

TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

MIDDLE EAST

Vol 38/Issue Six 2022

The Big 5

Shaping the future of
construction

Hydrogen

Enabling decarbonisation goals

DRIVING GROWTH

TRANSITIONING TO A MORE ELECTRIFIED
TRANSPORT SECTOR

Inside

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CONTENTS

BUSINESS & MANAGEMENT	
News	4
Expo City Dubai to host COP28; ALEC delivers CSP installation for Mohammed bin Rashid Al Maktoum Solar Park; Dubai Autodrome contributes to a cleaner planet	
ANALYSIS	
Annual Transport Review	16
GCC countries are rolling out massive infrastructure investments in road and rail, as the region transitions to a more electrified transport sector	
CONSTRUCTION	
The Big 5	20
Helping the industry to excel	
Telescopic Handlers	22
ACCIONA opts for use of electrical construction machinery	
ENERGY	
Hydrogen	34
With the mantra of ADIPEC 2022 being 'maximum energy, minimum emissions,' the technologies and challenges of decarbonisation were at the heart of the event	

TECHNOLOGY	
Manufacturing ecosystems	36
What contribution is control, switchgear and mechanical engineering making, with consistent data from engineering to plant operation?	
MINING	
Revolutionising the sector	38
Increasing output and minimising costs	
FIRE SAFETY	
Protection solutions	40
Cable maintenance company, FS, talks about its products and solutions in keeping oil and gas fire hazards at bay	
WAREHOUSING	
Automation pivotal to warehouse operations	44
Report identifies three considerations to help businesses utilise the right automation solutions	
ARABIC	
Analysis	48

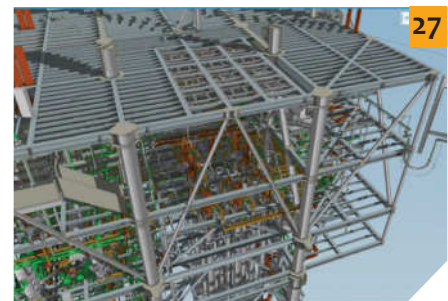
EDITOR'S NOTE

THE FINAL ISSUE for this year includes the Annual Transport Review, where Martin Clark spotlights the massive infrastructure investments, as the GCC countries transition to a more electrified transport sector (Pages 16-18).

As the region continues to play host to various events, we bring you a preview of The Big 5, as Dubai gears up to bring together industry leaders of the construction industry from 5-8 December. More than 2,000 exhibitors from 150 countries are due to attend. (See pages 20,21).

The issue features a report on Hydrogen, one of the pivotal fields at ADIPEC 2022, with the mantra this year being, 'maximum energy, minimum emissions' (Pages 34 and 35).

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



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TECHNICAL REVIEW

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MIDDLE EAST

SEVING THE REGION'S BUSINESS SINCE 1984

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Serving the world of business

Briefly

Dubai Autodrome switches to solar energy

DUBAI AUTODROME IS reaping the benefits of its solar panel-lined rooftops with the generated energy helping to power the venue's racing competitions and its day-to-day operations throughout the year.

The venue took the decision to invest in a 2.8 MWp solar power project, which has been providing its energy requirements since September. The project also includes more than 60 solar panel roof car ports, providing shaded parking and electric vehicle charging stations, all whilst generating solar energy.

The state-of-the-art equipment, installed by SirajPower, will have a positive impact on the environment and the venue, with the solar panels generating 4,751,470.4 Kilowatt-Hour of power per year, some of which is put back into the grid, while 2,055 metric tons of CO₂ emissions will be eliminated per year. These figures will be equivalent to almost 250,031,475 fully charged smartphones and 443 gasoline-powered passenger vehicles driven for one year, underlining the importance of how significant solar panels are in mitigating climate change.

With the track widely used for various motorsport activities including testing and development by car manufacturers ahead of the start of their new seasons, the eco-friendly project, which generates power for the whole venue, is also helping reduce its energy bills.

While these efforts are aligned with the UAE Government's sustainability and environmental strategies, it also underlines the importance of climate change.

Faisal Al Sahlawi, general manager of Dubai Autodrome, said, "With environmental considerations becoming more important than ever before, we wanted to do our part in helping create a sustainable planet.

"The installation of the system came at a crucial time when the government is stepping up its efforts to promote sustainability across Dubai and thanks to the vision of HH Sheikh Mohammed bin Rashid Maktoum, the Dubai Clean Energy Strategy 2050 and Dubai Net Zero Carbon Emissions Strategy are two key initiatives that the project is contributing towards."

ALEC delivers world's largest CSP in Mohammed bin Rashid Al Maktoum Solar Park

ALEC ENERGY, A leading solar solutions provider in the Middle East, announced that it has successfully delivered a unique energy solution for the Visitor Centre of the Noor Energy 1 – the world's largest CSP installation (Concentrated Solar Power) located in Mohammed bin Rashid Al Maktoum Solar Park in Dubai, UAE. The energy system – the first of its kind in the world – is an off-grid micro-grid with Azelio's long-duration energy storage system. Leveraging a groundbreaking energy storage solution from Azelio, combined with 300 kW of solar PV, the system delivers power to the facility, reducing the need for conventional power generation during night-time and overcast conditions.

Commenting on the accomplishment, Basar Kayali, general manager of ALEC Energy said, "As the world's largest single-site CSP, Noor Energy 1 is a landmark project that sets global benchmarks in clean energy production.

"The solution we have implemented here has the potential to revolutionise how clean power can be supplied to factories, agricultural facilities, and hotels or resorts in remote locations in the UAE and beyond."

The Noor Energy 1 Visitor Centre, part of Phase 4 of the Solar Park, is nestled between millions of square metres of solar panels. ALEC Energy began implementing the unique micro-grid in June 2021 and completed the entire project in just 15 months.

The off-grid micro-grid with energy storage is significantly more cost efficient than the traditional alternatives of connecting to the national grid or relying on conventional powered generator sets.



Photo Credit: ALEC Energy/Azelio

The energy system is an off-grid micro-grid with Azelio's long-duration energy storage system.

"The hybrid system supplying power to the Noor Energy 1 Visitor Centre project is a milestone installation demonstrating how our long-duration energy storage system can form a vital part of a micro-grid for around-the-clock clean power, while serving as a reference project for our solution in the MENA region...I am now delighted to see the complete micro-grid system fully operational, and I am looking forward to more projects in the region," added Azelio's CEO, Jonas Wallmänder.

"We are excited to incorporate the world's first off-grid micro-grid with Azelio's long-duration energy storage system at the Noor Energy 1 Visitor Centre. Our facility showcases the latest technologies in concentrated solar power, and photovoltaic cells and therefore it is of immense importance that the center itself is powered by a cutting-edge clean energy solution," said Hashim Al Ghabashi, executive managing director of NOOR Energy. "We believe that the success achieved together will pave the way for further innovations in the future," he concluded.

Expo City Dubai to host COP28

A STATE-OF-THE-ART 'GREEN' destination that hosted the world for six months, Expo City Dubai is the proud host of COP28 – The Emirates Climate Conference with the UNFCCC, sharing the global summit's objectives of achieving sustainability and enabling action towards climate security.

The city carries the sustainability legacy of Expo 2020 Dubai, with a commitment to engaging and elevating the voices of youth in the journey to a sustainable future. Marking the one-year countdown to COP28, Expo City Dubai kicks off a diverse and engaging calendar of sustainability-themed events, featuring thought-provoking youth discussions, performances, exhibitions and more.

Further activations will be revealed over the



Photo Credit: Expo City

The centre kicked off a diverse and engaging calendar of events.

next 12 months, culminating in an unrivalled, impactful 'Green Zone' public area during COP28 (6-17 November 2023).

"Tackling climate change remains at the top of the global agenda, a priority for the UAE, and a conversation we are actively engaged in as a city and educational hub," said Marjan Faraidooni, chief of education and culture, Expo City Dubai.



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Briefly

Wärtsilä announces next-generation grid balancing technology

TECHNOLOGY GROUP WÄRTSILÄ has announced the grid balancing engine solution Wärtsilä 31SG Balancer, offering operators flexible grid capacity in a variety of adverse weather conditions.

The next-generation grid balancing solution enables renewables to perform at the lowest cost and guarantees a more resilient power source for grids worldwide.

Wärtsilä 31SG Balancer is based on three fully-integrated key components; the 31SG balancer engine, prefabricated modules for cost-efficient plant construction, and Wärtsilä Lifecycle services.

The 31SG Balancer offers 12,400 kW (8% more power) at a heat rate of 6,800 Btu/kWh (50% more efficiency), lowering the cost and risk of the renewable transition by enabling more flexible and resilient capacity.

The new engine technology provides power producers with fast-ramping balancing power, which can be scaled up as renewables' share in power systems grows.

Start and ramp up time is also reduced, supporting intermittent generation so that the lowest cost cleanest energy technology can take the top spot as key power sources.

"Extreme weather is intensifying – and 'weatherisation' is now a requirement. Renewable plants are supported as our engines kept running. Our fast-ramping, agile engines are designed for the climate-changed world utilities now operate in, enabling the greater deployment of renewables in grids around the world," said Risto Paldanius, vice president, Americas, Wärtsilä Energy.

"The energy transition is picking up speed rapidly around the world. Our latest grid balancing engine is designed to help utilities transform the energy mix of their power plant portfolios, so that the lowest cost technologies, renewables, provide most of the power, most of the time."

The 31SG Balancer responds to growing market needs for cost-efficient plant construction based on prefabricated high-quality plant modules.

Rolls-Royce commissions mtu Kinetic PowerPacks for KAUST



Two groups of six PowerPacks were delivered to support KAUST's supercomputer.

Photo Credit : Rolls-Royce

ROLLS-ROYCE HAS COMMISSIONED the first six of its mtu Kinetic PowerPacks to secure one of the world's largest supercomputers at the King Abdullah University for Science and Technology (KAUST) in Saudi Arabia.

Matthew Early, vice president, facilities for KAUST, said, "The mtu Kinetic PowerPacks are state-of-the-art, uninterruptible electrical power systems that are designed for operating in extreme environments and provide the highest reliability of back-up power for the most critical and essential systems, such as healthcare facilities, airports, data centres and in our case, our future supercomputer Shaheen III, which will be the most powerful supercomputer in the Middle East and allow KAUST to greatly enhance its ability for scientific discovery and AI Innovation."

The fully-customised, turnkey secure power system utilises dynamically-rotating kinetic energy accumulators, guaranteeing the university's Scientific Computing Data Centre, which hosts the supercomputer, with uninterruptible power.

"The work completed on this complex design-and-build order for KAUST has been extremely rewarding," said Karim Hamzaoui,

operations manager at the Rolls-Royce business unit power systems.

"This was an opportunity for us to not only provide our world-class power generation products but also to showcase our ability to be a complete solution provider, taking on the full scope of all aspects of the project, from manufacturing and testing to delivery and installation, creating a customised solution from top to bottom."

The mtu Kinetic PowerPacks underwent factory acceptance testing at the Rolls-Royce facility in Liege, Belgium, before the 12 units, and medium-voltage switchgears, were shipped and assembled for on-site installation. Each PowerPack guarantees a power output of 1.6 megawatts, operating in medium voltage at 13.8kV.

The systems are designed to operate in humid ambient conditions, at temperatures up to 50°C. With 12 units delivered to the university, the PowerPacks are being installed in groups of six systems each, with one available as a backup. In the case of a power outage, the rotating kinetic energy accumulator will guarantee the starting of the diesel engine and secure the critical load.

Oman Cables races towards sustainability targets

OMAN CABLES INDUSTRY (OCI), manufacturer of industrial cables, has emphasised its commitment to the Sultanate's carbon-neutral vision and 2050 net zero carbon plan.

Cinzia Farisè, CEO of Oman Cables, said, "We are proud to announce that Oman Cables is successfully on track to achieve its net zero objectives as we renew our commitment to the Sultanate's national 2050 vision. Oman Cables has been continuously working towards improving sustainability performance progress over time by studying and deploying deep metrics, leveraging our capabilities to unlock access to innovative infrastructure solutions for the benefit of all stakeholders while safeguarding our planet's future."

The company continues to build on the



sustainability legacy of the Prysmian Group. Oman Cables' roadmap is supported by consistent policies and actionable plans, with numerous projects underway in line with the Sultanate's national goals including the recent green, hydrogen-based transition.

Photo Credit : OCI

Fugro and AD Ports Group to expand capabilities of maritime industry in the Middle East

GEO-DATA SPECIALIST, FUGRO and AD Ports Group formalised a collaborative relationship through the signing of an agreement that sets out combined goals to utilise remote and autonomous technologies in the region. The agreement was signed at the ADIPEC 2022 exhibition in Abu Dhabi by Mohamed Juma Al Shamisi, managing director and group CEO, AD Ports Group and Mark Heine, Fugro CEO.

AD Ports Group is the UAE's premier logistics, industry and trade facilitator. By bringing together Fugro's industry knowledge and AD Ports Group's expertise, this partnership will create a platform to implement remote and autonomous technology, and guidelines that will ensure the UAE is prepared to welcome, and benefit from, the use of latest industry advancements.

Captain Mohamed Al Yahyaie, chief harbour master, AD Ports Group, said, "AD Ports Group is committed to innovating and improving its services, deploying advanced technologies and automation across our operations to drive improvements and greater efficiency. Through strategic collaborations, AD Ports Group brought the world's first fully unmanned autonomous commercial marine tugs, as well as the Middle East's first terminal with an autonomous port truck system, to the UAE. By signing this new agreement with Fugro, we are expanding the range of remote and autonomous technologies available for the maritime sector, as we strive to build a safer, more sustainable and more impactful future."



The agreement was signed at the ADIPEC 2022 in Abu Dhabi.

Photo Credit: AD Ports Group

Honeywell and Aramco partner for intelligent operations software solution

HONEYWELL AND ARAMCO have announced the signing of a joint venture (JV) agreement to provide a set of end-to-end business process automation solutions, under the Aramco Namaat Industrial Investments Programme. The technology solutions can be offered to a wide range of industrial sectors to help maximise profitability, improve productivity, sustainability and operational excellence, on a global scale. The new JV offerings will leverage Aramco's Plant. Digital platform (formerly Integrated Manufacturing System – iMOMS) as well as Honeywell Connected Enterprise's technology development and industrial digital solutions implementation experience.

"This JV agreement with Honeywell is expected to bring new jobs to the market, contribute to economic growth and serve as another way in which Aramco continues to pursue its Digital Transformation programme as part of its evolution to become the world's leading digitalised energy corporation," said Ahmad Al Sa'adi, senior vice president technical services at Aramco.

The JV is expected to create more than 300 jobs in Saudi Arabia within five years.

Rockwell Automation completes acquisition of CUBIC

ROCKWELL AUTOMATION, DEDICATED to industrial automation and digital transformation, has announced that it has completed the acquisition of CUBIC, a company that specialises in modular systems for the construction of electrical panels.

CUBIC serves fast-growing industries such as renewable energy, data centres, and infrastructure. "This acquisition strengthens our portfolio of leading intelligent motor control technologies. CUBIC's efficient and flexible modular systems combined with Rockwell Automation's intelligent devices and industry expertise will benefit customers by offering faster time to market, enabling broader plant-wide applications for intelligent motor control, and generating smart data to increase sustainability and productivity," said Bob Buttermore, vice president and general manager of Rockwell Automation's Power Control Business.



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Briefly

EthosEnergy expands footprint in Middle East

ETHOSENERGY, WHICH SPECIALISES in services and solutions for rotating equipment in the energy and industrial sectors, has expanded its footprint in the Middle East as the region's major players increase oil and gas investment amid global concerns about energy shortages.

The company will invest more than US\$2mn in a new engineering workshop in Abu Dhabi – a move which will enable EthosEnergy to better respond to the fast-growing oil and gas and rotating equipment market that is critical to the delivery of energy projects.

Relocating to the 86,000 sq ft facility at the Industrial City of Abu Dhabi (ICADII) will more than triple EthosEnergy's footprint in the region, with space restrictions at the previous workshops in Mussafah limiting the services offered. The extended workshop will enable the company to offer a full scope of manufacturing and repair components for the first time in the Middle East. The increased space has also allowed further investment in new machinery, including a balancing machine to support rotating equipment such as compressors and steam turbines.

Additional yard space will be used to create a regional hub for field service activity, increasing the number of available engineers and equipment and enable the company to strengthen its position as a single-source provider for rotating equipment. This site will also benefit EthosEnergy's group companies, as it will store products and tooling which can then be transported to customers across the Middle East and beyond.

James Davies, VP facilities and field services, commented, "Over the last 40 years, we have built a strong presence in the Middle East, but our growth has been constrained by the footprint limitations of our previous site. With the region's largest oil and gas and energy players scaling up investments, expanding capacity and increasing output, EthosEnergy is now perfectly placed to rapidly respond to the growing market with enhanced capabilities to manufacture, maintain and repair oil and gas and rotating equipment in-region."

Red Sea Wind Energy announces milestone for 500 MW wind farm project



The planned 500 MW wind farm will support Egypt's renewable power generation goals of having 42% of electricity generated through renewables by 2030.

Photo Credit : ENGIE Group

RED SEA WIND Energy, together with the Egyptian Ministry of Electricity and Renewable Energy, held a ceremony last month for a new 500 MW wind farm near Ras Ghareb, Egypt.

Red Sea Wind Energy is a consortium comprising ENGIE (35%), Orascom Construction PLC (25%), Toyota Tsusho Corporation (20%), and Eurus Energy Holdings Corporation (20%).

Located on the shores of the Gulf of Suez, 40 km north-west of Ras Ghareb in Egypt, Gulf of Suez Project 2 will be the largest onshore wind power plant in ENGIE's portfolio. The project meets strict environmental standards and supports Egypt's transition to renewable energy.

Once fully operational, the plant will be the largest privately developed utility-scale wind power plant in Egypt, capable of delivering clean power to more than 800,000 Egyptian homes.

By leveraging the exceptional wind resources in the Gulf of Suez area – with 360 days of wind per year will significantly support Egypt's

decarbonisation efforts. Overall, the Gulf of Suez 2 Wind Farm will significantly support Egypt's renewable power generation goals of having 42% of electricity produced from renewable sources through 2030 and will reduce CO₂ emissions by approximately one million tons annually.

The new 500 MW wind farm project will build on the past success achieved by the consortium in developing Gulf of Suez 1 – Ras Ghareb Wind Farm (262.5MW), Egypt's first renewable energy Independent Power Producer (IPP) project of its kind and size. The project was completed in October 2019, ahead of schedule, and triples the developer consortium's wind energy capacity in Egypt to 762.5 MW.

This new project was negotiated on a bilateral basis with the Egyptian Electricity Transmission Company (EETC) as the off taker, using the same consortium as in the Gulf of Suez 1 project.

PROVEN awarded ISO 27001 certification

PROVEN, A LEADING business outsourcing organisation in Saudi Arabia, has announced it has been awarded the ISO 27001 certification – a leading international standard for information security management.

"We are pleased to achieve the milestone ISO 27001 certification. This means we can offer a more secure environment for internal and external stakeholders from cyber criminals and data breaches caused by internal forces," said Uzma Mohsin, business excellence lead, PROVEN.

"As such, our company's informational management system is compliant, and our customers and business contacts will be able to acknowledge the legitimacy of our risk assessment expertise and information data



Omer Saleem, deputy CEO of PROVEN with Rami Ismail and Naif Al Otaibi, directors of PROVEN Arabia.

Photo Credit : PROVEN

responsibility."

Achieving ISO 27001 confirms PROVEN's constant drive to develop market-leading services, measured against global standards of industry excellence and adhering to best industrial practices.

ACWA to bring OIA as co-investor for wind project

ACWA POWER COMPANY has signed an MoU with Oman Investment Authority (OIA) to explore bringing the sovereign wealth fund on as an investor for the 1.1 GW Suez Wind Energy project in Egypt. The signing took place at COP27, in Sharm El Sheikh.

The MoU was signed by Mulham Al Jarf, acting deputy president for Investment, OIA, and Paddy Padmanathan, vice chairman and CEO, ACWA Power, in the presence of Mohammad Abunayyan, chairman of ACWA Power, and other senior executives.

According to the terms of the MoU, OIA will assess the possibility of owning up to 10% of the project, which is valued at US\$1.5bn in total. Hassan Allam Holdings, an Egyptian engineering, construction and infrastructure company, has a 25% stake in the project, with ACWA Power holding 75%. When completed in 2026, the project will be the largest single contracted wind farm in the Middle East region.

“Suez Wind Energy was already a remarkable project because of its ambition and scale. Bringing together investors from within the Arab world for this regional project proves that the will for implementation, the key mission of COP27, is strong,” said Mohammad Abunayyan, ACWA Power chairman.

“The signing of this key MoU demonstrates the confidence of the investor community in ACWA Power’s expertise and capability to deliver giga-scale projects. As we continue to build upon our renewables portfolio in Egypt, we value our continued partnership with Oman Investment Authority, as well as Hassan Allam Holdings and believe their collaboration and contribution on this significant wind energy project will strongly enable the energy diversification goals of the nation,” he added.

ACWA Power earlier signed a joint development agreement with OQ, an OIA-owned entity, in May 2022. Along with Air Products, the agreement involves the development of a multi-billion-dollar green hydrogen project in Oman.

By 2026, the Suez Wind Energy will mitigate the impact of 2.4 mn tonnes of carbon dioxide emissions per year and provide electricity to more than a million households.



Egypt green to decarbonise MENA region

FERTIGLOBE, THE STRATEGIC partnership between ADNOC and OCI N.V., has announced the first phase of the green hydrogen plant in Ain Sokhna, Egypt, during an event at COP27, attended by Egyptian President, Abdel Fattah El-Sisi and the Norwegian Prime Minister, Jonas Gahr Støre.

Egypt Green, which is owned, built, and operated by Fertigllobe, Scatec ASA, Orascom Construction and The Sovereign Fund of Egypt, marks an important milestone in the development of a green hydrogen ecosystem in Egypt and the broader African region.

The launch of the hydrogen facility comes as world leaders gather for the United Nations COP27 Climate Change Conference in Sharm El Sheikh, Egypt, where they seek to accelerate global climate action through emissions reduction.

Ain Sokhna has a strategic position located close to the Suez Canal Economic Zone, with the possibility of using renewable electricity to develop an industrial hub near global shipping lanes.

Fertigllobe has a strong global network through its shareholders OCI N.V. and ADNOC and is an early mover in hydrogen and low carbon ammonia. The hydrogen tie-ins for up to 100 MW of electrolysis have already been installed at Fertigllobe’s two existing ammonia plants in Ain Sokhna. The project is being built by Orascom Construction using Egyptian engineers and state of the art technology.

HE Dr Sultan Al Jaber, Minister of Industry and Advanced Technology, UAE Special Envoy for Climate Change and chairman of co-owner Fertigllobe, said, “The commissioning of ‘Egypt Green’ marks another important step in the journey to unlock the potential of hydrogen and its carrier fuels. As the world meets in Sharm el Sheikh for COP27, this project represents a practical response to the need to meet rising energy demand with minimum emissions. The first integrated green hydrogen plant in Africa, delivered in record time, shows what can be achieved when we collaborate around a shared ambition.”

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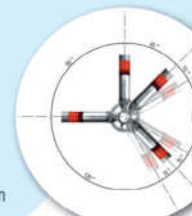
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EXECUTIVES' CALENDAR 2022-23

DECEMBER 2022

5-8 **The Big 5** DUBAI www.thebig5.ae

JANUARY 2023

9-12 **SteelFab** SHARJAH www.steelfabme.com

16-18 **World Future Energy Summit** ABU DHABI www.worldfutureenergysummit.com

FEBRUARY 2023

6-9 **LEAP** RIYADH onegiantleap.com

18-21 **The Big 5 Saudi** RIYADH www.thebig5saudi.com

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

World Future Energy Summit to create blueprints for a sustainable future

THE WORLD FUTURE Energy Summit, the leading business event for future energy and sustainability, takes place from 16-18 January in Abu Dhabi. Exhibition, technology showcase, investment incubator and business forum all rolled into one event, the summit convenes leaders, innovators and global thinkers to share ideas that are creating the blueprints for a sustainable future. Every year, 34,000 international visitors and buyers from 125 countries attend the show to network, unveil breakthrough technologies, experience live demos, learn the latest industry insights, develop new business partnerships, and source leading-edge products.

Six exhibitions will feature global suppliers in solar, renewable energy, water efficiency, sustainable waste management, smart cities and climate change, while five industry forums will enable participants to learn about the latest industry trends and market opportunities, with 200+ free sessions of industry content, led by 300+ renowned experts.

The Solar & Clean Energy Forum focuses on the dynamic, long-term shift taking place in the sector as clean energy use increases. The Forum will discuss strategies to meet energy expectations, particularly in urban areas, and the technologies that can help meet these aims. It will cover areas including solar, energy storage, green hydrogen, hybrid power, finance and investment and mini-grids.

The Water Forum will present the latest technologies and thinking to ensure water security in the water stressed regions. It will



Photo Credit: RX

The event will feature five industry forums.

focus on new approaches to water management, mitigating water threats and innovations that will help reduce water demand and foster clean, efficient production. Areas covered include automation and smart water, water re-use, water conservation, water-food nexus and water resilience.

The inaugural Climate & Environment Forum will focus on how organisations and governments can meet their ESG (environment, social, governance) targets. It will look at methods to decarbonise industry, tackling air pollution, the role of carbon capture, novel climate-focused technologies and how such policies, approaches and strategies can be applied in urban areas. Areas covered include decarbonisation of heavy industries, reducing air pollution, carbon capture, use and storage, sustainability cities and diversity.

The Smart Cities Forum will discuss how technology and sustainability will reshape our future interactions in cities and

buildings. The Forum will look at master planning, future architectural design, mobility and the technologies that underpin smart cities to improve liveability and the efficient transport of people, goods and waste within the built environment. Topics include Leveraging AI in urban development, cyber safety for smart cities, IoT, people and data in the urban environment, 3D printing and sustainability and smart mobility.

The EcoWASTE Forum focuses on the circular economy of waste. It will look at new value chains within waste, the benefits of recycling and reduced landfill use and the changing approaches to dealing with waste, including drivers to reduce single-use plastic, energy from waste and how technology will increasingly influence decisions taken in the sector. Topics include circular economy, minimising landfill waste, recycling and reuse, and waste-to-energy.

For further information see the website at www.worldfutureenergysummit.com.

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

AVEVA showcases role of digital technologies in achieving zero-carbon economy at COP27

AVEVA, A GLOBAL leader in industrial software, driving digital transformation and sustainability, will highlight how digital technologies can support public-private partnerships and unlock innovation to close the implementation gap on climate change at COP27.

A sponsor of the parallel Climate Action Innovation Zone, AVEVA believes trusted data-led technologies are essential to decarbonisation. <https://www.technicalreviewmiddleeast.com/power-a-water/renewables/>



Photo Credit : AVEVA

Lisa Wee, global head of sustainability, AVEVA.

Volvo invests towards electric hauling solutions to continue industry transformation

VOLVO CONSTRUCTION EQUIPMENT (Volvo CE) has announced its intention to invest SEK 360mn (approximately US\$32.7mn) into its production facility in Braås, Sweden between now and 2027. The facility in Braås specialises in the design and manufacture of articulated haulers for the global market. It produced a fossil-free construction machine that was the first in the world to be delivered to a customer – an A30G which is now in use on customer NCC's worksite. The decision to invest in Braås was made by AB Volvo's board of directors. The factory will be adapted over the coming years to enable it to produce a larger range of articulated haulers with different types of powertrain. <https://www.technicalreviewmiddleeast.com/construction/machinery/volvo-invests-towards-electric-hauling-solutions-to-continue-industry-transformation>

Emerson and ADNOC partner to leverage local manufacturing opportunities in UAE

EMERSON, A GLOBAL technology and software company, and Abu Dhabi National Oil Company (ADNOC) have partnered to explore Emerson's manufacturing capabilities and other solutions to strengthen the oil and gas sector in the country.

A visibility study will be conducted on Emerson's current manufacturing capabilities and other solutions that can be leveraged by ADNOC under this partnership.

Areas of exploration will cover existing and potential local manufacturing capacities for valves and different ranges of instrumentation.

<https://www.technicalreviewmiddleeast.com/business-a-management/business-a-management/>

CEQUENS partners with the largest integrator for logistics services in MENA, OTO

CEQUENS IS ALL set to announce the onboarding of OTO.

Signing at this year's SEAMLESS KSA, MENA's leading shipping gateway will now be able to utilise CEQUENS's full suite of multi-channel communication solutions to further enhance the customer journey for their clients worldwide.

<https://www.technicalreviewmiddleeast.com/business-a-management/business-a-management/>



Photo Credit : CEQUENS

CEQUENS partners with the largest integrator for logistics services in MENA, OTO.



A unique experience: the digital construction site.

The service and product worlds of AVS and Berghaus can now be experienced in a virtual showroom with a live drive through a highway or urban construction site! Without noise and risk, comfortably on your PC or mobile device, you can experience a 360° panoramic view of a construction site.

berghaus-verkehrstechnik.de/en/



Click here to visit our digital showroom www.avs-showroom.com



“The world needs all the solutions it can get. It is not oil and gas, or solar, not wind or nuclear, or hydrogen. It is oil and gas and solar, and wind and nuclear, and hydrogen. It is all of the above, plus the clean energies yet to be discovered, commercialised and deployed.”



HE DR SULTAN AHMED AL JABER
Group CEO
ADNOC

“The UAE is an excellent gateway for Indian exporters to have better access to markets and customers in Africa, the Middle East and Europe. With the UAE-India Comprehensive Economic Partnership Agreement now firmly in place, I am confident that bilateral trade will reach the US\$100bn mark well within the target time period.”

RIZWAN SOOMAR
CEO & managing director, sub-continent & sub-Saharan Africa
DP World

“UAE shoppers’ strong preference for mobile commerce touches every aspect of their shopping journeys, including their in-store shopping experiences. Meeting these mobile-centric shoppers’ needs is crucial to the success and growth of businesses in a market that is steadily progressing in its cashless journey. With the growing interest in online and mobile shopping in the country, responsible digital retailers are looking to improve their systems to provide their customers with a seamless and

secure shopping experience online and in-store shopping experiences for customers.”

SAEEDA JAFFAR
SVP and group country manager for GCC region
Visa

“The increasing demand for data has been astounding. To successfully meet the growing reliance on data and the rise of IoT, data centres have had to rapidly expand their infrastructure. As a result, data centres have inevitably become some of the world’s main consumers of energy. At Khazna Data Centers, we recognise the impact that data centres have on the environment, and we are designing and constructing today’s data centres with sustainability at top of mind in addition to implementing environmental solutions to help mitigate the effects of climate change.”

HASSAN ALNAQBI
Chief executive officer
Khazna Data Centers

“It comes as no surprise to anyone that the COP is being held this year in a world which is witnessing political turmoil that cast a long shadow on all our nations and has resulted in energy and food crises. However, these challenges should be no reason for delaying our collective effort to fight climate change.”



SAMEH SHOUKRY
Minister of Foreign Affairs
Government of Egypt

“Aviation decarbonisation is the biggest challenge facing our industry and the development of commercially viable sustainable aviation fuel is a key requirement to meet the industry sustainability target. Our MoU with Cepsa allows us to tackle the first challenge, building demand for SAF, which in turn encourages further production and increases availability to eventually lower costs and enable further SAF uptake from the wider industry. It’s a snowball effect, which is essential if we’re to overcome the main challenges standing in the way to a commercially viable solution.”

ADAM BOUKADIDA
Chief financial officer
Etihad Aviation Group

“Another strong quarter for the UAE retail economy showcases notable sector-wide resilience and reinforces the country’s steady march towards a return to sustainable growth. With all indicators pointing to a strong fourth quarter this year, and the lifting of COVID-19 restrictions, the UAE has put the pandemic-related turbulence firmly in the rear-view. We only need to consider the ongoing opportunity, security, and safety this nation offers to see why the world continues to flock to the region to build their future here.”

ALAIN BEJJANI
Chief executive officer
Majid Al Futtaim – Holding

“We are excited to bring to Egypt a new technology with the potential to unlock significant value... We have always led the industry in incorporating the latest technology across our work in Egypt and are pleased to partner with an industry leader like COBOD to help advance our sector in a sustainable manner.”

OSAMA BISHAI
CEO
Orascom Construction PLC
(On partnering with COBOD to bring 3D printing construction technology to Egypt)

“Closing the implementation gap on the world’s ambitious decarbonisation commitments presents a major source of economic opportunity for businesses and communities.”



Photo Credit: AVEVA

AMISH SABHARWAL

Executive vice-president – engineering and simulation and member of AVEVA’s executive leadership team
AVEVA

“We are excited to officially begin work on a project that is of national strategic importance and aligned with our goal to ‘build for Bahrain’ through the careful selection of projects that contribute to the economy and respond to market needs. The park will support the Kingdom’s growing logistics industry, as well as attract foreign investment and create jobs. With excellent road, air, and sea connectivity to the rest of the GCC, along with dedicated facilities such as this Park, Bahrain is rapidly evolving into a highly integrated logistics hub. Sitra Logistics Park has been designed as a one-stop shop for all logistical needs, with office spaces, warehouses, and distribution centre to enhance production capacities.”

AMIN AL ARRAYED

CEO
 Edamah
 (On the groundbreaking of the Sitra Logistics Park, a warehousing facility which will serve Bahrain’s logistics industry)

“The KEZAD Polymers Park continues to attract a wide range of manufacturing and value-adding companies to Abu Dhabi, owing to the easy access to raw materials that it provides, and the direct links to global markets it offers. The project will add further value to the ecosystem while strengthening Abu Dhabi’s position as a sustainable and competitive industrial hub.”

MOHAMAD AL KHADAR AL AHMED

Chief executive officer
KEZAD Group
 (On the establishment of an advanced recycling facility at KEZAD’s Polymers Park)

“We are highly motivated to deepen our investment in the UAE’s economy and believe that it is the optimal place in the region for scaling up. With the support of the MOEC via the NextGenFDI initiative, we will work towards ramping up our manpower and commercialising opportunities via strategic introductions. We are operating with a vision of excellence and the UAE proves to be the perfect hub for it. SoftServe has the ability and expertise to support the private and public sectors with latest technological innovations and we look forward to building long-term and sustainable collaborations across the region.”



Photo Credit: SoftServe

ALFREDO RUBINA

Regional manager, MEA
SoftServe

“We signed the MoU as it is in line with the Sultanate’s efforts to enhance joint investments with our brothers in the Kingdom of Saudi Arabia and the Arab Republic of Egypt in renewable energy projects, particularly wind power. Oman has a net zero emissions goals by 2050, and to this end, the country is developing an ambitious plan for energy transformation and decarbonisation, which includes the implementation of major projects in the field of hydrogen and renewable energy.”



Photo Credit: OIA

MULHAM BASHEER AL JARF

Acting deputy president
Investment at Oman Investment Authority
 (On the MoU signed with ACWA Power Company to explore bringing the sovereign wealth fund as an investor for the Suez Wind Energy Project)

“Addressing the climate emergency requires an exponential increase in renewable fuel supply. The Middle East, specifically Jebel Ali, is considered a gateway between the Western Hemisphere and the Far East. As WasteFuel works to produce green methanol to decarbonise shipping at scale, the opportunity to develop a biorefinery in partnership with Averda in the Middle East was an exciting and logical next step.”

TREVOR NEILSON

Co-founder, chairman and CEO
WasteFuel
 (On the partnership with Averda to develop the first commercial-scale municipal waste-to-renewable methanol plant in the Middle East)

Manufacturing a sustainable future

The UAE is setting an example in attracting and nurturing manufacturing of the future through the 'Make it in the Emirates' campaign.

THE ADIPEC 2022 Strategic Conferences highlighted the role of carbon capture and utilisation and storage technologies in the industry's shift to clean energy transition.

The manufacturing industry continues to face rising demands for clean energy and consumer scrutiny of its environmental impact.

"Supported by some of the largest industrial companies and enablers, 'Make it in the Emirates' invites investors and innovators to benefit from the UAE's unique value proposition, including robust support for entrepreneurs and SMEs looking to develop, manufacture and export their products from the UAE," said HE Omar Al Suwaidi, undersecretary at the ministry of industry and advanced technology.

Establishing a thriving and innovative global manufacturing hub is a key part of the UAE's vision to diversify and expand the nation's economy towards a net zero future, which has been a focal point for the ADIPEC 2022 Smart Manufacturing Zone.

Speaking at the Smart Manufacturing Strategic Conference, during a session titled 'Perspectives on Investment: the key drivers to attracting manufacturing investment to the UAE', HE Saud Abu Alshawareb, executive vice president, Dubai Industrial City (DIC), said, "We are agile with a full supply chain in DIC – we are an enabler



The manufacturing industry continues to face rising demands for clean energy.

since 2014, with six sectors. We have the largest electronic recycling facility in the world, generating raw materials for the world. Because of this circular economy, our aim is to decarbonise the industrial sector as part of Net Zero 2050.

"Today, 'Made in UAE' products can reach high-end markets because we have decarbonised products, produced with low-carbon emissions, which open up our products to markets in Europe and the US."

In the ADIPEC Strategic Conference programme, industry leaders also explored

the role of carbon capture and utilisation (CCU) and storage technologies as a major contributor to transition strategies, and how recent investments are driving technological advancements in this space.

During the session 'Accelerating progress in carbon capture, utilisation and storage: scaling up the opportunity,' Laure Mandrou, senior vice president, carbon-free solutions, Technip Energies, said, "Acceleration is really necessary to ramp up CCU, whether this is in terms of policy, technology or finance.

"We need more projects going through de-risking and into execution to start decarbonising further. We need to target more projects to FID (Final Investment Decision) with the solutions we have today. Forums like ADIPEC really help bring an alignment for the industry to move this forward," she said.

ADIPEC brings together global leaders from across markets to tackle critical issues around the security, affordability and sustainability of energy, and setting out the pathway to a progressive and pragmatic energy transition. ■

"Supported by some of the largest industrial companies and enablers, 'Make it in the Emirates' invites investors and innovators to benefit from the UAE's unique value proposition."

HE Omar Al Suwaidi, undersecretary at the ministry of industry and advanced technology

'Net zero is most ambitious project ever'

New report from the Institution of Mechanical Engineers looks at the engineering challenges in achieving the net zero goal.



The report looks at engineering challenges in achieving net zero goals.

Photo Credit : Adobe Stock

CUTTING GLOBAL GREENHOUSE gas emissions to meet net zero targets is arguably the most ambitious engineering project ever undertaken, according to a new report from the Institution of Mechanical Engineers.

The report 'Engineering A Net Zero Energy System' looks at the engineering challenges in achieving the net zero goal – which many countries have set for 2050 – which will require a switch from fossil fuels to low-carbon energy in less than 30 years.

The report examines the problem from three different perspectives – discrete technologies, complete systems, and economic and cost factors.

Former president Peter Flinn CEng FI MechE, author of the report, said, "The Net Zero Project could be viewed as the most ambitious engineering project ever undertaken. To be achieved, we need to accelerate our efforts, create market demand, release cash and engage in a massive scale-up programme. The

economics of net zero solutions are just as important as the technologies used."

To support this goal, the institution commits to providing a balanced and objective view of technologies, with particular reference to their development status and market opportunities. It will work to develop the skills needed to underpin net zero and work with relevant agencies in the energy and innovation sectors to encourage pilot projects of new technologies. ■

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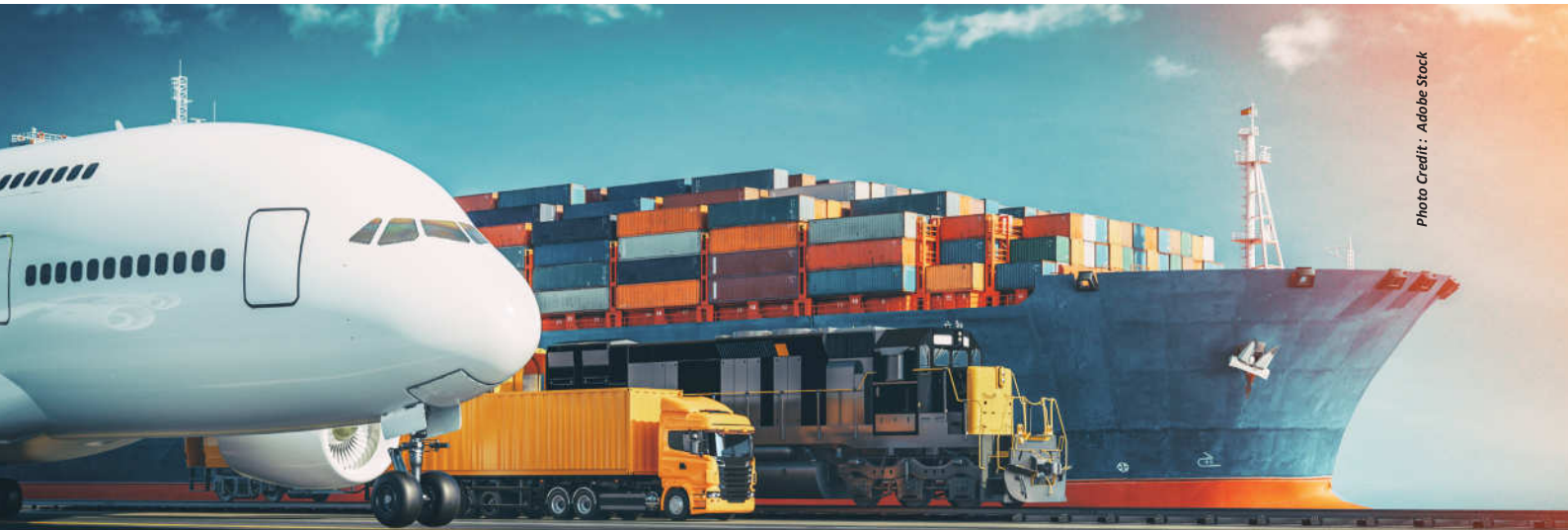


Photo Credit: Adobe Stock

Rail and road developments stand out as a key driver of growth.

All go in the GCC

GCC countries are rolling out massive infrastructure investments in road and rail, as the region transitions to a more electrified transport sector. Martin Clark reports.

INVESTMENT IN TRANSPORT will account for a large chunk of infrastructure spending in the Gulf in the years ahead. That's good news for the construction industry, and could yield immense benefits for businesses right across the region in terms of improved communications, and cost and time freight and travel savings.

Rail and road developments stand out as a key driver of growth, with both sub-sectors backed by a substantial project pipeline, according to a report by Fitch Solutions in 2021. Metro developments are also expected to play a large part in the transformation of urban transit, alongside the ongoing electrification of the vehicles market.

All of these developments are set against a long-term backdrop as GCC states move to diversify away from oil, with Saudi Arabia's Vision 2030 and UAE's Vision 2030 particularly focusing on metro projects.

As we move into 2023, that's not some far-distant vision either: it's now simply the time it takes to roll out big-ticket rail and road infrastructure projects — meaning the race is on.

Etihad Rail achieves milestone

In the UAE, Etihad Rail recently completed

tracklaying works for the main line in Sharjah and Ras al Khaimah. The line in Sharjah extends over 45 km, while the line in Ras Al Khaimah, extends over 5.7 km, with both connecting to the main line of the UAE National Rail Network. This extends from Ghuweifat on the border of Saudi Arabia, and passes through the emirates of Abu Dhabi, Dubai, Sharjah and Ras Al Khaimah.

Work continues on tracklaying in Fujairah as part of a plan to create the biggest integrated sustainable transport system in the UAE, which seeks to connect the emirates via rail and accelerate the country's sustainable economic development. Engineer Khuloud Al Mazrouei, deputy project manager at Etihad Rail, said it will play a key role in "opening up new prospects in the logistics and transport industry, driving social development, and providing promising economic opportunities in the UAE and the region across a range of sectors."

Among other milestones, the railway freight station in the Industrial City of Abu Dhabi has been connected with the main line of Etihad Rail. The last package of stage two of the project — which runs for 145 km from Sharjah to Fujairah port, passing through Ras Al Khaimah — faces multiple

challenges and hurdles, including the construction of 54 bridges and 20 animal crossings. It also has nine tunnels which extend over 6.9 km along the Al Hajar Mountains, including the longest tunnel in the GCC for heavy cargo, which extends over 1.8 km. This line passes through one of the most difficult geographical areas due to the mountainous terrain surrounding it.

Building a regional network

Going forward, it will form a vital part of the planned railway network across the GCC.

Saudi Arabia stands out as accounting for the largest share of the rail project pipeline value for the region, as host to around US\$50bn worth of projects.

But there are concerted efforts to interlink all major parts of the region's economy and its population centres.

In September, Oman Rail signed an agreement with Etihad Rail to jointly establish a new venture — Oman-Etihad Rail Company — to design and build a railway connecting Sohar Port to the UAE National Rail Network.

The much-anticipated 303 km railway will primarily link Sohar to Abu Dhabi with passenger and freight services. The passenger trains will cut travel times from Sohar to Abu Dhabi to 1 hour 40 minutes,

and from Sohar to Al Ain to 47 minutes, travelling at speeds of up to 200 km per hour.

Both sides hope that it will facilitate cross-border trade by linking commercial ports to the railway network, boost market competitiveness and reduce the total cost of supply chains.

The project could also stimulate tourism trade between Oman and the UAE.

Metro rail roll-out

Saudi Arabia has been another prime mover in the development of its railways networks.

Saudi Arabia Railways (SAR) — the largest state-owned railway operator in the Middle East — recently completed two new freight projects, with a line connecting the Eastern and Northern networks, as well as an internal network for Jubail Industrial City.

Metro construction projects are another big initiative across the Gulf, designed to improve urban transit in cities, as well as boost the overall environmental footprint of the transport sector.

Saudi Arabia's plans for a car-free city as part of 'The Line' project is indicative of this shift to a new era of public transport, notes Fitch Solutions.

Among other flagship projects, the Riyadh Metro is expected to be completed by 2030 and is one of the largest urban metro projects under construction, with 176 km of track and 85 stations.

Similarly, a new metro and bus network is

being developed in Jeddah and Mecca, with the Mecca Public Transport Programme set to serve 88 stations.

The UAE will also see further expansion to already existing infrastructure, with the upgrades to metro projects in Dubai and Abu Dhabi.

Other metro projects in the region include the Doha Metro, Kuwait City Metro and Bahrain International Airport Metro.

Inward investment

This has brought with it investment from international investors as well, with Alstom, a key player in Saudi Arabia's ongoing rail rollout, recently announcing plans to establish a regional office in the kingdom to support its growth.

The centre will be operated by a team of rail engineers and data scientists to provide expertise for both Alstom and non-Alstom rolling stock, infrastructure and signalling across the Gulf.

Its most recent project in the kingdom includes the supply of an integrated Metro System for Lines 4, 5 and 6 as part of the FAST Consortium and Line 3 within the ArRiyadh New Mobility Consortium (ANM). As a Member of FLOW, Alstom provides operation and maintenance services for Lines 3, 4, 5 and 6 of the Riyadh Metro.

For the Haramain high-speed rail line between Mecca and Medina, Alstom supplied Talgo with the Mitrac TC 3300 propulsion equipment and Flexifloat high

speed bogies for the powerheads of the 35 very high-speed trains as well as the VIP train for the 450 km line, and is contracted with the maintenance.

Additionally, Alstom is responsible for the construction of King Abdullah Financial District's monorail transit system. It is also the supplier and operation and maintenance provider of the turnkey Innovia APM 300 automated people mover system at the King Abdulaziz International Airport in Jeddah.

Local rail operators are also partnering with other institutions to grow skills, research and boost collaboration.

SAR recently teamed up with the UK's Birmingham Centre for Railway Research and Education to collaborate on research and development and railway education.

The future is electric

The roll out of the region's rail infrastructure is only a part of the Gulf's transport transformation.

Governments across the Middle East are also accelerating development of electric vehicle (EV) infrastructure and technology, with Saudi Arabia's pledge to become carbon neutral by 2060 and have 30% of vehicles in Riyadh electric by 2030.

The UAE, with an aim to become carbon neutral by 2050, ranks eighth globally in terms of readiness for electric mobility, according to the Global Electric Mobility Readiness Index (Gemrix 2022), a study by consultancy Arthur D. Little (ADL).

The UAE EV market is forecast to grow at a rate of 30% annually between 2022 and 2028, according to the report.

Passenger vehicles constitute around 95% of the EV market in the UAE due to an increase in rental car services and the limited scope for commercial vehicles in transport and logistics. Under UAE Vision 2021, the government has promoted EV adoption across the nation; it has converted 20% of government agency cars to EVs and further intends to reach 42,000 EVs on the streets by 2030.

The UAE already has one of the biggest charging-station-to-vehicle ratios in the world.

To promote the use of EVs, Dubai Electricity & Water Authority and Road Transport Authority is working jointly on incentives such as free parking, exemption from tolls, and reduced registration fees, with an aim to make public transport emission-free by 2050.

The region's first EV and battery logistics hub has also been opened in Dubai's Jebel

Etihad Rail is envisaged to be the biggest integrated sustainable transport system in the UAE.



Photo Credit: Etihad Rail

Ali Free Zone, in line with the UAE's transition to a circular economy by ensuring a reliable supply chain for sustainable mobility solutions.

The EV opportunity

It promises enticing returns for vehicle manufacturers as well.

The EV market in the Middle East stood at a value of US\$40.25mn in 2021 and is expected to reach US\$93.10mn by 2027.

International automobile companies like Kia, for example, are taking steps to play their part in helping the Gulf achieve its sustainability ambitions.

Kia's latest Concept EV9 is an all-electric SUV concept model combining progressive design, state-of-the-art tech, and an all-electric powertrain.

As the company works towards a vision for an all-electric line up worldwide by 2040, it is set to bring 11 electric cars to the market by 2026.

But international players could face competition from homegrown initiatives too.

In November, Saudi Arabia announced that it was launching its first EV brand, Ceer, an initiative of the Public Investment Fund (PIF).

Ceer is a joint venture between PIF and Hon Hai Precision Industry Co. (Foxconn), which will license component technology from BMW.

"Saudi Arabia is not just building a new

Photo Credit : Adobe Stock



The future is electric.

automotive brand, we are igniting a new industry and an ecosystem that attracts international and local investments, creates job opportunities for local talent, enables the private sector, and contributes to increasing Saudi Arabia's GDP over the next decade, as part of PIF's strategy to drive the economic growth in line with Vision 2030,"

said His Royal Highness Crown Prince Mohammed bin Salman.

Ceer will attract more than US\$150mn of foreign direct investment, and create up to 30,000 direct and indirect jobs and is projected to directly contribute US\$8bn to Saudi Arabia's GDP by 2034, according to a statement. ■

NIDEC INDUSTRIAL SOLUTIONS LAUNCHES 'DIRECT POWER DC' CHARGING POINT

NIDEC INDUSTRIAL SOLUTIONS (NIS), part of the Nidec Group, is expanding its range of solutions for charging electric vehicles, a central aspect to the spread of eMobility worldwide, by presenting an innovative charging point that distinguishes itself from all the others available on the market. The solution can reach a power output of 360 kW. It was developed to maximise the service providers' ROI while optimising the user's experience.

The new charging point, developed and manufactured in Salzbergen, Germany, is equipped with two DC cables and can charge two cars at the same time or just one, in which case all the energy is concentrated in one cable. Additionally, an AC socket can be added to serve all vehicles on the road.

It offers various benefits such as connectivity, real time response, ease of installation and maintenance, remote diagnostics, compactness, but above all modularity, thanks to which the investment



The charging point can be customised to suit the service provider's colour and brand.

can be calibrated according to market demand, and is therefore scalable over time. The charging point, which stands out for its Italian design, can be customised to suit the service provider's colours and brand. Direct Power DC is the first charging point custom-tailored to end users. It guarantees a simple, highly intuitive user experience. It has been ergonomically designed to ensure maximum accessibility for users of all heights or with disabilities, an aspect which is key to ensuring its wide market penetration.

"Our new DirectPower DC charging point,

Photo Credit : Nidec

together with our other DirectPower PS integrated battery charging system, provides a charging system that will help speed up the implementation and use of an efficient and advanced charging infrastructure for today's and tomorrow's cars, which is central to the spread of more sustainable mobility," said CEO Dominique Llonch. "For the first time, a charging point has been designed not only to allow maximum customisation for service providers but also to guarantee maximum inclusiveness for users. With this new product, we are now able to offer a range of solutions to suit all charging needs," he added.

The charging point is already available on the market and ready for purchase with all the features required for service stations, large supermarket chains, resorts and company fleet managers. NIS intends to install these products also in its Milan and Montebello plants, with a view to migrating the company's entire fleet to electric power.

When design meets sustainability

Digital innovations have the power to considerably reduce the impact of the built environment on our planet.

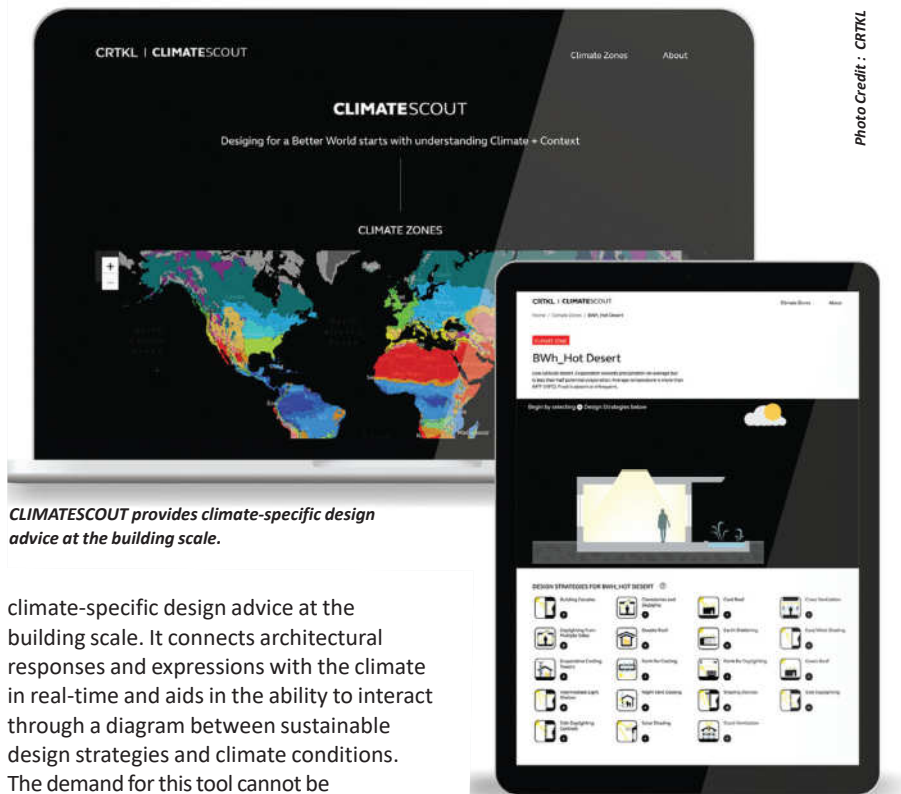
CRTKL, A GLOBAL agency specialising in architecture, planning and design, has highlighted three significant ways digital technology is reducing 40% of greenhouse gas emissions the built environment is currently responsible for producing, in an industry-leading annual sustainability report.

According to CRTKL's report, effective use of technology in the built environment ensures more sustainable outcomes and CRTKL has pledged that 50% of projects will utilise building simulations by the end of the year. Performance of these projects is being innovatively measured and tracked through a digital dashboard. This comes as part of CRTKL's wider mission to ensure all of its projects are climate-positive in operation by 2030, and in materials by 2040. It is aligned with efforts being taken across the region, with a recent survey highlighting that according to 82% of UAE-based IT decision-makers, sustainability is now one of their most important drivers, with commitments made to science-based targets.

Kashif Dafedar, associate at CRTKL, commented, "Digital innovations that integrate design and sustainability hold the key to a carbon-positive built environment. This technology is providing climate-specific, low-carbon solutions that reduce emissions, advance the net zero momentum and establish a planet-positive design standard."

The three key ways digital technology is reducing the impact of the built environment on our planet include:

The award-winning CLIMATESCOUT, which is a first-of-its-kind, open source platform helping users design buildings that uniquely respond to a site by providing



CLIMATESCOUT provides climate-specific design advice at the building scale.

climate-specific design advice at the building scale. It connects architectural responses and expressions with the climate in real-time and aids in the ability to interact through a diagram between sustainable design strategies and climate conditions. The demand for this tool cannot be understated, with 14,000 views in less than the first year of launch. The web-based application uses a combination of images and data to enable the visualisation of low carbon, regenerative, resilient, and adaptive buildings.

Performance Driven Design (PDD) is a data-driven design process that combines analogue and digital tools to design low-carbon buildings that are also more resilient and responsive to climate. It is a flexible process that can be tailored to any project goal. Bolstered by scientific principles, research and performance simulations, PDD guides

designers in an increasingly complex world, improving the quality and value of any project.

Harnessing the power of data, computational design aims to provide as much value as possible by tailoring design solutions to the needs of the specific clients and communities. By drawing on ample evidence about the social, economic and environmental impact of design, building simulations analyse the greatest available intelligence to create compelling design with measurable benefits to people, place and planet. Analysing data in design improves sustainability in-built environment by reducing the impact on the natural environment.

Dafedar added, "By using a combination of internally created and off-the-shelf tools, we make it easier to incorporate sustainable strategies in our designs. ■"

Photo Credit : CRTKL

Sustainability is now one of the most important drivers with commitments made to science-based targets.

The Big 5: helping the industry excel

From 5-8 December, the Middle East, Africa and South Asia's biggest construction industry event will take place at Dubai World Trade Centre.

RETURNING FOR ITS 43rd edition this year, The Big 5 is expected to attract more than 55,000 professionals, disruptors, innovators, suppliers, stakeholders, ESG advisors and international policy makers from the wide-spectrum of the construction market.

Arriving from nearly 150 countries across the globe, attendees will benefit from four unique days of trading, knowledge-sharing and networking opportunities alongside front-row seats to product launches and detailed debates from industry leaders.

The event this year arrives at a strong time for the construction industry as economies continue their post-pandemic recovery with most market reports suggesting significant forthcoming growth. By example, an upcoming report by Oxford Economics expects growth of US\$5.6tn in construction between 2022 to 2037 which represents a 60% size increase of the market. While China is expected to contribute significantly to this, rising populations and rapid urbanisations is a key driver prompting significant growth in developing countries including many in sub-Saharan Africa.

In the GCC, as reported by Economist Intelligence Unit, the construction sector is poised for a period of sustained strong expansion in the short to medium term with a yearly average growth of 3.5-4% in 2023-2024. A wide range of projects being contracted across a range of sectors including energy, power, water, transport infrastructure, commercial and industrial developments, is providing a firm platform for the flourishing sector, so much so that it is expected to outperform the wider economy.

According to ABiQ, the knowledge partner of The Big 5, the combined value of projects in Africa and the Middle East is currently estimated at US\$6.5tn, with US\$3.5tn already ongoing and US\$2.9tn in the pipeline.

Such promise within the sector is



Photo Credit : dmg events

More than 55,000 attendees are expected to attend the event in Dubai.

excellent news for the approximately 2,000 exhibitors who are setting up shop in Dubai and will no doubt be a jubilant basis of conversation at stands across the halls.

At the booths, innovative solutions and equipment covering the entirety of the construction industry will be on display, placed their by fresh-faced and established brands alike. Among those showcasing their wares this year are key exhibitors such as Caterpillar, Elematic, Grundfos, Honeywell, Kobelco, ABUS, CIFA, Masa, RECKLI, Resideo, and many more.

Driving the community forward

Helping attendees to stay ahead of the curve and aligned with the industry's future developments, The Big 5 is packed with an array of summits, talks and panel discussions.

Returning this year, The Big 5 Global Construction Leaders' Summit will feature a selection of key industry stakeholders and external disruptors who will provide direct insights straight from the top of the sector and explore the transition of the industry, challenges and opportunities it offers.

HE Suhail Mohamed Al Mazrouei, UAE Minister of Energy & Infrastructure,

providing his endorsement for the event, called for industry collaboration as smart technology looks to shape the future of construction.

He said, "The government is determined to develop policies, laws, and regulations to support and diversify the national economy by launching integrated investment projects, enabling innovative capabilities, and enhancing skills on the regional and international levels. The Big 5 Global Construction Leaders' Summit brings into attention the critical role the construction sector plays in developing infrastructure and achieving the sustainability of the national economy.

"It also contributes to exploring prospects for cooperation with our partners to achieve more dependence on modern technologies in the various sectors of the construction sector that have the potential to keep pace with digital transformation, in line with the Government's ambitious vision to realise its future goals and global sector leadership."

Ben Greenish, senior vice president, construction of organiser dmg events, added, "Attendees from across the region will be taking part in vital discussions at the event, where the sector's global leaders will

seek to future-proof the construction sector through collaboration, sustainability, and technology. We're honoured to be partnering with the UAE Ministry of Energy & Infrastructure and to have its support."

Arriving for the first time this year, The Big 5 Global Construction Impact Summit is dedicated to helping push a coordinated approach to meeting local and global emission and waste reduction targets. Discussion topics throughout the summit will include how to advance net zero throughout the industry, ESG leadership in construction, the acceleration of change by scaling up solutions and collaboration, achieving zero waste through substitute materials use, and ESG metrics reporting.

Greenish said, "The Global Construction Impact Summit will emerge as a green pathway for the regional industry, which has the chance to demonstrate international leadership by highlighting commitment to national net zero visions."

The FutureTech Construction Summit, Industry Talks, Digital Construction World, Start-up City, and Women in Construction,

The portfolio of events aims at ensuring participants get to meet the people most appropriate to their specific area of business.



There will be six specialised events dedicated to addressing major construction sectors.



New initiatives such as The Big 5 Global Construction Impact Summit and Everything Architecture will feature this year.

will help provide a dynamic mix of learning, development, celebration, analysis, debate and knowledge sharing to help drive the construction community forward.

The Big 5 Construction Impact Awards will continue the theme of net zero and ESG by honouring the people, organisations, and projects that are driving sustainable development, innovation, and transformation in the regions' booming construction industry. Across 17 comprehensive categories, the awards act as a stage to celebrate the achievements and transformation of the construction industry that go beyond traditional measures of project delivery.

These will also feature alongside six specialised events, all dedicated to addressing key construction sectors. These include:

- Middle East Concrete and The Big 5 Heavy to bring together the concrete supply chain and heavy machinery players
- Middle East Stone to highlight why quality stone products, well-crafted installations and the right maintenance make stone a go-to material
- Urban Design & Landscape Expo to showcase ground-breaking landscape, infrastructure and urban development solutions
- FM Expo to connect facilities management professionals with the latest technology and support them in safely maintaining their assets
- HVAC R Expo which will bring together expertise, technology and products around healthy air conditioning for new build, retrofit, or maintenance programmes
- Everything Architecture, a new exclusive event for The Big 5, which will consist of innovative and inspiring materials, services and products that are transforming architectural and design sectors around the world.

"This portfolio of events aims at ensuring participants get to meet the people most appropriate to their specific area of business, and that visitors can make the most of their attendance by quickly accessing the exhibitors most relevant to their operations," remarked Greenish.

Building on its 42-year legacy, The Big 5 returns with high expectations once again, to provide an unmatched platform for construction industry players from around the world to connect, grow and succeed. ■

Doing the heavy lifting

From ACCIONA to Volvo Penta and Manitou, telescopic handler companies are introducing innovative alternatives to fight climate concerns.

WITH THOUSANDS OF buildings erected in the congested streets of a city each year, there's no room for complacency as contractors endeavour to minimise the disruption they bring to the neighbourhood. Sometimes, there is little room for tower cranes either – but, thanks to the powerful reliability offered by a Volvo Penta D5 engine and a Magni RTH 6.46 rotating telescopic handler, companies have found the perfect alternative.

Unlike a crane, the Magni RTH 6.46 rotating telescopic handler can be set up within minutes and easily moved, perfectly combining compact mobility and maneuverability with its status as one of the highest-reaching telehandlers in the world. Impressively, it can lift a maximum 6 t, or 2.5t to just under 46 m, from where a spider crane can distribute the loads to the higher floors. It can be used for hoisting everything from plywood sheets to the concrete pump and bringing the garbage back down. It is estimated that Magni will make approximately 3,000 lifts over a 13-month build, including moving a total 900 t of steel.

This sort of intensive use is far from unusual for Magni's telehandlers, so when it came to choosing an engine that could reliably power the RTH 6.46, its engineers instantly thought of partnering with Volvo Penta.

ACCIONA, a global company providing regenerative solutions for a decarbonised economy has purchased four telescopic handlers and two rotating dumpers, which will mainly be used in urban construction projects. As part of its commitment to mitigating climate change, ACCIONA has recently acquired electrical machinery through its Asset Management Department for use in the construction projects that the company undertakes all over the world. This pilot project, part of the company's decarbonisation plan, makes ACCIONA the first Spanish construction company to invest in this kind of electrical machinery. Thanks to their 100% electrical operation, great improvements are made in reducing pollutant emissions and noise levels on site.

In line with the latest scientific studies on



Photo Credit : ACCIONA

ACCIONA has purchased four telescopic handlers to be used mainly for urban construction projects.

climate change, the company has undertaken to reduce direct emissions by 60% between 2017 and 2030, aiming to limit global warming to no more than 1.5°C above pre-industrial levels.

Overall, it is estimated that the use of this electrical machinery could reduce up to 100 tonnes of CO₂ emissions.

Currently holding the spotlight in the telescopic handler market is Manitou, as it recently launched a new addition to its heavy-duty telehandler range at Electra Mining Africa. The MHT-X 11250, a first of its kind on the African continent, offers a

Thanks to ACCIONA's 100% electrical operation, great improvements are made in reducing pollutant emissions and noise levels on site.

capacity of 25 t and a maximum lifting height of 11 m. This combined with a fuel efficient, high torque, 211 hp twin-turbo engine makes it an ideal solution for all types of maintenance and servicing activities on a mine site.

The company has not been adverse to climate concerns either, as the new engine – coupled to a hydrostatic transmission – boasts a 15% fuel saving figure, ensuring that the machine can efficiently handle heavy and bulky loads on all terrain.

The MHT range is also available in 9, 13.5, 16 and 20 t configurations which are now being stocked for the African markets and come with a wide range of attachments available including forks, hooks and winches, personnel cages as well as tyre, cylinder and pipe handlers. For maximum comfort, this machine is equipped with a panoramic cab, easy step access, JSM joystick and brand-new colour touch-screen display with dynamic load charts.

In addition to the large MHT-X 11250 telehandlers, Manitou also showcased their MRT rotating telehandler range as well as their MT-X 733 and MHT-X 790 mining specification telehandlers, offering lifting heights of up to 7 metres and 3.3 t and 9 t capacity respectively. ■

Pontchateau now even more a major asset for Bobcat

TELEHANDLERS HAVE BEEN part of Bobcat's Pontchateau site plant in Loire-Atlantique in France for more than half a century.

All Bobcat rigid telehandlers for the world market are manufactured here, including 29 models split between ranges for the construction and agricultural markets.

"In 2016, as our logistics capacity reached saturation and demand grew, Bobcat defined a three-year expansion plan for the facility, representing four million euros of investment," explains Jerome Miermont, site director for the Bobcat Pontchateau facility.

Completed in 2019, with the addition of 13,000 sq m of extra space and a new 1500 m² plus logistics building, these developments have made it possible to meet the effects of substantial growth in the brand's activity (+75% between 2017 and 2022). This was also accompanied by a reorganisation of the manufacturing process.

For the telehandlers, the journey always starts in the design office. This office has a team of 40 employees operating from Pontchateau, together with another team based in the Czech Republic, at the Doosan Bobcat European headquarters.

On the production line, the machines start to take shape during the mechanical welding operations, which are strategically organised in two lines: one for the boom, and the other for the frame. After the steel parts have been laser cut, they are bent into the right shape - for example, to form the two half-sections of the boom in U form, after which the next step is welding.

"To optimise production, we have equipped ourselves with two larger robots, each of which welds all the frames, saving 30% in time. The last robot, representing an investment of 850,000 Euros, arrived last September," Jerome Miermont explains.

The various parts of the telehandlers are then sent to the blast



The plant in Loire-Atlantique, France for Bobcat rigid telehandlers has given itself the means to go to the next level.

chamber for shot blasting, before being painted. The staff carry out a detailed technical procedure (priming, fading time, lacquer application and oven drying) to ensure a high-quality finish.

Up to 17 machines per day

The assembly line is organised around 58 stations. To save time and space, a team in the kitting workshop has prepared the necessary components for each station in advance. On the sub-assembly line, various machine components (the engine nacelle, the cab etc.) are assembled to gradually build the machine on the main line, which alone comprises 17 different stations. Even before the tyres are fitted, the carriage is filled with oil and programmed. This is followed by the fitting of the mudguards, a performance test and the installation of the tyres. The final assembly station is reserved for the installation of the hood and the stickers, then the machine goes through a test phase (static and dynamic) for four hours.

Up to 17 machines can be assembled daily. "Last year we produced 2658 machines. This is a record number, well above the planned target of 2455 units," Jerome Miermont adds. But with an estimated annual production capacity of 3500 machines in 2022, there is still space for growth. The Pontchateau plant intends to double its activity by 2025.

Genie telescopic boom lift combines performance and lower costs

WITH A LEADING unrestricted capacity and lightweight, efficient design, the Genie S-80 J boom lift is not only well-suited for nearly any work-at-height task, it also is purposefully designed to lower ownership costs.

Earlier this year, eight Middle East access hire companies had a chance to see the S-80 J first-hand, and in-person during Genie's UAE S-80 J Demo Tour. During the event, Genie team members provided demos that highlighted the quality and capabilities of the S-80 J boom lift, shared information about how the boom could help rental companies maximise their profitability. Mark Pilford, regional operations manager at Access Rental Gulf, observed, "The reduced TCO is definitely a game changer, especially in the mid-sized booms that are challenged on rental rates. I will be able to improve my ROI and also differentiate the XC range with a better rental rate. And customers will benefit from a machine that is more affordable,

especially if they do not require all the features of the XC range, yet gain an extra 70 kgs of work in the basket, along with the latest technology."

The Genie S-80 J boom lift features a leading unrestricted platform capacity of 300 kb (660 lb), 16.8 m (55 ft) of horizontal reach for access at the top of the envelope, and a 1.8 m (6 ft) jib, making it well suited for nearly all work-at-height tasks in the 80 ft (26 m) range, including general construction, maintenance, inspection and painting. A single-envelope, optimised design reduces overall inspection points and wearable components, speeding up inspections and reducing the time and expense of maintenance and repairs, resulting in a lower total cost of ownership.

Thanks to its extremely low machine weight, the S-80 J has low ground pressure for a machine of this class size. Its low weight also allows the S-80 J to be

equipped with the exclusive Genie 4-point TraX™ system — making it the first and only 80 ft (26 m) boom lift to be available as a tracked option. Genie TraX provides exceptional terrainability and lower contact pressure for a smooth drive on rough ground conditions and reduced damage when operating on sensitive ground surfaces, such as wet grass, mud, sand and snow, as well as on harder, uneven gravel, rock, concrete or asphalt-based surfaces.

A high ground clearance of 36 cm (14 in) — or 41 cm (16.25 in) when equipped with TraX — the S-80 J easily clear rocks, curbs, trailer break-overs and other daily obstacles, getting operators around jobsites more efficiently.

Genie lifts and telehandlers can be found enhancing safety and improving productivity on jobsites worldwide. Genie consistently builds on its ability to consistently deliver superior quality for our customers.

Wirtgen Group makes sustainable road construction a reality

THE SUSTAINABILITY FOCUS of the Wirtgen Group was a central theme throughout its appearance at bauma in Munich, this year. Consequently, the spotlight among the world premiere machines and innovations was on battery-electric tandem rollers from Hamm, the battery-electric mini road pavers from Vögele, and the all-electric impact crusher from Kleemann. The two Wirtgen compact milling machines with comfort cabin, the Vögele Dash 5 generation road paver, and the Benninghoven REVOC system, a catalytic converter for asphalt mixing plants, also drew attention.

Production systems with ecological and economic savings potential

The Group presented production systems providing complete road construction solutions. Users benefit from the coordinated Wirtgen Group machine portfolio and the synergies generated by the alliance with John Deere. This also applies to the processing of quarry and recycling materials, where John Deere wheel loaders together with Kleemann crushers and screening plants form an integrated production system.



The Wirtgen Group presented its innovative powers at bauma, 2022.

Photo Credit: Wirtgen Group

Digitisation as a driver for greater sustainability in road construction

The Group highlighted digital solutions for its product brands that already make it easier for users to operate the machines and enable job site documentation. These solutions include the Wirtgen Performance Tracker, the new Wirtgen AutoTrac satellite-based steering system for wheeled soil stabilisers and wheeled recyclers, the new Smart Compact digital

compaction assistant from Hamm, as well as the Vögele documentation and process optimisation tools, WITOS Paving Docu and Paving Plus.

In addition, the Operations Centre provided a glimpse of how entire jobsites can be planned, monitored and analysed in the future. The aim is to deliver real added value to customers with the help of telematics solutions, enabling them to implement their projects even more efficiently.

New Grove TMS800-2 boosts productivity with 'big crane' features

THE TMS800-2 ADOPTS technology and features from larger truck-mounted and all-terrain cranes, packaging them into an easily roadable 80 USt unit.

The crane can carry its full 14 t of counterweight and remain within axle and tyre limits without a fall-off load. In areas with stricter roading laws, the TMS800-2 can carry 9 t and remain under 50 t GVW (gross vehicle weight), and 12.5 t per axle while being in a taxi configuration. The absence of wing weights contributes to the crane's slim 2.5 m travel width.

"Think of the TMS800-2 as a lighter version of the TMS9000-2, sharing the same ergonomic cab and having interchangeable counterweights, but with a shorter boom, a maximum capacity of 80 t, and excellent roading capabilities," said JJ Grace, Grove's product manager for truck-mounted cranes.



Photo Credit: Grove

The crane boasts a six-cylinder turbocharged diesel engine.

Firm foundation

A new outrigger design makes the jobsite setup simpler and faster. The rear outrigger box is raised by just under 5 inches to improve the departure angle to 18°, while the front outrigger jacks are raised 3.5 inches to improve ground clearance.

Additionally, Grove's MAXbase allows outriggers to be positioned asymmetrically, enabling the crane to be set up as close to the lift as possible. Smart sensors accelerate and enhance the stabilisation process, providing length sensing and an auto-levelling feature.

More power and perks

The crane's powertrain has also been upgraded, with the switch to a six-cylinder Cummins X12 turbocharged diesel engine boosting power output by 25 hp to 475 hp, and maximum torque from 1,550 lb-ft to 1,700 lb-ft.

Its aluminium carrier cab provides an improved level of comfort and ergonomics for the operator. Sightlines from the adjustable air-suspended seat are enhanced via a camera system that transmits real-time pictures from the rear or the right-hand side blind spot to the in-cab display.

The operator's access to the superstructure cab is simplified by five access/egress points around the chassis. Using the Crane Control System (CCS) platform, the dual-axis ergonomic joysticks allow fine control of the load from the comfort of the adjustable seat with hydraulic suspension.

CCS incorporates a full-colour graphic display for better visibility and hosts a camera relay, giving the operator a bird's-eye view of the deployment of up to 199 m of rope from the main hoist.

Doosan launches new articulated dump truck at bauma 2022

ONE OF SEVERAL world premieres from Doosan at bauma 2022 was the launch of the company's new 4x4 articulated dump truck (ADT). Complementing the company's standard, market-leading range of 6x6 ADT models, the new 4x4 version of the DA45-7 ADT is intended to compete with rigid dump trucks (RDTs) in the 40-tonne class.

The new 4x4 DA45-7 ADT complements the current market-leading range of Stage V compliant 6x6 ADTs from Doosan, which includes the DA30-7 and DA45-7 models with payloads of 28 and 41 tonne, respectively.

In the new 4x4 ADT, the front truck and cab unit is the same as in the original 6x6 model, with modifications being made on the rear dumper unit only. Featuring a ZF EP8-420 transmission, the 4x4 DA45-7 is a two-axle ADT with twin wheels at the rear, and with a dumper section similar to that on RDTs in the 40-tonne class.

Superior performance in difficult conditions compared to RDTs

"With superior operation on poorer roads, smoother surfaces and steeper terrain, the aim of our new 4x4 machine is to challenge RDTs in the 40-tonne class, by providing a dumper product that delivers



The 4x4 DA45-7 ADT.

Photo Credit: Doosan

much more than RDTs," said Beka Nemstsveridze, ADT product manager at Doosan.

As well as performing better in conditions that are tough for RDTs, the new 4x4 DA45-7 ADT has a width of less than 4 m to avoid the need for special transportation and offers a better turning radius than a comparable RDT. The shorter turning radius and the design of the rear dumper unit, which is more suited to carrying flat and heavy rocks, provide:

- Climbing bigger inclinations than equivalent RDTs
- Better performance than RDTs in wet and slippery conditions
- Doosan's 4x4 ADT does not need to stop working in heavy rain
- More effective operation of the 4x4 ADT on compact sites, thanks to the short turning radius
- The two axle 4x4 ADT design causes less ground disturbance than 6x6 configurations

The new 4x4 DA45-7 ADT has been developed at the Doosan ADT plant located in Elnesvågen, Norway. As well as the advantages detailed above, the new Doosan Stage V 4x4 ADT provides excellent load carrying performance, fuel efficiency, enhanced controllability and high operator comfort, together with improved reliability, durability and reduced maintenance and servicing costs.

For more on Doosan construction equipment, please visit: www.eu.doosanequipment.com

Photo Credit: Doosan



The new 4x4 DA45-7 ADT performs better in conditions that are tough for RDT's

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Caterpillar expands Tilt Rotate System for mini excavators

CATERPILLAR WORK TOOLS Division has announced new Tilt Rotate System (TRS) models for Cat 302.7 through 310 Next Generation Mini Excavators.

The new TRS4 and TRS8 S45 plus updated TRS6 models allow attached work tools to rotate 360 degrees and tilt 40 degrees side-to-side. This enables the machine to reach more work areas from a single position, while maneuvering tools over, under, and around obstructions when excavating, grading ditches, sorting recycle materials, or placing pipe. The new TRS models multiply the mini excavator's versatility and are available in various configurations to match the application.

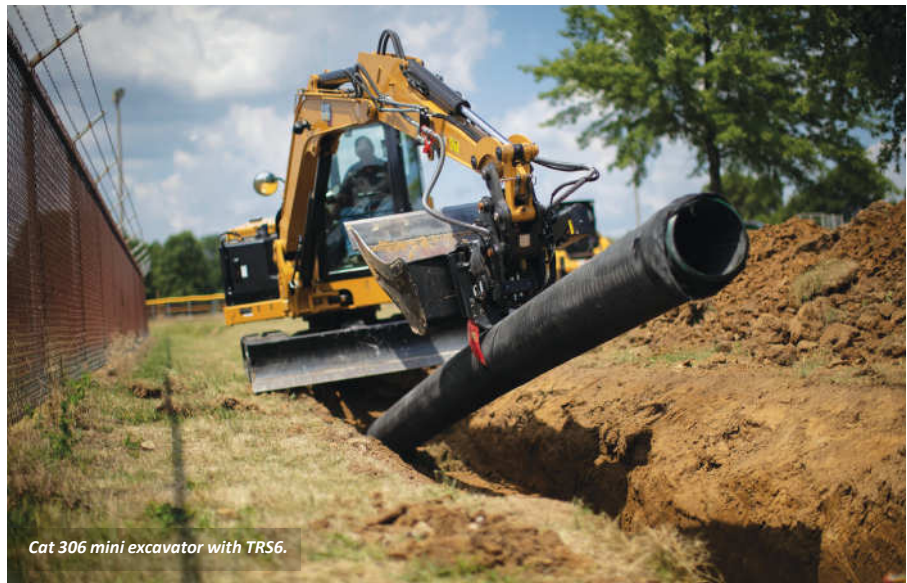
System design includes a top interface that connects the TRS to the carrier machine and a bottom interface that connects various work tools to the TRS.

All TRS models are standardised with an auxiliary TRSAux1 hydraulic function at the bottom. This allows for the installation of an integrated grapple module when the TRS model is attached to the carrier via the S type coupler system.

The TRS6 and TRS8 feature a standard TRSAux2 auxiliary port at the bottom to connect a variety for different hydraulic tools. Sensors for these TRS models work in combination with Cat mini excavator software and a variety of different external reference suppliers for 2D and 3D work applications.

Design benefits

The compact design of the TRS4, TRS6 and TRS8 allows the mini excavator to maintain a no-maintenance lubrication system for the



Cat 306 mini excavator with TRS6.

Photo Credit : Caterpillar

rotation system effectively distributes heat. The high-torque rotation system quickly positions work tools, and an integral self-locking mechanism enables digging at any angle required. Single/minimal grease points for TRS models delivers quick, efficient greasing of all joints requiring lubrication.

Integrated load-hold valves for the double-acting tilt cylinder maintains holding pressures and prevents cylinder movement under load. Cylinder design features hardened pistons and maintenance-free bearings, and its scratch-resistant, rust-proof surfaces require no maintenance.

An integrated, dealer-installed field control kit, which includes specially designed joysticks, suits all boom-and-stick combinations and provides intuitive control

of the TRS and integral grapple. The TRS monitor informs the operator of the attachment's position, and an engagement/disengagement sensor assures that work tools are secured via a safety locking mechanism with indicator. Activated by a joystick button, all TRS models offer a bucket-shake feature to facilitate even spreading of materials.

TRS application

TRS4 models are designed for efficient use by the Cat 302.7, 303, 303.5 and 304 Mini Excavators, while the TRS6 models are compatible with the Cat 305.5CR and 306 CR models. The TRS8 models are designed for use with the Cat 307.5, 308, 308.5, 309 and 310.

Herrenknecht at bauma 2022

AS A FULL-RANGE supplier of mechanised tunnelling technology together with its highly specialised subsidiaries, Herrenknecht supports the construction industry in all underground challenges.

At bauma the technology leader presented how the journey in tunnelling can progress with the help of technology.

Under the motto 'Re-connect our joined ingenuity', Herrenknecht presented the challenges of new underground missions and showcased innovative solution concepts at bauma 2022. With the expertise from worldwide lighthouse projects, Herrenknecht demonstrated how partners in mechanised tunnelling can move forward together safely, swiftly, and reliably.

Tunnel boring machines are complex engineered operating systems using state-of-the-art features and smart applications. Herrenknecht brings digitalisation for all involved experts straight forward: smart data analytics and virtual reality for training and onboarding.

Substantial renewable energy use and feasible power grids are among the key challenges for future infrastructure on which great public expectations rests. The underground construction industry is able to contribute increasingly environment-friendly solutions. For example, trenchless methods secure fast and safe installation of underground cables with minimal impact on the surroundings. The

Herrenknecht E-Power Pipe is an eco-friendly choice when small diameter product pipes are to be installed at shallow depths.

Recent years have seen greatly increased offshore and marine constructions for renewable energy and future-proof coastal infrastructure. Herrenknecht Offshore Foundation Drilling technology can be employed on exceedingly rocky seabeds, enabling monopiling in populated sea ground while reducing sealife-critical noise emissions. The innovative technology opens up new terrain for offshore wind power, and also new construction capacities for bridge pier foundations, port facilities or tidal power.

Bentley Infrastructure Cloud offers improved productivity and quality

AT THE 2022 Year in Infrastructure Conference, Bentley Systems, Incorporated, the infrastructure engineering software company announced Bentley Infrastructure Cloud, its combination of enterprise systems that span the end-to-end lifecycle and value chain of the world's infrastructure. Bentley Infrastructure Cloud will enable better creation, delivery, and ongoing operation of better infrastructure, through complete and evergreen digital twins.

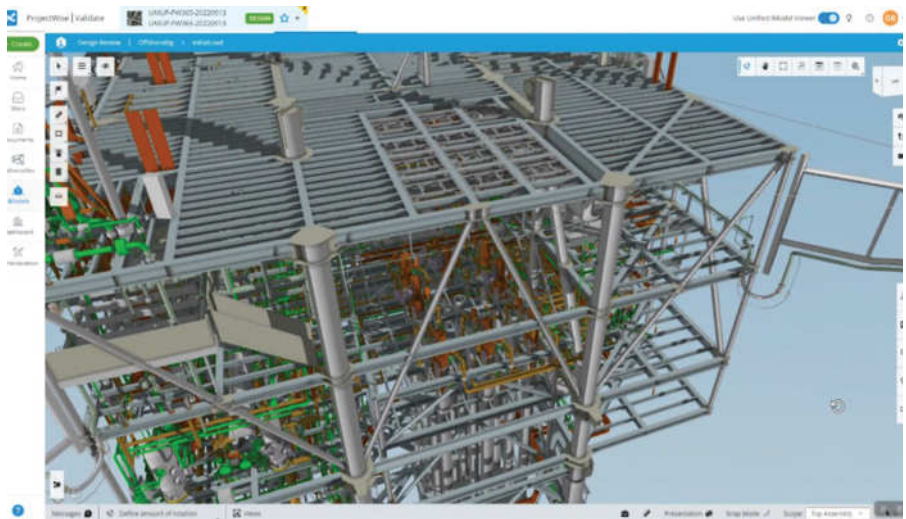
It encompasses ProjectWise, for project delivery; SYNCHRO, for construction; and AssetWise, for asset operations. These enterprise systems now leverage digital twin technologies, powered by iTwin, to open up data contained in engineering files through automated and intrinsic mapping to Bentley's infrastructure schemas. Bentley Infrastructure Cloud provides user organisations with significant opportunities to improve collaboration, productivity, and quality.

Bentley Infrastructure Cloud comprises a data-centric, always on, always current, always accessible federated environment that persists and relates engineering data throughout the span of design, construction, and operations. Information mobility and semantic continuity across traditional boundaries through Bentley Infrastructure Cloud will help accelerate, among other advancements, modular design and design for constructability, and performance-based design.

Bentley's senior vice president of enterprise systems Ken Adamson said, "Bentley Infrastructure Cloud stands for our commitment to connect everyone and everything in the infrastructure engineering value chain and extended project ecosystems. Infrastructure professionals deserve an evergreen digital twin environment for data that they can trust and act upon. I believe Bentley Systems is uniquely positioned to fulfill this requirement by virtue of the combined comprehensiveness of our ProjectWise, SYNCHRO, and AssetWise enterprise systems, our software's intrinsic engineering fidelity, and our commitment to openness – including our unique resolve to semantically integrate the full range of relevant engineering file formats. The iTwin Platform, in becoming the robust foundation for unifying all of our software development, has been proven equal to this challenge."

Powered by iTwin:

ProjectWise leverages iTwin Capture to



Bentley Infrastructure Cloud provides user organisations with opportunities to improve collaboration, productivity and

integrate reality modeling data, increasingly the norm, to capture and monitor the digital context of designs, geospatially coordinated with engineering data.

It leverages Bentley's infrastructure schemas to semantically align design-file data across multiple disciplines for comprehensive design reviews, and across all projects to understand dependencies, and to reuse datasets, including for machine-learning to develop proprietary analytics.

ProjectWise will leverage iTwin Experience to offer immersive visibility into project digital twins, assuring quality and improving performance.

ProjectWise 4D Design Review, powered by iTwin, enables users to securely share large, complex models with their entire project ecosystem, regardless of authoring applications.

Advanced Design Validation, powered by iTwin, includes 3D digital workflows, integration with Bentley's OpenRoads and third-party applications, and AI/ML enhanced visualisation, enabling simulation of the driver experience to validate designs and assure requirements are met;

ProjectWise Components Centre, a cloud-based digital component management and library service with direct integration to engineering applications, drives standardisation, automation, and reuse of design objects to deliver projects faster and more reliably. Engineering firms can now leverage data from one design to another, capture lessons learned, create reusable components, and truly industrialise their project delivery expertise; and

Digital Delivery capabilities leverage

digital workflows to automate and manage the creation, exchange, and review of contractual deliverables including PDFs and Industry Foundation Classes, as well as digital twins. ProjectWise users can avoid wasting time manually assembling and sending packages, reduce risk by gaining visibility and traceability in deliverables workflows, and by automatically maintaining a comprehensive audit trail.

Powered by iTwin within Bentley Infrastructure Cloud, ProjectWise for digital delivery enhances engineering firms' opportunities while minimising their risks, improving project performance and quality assurance. Infrastructure digital twins created in the design phase can be valuable to owner-operators as incremental project deliverables, including engineering firms' recurring services as 'digital integrators' for data quality and security, proprietary analytics, and monitoring.

Lori Hufford, vice president, engineering collaboration for Bentley Systems, commented, "By leveraging the iTwin Platform, we are now able to advance ProjectWise beyond engineering work-in-progress for one project at a time, to be used across all projects to maximise insights, learnings, and reuse, and for machine learning. Now as part of Bentley Infrastructure Cloud, ProjectWise can drive a necessary step-change in the efficiency, effectiveness, and transformation of engineering firms."

Bentley also announced the availability of new asset-specific solutions, powered by iTwin, that leverage iTwin Experience, iTwin Capture, and iTwin IoT to deliver real-time asset health monitoring.

AJ Steel partners with KEZAD Group to expand operations

UAE STEEL PIPE manufacturer and exporter, AJ Steel, has signed an agreement with the integrated trade, logistics, and industrial hub of Abu Dhabi, Khalifa Economic Zones Abu Dhabi – KEZAD Group, for the development and operation of a large-scale steel pipe production facility in Abu Dhabi, to meet growing consumer demand.

Under the agreement, AJ Steel will expand its current operations in KEZAD through the development of a plot covering close to 96,000 sq m, which will bring its total to 200,000 sq m of leased land under industrial use.

AJ Steel plans to enhance its production capacity from 0.5 million tonnes to 1.25 million tonnes by adding API-compliant steel pipe capacities from 1/2" to 20" sizes for oil and gas applications.

Mohamed Al Khadar Al Ahmed, chief executive officer - Khalifa Economic Zones Abu Dhabi - KEZAD Group, said, "The ongoing success of AJ Steel in Abu Dhabi is a testament to the vision of our wise leadership to stimulate the growth of our nation's industrial sector and position the emirate as a global trade hub. We look forward to being a part of their growth journey and future expansion plans."

"The agreement to expand our operations leverages the readiness of the land area available in KEZAD and will allow us to maximise the benefits of its fully integrated trade and logistics ecosystem to serve an even broader scope of consumers both in the UAE and the wider region."

Established in 2006, Ajmal Steel Tubes & Pipes Industries LLC (AJ Steel) has grown to become a global brand. At its facilities in Abu Dhabi, the company uses integrated process systems to provide



Photo Credit : AJ Steel

AJ Steel plans to enhance its production capacity.

smart and custom solutions for a diverse range of applications across oil and gas, irrigation, water supply and sewage, scaffolding, firefighting, heavy infrastructure, structural steel projects and geo thermal energy.

KEZAD Group, a subsidiary of AD Ports Group under its Economic Cities & Free Zones Cluster, is the largest operator of integrated and purpose-built economic zones in the United Arab Emirates. Providing competitive business ecosystems that encourage unprecedented growth, KEZAD Group is a key strategic enabler of Abu Dhabi's vision for the diversification of its economy.

EGA reaches 40 million tonne milestone

EMIRATES GLOBAL ALUMINIUM, the largest industrial company in the United Arab Emirates outside oil and gas, has reached the milestone of 40 million tonnes of hot metal produced since start-up in 1979.

This means nearly 3% of all the aluminium ever made has been produced by EGA in the UAE.

Aluminium is an essential material for human progress, and EGA's metal is used by billions of people worldwide as part of everything from skyscrapers to smartphones.

EGA's development since the 1970s has made the UAE the fifth largest aluminium producing nation in the world. EGA's aluminium is the biggest made-in-the-UAE export after oil and gas and is shipped to more than 50 countries. The aluminium sector with EGA at its heart accounts for 1.5% of the entire UAE economy.

It took almost 30 years for EGA to reach its first 10 million tonnes of production. In the past decade EGA's growth has accelerated, transforming the company



EGA is the world's biggest producer of 'premium aluminium'.

Photo Credit : EGA

into a global integrated aluminium giant. Last year, EGA sold 2.54 million tonnes of cast metal.

Abdunnasser Bin Kalban, chief executive officer of EGA, said, "Reaching 40 million tonnes of hot metal production is a proud moment for everyone who works at EGA. Together, we have innovated aluminium to make modern life possible. Since EGA was founded by HH Sheikh Rashid as Dubai Aluminium, we have been a pioneer of economic diversification in the UAE while growing into a champion of the aluminium

industry globally."

EGA is the world's biggest producer of 'premium aluminium', metal made to customer specifications including through alloying. EGA has produced more than 41.6 million tonnes of cast metal since 1979.

Last year, EGA became the first company in the world to make aluminium commercially using the power of the sun. EGA markets this metal under the product name CelestiAL. The use of solar power significantly reduces the emissions associated with aluminium smelting.

Industry leaders discuss green credentials in real estate at COP 27

PROPERTY CONSULTANT SAVILLS Egypt, a part of Savills Middle East, hosted a panel discussion led by experts in sustainability and green energy. The focus was on the most pressing topics around the Environmental, Social, and Governance (ESG) factors, their cost, and the growth opportunities they present in the real estate industry against the backdrop of COP27 in Egypt. The real estate industry contributes to 40% of greenhouse gas emissions globally and is therefore an important sector for cities to consider when planning their paths to net zero. The panel was moderated by Catesby Langer-Paget, head of Savills Egypt and included Madeleine Velupillai, ESG strategy manager at Savills UK; Nada El Agizy, the director of sustainable development and international cooperation at the Leagues of Arab States; Eng Bedeir Rizk, CEO of Paragon; Ahmad Badreldine, managing director of El Badr Group, and Mohamed Elsamaa, chief development officer of KarmSolar.

“Egypt is following the steps of other global economies in efforts to reduce the sector’s impact on climate change. There are currently 23 LEED (Leadership in Energy and Environmental Design) certified buildings in Egypt and we can definitely foresee this number increasing in the near future, particularly in the New Administrative Capital and new cities. We are currently working with our partners on their developments - primarily commercial buildings that are currently under construction – seeking the LEED Platinum certification,” explained Catesby Langer-Paget.

Madeleine Velupillai commented, “Proptech and smart building systems, as well as renewable and low energy technologies, can all help to improve a project’s green credentials. Research, development and property technologies will be crucial in helping to reduce emissions from the built environment as cities set their sights on net zero. Construction will therefore be at the forefront of this green building revolution, with forecasting and data analytics firm Oxford Economics suggesting that global construction output could reach US\$15.2tn by 2030, up 42% from its 2020 level. The International Financial Cooperation estimates that green buildings represent a US\$24.7 tn investment opportunity by 2030 across cities in emerging markets”.

Nada Al Agizy said, “We need to join



The real estate industry contributes to 40% of greenhouse gas emissions globally.

forces in encouraging Arab countries to apply green building codes in order to accelerate the implementation of SDG 11, “Make cities and human settlements inclusive, safe, resilient and sustainable, to further support the transformation of societies and institutional and urban structures towards sustainability.”

Eng Bedeir Rizk commented, “Paragon is one of the leading companies specialising in building administrative projects with a philosophical methodology based on human-centric approach, sustainable principles, innovation, and flexible community. Promoting real estate with a smarter sustainable design and using technology to achieve the highest standards of productivity and comfort for customers in their workplace and creating an administrative society that provides an inspiring environment for growth has become the company’s approach on the buildings.”

Mohamed Elsamaa, chief development officer of KarmSolar, said, “KarmSolar’s expertise in the solar energy sector has allowed us to build multiple areas of synergy with real estate developers. Our goal for this panel is to begin the discussions on evaluating the different ways in which we can build financially feasible business models and become a true utility platform. Achieving ESG goals while positively impacting the profitability of the business is the true driver of growth and unlocking of

value that the industry needs in order to increase the number of sustainably-built projects and communities.

Ahmad Badreldin said, “We strongly believe that the government can play a vital role in creating incentives to encourage real estate developers to be more sustainable. At Badreldin Group, we empower communities, thrive to set market trends, and innovate urban concepts while incorporating sustainable, green, and innovative measures. For Arkan and 205 projects, we have provided energy efficient designs and created an internal energy efficient transport network since it became a mandate to overcome energy cost increases.”

In recent years, the government has taken economic and environmental measures that played a major role in stimulating investments, investing US\$324bn to achieve sustainable development initiatives to reduce emissions and improve infrastructure. Sustainability in real estate projects implemented by the private sector has become part of the culture of most real estate developers working in the Egyptian market, which amounts to around 20% of the country’s GDP. The state has taken this approach in all cities, either by working to establish them during the recent period, or revamping existing cities that have been established decades ago.

Quality assurance transforms the application of 3D printing

3D PRINTING, ALSO known as additive manufacturing, is transforming the oil and gas supply chain, increasing efficiencies and reducing costs according to Protolabs, a digital manufacturer.

The Middle East oil and gas 3D printing market is advancing rapidly as equipment manufacturers and suppliers benefit from its many advantages. These include greater flexibility in parts designs, a reduction in product development time, fewer resource requirements and leaner inventories. The technology and quality regimes have now evolved to make 3D Printing a viable manufacturing technology for mainstream use.

Research suggests the oil and gas 3D printing market will represent a US\$2 bn opportunity by 2029. The World Economic Forum has estimated 3D printing could eventually save up to US\$30bn of additional value for the industry.

Protolabs' director of metal 3D printing, Dr Christoph Erhardt discussed 'Advances in Manufacturing Technology, Transformation of the Oil & Gas Supply Chain through the Use of Additive Manufacturing' at the ADIPEC 2022 Smart Manufacturing Technical Conference,

Dr Erhardt's mentioned the rapid developments in additive manufacturing, and how material development and certification of the manufacturing process are helping to digitise the supply chain.

He highlighted how 3D printing and increased digitalisation are transforming inventory supplies, offering a more cost-effective and efficient way of delivering critical components.

What organisations need to consider with 3D printing and the benefits it can



Director of metal printing, Protolabs, Dr Christoph Erhardt.

bring, were also examined.

Dr Erhardt said, "Spare parts and inventory supplies are critical in ensuring the safe and efficient operation of oil and gas assets across the globe. However, the burden this places on organisations to ensure redundancy of supply, logistics and storage increases their costs. This is encouraging the search for more effective ways to support operations without

impacting performance.

"The demand for 3D printing is growing in the oil and gas industry as companies recognise its operational, financial and environmental benefits. In the Middle East, suppliers and operators are already gaining value from the rapid and accurate generation of components, less downtime due to just-in-time part availability and a lower carbon footprint through reduced transport and manufacturing emissions."

Last year, Protolabs secured the Qualification of Manufacturer certification from the independent risk management and assurance expert DNV.

The certification applies to Protolabs' DMLS technology, specifically for the superalloy Inconel 718 – a high-strength, corrosion-resistant nickel chromium. Combining the exceptional properties of the material with Protolabs' expertise in DMLS enables the company to rapidly produce complex and long-lasting parts for high temperature or harsh offshore and onshore environments.

Protolabs offers a variety of materials and technologies for the oil and gas, maritime and offshore industries, as well as the broader energy sector.

The technology-enabled company offers advanced 3D printing, injection moulding and CNC machining to product developers, engineers, and supply chain teams across the globe.

Using in-house production capabilities and access to a team of service line experts, Protolabs helps companies bring new ideas to market at unprecedented speed and strategically manage demand volatility across the entire product lifecycle.

Siemens and Eplan enter into strategic partnership

SIEMENS SMART INFRASTRUCTURE and Eplan have agreed to collaborate in the area of software solutions for the industry and infrastructure market segments.

As part of this partnership, Siemens' Electrical Products business unit will join the Eplan Partner Network as a strategic partner. The goal is to harmonise the two companies' products in a more targeted way to provide optimised solutions to switchgear manufacturers and electrical planners. Sebastian Seitz, CEO of Eplan, and Andreas Matte, CEO of electrical products at Siemens Intelligent Infrastructure, signed an agreement to this effect on September 26, 2022.

"The overall goal of our collaboration is to create a plug-and-play structure for electrical planners. We want to open up our tools in both directions, thus simplifying and accelerating the workflow," said Andreas Matte.

Sebastian Seitz of Eplan also emphasised the benefits of joint customers, "When constructing the switchgear, we can use the Eplan Pro Panel to greatly improve and automate operations. Plus we will specifically address the growing field of power distribution and work with Siemens to create end-to-end solutions for an integrated workflow and more efficiency."

In the market sector concerned with industry, Siemens and Eplan will intensify the cooperation that has existed for several years, for example, to provide Eplan data on all adapted Siemens products. For the infrastructure market, Siemens and Eplan have decided to optimise and automate customer processes together, for example in the Sivacon and Alpha (power distribution systems) environment by integrating Simaris (planning tools) and the Eplan platform.

Trends shaping sustainability innovation in the Middle East

AT THE FUTURE Investment Initiative in Riyadh, experts from global consultancy Bain & Company focused on innovations poised to have an impact on the sustainability of seven industries: advanced manufacturing services (AMS), retail, banking, energy, healthcare, consumer products and automotive.

They have highlighted the trends and innovations gaining momentum in a given sector.

3D printing explores and accelerates larger, more complex AMS projects

The construction sector contributes a chunk of energy-related CO₂ emissions. However, 3D printing's latest advances in printing new materials, including cement and metals, and in printing larger objects can reduce the use of natural resources and waste in the sector, while increasing efficiency. Construction 3D printing allows faster and more accurate construction of complex or bespoke items. Companies that use 3D printing to lower costs can save up to 15% of the typical cost of a project.

Efficiency in retail is fundamental, and AI more accurately monitors and reduces scope 3 emissions

A large amount of retail emissions are scope 3 indirect emissions in their supply chain, making the industry one of the leading emitters in this class. While scope 1 covers direct emissions from sources owned by a company, and scope 2 focuses on emissions from the electricity and heating or cooling sources they buy, scope 3 is particularly complex to manage since it involves a system, much of which is beyond the retailer's direct control. Technologies including artificial intelligence (AI) can help monitor the system's carbon footprint, forecasting and reducing emissions by optimising internal operations and those of external partners.

Banks continue to create new forms of sustainable value

As fintech rise, banks are always competing with digital natives. While banks have a relatively small direct environmental footprint, they greatly influence how companies and consumers act, invest and address their environmental footprints. Among consumers, the market for green products is growing quickly, and that means an enormous financing opportunity exists for lenders. Increasingly, regulators are also requiring banks to measure and disclose their environmental impact, a task sometimes made difficult by limited access to reliable portfolio data and consistent standards of measurement.

Investing beyond carbon is now fundamental and non-negotiable for an entire portfolio-level transformation by energy companies. Expanding government interventions, incentives and subsidies, coupled with changing customer, investor and employee expectations have leading energy companies reinventing and diversifying to lower the amount of 'human-made' greenhouse gas emissions that come from energy sources. Digitalisation is creating new opportunities for partnerships and innovative business models, but companies must balance several other critical issues too, including energy affordability, energy security, and expected return on investment. One aspect of energy giants' multifaceted approach is the creation of corporate venture capital funds to access new energy technology.

Our complex and fundamental healthcare industry is addressing the need to foster the circular economy. To date, more than half of all plastic ever produced has become waste, and its production has a significant greenhouse gas footprint. A substantial portion of the



Innovation is shaping sustainability in every industry.

world's plastic waste comes from healthcare, the majority associated with lifesaving medicine and procedures. Recently the World Health Organisation estimated that the critical products needed to manage through a global pandemic have included 87,000 metric tons of personal protective equipment and 144,000 metric tons of syringes, needles, and other vaccine waste, as well as the chemical and plastic waste from more than 140mn test kits.

A systemic change toward a circular economy could help reduce waste without compromising care.

Food consumption and production habits are at the heart of ESG growth, with vertical farming and lab-grown meat leading the way.

The global food system is incredibly successful, feeding 7.9bn people and generating a third of global GDP. But at the same time, it places a hefty burden on the environment, creating more than a quarter of all greenhouse gas emissions and contributing to deforestation and species extinction. New approaches to agriculture and eating, including vertical farming and lab-grown meat, can reduce the amount of water and land required to produce the same or greater amounts of food. This decreases the need for long-haul transportation, chemicals and pesticides. Cultured meat, requiring less energy and water than traditionally farmed meats, can create significantly fewer emissions.

The automotive industry is embracing air mobility enabled by changing regulations and societal acceptance

Cities consume most of the world's energy supply and highway vehicles release billions of tons of greenhouse gases into the atmosphere each year. Urban air mobility (UAM), transporting both goods and people and powered by drones, could decongest cities, reduce noise pollution, and help to decarbonise the energy sector. New technologies, such as electric propulsion and enhanced battery capacity, applied to vertical takeoff and landing systems make this technically possible.

The pace of sustainability innovation mandates a multidimensional approach to value chain transformation. Sustainability is a complex, interconnected, and evolving topic that requires constant evaluation. The pace of innovation is increasing, ESG inclusion is becoming fundamental, and tracking the complex ecosystem's development is essential. It is important to continue to unpack these topics, exploring a multidimensional approach to innovation strategy, start-up ecosystem engagement, venture capital investing, and business building.

The article is written by Tom De Waele, Middle East managing partner, Akram Alami, partner and Middle East ESG lead and Truc Mai Dupont Vohong, vice president, Bain & Company.

Al-Bahar collaborates with Lamprell for power solutions

MOHAMED ABDULRAHMAN AL-BAHAR, the authorised Cat® dealer for the UAE, Bahrain, Kuwait, Oman, and Qatar, has completed the commissioning of integrated power solutions for the first of the two new offshore jack-up rigs building projects executed by Lamprell, the UAE-based rig builder and leading provider of services to the international energy sector.

Lamprell turned to Al-Bahar for Cat® generator sets after the company received a letter of intent from the International Maritime Industries (IMI) in December 2018 for the construction and delivery of two jack-up drilling rigs, based on the proven LeTourneau Super 116E Self-elevating Mobile Offshore Drilling Unit (MODU) design. The decision to proceed with Al-Bahar and Caterpillar for their power needs was based on Lamprell's previous experiences and trust built over a 15-year-long relationship that started in 2008, involving building 12 new jack-ups, one land rig, and over 30 repowers.

Al-Bahar and Caterpillar teams worked together with Lamprell right from the inception stage of the project to design the



Al-Bahar and Caterpillar teams worked together with Lamprell right from the inception stage of the project to design the final power solution needed for the rigs.

final power solution needed for the rigs, and in January 2020, when the order was formalised for Lamprell by IMI, Caterpillar and Al-Bahar were both ready with the customised solution required for each rig.

The primary challenge was the project timeline, which was demanding and coincided with the onset of the COVID pandemic, bringing in uncertainty and newer norms. The ready-to-deliver plan and customer-first focus by Al-Bahar ensured all the generators for the rigs were shipped to Dubai ahead of schedule. Cooperation from

a reliable manufacturer like Caterpillar helped enable a timely delivery.

Presently, the project status is on the final lap. Installation, start-up, setting to work, and testing have already been completed on the first rig, and the second rig is being worked upon currently.

Commenting on the successful completion of the project, Mohamed El Kaddour, vice president of energy & transportation – Al-Bahar, stated, "As one of the authorised Caterpillar dealers in the region, Mohamed Abdulrahman Al-Bahar is proud to be a trusted and valued partner to Lamprell in their rig building programmes of offshore jack-up rigs. This mutually beneficial relationship has been nurtured ever since Lamprell built their first rig in 2008 and we hope will extend in the future."

Deepak Tummalapalli, territory manager, from Caterpillar, quoted, "In addition to making available world-class products for the oil and gas industry, we offer technology solutions to help companies work more safely and efficiently by ensuring unmatched support in the field through a global dealer network."

Mitsubishi Power highlights hydrogen economy pathway to accelerate energy Transition

AS PART OF its commitment to a carbon-neutral world, Mitsubishi Power, a power solutions brand of Mitsubishi Heavy Industries, Ltd. (MHI), participated in COP27, where it showcased its pioneering technology advances in decarbonisation and their application to accelerate the energy transition.

At COP27's Hydrogen Transition Summit, Mitsubishi Power underscored the opportunity of hydrogen as a main enabler of energy transition, and as an integral constituent of a future decarbonised energy system.

In the opening session of the Summit, Javier Cavada, president and CEO of Europe, Middle East and Africa at Mitsubishi Power, highlighted the key role the MENA region can play in this regard. "The MENA region's potential to become a major exporter of hydrogen, with the availability of abundant and low-cost renewables, existing export infrastructure, as well as financing resources."

Dr Cavada also stressed the importance of collaboration to realise the potential of hydrogen. "While hydrogen will continue to play an essential role in decarbonisation, its widespread deployment will require unprecedented collaboration with both existing and new technologies, industry partners, policymakers, and NGOs."

Demonstrating the brand's commitment to realising a carbon neutral society, MHI is committed to achieve carbon neutrality across its operations by 2040. MHI is also adopting a new goal to achieve Net Zero emissions through its entire value chain by 2040.

In line with this ambition, Mitsubishi Power continues to develop energy solutions and processes that enable hydrogen's transition from industrial use to being the clean fuel of choice.

"Since 1970, Mitsubishi Power has pioneered hydrogen fuel combustion technologies. With our recent projects that have demonstrated the large-scale commercial validation of our technology and decades-long expertise in this field, we are committed to support our customers across the region accelerate their energy transition with affordable and reliable solutions. This is going to be essential to demonstrating how hydrogen can competitively fulfil clean energy expectations and bring us one step closer towards a carbon neutral society," added Cavada.

One recent example is the full turnkey contract Mitsubishi Power signed with leading Egyptian oil & gas company, Alexandria National Refining & Petrochemicals Company (ANRPC), to provide advanced hydrogen fuel conversion technology solutions, supporting the company to achieve its decarbonisation goals. The solution will be installed at the ANRPC refinery plant in Alexandria, which provides 30% of Egypt's gasoline supply for domestic consumption.

"Decarbonisation will be achieved by focusing on increasing energy efficiency and collaborating closely to develop and scale up hydrogen and CO2 value chains. There is no one-size-fits-all approach to net zero 2050 — different regions and sectors will choose different pathways," said Dr Emmanouil Kakaras, executive vice president, Next Energy Business at MHI EMEA, who also participated in Climate Action's Sustainable Innovation Forum

Trina Solar unveils solution for utility-scale projects

TRINA SOLAR, THE global PV and smart energy total solutions provider, has unveiled the Vertex N 595W for C&I and utility-scale projects. Together with the Vertex N 690W for utility scenarios and Vertex S+ 445W for rooftop PV systems, Trina Solar's n-type module portfolio is based on the 210 product technology platform and n-type i-TOPCon cell technology. The release of Vertex N will hit and reshape the PV market again.

Antonio Jimenez, managing director and vice president, Middle East, Trina Solar commented, "Bringing the latest Vertex Modules to the Middle East and Africa region comes as part of our ongoing commitment to introduce the latest technologies and innovative products and solutions to its clients here. We are confident that the Vertex N 595W modules will not only revolutionize the industry, but also set new standards and benchmarks that are yet to be matched."

Vertex N 595W is ready for delivery

The newly announced Vertex N module, inheriting the Vertex family's merits of higher power, higher efficiency, higher energy yield and higher reliability, boasts maximum power output of 595W, 30W higher than conventional n-type modules in the market. In addition, this dual-glass module increases bifaciality to 80% and delivers higher efficiency, lower degradation and better energy yield, delivering lower BOS and LCOE to projects.

Against the backdrop of greater grid parity, increasing solar demand and rising market share, the latest n-type module portfolio, with power output ranging from 445W to 690W, will cement the modules as preeminent products for rooftops and utility-scale projects.

The new generation of Vertex N modules will be in mass production by the end of 2022 and more than 10 GW n-type modules capacity are expected to be released by the first quarter of 2023. Moreover, capacity of



Photo Credit: Trina Solar

Trina Solar's n-type module portfolio is based on the 210 product technology platform and n-type i-TOPCon cell technology.

n-type modules will reach 20GW to 30GW by the end of next year. To meet the increasing demand for ultra-high performance modules, Trina Solar will continue to develop and promote more n-type products.

As a first mover in the field of 210 product technology, Trina Solar is committed to building an open platform that is compatible with most cutting-edge cell technologies, such as i-TOPCon and HJT.

EEHC's GE LM6000 unit generates power using hydrogen-blended fuel

HE DR MOHAMED Shaker El-Markabi, Minister of Electricity and Renewable Energy of Egypt, announced the successful operation of a GE LM6000 aeroderivative gas turbine on hydrogen – natural gas blended fuel at the Sharm El Sheikh Power Plant. The demonstrations of the unit running on the mixed fuel ran at different times during the United Nations Framework Convention on Climate Change's (UNFCCC's) 27th session of the Conference of the Parties (COP27), termed the 'Implementation COP'.

A proof of concept, the project illustrates that it is, in fact, possible to generate lower carbon, reliable, on demand power by burning hydrogen-blended fuels in gas turbines. The project was executed less than five months after a strategic cooperation agreement was signed by Egyptian Electricity Holding Company (EEHC), GE, Hassan Allam Construction, and PGESCO. It is the first time that GE's LM6000 gas turbine was run on hydrogen-blended fuel on the African continent

HE Dr Mohamed Shaker El-Markabi said, "We must all take urgent actions to address the climate challenge. We need to act today – not years from now – to invest in solutions that can provide lower carbon energy, and Egypt is well-positioned to play a leading role in this energy transition. Today, as I announce the successful operation of a GE LM6000 aeroderivative gas turbine on hydrogen-blended fuel right here in the city of Sharm El Sheikh during Energy Day at COP27, the world can see what is possible when you bring big dreams, strong resolve, and committed partners together. The combination of EEHC's commitment and facilitation, GE's global, industry-leading expertise in hydrogen-fueled power projects, and Hassan Allam and PGESCO's strong on-the-ground construction and engineering capabilities, led to the extraordinary achievement of the safe, on time, and successful completion of this demonstration pilot."

EEHC owns and operates the Sharm El Sheikh Power Plant. GE led

the conception, planning, and execution of the project, as well as the building of the hydrogen-natural gas blending system. Hassan Allam supplied the manpower and equipment needed for installation, related civil works, hydrogen needed for testing, and the piping and cabling system that transported hydrogen to the mixing skid and the turbine. PGESCO helped design the project and provided engineering expertise.

"We commend the strong actions being taken by the Government of Egypt to bring the world together at COP27 to remain focused on creating a lower carbon energy future," said Joseph Anis, president and CEO of GE Gas Power in Europe, Middle East, and Africa. "GE is committed to collaborating closely with the government of Egypt, as well as other customers and partners to address the climate challenge. We were honored to design the overall hydrogen-natural gas demonstration project at Sharm El Sheikh; identify various parties to lead engineering, procurement, construction, hydrogen supply, safety initiatives, and other works; provide the critical blending skids needed to mix the hydrogen and natural gas; and then drive coordination efforts among all parties involved to bring the project to successful completion. This is an excellent example of what it means to be together for implementation."

GE has more than 30 years of experience with over 100 gas turbines that have operated on fuels that contain hydrogen globally, accumulating more than 8 million operating hours. Earlier in 2021, GE announced a collaboration in North America to run an LM6000 unit on a blend of hydrogen and natural gas. Learnings from the project were applied by GE at Sharm El Sheikh and shared with other project partners, leading not just to the successful completion of the project, but also to a significant transfer of knowledge and local capacity building in the utilisation of hydrogen as a fuel for power generation.



Photo Credit : Alain Charles Publishing

The Hydrogen panel session at ADIPEC 2022.

Hydrogen: reality, promise and prospect

With the mantra of ADIPEC 2022 being “maximum energy, minimum emissions”, the technologies and challenges of decarbonisation were at the heart of the event. Hydrogen, one of pivotal fields in ADIPEC’s newly-introduced Decarbonisation Zone and Conference, received a strong focus.

ACCORDING TO DATA from the Hydrogen Council, global hydrogen demand will grow from 90mn metric tons (MT) to 140mn MT by 2030 and then 660mn MT in 2050 in the pursuit of net-zero ambitions. At a Hydrogen Strategic Panel titled “Hydrogen: reality, promise and prospect”, chaired by Daryl Wilson,

“Green and blue hydrogen ...will be the next LNG business, and we will see these commodities being transported around the world.”

executive director of the Hydrogen Council, industry leaders debated the role of hydrogen in meeting future energy demand, challenges in scaling up projects and the latest developments for investment, infrastructure and policy frameworks.

Panelists highlighted the growing demand for hydrogen, particularly to decarbonise heavy industry. Anja-Isabel Dotzenrath, EVP gas and low carbon energy at bp, explained that bp plans to invest 50% of capex into new transition growth engines by the end of the decade, hydrogen being one of these. Decarbonising its assets is one pillar of its hydrogen development; bp’s Rotterdam refinery will have an electrolyser fuelled by offshore wind, which will produce hydrogen to decarbonise the refinery, as well as producing biofuels and aviation fuels; an illustration of how bp’s capabilities as an integrated energy company enables it to combine different energy vectors. The second pillar is industrial clusters, such as Teeside. Here, bp is partnering with ADNOC

to decarbonise the full cluster in a blue concept, taking the CO₂ and putting it into depleted storage offshore, capitalising on bp’s strengths and capabilities as an oil and gas company. The third example is green export hubs, such as the Australian renewable energy hub, which will have 25-30GW wind and solar capacity once fully built. This will focus on the decarbonisation of the mines, with the next phase focusing on ammonia exports to Asia to help decarbonise the power sector there.

“There is a lot of customer demand; the key is getting the right policies in place,” Dotzenrath commented. Given the complexity of projects, the capital and technology expertise required, the process safety risks associated with hydrogen and the issues associated with the trade and transport of hydrogen, “the experience of companies such as ours is needed to make this a reality,” she said. “Green and blue hydrogen is a very complex business...it will be the next LNG business, and we will see

these commodities being transported around the world.”

Dr Samir J. Serhan, COO Air Products, the leading global hydrogen producer with the world’s largest hydrogen pipeline network, concurred. “It takes a lot to develop the know-how for hydrogen... hydrogen development needs to be at scale to be cost efficient. We have around 20 different teams working in parallel on technology development, product development and workarounds engineering. We’re very excited about the role of hydrogen in the energy transition and believe it will be significant... we believe we are on the right cost curve, and this will improve in the future.”

Dr Serhan explained that Air Products has US\$11bn of projects under execution. These include the world’s largest green hydrogen plant being developed at NEOM, Saudi Arabia, with ACWA Power and NEOM, capitalising on the solar and wind resources in its Red Sea location. “The efficiency of the power is very important.” The hydrogen produced by the world-scale 4GW plant will be converted to ammonia and shipped around the world, for conversion back to hydrogen to decarbonise industry.

The company is also building the world’s largest blue hydrogen plant in Louisiana which will produce blue ammonia and blue hydrogen, catering to its 50-60 customers on its 1,000km pipeline network and benefiting from a favourable location with the availability of natural gas. Both projects are due to come into operation in 2026.

ADNOC is also seeing growing demand for hydrogen and its derivatives, producing low carbon ammonia for customers in Japan and Korea and having sold its first such cargo to Germany in the last few weeks.

“It’s exciting because we’re not only helping to build demand, but also allowing this energy to be produced at scale while allowing customers or partners to test its applications,” said Hanan Balalaa, senior vice president, new energies and hydro, ADNOC. “Additionally, we’re investing in a worldscale 1mn tonnes per annum low carbon ammonia production facility which is attracting a lot of interest, with a number of partners looking to join the project.”

ADNOC is pursuing a “balanced strategy” for grey hydrogen and both renewable and low-carbon hydrogen, she said.

“In terms of renewable hydrogen, we’re investing in Masdar to create a global clean energy powerhouse, a key strategic partnership which will put the UAE at the forefront of the energy transition.

“Low carbon hydrogen is the low-hanging

fruit for a company such as ADNOC. We’re blessed with low cost feedstock, natural gas, CCUS access, all the ingredients to make us one of the lowest cost and largest producers of low carbon hydrogen.

“Acceleration of the hydrogen business will enable governments around the world to meet their 2050 climate ambitions,” Balalaa continued. “A lot could be done in the policy making space, the investments needed, and the synergies in terms of the different value chains, transport, production and distribution. That piece is not yet fully understood or fully optimised today.”

Enabling environment

The other panellists agreed that an enabling environment, good policy framework and funding mechanisms are critical to enable hydrogen to scale and reach its full potential. In this respect, the USA is leading the way with its 2022 Inflation Reduction Act (IRA) providing big incentives for the production of clean hydrogen and linking incentives to the level of carbon intensity.

“We like the energy here,” said Dr Serhan. He added that Air Products is already sequestering significant amounts of CO₂ due to government incentives, and the company would be doing more carbon capture, transitioning more of its grey hydrogen to blue hydrogen and producing more blue and green hydrogen. “Our hydrogen bypass system will have hydrogen with different types of carbon intensity depending on the demands of the customer,” he added.

In Europe, the establishment of a Hydrogen Bank is “a start” according to Dotzenrath, but she expressed the concern that Europe, despite its position as an energy transition leader, is losing momentum.

As for the UAE, Balalaa commented that there have been ongoing discussions within the Department of Energy as the regulator, and there is “great collaboration, whether in the establishment of renewable power in the region or the entire hydrogen value chain.”

Issues around the transport of hydrogen and the different energy vectors were discussed.

“Can we capitalise on the natural gas infrastructure for the distribution of hydrogen?” asked Balalaa. It would be more rewarding for governments to integrate the existing infrastructure to develop a hydrogen economy, she said; for example, gas-fired power plants could be adopted to use low carbon hydrogen or ammonia as a blend, and the industrial and port clusters offer the potential for hydrogen hubs.

Hydrogen on the move

With predictions from the Hydrogen Council that more than two thirds of hydrogen produced will be on the move, in whatever form, it was suggested that currently the best and most cost competitive way of shipping hydrogen is to convert it to ammonia and then crack it back to hydrogen. “When it comes to shipping, ammonia will be the derivative of choice for the foreseeable future,” said Dotzenrath.

With the expected growth in the export and trading of hydrogen and its derivatives, with different carbon intensities, there is need for clarity around standardisation and certification.

“We need to get away from the stigmatisation it all needs to be green; we should use the full set of options we have. The way forward is to classify based on carbon intensity,” said Dotzenrath.

Balalaa agreed. “It’s a question of carbon intensity rather than the shade of colour... we engage with customers early on to see what is the appetite and what are the applications required.”

Dr Serhan added, “We can’t move from grey to green by flipping a switch...through the transition there will be plenty of room for all shades of hydrogen. The Hydrogen Council or another such body should establish standards, because it’s going to be very mobile.”

Daryl Wilson, executive director of the Hydrogen Council, said the Hydrogen Council is working to identify processes and protocols for assessing carbon intensity.

“The central feature has to be a level of mutual recognition between the certification schemes that might be developed in any one country or region. If we want trade to happen, there has to be a common basis, common language, common standards, so that tradeability of certification schemes and the fungibility of the schemes will be very important.”

Ambitious numbers are often touted around in reference to hydrogen projects, and while not all of these are likely to come off, the momentum is clearly there.

“Hydrogen will happen, and it will happen sooner, and scale, at a lower cost than we think,” said Dotzenrath, based on her experience in the renewables industry.

“Electrolysers are not nuclear fusion...it’s an existing technology that needs to be scaled and optimised to bring down costs. The same is true for ammonia cracking. But if we scale these technologies it will happen. Companies like ours are involved, and there is so much customer demand. So get ready for it – it will happen sooner than you think.” ■

Building and network manufacturing ecosystems

What contribution is control, switchgear and mechanical engineering making with consistent data from engineering to plant operation? Rittal, Eplan, Cideon and German Edge Cloud discussed these questions with visitors to the SPS in Nuremberg, and explained how they use domain knowledge to promote solutions in the relevant ecosystems.

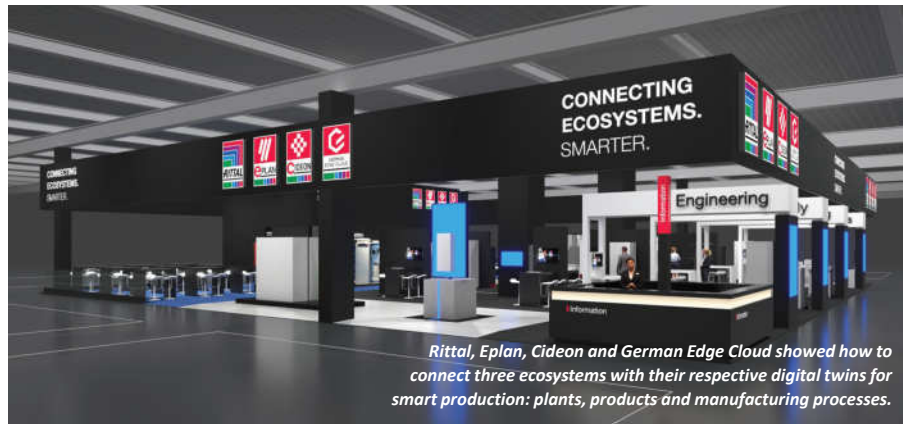
AT THE SPS 2022, Rittal, Eplan, Cideon and German Edge Cloud(GEC) demonstrated how to connect plants, products and production processes with their respective digital twins for smart production.

“The data is generated in ecosystems that are often still incompletely networked even today. If it is possible to create a complete digital twin for each plant, product and production process and then, in turn, to connect them intelligently, this will be a lever on the way to smart production,” said Markus Asch, CEO Rittal International and Rittal Software Systems. He added, “The SPS is the ideal environment for dialogue with control, switchgear and mechanical engineering professionals in particular – and for answers to the question of how the data from the digital plant twin can also be used to add value in operations. There are great opportunities in this.” To this end, the companies of the Friedhelm Loh Group support their customers with domain knowledge and tangible solutions.

Eplan and Rittal are working with control, switchgear and machine manufacturers to advance the development of the automation twin of machines and systems and make the data usable during operation. Cideon, with its expertise in CAD/CAM, PDM/PLM and product configuration, increases data consistency around the digital product twin. German Edge Cloud uses information from system data for faster networking and to visualise processes as a digital production twin. IIoT-supported production management with the ONCITE Digital Production System then increases production efficiency and flexibility.

Digital from engineering to operations

One focal point at the joint booth of Rittal, Eplan, Cideon and GEC was data consistency along the entire value chain of panel building and switchgear manufacturing –



Rittal, Eplan, Cideon and German Edge Cloud showed how to connect three ecosystems with their respective digital twins for smart production: plants, products and manufacturing processes.

Photo Credit : Rittal GmbH & Co. KG

from engineering to supply and from manufacturing to the operational phase of the systems. Panel builders and switchgear manufacturers save time and money in their value-added process with solutions from Eplan and Rittal.

More speed for electrical engineering and supply

The new Eplan Platform 2023 ensures even faster 3D planning with its new graphics engine. An international macro administration to support different standards further accelerates the process. Eplan eStock complements the central article management in the cloud. Eplan Harness proD now supports users with everything involving the cabling of machines. Rittal is speeding up the supply chain with configurators and rapidly deliverable system technology, which now also further integrates the compact AX series as a fully-fledged compact enclosure.

New machines and software for the workshop

The WT C10 Wire Terminal, a highlight of the Rittal trade fair, is a new version of the fully automatic wire processing machine, processing wires ten times faster than by hand. The development offers many

improvements, for example a modular approach to the supply and output of wires with a new wire magazine system and quickly exchangeable feed blocks. The Wire Terminal's new software architecture ensures seamless integration into the workflow of the RiPanel Processing Centre. Eplan's 'Smart Mounting' software now also visualises the mechanical and electrical components used in enclosure construction, while Eplan Smart Wiring guides you through the cabling.

IIoT data for manufacturing management

The operational phase of the systems involves more than just maintenance benefits through system data in the ePocket digital wiring plan pocket, or 75% energy savings with new Blue e+ cooling units or smart services. The ONCITE Digital Production System combines formerly separate core features of digital production in a system with a flexible architecture: agile production management with MES and MOM functions, industrial IIoT as a database and low-code development for simple application development. On top of this, edge computing meets all demands regarding sovereignty in data processing. ■

MineHarmony takes smart mining into new phase

ONE YEAR AFTER the commercialisation of MineHarmony, Huawei announced that the operating system has entered the stage of large-scale commercial use, as 5G+AI takes smart mining into a new phase.

MineHarmony OS, a joint innovation by Huawei and China Energy Investment Corporation has been deployed on 3,300 sets of equipment in 13 mines and one coal washery.

Speaking at Huawei Connect 2022, Ken Hu, rotating chairman of Huawei, emphasised the company's dedication to working with partners to help industry customers choose the right technology for their needs – and make the most of it.

"To provide our customers with scenario-based solutions that truly meet their needs, we have to work side-by-side to truly understand the challenges in their industry," Hu said.

In particular, the system has been deployed throughout the entire Wulanmulun (also known as Ulan Moran) Mine in Inner Mongolia, where significant progress has been made in connectivity, interface, and data access. The operating system covers a multitude of innovative scenarios, including smart control of equipment, auto patrol of fixed sites, and online upgrade of equipment, the time for which has been shortened from one day to just four minutes.

On the way to digitalisation and smart mining transformation, the first challenge for any mine is establishing the interconnectivity and interoperability of equipment and inaccessibility of data. Key to this is to find the most suitable network technologies. Huawei has taken its 5G capabilities as well as fully optical connectivity with FTTM and IPv6+ underground into the pits. These technologies, known for their low latency and high reliability, are ideal for multiple scenarios from video backhaul to remote equipment control.



Photo Credit: MineHarmony

The operating system has entered the stage of large-scale commercial use.

Underground coal mines are fitted with all kinds of devices and equipment running on different protocols, and finding a way to connect them all is a major challenge. For this, the Huawei Mine Team and China Energy teamed up with more than 30 partners to develop MineHarmony, the first Internet of Things operating system in the mining sector, in just three months.

As a leading-edge Industrial IoT OS, MineHarmony not only provides unified protocols for different equipment, but also simplifies operations with unattended inspections. The system covers equipment of all sizes, and uses unified protocols, to enable data sharing between equipment and interconnectivity between users and devices.

Furthermore, 5G+AI video stitching technologies have enabled remote and precise control of mining machines, which in turn allows people working in offices to remotely control underground operations, thereby improving their work environment as well as mining safety.

With 5G transmitting real-time video of

the main belts and AI algorithms accurately identifying anomalies, the system turns time-phased manual inspections into 24/7 intelligent monitoring, in addition to cutting the number of underground inspection personnel by 20%.

With cutting-edge ICTs that are deeply interwoven with field practices, the Huawei Mine Team has created a mining Industrial Internet platform that runs on unified standards and unified frameworks, and is dedicated to a unified set of data specifications. By building a next-generation IoT with cloud platforms as the core, data as a key factor, and security as a safeguard, the Mine Team is focused on forging a new mode of applications that integrate next-generation information technologies into the mining sector to forge new modalities for mine companies, supply chain, and the industrial chain. In this process, the Team will work closely with the sector to unleash new value for the mining industry. This will help the industry to become safer and more efficient, while requiring fewer people for undesirable and dangerous assignments.

Impact crusher from BHS-Sonthofen processes Turkish perlite

HARBORLITE AEGEAN IN Turkey, a subsidiary of Imerys, now processes different types of perlite for the juice industry with an impact crusher of type PB 0806 from BHS-Sonthofen. This is the first time for the machine to be used for this purpose. Tests with original material in Sonthofen and previous experiences with the maintenance-friendly machines from BHS gave the customer the confidence to make this unusual choice.

Performance minerals are key to many different industries, from plastics and paint production to batteries and filtration purposes.

Imerys, a world leader for mineral-based specialties for industrial use, is an expert in producing a wide variety of performance materials. In Turkey, Imerys' subsidiary Harborlite Aegean processes two types of perlite, an amorphous volcanic glass, mined in a nearby quarry. The product is used as a filtration medium by the Italian and Spanish juice industries.

BHS-Sonthofen is an owner-operated group of companies specialising in machinery and plant engineering, with headquarters in Sonthofen, Germany.

Revolutionising the mining sector

Christina Trading SARL specialises in logistics, civil engineering and the supply of industrial equipment.

CHRISTINA TRADING SARL specialises in supplying heavy and light mining equipment for the benefit of mining companies, construction, transport, automatic lubrication systems and mining services. It was one of the exhibitors at The Mining Show in Dubai, this year.

The company is engaged in the supply of industrial equipment spare parts, logistics and civil engineering, engineering maintenance (maintenance and repairing of light and heavy equipment and reconditioning of mechanical equipment), connection of pipes in exhaust circuit (underground, open pit mine and concentrator in discharging circuit) as well as fragmentation (drilling that involves determination of the drilling pattern, drilling plan development and hydraulic rig drilling). It is also involved in the development of mining scheme, and excavation works related to the mining



Photo Credit : Christina Trading

CHRISTINA TRADING SARL specialises in supplying heavy and light mining equipment

Christina Trading has entered into a partnership with an automatic lubrication company from Germany.

sector and others. It also supplies heavy and light mining equipment for the benefit of mining companies, construction, transport, procurement and mining services.

Christina Trading SARL has entered into a partnership with perma-tec GmbH & Co. KG products in DR Congo. perma-tec is the

market leader in automatic single-point lubrication, offering lubrication solutions in more than 14 different industrial sectors.

In order to remain competitive, especially in the mining industry, companies need to increase production output while minimising operating costs in the long term. One of the most important components is preventive maintenance to extend equipment life and minimise downtime for maintenance, repair or equipment replacement. perma lubrication systems have been proven to help minimise bearing failures by up to 75% and reduce repair and maintenance costs by up to 25%.

Christina Trading provides superior services, equipment and maintenance in order to satisfy customers' needs. Through the years, they have been evolving and acquiring the necessary experience in order to always exceed customer expectations. ■

Photo Credit : Christina Trading



Christina Trading has entered into a partnership with perma-tec GmbH & Co. KG.

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Best approaches to fire prevention

Sustainable cable maintenance company, FS, talks about its products and solutions in keeping oil and gas fire hazards at bay.

Technical Review Middle East (TRME): What are the main fire hazards in the oil and gas industry?

Fire safety needs special attention in an oil and gas site. There is a wide variety of fire hazards on an average oil and gas site, including:

- Flammable vapours from oil, gas and their by-products
- Naturally occurring gases (benzene, methane, hydrogen sulphide, etc.)
- Mineral spirits and other cleaning chemicals
- Compressors, heater treaters and other oil and gas-producing equipment
- Electrical equipment

TRME: Tell us about your fire suppression solutions for the oil and gas sector?

Our company specialises in fire protection, repair and life extension of electrical cables. Our cable coating systems (FS1 and FS5) are tested fire resistant up to 1100 Celsius (temperature of a hydrocarbon fire) and are also UV, water, seawater, oil, mud and chemicals resistant.

During a fire, the coating expands and protects the cables from fire damage and also prevents the fire from spreading via the cable trays. FS-coated cables function during a fire, and if the fire is ceased within a reasonable time, there will be no need for cable replacement. In a fire situation, our systems prevent:

- Ignition of the cable insulation
- Release of toxic fumes from the cable insulation
- Release of poisonous gas (HCL) from the cable insulation
- The cable tray from melting and collapsing.

We can also repair and restore already damaged or ageing cables. Our solution can be hugely cost saving compared to replacing cables with new ones and we are by that also contributing to lower emissions and CO₂ footprint.



Photo Credit: Adobe Stock

Fire safety needs special attention in an oil and gas site.

TRME: What new products have the company launched or are looking to launch? What different or exclusive features do they offer?

Besides our coating systems, FS offers fire protection solutions for penetrations.

But our main focus right now is on sustainability. Our commitment to the environment is documented through our ISO14001 environmental management system certification. Industries have to

FS' cable coating systems are tested fire resistant up to 1100 Celsius and are also UV, water, seawater, oil, mud and chemicals resistant.

understand that there is an alternative to unsustainable and expensive cable replacement whenever cables are ageing, degrading, cracked, burnt or UV affected.

TRME: How is the market demand for your products and solutions in the Middle East and Africa?

The Middle East has been a leading business area for FS for more than 20 years. We have a permanent office in UAE to cover the region. Activity slowed in 2020 and 2021 during Covid restrictions, but it is gaining pace again this year, led by the oil & gas industry in Saudi Arabia, Qatar, UAE and Bahrain.

Africa is a more recent market for us, but the demand for cable fire protection and life extension there is increasing, and so are our efforts to develop a network and operate there. Most of our projects on the continent have been in Nigeria, South Africa, Angola, Egypt and Libya and we have agents representing FS in South Africa, Kenya and Egypt. We are currently having talks with oil & gas majors in other parts of western Africa. ■

Towards improved water security

Metito discusses sustainable solutions to address water scarcity in an increasingly water stressed.

UNFCCC'S CONFERENCE OF the Parties (COP27) presented the platform to discuss the pressing need to invest in water infrastructure to achieve water security. The world is increasingly becoming more water stressed and it's a critical time to invest in sustainable solutions that can counter the pressure on natural water resources resulting from climate change, urbanisation, and over irrigation. Participating alongside Egypt's Minister of International Cooperation, Rania El Mashat, Metito, a developer of desalination projects globally and provider of water and alternative energy solutions, was among the companies which were actively involved in these discussions.

"Achieving water resilience is a key issue which the government addresses via a comprehensive strategy that covers the efficient use of resources as well as utilising the available advanced technologies for water treatment and desalination," El Mashat said.

Rami Ghandour, Metito managing director, highlighted the need for transformational change to achieve water security through enhanced resilience, sustainable high-value engineering, and increased investment in water infrastructure. "Creating new opportunities through developing additional water sources is transformative. The collaboration of all stakeholders is fundamental to unlock efficiencies, optimise resources, create new jobs, and overall deliver sustainable economic growth to the communities we serve," commented Ghandour. He remarked that water projects are lifeline projects that extend beyond the infrastructure and way into developing communities, and gave the example of Al Mahsamma agricultural drainage recycling and reuse plant (1 million m³/d), the world largest at the time, which was developed by Metito as part of a consortium and irrigates more than 70,000 acres of land in Sinai. This was followed by



Photo Credit : Metito

COP27 addresses the importance of injecting more investment in water infrastructure.

the now largest agricultural wastewater recycling and reuse plant, also in Egypt, in the New Delta area (7.5 million m³/day). These projects are helping create lively, sustainable communities around new green lands, extending local jobs and fueling economic activity. More importantly, they are exemplary stories of turning waste to value by securing a sustainable source of water for irrigation instead of using fresh water sources.

Rami Ghandour also highlighted the importance of developing desalination plants in coastal areas "Metito is supplying about half the hotels in Sharm El Sheikh with their water, through the first Public Partnership Desalination project in the Middle East which was set up in 1999"

Taking desalination to the next level of incorporating alternative energy is another playing factor in making such energy-intensive projects more sustainable. "Metito has been pushing the boundaries as developers of some of the world largest desalination plants by partially integrating solar power to optimise energy use and maintain a healthier environmental footprint. In the Kingdom of Saudi Arabia,

Metito developed the Dubai Seawater desalination Plant (SWRO) in the futuristic city of NEOM and developed another similar project in King Abdullah Economic City. In Egypt, one of our key global markets, we are now hoping to build a strong portfolio of mega-desal projects that are 100% solar powered," Rami added.

To create alternative water realities, especially in water stressed markets, we need to develop mega projects that are sustainable and that address circular economy head on.

"There are great opportunities to invest in projects like the Glen Valley wastewater recycling and reuse plant in Botswana—the world's first direct sewage to potable reuse in one plant. This is the future," added Ghandour.

Metito has been announced as the lowest bidder for the 90,000m³/d Glen Valley Public Private Partnership Project (PPP).

The common theme in most of the panels which discussed water at the COP27 were adopting a forward-looking approach to impact investment and pushing technology to scale up and expedite the delivery of new sustainable water projects. ■

Briefly

Daikin unveils Monoblock refrigeration solution at Gulfood Manufacturing 2022

DAIKIN MIDDLE EAST and Africa FZE (Daikin) has unveiled its new generation of Monoblock refrigeration solution at Gulfood Manufacturing 2022. Developed using R-290 and inverter technology, the units are designed for minimal environmental impact and deliver excellent thermodynamic properties.

The Monoblock range reduces power consumption drastically, while also bringing quality and speed, requiring minimal maintenance while installing.

Commenting on the launch of the new generation of Monoblock, Sanjeev Maheshwari, refrigeration general manager at Daikin, said, "According to reports, nearly a third of all food produced each year is squandered or lost before it can be consumed. With the launch of a new generation of Monoblock, we have reiterated our commitment to innovation, sustainability, food security, and safety and marked it as the most pivotal moment for Daikin in the region.

"Supporting the safe and secure supply of perishable foods from farm to fork, as we say, our innovative and sustainable solutions help businesses to reduce their carbon emissions alongside food waste, both of which help us to protect the planet better and increase efficiency."

The Monoblock of the future enables improved stock management for businesses and is suitable to both medium and low temperature rooms sized from 4 to 25 cu/m. It also operates with minimal noise and ensures flexibility of business operations.

Besides launching Monoblock, Daikin showcased several other flagship solutions at Gulfood Manufacturing designed to cater to the needs of all customers. Among them, were Daikin's state-of-the-art AHT products with inverter-driven ZEAS units for remote application, which deliver a one-stop solution for food retail chain needs on display. Daikin also showcased its truck refrigeration unit and single screw technology utilised in packed ammonia compressor racks applied in various storage and processing facilities.

Bentley Systems streamlines carbon calculations

BENTLEY SYSTEMS, THE infrastructure engineering software company, has announced expanded integrated workflows for embodied carbon calculation in the Bentley iTwin platform

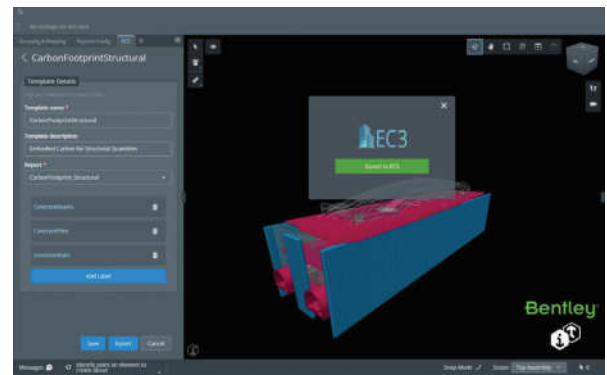
The new integration enables carbon assessment in infrastructure digital twin solutions, empowered by the Embodied Carbon in Construction Calculator (EC3). Developed by the non-profit Building Transparency, EC3 is a no-cost, open-access tool that allows for benchmarking, assessment, and reductions in embodied carbon, focused on the upfront supply chain emissions of construction materials. Building Transparency provides the education, resources, and tools – which includes EC3 – to address embodied carbon's role in climate change.

Rodrigo Fernandes, Bentley's director of ES(D)G, said, "This new integration in Bentley's infrastructure digital twin platform exemplifies our strategy for empowering our users to achieve sustainable development goals. EC3 from Building Transparency is a perfect example of purpose-driven open, ecosystem collaboration, by which the private sector can come together to support and accelerate climate action."

The EC3 integration allows Bentley's infrastructure digital twin solutions, powered by iTwin, and third-party applications built on the Bentley iTwin platform, to simplify and accelerate the generation of carbon reporting and insights based on the no-cost, open-source EC3 carbon database and calculator. The Bentley iTwin platform is an open, scalable, platform-as-a-service offering that enables developers to create and bring to market solutions that solve real infrastructure problems by leveraging digital twins.

The added integration with EC3 both creates time savings with improved accuracy, and provides uncertainty estimations of the EPD data and increases carbon transparency due to Building Transparency's open-source/open-access strategy. Users can incorporate engineering data created by various design tools into a single view using the Bentley iTwin platform, generate a unified report of materials and quantities, and share it with different carbon analysis tools – now also with EC3 – via cloud synchronisation.

"For WSP, carbon footprint analysis and reduction are imperative in planning, designing, building, and operating an infrastructure project from beginning to end," said Thomas Coleman, vice president of WSP USA. "Enabling better iTwin integration with EC3 is game-changing for us on multiple infrastructure projects. Implementing this link will significantly reduce the time and cost of generating EC3-based detailed embodied carbon analysis and reports along the design and construction stages."



EC3 integration provides uncertainty estimations and saves time.

Photo Credit : Bentley Systems

HAMM reveals battery tandem rollers in compact class

HAMM HAS PRESENTED its first fully electric battery-driven tandem rollers, some of which are fitted with oscillation drums. Compacting with these models is both emission-free and ultra-quiet.

The HD 10e model and the HD 12e model boast the same compaction power as their combustion engine counterparts, but produce zero emissions. Compared to the diesel machines, they save approximately 10 kg CO₂ every hour of operation.

All electrical components in the e-rollers are completely maintenance-free. The extensive electrification reduces the oil volume by more than 70%. Across the entire system, there are very few wear parts that need to be greased or that could suffer from abrasion. The operating hours registered are also lower than on the diesel-engined models, because the operating hour meter is not activated until the driving



The HD 12e VO and HD 12e OT were showcased at bauma.

Photo Credit : Wirtgen Group

lever is moved.

The HAMMTRONIC control system monitors and controls the components of the zero-emissions rollers. Combined with the electronic driving levers, this makes the machine extremely easy to control with precision. Speedramping is also implemented to ensure smooth accelerating and braking manoeuvres.

AspenTech to advance sustainability and operational excellence

ASPEN TECHNOLOGY, INC., has announced the availability of its latest aspenONE software release, V14.

The new release delivers advanced intelligence and guidance capabilities that improve decision-making abilities and further boost operational excellence. In addition, V14 enables customers to accelerate sustainability projects with more than 100 sample models, and to manage Scope 1 and 2 emissions for reducing carbon footprints.

David Arbeitel, senior vice president of products at AspenTech, said, "The new capabilities in V14 will help customers streamline progress toward sustainability goals and operational excellence for stronger business outcomes."

aspenONE V14 includes more than 100 sustainability sample models to jumpstart progress in the areas of emissions management, hydrogen economy, carbon capture, materials circularity, bio-based feedstock, and renewable energy. V14 automates CO₂ emissions data collection from multiple sources for decarbonisation compliance/reporting and enables customers to model these emissions in operations to achieve sustainability targets.

A key value delivered by the V14 release is



Photo Credit: Adobe Stock

The V14 release enhances operational decision-making.

enhanced operational decision-making. With two new offerings – Aspen Virtual Advisor (AVA) for DMC3 and Aspen Unified Reconciliation and Accounting (AURA) – plus new capabilities and multiple enhanced integrations between existing solutions, the new release provides actionable guidance/real-time augmented intelligence and prioritises anomaly and failure alerts based on severity and operational risk. In addition, V14 minimises material losses with fast, efficient mass and volume balance and evaluates planned downtime options to enable better decisions that minimise impact on production and order commitments.

MB Crusher accelerates Delta project

MB CRUSHER BF135.8 is crushing limestones to build the road network of the New delta project.

The New delta, situated in a unique location with a development area of 4,200 sq m and climate suitable for many types of crops, will give way for the virgin land to be reclaimed for agriculture as part of the 'Mostaqbal Misr' (Future of Egypt) plan.

The infrastructure involves a fully-fledged, integrated system for mechanising agriculture and irrigation, nine power stations, a 200 km long internal power grid, a 500 km long main and subsidiary road network and a water treatment plant. It is all set up to provide for the country and improve agricultural exportation to global markets.

To achieve a project of this scale, the largest water treatment plant in the world was built, with a capacity of 7.5 million cu/m per day of water. In order to keep to the schedule, Al-Fanart Contracting company employed an MB Crusher jaw crusher bucket BF135.8 for their Doosan excavator to process the white limestone, ultimately boosting productivity.

The more compact unit could provide more productivity than the larger fixed crusher by cutting costs and streamlining the entire process. The breakdown will be:

- o Savings in terms of labour, in this project for the road subbase production one excavator and one operator are needed, while more than 12 people were needed with the fixed crusher unit
- o Saving in transportation as the MB'S jaw crusher bucket can travel anywhere attached to the excavator

- o Saving time as the feeding process of the fixed crusher was eliminated, the stones ranging between 30 to 70 cm are scooped up by the crusher bucket and immediately reduced down to 6 cm. A size suitable to reuse rocks laying around to make the internal roads to facilitate the transportation of agricultural equipment and machinery.

In an interview, Ibrahim Issa, the company owner, said that using the mobile jaw crusher made by MB Crusher saved them time and money, reducing the project cost by almost 40%.



Photo Credit: Adobe Stock

The BF135.8 saved almost 40% on costs.

Briefly

Honeywell and Microsoft join forces to support mobile workers

HONEYWELL ANNOUNCED A new integration with Microsoft to help highly mobile workers by providing a set of digital tools enabling enhanced communication and collaboration, all on one platform.

Users of select Honeywell mobile computers in the warehousing, logistics, healthcare and retail fields can download the popular and optimised Microsoft Teams for frontline workers application. Through Teams, workers can turn Honeywell devices into a walkie-talkie with a dedicated button. This push-to-talk solution enables clear, instant and secure voice communication over the cloud, allowing employees to better serve customers or patients on demand.

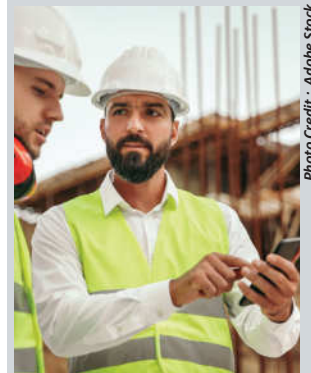


Photo Credit: Adobe Stock

Through Teams, workers can turn Honeywell devices into a walkie-talkie with a dedicated button.

"A customer- or patient-centric approach can be improved through technology-led productivity and mobility solutions," said Karen Bomber, senior director of marketing at Honeywell Productivity Solutions and Services. "As mobile workers are being challenged to know more at a moment's notice than ever before, the combination of Honeywell's rugged, versatile mobile computers with Microsoft Teams gives workers access to the answers they need by connecting with each other to coordinate the right outcomes."

The addition of Microsoft Teams for frontline workers to Honeywell's software ecosystem allows employees to communicate and collaborate with each other effectively using one powerful mobile computer without the need to carry separate bulky radios.

Automation pivotal to warehouse operations

Honeywell report identifies three considerations to help businesses identify and utilise the right automation solutions as they mature along their automation journey.

A NEW HONEYWELL report reveals that consumer demand cycles centred around holidays and ‘peak seasons’ have given way to a model where any month, week or day can be a holiday.

‘Warehouse Automation: Future-Proofing the Global Economy’, authored by Futurum Research, examines the importance of automation as an increasingly critical component in helping warehouse and distribution centre (DC) operators meet new escalation points in consumer demand.

“One of the biggest predictors of how a business will thrive in the hypercompetitive e-commerce and omnichannel marketplace is how well it improves its decision making in real time to make deliveries faster and more accurate,” said Roman Poludnev, general manager of Safety and Productivity Solutions Middle East, Turkey and Africa at Futurum Research.

“With rising service level agreements dictating order fulfillment process improvements, automation can help bring stability, predictability and potentially unlock greater efficiency to their operations.”

The analysts at Futurum Research developed the report after sitting down with a group of industry leaders with deep, global experience in warehouse operations, automation technologies and systems implementation to hear first-hand of their experiences and thoughts on the future of warehouse automation. Three recommendations emerged from the interviews as businesses navigate challenges both present and future along their automation journey:

- Focus on augmenting and securing, not replacing the worker. While the concept of a dark warehouse exists on the horizon, the reality today is that the future of warehouse and DC operations for the foreseeable future is one where workers and automation technologies are both needed and must co-exist.



Photo Credit : Honeywell

Roman Poludnev, general manager of safety and productivity solutions, Middle East, Turkey and Africa, Futurum Research.

- Constantly challenge assumptions and technologies. The value of automation should not be limited to just automating existing takes or processes, it should be

“With rising service level agreements dictating order fulfillment process improvements, automation can help bring stability, predictability and potentially unlock greater efficiency to operations.”

part of an overall strategy that addresses the issues of what tasks can be automated today while also asking what new tasks or processes might be possible tomorrow.

- Invest with a long-term focus for both technologies and partners. In a static or slow growth market, the application of automation technologies to address specific short-term needs may make sense. However, the rapidly growing and evolving market of today requires a much longer focus and a more rigorous framework.

“While warehouses have historically had a sense of predictability in demand cycles, we found that in today’s warehouses and DCs, every day is as busy as peak,” said Shelly Kramer, principal analyst and founding partner of Futurum Research. “While we can assume the level of strain this has placed on supply chain and fulfillment operations, we were able to get a better grasp of how businesses are approaching this shift in consumer expectations and adopting the right automation to meet their long-term business goals.”

The report also explores how the pandemic and global trade issues have created long-term disruptions to the historically predictable throughput and capacity of warehouses and DCs.

From concept and integration, Honeywell Intelligrated draws on its expanding portfolio and deep industry expertise to help warehousing, distribution and fulfillment companies optimise and manage their processes. The business offers integrated end-to-end automation solutions, warehouse execution systems and analytics solutions to improve throughput and keep workers safe. ■

To learn more about Honeywell’s warehouse automation solutions and capabilities, visit sps.honeywell.com/us/en/products/automation.

Project Databank

Compiled by Data Media Systems

CONSTRUCTION PROJECTS, NORTH AFRICA

Project Name	City	Facility	Budget (US\$)	Status
Algeria Ministry of Youth and Sports - Tizi Ouzou Abdelkader Khalef Stadium	Tizi Ouzou, Algeria	Sports Stadium/Facilities	444,000,000	Construction
Sonatrach - Skikda Export Terminal Expansion	Skikda, Algeria	Port	454,000,000	Construction
Algeria Ministry of Youth and Sports - Douera Sportpark Stadium	Douera, Algeria	Sports Stadium/Facilities	250,000,000	Construction
EMA - Mostaganem Tramway	Mostaganem, Slgeria	Railway	664,000,000	Construction
Algeria Ministry of Youth and Sports - Baraki Stadium	Baraki, Algeria	Sports Stadium/Facilities Leisure Facilities	281,000,000	Construction
Ministry of Equipment and Housing - Gabes Medenine Highway	Various, Tunisia	Roads	123,879,000	Construction
ONCF - Rabat-Agdal and Rabat-Ville Railway Stations	Rabat, Morocco	Railway	125,860,000	Construction
Ministry of Public Works - ANA - Skikda Port Connection to East-West Highway	Skikda, Algeria	Roads	250,000,000	Construction
GVG Real Estate Development - Emirates Touristic Resort	Marrakech, Morocco	Residential Development	305,696,000	Construction
Stahlschmidt - Tangiers Industrial Unit Plant	Tangier, Morocco	Auto Assembly Factory	40,000,000	Feasibility Study
Algeria Ministry of Public Works - Bejaia Port to Ahnif	Bejaia, Algeria	Roads	2,020,000,000	Construction
METLW - Tiznit-Dakhla Expressway	Various, Morocco	Roads	1,000,000,000	Construction
Ministry of Transport - SMLS - Light Rail Transit (LRT)	Sfax, Tunisia	Railway	283,000,000	Design
Sonatrach - Integrated Phosphate Project	Various, Algeria	Phosphate	6,000,000,000	Feasibility Study
Managem - Tizert Copper Project	Tizert, Morocco	Copper	135,000,000	Feasibility Study
BANK OF AFRICA - Mohammed 6 Tower	Rabat Sale Haute Mer, Morocco	Office Buildings	562,000,000	Construction
Tekcim - El Jadida Cement Plant	El Jadida, Morocco	Cement	272,240,000	Construction
Casa Transports - Casablanca Tramway - Overview	Casablanca, Morocco	Railway	8,700,000,000	Construction
MINISTRY OF TRANSPORT - Enfidha Deep-Water Port - Phase 1 - Container Terminals	Enfidha, Tunisia	Port	1,400,000,000	EPC ITB
Emmerson - Khemisset Potash Mine Development	Khemisset, Morocco	Potash	400,000,000	Feasibility Study
Stellantis - Automotive Assembly Manufacturing Plant	Oran, Algeria	Auto Assembly Factory	100,000,000	Construction
Nador West Med Company - Nador West Med Port Complex	Nador, Morocco	Port	1,025,000,000	Construction
Onda - Rabat Sale Airport Expansion	Rabat, Morocco	Logistic Hub	189,000,000	Construction
Emarat Dzayer Group - Groupe Sider - Steel Plant	Annaba, Algeria	Steel Plant	1,600,000,000	Pre-FEED
METLW - M'dez Dam	Sebou, Morocco	Dam	165,000,000	Construction
Tosyali Iron & Steel - Steel Plant Expansion	Oran, Algeria	Steel Plant	1,100,000,000	Engineering & Procurement
Algeria Ministry of Public Works - ANA - Djen Djen Port to El Eulma - Connection to East-West Highway	Jijel Province, Algeria	Roads	1,399,500,000	Construction
Jamjoom Pharma - Ophthalmology Drug Factory	Adrar, Algeria	Pharmaceutical Factory	130,000,000	EPC ITB
METLW - Dakhla Atlantique Port Procurement	Dakhla, Morocco	Port	1,077,060,000	Engineering &
Ministry of Public Works and Transports - Hamdania Sea Port Development	El Hamdania, Algeria	Port	6,000,000,000	Engineering & El Procurement
APEC - Oilfield Equipment Manufacturing Facility	Arzew, Algeria	Industrial Production	45,000,000	EPC ITB
Aya Gold & Silver - Zgounder Mine Expansion Project	Various, Morocco	Silver	100,000,000	FEED
Ministry of Public Works And Transports - Port Master Plan - Overview	Various, Algeria	Port	8,190,000,000	Engineering & Procurement
FERAAL - Gara Djebilet Iron Deposit Project	Gara Djebilet, Algeria	Iron Ore	15,000,000,000	Feasibility Study
METLW - Targa Ou Madi Dam	Guercif, Morocco	Dam	84,600,000	EPC ITB
MINISTRY OF TRANSPORT - Enfidha Deep-Water Port - Overview	Enfidha, Tunisia	Port	1,650,000,000	Engineering & Procurement
METLW - Oued Lakhdar Dam	Azilal, Morocco	Dam	130,000,000	Engineering & Procurement
NAT - Cairo Metro - Line 3 - Phase 3 -	Cairo, Egypt	Mass Transit Systems	1,800,000,000	Commissioning
NAT - Cairo Metro - Line 4 - Phase 1 -	Cairo, Egypt	Mass Transit Systems	4,780,000,000	Construction
Ministry of Housing - Central Business District (CBD)	New Capital, Egypt	Mixed-Use Development	3,000,000,000	Construction
NAT - Cairo Metro - Line 6 - Northern Cairo to New Maadi	Cairo, Egypt	Railway	2,500,000,000	Feasibility Study
Ministry of Transportation - Gargoub port	Matruh, Egypt	Transportation	10,000,000,000	Engineering & Procurement
NAT - Cairo Metro - Line 3 - Phase 4 -	Cairo, Egypt	Mass Transit Systems	1,200,000,000	Construction
Alexandria Port Authority - Dekheila port - Container Terminal	Alexandria, Egypt	Port	400,000,000	Feasibility Study
Mountain View - Sisban - NUCA -City Residential Units	New Cairo, Egypt	Residential Development	3,600,000,000	Construction
Ministry of Transport - King Salman Causeway	Sharm El Sheikh, Egypt	Causeway	4,500,000,000	Feasibility Study

Project Databank

Compiled by Data Media Systems

Project Focus

Compiled by Data Media Systems

NAT - Cairo Metro - Line 3 - Phase 3

Name of Client	NAT - The National Authority for Tunnels
Revised Budget (US\$)	2,656,095,170
Contract Value (US\$)	1,100,000,000
Award Date	2016-Q1
Main Contractor	Arab Contractors (Osman Ahmed Osman & Company) Bouygues Construction OCI - Orascom Construction Industries Vinci Construction
Facility Type	Mass Transit Systems
Status	Commissioning
Location	Cairo, Egypt
Project Start	2013-Q3
End Date	2023-Q4

Background

The National Authority for Tunnels (NAT) plans to construct a new underground double-track line passing through the urban center of the city. Phase three includes 15 stations and covers an area of almost 18 km. It will connect the two banks of the Nile and will extend to the west from Attaba, where the line will split in two serving the north and the south. It is reported that 10km of line 3 will be underground, while a few sections will be overground. The 48km Cairo metro line 3 will have 39 stations, with 30 of these underground. This connects the airport with the northern part of the city. It will reach as far as Rod El-Farad in the north, and Cairo University in the south.

Project Status

Date	Status
Nov 2022	TSO, a railway subsidiary of NGE, with its partner Orascom Construction, has completed the track work on the LRT 10th of Ramadan route.
Oct 2022	Alstom has successfully supplied, tested, and commissioned the signaling, centralised control, and driving modes for Cairo Metro section 3A with a total of four stations from Attaba to Kit Kat.
Sep 2022	The pre-commissioning work for section 3B has started.
Mar 2020	Egypt's cabinet has approved the contract between NAT and France's public transport operator RATP Group to run, operate, and maintain the project for fifteen years.

Project Scope

The scope of the project involves the following:

- 4 km tunnel between Attaba Station and Kit Kat Station, with four underground stations
- 5.7-km tunnel between Kit Kat Station and Rod el-Farag Station, with six stations
- 6.9 km tunnel between Kit Kat Station and the link of Line 2 at Cairo University Station
- 15 stations that cover an area of almost 18 km
- 39 stations with 30 of these underground

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البيئية ويمكن أن يشكّلوا أصغر الفئات اعتماداً للمركبات الكهربائية. إضافة إلى ذلك، كانت هناك استثمارات ضخمة لتقليل الوقت المطلوب لشحن المركبات الكهربائية، ما يوفر المزيد من الحوافز للمستهلكين لتبني هذا النوع من المركبات.

«ماتيتو» تفوز بعقد تحلية المياه في الفجيرة



فازت «ماتيتو» بعقد تنفيذ المرحلة الثانية من مشروع محطة تحلية المياه في ميناء الفجيرة

بهدف تلبية الطلب المتزايد على مياه الشرب. ومن جانبه، أضاف السيد فادي جوين، العضو المنتدب لشركة «ماتيتو» قائلاً: «يعتبر «ميناء الفجيرة» أحد أهم الموانئ في الشرق الأوسط، ونحن فخورون بالمساهمة في رؤيته ليصبح في مصاف الموانئ العالمية متعددة الأغراض. وسنستخدم في المرحلة الثانية من المحطة أحدث التقنيات المتطورة، وقد سخرنا خبرتنا الهندسية المتخصصة لابتكار حل لتوفير الطاقة وتقليل تكاليف التشغيل وإنشاء مشروع صديق للبيئة منخفض الانبعاثات الكربونية.»

وجدير بالذكر أن «ماتيتو» نفذت المرحلة الأولى من محطة تحلية مياه البحر بميناء الفجيرة منذ أكثر من عشرين عاماً، بطاقة إنتاجية تبلغ 3,000 متر مكعب في اليوم، عبر شبكة 2 × 1,500 متر مكعب في اليوم.

و بمناسبة توقيع العقد، قال السيد أحمد هياجنة، المدير العام لشركة «ماتيتو» في دبي والإمارات الشمالية وسلطنة عُمان: «كان العقد الأول وفقاً للمعايير الصارمة التي حدتها «شركة الفجيرة لإنتاج المياه العذبة». وتعتبر عملياتها الناجحة القائمة منذ سنوات طوال شاهداً آخر على استدامة الحلول التي توفرها «ماتيتو» منذ أكثر من 65 عاماً في أكثر من 53 دولة في مناطق جغرافية مختلفة. ولكم يشرفنا أن نكون جزءاً من هذا المشروع الجديد وسنعمل على إنجاز بنجاح.»

تعاقدت «شركة الفجيرة المحدودة لإنتاج المياه العذبة» مع شركة «ماتيتو»، رائدة حلول إدارة المياه والطاقة البديلة على مستوى العالم، على تنفيذ المرحلة الثانية من محطة تحلية المياه المنشأة في «ميناء الفجيرة». ويعتبر المشروع أحد أهم مشاريع «شركة الفجيرة» نظراً لموقع الميناء الاستراتيجي والبنية التحتية المتطورة التي تُمكن الشركات العاملة في ربوع المنطقة من توسيع نشاطها التجاري محلياً وعالمياً.

و بمناسبة التوقيع على العقد، قال المهندس خميس النون، رئيس مجلس إدارة «شركة الفجيرة المحدودة لإنتاج المياه العذبة»: «تطور «ميناء الفجيرة» تطوراً كبيراً وأصبح أحد أهم الموانئ الاستراتيجية في المنطقة بفضل موقعه وما يمتلكه من المرافق ذات المواصفات العالمية، واستمراره في التحديث لمواكبة متطلبات المستقبل بشتى أنواعها. ويسرنا أن نتعاون مع «ماتيتو» مجدداً على تنفيذ المرحلة الثانية من بناء المحطة، ونحن على ثقة بخبرتهم الكبيرة في توفير الحلول المستدامة والمبتكرة لنجاح هذه المرحلة من المشروع.»

وقعت الشركتان على عقد المشروع بعد إجراء مناقصة تنافسية، ومن المقرر أن يكتمل إنجازه في أقل من عام. وسوف تتولى «ماتيتو» مسؤولية تنفيذ الأعمال الهندسية والمشتريات والبناء لمحطة تحلية المياه التي تعمل بطاقة إنتاجية تبلغ 3,500 متر مكعب في اليوم، كما ستربطها بانسيابية مع المرافق الحالية

وشهد الاهتمام بالتحويل إلى المركبات الكهربائية تسارعاً ملحوظاً على مدار السنوات الأربع الماضية بين أوساط الشركات والمجتمعات على حد سواء وذلك نتيجة الآثار المتزايدة المترتبة على ظاهرة التغير المناخي. وسجّل «مؤشر الجاهزية العالمية للتنقل الكهربائي لعام 2022» من آرثر دي ليتل وجود ارتفاع كبير في اعتماد المركبات الكهربائية في جميع أنحاء العالم. وقال جوزيف سام، شريك ومسؤول قطاع السفر والتنقل في «آرثر دي ليتل» الشرق الأوسط: «يتزايد توجه الحكومات في منطقة الشرق الأوسط نحو اعتماد تكنولوجيا المركبات الكهربائية في البنية التحتية للشوارع، وتحولت دولة الإمارات العربية المتحدة مرتبة متقدمة على مستوى العالم في مستوى الجاهزية للتنقل الكهربائي. ونهدف، من خلال المؤشر العالمي للجاهزية للتنقل الكهربائي، إلى المساعدة على فهم النطاق الكامل للتنقل الكهربائي وإمكاناته المتوقعة، وتقديم الدعم لشركات السيارات عبر منحهم رؤية ثاقبة حول مدى جاهزية الأسواق لعصر التنقل بالمركبات الكهربائية». ووفقاً لمخرجات الدراسة الجديدة، لا يزال سوق المركبات الكهربائية في دولة الإمارات العربية المتحدة في مراحل مبكرة ومن المتوقع أن يشهد تطوراً بمعدل نمو سنوي مركب بنسبة 30 في المائة بين عامي 2022 و2028. وتشكل سيارات نقل الركاب حوالي 95 في المائة من سوق المركبات الكهربائية في دولة الإمارات العربية المتحدة نتيجة الارتفاع الملحوظ في خدمات تأجير السيارات والنطاق المحدود للمركبات التجارية المستخدمة في مجالات النقل والخدمات اللوجستية. وتمكنت حكومة الإمارات، في إطار رؤية الإمارات 2021، من تعزيز اعتماد السيارات الكهربائية في جميع أنحاء الدولة. وتمكنت من تحويل 20 في المائة من سيارات الجهات الحكومية إلى سيارات كهربائية، وتعتزم أيضاً زيادة عدد السيارات الكهربائية في الشوارع إلى 42,000 بحلول عام 2030.

وتمتلك دولة الإمارات العربية المتحدة واحدة من أعلى نسب محطات الشحن الكهربائي إلى السيارات على مستوى العالم. وأطلقت إمارة دبي مبادرة الشاحن الأخضر للمركبات الكهربائية في عام 2015 لزيادة عدد محطات الشحن. ومنذ ذلك الحين، شهدت شبكة محطات الشحن توسعاً وفتحاً لتصل حالياً إلى 325 محطة في جميع أنحاء الدولة. ولتعزيز استخدام المركبات الكهربائية، تعمل هيئة كهرباء ومياه دبي وهيئة الطرق والمواصلات معاً على تقديم مجموعة من الحوافز؛ مثل مواقف السيارات المجانية والإعفاء من رسوم التعرف المرورية إضافة إلى رسوم التسجيل المخفضة، وذلك بهدف جعل وسائل النقل العام خالية من الانبعاثات الكربونية بحلول العام 2050. وكانت المنطقة الحرة بجبل علي في إمارة دبي، قد شهدت افتتاح أول مركز لوجستي للمركبات الكهربائية والبطاريات على مستوى المنطقة، تماشياً مع رؤية الإمارات للتحويل إلى الاقتصاد الدائري من خلال ضمان سلسلة إمداد متسقة لحلول التنقل المستدامة. وبحسب الدراسة، يفكر نحو 30 في المائة من سكان الإمارات العربية المتحدة في شراء سيارة كهربائية للمساهمة في التحول الأخضر، ويعتقدون أنها تقدم قيمة أفضل على المدى الطويل مقابل ما يدفعونه من مال مقارنة بالمركبات التقليدية. ومن المرجح أن يتأثر الأفراد في الفئة العمرية 20-25 عاماً بالعوامل

← مفكرة الفعاليات 2022 - 2023

ديسمبر/كانون الأول

5 - 8 معرض بيج فايف دبي

يناير/كانون الثاني 2023

9 - 12 معرض الآلات والتقنيات والمعدات - SteelFab

16 - 18 القمة الدولية لطاقة المستقبل

أبو ظبي

تصنيف الإمارات ضمن المراتب العشرة الأولى علمياً مستوى العالم في جاهزية الأسواق للتنقل الكهربائي

تشير التقديرات إلى نمو سوق السيارات الكهربائية بمعدل نمو سنوي مركب يبلغ ٣٠ في المائة بين عامي ٢٠٢٢ و٢٠٢٨ في دولة الإمارات العربية المتحدة



ينتظر تطور سوق المركبات الكهربائية مستقبلاً في الإمارات بنسبة 30 في المائة

يسهم تركيز حكومة الإمارات العربية المتحدة علمياً تعزيز جاهزية البنية التحتية في تسريع وتيرة تبني السيارات الكهربائية

احتلت دولة الإمارات العربية المتحدة المرتبة الثامنة عالمياً بين أكثر الأسواق جاهزية لعصر التنقل بالمركبات الكهربائية وذلك وفقاً لنتائج «مؤشر الجاهزية العالمية للتنقل الكهربائي - Gemrix 2022» الذي أصدرته «آرثر دي ليتل»، شركة الاستشارات الإدارية الرائدة على مستوى العالم. وتأتي هذه النتائج في الوقت الذي تواصل فيه دولة الإمارات مساعيها لتحقيق أهداف الحياد المناخي بحلول العام 2050، حيث استندت «آرثر دي ليتل» في دراستها الجديدة إلى تحليل محركات سوق المركبات الكهربائية وتقييم مستوى الجاهزية العامة في الأسواق حول العالم.



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للتنقل الكهربائي

«ماتيتو» تفوز بعقد مشروع تحلية المياه في الفجيرة



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ADVERTISER INDEX

Company	Page
Barco n.v.	2
CONEXPO-CON/AGG Show Management Services	39
Elematic Oyj	25
GENAVCO L.L.C.	5
Hotline Trading LLC	15
Peter Berghaus GmbH	11
TME B.V.	7 & 49
Wilhelm Layher GmbH & Co. KG	9

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