore, closed the session by looking forward to the immense possibilities that would be available to designers once the regulatory framework is mature across different markets.

“3D printing opens so many possibilities right now. We find a completely different way of designing buildings. So now, the designs we make, using digital design tools to create more performative, more adaptable, and lighter buildings, can be actually fabricated with 3D printing components.

“Ten or 15 years ago, we were able to model any geometry, but it was very difficult to fabricate it. Now we can do it. So, actually this allows us to really create those designs that perform in a more efficient way that can be more adapted and can actually perform better. In this way, 3D printing is definitely the way to go,” Carlos said. ■

Sharjah launches region’s first 3D printing house

SHARJAH RESEARCH TECHNOLOGY and Innovation Park (SRTI Park) has announced the opening of the first house built in the region with 3D printing technologies. Sharjah 24 building was completed in two weeks.

Hussain Al Mahmoudi, the CEO of SRTI Park, said, “We aspire, by launching this technology, to develop it in Sharjah and build more homes, which will support the emirate’s economy and its competitiveness, in addition to activating the role of true partnership between the academic, economic and private sectors.”

Al Mahmoudi said the project involved a large research programme between different universities, especially the American University of Sharjah, and in cooperation with the private sector and some international universities in Finland and research institutions in the Netherlands and other countries.



Manufacturers are struggling to adequately adopt AI across their business.

Why AI is right for manufacturing operations

Bob de Caux, vice-president of automation at IFS, sheds light on AI-enabled ERP tools and how manufacturing organisations can take advantage of them.

IFS PREDICTS THAT half of manufacturers will be using some form of artificial intelligence (AI) in 2021. But according to a study by Plutoshift, manufacturers are struggling to adequately adopt AI across their business. 60% of respondents said their company has been unable to come to a consensus on a focused, practical strategy for AI implementation, while 72% said it had proved harder than expected to set up the technical and data infrastructure necessary to make the project viable.

Role for ERP

One factor contributing to the difficulty is

that the enterprise resource planning (ERP) software running their business has not previously been capable of facilitating their AI journey. Many of the manufacturers that have had success with AI tools have done so by solving specific problems in isolation, such as demand forecasting, supply chain optimisation, schedule optimisation or natural language processing (NLP)-driven customer service bots.

However, ERP tools with comprehensive AI capabilities embedded within them, can collate and analyse data from every facet of a manufacturing organisation, helping them to accurately plan ahead, optimise processes, and reduce waste. Using ERP as

the vehicle for AI, manufacturers can reinvent their business around digital-first processes and disrupt their market.

The AI-enabled ERP allows manufacturers to optimise or automate end-to-end processes rather than just specific tasks – streamlining a quote to cash value chain or sales order capture to shipping.

By combining classic ERP data sets, such as maintenance history with streaming data from assets and external data, such as economic and weather indicators, companies can forecast and optimise margin from operating diverse asset portfolios such as power grids or offshore oil rigs.

Manufacturing use cases

While it is challenging, some manufacturers are already making progress with AI for predictive and prescriptive maintenance, resulting in less unplanned downtime, more efficient operations and better compliance with health, safety and environmental (HSE) regulations.

Many of the manufacturers that have had success with AI tools have done so by solving specific problems in isolation.

The key to predictive maintenance is determining which data, collected from machines in operation, can be used to predict future events. Everything from vibration to heat to power draw data that may be used as the raw material upon which AI algorithms and stochastic methods can build, predicting breakdowns, diagnosing issues and enabling advanced reliability-centered maintenance (RCM).

In addition, by modelling and simulating processes through a digital twin of a production facility or piece of equipment, companies can get improved visibility over a variety of scenarios and leverage AI to receive recommendations for how best to handle them.

Technical and non-technical hurdles

Even the most elegantly-designed AI algorithms need data – and a lot of it – to learn from. Many manufacturers may struggle to supply enough to build their own models, particularly if their historical data is stored in distributed or siloed environments with different data models and conventions.

An ERP system can facilitate this process for customers through sound master data management, as well as providing models pre-trained on large data sets that can help drive value for end users right out of the box. Before even reaching this stage, the manufacturers must overcome non-technical hurdles, including identifying which business problems, data and algorithms are meaningful, and determining if these factors will continue to be significant in the future.

Selling AI to the C-suite can also be a challenge, as senior business leaders may not immediately understand its full potential. The focus must move past immediate cost savings to new and transformative ways of driving value that were not possible without AI.

The AI-enabled ERP allows manufacturers to optimise or automate end-to-end processes rather than just specific tasks.



Using ERP as the vehicle for AI, manufacturers can reinvent their business.

Photo Credit: Adobe Stock/Panilov

In order to do this, companies need “bilingual citizens” who can understand the business problems to be solved and act as the “glue” between the business and more technically-oriented data scientists.



Bob de Caux, vice-president of automation at IFS.

Photo Credit: IFS

Seeing the future together

Once a strategic direction is identified, the focus must be on change management. Employees will need to understand and own their role in the AI transformation, while customers and other stakeholders must be educated and mentally prepared for what is to come. Stakeholders may have different fears – a loss of human contact with their vendor, diminished employment opportunities or, in the case of senior management, endless investment with no firm payback.

Employees need to see that once AI takes on mundane tasks, they can be free to concentrate on higher value responsibilities, while customers need to know these newly liberated employees will be able to spend more meaningful time with them. Finally, senior management must lead the change by finding ways to measure the value that is brought by this new technology, using AI-driven ERP to update standard metrics, KPIs and ROI calculations to reflect the new business reality. ■

AVEVA named a leader in IDC APM MarketScape Reports for mining, manufacturing, and oil & gas

AVEVA, A GLOBAL leader in engineering and industrial software, has been announced as a leader in three IDC Asset Performance Management (APM) MarketScape Reports – manufacturing, mining, and oil & gas – and recognised as a major player in utilities asset performance. AVEVA's comprehensive asset performance management software portfolio is designed to overcome today's industrial challenges by leveraging industrial big data, cloud, artificial intelligence, digital twin, and augmented reality, offering improved analytics designed to eliminate inefficiencies, optimise operations, and improve profitability.

Recognised by the IDC MarketScape for technology innovations in mining, manufacturing, utilities and oil & gas, AVEVA's APM portfolio delivers proactive and predictive asset performance insights, operational insights, and reporting, and is helping global businesses, including ENEL, to eliminate inefficiencies and improve profitability. AVEVA offers APM services and solutions including predictive and prescriptive analytics, connected worker applications and a variety of maintenance optimisation and execution tools.

Mitsubishi Forklift Trucks

extends range with higher capacity models

The FBCB series has a wide choice of options and attachments available.

HAVING WON PLAUDITS on its release in 2020, the FBCB series of electric counterbalance trucks from Mitsubishi Forklift Trucks is expanding with the addition of two 72V models.

Built for the demands of the Middle East and CIS markets, the FBCB series has a wide choice of options and attachments available, allowing the truck to be precisely specified to meet the needs of your business. In particular, two different types of cold storage modification are available for work in up to -35 degrees and up to -55 degrees respectively.

On the launch it offered a choice of nine 48V models with capabilities ranging from 1.0-2.5 tonnes. The new 72V trucks offer the same great advantages and exceptional performance as existing models, but with higher capacities of 3.0-3.5 tonnes. And like existing models they are very nimble and compact, allowing for a high level of manoeuvrability in tight spaces.

Thanks to its electric hydraulic power steering and curve control, FBCB delivers smooth turning and good lateral stability on corners, meaning less force on the load during transit.

Built for drivers

While compact on the outside, the operator

compartment remains spacious and highly ergonomic, helping to keep drivers feeling right at home and staying comfortable throughout long shifts.

All-around vision has been maximised for safety. The narrow dashboard, high-visibility mast, small steering wheel, and optimised lever placement without any compromise to controls. This allows the driver to remain more aware and confident of their surroundings at all times.

The series has proven hugely popular with drivers of all skill levels thanks to intuitive controls and a choice of operation modes. By choosing between normal, power and custom (which can all be adjusted), the truck can be easily adapted to suit the driver's preferences as well as better matching the working environment.

In any of these modes a further Eco mode can be set, making energy consumption even more efficient. Running costs are reduced and the working time can reach up to 11.5 hours on a single charge.

With its rating of IPx4, the power and endurance of FBCB can be relied on indoors and out. Emission-controlled sites and those with clean operations and wet produce will not need a separate IC engine truck for outdoor duties, helping to keep everything cleaner and greener. ■

For more information on what the FBCB series can do for your operations, visit www.mitforklift.com



Photo Credit: Mitsubishi Forklift Trucks

The FBCB series of electric trucks is built for the demands of the Middle East and CIS markets.

Al Tayer Motors delivers Ford's trucks to Imdaad

AL TAYER MOTORS, the official Ford Trucks importer-dealer in the UAE, has delivered trucks to Imdaad, a Dubai-based group of companies that provides integrated, sustainable Facilities Management (FM) services, that enhance operational efficiencies of physical assets, to bolster their waste management operations across the UAE.

"In keeping with Imdaad's commitment to creating value for our clients and promoting sustainable operations, we are in constant pursuit of new technologies, tools and equipment. In the Ford Trucks 3542 series, we have found a fuel-efficient vehicle with a competitive cost of ownership complemented by an excellent service package provided by Al Tayer Motors. We are pleased to add these vehicles to our fleet to enhance our service delivery," said Ashly Alex, head of business, environmental solutions, Imdaad.

Senior members of the management teams of Al Tayer Motors, Ford Trucks, and Imdaad were present at the Farz materials recovery facility in Dubai, during the handover of the first Ford Trucks.

The Ford Truck series offers service periods that extend up to 40,000 kms/800 hours and an economical advantage, with reduced maintenance costs. These trucks are designed for the most demanding environments, and they offer quality and durability with best-in-class sequence and efficiency. An important feature in the new Ford Series is the Automated Transmission option, with off-road, rocking and economy modes, which assists drivers in keeping their vehicle sure-footed on any terrain.

Project Databank

Compiled by Data Media Systems

Project Focus

Compiled by Data Media Systems

Project Summary

Name of Client	ART - Public Authority for Roads and Transportation KAPP - Kuwait Authority for Partnership Projects
Estimated Budget (US\$)	1,990,000,000
Front End Engineering Design (FEED)	SYSTRA ConsultingKhatib & Alami CANARAIL Consultants Inc.
Facility Type	Railway
Sector	Infrastructure
Status	FEED
Location	Various
Project Start	Q2-2005
End Date	Q1-2030
Last Updated	05-01-2021

Background

The GCC Technical Committee plans to build a railway network project in order to link the six GCC countries together running from Kuwait to Oman. The railway will have a total length of 2,177 km. Train services across the six GCC states will facilitate movement and travel of GCC citizens as well as expatriates and boost regional trade. Senior executives from the GCC nations have also revealed plans to invest a total of US\$109 billion on rail projects in the next 10 years as officials look to solve traffic congestion issues. This would increase investments in railway projects in the region dramatically over the next decade.

Project Status

Date	Status
Jan 2021	Kuwait expects to hire an international engineering consultant for the project between June 1, 2021 and December 2, 2021. The design study will last until August 2023 with construction works expected to begin in Q1 2025.

Project Schedules

Feasibility Study	FEED	Construction	Completion
2Q-2005	2Q-2008	1Q-2025	1Q-2030

Project Scope

- Construction of a 574-km long railway extending from the southern border with Saudi Arabia to the passenger terminal in Kuwait City. It will then extend north through the Silk City to Boubyan Port.
- 317 km of main lines will be serving short term needs and 257 km of secondary lines will serve long term needs.
- 220 km/hr while serving passengers and 120 km/hr while serving cargo.

Project Finance

Kuwait Authority for Partnership Projects (KAPP) and Public Authority for Roads and Transportation (PART) are the clients of the project.

Project Databank

Compiled by Data Media Systems

CONSTRUCTION AND INFRASTRUCTURE PROJECTS, KUWAIT

Project Name	Country	City	Sectors	Facility	Budget	EPC Award Date	Status	Project Start	Project End
KAPP - PART - Kuwait National Railroad (KNRR)	Kuwait	Kuwait	Infrastructure	Railway	1990000000		Feasibility Study	2008-Q3	2023-Q1
KAPP - PART - Kuwait GCC Railway Network	Kuwait	Various	Infrastructure	Railway	1990000000		Feasibility Study	2005-Q2	2030-Q1
KAPP - Kabd Municipal Solid Waste Project	Kuwait	Kuwait City	Industrial	Incineration Plant	790000000	2021-Q1	EPC ITB	2013-Q3	2022-Q1
MPW - DGCA - Kuwait International Airport Expansion - Overview	Kuwait	Farwaniya	Infrastructure	Airport	7000000000	2016-Q2	Construction	2007-Q2	2022-Q3
MPW - DGCA - Kuwait International Airport Expansion - Package 1 - Main Terminal Building (Terminal 2)	Kuwait	Farwaniya	Infrastructure	Airport	4500000000	2016-Q2	Construction	2007-Q2	2022-Q3
MPW - DGCA - Kuwait International Airport Expansion - Package 3 - Runway & Airfield Infrastructure	Kuwait	Farwaniya	Infrastructure	Airport	4920000000	2017-Q1	Construction	2007-Q2	2022-Q2
PAHW - East Taima Housing Project	Kuwait	Jahra	Construction	Residential Development	155036991	2018-Q1	Commissioning	2015-Q3	2021-Q1
PAHW - South Al Mutlaa City - Infrastructure Package	Kuwait	Al Mutlaa	Infrastructure	Roads	1800000000	2016-Q2	Construction	2010-Q1	2023-Q1
Kuwait University - Sabah Al Salem University - College of Social Sciences, Law, Sharia & Islamic Studies	Kuwait	Farwaniya	Infrastructure	Education/ Training Facilities	5500000000	2015-Q1	Construction	2012-Q1	2022-Q1
KPA - Shuaiba Port Expansion	Kuwait	Shuaiba	Infrastructure	Port	1000000000		Design	2015-Q4	2022-Q1
MPW - Mina Abdulla To Al Wafra City Road	Kuwait	Mina Abdullah	Infrastructure	Roads	2850000000	2017-Q2	Construction	2012-Q1	2021-Q1
MOH - Kuwait City Cancer Center	Kuwait	Kuwait City	Construction	Medical/ Health Facilities/Spa	6500000000	2012-Q3	Construction	2010-Q4	2021-Q2
PAHW - Sabah Al-Ahmad Residential City	Kuwait	Kuwait	Construction	City	7000000000	2009-Q3	Construction	2006-Q1	2036-Q1
Tamdeen - Al Khiran Real-Estate Development	Kuwait	Kuwait	Construction	Mixed-Use Development	8290000000	2017-Q3	Construction	2014-Q4	2021-Q1
Amiri Diwan - Palace of Justice	Kuwait	Kuwait City	Construction	Commercial Buildings	10000000000	2018-Q3	Construction	2015-Q1	2021-Q3
PAHW - South Saad Al-Abdullah Smart City	Kuwait	Kuwait	Construction	City	40000000000		Design	2014-Q3	2023-Q1
PAHW - South Al Mutlaa City - Housing Package	Kuwait	Al Mutlaa	Construction	Mixed-Use Development	12000000000	2019-Q3	Construction	2010-Q3	2023-Q1
PAHW - South Al Mutlaa City - Overview	Kuwait	Al Mutlaa	Construction	City	20000000000	2016-Q2	Construction	2010-Q1	2023-Q3
MOH - Al Sabah Hospital Expansion	Kuwait	Asimah	Construction	Medical/ Health Facilities/Spa	7000000000	2014-Q2	Construction	2013-Q1	2021-Q1
MPW - DGCA - Kuwait International Airport Expansion - Package 2 - Service Buildings & Car Park	Kuwait	Farwaniya	Infrastructure	Airport	5526000000	2020-Q1	Construction	2007-Q2	2022-Q3
MPW - First Ring Road Extension - Phase 3 - Roadways & Upgrade of Existing Facilities	Kuwait	Kuwait	Infrastructure	Roads	3920000000		FEED	2014-Q1	2021-Q1
MPW - Al Nuwaiseeb Road Construction Project	Kuwait	Asimah	Infrastructure	Roads	5600000000	2015-Q3	Construction	2012-Q3	2021-Q4
PAHW - Expansion of Wafra Housing	Kuwait	Ahmadi	Construction	Residential Development	1500000000	2014-Q1	Construction	2013-Q1	2021-Q1
MOH - Al Adan Hospital Expansion	Kuwait	Mubarak al-Kabeer Governorate	Construction	Medical/ Health Facilities/Spa	7690000000	2014-Q3	Construction	2013-Q1	2022-Q1
MOF - Kuwait City Ministry Complex	Kuwait	Kuwait City	Construction	Office Buildings	1570000000	2014-Q1	Construction	2011-Q2	2021-Q1
KAPP - South Jahra Labor City	Kuwait	Jahra	Construction	City	4850000000	2021-Q1	EPC ITB	2013-Q3	2022-Q1
MOH - MPW - Shuwaikh Children's Hospital	Kuwait	Shuwaikh	Construction	Medical/ Health Facilities/Spa	8000000000		Design	2016-Q1	2021-Q1
PAI - Al Shaddadiyah Industrial Zone	Kuwait	Shadadiyah	Construction	Industrial Park	3000000000	2013-Q2	Construction	2011-Q3	2022-Q1
MOH - Al Farwaniya Hospital Expansion	Kuwait	Farwaniya	Construction	Medical/ Health Facilities/Spa	10000000000	2014-Q1	Construction	2012-Q3	2021-Q1
KAPP - Kuwait Metropolitan Rapid Transit System (KMRT)	Kuwait	Various	Infrastructure	Mass Transit Systems	11456000000		Feasibility Study	2015-Q4	2023-Q1
MPW - Special Needs School Complex	Kuwait	Fintas	Infrastructure	Education/ Training Facilities	1226000000	2021-Q2	FEED	2012-Q1	2023-Q1

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Caterpillar introduces new standby power solutions

CATERPILLAR INC ANNOUNCED the launch of 31 new models of Cat GC diesel generator sets, the company's new range of value-engineered standby power solutions specifically targeted for the global electrical contractor market.

Now available for 50 Hz and 60 Hz applications worldwide, Cat GC generator sets simplify the specification process and substantially reduce quotation and delivery times while helping to meet the tight budget requirements of the vast majority of stationary standby power applications in this power range.

"We have specifically configured Cat GC generator sets with electrical contractors in mind, and we have now designed a product that offers Caterpillar's renowned performance at an exceptional value," said Jason Kaiser, vice president, Caterpillar Electric Power.

Cat GC generator sets are configured with an optimised mix of common features that deliver Caterpillar's renowned performance and customer value with a minimal footprint.

Powered by field-proven Cat engines and offering best-in-class support from the Cat dealer network, Cat GC generator sets are ideal for most typical small- to medium-sized standby applications, such as health clinics, manufacturing, agriculture facilities, municipal infrastructure, wastewater treatment plants and other utilities, commercial enterprises and office buildings.

The new models join the current range of eight Cat GC generator set models from 250 kW to 600 kW introduced in 2020 for 60 Hz applications in North America, as well as the 1100 kVA model



Cat DE400 GC Diesel generator set.

Photo Credit : Caterpillar

launched in October 2020 for 50 Hz applications in Europe, Asia Pacific, Africa and the Middle East.

Every Cat GC diesel generator set includes Caterpillar's standard two-year warranty for standby power solutions, while a suite of additional extended service coverage options is available.

They can be equipped with Cat Connect Remote Asset Monitoring, which provides data visualization, reporting and alerts that are globally accessible through an easy-to-use web interface.

KOHLER-SDMO unveils diesel-powered generator sets

KOHLER-SDMO has expanded the top end of the KD Series with the rollout of new models - 4000kVA and 4500kVA (50Hz) / 3500kW and 4000kW (60Hz).

In late 2016, KOHLER-SDMO unveiled an entirely new range of large diesel industrial generators up to 2800kVA (50Hz) / 2500kW (60Hz) powered by a newly designed platform of KOHLER diesel engines represented by the K135 and K175 engine families. The range was subsequently extended to 3500kVA (50Hz) / 3250kW (60Hz) in 2018.

The new generators are designed to deliver extreme durability and ultimate reliability in a variety of emergency and prime applications. This release expands the limits of standby generators and sets KOHLER apart with its breadth of products in this range.

"We are pleased to reach the culmination of the KD generator series that was designed from the ground-up including the KOHLER diesel engine platform," said Brad Meissner and Cédric Briand, product managers at Kohler. "With a 4500kVA / 4000kW generator, KOHLER can now offer customers the largest and most power-dense standby generator in the marketplace."



The generators are equipped with the APM802 controller that ties the entire system together for a seamless customer experience.

Photo Credit : KOHLER-SDMO

The new KD Series up to 4500kVA and 4000kW gensets incorporate a powerful and sophisticated K175 diesel engine – the KD 103 litre, 20-cylinder model. From a design perspective, KOHLER kept many of the engine components the same as the KD series predecessors including the control system, fuel system, and cooling system.

The modular design of the KD103V20-powered generator sets is a bit larger than its V16 and V12 counterparts and delivers unprecedented power density and unrivaled performance.

Matched turbochargers are engineered for maximum power and response. High ambient cooling systems ensure performance is maintained in the most extreme environments. The engine features a high-pressure common rail,

precise fuel injection system that delivers pressures up to 2200 bars. Fuel mapping options for optimised fuel consumption for use in non-emissions regulated regions, emissions optimised for use in Europe, U.S., Canada, etc. or low-NOx optimised for use in mission critical segments like data centres enable the generators to be deployed globally without worry. Users of the KD Series generators will find cost savings because the offering delivers top-of-the line fuel consumption regardless of the calibration. To reduce noise and vibration, the engines have a closed-loop regeneration crankcase ventilation system and rigid block, crankcase and sub-frame.

The generators are equipped with the APM802 controller that ties the entire system together for a seamless customer experience. The APM802 control unit provides enhanced performance and monitoring features such as (+/-0.25%) voltage regulation, expanded inputs and outputs, a large 12-inch colour touchscreen, and the ability to parallel as many as thirty-two generator sets.

KOHLER has a global dealer and distribution infrastructure consisting of more than 800 facilities.

Electri-Flex launches new specialty conduit

ELECTRI-FLEX COMPANY, ROSELLE, IL, launched a video featuring Liguatite flexible electrical conduit, suited for a variety of markets. These Liguatite varieties have additional properties including corrosion-resistance, halogen-free, EMI/RFI shielding, high/low temperature, antimicrobial for food processing, lightweight and UV-resistance.

Liguatite flexible electrical conduits are suitable for a variety of markets, and with nearly 50 conduit types to choose from, they offer a wide selection, with varying sizes, types, and colours available.

Product categories include jacketed metallic, non-metallic, unjacketed metallic, EMI/RFI shielded, and stainless steel.

Food processing and pharmaceuticals: Flexible conduit ideally suited for the food, beverage and pharmaceuticals industries include Types LAFG, NMFG, and LSSFG.

Rail and transit: Transportation applications, including rail, transit, and infrastructure, require flexible conduit solutions that are low fire hazard and zero-halogen, and include Types ZHLA and ZHSS. Type ZHSS offers corrosion-resistance with a stainless steel core.



Liguatite flexible electrical conduits are suited for a variety of markets.

Photo Credit: Electri-Flex

Wastewater utilities: Conduit varieties ideally suited for wastewater applications include corrosion-resistant Types LTSS, ATXSS, and ALT. Types LTSS and ATXSS have a stainless steel core, and Type ALT has an aluminium, lightweight core. Additional product features could include UV resistance or extreme temperatures.

Mining, oil and gas refineries: These conduits include Types ATX, ATXSS, and ATLA, and all perform well in high and low temperature environments.

Data centres: Flexible conduit installed in data centres is often placed in overhead cable trays and under raised floors.

Conduit solutions help identify wiring, meet safety requirements, and UL and CSA certifications. Conduit Types CBLA and ZHLA are ideally suited for data centre installations.

Ship building and aerospace: Ship building applications require conduits built for safety, durability, UV resistance, and EMI/RFI shielding. Conduits should be free of halogens in the event of a fire and offer flame-retardant properties, and these include Types ZHSS, HFSLA, and HFEMCS. Due to its stainless steel, corrosion-resistant core, Type ZHSS is ideal for humid marine environments.

Abu Dhabi Airports introduces touchless elevator technology

ABU DHABI AIRPORTS has partnered with Meta Touch to deploy new touchless technology across 53 elevators at Abu Dhabi International Airport, helping to prevent cross-infection from interacting with elevator buttons and enable a COVID-19-free airport environment.

The new technology, TchK (Touch-less Keypad Technology) is a touchless control panel that allows users to command an elevator without physically pressing any buttons, by simply waving their hands in front of the panel to indicate the desired floor or direction.

Abu Dhabi Airports' investment in this state-of-the-art technology is the result of the airport group's commitment to containing the spread of COVID-19 and ensuring that its airports and facilities remain safe and healthy environments for passengers and staff.

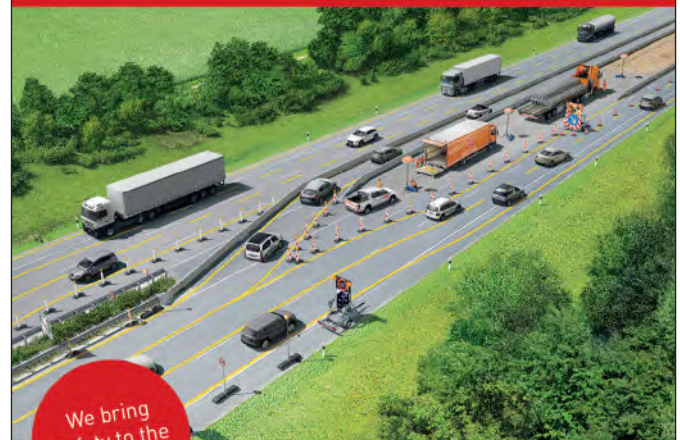
"The installation of the new technology across our elevators at Abu Dhabi International Airport is a significant development in ensuring the safety of all our guests and travellers. This innovative technology bolsters the extensive safety measures our company has implemented as a regional leader in the airports sector," said Shareef Hashim Al Hashmi, chief executive officer of Abu Dhabi Airports.

This new technology follows the recent introduction of CoDi BOT UGV robots designed to support with the sterilisation of staff areas, cargo facilities, and passenger aircraft cabins, as well SterixGates sterilisation booths designed to safely disinfect a person within as little as three seconds.

Other technologies developed to contain COVID-19 at Abu Dhabi International Airport include thermal scanning cameras that incorporate the latest Artificial Intelligence technology, as well as cameras with facial recognition capabilities and heat motion sensors to track the movements of people, including those potentially infected with COVID-19.

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Bobcat and Magni TH launch new-gen rotary telehandlers

BOBCAT HAS COLLABORATED with Magni TH of Italy, to launch an expanded line of new generation rotary telehandlers for markets in Europe, the Middle East and Africa (EMEA), and Russia and the CIS countries.

The new Bobcat rotary telehandler range includes ten Stage V compliant models for the European market, with lifting heights from 18 metres to 39 metres, and lifting capacities from four tonnes to seven tonnes. These are complemented by another four Stage IIIA engine powered models aimed at the Middle East, Africa and Russia/CIS regions, with lifting heights from 18 metres to 25 metres and lifting capacities from four tonnes to six tonnes.

The rotary telehandler market continues to grow worldwide. In Europe, for example, the market has increased over the last five years by 23% and, in 2019, it reached over 3000 units for the first time. In fact, 85% of the global market volume is in the EMEA region.

New generation Bobcat rotary telehandler

The new Bobcat rotary telehandler cab provides a fully pressurised environment, 100% air filtration, heating and air conditioning (except TR40.180), large windows for optimal visibility ROPS/FOPS certification, an easily adjustable steering column, a comfortable, fully adjustable seat.

All Bobcat rotary telehandlers are equipped with a large, bright touchscreen display with intuitive machine controls, and the machine settings are managed over by five different pages, with easy navigation between the pages, using the touch screen or the jog shuttle.

The attachments are usually forks (supplied as standard), crane jibs, winches



Photo Credit : Bobcat

Most of the new Bobcat rotary telehandlers can be remote controlled from the man basket.

or jibwinches, man platforms and buckets, which provide the versatility needed on site. The telehandlers automatically recognise the attachment they are being paired with, using RFID technology, which also uploads the corresponding load charts onto the display. The Limit page allows the operator to restrict the working zone in three dimensions and limit working speeds for maximum control and safety.

Most of the telehandlers are also equipped with a remote control to operate the machine from the man basket when elevating people, as well as operating the machines remotely.

Large choice of additional options

Remote control with drive function: It provides radio control equipped with a screen, that allows the machine to be driven remotely and the stabilisation phases to be

managed directly from the basket.

The Twin Power allows the machine to be used without starting the diesel engine, keeping the emissions on zero level and providing noiseless operation. Connecting the machine to an external electricity supply (380 V), provides power for the machine, allowing it to perform all normal lifting and load positioning operations. A 15 kW electric motor and a 90 litre/minute piston pump guarantee the performance and precision required for each and every movement.

Great cab experience

As in all Bobcat products, operator comfort is a prerequisite in the new rotary telehandlers and the innovative patented design of the cab is key to working safely on site, providing:

- A fully pressurized environment
- 100% air filtration
- Heating and air conditioning (except TR40.180)
- Large windows for optimal visibility
- ROPS/FOPS certification
- An easily adjustable steering column
- A comfortable, fully adjustable seat

In the cab, all Bobcat rotary telehandlers are equipped with a large, bright touchscreen display with intuitive machine controls. Machine settings are managed over five different pages. Navigating between these pages is extremely easy and intuitive using the touch screen or the jog shuttle.



The telehandler recognises the attachment using RFID technology.

Photo Credit : Bobcat

ALEC partners with Hilti to pilot Jaibot in the UAE

ALEC, ONE OF the UAE's leading construction groups, has collaborated with Hilti, a multinational construction manufacturing company, to pilot Jaibot, a first-of-its-kind semi-autonomous robot in the UAE, and GCC, that increases drilling tasks' efficiency.

Since March 2019, ALEC has been working with Hilti to test the robot's productivity on a number of ALEC's projects, including the flagship One Za'abeel.

Kez Taylor, CEO of ALEC, said that the collaboration aims to witness the transformation of the construction industry.

The Hilti Jaibot is a robot that helps add more productivity to installation in projects. This innovative construction robot takes over installation execution, while allowing project manager to track project progress and status through data. Using digital plans, the Jaibot marks and drills holes, relieving construction workers from the strenuous task of overhead drilling and allowing them to focus on operation of the construction robot.

Atlas Copco introduces G 2-7 compressor

ATLAS COPCO HAS introduced G 2-7 compressor for small workshops and manufacturing companies. The robust G 2-7 series compressors come with a highly efficient motor, a new state-of-the-art element and the Elektronikon Base control panel. They are extremely efficient, easy-to-use and so quiet that they can be placed very close to the workplace. They are the perfect solution for smaller companies in the engineering and manufacturing industry.

Despite their small size, the compressors in the G 2-7 series offer a number of major advantages – both compared to direct competitors and with reciprocating compressors. Thanks to a highly efficient engine and a new proprietary element, the G 2-7 delivers Atlas Copco's superior efficiency, which reduces not only operational costs but also the overall carbon footprint.

The G 2-7 series compressors are very reliable and can produce high quality compressed air around the clock-even in harsh conditions with ambient temperatures up to 46°C. Because they are designed with rotary screw technology, they can be run without the frequent cooling periods that are necessary for reciprocating compressors. Another advantage of the new compressors is that they are very quiet. With noise levels around 61 decibels, the G 2-7 can be installed near the workplace without additional noise reduction measures. Thanks to an oil residue content of less than five ppm, not only the equipment downstream but also the end product is protected from oil contamination.



Photo Credit : Atlas Copco

The G 2-7 series replaces the existing GX 2-7 series and is now available on the market.

Grieve launches 500°F electric walk-in oven

GRIEVE HAS LAUNCHED No 1019, a 500°F electric walk-in oven that is used for curing coatings onto large discs.

The jumbo oven measures 18' W x 18' D x 10' H and has incoloy-sheathed tubular elements, with a heating capacity of 260KW, installed in its system.

Two 30-HP recirculating blowers, generate 66,000 cubic feet metres of air to provide combination airflow to the workload.

The new oven features 6" insulated walls, aluminised steel exterior and interior, 2" thick insulated flooring, and built-in oven truck wheel guide tracks, as well as motorised dampers on the intake and exhaust, for accelerated cooling of the oven chamber.

All safety equipment required for handling



Photo Credit : Grieve

The electric walk-in oven has incoloy-sheathed tubular elements, with a heating capacity of 260KW, installed in its system.

flammable solvents, including explosion-venting door hardware, is provided on No. 1019. The oven uses SCR power controller and has been divided into four sections for convenient shipping.



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GHH release new data analytics software "GHH InSITE"

THE "GHH InSITE" digital analytics software transparently depicts expensive on-site operations, providing for digital performance and condition monitoring, as well as the baseline for the future of digitally optimised mining operations.

The digital analytics platform solution can be used on any equipment regardless of brand which is particularly useful with large construction sites increasingly becoming managed digitally. Without requiring a substantial effort on the part of the user, it improves both operational safety and cost control.

Due to high workload and productivity targets, it is increasingly desirable to keep costs under control. Felix Straßburger, product manager at GHH, said, "Today, mining and maintenance processes are often already so well coordinated that the smallest deviations can have undesired, costly consequences. Therefore, smart management is the future. This will increase the mining operations' return on investment."

SandStorm robot to challenge clean technology sector

ALREADY BEING TESTED by Enel Green Power, REIWA Engine have released the SandStorm robot with the capacity to reduce the costs of maintenance and cleaning of photovoltaic (PV) systems.

Due to soiling (the layer of dust or sand that reduces the absorption of sunlight by the panels) large PV parks lose about 25% of production, but thanks to the technology of REIWA Engine this can be nullified.

SandStorm is light and easy to assemble, is not subject to wear and tear, can overcome all differences in height between the rows of panels and is equipped with proprietary software that allows any maintenance work in real time and at no cost. In addition, it is equipped with a washing system that also saves on resources such as water fuel and labour needed for most of the current cleaning systems.

It is the first project of a start-up from Ragusa to be chosen to participate at CES 2021.

Honeywell partners with Signify to deploy integrated lighting solutions

HONEYWELL AND SIGNIFY, aiming to improve on occupant experience and reduced energy consumption, have announced a strategic alliance to distribute integrated, smart lighting solutions to commercial buildings.

The collaboration integrates Signify's Interact connected lighting system and software and its UV-C disinfection lighting, with Honeywell's Building Management Systems and the Honeywell Forge enterprise performance management platform. This, combined, will manage energy consumption along with air quality indicators such as temperature and humidity. Signify's lighting solutions will compliment Honeywell's Healthy Buildings air quality solutions beginning in early 2021, and can be controlled, measured and monitored via the Healthy Buildings dashboard to understand air and surface cleaning compliance and metrics.

Signify has also offered additional elements to improve productivity and well-being. These elements include human-centric lighting, such as NatureConnect, and UV-C disinfection lighting. UV-C breaks down the DNA or RNA of micro-organisms, including viruses and bacteria, rendering them harmless.

Additionally, building owners and operators will be able to better manage lighting systems and energy efficiency with smart LED lighting systems. Signify's connected LED lighting system Interact Office can save up to 70% of the energy used for lighting and deploying advanced building controls and sensing, like those from Honeywell, can save up to 30% in facility energy costs.

"Increasingly we see lighting systems playing a critical role in buildings to improve occupant comfort, well-being and productivity; helping to



Photo Credit: Honeywell

Signify's UVC lighting system in the Honeywell Dubai office.

meet energy savings goals outlined by regional government agendas. We anticipate this trend will continue to grow," said George Bou Mitri, vice president and general manager at Honeywell Building Technologies, Middle East, Turkey and Africa. "Our collaboration with Signify will enable our customers in the region to implement integrated lighting solutions, helping improve the occupant experience with customizable, personal lighting options that can be integrated into our Honeywell Forge and Building Management Systems platforms."

The integrated Honeywell and Signify products can support the needs of any building and feature specific solutions for premium commercial buildings, airports, hospitality, healthcare, education, retail and stadia sectors. Honeywell and Signify are also currently deploying the integrated solutions, including Signify's Philips UV-C disinfection upper air luminaires, in several Honeywell global offices.

LG announces autonomous robot with disinfecting UV light

LG ELECTRONICS HAS announced that it is developing an autonomous robot that will use ultraviolet C (UV-C) light to disinfect high-touch, high-traffic areas.

"This UV robot comes at a time when hygiene is of the highest priority" said vice president Roh Kyu-chan, head of the robot business division in LG's Business Solutions Company. "Consumers can have the peace of mind that the LG UV robot will help reduce their exposure to potentially harmful germs."

To be officially unveiled at Digital



Photo Credit: LG Electronics

The robot can generally irradiate a room on a single battery charge.

CES 2021, LG's new robot will be able to move easily around furniture, generally irradiating a room's touchable surfaces in 15 to 30 minutes.

The robot can be integrated into established cleaning routines without requiring extensive staff training and can be monitored via remote updates on mobile phones or tablets. Employee exposure to UV rays will be minimised through a built-in safety lock activated by human motion detection sensors, pressing of an emergency stop button, or via the mobile application.

MAN unveils new front axle for heavy-duty loading cranes

AS DEMAND FOR industry-specific chassis designs compatible with heavy duty loading cranes grows, MAN has unveiled its latest heavy duty front axle, which applies a loading capacity of 10 tonnes. The new unit was designed in response to industry-wide demand for a high-capacity solution for use in winter services, construction and mining.

The unit is MAN's first non-driven front axle with a 10 tonne load; the company previously only offered a nine-tonne equivalent. Increasing the crane body's load capacity and extending the working area of large loading cranes over the truck's cab, the higher capacity model is available in three and four axle versions of MAN's TGS and TGX series trucks.

The high-capacity axle means that usable load capacity and range of cranes fitted to the cab are increased. Many modern cranes come with a 10 tonne loading capacity, but previous iterations of the MAN TGX with the standard 9-ton front axle would limit these cranes to a loading capacity of around 420kg and a lifting height of around 25m. The latest model extends the range of cranes to approximately 29m, increasing its loading capacity to 650kg. This optimises both the crane's capabilities as well as the functionality of the truck and its axles within an operation.

The new leaf-sprung 10-tonne front axle is available with a straight or offset construction on all 6x4 and 8x4 chassis designs in the MAN TGS and TGX series, with all cab versions, including



Photo Credit : MAN

The axle increases the usable capacity and range of cranes.

normal and medium height chassis designs. The Chassis can be optimised for industry-specific applications, depending on customer preferences and technical requirements. A 9.5mm thick frame and metal plates in the frame can increase the rigidity and load capacity of the chassis if it is required for heavy lifting construction or extreme weather service applications.

Metso Outotec introduces full range of conveyors

METSO OUTOTEC HAS introduced its full range of overland conveyors. The range is designed for the transportation of bulk material across long distance mining operations. Each model of overland conveyor was designed to provide an economic and reliable material transportation for open-pit and underground operations at the lowest total cost of ownership and operation.

The models in Metso Outotec's new models have capacities of up to 20,000 tons per hour, and up to 30% power savings with Energy Saving Idlers®, meaning the conveyors are not only energy efficient but also operationally efficient with a high hourly output. Metso Outotec also focused on ensuring the units are suited for fast installation and easy maintenance, with robust and reliable components to extend the range's life span.

Lars Duemmel, vice president, bulk material handling systems at Metso Outotec, explained: "In mining and minerals processing applications, conveying is one of the most efficient and safest ways to transport bulk material. It is often referred as the backbone of the entire process. The robust



Photo Credit : Metso Outotec

The unit can transport 20,000 tons per hour.

design of our overland conveyors allows for capacities of up to 20,000 tons per hour including over 5 km on a single flight for a seamless process. What is also important is that you can achieve power savings of up to 30% with the patented Energy Saving Idlers® (ESI). Thanks to our extensive process engineering capability and proven installations around the world, we are able to support our customers with complete end-to-end conveyor solutions."

Briefly

Edgematic set to launch PurpleCube

EDGEMATICS, THE UK & UAE-based all-in-data service provider, has announced plans to launch one of the region's first fully integrated analytics service data platform, the PurpleCube. The platform will blend data management, machine learning, business intelligence and artificial intelligence all in one package, to cater for a range of businesses and industries with a solution for delivering analytics with a cost-effective operation.

PurpleCube hosts a secure and scalable approach to analytics, designed to offer an affordable solution with its customer base at the focus of its approach. The self-service platform will aid businesses to search billions of rows with search-engine-like capabilities and natural language, enabling them deeper insights and a heightened visibility from their data, leveraging A.I. algorithms to deliver predictive analysis.

PurpleCube's data analytics implores a verticalised approach for organisations, but is uniquely adaptable to cross-vertical or horizontal operations including retail, banking, telecoms, government, healthcare, automotive, aviation, logistics, supply chain, and energy & utilities. The platform is designed to enable a more efficient data handling system, with an easy-to-use interface and ability to support over 150 data source connections, industry-specific A.I. algorithms, pre-modelled business intelligence dashboards and pre-scripted R/Python models.

PurpleCube will run a series of webinars and virtual workshops in the lead-up to its launch, aimed at guiding new and potential clients about the system's features, solutions and benefits.

CEO of Edgematics, Bharat Phadke, explained: "We have created PurpleCube based on our extensive market experience and research findings for the need to fulfill the gap of a seamless, integrated analytics as a service data platform, which will drive innovation and insights for businesses enabling them to reduce costs, maximize sales, cross-sell or up-sell their products and/or services and enhance customer acquisition, retention and loyalty."



سيكر الصندوق على 13 قطاعا كجزء من استراتيجيته المحلية

جميع أنحاء العالم». كما نهدف أيضا إلى زيادة عدد سكانها من 7,5 مليون مقيم اليوم إلى حوالي 15 إلى 20 مليونا في عام 2030.

وفي المدن التي تمثل 85 في المائة من الاقتصاد العالمي، يبدأ النمو الحقيقي في المدينة، سواء في مجال الصناعة أو الابتكار أو التعليم أو الخدمات أو القطاعات الأخرى».

وأشار ولي العهد إلى أن الرياض تمثل نحو 50 في المائة من الاقتصاد غير النفطي في المملكة العربية السعودية، في حين أن تكلفة خلق فرص العمل في المدينة تقل بنسبة 30 في المائة عن المدن السعودية الأخرى. مضيفا: «إن تكلفة تطوير البنية التحتية والعقارات أقل بنسبة 29 في المائة من المدن الأخرى، في حين أن البنية التحتية في الرياض أُنجزت على نحو جيد جدا».

الرؤية: «مستقبل الرياض»

تعلن المملكة العربية السعودية عن تطوير جديد للرياض كجزء من جهودها لتوسيع التنوع الاقتصادي من خلال المراكز الحضرية.

وقد صرح صاحب السمو الملكي ولي العهد الأمير محمد بن سلمان، في محادثة له مع السناتور ماتيو رينزي، رئيس وزراء إيطاليا السابق وعضو مجلس أمناء معهد مبادرة مستقبل الاستثمار في النسخة الرابعة من مبادرة مستقبل الاستثمار خلال جلسة نقاشية بعنوان «مستقبل الرياض» قائلا: «كل مقومات الرياض تمهد الطريق لخلق الوظائف والنمو الاقتصادي والاستثمار والعديد من الفرص الأخرى».

وأضاف قائلا، «لذا نهدف إلى جعل الرياض واحدة من أكبر عشر مدن اقتصادية في العالم. وهي تحتل اليوم المرتبة (40) الأربعين من حيث الاقتصاد في

الإنجازات، حيث تتطلع إلى جعل الصندوق هو المحفز الرئيسي للتحوّل والتنوع الاقتصادي في المملكة العربية السعودية. وأضاف سموه أن صندوق الاستثمارات العامة سيواصل الاستثمار في الأعمال والقطاعات التي من شأنها أن تسهم في دفع مستقبل المملكة وتحقيق الريادة العالمية في تمويل مستقبل الإنسانية الجديد.

وسوف يتجه تركيز صندوق الاستثمارات العامة إلى 13 قطاعا كجزء من استراتيجيته المحلية الأساسية: وهي الرعاية الصحية، والمرافق الخدمية، والطاقة المتجددة، والاتصالات والإعلام والتقنية، والأغذية والزراعة، والمركبات، والنقل والخدمات اللوجستية، والعقارات، والطيران والدفاع، ومواد وخدمات التشييد والبناء، والترفيه والسياحة والرياضة، والخدمات المالية، والمعادن والتعدين، والسلع الاستهلاكية والتجزئة.

وقد صرح معالي محافظ صندوق الاستثمارات العامة، ياسر الرميان قائلا: «على مدى السنوات الأربع الماضية، أظهر صندوق الاستثمارات العامة دوره المهم في الإسهام في اقتصاد المملكة، بما يتماشى مع طموحات رؤية 2030. ولقد ضاعفنا الأصول المدارة، حتى نهاية عام 2020، ثلاثة أضعاف بما يقرب من 400 مليار دولار أمريكي، واستحدثنا 10 أصول جديدة. وأتحنأ 331 ألف وظيفة مباشرة وغير مباشرة».

وأضاف قائلا: «وكجزء من استراتيجيتنا، سنواصل دفع التحوّل الاقتصادي للمملكة العربية السعودية وتمكين القطاع الخاص. كما أننا نتشارك مع الشركات المبتكرة والتحولية والمزرعة في جميع أنحاء العالم لنعمل باستمرار كمحفز مهم لتطوير الصناعات وتحسين فرص المستقبل. ويتمحور جوهر استراتيجيتنا في تركيزنا على تمويل مستقبل بشري جديد من خلال تحسين نوعية الحياة، وتعزيز الاستدامة البيئية والاقتصادية، واستحداث قطاعات ووظائف جديدة».

وكان أحد العناصر الرئيسية لنجاح صندوق الاستثمارات العامة هو الشراكات الاقتصادية الاستراتيجية التي أبرمها الصندوق مع العديد من المستثمرين والشركات الرائدة في العالم. وسيعمل برنامج تحقيق رؤية 2021-2025 على تعزيز هذه الشراكات، مما يتيح للمستثمرين الوصول إلى فرص الاستثمار غير المستغلة، لخلق أوجه تآزر وزيادة القيمة للمجتمع العالمي. كما سيواصل صندوق الاستثمارات العامة أيضا تسخير الشراكات لتعزيز نقل المعرفة وتوطينها، مما يعود بفوائد مباشرة على الاقتصاد السعودي والشعب السعودي.

← مفكرة الفعاليات 2021

أبريل/نيسان

أبوظبي	القمة الدولية لطاقة المستقبل	7 - 5
دبي	منتدى الإمارات للصحة والسلامة والبيئة	7 - 6

مايو/أيار

الرياض	معرض بيج فايف السعودية	27 - 24
أونلاين	معرض الشرق الأوسط للطاقة	6/7 - 17



خلق صندوق الاستثمارات العامة عشرة قطاعات جديدة

استراتيجية مدتها ٥ سنوات لصالح الاقتصاد السعودي

أطلق صاحب السمو الملكي محمد بن سلمان آل سعود، ولي عهد المملكة العربية السعودية، ونائب رئيس مجلس الوزراء، ورئيس مجلس الشؤون الاقتصادية والتنمية ورئيس صندوق الاستثمارات العامة، استراتيجية جديدة مدتها خمس سنوات لصندوق الثروة السيادية للمملكة العربية السعودية، إذ تتجه المملكة نحو تحقيق هدف رؤية 2030 لتنويع مجالاتها الاقتصادية بعيداً عن الاعتماد على النفط. وقد تمت الموافقة على استراتيجية الخمس سنوات، بما في ذلك برنامج تحقيق رؤية 2025-2021، وذلك خلال اجتماع مجلس إدارة صندوق الاستثمارات العامة برئاسة ولي العهد السعودي الأمير محمد بن سلمان.

من شأنها أن تشكّل الاقتصاد العالمي المستقبلي، مع دفع عجلة التحول الاقتصادي في المملكة العربية السعودية.

وقال سموه إنه على مدى السنوات الأربع الماضية، حقق صندوق الاستثمارات العامة تقدماً ملحوظاً في وقت يشهد حالة كبيرة من الضبابية وعدم اليقين في الاقتصاد العالمي. وتأتي الاستراتيجية امتداداً لهذه

أمريكي، وفتح الباب لحوالي 1,8 مليون وظيفة مباشرة وغير مباشرة بنهاية عام 2025.

وعقب نجاح برنامج تحقيق رؤية 2018-2020، ستضمن الاستراتيجية استمرار صندوق الاستثمارات العامة في النمو كقوة استثمارية عالمية وشريك مفضل للأعمال المبتكرة والتحويلية في جميع أنحاء العالم. كما ستفتح الاستراتيجية الباب لصناعات وفرص جديدة

ومن بين أهم المبادرات التي جرى النقاش حولها استثمار صندوق الاستثمارات العامة ما لا يقل عن 40 مليار دولار أمريكي سنوياً في المشاريع والاستثمارات المحلية، والمساهمة بمبلغ 320 مليار دولار أمريكي في الناتج المحلي الإجمالي غير النفطي بشكل تراكمي من خلال الشركات المدرجة تحت حافظته، وزيادة الأصول المدارة إلى أكثر من 1,07 تريليون دولار

المحتويات

القسم العربي

تحليلات

استراتيجية مدتها 5 سنوات لصالح الاقتصاد السعودي ٤



التشييد والبناء

تقنية المعلومات

النقل واللوجيستك

سفرات الاعمال

أخبار السوق

التطورات

ملخص محتويات القسم الانجليزي

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Company	Page	Company	Page
Balkrishna Industries Ltd	21	Marini S.p.A. - Fayat Group	17
DMS	41	Peter Berghaus GmbH.....	43
Dwyer Instruments Ltd	9	Societe Internationale des Moteurs Baudouin.....	2
Informa Middle East Limited (Dubai Branch)	7	Standard Aggregatebau Evers GmbH & Co. KG....	45

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الشرق الأوسط

استراتيجية مدتها ٥ سنوات لصالح الاقتصاد السعودي

تتجه المملكة العربية السعودية إلى تنويع
مجالاتها الاقتصادية بعيدا عن الاعتماد على النفط