

TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

MIDDLE EAST

Vol 38/Issue One 2022

Desalination

Addressing water scarcity

The way forward

IVECO renews heavy line
with new WAY range



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EDITOR'S NOTE

THE NEW YEAR looks optimistic with several mega projects buoying different sectors across the UAE and the wider GCC region.

This year, we continue to witness several events lined up to be held in-person. Intersec 2022, once again uniting the world of security, safety and wellbeing held a host of discussions on making smart cities better.

Read our preview on Middle East Energy (p38) returning to Dubai, with a showcase of the latest in energy products and solutions.

We also bring you exclusive insights(p18) from the IVECO team, on the new WAY range of trucks unveiled in the Middle East and Africa market. On page 22, Matthew Margetts, director of sales and marketing at Smarter Technologies discusses the importance of tall office towers for densely-populated cities.

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



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TECHNICAL REVIEW

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Abu Dhabi DoE chairman delivers keynote at Youth4Sustainability Forum

“SUSTAINABILITY IS A concept with deep roots in the values of Emirati society,” asserted HE Eng Awaidha Murshed Al Marar, Chairman of the Abu Dhabi Department of Energy, in a keynote address at the Youth4Sustainability forum, on the side lines of Abu Dhabi Sustainability Week 2022.

“The youth must build on our values of sustainability and pass them down from generation to generation,” he continued. “Young people have an extraordinary ability to drive cross-generational behavioural change and set the stage for a sustainable future for the UAE and the world. Empowering the youth is a top priority for the UAE; they are poised to play a leadership role in spearheading the sustainability agenda and moving it forward on every level.”

He underlined the tremendous efforts the leadership has taken to empower the youth over the years.

Speaking to a predominantly young audience, he noted the importance of driving a radical shift in community behaviours – including the youth – to balance and enhance supply-and-demand over the next few years and support Abu Dhabi and the UAE in their efforts to build a sustainable future and implement sustainability goals.

The DoE Chairman pointed out that despite the tremendous progress that has been made in developing technologies to enhance energy and water efficiency, as well as striking balance between supply and demand, behavioural change will always be a key requirement.

He went on to explain the DoE's role in leading the energy transition in Abu Dhabi and building an inspiring model for the UAE and the world. The Department strives to maintain stability and efficiency of supply and demand with a series of initiatives, such as the Abu Dhabi Demand Side Management and Energy Rationalisation Strategy 2030, he asserted.

HE Al Marar called on young people to have a sense of initiative and start by changing themselves and adopting lifestyle habits that help ensure sustainability, and then move on to bigger steps that would have a significant impact on their surroundings and society as a whole.

Abu Dhabi Energy Services to deliver energy-saving solutions across the emirate

ABU DHABI ENERGY Services (ADES), the energy services market maker in Abu Dhabi, has signed agreements with leading government entities, including the Abu Dhabi Department of Culture and Tourism (DCT), Abu Dhabi Health Services Company (SEHA), United Arab Emirates University (UAEU) and Emirates Schools Establishment (ESE).

The aim is to identify power and water saving opportunities in their facilities and buildings across the emirate.

The agreements were signed at the World Future Energy Summit 2022 and was attended by HE Awaidha Murshed Al Marar, chairman of the Abu Dhabi Department of Energy (DoE); Jasim Husain Thabet, TAQA's Group CEO and managing director; HE Saeed Al Fazari, support services executive director at DCT Abu Dhabi; HE Dr Rabaa Al Sumaiti, director general of ESE; Dr Tarek Fathey, SEHA's CEO and Ghaleb Ali Al Hadrami Al Breiki, UAEU's vice-chancellor.

Khalid Mohamed Al Qubaisi, CEO, ADES, said, “The announcement, held during Abu Dhabi Sustainability Week, is the first step in enabling these entities to realise significant power and water savings across facilities that will reduce carbon footprints and their utilities expenditure, and it will further accelerate the growth of the energy services market in Abu Dhabi.”

Under these agreements, ADES will undertake a series of assessments of the power and water consumption across buildings belonging to DCT, SEHA, UAEU, and ESE to achieve tangible savings.



Photo Credit : ADES

The agreements were signed at the World Future Energy Summit 2022.

Together, the organizations have approximately 34 buildings across the Emirate that will be retrofitted with energy savings technologies to rationalise their consumption and reduce their carbon footprint, supporting the UAE's net zero ambitions.

HE Saeed Al Fazari, acting strategic affairs executive director at DCT Abu Dhabi, said, “This partnership with Abu Dhabi Energy Services underscores our ongoing commitment to Abu Dhabi's Environment Vision 2030 to improve energy usage. We continue to build on best practices in energy consumption, and are always keen to explore new measures to drive greater efficiencies.”

Ghaleb Ali Al Hadrami Al Breiki commented, “Through this agreement, we seek to contribute effectively to providing a safe and sustainable environment in order to achieve the goals of the sustainable development agenda in light of the environmental transformations that cause the consumption of resources, especially in the industrial fields and development projects.”

Jubail Island to expand its urban green space

IN SOLIDARITY WITH the UAE government and Abu Dhabi Environmental Agency, Jubail Island Investment Company has announced to support the UAE's efforts to expand mangrove forest cover in the Emirate by planting one million mangrove trees on the island within the next 10 years.

To date, 350,000 new seedlings have already been planted on Jubail Island and, over the next decade, a total of 1,000,000 additional new



Photo Credit : Jubail Island

The mangrove initiative will allow the introduction of new water channels to increase natural tidal flow conveyance into the surrounding wetland areas.

mangroves will be planted in support of the country's ambition to plant 100 million mangroves by 2030, representing an increase from 30 million, which was announced during this month's COP26 Conference in Glasgow.

The announcement by JIIC reaffirms its ongoing efforts to promote socially and environmentally responsible development, in addition to actively implementing programs to protect and enhance the island's biodiversity. The mangrove initiative will allow the introduction of new water channels to increase natural tidal flow conveyance into the surrounding wetland areas.

Ponds, labelled as ‘Biodiversity Genesis Zones,’ have also been created within the new channel system and will improve the flushing of the channels to enhance the overall water quality within the wetland system. These new littoral zones have been shaped adjacent to existing areas of the mangrove forest and saltmarsh and will also create additional habitat for native species.

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Briefly

CAFU, SirajPower and Creek join forces to accommodate new era of demand for green energy

A NEW ERA of on-demand clean energy is beginning to take shape across the UAE. Bringing renewable power to where it is needed is a new joint venture, HYPYR, which will see on-demand refuelling and vehicle services operator CAFU, the largest regional distributed solar energy company Siraj Power, and climate impact investor Creek partner.

With the venture, the three companies hope to launch HYPYR with a selection of on-demand energy systems with innovative battery storage solutions. This innovation will mark the first-of-its-kind solution in the region, with transportable lithium ion batteries providing customers with a reliable and cost-effective alternative to diesel generators.

HYPYR will build upon the key strengths of each organisation involved in the partnership. The battery storage systems will be developed by SirajPower, a Creek portfolio company with over 200 solar sites across the UAE. The new venture will benefit further from CAFU's on-demand customer-centric approach combined with its unique routing capabilities and operational expertise in optimising B2B deliveries, developing an efficient and seamless customer experience.

HYPYR will use its balance sheet to invest in the battery modules so customers can be offered a pay-as-you-go model with no up-front capital required.

This collaboration marks a step forward in offering realistic renewable energy solutions as an alternative to diesel-consuming generators.

Rashid Al-Ghurair, founder & CEO, CAFU said, "As a responsible business, contributing towards a sustainable world is very important to us, and we are committed to developing and supporting solutions that will help mitigate the impact on our environment. Bringing together CAFU, SirajPower and Creek, this venture will bring a new innovative on-demand solution to the market that provides a green and sustainable energy source, thereby committing to meaningful action to help enable a carbon neutral future."

Johnson Controls wins energy performance contract

GLOBAL LEADER FOR smart, healthy and sustainable buildings, Johnson Controls, has been awarded an energy performance contract from Aldar Properties. The agreement will see Johnson Controls deploying its comprehensive OpenBlue digital energy efficiency programme across Aldar Properties' network of schools to help achieve at least 20% savings on the portfolio's utility expenditures.

The contract includes a scope of work and operation, including the replacement and retrofit of heating, ventilation and air conditioning (HVAC) equipment across a number of properties, along with lighting and other energy consuming assets.

Additionally, the company will roll out its OpenBlue digital technologies to be integrated into the schools' infrastructure to contribute to the rationalisation of energy and water consumption across Aldar Properties' portfolio.

Rolando Furlong, vice president and general manager, Building Solutions MEA, Johnson Controls, explained, "We will use our expertise as an innovation pioneer and technology leader to assist Aldar in its sustainability and digital transformation journey. We thank Aldar for its confidence and trust in our capabilities to help transform the operations of its schools across Abu Dhabi and achieve sustainability objectives. At the national level, this project will be contributing to the UAE Government's vision to reach net zero emissions by 2050."

Johnson Controls has made a commitment to achieve net zero scope 1 and 2 carbon emissions before 2040 - 10 years ahead of the global Paris Climate Agreement target. The company's high energy efficient OpenBlue and ESCO capabilities



Photo Credit : Adobe Stock

The agreement will target a reduction in energy emissions.

will be vital to establishing a sustainable and inclusive future. Buildings contribute around 40% of global CO2 emissions, with Johnson Controls' solutions aiming to reduce this to a net zero.

Johnson Controls leverages next generation technologies to enable customers to achieve sustainability strategies and goals that can drive more than 50% improvements in energy efficiency and corresponding carbon emissions.

"Once implemented, our energy efficiency strategy will provide support to Aldar and JCI's ongoing initiatives to rationalize the energy and water usage of its schools. The deployment will be strategic and is in sync with Aldar's overall energy savings goals and sustainability targets. Our cooperation with Aldar will also make a difference in its efforts of reducing its carbon footprint and building an environment which can flourish and promote the significance of environmental sustainability," added Nermeen Hammouda, general manager, Applied and ESCO Solutions, GCC, Johnson Controls.

Wayout shares clean water tech at Abu Dhabi Sustainability Week

SWEDISH SUSTAINABLE TECH company Wayout took to Abu Dhabi Sustainability Week (ADSW) to showcase its revolutionary technology that supplies a sustainable source of safe drinking water for worldwide communities.

Founded in 2018, the company's focus is on sustainable modern solutions for local production and distribution of safe drinking water. Wayout's solar-powered microfactories treat water from any source, including seawater. The treated water is remineralised and distributed in refillable stainless steel vessels before



Photo Credit : Wayout

The system can supply 2,000 people with safe water.

being dispensed through smart taps.

A single Wayout system has the capacity to provide 2,000 people with safe drinking water while preventing up to 483 tons of greenhouse gases and 5.7 mn single use plastic bottles from entering the ecosystem yearly.

"Wayout is honoured and excited to have participated in such an inspiring melting pot of innovators and real changemakers," said Martin Renck co-founder and Creative Director at Wayout International.



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IVECO renews heavy line

The new IVECO T-WAY off-road and the IVECO S-Way long-haul trucks are the latest offerings released by IVECO.



Image Credit: IVECO

The IVECO T-WAY is designed to provide maximum protection.

THE IVECO T-WAY is the off-road vehicle designed and engineered for the toughest missions in the most extreme conditions, which takes over from the legendary TRAKKER. It introduces a new HI-TRONIX automated transmission with functions specifically developed for off-road mobility.

The new rear disc brakes, heavy-duty rear suspension system for Tandem axles, lower kerb weight and a host of features such as the Off-Road mode, together with ESP, Hill Holder and high-comfort cab together add up to outstanding efficiency and safety.

IVECO completes the IVECO WAY heavy range with the IVECO S-WAY, the on-road truck developed to deliver a complete package of features focused on the driver and efficiency. The IVECO S-WAY delivers a fuel efficiency increase of up to 4% with a new engine line-up, a redesigned cabin and advanced features, further reducing its Total Cost of Ownership and raising the stakes on business productivity.

IVECO unveiled the new IVECO WAY range for both off and on-road missions with the slogan 'Drive the new way'.

Engineered for robustness and reliability

The IVECO T-WAY has been intentionally designed and engineered to offer best-in-class performance in every off-road mission, robustness and torsional rigidity. It carries over from its predecessors the legendary robustness of the high-resistance steel chassis with a 10mm thick frame, with a Rail Bending Moment at the top of the segment at 177 kNm. The front axle has a maximum capacity of up to 9 tonnes and hub reduction on the rear axle is standard in order to maximise strength and performance.

The new heavy-duty rear suspension system for Tandem axles optimises vehicle weight and improves off-road performance with greater ground clearance and a better departure angle.

The IVECO T-WAY delivers all the power needed for traction and PTO with IVECO's reliable and efficient Cursor 13 engine (13 litres) that develops up to 470/480 hp.

The engines are coupled with the proven 16-speed HI-TRONIX automated gearbox, which now also features new functions specifically intended for off-road mobility including a Hill Holder function to help departure on steep slopes, Rocking Mode to help recover traction in slippery conditions and Creep Mode for ultra-low speed when idling; for the on-road sections of the mission.

Extreme flexibility

With both rigid and articulated versions, the IVECO T-WAY has one of

the widest offering of driveline options on the market: Partial Wheel Drive on 6x4 rigid and articulated and 8x4 rigid models; as well as All Wheel Drive on 4x4 and 6x6 rigid and articulated, and on 8x8 rigid versions.

The All Wheel Drive range has been extended with new 4-, 4.2- and 4.5-metre wheel base models, which can transport special loads with no modification to the chassis.

The new HI-MUX electric and electronic architecture is fully compatible with the latest-generation control systems.

Driver comfort and safety

The cab of the IVECO T-WAY is available in two versions – AD short cab and AT long cab with standard or high roof. Driver safety is paramount in the harsh conditions typically faced by the IVECO T-WAY and so the vehicle is designed to provide maximum protection, with safety features which far exceed the type-approval requirements.

The new braking system features EBS as standard, full disc brakes are available on PWD models, and new ADAS (Advanced Driving Assistance Systems) are available.

IVECO S-WAY: The driver-centric long-haul truck

In the face of fierce competition, logistics operators need top-level uptime, efficiency and productivity from their fleets. The new IVECO S-WAY perfectly meets this requirement, providing a complete package of features, developed with focus on driver centricity.

In redesigning the cab from the ground up, IVECO has sought to deliver cost savings and productivity gains to the benefit of the owner's profitability. All the elements of the new design work together to achieve a superior aerodynamic performance and deliver fuel savings up to 4% on top of the outstanding fuel efficiency that is the hallmark of this product family.

Designed around the driver

The IVECO S-WAY carries over all the advances introduced in the previous generations and adds a new cab entirely redesigned around the driver's to provide the ultimate driving environment with outstanding ergonomics and controls layout.

The ergonomic layout of the controls ensures all the key functions are within easy reach of the driver. The air conditioning system, and integrated parking cooler and heater systems ensure an ideal internal climate within the cab in all weather conditions, when driving or during stops. ■

UAE at the forefront of adopting latest technologies for sustainable waste management

ECOWASTE 2022 EXHIBITION and Forum, held from 17-19 January at the Abu Dhabi National Exhibition Centre (ADNEC), as part of the Abu Dhabi Sustainability Week, was held under the theme 'exploring future opportunities for waste management to achieve a circular economy.'

The exhibition and forum, organised with the strategic partnership of Abu Dhabi Waste Management Centre (Tadweer), covered various fields, including recycling and waste management and treatment in the MENA region. The exhibition was an integrated platform for developing and formulating practical and sustainable waste management practices, pursuing climate initiatives and pushing towards adopting a

circular economy by supporting the development of the necessary policies, technologies, solutions and frameworks.

HE Dr Salem Al Kaabi, director general of the Abu Dhabi Waste Management Centre (Tadweer), said, "The UAE is moving steadily towards adopting the circular economy model and attracting the latest innovative technologies for sustainable waste management. This supports us in confronting future challenges and achieving sustainable economic development, which is a strategic priority for the nation."

Al Kaabi said, "EcoWASTE Exhibition and Forum is a unique opportunity for showcasing the latest innovations and technologies in waste management, which serve as a



Photo Credit: Tadweer

HE Dr Salem Al Kaabi is the director general of the Abu Dhabi Waste Management Centre (Tadweer).

tool for creating a better world. It also contributes towards stimulating investments, exchanging expertise, and establishing partnerships with top local, regional, and international companies in order to unify the efforts for achieving sustainable development and taking pre-emptive steps to deal with current and potential challenges in the waste management sector."

The Phillips Group announces CEO of Zubair Corporation placement

THE PHILLIPS GROUP, a global executive search firm, has announced Niels Bormans, former deputy group CEO, Ghobash Group and CEO of Aban Investment, as the new group CEO of The Zubair Corporation.

Based out of Muscat, Oman, The Zubair Corporation, founded in 1967, is one of the most important economic multi-activity conglomerates in the Sultanate and operates in various sectors including energy, engineering and contracting, real estate and hospitality, finance, banking and investments, automotive, IT and electrical equipment and furniture.

Bormans will report to Rashad Al Zubair.

Construction begins on Saudi Arabia's clean-energy water project

GLOBAL ENERGY COMPANY ENGIE, in collaboration with Saudi-based contracting firm Nesma and private desalination company Mowah, has broken ground on the Al Rayes seawater reverse osmosis desalination plant.

The plant will use clean energy and be developed under a public-private partnership structure together with Saudi Water Partnership Company (SWPC) 'water principal buyer in Saudi Arabia'. It is expected to be commercially operational from the last quarter of 2023.

Awarded by SWPC as a build, own, operate contract, the consortium will have a concession period of 25 years. The plant will have a capacity of 450,000 cu/m per day and storage facilities for two operational days. Electricity supply to the plant will be supplemented with the addition of an on-site solar photovoltaic system following construction, helping reduce CO₂ emissions.

The Al Rayes plant is expected to contribute US\$400mn to the Kingdom's GDP.

Speaking on the occasion, Khaled Z Al Qureshi, CEO, SWPC, said, "From securing foreign investments to embracing the shift toward renewable energy and creating jobs for the local communities, the Al Rayes desalination plant will significantly contribute to our nation's social, economic, and environmental health."



Photo Credit: ENGIE

The consortium, which will finance, build, own and operate the plant, consists of ENGIE, Nesma and Mowah.

Affordable House Co. and Bin Saedan to build staff residential complex in SPARK

KING SALMAN ENERGY Park (SPARK), a global energy hub in Saudi Arabia and Affordable House Co., a subsidiary of Abdullah Bin Saedan & Sons Real Estate Group, a leading real estate developer, have announced the signature of an agreement for the development of a state-of-the-art staff residential complex at SPARK.

In line with the Saudi Green Initiatives, the unique design of the SPARK staff residential complex seamlessly integrates green technologies while setting a new sustainability standard. It will offer first-rate, safe and competitive amenities for the wellbeing of SPARK tenants and its occupiers. Planned to be developed in phases starting in 2022, the facility has a capacity of 8,000 beds and spreads over an area of more than 110,000 sq m.

Saif S Al Qahtani, president and CEO at SPARK, said, "The success of SPARK in becoming a sustainable ecosystem that attracts international investors and supports the success of Saudi society depends not just on our strategic location but on the fact that the city is built around the concept that all people working here, no matter the function they perform, can access spaces where they can live, work and play. Bin Saedan's design is future-facing and sustainable, while being competitive. It will enable our tenants to safely lodge their employees while offering first class amenities which is paramount for their sustainable growth and localisation value creation. We are also pleased to highlight Affordable House Co. / Bin Saedan's commitment to incorporating advanced systems within the design, construction and operation to make the facility the first of its kind."

Mohammed Abdullah Bin Saedan, managing director of Affordable House Co., added, "We are proud to partner with SPARK to help put in place the infrastructure needed for a dynamic community where residents can lead a healthy and happy lifestyle. The signature of this agreement is a cornerstone achievement for our company with the aim of accelerating the expansion of our presence in the Eastern Province."

EXECUTIVES' CALENDAR 2022

FEBRUARY

1-3 **LEAP** RIYADH www.onegiantleap.com

MARCH

7-9 **Middle East Energy** DUBAI www.middleeast-energy.com

7-9 **Intersolar Middle East** DUBAI www.intersolar.ae

28-31 **The Big 5 Saudi** RIYADH www.thebig5saudi.com

28-31 **HVAC R Expo Saudi** RIYADH www.hvacrexposaudi.com

MAY

9-11 **World Utilities Congress** ABU DHABI www.worldutilitiescongress.com

MAY - JUNE

30 May-3 June **IFAT** MUNICH www.ifat.de

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

Energy efficient practices discussed at ADSW Summit 2022

HE AWAIIDHA AL Marar, chairman of Abu Dhabi Department of Energy delivered the keynote speech at Abu Dhabi Sustainability Week Summit 2022, stressing the need to protect the world's environment through positive energy choices. Al Marar has highlighted that the required therapy to treat the Earth involves limiting global warming to below two degrees Celsius – preferably to 1.5 degrees Celsius – to achieve decarbonisation by mid-century. He said that the treatment plan will not be effective and long-lasting to anticipate a sustainable future unless it incorporates essential lifestyle adjustments and adoption of more energy efficient practices.

“When I think of climate change and the global call to reduce emissions, I see Earth as a person,” said HE Al Marar. “Much pressure is put on the energy sector to reduce power generation emissions as well as emissions in the supply chain. Countries around the world have joined long term energy transition to decarbonise the power sector and promote electrification. Many have identified individual net zero commitments and accelerated the shift to renewable energy. Renewable energy is the alternative to fossil fuels and despite the decline in prices of solar and wind energy, it



HE Awaidha Al Marar, chairman, Abu Dhabi Department of Energy.

is somehow still not growing as fast as we need it to,” he added.

He drew attention to the changes that Abu Dhabi has been making to renew its energy system to be part of the cure, citing – among other things – the establishment of the Abu Dhabi Future Energy Company (Masdar) as one of

the world's first carbon neutral developments, the Noor Abu Dhabi and Al Dhafra solar PV projects, the fact that today, the UAE accounts for more than 70% of all installed renewable energy capacity in the region, and the commencement of commercial operations of the first and second units of Abu Dhabi's Barakah Nuclear Power Plant, in addition to the recent announcement of the UAE Net Zero by 2050 strategic initiative.

“These are examples of the adjustments we are making in energy, similar initiatives exist across all other sectors to ensure we are future-ready and by all means sustainable. Our progress and rapid development was always backed by our visionary leadership, through our approach of partnerships, international cooperation, and active participation in open knowledge-sharing platforms,” he said.

“In 2023, we will host the COP28 in Abu Dhabi. It will be yet another platform to work together on practical climate solutions and sustainable economic growth. In conclusion, I would like to stress that besides investment in research and development and technology, it is critical that we form new regional and international partnerships. ADSW is a great platform to do that.”

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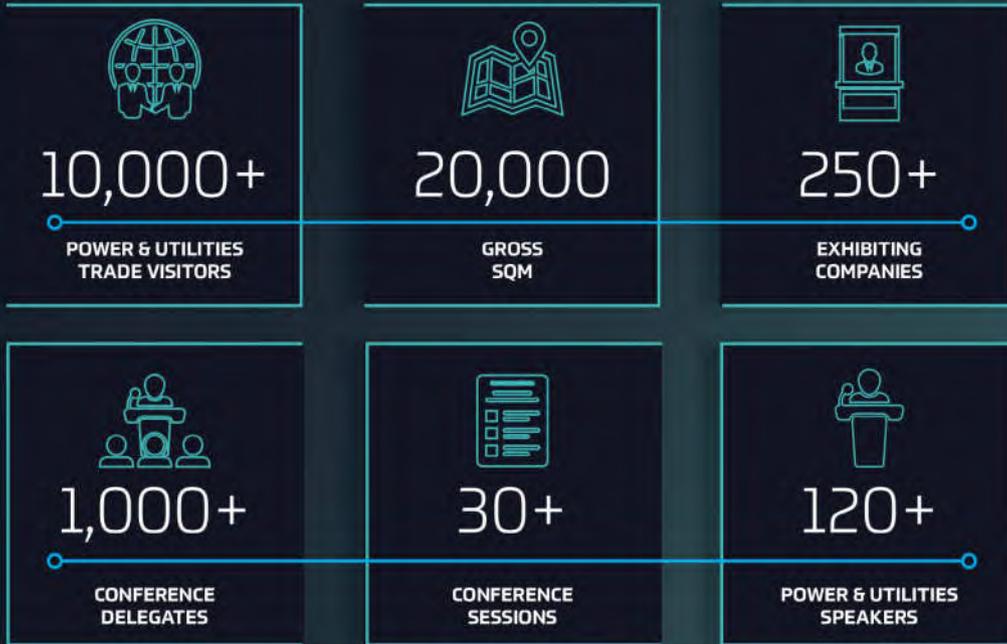


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HH SHEIKH MANSOOR BIN MOHAMMED BIN RASHID AL MAKTOUM

Chairman

Dubai Council for Border Crossing Points Security

“The beauty of Saudi Arabia is that if you go to the right side of Saudi Arabia, the Eastern part, you will see a lot of gas and oil. If you go to the left side, you will see a basket of all kinds of materials. We have gold, we have copper, we have phosphate, all types of materials.”

SULIMAN BIN KHALED AL-MAZROUA

CEO

National Industrial Development and Logistics Programme

“We want all our business lines to be available across the length and breadth of Egypt, providing a one-stop shop that caters to all insurance and financial planning needs under one roof. Delivering these services via partner banks adds a convenience factor for accessing insurance services.”

OMAR SHELBAZA

Board member

AXA Life Insurance Egypt

(On the Arab African International Bank’s five-year bancassurance agreement with AXA Egypt)

“Behind every challenge lies a much greater opportunity. Let us focus on what is practical to produce real tangible progress. Let us use the same determination that brought us here today to drive the solutions of tomorrow. Let us use this time that we have together to connect minds and create an inclusive and sustainable future for all.”



Photo Credit: ADSW

DR SULTAN AHMED AL JABER

Minister of Industry and Advanced Technology

UAE

(Speaking at the opening of the Abu Dhabi Sustainability Week)

“We are very excited to join hands with OMRAN to execute our first project in Oman, and to work together on preserving the Sultanate’s rich natural environmental resources in accordance with the best global green practices. Over the past decade, we have gained and harnessed invaluable knowledge from our working proof-of-concept, which we are leveraging to set new standards for building sustainable and resilient cities with the highest sustainable standards to achieve a carbon-neutral future that also suits the local culture, environment, and economy.”

FARIS SAEED

Chairman

Diamond Developers

(On the development partnership agreement between Oman Tourism Development Company and Diamond Developers including the development of the first phase of the Yiti Tourism masterplan)

“Today, DEWA, in collaboration with NanoAvionics, has launched the first U3 nanosatellite as part of the Space-D programme that aims to improve the operations, maintenance and planning of its networks with the support of nanosatellite technology, Internet of Things (IoT), and remote sensing technologies. The programme also aims to train Emirati professionals to use space technologies to enhance its electricity and water networks and take advantage of Fourth Industrial Revolution technologies such as IoT, Artificial Intelligence (AI), and blockchain to exchange information with the help of satellite communications and earth observation technologies.”

HE SAEED MOHAMMED AL TAYER

MD & CEO

DEWA

(On the launch of the DEWA-SAT 1 nanosatellite in collaboration with NanoAvionics)

“As innovation leaders, Dubai and Shenzhen would benefit by expanding their cooperation and knowledge sharing in new areas and fields such as high-tech equipment manufacturing, research and development, green and low-carbon, biological medicine, digital economy, and marine economy.”



Photo Credit: Dubai Chamber

HAMAD BUAMIM

President & CEO

Dubai Chamber of Commerce & Industry

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

APICORP, IsDB to support utility project in Arab region

THE ARAB Petroleum Investments Corporation (APICORP) and Islamic Development Bank (IsDB) have launched a US\$1bn financing initiative to support utility projects in the Arab region. It will allocate funds for electricity generation and transmission projects that utilise renewable energy or natural gas, as well as water and waste management facilities. The goal is to address low private sector participation in funding energy projects by incentivising public-private partnerships. www.technicalreviewmiddleeast.com/power-a-water/power-generation



The financing programme will allocate funds for electricity generation and transmission projects

Photo Credit : Adobe Stock

Azizi Developments partners with Transgulf Cement Products

AZIZI DEVELOPMENTS, A leading private developer in the UAE, has partnered with Transgulf Cement Products, one of the most renowned sole distributors of concrete products in the GCC region. The newly formed partnership will see Transgulf Cement Products supply Azizi's premium soon-to-be-completed residential and commercial developments in Riviera, MBR City, with shot-blasted pavers for landscape works. Transgulf Cement Products offers a wide range of concrete products available in many colours, patterns and designs to suit all types of architectural projects. Azizi Developments has also announced the addition of a 2.7-km-long crystal lagoon to Riviera, covering an area of over 130,026 sq m that will stretch across the entirety of the community. www.technicalreviewmiddleeast.com/construction/buildings/

Dubai to study green hydrogen collaboration between UAE and UK

DUBAI BASED WORLD Green Economy Organisation (WGEO) and Zest Associates are partnering to research and produce a report exploring potential green hydrogen collaborations between the UAE and the UK. The report, sponsored by HSBC, will examine opportunities for collaboration and partnerships in the green hydrogen sector, engaging industry associations, policymakers, innovators and business leaders in both countries. Research for the report will include stakeholder meetings and workshops to test and validate findings. There will also be a panel discussion on the report's conclusions in the first half of 2022. www.technicalreviewmiddleeast.com/business-a-management/

Khazna Data Centres achieves Tier-III certification

KHAZNA DATA CENTRES achieved the Uptime Institute's 'Tier III Certification of Constructed Facility' for its Apollo 3 and Apollo 4 data centres. According to Khazna, innovative requirements come in the form of speed, higher density, modularity, energy efficiency, sustainability, and scalability. www.technicalreviewmiddleeast.com/it/computing/



Innovative requirements come in the form of speed, higher density, modularity, energy efficiency, sustainability, and scalability.

Photo Credit : Adobe Stock

DEWA receives delegation from the Saudi Electricity Company

DUBAI ELECTRICITY AND Water Authority (DEWA) received a delegation from the Saudi Electric Company as part of benchmarking visits for knowledge sharing among pioneering utilities in the region. The visit aims to enhance bilateral work to support the region's sustainable and comprehensive development journey. www.technicalreviewmiddleeast.com/power-a-water/water-a-environment/



The delegation is a part of the benchmarking visits for knowledge sharing.

Photo Credit : Adobe Stock

DEWA unveils Real-Time Mobile Work Force Project

DUBAI ELECTRICITY AND Water Authority has launched a Real-Time Mobile Work Force Project to improve productivity and fieldwork efficiency. This is part of its efforts to enhance the happiness of its employees and help them complete their tasks easily and efficiently. The project includes 109 processes related to distribution power; water and civil; billing services; power and water planning divisions. The project enhances transparency in task distribution, by the full integration with the human resource's schedule, and reducing transportation time; all by accessing information in real-time, scheduling and dispatching of field staff. DEWA's state-of-the-art infrastructure, part of the digital transformation roadmap, has made it a global model for developing and adopting the highest standards and excellence practices in all its activities and operations. www.technicalreviewmiddleeast.com/business-a-management/

Building capacity to protect smart cities

Intersec 2022 welcomed a host of conferences and summits, and shone the spotlight on Protecting Future Connected Cities and Citizens'. Mathew Hayhoe reports.

TOM VAN ARMAN, founder and CEO of Tapp, opened the panel discussion on 'Future Proofing Cities', held during Intersec 2022, highlighting the importance of the sustainable development of smart cities across the world.

"Smart cities develop responsible and inclusive urban developments in our existing cities. Recent times have been turbulent – planners, policymakers and designers have been faced with the unpredictability of Airbnb, Uber, along with a wealth of other consumer-facing technologies. This has caught city officials off-guard, evaluating the new factors in the urban environment."

Elaborating on the focus of protecting smart cities, van Arman explained, "The choices made impact education, health and safety, public transport - every facet of citizens' lives. Developers need to guarantee a safe and responsible approach to all these factors."

He further emphasised the importance of data research and collection, by adding, "Insights from prototype systems and rollouts are becoming indispensable. Capacity measures can help evaluate demographic, capacity, and potential. This helps avoid invasive approaches while guaranteeing safety and research quality."

"All the while, we need to protect citizens' digital rights, limiting analytic collection and optimise the quality data that we can collect."

On his five suggestions to future-proof cities, van Arman concluded, "Rapid experimentation, not overthinking processes and constantly seeking insights to inform quicker responses and results. Visualising is important, making data and insights easy for everyone to understand - from policymakers to citizens. Put human capital at the heart – solutions should be citizen-based, appreciating their rights and giving power to designers to engage and

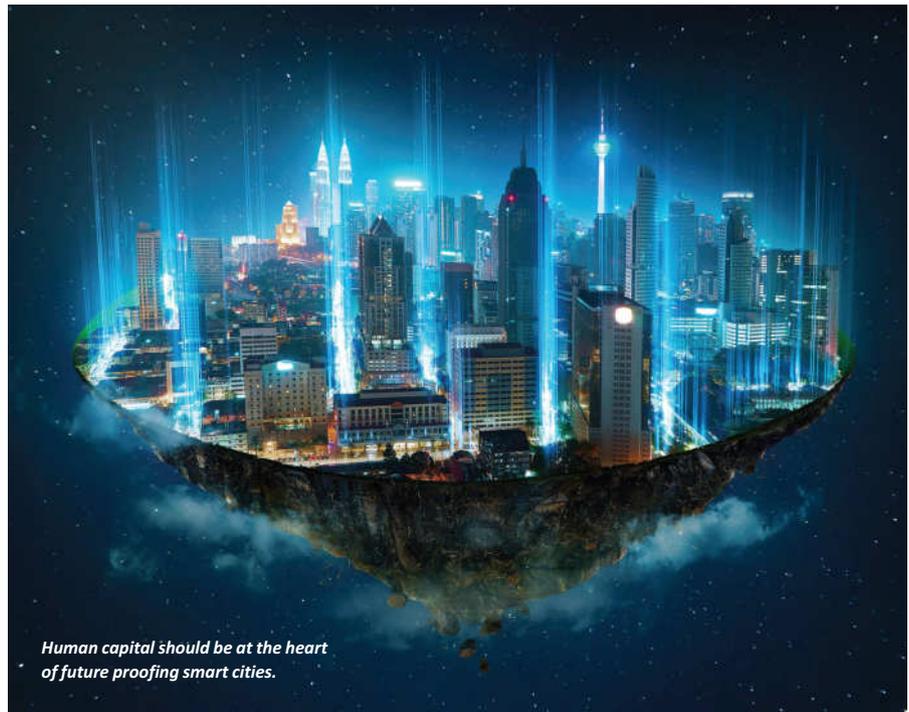


Photo Credit : Adobe Stock

involve them in planning. Real-world testing is key, too, validating assumptions and research with tests allowing citizens to prove and exercise theories. Finally, harden your city - protect privacy and citizens' rights while developing rigid systems that enable future growth."

Building the smart city of the future

Areej Al Shaibani, HRD director for the Ministry of Transport Communication and Information Technology for Oman, joined the conference to discuss the best approach to build capacity within smart cities.

"Being ambitious and looking ahead is key to the development of smart cities. The question we need to ask is – how can we build the smart city of the future in the present?"

"There are so many challenges around this idea. The data overload, a demand from companies and citizens on transparency, and a slow emergency and report process

throughout design and rollout. We need to begin by listening to, understanding, and educate the future citizens of the cities to understand their needs. Openly engaging and understanding the needs and wants of this demographic is the most valuable asset to projects."

Al Shaibani continued, "Start by measuring the impact of new technologies – their speeds, simplicity and results – while examining the other side – the challenges they present. Of course, there are slow learning processes with constant innovation. Its important to inspire growth mindsets if companies want to move forward - internally and externally."

Summarising the main ideas when building capacity, Al Shaibani concluded, "Continuous education, sharing knowledge and building an innovative landscape of understanding is key to building capacity around the most successful innovations." ■

Solutions supporting better living

Kanoo Energy spoke to Technical Review Middle East during the Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC) 2021, on its sustainable solutions.



Kanoo Energy unveiled a range of sustainable solutions at ADIPEC.

Photo Credit : Kanoo Energy

ESTABLISHED OVER TWO decades ago, Kanoo Energy provides sustainable solutions to utility companies and the GCC industrial sector as a whole, through smart engineering and value-added services, and is a leading vendor to major utility companies, general industries refineries, and petrochemical companies right across the GCC region. Kanoo Energy presented innovative solutions such as the reverse engineering and 3D printing from Imaginarium and AI-based corrosion monitoring solution from Corrosion Radar from the UK amongst others.

“With the growing urban areas and smart

cities becoming the new reality, greenhouse gas emissions are likely to grow along with them. The challenge is to ensure that our smart cities become greener while we manage the challenges imposed. Advancements in renewable energy and electric vehicles have already led to significant reductions in carbon emissions. Carbon emissions are being reduced by generating power on-site with renewables and other climate-friendly energy resources. Some of the recent innovations like rooftop solar panels, solar water heating, small-scale wind generation, fuel cells powered by natural gas or renewable

hydrogen are contributing positively to cope up with the issues of carbon emission,” explained Ali Abdulla Kanoo, president of Kanoo Industrial & Energy.

“We are currently engaged in strategising, investing into new talent, building cooperation with various OEM’s and clients to source new technologies and exchange expertise and know-how, as well as contributing to building national capacities in energy technologies,” said Abdulla Kanoo. This involves Kanoo Group investing into renewable energy, gas fired power solutions, IoT, using AI in energy production, 3D printing, additive manufacturing, and so on. ■

'Build it and they will come'— addressing the needs of the life science sector

An established community and ecosystem are critically important to life science companies looking to set up, finds an AD Ports Group study.

IN A SERIES of executive interviews with industry experts in 2021, AD Ports Group has reviewed the key factors that life science companies consider when choosing a location for new operations. With fierce competition, talented and mobile labour, as well as a range of government incentives, these companies are afforded a wealth of international options. What are the most important decision factors that drive office selection outcomes?

"We want it all, the complete ecosystem – excellent infrastructure, utility networks, and logistics services; access to key healthcare institutions; to be positioned alongside existing health players; and finally, to be right at the heart of the city. That's what we want," said one respondent, summing up what many of our interviewees articulated in answer to how the location selection process is determined.

Experts revealed that life science companies – and all those involved in the ecosystem that supports them – demand the same shortlist of criteria. Specifically:

- Geostategic locations that place them within easy reach of key trade markets and local funding.
- Local initiatives that enable them to tap into local talent as well as participate in exciting new projects.
- Superior infrastructure and operational benefits that ensure the smooth flow of the business.
- One-stop-shop service provisioning enabling increased efficiencies are realised and time-to-market to be increased.
- Multimodal connectivity which allows for the free flow of goods and people.

Building the right infrastructure:

When considering where to set-up,



Photo Credit : AD Ports Group

respondents were of the opinion that a cluster-based zoning model is crucially important to succeed in the life sciences industry.

For starters, companies must be able to form in a simplified and flexible manner and to operate in a 100% foreign ownership model, if they so choose, particularly in manufacturing and processing. Due consideration should be given to any possible duties which might be required to be paid for access to adjacent markets, or on the importation of machinery or raw materials. Tax exemptions and free repatriation should be provided for any foreign direct investor in the life sciences industry.

Abu Dhabi offers multiple zone options, strategically located in logistics hubs. Existing land and facilities infrastructure, such as power and water, is readily available along

with a comprehensive facilities management system. For those in life sciences, modular lab spaces with the option to customise and analytical labs, are widely available, and are adjacent to modern office park space, although advanced transport infrastructure remains critical.

In Abu Dhabi, the Life Sciences Park is home to four major pharmaceutical manufacturers, several labs and supporting services, 16 universities and more than 18 research centres.

Crucially, the zone supports linkages between producers with start-ups, scientists, and universities – creating synergies in new product development, talent cultivation as well as R&D commercialisation. In addition, there are world renowned medical facilities and clinics, and established research laboratories and centres. ■

Tadweer reduces waste sent to landfills by 40% in Abu Dhabi

ABU DHABI WASTE Management Center (Tadweer) has succeeded in reducing the amount of waste sent to landfills by 40% in the emirate of Abu Dhabi.

The announcement was made by HE Dr Salem Al Kaabi, director general of Abu Dhabi Waste Management Center (Tadweer). The center continues working to achieve its strategic goal of reducing the total of waste sent to landfills by 80% by 2030.

He made the announcement during a media forum organised by Abu Dhabi Waste Management Center (Tadweer) on the second day of the eighth edition of EcoWASTE 2022 Exhibition and Forum, held at Abu Dhabi National Exhibition Centre (ADNEC) as part of the Abu Dhabi Sustainability Week (ADSW). HE Dr Al Kaabi discussed the latest developments of the centre's projects and strategic initiatives, in addition to the centre's plans and expected achievements in 2022.

HE Al Kaabi said, "The Abu Dhabi Waste Management Centre (Tadweer) aims to release tenders for two projects: converting



HE Dr Salem Al Kaabi is the director general of Abu Dhabi Waste Management Center (Tadweer).

waste to energy project, and MRF-RDF (Material Recovery Facilities – Refuse Derived Fuel) project during the first quarter of 2022. The centre will complete a series of strategic projects and initiatives during the year. These projects include converting waste into aviation fuel, extracting gas from landfills, establishing engineering cells, issuing ID cards for workers in the pest control and waste management sectors, providing the e-manifest platform to other

state establishments, and importing waste from outside the emirate of Abu Dhabi."

HE Al Kaabi said that in early 2022, the centre closed all of its customer service centres and started providing all its services through the TAMM government communication centre's call centre. The centre continued to work on the full integration with the Department of Municipalities and Transport (DMT) during this year.

The activities of EcoWASTE Exhibition and Forum continued for the second day, with wide-scale local, regional, and international participation, including more than 35 local, regional, and international companies, 12 of them participating for the first time.

The forum started with a presentation by HE Dr Al Kaabi on the centre's efforts for safely managing and disposing of medical waste contaminated with COVID-19, including bandages, toothbrushes, syringes, needles, surgical equipment, blood and tissue testing waste, pharmacies waste, radiation therapy waste, and so on, with an overall capacity of 16 tonnes per day.

Enova signs contract with Munzur Su for expansion into Turkey

ENOVA, ONE OF the regional leaders in integrated energy and multi-technical services, has announced its expansion into Turkey with the signing of its latest contract with Munzur Su. The expansion will see Enova securing new contracts and opening a new office as a part of its growing regional operations.

Enova's expansion follows a new EPC, solar and FM contracts including a long-term commitment with Dubai Metro aligning with Road & Transport Authority and public health regulations. Enova has also signed with the TECOM Group - a member of Dubai Holding and Tarshid in Saudi Arabia along with existing contract renewals. Enova's regional growth has been accelerated by the increased adoption of the energy services company model in the GCC and beyond, with companies financing their energy management strategy through the savings that they achieve.

Enova's expertise is in providing its clients with comprehensive and performance-based energy and facilities management solutions, paving the way to achieve financial, operational, and environmental targets. The company functions as an O&M provider, acting as a key enabler of energy efficiency in the industrial sector. Commenting on the



Renaud Capris, CEO, Enova, forecasts an overall year-on-year double-digit growth rate with further growth in 2022.

expansion, Renaud Capris, CEO at Enova, said, "2021 was a successful year for Enova with 35 new contracts being signed and executed, a clear-cut indication of our momentum. Enova continues this consistent commercial and geographical growth with the award of new contracts and renewed projects in the region. Fuelled by the growing demand in the Middle East and Turkey, our expansion into this new region is the next

step and we at Enova are ready to start this new journey. We are also anticipating further growth in 2022, with overall year-on-year double-digit growth rates."

Enova is one of the market leaders in the energy management sector and delivers its services through a number of contracts throughout the region, including UAE, Oman, KSA, Bahrain, Qatar, Egypt, Lebanon, and now Turkey. Furthermore, Enova's digitalisation is supported by Hubgrade, a platform that monitors performance against KPIs in real-time on a client dashboard through technical analysis, enabling complete transparency for customers.

The company also took part in WFES 2022, where it showcased its integrated energy and facilities management services.

Enova offers comprehensive and performance-based energy and facilities management solutions to its clients to help achieve their financial, operational, and environmental targets. Enova was created as a joint venture between Majid Al Futtaim and Veolia, a global leader in optimised resource management; designing and providing water, waste, and energy management solutions which contribute to the sustainable development of communities and industries.

The way forward

IVECO launched the T-Way and S-Way trucks in the Middle East and Africa market. The new range provides increased productivity, safety and comfort.



IVECO now offers a complete, renewed line-up with the new T-WAY off-road and S-WAY long-haul trucks.

THE LAUNCH EVENT for the new IVECO WAY range held at the Dubai Autodrome included a product presentation and dedicated test drive on an on-road and off-road track.

Technical Review Middle East was present to gain deeper insights from the IVECO team, on the additional features and innovations of the vehicles.

TRME: IVECO has a long track record in the Middle East and Africa region. What has been the brand's response to the evolving needs of the region?

IVECO team: IVECO has always been synonymous with reliability as well as quality and we enjoy the trust of several customers in the region.

Our top markets here include the UAE, Saudi Arabia and Egypt. We have a strong network of 11 dealers and 40 authorised service locations in the Middle East and continue to work towards sustained growth and improved service standards.

The full range of IVECO trucks is available in the region, covering a wide range of industries.

TRME: How has IVECO used connectivity and digitalisation in the new range to provide a better driving experience? How has it addressed the aspect of sustainability?

IVECO team: The new trucks developed through continuous product innovations and research are highly focused on connectivity

and regulations relating to emissions.

Both IVECO T-WAY and S-WAY are designed with advanced solutions for efficiency and productivity, to meet the complete set of market demands.

IVECO T-WAY is equipped with new telematics features and digital services.

IVECO S-WAY further increases its fuel efficiency, which was already among the best, with a new engine line-up in alignment with Euro III/V emission standards.

Customers appreciate the improvements in performance and Total Cost of Ownership (TCO) that come with high reliability of the new truck range.

Further, all elements of the new design work together to achieve a superior aerodynamic performance and deliver fuel savings up to 4% in long haulage. Features

that contribute to the IVECO S-WAY's fuel economy include the new Ecoroll function which automatically disengages driveline in a smooth slope to exploit vehicle inertia, Ecoswitch which optimises engine power/torque output according to vehicle load and mission, and the Tyre Pressure Monitoring system to keep under control the pressure of each tyre for increased safety and fuel efficiency.

TRME: What features in the new range add to the safety and comfort of the driver?

IVECO team: The new functionalities of the range have provided particular attention to productivity, safety and a completely renewed and redesigned cabin, to improve the on-board comfort and vehicle performance.

The additional features of the IVECO T-WAY are all designed to provide maximum protection to the driver. For instance, the new braking system features EBS (Electronic Braking System) as standard, full disc brakes available on PWD models, and new ADAS (Advanced Driving Assistance Systems) available across the range.

The new IVECO S-WAY similarly, provides a complete package of features with a focus on driver centricity.

Customers appreciate the improvements in performance and Total Cost of Ownership (TCO) that come with the high reliability of the new truck range, providing the complete solutions they need. ■



Photo Credit: Omega Crushing and Screening

Leading change in the Crushing industry

Anthony Carlin of Omega Crushing and Screening, discusses the unique design and quality of machinery developed by the company.



Anthony Carlin, Omega Crushing and Screening.

How is Omega Crushing and Screening differentiated from the competition?

Omega Crushing and Screening, based in Northern Ireland, the hub of innovations for Mobile Crushing and Screening, has been in operation for more than five years.

We specialise in developing mobile Crushing and Screening machines with unique designs that focus on being simple and easy to operate. In a quarry, for instance, the operators are not familiar with complicated computer screens and settings. That is the reason we look at easy to use operating systems for our machines.

We have tried to reduce the use of sensors and go back to the traditional control panel.

With several years of prior experience worldwide in the Crushing and Screening industry, our directors and owners have the right variety of expertise in developing and operating the machines.

Our machines have a dual power option — the fully electric option as well as the diesel electric range. So we provide a much cleaner way of crushing and the performance is not affected by changes in climate.

Our machines are silent when running, so they are good for the urban environment

and residential areas, too.

No harmful gases are emitted when plugged into electric, so the machines are completely compatible for using indoors, as well.

How important is digitalisation to Omega?

We invest in a lot of modern technology, and the machines have it installed in them. However, the operator does not need to engage with it on a day to day basis.

For example, our machines have the ability to start the crushing chamber while the material is inside. That is a relatively uncommon feature in electrically driven plants but it's a key feature that people like to have. The operators do not need to get involved in that but they still have access to it since it's installed in the machine.

What plans do you have for the Middle East region?

Ours is a young company. We are hoping to expand in the Middle East and are looking for partners.

What is the support that Omega provides to its customers for service?

We are a small company so we are agile in

approach and respond to client requirements quickly and make decisions swiftly.

We pride ourselves on service.

The electrical system we use is similar to what is used in the local hospital or school. So, local technicians who are familiar with the system can respond to the issue immediately and they can be already troubleshooting any problems with the machine.

What is the latest product offering from Omega and how is it different from the earlier models? What else is different about your machines?

The J1065M track jaw crusher with diesel as well as electric power options is ready to launch.

We modernised the wheel crusher and integrated modern technology. The machine offers great efficiency in terms of fuel consumption. The capability of 200-250 tonnes per hour output combined with efficient fuel consumption offers low cost per tonne.

We would like to look at using hydrogen, as well, as an alternative to power machines. ■

The Next 50 for the UAE

Phil Malem, CEO of Serco Middle East shares his predictions for the UAE's next 50 years.

SINCE 1947, SERCO has been supporting the UAE government to deliver public services across various sectors, enabling transformation and ensuring the delivery of world class services.

Serco Institute's report showed outsourcing can reduce risks of project failure, provide staffing flexibility, increase safety through strict measures and controlled environments, and fill immediate gaps during times of high demand. Taking air traffic services as an example, the report shows that when the private sector provides these services, it scores well on performance measures relating to delays and safety incidents and demonstrates cost savings of up to 75%, while soft facilities management in the healthcare sector can save the government up to 30%.

The next 50 for each sector: Citizen services – the way to citizens' happiness

As per another Serco Institute's think tank

report, it was found that 90% of UAE citizens and residents are happy with the services provided by the government, while 85% of people said their experience of government services impacts their overall happiness.

The research also indicates that people want increased digital access, more unified platforms and greater personalisation.

The future of these services will see more collaboration between the UAE government and the private sector to use technologies, automation and AI.

Asset management and managing data

By utilising the right combination of integrated solutions, asset management service providers can help reduce operational costs by up to 50%, increase up time and availability by 10%, increase asset life by 15%, and finally reduce inventory cost by 35%.

Conquering the aviation sector

ExperienceLab, Serco's user centred



Photo Credit: SERCO

Phil Malem, CEO,
Serco Middle East.



Serco Institute's report says 90% of UAE citizens and residents are happy with the services provided by the government.

research and design agency, works to understand the passengers' needs, demands and motivations.

Technology will be key to enhancing experience over the next 50 years; automation, AI, facial scanners and effective use of data to analyse and track footfall throughout airports will continually predict, improve and enhance.

Serco uses technology to wrap around people-led solution design and the training product it has created at Dubai Airport through the ExperienceLab team, enabling the delivery of a world class signature guest experience to millions of happy passengers.

Nationalisation

At Serco, nationalisation has always been a core part of the business strategy.

The next 50 years will see some major positive developments when it comes to technology and powering the future. ■

MATI Consult powers Terra, The Sustainability Pavilion at Expo 2020 with 18 Energy Trees

MATI CONSULT, THE service-oriented firm with headquarters in Dubai, has continued to significantly empower and increase sustainability across the UAE, which can be seen through the recent creation and installation of 18 energy trees that surround Terra — the Sustainability Pavilion at Expo 2020. MATI Consult has also recently been awarded for their involvement in the construction of 12 Expo 2020 pavilions and large shading structures at the world fair, setting high standards for sustainable development in the region.

Known for delivering on a multitude of world-class architectural and sustainable award-winning structures, the consultancy has continued to play a pivotal role in shifting the Middle East's construction and energy towards sustainable practices. In line with Dubai's Clean Energy Strategy 2050, Mati Consult's co-founder and CEO, Elisa Ruggeri, was the visionary leader behind the construction of this mastery, 'solar forest', contracted to leverage her extensive expertise. The tree structures turn almost imperceptibly every second to catch each glimmer of sunlight, thanks to the specialty mechanism and software developed by the consultancy firm, together with Lanaro, a renowned Italian steel and technology manufacturer.

The energy supplied by these trees through the solar photovoltaic (PV) panels are installed to power the entire building, setting an example for future projects in the country. The GPS embedded in the system allows the solar trees to rotate and assist in collecting precise information of all the geographical parameters to catch and maximise the power of the sun. The energy trees, together with the 130-metre-wide Terra Pavilion canopy and 4,912 solar panels, will generate 4 GWh of electricity every year; enough to charge more than 900,000 smartphones. Additionally, the forest tree structures will charge during the day and store energy which can then be used for multiple purposes, showing a great example of pursuing the Emirate's goal to produce 75% of its energy from clean sources by 2050.

Photo Credit : MATI Consult



The energy supplied by these trees through the solar photovoltaic (PV) panels are installed to power the entire building.

"I am beyond proud of our solar trees displayed at Expo2020, as they fully represent and align with MATI's vision. Through the "solar forest," we trust this will attract further interest in solar energy usage across the region. Our live demonstration will showcase

MATI's tangible efforts to achieve a full shift towards renewable energy, and sustainability must be our driving force through this century. We have to change our approach to construction and the way we live our lives," - commented Ruggeri.

Since its inception in 2014, MATI has been involved in achieving various milestone changes and large-scale projects within the region, with the consistent aim to educate the architectural and construction sector on sustainability. With its years of efforts and dedication towards the harnessing of sustainable solutions and projects, the firm has continued its meticulous process in identifying partnerships with selected companies that believe in sustainable materials and technologies, becoming the future of construction all over the world.

"The success of our projects is contributing to a change in the sector of construction sustainability and building material sustainability, and we will continue to drive all efforts in implementing the use of solar and sustainable materials within the UAE, said Ruggeri."



Photo Credit : MATI Consult

Elisa Ruggeri, co-founder and CEO, MATI Consult.

Peter Berghaus GmbH

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The rise of the high-rise

More than half of the global population live in cities and urban areas and within the next 25 years, another 2.5 billion are expected to join them. In such increasingly densely-populated cities, vacant plots are hard to find. Therefore, the tall office towers are the key solutions, describes Matthew Margetts, director of sales and marketing at Smarter Technologies.



Matthew Margetts is the director of sales and marketing at Smarter Technologies.

Photo Credit: Smarter Technologies

THERE'S ALSO AN element of architectural vanity involved in building skyscrapers. Building materials, fashion aesthetics and technology have progressed to build the architecturally stunning offices of the future, but this has come with a cost.

Convenient as high-rise buildings are to accommodate the occupants of growing cities and delight our aesthetics, these buildings have been proven to be high energy consumers. According to a new study by the Energy Institute, University College London (UCL), the taller an office and residential building, the more energy per square metre of floor area it will use. In fact, electricity use per sq m of floor area is nearly two and a half times greater in high-rise office buildings of 20 or more storeys than in low-rise buildings of six storeys or fewer. Gas consumption also increases with height by around 40%. As a result, total carbon emissions from gas and electricity from high-rise buildings are twice as high as in low-rise.

China, which is home to some of the world's tallest towers, has sat up and taken note. The country is limiting the construction of super skyscrapers to help reduce its energy consumption. The Chinese government explained that massive skyscrapers are impractical in low-density cities, ruling that:

- Skyscrapers taller than 150 metres will be strictly limited
- Buildings higher than 250 metres will be banned in areas with a population of less than three million
- Structures taller than 250 metres will be limited in cities with more than three million people

A rising issue

Nowadays, it's perfectly normal to see beautiful glass-windowed office buildings in city centres, but these entire glass structures come with energy risks. Entire glass structures allow more sunlight and heat in, which means that these buildings need more air conditioning units. Not only do they let hot sunlight in, but large windows also leak heat in cold weather. Carbon emissions from these air-conditioned offices are 60% higher than those with natural ventilation, the UCL study revealed.

The sector has seen some of iconic buildings transform into green structures for the future by using smart technology.

In addition, the prevalence of air-conditioning is rising worldwide. It is predicted that energy consumption for air-conditioning could triple by 2050. Even if energy is sourced from renewable sources, it would be a challenge to meet this demand.

Smart solutions for skyscrapers

Slowly, the sector has seen some of these iconic buildings transform into green structures for the future by using smart technology. The rapid emergence of machine learning (ML), artificial intelligence

(AI) and big data provides opportunities for property developers to reduce inefficiencies, energy consumption and carbon emissions.

Smart metres, automated meter readers and various sensors around buildings are collecting more and more data. Building control systems can then harness this data through the use of AI, ML and automation.

One example of a system that promotes energy efficiency in a building is a smart energy management system, which collates, reports on and analyses real-time energy consumption and historic patterns using data from smart meters. Having access to this data allows building managers, governments and consumers to:

- Facilitate behaviour change that reduces energy demand
- Facilitate innovation
- Inform government policy

Combined with geospatial data, smart energy data can be used to help local governments gain a detailed understanding of the energy performance of buildings at a city, regional or even national scale. As a result, they will be better equipped to plan more efficient and effective renewable energy supply and heat transfer technologies. In the building itself, the benefits of smart building technology are best realised by integrating multiple solutions – such as optimising asset runtimes based on changing energy prices, or on-demand ventilation controls that adjust heating and airflow based on the current conditions.

Smart technologies are beginning to transform tall buildings around the world, and the sector looks forward to seeing what the future for green office buildings holds. ■

Urban projects to buoy ME construction: MEED

In Saudi Arabia, leisure projects announced in the recent years are scheduled to move to the drawing board in 2022.

Residential projects are driving post-pandemic real estate activity in Dubai.



Photo Credit: Adobe Stock

REGIONAL STAKEHOLDERS HAVE prioritised the modernisation of populous regional centers such as Dubai, Riyadh and Cairo since the oil price crash of 2014–15. COVID-19 has slowed down spending in this direction, but the sustained appetite for urbanisation will keep construction companies busy in 2022, said GlobalData's MEED.

Neha Bhatia, Construction & Infrastructure editor at GlobalData's MEED, commented, "Residential projects are driving post-pandemic real estate activity in Dubai. Select Group has awarded China State Construction Engineering Corporation Middle East a US\$171.2mn contract for its Peninsula One tower. Nakheel also recently selected local contractor ASGC to deliver its 418-unit Murooj al-Furjan project. Additionally, Saudi Arabian developer Roshn has received bids to deliver the first phase of the huge Al-Arous housing project in Jeddah, part of the Kingdom's program of Vision 2030 megaprojects."

"Beyond the Gulf Cooperation Council (GCC), Egypt is expected to emerge as a hotspot for transport projects."

In Saudi Arabia, leisure projects announced in recent years are scheduled to move to the drawing board in 2022.

Saudi Entertainment Ventures (Seven) recently selected India-headquartered Shapoorji Pallonji for its Exit 10 entertainment complex in Riyadh. Seven's active tenders for projects planned in Jeddah, Obhur, Mecca, Medina, Tabuk and

Yanbu are also slated to advance in 2022. Additionally, Riyadh is expected to finalise a contractor for the Royal Art Complex at King Salman Park this year.

National Authority for Tunnels (NAT) is negotiating the final civil works package (CP 402) for the first phase of Cairo Metro's Line 4, and may finalize the project's contract in March.

NAT is also preparing to tender work linked to its planned 45.2km Alexandria metro network, as well as conduct discussions for further packages linked to its 1,800km high-speed electrified rail network. Progress is expected on both tenders in the first half of 2022.

Bhatia continued, "Beyond the Gulf Cooperation Council (GCC), Egypt is expected to emerge as a hotspot for transport projects. Major tenders are scheduled to be issued for the rail projects planned to improve mobility and ease congestion in the country, where the population soared to 102.3 million in 2020." ■



Image credit: Adobe Stock

A number of projects are underway in the region to expand the hydrogen economy.

High hopes for hydrogen

Hydrogen offers huge promise as the clean fuel of the future, but there are challenges that must be collectively addressed.

Hydrogen is one of the potential elements of the future, and in the UAE we are interested in producing the cleanest barrels in the world.

HYDROGEN AS A clean source to reduce dependence on fossil fuels and advance the transition to a low-carbon economy has been gaining momentum. According to a recent study by Goldman Sachs, green hydrogen could meet up to 25% of the world's energy requirements in less than 30 years, with a market value above US\$10 trillion.

Energy consultancy Wood Mackenzie forecasts global demand for hydrogen to increase between two- and six-fold between now and 2050. In the burgeoning green hydrogen space, nearly 60% of proposed export projects are located in the Middle East and Australia, principally targeting markets in Europe and Northeast Asia. Over the last 12 months there has been a 50-fold increase in announced green hydrogen projects alone. Australia and the Middle

East sit in the top echelons for solar irradiance and offer "massive hydrogen potential", Wood Mackenzie says.

Indeed, work is already underway on megaprojects to expand the hydrogen economy in the region. The UAE is already implementing several projects targeting export markets such as Japan, South Korea and Germany. These include a 2GW green ammonia project by Taqa and Abu Dhabi Ports, which will use green hydrogen as feedstock to produce liquid ammonia for use in ships as bunker fuel and for export. Meanwhile, Masdar has partnered with Siemens Energy, the Abu Dhabi Department for Energy, Etihad Airways, Lufthansa, Marubeni Corporation and Khalifa University to develop an electrolysis facility to produce green hydrogen for the transport industry. Elsewhere, Oman has announced a

US\$31bn facility to be built in the Al Wusta governorate, and Saudi Arabia plans to invest US\$5bn in the futuristic city Neom to produce green hydrogen from both wind and solar-powered electrolysis by 2025.

While current costs of green hydrogen production are typically more than three times higher than those of blue hydrogen, green hydrogen costs are expected to fall as electrolyser manufacturing technology improves and renewable electricity costs decline.

The emphasis on hydrogen in a diversified energy sector, the challenges it faces, the opportunities and the need to build strategic policies in promoting hydrogen deployment are all coming under the spotlight.

“For us, sustaining a reliable source of clean energy is one of the pillars of our future economy, in the next 50 years. That drove our commitment to COP, and made us consciously invest in attracting and regulating future energies. Hydrogen is one of the potential elements of the future, and in the UAE we are interested in producing the cleanest barrels in the world,” said H.E. Suhail Mohamed Al Mazrouei, Minister of Energy and Infrastructure in the UAE, during a Hydrogen Ministerial Panel.

At COP26 in November, the UAE unveiled the Hydrogen Leadership Roadmap, a comprehensive national blueprint to support domestic, low-carbon industries, contribute to the country’s net-zero ambition and establish the country as a competitive exporter of hydrogen. The roadmap is aligned with the nation’s commitment to address global climate challenges, and supports the UAE’s Net Zero by 2050 Strategic Initiative, which is in line with the 2015 Paris Agreement.

“We will regulate this new fuel enabling the business community and technology to give us solutions and scalability of its deployment. Secondly, we have announced large projects, the likes of which are the ADNOC blue ammonia project that will use hydrogen to produce relatively cleaner ammonia,” added the Minister.

Sharing expertise

H. E. Al Mazrouei urged countries and companies which have already embarked on a learning curve with hydrogen, to share their expertise, and on behalf of the UAE vouched support to emerging markets, such as Africa.

In Uganda, up to 95% of its energy comes from renewables, including hydrothermal, solar, biomass and geothermal.

“When we talk about hydrogen I am here

to see how I can run with people in the field when I am just crawling,” noted Ruth Nankabirwa Sentamu, Minister of Energy and Mineral Development of Uganda. While the country has been continuously integrating energy sources to provide energy to its far-reaching villages, there is concern about tapping into a source such as hydrogen considering its high costs. The minister made an open invitation to invest in the country, and welcomed collaborations to help navigate concerns over costs and eliminating one of the region’s pressing issues, energy poverty.

H.E. Al Mazrouei stressed the need for collaborative efforts between government, corporates and the private sector as the key

and scaling up is the most important gateway for hydrogen to become economically competitive in the Middle East. Whether blue or green, hydrogen must be cost competitive against other supplier geographies such as Australia or South Africa, and against fossil fuels, the Gulf Hydrogen Whitepaper Special Report stated as one of its top three key findings. There is a growing appetite for an increasingly diversified energy mix in the Gulf Cooperation Council (GCC) nations, which is opening up a coveted window of opportunity for the region to safeguard its leading role on the global energy stage – and hydrogen could play a central role in this 21st century strategy.



Image credit: Adobe Stock

The Middle East offers great potential for the development of green hydrogen as a result of its renewable energy resources.

to develop the hydrogen industry. With clarity of policy, a boost in investments and the unlocking of new collaborations, hydrogen can be leveraged from a niche sector to being mainstream.

“For our friends in Africa, they need their right of energy. It is unfair to ask a country that is just starting to deal with the availability of energy to all its population to follow the most expensive option. That is why we have to be pragmatic and practical in how we can take this forward, and build strategic roadmaps where we well define scalability, and supporting technologies for subsequent utilisation. Certain countries can afford to go into it faster. These countries can help encourage innovative technologies. We in the UAE will share our knowledge and work with everyone who is ready to work with us to find solutions,” he concluded.

At a Gulf Hydrogen Workshop, industry leaders agreed that investing in technology

The Gulf Hydrogen Workshop tackled the critical question of how regional players can best approach the goal of forming successful hydrogen consortiums. Most countries within the Gulf region enjoy vast industrial capacity thanks to well-established energy value chains, geographical advantages, and rising local and export energy demand; all these drivers are spurring the region’s hydrogen growth ambitions, both at home and abroad.

Partnerships are a central part of this strategy and, while a plethora of deals have been signed by regional National Oil Companies and private operators in the last two years, hydrogen’s regional journey has only just started.

The Middle East must develop enabling and supportive policies that attract investments, launch more pilot projects, and craft more robust national strategies and commitments to give investors the necessary goalposts, the Whitepaper stated. ■

New global power dynamics

IRENA says green hydrogen could disrupt global trade and bilateral energy relations, reshaping the positioning of states with new hydrogen exporters and users emerging.

IRENA estimates that more than 30% of hydrogen could be traded across borders by 2050.

Photo Credit: IRENA

RAPID GROWTH OF the global hydrogen economy can bring significant geoeconomic and geopolitical shifts giving rise to a wave of new interdependencies, according to new analysis by the International Renewable Energy Agency (IRENA). “Geopolitics of the Energy Transformation: The Hydrogen Factor” sees hydrogen changing the geography of energy trade and regionalising energy relations, hinting at the emergence of new centres of geopolitical influence built on the production and use of hydrogen, as traditional oil and gas trade declines.

Driven by the climate urgency and countries’ commitments to net zero, IRENA estimates hydrogen to cover up to 12 per cent of global energy use by 2050. Growing trade and targeted investments in a market dominated by fossil fuels and currently valued at US\$174bn is likely to boost economic competitiveness and influence the foreign policy landscape with bilateral deals diverging significantly from the hydrocarbon relationships of the 20th century.

“Hydrogen could prove to be a missing link to a climate-safe energy future,” Francesco La Camera, director-general of IRENA said. “Hydrogen is clearly riding on the renewable energy revolution with green hydrogen emerging as a game changer for achieving climate neutrality without compromising industrial growth and social development. But hydrogen is not a new oil. And the transition is not a fuel replacement but a shift to a new system with political, technical, environmental, and economic disruptions.”

“It is green hydrogen that will bring new and diverse participants to the market, diversify routes and supplies and shift power from the few to the many. With international co-operation, the hydrogen market could be more democratic and inclusive, offering opportunities for

developed and developing countries alike.”

IRENA estimates that more than 30% of hydrogen could be traded across borders by 2050, a higher share than natural gas today. Countries that have not traditionally traded energy are establishing bilateral energy relations around hydrogen. As more players and new classes of net importers and exporters emerge on the world stage, hydrogen trade is unlikely to become weaponised and cartelised, in contrast to the geopolitical influence of oil and gas.

Cross-border hydrogen trade is set to grow considerably with over 30 countries and regions planning for active commerce already today. Some countries that expect to be importers are already deploying dedicated hydrogen diplomacy such as Japan and Germany. Fossil fuel exporters increasingly consider clean hydrogen an attractive way to diversify their economies for example Australia, Oman, Saudi Arabia and the United Arab Emirates. However, broader economic transition strategies are required as hydrogen will not compensate for losses in oil and gas revenues.

The technical potential for hydrogen production significantly exceeds estimated global demand. Countries most able to generate cheap renewable electricity will be best placed to produce competitive green hydrogen. While countries such as Chile, Morocco, and Namibia are net energy importers today, they are set to emerge as green hydrogen exporters. Realising the potential of regions like Africa, the Americas, the Middle East, and Oceania could limit the risk of export concentration, but many countries will need technology transfers, infrastructure and investment at scale.

The geopolitics of clean hydrogen will likely play out in different stages. The report sees the 2020s as a big race for technology leadership. But demand is expected to only

take off in the mid-2030s. By that time, green hydrogen will cost-compete with fossil-fuel hydrogen globally, poised to happen even earlier in countries like China, Brazil and India. Green hydrogen was already affordable in Europe during the 2021 spike in natural gas prices. Refurbishing natural gas pipelines is likely to further boost demand and facilitate hydrogen trade.

Countries with ample renewable potential could become sites of green industrialisation, using their potential to attract energy-intensive industries. Furthermore, having a stake in the hydrogen value chain can boost economic competitiveness. The manufacturing of equipment like electrolysers and fuel cells in particular could drive business. China, Japan and Europe have already developed a head start in the production, but innovation will shape the current manufacturing landscape further.

Green hydrogen may strengthen energy independence, security, and resilience by cutting import dependency and price volatility and boosting flexibility of the energy system. However, the raw materials needed for hydrogen and renewable technologies could draw attention to material security. Shortages and price fluctuations could reverberate through hydrogen supply chains and negatively affect cost and revenues.

Shaping the rules, standards and governance of hydrogen could lead to geopolitical competition or open a new era of enhanced international cooperation. Assisting particularly developing countries to deploy green hydrogen technologies and advance hydrogen industries could prevent the widening of a global decarbonisation divide and promote equity and inclusion, creating local value chains, green industries, and jobs in renewable-rich countries. ■

With its new mobile screen for coarse elements, Kleemann aims to demonstrate what screening plants of the latest generation can achieve.

Mobile screen for coarse elements

Kleemann's new screen offers users a mobile, efficient screening plant designed to meet changing challenges in different application areas with high material flow guaranteed in natural stone and recycling applications.

THE DEVELOPMENT OF the MOBISCREEN MSS 802(i) EVO, a new generation of screening plants and successor of the MS 15 Z, according to Kleemann, who are aiming to consciously place the focus on the user perspective. The new product comes not only with technological highlights in the process sequence but also through its design, optimised operation and user-friendly maintenance concept.

Improved mobility and flexibility

With its proportionally controlled running gear, the plant can be quickly relocated either by a low-loader to the job site or within the building site. Apart from other improvements of the new MSS 802(i) EVO, folding of the side discharge conveyors without the need for disassembly is aimed at reducing set-up times. Increased application variability is provided by a hopper rear wall that can be folded to three heights, which permits feeding of crushing plants with a lower discharge height.

The company said with the large offer of screen surfaces and simple adjustment of the screen parameters, allows make a rapid adaptation of the screen to a very wide range of feed materials, reducing set-up times and thus personnel requirements and costs. The screen casing angle with a wide adjustment range from 15.4 – 20°

makes optimisation of the screening capacity possible. The simple and fast conversion from three to two-way grit is aspecial highlight. The MSS 802(i) EVO can therefore be used to produce and discharge two or three final grain sizes and the conversion is fast and simple.

Operability and improved ergonomics

An intuitive plant control with automatic start reduces the risk of operating errors and saves learning times. All relevant functions can be operated from a safe distance, which offers high work safety. Further user-friendly aspects include very

Further user-friendly aspects include very good access options and intelligent cleaning solutions, which minimise downtimes caused by maintenance.

good access options and intelligent cleaning solutions, which minimise downtimes caused by maintenance. This also applies to the standard series LED lighting, the optionally available extended premium lighting of work areas or the generously proportioned work platforms.

Precise process sequences for optimum material flow

With its new mobile screen for coarse elements, Kleemann demonstrates what screening plants of the latest generation can achieve. This includes a wide crusher discharge conveyor on which, like all of the other conveyors, the speed can be adjusted without a step, as well as a large material transfer system to the screen deck for optimum utilisation of the screening surfaces. High discharge heights and thus higher stockpiles thanks to the optionally available extended crusher discharge conveyor and telescopic side discharge conveyors guarantee ideal processes on the building site.

The new MOBISCREEN MSS 802(i) EVO can be operated through line coupling with all EVO and PRO crushing plants integrated into the process and safety system. Special application flexibility is provided by the stockpile probe required for the process coupling, which can be placed on any discharge conveyor of the plant. ■

Liebherr rises to demand with heavy lifting solution

The company is expanding its presence in the Middle East market with a consumer-driven solution for its crane range.

LIEBHERR HAS EXPANDED its range of crawler cranes with the new LR 1400 SX.

The new crawler crane marks a significant step in establishing Liebherr as a regional leader for crawler crane solutions, and raises its range's lifting capacities to up to 400 tonnes. The region's first customers have already begun to integrate the solution in their operations, with the versatile solution offering an easily transportable yet effective and high-capacity choice for operators.

"This is a big step for our location," said Gerhard Frainer, managing director for sales. "The request for a larger crane came from the market."

With a compact unit weight of 46 tonnes, the complete crane solution can be easily transported between jobsites, with the platform and railings remaining attached to the uppercarriage during transportation with a folding feature making for a compact transportable option.

During design, Liebherr paid particular attention to the unit's in-built safety concepts.

The self-assembly system enables quick installation upon arrival at the jobsite.

"You can operate the whole crane with the remote control," enthused Paul Belcher, owner and managing director, Mountain Crane Service, USA.

This remote feature allows for a better site overview and increases on-site safety, protecting workers.

In spite of its size, the LR 1400 SX has a wide range of applications and has already convinced European customers of its reliability and flexibility.



The new unit is already in operation across markets.

"For barge operation, the available barge load charts for any configuration and any possible counterweight combination are crucial. The modular counterweight system is very good. If a smaller counterweight is sufficient, the unit can also be used on a correspondingly smaller barge.

"This makes the use of the LR 1400 SX very flexible," said Andreas Handel, head of mechanical engineering Hydro Construction.

The four crawler drives make manoeuvrability easier than ever – especially on jobsites with limited space and capacity. The track width adjustment option allows for simplified access on narrow roads.

During design, Liebherr paid particular attention to the unit's in-built safety concepts. The assistant system, 'Gradient Travel Aid', helps operators negotiate slopes and inclines, displaying the crane's center of gravity and warning operators before the crane leaves safe parameters.

The 'Ground Pressure Visualisation' on the LR 1400 SX calculates the current ground pressure of the crane in real time, comparing these figures with the specified safety limits of the relevant position. The unit's ground pressure is always displayed in the operator's cab, ensuring users are permanently aware of whether the machine is situated in, or approaching, a critical area.

"This is a super feature. We have to constantly observe and monitor the ground conditions," added Paul Belcher.

The crane's ground pressure can be manually reduced using the unit's ground pressure reduction plates.

"Specifically, the wide crawlers and the ground pressure reduction plates convinced us," says Ludger Holtmann, Technical Director at Depenbrock and adds, "the free-fall winches, which are required for some applications, were also decisive for the purchase." ■

New Cat IPUs are ready to be put to work

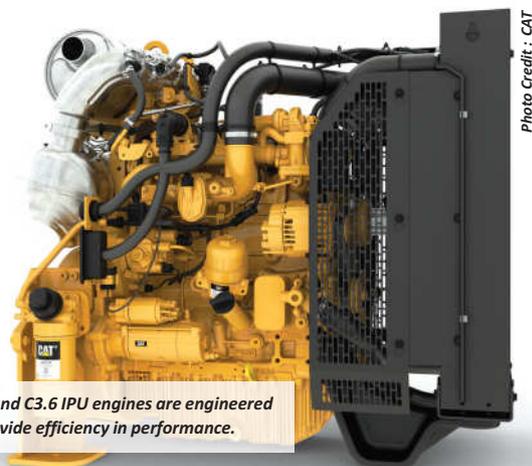
CATERPILLAR HAS LAUNCHED a range of drop-in engines, which are ready to get to work straight away.

The new Cat C2.8 and C3.6 industrial power units (IPU) feature a highly integrated design that saves customers time on engineering and installation. Common rail direct injection engines with a turbocharged or turbocharged aftercooled air system, the C2.8 and C3.6 meet EU Stage V, U.S. EPA Tier 4 Final and Japan 2014 (Tier 4 Final) emission standards.

For ease of installation, the IPUs which are targeted at the construction and materials handling industries, provide customers with full aftertreatment mounting, an integrated cooling system, a full wiring harness and mounting for the ECM and fuel filter.

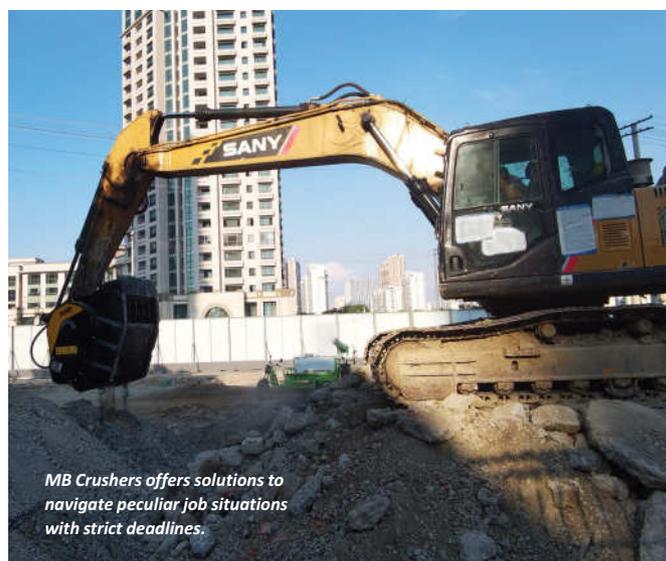
The new C2.8 and C3.6 IPU engines are engineered to provide efficiency in performance, while saving equipment manufacturers time with a plug in and go design, meaning minimal engineering or design work. The engines are offered in ratings ranging up to 55 kW (74 hp) at 2400 rpm for the C2.8 and up to 100 kW (134 hp) at 2200 rpm for the C3.6.

A flexible design makes these lightweight and compact engines ideal for use in construction and materials handling, and across different environments, be it for a compressor in Dubai or a crusher in Norway. Available with a heavy-duty cooling pack incorporating a pusher fan and erosion screen to suit machines that work in challenging environments. To support operations in challenging conditions the IPU is also available with heavy duty fuel filters with increased dirt holding capability. A pre-installed ECU and bespoke wiring harness provide easy access for the machine harness hook-up



C2.8 and C3.6 IPU engines are engineered to provide efficiency in performance.

Photo Credit: CAT



MB Crushers offers solutions to navigate peculiar job situations with strict deadlines.

Photo Credit: MB Crusher

MB Crushers' units to help construction sites with tight deadlines

MB CRUSHERS, A company with a line of patented crusher buckets and accessories for excavators, skid loaders and backhoes of all sizes, with extensive innovation and development, offers three different solutions for three different solutions.

MB offers BF80.3 crusher bucket that can be installed on excavators such as the Yanmar SV100. In Epinay Sur Seine, France, contractors used the solution in a demolition site in the middle of a busy residential and urban setting. The project involved crushing down reinforced concrete, bricks and plaster with the BF80.3 due to the presence of inert material coming from a partial demolition of one of the buildings. The job site reported a finished a job well within the deadline, according to MB Crushers.

MB's BF80.3 crusher bucket was installed on a Sany 215, in the Jiangsu province, in China, The job site was located above a subway station and therefore, completion times were at risk considering traffic. The crusher was used to crush the rubble without having the need to transport the material using secondary trucks.

MB's G1200 was paired with a John Deere 180G at a demolished house site in upstate New York. The company said that the contractors in charge of the job sorted the lumber and stacked it in one truck while creating a separate pile for all of the concrete and used an MB-S14 screening bucket to screen the rock and soil to have material ready to use to construct the new foundation.

EnerMech appoints new regional director for Asia Pacific

ENERMECH, A PROVIDER of specialist integrated mechanical, electrical, instrumentation and integrity services to the international energy and infrastructure sectors has appointed Garry Ford as the new regional director for Asia Pacific to drive further business growth across the energy, industrial and infrastructure sectors and strengthen its existing oil and

gas operations in the region.

Ford said, "EnerMech has an unparalleled reputation globally and it's an exciting time to be joining the company as it continues to drive forward its diversification strategy in the Asia Pacific. The business has a strong understanding of the markets it operates within, and I look forward to enhancing

our current offering while expanding our existing footprint in the energy and infrastructure sectors."

EnerMech stated that in his new role, Ford will be responsible for building on EnerMech's established presence in Asia Pacific, with a key focus on expanding the business' increasingly diverse project portfolio.

Improving forklift safety with RFID technology

RFID technology could help minimise forklift risk and secure workers' safety.

OVER THE LAST three years, lack of forklift safety has led to 43% of incidents involving a third person – of these, 65% were pedestrians, 20% were co-workers, and 15% were delivery drivers watching or assisting with the loading and unloading of their vehicles. It is clear that the lack of forklift safety adherence is putting both workers and the general public at risk.

The question arises – how do organisations ensure areas are not breached, creating unsafe environments, and guarantee that operators, workers and others adhere to forklift safety regulations?

Emily Hardy, a vehicle safety expert and marketing manager at Brigade Electronics UK, approached the issue.

“Approximately 70% of incidents on sites happen during initial machine start-up and low speed movement because of poor visibility. Warehouses, distribution centres, seaports and airports can all be extremely challenging environments with numerous hazards to navigate.

“The presence of ground staff and pedestrians makes these areas particularly difficult in terms of ensuring safety is maintained at all times.”

Smart technology is beginning to address the problem of restricted visibility and blind spots in forklift handling areas. The very

“This technology is ideal for vehicles like forklift trucks. It provides fast, reliable and accurate data exchange without any limitation.”



Forklift incidents are on the rise – is technology the answer?

Photo Credit: Brigade Electronics

latest innovations in RFID (Radio Frequency Identification) technology, such as Brigade's ZoneSafe proximity warning system, are rising to the challenge.

Optimised for use in operating areas such as warehouses, construction sites, manufacturing plants, waste areas, airports and distribution hubs, ZoneSafe utilises vehicle-mounted antennas that communicated with active detection tags, which can be worn by workers, positioned in restricted areas or placed on objects or property. When a tag enters a detection zone, operators will automatically receive a visual and sound alert via the in-cab control unit, which will trigger the necessary response to ensure adequate safety. Tags worn by workers on-foot can also vibrate to signal the approach of oncoming vehicles.

Thanks to RFID technology, which does not require line-of-sight, tags are automatically detected regardless of obstructions, blind spots, adverse weather or lighting conditions, and poor visibility.

Each tag can be uniquely identified and linked to individual areas or workers.

Hardy elaborated, “This technology is ideal for vehicles, like forklift trucks, that frequently operate within close proximity of workers and other machines. It provides fast, reliable and accurate data exchange without any limitation on the number of tags or antennas in operation, making it perfect for large areas like warehouses and distribution centres.”

Despite technological solutions emerging to combat the rising issue of forklift truck injuries, more will need to be done beyond adopting the latest innovations to address the issue of enhancing safety in areas where forklifts are operating.

Emily Hardy concluded, “Driver training is obviously key to ensuring safety standards are adhered to. However, vehicle safety technology can add an additional layer of security and peace of mind for operators who are keen to ensure that their workplaces remain hazard free.” ■

Comprehensive solutions for power systems

JPEmbedded is one of the leading providers of secure, robust and comprehensive communication solutions for power systems.

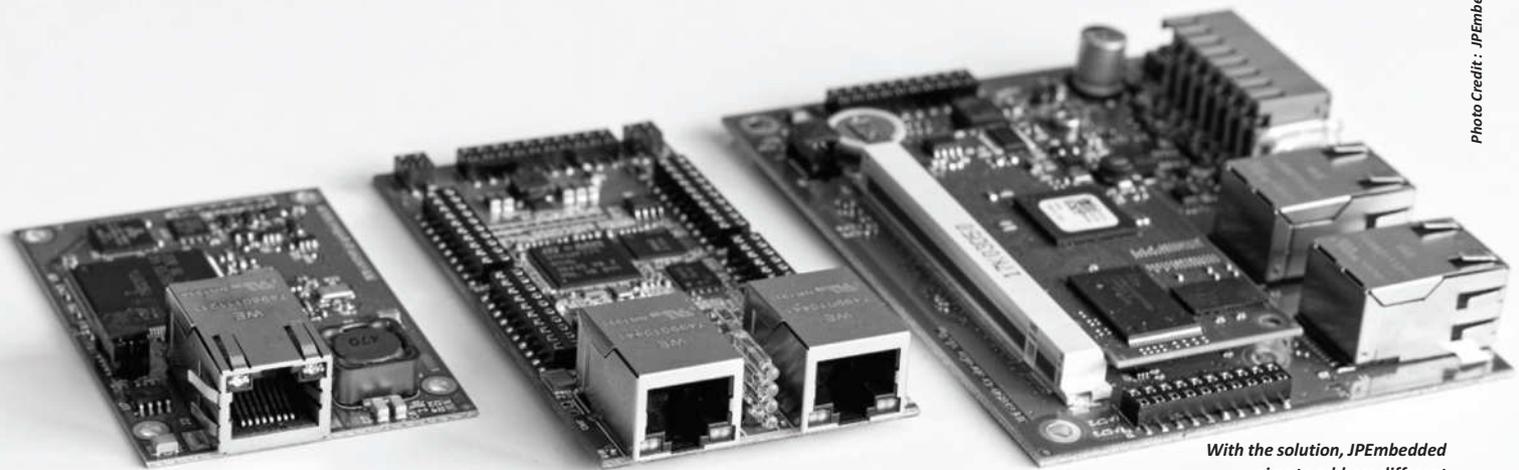


Photo Credit: JPEmbedded

With the solution, JPEmbedded aims to address different business and use cases.

CONSIDERING THE COMPLEXITY of the modern grid, the multitude of communication standards and vendors, hooking up all the Intelligent Electronic Devices (IED) into one system is not an easy task. Having a wide range of both software and hardware products, JPEmbedded is in a position to address different business and use cases.

Communication libraries offered by JPEmbedded include most of the standards used by the industry: IEC61850, DNP3, IEC60870-5-10x. All software is designed with the specific requirements of embedded systems in mind. This means that it is resource efficient and easily portable to different platforms (operating systems or hardware architectures). The bulk of the functionality is 100% independent of the underlying target platform.

All libraries are implemented in C++ language but APIs for other languages (for example, C, Rust, C#) are available, which makes the integration on the target device smooth and easy.

For all its libraries, JPEmbedded is offering source code which is a great advantage for the customers interested in certification or concerned with safety or cybersecurity.

Cybersecurity is of course of paramount importance and secure authentication, encryption/decryption, certificate handling must be supported by most IEDs currently deployed in the field. Depending on the protocol of choice, libraries by JPEmbedded support relevant parts of the IEC62351 standard and could be optionally enabled if required by the customer.

Sometimes modification of the software of a device already deployed in the field is not an option. If such IED must be integrated with the system using communication protocols not implemented by the device, the solution could be the application of protocol converter. JPEmbedded offers three hardware devices facilitating protocol conversion.

Papilio – An entry level, cost efficient protocol converter, featuring one Ethernet port and serial interface. Because of its small footprint it is a perfect choice for IIoT applications. It is offered as a PCB module.

Apis – An embedded gateway with two Ethernet ports which allows support of redundancy protocols (PRP or HSR). It is offered as a PCB module to be integrated into customer product or as a standalone external device e.g. mounted on DIN rail.

Crabro – A SOC running under Linux. Beside standard protocol conversion logic, it offers possibility to implement applications and functionality specific for the customer or the project.

All gateways by JPEmbedded support conversion between the following protocols: IEC61850, DNP3, IEC60870-5-10x, ModbusTCP, ModbusRTU, MQTT. Configuration of the device in terms of the mapping between the protocols is done with one intuitive GUI application – Drosera.

At the World Future Energy Summit in Abu Dhabi, JPEmbedded demonstrated how to integrate legacy circuit breaker with ModbusRTU interface, into the IEC61850 network. ■



Photo Credit : Adobe Stock

Desalination is key to delivering potable water supply to the countries of the Gulf.

Addressing water scarcity with sustainable desalination

Martin Clark reports on driving down costs and boosting decarbonisation in desalination.

Our analysis shows that the water demand gap will quintuple by 2050, from today's 42 cubic kilometres per annum to approximately 200 cubic kilometres per annum.

DESALINATION HAS LONG played an important role in delivering potable water supply to the countries of the Gulf. But it is not a perfect process, of course, utilising potentially harmful chemicals as well as being hugely energy intensive. The decarbonisation of desalination has therefore become a driving thread among developers of new projects, prompting innovation and ingenuity. This is especially important in Saudi Arabia, the world's largest producer of desalinated water.

A sign of the times, the new Jubail 3B desalination plant to be built by SEPCOIII and Acciona in Saudi Arabia will utilise energy from its own state-of-the-art solar power plant. The 570,000 cu/m a day desalination facility will eventually supply two million people across the cities of Riyadh and Qassim.

Acciona and its partner are the main contractors on the US\$692mn project, which is to be developed and financed by a

consortium of investors that includes Engie and AJLAN, for the publicly-owned Saudi Water Partnership Company (SWCP).

The project includes its own solar energy plant to reduce the consumption of electricity from the national grid, with Acciona to build the photovoltaic plant, plus the construction of 58 km of power lines, an electricity substation, and associated marine works. The new desalination plant is expected to come on stream in the first quarter of 2024.

It continues a flurry of new desalination projects awarded in recent times, with Acciona of Spain securing plenty of additional work. That includes a €460mn (US\$521mn) turnkey contract for the Al Khobar RO2 plant in Khobar, around 400 km from Riyadh. This facility will have a capacity of just over 630,000 cu/m a day, making it one of the biggest in Saudi Arabia and the largest reverse osmosis plant in the world built under the EPC (engineering procurement and

construction) modality in a single phase.

It reflects a trend that is shaping decision-making at leading Saudi agencies active in this sector, such as the Saline Water Conversion Corporation (SWCC), which is targeting key environmental, climate change, and carbon neutrality goals. SWCC is the world's leading desalinated water producer, providing the largest production volume of 5.9 million cu/m of desalinated water per day — and rising.

In April 2021, it achieved a new record — recognised by Guinness World Records — for setting the lowest water desalination energy consumption cost, down to 2.271 kWh per cu/m.

SWCC has increased its production of desalinated water by 64% during the past three years, and has simultaneously reduced carbon gas emissions from its production systems.

Another local player with an active role in building out new desalination capacity is ACWA Power, which is one of the key movers behind the vast Rabigh 3 independent water project (IWP), due on stream in 2022 and with a capacity of 600,000 cu/m a day. Its output will cater to the water demand of Makkah al-Mukarramah and Jeddah, ensuring a steady supply to the citizens of the two cities and villages, especially during demand peak periods such as the Holy Month of Ramadan and Hajj seasons.

Water scarcity remains every bit as much of a challenge as it ever was for all in the region. In a press release ahead of the event, it was noted that between 1975 and 2001, the amount of fresh water available to a citizen of the MENA region was effectively halved from 3,000 cu/m per person down to 1,500 cu/m per person, largely as a result of rapid population growth. That has diminished even further in the years since, down to a little over 1,000 cu/m, compared to a global

average of over 7,000 cu/m.

It means high and growing water demand, but all at a time of greater environmental awareness and climate change concern. This is expected to accelerate interest in alternative energy and other mechanisms to mitigate the eco footprint of desalination facilities, which are, at the same token, growing in scale each year. Making up the predicted MENA water deficit in 2025 will require the production of an additional 237 billion cu/m of potable water, according to the Forum press release. Roughly half of the world's water desalination projects are taking place in the MENA region. It makes the shift in energy production over to renewables all the more essential.

“The decoupling of power and water production across the region has resulted in a growing trend to adopt captive solar photovoltaic (PV) plants, which is expected to drive water production costs down further,” noted Corrado Sommariva, Chief Executive of Sustainable Water and Power Consultants.

“Our analysis shows that the water demand gap will quintuple by 2050, from today's 42 cubic kilometres per annum to approximately 200 cubic kilometres per annum,” the World Bank said in a report.

“According to our analysis, even if all viable demand and supply management measures are implemented, the total cost of

closing the water demand gap will be approximately US\$104bn per year. This cost easily could go as high as US\$300 bn – US\$400bn a year if none of the demand management options is adopted.”

The MENA region contains more than 6.3% of the world's population, but less than 1% of global water resources. Making up the predicted MENA water deficit in 2025 will require the production of an additional 237 billion cubic metres of potable water. By 2050, water scarcity could cost MENA between 6-14% of the entire region's GDP each year.

The Arab Water Council (AWC) developed six policy briefs in the field of Non-Conventional Water Resources (NCWR) with its different components (desalinated water, treated wastewater, agricultural drainage water, brackish groundwater, rainwater harvesting) including enhanced policy framework, legal and institutional enabling environment, technical capacity building, social consideration and economic and financial measures towards sustainable use of NCWR development and management in the Arab region.

In Saudi Arabia, the Saudi Water Partnership Company (SWPC) has announced that commercial operations on the Jubail 3A independent water producer (IWP) project will commence in the last quarter of 2022. ■

The decoupling of power and water production across the region has resulted in a growing trend to adopt captive solar PV plants, which is expected to drive water production costs down further.



The Middle East is one of the most arid and water-stressed regions of the world.

Image credit: Adobe Stock

UAERP for rain enhancement honours awardees

THE COUNTRY PLANS to develop water resources by offering grants for the most outstanding rain enhancement research proposals.

Under the patronage of HH Sheikh Mansour bin Zayed Al Nahyan, UAE Deputy Prime Minister and Minister of Presidential Affairs, the UAE Research Programme for Rain Enhancement Science hosted a special ceremony at the UAE pavilion at Expo 2020 Dubai to honour the winners of its fourth cycle grant.

The event drew the participation of His Excellency Dr Sultan bin Ahmed Al Jaber, Minister of Industry and Advanced Technology, and HE Faris Mohammed Al Mazrouei, adviser at the Ministry of Presidential Affairs and Chairman of NCM's Board of Trustees.

In a speech delivered on his behalf by HE Faris Mohammed Al Mazrouei, HH Sheikh



Photo Credit : UAERP

The programme offers a grant of US\$1.5mn distributed over three years for each research proposal in rain enhancement.

Mansour bin Zayed Al Nahyan said, "In line with the UAE's prudent approach to utilise research and development outcomes to address various developmental challenges, the country has taken a pioneering step to develop our water resources through establishing the UAE Research Program for Rain Enhancement Science."

HE Faris Mohammed Al Mazrouei reiterated the

support and appreciation of the UAE's wise leadership for the tireless efforts of the scientific community to enhance water sustainability worldwide. He noted that new scientific solutions are needed to tackle water stress that has been one of the most pressing national issues.

Al Mazrouei added, "Through adopting and supporting innovative solutions that help

countries at risk of water stress, the UAE Research Programme has emerged as a key initiative that reaffirms the country's leading role in enhancing global water security."

The UAE Research Program for Rain Enhancement Science supervises research grants offered to projects that contribute to the development of innovative solutions in rain enhancement research.

Launching the Trial Reservoir global water initiative

METITO JOINED THE Trial Reservoir as a core sponsor to support the introduction, integration and commercialisation of new technologies and solutions into the water sector. The Trial Reservoir is an initiative which provides funding to technology

vendors in the water sector to facilitate 'trial-before-buying' tests with end-users. The initiative has a particular focus on technologies which will address the climate crisis and reduce carbon footprints and is open to technology vendors

anywhere across the globe.

Commenting on this, Rami Ghandour, Metito managing director said, "The Trial Reservoir initiative, is a good platform for technology providers to reach utility owners faster and in a more systematic way. This will enable new efficient technologies to be commercialised in a more timely manner benefiting the entire ecosystem."

The Trial Reservoir was created to address both the funding-for-trials challenge which every water utility struggles with and the cultural challenge we have in the water sector which drives the 'trial then trial then trial again' behavior of many utilities. The initiative is aimed at driving radical changes in how water utilities engage with new technology, in particular around the climate crisis.

The initiative was launched by Isle Utilities, the company behind the Water Action Platform for which Metito is also a founding member.

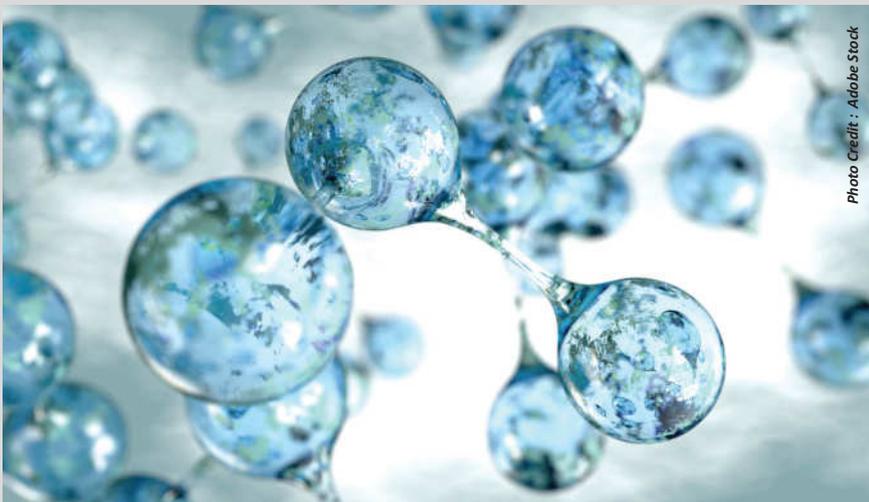


Photo Credit : Adobe Stock

The initiative has a particular focus on technologies which will address the climate crisis and reduce carbon footprints.

Bridging the digital divide by better use of fibre optics networks

Chris Shannon, CEO, Fotech, says telecom companies should be helped in monetising their fibre networks in low-income areas another way.

THE DIGITAL DIVIDE is more than just the difference between those who have access to the internet, particularly high-speed fibre optic broadband, and those who don't. It is impacting digital literacy and even social mobility. The pandemic has brought the digital divide into sharp focus, as video conferencing, working from home and home schooling with virtual classrooms have all demanded high speed internet connection. A recent McKinsey report states the learning loss in the US is not likely to be temporary. The digital divide is often assumed to be a rural vs urban debate, but the reality is not so clear cut.

In the UK, the government is committed to delivering fast, reliable broadband to everyone in the UK – Project Gigabit - but this has primarily focused on rural areas. In the US, it is a similar story, with billions of dollars planned to extend the internet infrastructure in rural America. This strategy has led to the number of urban households without a connection.

So why are telecom companies not laying high speed fibre optics in densely populated urban areas? The short answer is broadband adoption. Telecom companies are in business to deliver digital services; that's where they make their money. Most of the urban areas that don't have the fibre optics are low-income – the residents can't afford the broadband subscription. This is backed up by a survey from the Pew Research Centre in 2019, which found that half the people who did not have a broadband connection couldn't afford it. But there is a solution: Enable telecom companies to monetise their fibre networks in low-income areas another way.

Multi-use fibre optic cables

Distributed Acoustic Sensing (DAS) technology enables fibre optic cables to become millions of sensors. DAS uses



If telecoms companies can pay for their fibre networks in low-income areas by leveraging the DAS capability, the need to sell the monthly subscriptions becomes moot.

innovative photonics, advanced artificial intelligence and edge computing to convert fibre optic telecommunication cables into sophisticated acoustic sensors. These sensors are used in numerous applications, from traffic management to water pipeline monitoring. And using DAS is greener than traditional monitoring technology such as cameras because there are no batteries or wireless communication required at the sensing points, that is, all along the fibre. Power requirements are limited to powering the centralised interrogator, which can

DAS works by essentially plugging into fibre optic cable networks. It sends thousands of pulses of light along the fibre optic cable every second.

economically be delivered through renewable sources and backup.

DAS works by essentially plugging into fibre optic cable networks. It sends thousands of pulses of light along the fibre optic cable every second and monitors the pattern of light reflected back. When acoustic or vibrational energy – such as those created by vehicle movements or people walking, or water escaping a broken pipe – creates a strain on the fibre, this changes the reflected light pattern. DAS analyses these changes in light patterns to identify and to categorise the disturbances.

Quid pro quo

If telecom companies can pay for their fibre networks in low-income areas by leveraging the DAS capability, the need to sell the monthly subscriptions becomes moot. But partnerships between those who own the data and those who are experts in the sensing field, are key to closing the digital divide. But the partnerships need to be created early in the process, ensuring easier fibre deployment, and enabling more widely available broadband access to those who need it most, as well as a fibre optic network that is working harder, providing other vital services for communities. ■

Photo Credit : Adobe Stock

GE's road map for a sustainable future

Increased investment in decarbonisation technologies and Sustainable Aviation Fuel, modernised grids, and advances in nuclear energy technology to drive sustainability in 2022.

GE, ONE OF the global leaders in power generation, has revealed major energy trends that should pave the way towards a more affordable and sustainable future for the Middle East region. The trends include increased investment in decarbonisation technologies and Sustainable Aviation Fuel (SAF), modernised and resilient grid systems and advances in harnessing nuclear energy.

GE expects to see increased investments in decarbonisation technologies including Carbon Capture Utilisation and Storage (CCUS) and hydrogen to transition natural gas to a low carbon energy source. GE has projects around the world focused on coal-to-gas switching and hydrogen.

Dr Dalya Al Muthanna, global chief of strategy & Operations and President – UAE for GE international markets said, “GE produces a third of the world’s power and up to half of the GCC’s power. As a leader in power generation, GE has identified major energy trends that will help to drive a more sustainable future in 2022 and beyond. We can expect to see increased investment in decarbonisation technologies to transition natural gas to a low carbon energy source in addition to dramatic investment and research into accessible Sustainable Aviation

Fuel to help realise net-zero carbon goals in the aviation industry. Data analytics and artificial intelligence will also play a key role in modernising electric grids and advances in nuclear energy will be very visible. Through these trends, GE will remain committed to supporting partners on the future of energy.”

The company also invests in breakthrough technologies that reduce gas emissions even further, through the use of hydrogen or CCUS. In the Hamriyah Independent Power Plant in Sharjah, using three GE 9HA units in combined cycle operations is expected to help Sharjah Electricity, Water and Gas Authority (SEWA) reduce carbon dioxide emissions by up to 4 million tons per year. A recent joint cooperation initiative between ADNOC and GE is also exploring using hydrogen and hydrogen-blended fuels for lower-carbon power generation.

A modernised, resilient grid is needed to meet demand and weather challenges, GE opines. In Bahrain, GE is helping advance electricity and water networks by installing industry-leading grid software in a control centre that will digitise operations for increased efficiency and operations redundancy.

Nuclear energy is essential to achieve the net-zero carbon emission goals of the Paris

Agreement and the 2030 Sustainable Development Goals. In the MENA region, the first phase of the Barakah Nuclear Power Plant in the UAE generated over 2,100 GWh of cleaner electricity and cut emissions of over 950,000 kilotons of CO₂. GE has also commenced the manufacturing of blades for the Arabelle steam turbines that will help to power El Dabaa, Egypt’s first nuclear plant. The facility is expected to deliver enough CO₂-free electricity to power more than 4 million homes to support Egypt’s energy sector diversification

Sustainable Aviation Fuel (SAF) is an alternative for fossil-based jet fuel, with the potential to reduce fuel lifecycle carbon emissions by up to 80% and is expected to help the industry meet net-zero carbon goals by 2050 according to GE. The company has been actively involved in assessing and qualifying SAF since 2007 and has recently initiated collaborations with Emirates and Etihad Airways on test flights and research programmes to increase the use of climate-friendly fuel.

GE affirms that it is committed to creating a more sustainable future for the planet and expects these trends make a difference as the world works for a cleaner and greener future. ■



Increased investment in decarbonisation technologies, sustainable fuel, modernized power generation, and efficient harnessing of nuclear energy to drive sustainability in 2022, according to GE.

Photo Credit : Adobe Stock

Completing the net zero puzzle

To support the switch to hydrogen and generally help companies reduce their CO₂ emissions, B&W have developed the ClimateBright suite of technologies.

To really exploit the fuel, we need to look at it as a complete solution.



Photo Credit : Babcock & Wilcox

WASSIM MOUSSAOUI, MANAGING director, Babcock & Wilcox (B&W) Middle East Holdings discusses the importance of hydrogen in the future energy mix and the solutions available to achieve a circular economy in the Middle East.

Often touted as the ‘fuel of the future’, much has been made of hydrogen fuel and the role it could have in the future energy mix. As Moussaoui explained, “Hydrogen has been gaining traction in lots of regions including the Middle East and Africa which has begun attracting a lot of international companies to develop pilot solutions. It will be a key player in the transition from the reliance on fossil fuels whether for transportation, energy generation, chemical manufacturing, steel industries, etc. To really exploit this fuel, we need to look at it as a complete solution – generating hydrogen is good but we need to spend money on infrastructure to make it a viable solution for the future.”

To support the switch to hydrogen and generally help companies reduce their CO₂ emissions, B&W have developed the ClimateBright suite of technologies which include four solutions. BrightLoop is an energy production technology that supports industries’ low carbon initiatives. It is a chemical looping process using a unique particle which allows it to react with a variety of feedstocks (this is different from other looping systems which require the use of copper nickel, cobalt or other materials).

Moussaoui commented, “The BrightLoop process can be used for a wide range of applications including hydrogen production. The

process can make use of different and complicated feedstocks, for example, in the petrochemical industry, petroleum coke (petcoke) is a liability but we can use it in our system as a feedstock. Biogas, biomass, natural gas, you name it, it is a very flexible technology in this regard and it is highly scalable depending on the needs of the customer. CO₂ is also captured in situ which is a very big benefit towards reducing the CO₂ footprint and I believe is essential for the net zero puzzle.”

Alongside the BrightLoop technology in B&W’s ClimateBright suite is SolveBright, a post-combustion regenerable solvent-based solution to help customers reduce their CO₂ emissions; OxyBright, a combustion process suited for CO₂ isolation and sequestration applications; and BrightGen which is a hydrogen combustion technology.

A pertinent issue currently facing the Middle East is the rising levels of waste brought on by an expanding population. However, in this challenge B&W sees opportunity and has designed a range of waste-to-energy solutions designed to meet this demand in an environmentally friendly way.

The wide range of decarbonisation and clean energy solutions that have been developed by B&W have benefitted from close work with academic institutions, governments and other companies. In November 2021, the company signed a global licensing agreement with the Ohio State Innovation Foundation for the innovative chemical looping technology which is used in B&W’s BrightLoop offering. ■

Middle East Energy returns to live event in Dubai

The event will feature five specific product sectors – smart solutions, renewable & clean energy, transmission & distribution, energy consumption & management and critical and backup power.



MIDDLE EAST ENERGY 2022, formerly known as Middle East Electricity, is set to open its doors once again for its 47th edition.

After hosting more than 800 international exhibitors such as Perkins, Baudouin, Newage Stamford AVK, Riello UPS, Cummins to name a few, Middle East Energy 2022 now plans to welcome visitors with its unique experience with alternative energy suppliers and professionals from across the sector to showcase the latest in energy products and solutions while discussing the future of energy in emerging markets.

Held under the patronage of H.H. Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, and hosted by the UAE Ministry of Energy & Infrastructure, the three-day event will take place from 7 – 9 March, 2022 at the Dubai World Trade Centre.

Keeping in line with an evolving need for a diverse, digitised and sustainable future, the

event will feature five specific product sectors – smart solutions, renewable & clean energy, transmission & distribution, energy consumption & management and critical and backup power.

Visitors and exhibitors have the chance to network with government officials, experts from the utility sector, contractors, distributors, manufacturers, energy consultants, project financiers and build long-lasting business relationships and gain new perspectives on the energy industry.

Middle East Energy will also be supported

Middle East Energy will also be supported by the Global Energy & Utilities Forum.

by the Global Energy & Utilities Forum, which provides a foundation to the core messaging of Middle East Energy by bringing together industry experts and providing them with a platform for thought leadership, collaboration, and solutions for meeting this drastic shift within the global energy sector.

Delivered through high-level strategic panels, technical sessions, roundtable discussions and workshops, the forum has been developed around the central pillars within the energy transition, featuring key themes such as decarbonisation, finance & investment, digitalisation, technologies, and such.

For more than 45 years, Middle East Energy has been showcasing innovative products and solutions that help facilitate the region's commitment to reducing its carbon footprint of power generation. ■

To register for the event, visit <https://bit.ly/3qcHI7G>

Redefining critical and backup power

The critical power industry is leading change in adopting green energy power initiatives.

CONTINUOUS POWER SUPPLY is now more important than ever for mission-critical facilities such as hospitals, IT data centres, industrial and infrastructural units, and energy setups.

A significant step forward in the region, for providing renewable energy solutions as an alternative to diesel generators is the venture between on-demand refuelling and vehicle services company, CAFU, solar energy company, SirajPower, and climate impact investor, Creek HYPR. Through this venture, HYPR will launch its on demand energy systems using innovative battery storage across the UAE, marking a first-of-its-kind solution in the region, using transportable lithium ion batteries providing customers with a reliable and cost-effective alternative to diesel generators.

Mohammed Abdulghaffar Hussain, chairman of Creek and co-founder of SirajPower, stated, "This joint platform will help improve and address some of the recurring challenges experienced by businesses in the construction and industrial sectors when connection to the grid is not a viable option. SirajPower's successful solar-as-a-service model for decentralised solar projects will be adapted to HYPR's on-demand solar energy system.



Photo Credit : Adobe Stock

The global electricity demand is growing every year.

The Critical & Backup Power sector at Middle East Energy(MEE) 2022 is readying up to showcase progressive energy solutions.

According to MEE, the global electricity demand is growing at a rate of 2.4% every

year and the fastest way to address this demand is embedded generation – ad hoc power plants consisting of engine driven generating sets and Uninterruptible Power Supply systems. ■



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Shelf Drilling selects Riverbed | Aternity to accelerate business critical applications

SHELF DRILLING, AN offshore drilling company providing shallow water services to the oil and gas industry, has implemented Riverbed SaaS Accelerator and Riverbed SteelHead to overcome the inherent bandwidth limitations of the VSAT links used to connect its offshore rigs to mission-critical on-premises and cloud-based applications.

By delivering a 95% reduction to the company's Intranet traffic while optimising core applications by 80%, the solution has helped Shelf Drilling streamline critical rig operations including order processing, staff training, and operations management.

"As satellite links are the primary means of connectivity, these rigs typically have low bandwidth of just 1-2 Mbps, and high latency of up to 750 milliseconds," explained Ian Clydesdale, IT director at Shelf Drilling.

"As a result, some of our key applications require optimisation to manage data replication effectively, including our JD Edwards ERP platform, responsible for generating purchase orders in the procurement process, as well as our operational management applications."

Clydesdale added, "Additionally, all the usual administrative functions need to share and access large files especially during key rig operations. Also, employee satisfaction is another aspect that's heavily dependent on connectivity."

To address these challenges, Clydesdale and his IT team implemented Riverbed SaaS Accelerator to accelerate business-critical SaaS applications and Riverbed SteelHead for WAN Optimisation to maximise network and application performance. These solutions integrate with key technologies such as Shelf Drilling's VMware virtualisation software, JD Edwards, and



Photo Credit : Adobe Stock

Shelf Drilling operates 30 rigs across eight countries and has 12 onshore locations.

Microsoft 365 to improve performance.

Commenting on the successful partnership between Shelf Drilling and his organisation, Mena Migally, regional vice president, META at Riverbed | Aternity, said, "This was a landmark project as Shelf Drilling was the first organization in the Middle East to implement our SaaS Acceleration solution. We take pride in providing them with technologies that are virtually 'invisible' – requiring minimal resources from their internal IT team – and thereby affording them the ability to focus on revenue generation and value creation for their end customers."

Proven Robotics inaugurates first robotics technical services and training centre in Saudi Arabia

PROVEN ROBOTICS, A state-of-the-art venture by Proven Solution, has announced the launch of its first robotics and technical service centre in Riyadh, Saudi Arabia

The new service centre will help customers to enhance strategic sales and achieve their technical goals, while benefiting from end-to-end local support and expertise in robotics and advanced technologies.

The new facility builds on Proven Robotics' reputation of delivering efficient and innovative robotics solutions. It will offer a wide range of services including providing customers with original spare parts, onsite troubleshooting, inhouse maintenance from qualified and technically certified teams, as well as the installation and configuration of robots.

"The GCC has made considerable strides in adapting and deploying robotics solutions in line with government

blueprints such as Saudi Vision 2030. However, after-sales maintenance has remained a challenge in the region and most robotics hardware is currently being shipped back to its country of origin for servicing," said Zaid Al Mashari, principal at Proven Robotics.

The concept of robots and humans working alongside each other is fast becoming the new normal," added Al Mashari. "Opening a service centre responds to long-standing customer demands for improved after sales services response times, addresses market needs for advanced technological solutions and training and boosts human resources expertise within the Kingdom of Saudi Arabia."

As a first-of-its-kind service center for Proven Robotics, the new facility strengthens the company's operations within the region at a time when demand for advanced technologies is on the rise worldwide. The global service robotics

market is expected to grow by US\$35bn during 2021 and 2025 at a compound annual growth rate of 22%. Businesses are increasingly turning to automated solutions for support with day-to-day operations, contactless interaction, carrying out repetitive tasks, and leveraging productivity efficiencies. Despite the pandemic, demand for robotics solutions has been particularly high in transport, professional cleaning, medicine, hospitality, and industry2.

With its new service center, Proven Robotics will continue to grow and expand its technical and support team. The facility will support the company's customers as well as partners and suppliers within the region. Proven Robotics will continue to establish global partnerships with worldwide leaders in the robot manufacturing industry to ensure improved efficiency and support to keep automated systems functioning at optimal performance levels.

Supporting a flourishing industry

Domen Bockor, group general manager, sales and marketing, GORICA Group, explains how his company is helping the waste management industry continue to grow in the Middle East.

WITH AN EXPANDING population and urbanisation growth, waste volumes in the Middle East are projected to increase rapidly in the near future, which is putting a greater emphasis on the need for effective waste management.

Fortunately, the waste management industry is establishing itself as one of the upcoming sectors in the region. According to Bockor, the industry has undergone a sustained growth in the last ten years, most notably in the last four to five. He continued, “We expect this industry to grow due to the increased amount of waste but also due to the increased amount of specifications and regulations coming from governments, municipalities, etc. The fastest growing market will definitely be Saudi Arabia – with the Vision 2030 the country is rapidly changing their collection process equipment and systems to be more sophisticated and deploying international service contractors to do so.

“In the Middle East generally we have a very positive outlook for the waste management industry and believe it will definitely be one of the top future service industries in the region.”

A blossoming market would be excellent news for GORICA which is a market leader in design and manufacturing of complete waste collection equipment along with smart solutions. In regards to solid waste, the company has a complete product portfolio which includes everything from small micro garbage compactors (suitable for inner city collections in narrow streets etc) to bigger structures such as the 26 cu. m garbage compactor suited for general collections. Along with that GORICA supports clients’ needs with all bin/container handling equipment, equipment for mobile bin washing and others.

Bockor added, “All compactors can be equipped with different types of lifters depending on the beam (we facilitated small beams of 240 litres to as high as 4,500



Domen Bockor, group general manager, sales and marketing, GORICA Group.

Photo Credit : GORICA Group

litres). We have hook loaders and skip loaders used for construction waste and have product support equipment for tankers etc – a real complete portfolio.”

GORICA boasts a similar impressive solution offering when it comes to liquid waste starting from simple sewage tankers to jetting tankers used to maintain sewage lines where there is a clog. “If you want to upgrade this, we offer clients a combination of super tankers and jettors which can both unclog and suck. For special applications like the oil and gas industry we have specialised super suckers for high volume and high pressure vacuum tankers.”

Bockor was keen to point out that this comprehensive product portfolio and the company’s market leading position has been maintained through sustained relationships with international partners such as Fairid, Zoeller, Kaiser Moro and Palfinger. “It is through our trusted, long-term partners (we call alliances) that we can bring the best solutions for our clients.”

Building a circular economy

Achieving a circular economy is one of the

goals of GORICA, which has plans to bring sustainable waste collection equipment to the Middle East in the future.

However, Bockor added that while they are pursuing this, it is unfortunately not a target for the near future. “Even if you look at countries like the UK who are more advanced with this technology, products such as electric trucks are not used in numbers and are still largely in the testing phase. The technology must also be adapted to be brought over here to suit the environment (such as the hotter climate) which will take some time.

“We are the market leader and, with our European partners, are looking to conduct testing of such units by 2023. By this time we could also present our first completely green vehicle for waste collection. We are already working on this (not to mention other solutions such as hydrogen) but it will take time before these become workable solutions on site and are economically feasible. It could be up to five to ten years before this is so. Nevertheless, it is definitely the future that we want to create in our market.” ■

Khatib & Alami creates digital twin of Muscat to improve security and plan for flooding events

KHATIB & ALAMI has used Bentley System's ContextCapture and LumenRT to create digital twin of Muscat to help the nation improve security and plan for flooding events.

High accuracy in a nation-scale digital twin

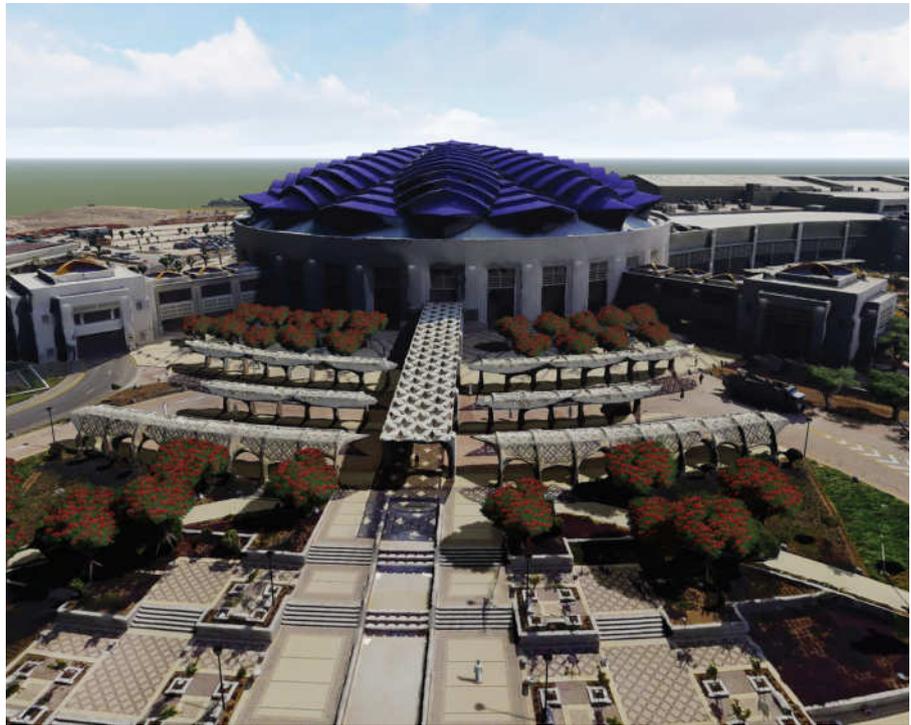
To improve national security and preparedness for climate-related disasters, the Sultanate of Oman wanted to create a detailed digital twin of approximately 250 sq km of the Middle Eastern country in and around Muscat. They contracted Khatib & Alami to capture 330,000 images with unmanned aerial vehicles (UAVs) and construct a 3D reality model of the area, which included 43,000 fully textured buildings. To meet Oman's needs, Khatib & Alami had to produce a resolution of 10 ground sampling distance (GSD) and provide relative accuracy of less than 20 cm. Additionally, the project needed to serve as a model to help build similar 3D modeling services in the region.

Every aspect of the complex project had to be finished within a deadline of 125 days. Additionally, due to the country's airspace constraints—including working around classified areas and commercial flights—they only had 14 days available for flying and image capture. Adding to the pressure was the weather, which presented a challenge with harsh sunlight, high temperatures, elevated humidity, and windy conditions. As they prepared to take on the project, they discovered that captured images could not be geo-tagged due to limitations in the UAV hardware. As a result, they needed to seek out software that could mark ground control points to provide model accuracy.

Overcoming image capture challenges

Khatib & Alami determined that overcoming the flight challenges would require careful management, with teams working in parallel to check the accuracy of captured images during the limited flight time. Simply put, they could not afford to have any major errors at the end of the image capture, as they could not go back and recapture any images after the first 14 days. Seeking the best software for accurately capturing data the first time and quickly producing a reality model was key to both meeting the deadline and producing the high level of detail that their client required.

Before the project began, Khatib & Alami examined various applications to determine



ContextCapture helped capture more data than anticipated, expanding the digital twin from 250 sq km to 280 sq km.

what would help them best execute the project. One application produced image sizes that were too large, which would slow down the pace of image processing over the large production area. In addition, it lacked tiling capabilities, which would result in significant image damage that would also

present obstacles to project completion in the tight timeframe. Another application could not produce accurate enough GSD calculations to meet the high standards set by Oman, while a third failed to produce strong quality when spread over the large project area.

Photo Credit : Khatib & Alami

Nextracker announces comprehensive compatibility with Trina Solar's ultra-high power VERTEX modules

THE US TRACKER maker Nextracker has announced the full compatibility of its products with the entire portfolio of Vertex ultra-high power modules at the Chinese photovoltaics company Trina Solar. Vertex compatibility with the tracker portfolios of Nextracker, Arctech Solar, TrinaTracker, ARRAY and 10 other leading global tracker brands featured in the White Paper on Tracker Compatibility for Trina Solar 210 Vertex Modules.

In May 2021, the China Photovoltaic Industry Association held an online workshop on module size standardisation at which more than 20 companies and organisations, including Trina Solar, agreed on the overall dimension and mounting hole locations of their 210mm modules. Standardised modules significantly reduce the number of mounting fittings, which makes it easier to install high-power modules at low BOS cost, easing concerns of owners as well as installers.

To ensure full compatibility with high-power modules, global tracker makers such as Nextracker and TrinaTracker have completed a series of functional tests that ensure compatibility and reliability even in severe weather such as



Photo Credit: Adobe Stock

To ensure full compatibility with high-power modules, global tracker makers such as Nextracker and TrinaTracker have completed a series of functional tests.

hurricanes, hailstorms and floods. In particular, Nextracker has upgraded its trackers to meet the new requirements of frame size, weight and mounting hole positions. With higher driving torque and stronger purlins, the trackers offer higher static and dynamic load, stronger structural support and ultimately perfect compatibility.

TrinaTracker has launched two series of tracker products, namely Vanguard and Agile, which are fully compatible with the complete Vertex module portfolio, including the flagship 670W+ modules.

Yokogawa Launches OpreX Managed Service

YOKOGAWA ELECTRIC CORPORATION has announced its OpreX Managed Service—Cloud edition, a solution that supports remote monitoring and maintenance of OT/IT field assets using a cloud platform provided by Yokogawa. The solution will help minimise unexpected plant shutdowns. The new service solution will be offered as part of the OpreX Sustainable Maintenance lineup.

The service applications according to Yokogawa, are for efficiency improvement and outsourcing of maintenance and preservation activities as well as remote operation monitoring infrastructure for safe access to plants.

Pioneering water mobility with hydrogen fuel-cells

SEABUBBLES, HAVE UNVEILED their hydrogen fuel cell-powered flying boat designed for waterways in freshwater or on the sea at the World Future Energy Summit.

Claiming to be a pioneer in green mobility, SeaBubbles aim to revolutionise transport through a machine that boasts cutting edge innovations including retractable self-stabilising foils, falcon-wing doors and hydrogen propulsion.

The SeaBubble is an easy to navigate water-emitting boat that promises a gentle ride for up to eight passengers as well as incredible views. In addition, no noise pollution is produced by the SeaBubble and, in a world of green ambitions, it creates zero emissions.

Thomas Brouchet, sales director France and Switzerland, commented, "SeaBubbles is a French company building the first flying boat powered by hydrogen in the world. We are currently assembling the boats and they will be ready in March.

"We have already sold one that will be used in Geneva and we are building more. In the Middle East, we have some very hot leads but there is also interest in Switzerland, the Netherlands and in France. The excitement is clearly there."

Brouchet concluded, "It is a very interesting moment for the company and we have been preparing the industrialisation phase of the boat from day one. There will be many more boats to come in the following years."



Seabubbles' stand at the World Future Energy Summit 2022.

Photo Credit: Robert Daniels

Electric vehicles: battery-grade lithium are poised to skyrocket

ELECTRIC VEHICLE (EV) producers and suppliers could be facing a major cost headache starting this year as prices for battery-grade lithium are poised to skyrocket, according to a Rystad Energy analysis. Prices for the metal are already trading at a record high of US\$35 per kilogram in Asia, and are likely to keep climbing to US\$50 per kilogram in the second half of 2022 and trade at around US\$52.5 per kilogram in January 2023, the analysis shows.

Interest in lithium iron phosphate (LFP) batteries has taken off among manufacturers since early 2021. Rystad Energy, therefore, expects the supply of lithium salts to remain tight through the first half of 2022 at least, due to lagging production in China and South America. Producers appear reluctant to sell significant volumes on the spot market, as supply constraints and the ongoing logistical issues caused by the pandemic create bottlenecks in the trading market for lithium salts. Chinese producers are hesitant to sell lithium salts on the spot market due to constraints caused by a slowdown in lithium carbonate production in Qinghai province in recent months. Similarly, suppliers in South America's lithium triangle are reluctant to allocate volumes outside long-term contracts despite their planned ramp-up in 2022, taking a cautious stance because of the ongoing logistical challenges.

This supply tightness for lithium salts, combined with the optimistic demand outlook for LFP batteries that typically feed on lithium carbonate, is expected to keep lithium carbonate prices high and support a notable premium over the price for lithium hydroxide in early 2022.

"A fresh new driver for China's lithium market are lithium contract prices on the Changzhou Zhonglianjin exchange platform. Launched some six months ago, the futures contracts have driven sentiment in the market to some extent, especially over the past two months. This has contributed significantly to the current momentum in lithium prices in China and made trader-suppliers who have attempted to destock in January hold back from selling for now," said Susan Zou, senior analyst on Rystad Energy's battery materials team.

The growth of green finance

As well as being a year in which significant political efforts were made to speed up the energy transition, 2021 was also record-breaking for green finance, as governments, international institutions and lenders alike seek to support the shift towards renewables. Oxford Business Group reports.



Photo Credit: Adobe Stock

There is an increased appetite for sustainable finance.

THE ISSUANCE OF green bonds – financial instruments that fund environmentally sustainable projects – was forecast to reach a record-breaking level of US\$500bn in 2021, according to the Climate Bonds Initiative (CBI). This is a 46% increase on the 2020 figure of US\$270bn, which itself was an all-time record.

Emblematic of the increased appetite for sustainable finance was the EU's US\$14bn issuance of green bonds in October, the largest ever of its kind. The money raised will be distributed among member states, to be used for clean energy projects and developments that help governments achieve carbon neutrality by 2050.

A number of emerging markets have also made significant progress on this front. For example, Saudi tourism project developer The Red Sea Development Company secured a SR14.1bn (US\$3.8bn) green bond from four Saudi banks, with the funds to go towards building 16 renewable energy-powered hotels across the country. Highlighting the potential future growth of the segment, the CBI predicts that green bond issuances will crack the US\$1trn mark in 2023.

Global financial markets have also turned to specific tools designed to ensure a responsible transition towards low-carbon sources of energy.

One of these is the transition bond, used to fund a company's transition towards reduced environmental impact or lower carbon emissions. They are often issued in fields that would not normally qualify for green bonds, such as large carbon-emitting industries like oil and gas, iron and steel, chemicals, aviation and shipping. Although still a nascent segment, there were 14 transition bond issuances worth US\$5bn in the first nine months of 2021, according to the CBI, accounting for more than half of the US\$9.9bn issued since their inception in 2018.

COP26, held in Glasgow in November, provided a boost to other transition-related solutions. World leaders agreed to reform global carbon markets and agree on a universal set of rules for carbon trading, seen as key tools in the transition towards decarbonisation. In fact, many expect the development to lead to an increase in climate-friendly investment in lower-income nations.

The increase in demand for sustainable

finance has naturally coincided with a move away from funding fossil fuel projects. On the sidelines of COP26, 34 countries and four international finance institutions pledged to end financing for "unabated" fossil fuel projects in overseas countries by the end of 2022. Banks and major financial institutions including HSBC, Fidelity International and Ethos also agreed to end the funding of unabated coal, highlighting how large financial institutions can play a key role in the energy transition.

The insurance industry also has a potentially significant role to play in the shift towards decarbonisation.

Combating greenwashing

While broadly welcomed globally, these shifts towards green finance have increased calls for updated and more stringent rules on what constitutes sustainable finance. Although many countries, institutions and stock exchanges have their own rules, there are concerns that a lack of universal guidelines could lead to widespread greenwashing from governments and private corporations alike, particularly in light of the rapid growth in green finance.

To help address the situation, in recent months China and the EU have collaborated on developing joint green investment standards, releasing a report in November that outlined how green investment guidelines could be aligned. While still at an early stage, this type of cooperation is seen as necessary to facilitating the growth of green finance in the future. ■

The Red Sea Development Company secured a SR14.1bn (US\$3.8bn) green bond from four Saudi banks to go towards building 16 renewable energy-powered hotels.

Project Databank

Compiled by Data Media Systems

CONSTRUCTION AND INFRASTRUCTURE PROJECTS, KUWAIT

Project Name	City	Facility	Budget (US\$)	Status
DGCA - North Kuwait Mega Airport Project	Northern Kuwait	Airport	12,000,000,000	Project Announced
MPW - DGCA - Kuwait International Airport Expansion - Kuwait University	Farwaniya	Roads	281,000,000	EPC ITB
PAHW - South Al Mutlaa City - Housing Package	Farwaniya	Education/Training Facilities	550,000,000	Construction
KAPP - PART - GCC Railway Network Kuwait	Al Mutlaa	Mixed-Use Development	1,200,000,000	Construction
PAHW - South Al Mutlaa City - Infrastructure Package - Overview	Various	Railway	1,990,000,000	FEED
MPW - DGCA - Kuwait International Airport Expansion - Overview	Al Mutlaa	Roads	1,800,000,000	Construction
MPW - DGCA - Kuwait International Airport Expansion - Package 3 - Aircraft's Apron, Taxiways and Service Buildings	Farwaniya	Airport	7,000,000,000	Construction
PAHW - Sabah Al-Ahmad Residential City	Farwaniya	Airport	132,000,000	EPC ITB
MPW - PART - Rehabilitation of Al Ghouse Road - Package 3 - Seventh Ring Road to Fahaheel Expressway	Kuwait	City	7,000,000,000	Construction
MOH - Kuwait City Cancer Center	Various	Roads	198,000,000	EPC ITB
MPW - DGCA - Kuwait International Airport Expansion - Package 2 - Buildings, Roads & Carpark - Overview	Kuwait City	Medical/Health Facilities/Spa	650,000,000	Construction
MPW - PART - Al Nuwaiseeb Road Construction Project	Farwaniya	Airport	552,600,000	Construction
Amiri Diwan - Palace of Justice	Asimah	Roads	560,000,000	Construction
MPW - DGCA - Kuwait International Airport Expansion - Runways & Airfield Infrastructure Package	Kuwait City	Commercial Buildings	1,000,000,000	Construction
Kuwait Municipality - Al Jahra Waterfront (Al Corniche) Project	Farwaniya	Airport	492,000,000	Construction
KAPP - PART - Kuwait National Railroad (KNRR)	Jahra	Mixed-Use Development	1,250,000,000	Design
KDIPA - Al Abdali Economic Zone (AEZ)	Kuwait	Railway	1,990,000,000	Feasibility Study
PAI - Al Shaddadiyah Industrial Zone	Al-Abdaly	Economic Zone	756,000,000	Design
PAHW - South Saad Al-Abdullah Smart City	Shadadiyah	Industrial Park	300,000,000	Construction
PAHW - South Al Mutlaa City - Overview	Kuwait	City	4,000,000,000	Design
MPW - Rehabilitation of Al Ghouse Road - Overview	Al Mutlaa	City	20,000,000,000	Construction
MOH - Al Farwaniya Hospital Expansion	Various	Roads	775,000,000	Construction
KAPP - South Jahra Labor City	Farwaniya	Medical/Health Facilities/Spa	1,000,000,000	Construction
MPW - DGCA - Kuwait International Airport Expansion - Package 1 - Main Terminal Building (Terminal 2)	Jahra	City	485,000,000	EPC ITB
PAHW - The Silk City Project (Madinat Al-Hareer)	Farwaniya	Airport	4,500,000,000	Construction
KAPP - Kabd Municipal Solid Waste Project	Subiya	City	82,200,000,000	Design
Boubyan National Real Estate Services Company - Boubyan Bank New Headquarter Building	Kuwait City	Incineration Plant	790,000,000	EPC ITB
MPW - Bubiyan Seaport Project (Mubarak Al Kabeer) - Overview	Sharq	Banks/Financial Centre Development	116,000,000	Construction
Tamdeen - Al Khiran Real-Estate Development	Bubiyah	Port	6,500,000,000	Construction
PAAET - Technology, Business, Health Sciences and Education Complex	Kuwait	Mixed-Use Development	831,000,000	Construction
MOH - Al Sabah Hospital Expansion	Jahra	Education/Training Facilities	400,000,000	Design
MOH - Al Adan Hospital Expansion	Asimah	Medical/Health Facilities/Spa	700,000,000	Construction
MPW - Bubiyan Seaport Project (Mubarak Al Kabeer) - Phase 1 - Package 3A - Buildings & Infrastructure	Mubarak Al Kabeer	Medical/Health Facilities/Spa	772,000,000	Construction
KAPP - Kuwait Metropolitan Rapid Transit System (KMRT)	Jahra	Port	500,000,000	Design
MOH - MPW - Shuwaikh Maternity Hospital	Various	Mass Transit Systems	11,456,000,000	Feasibility Study
MPW - Bubiyan Seaport Project (Mubarak Al Kabeer)	Shuwaikh	Medical/Health Facilities/Spa	727,000,000	Construction
MPW - Fourth Ring Road Upgrade	Bubiyah	Roads	250,000,000	Construction
MPW - Mina Abdulla To Al Wafra City Road	Asimah	Roads	100,000,000	Design
KPA - Shuaiba Port Expansion	Mina Abdullah	Roads	285,000,000	Construction
MPW - First Ring Road Extension	Shuaiba	Port	100,000,000	Design
MOH - MPW - Shuwaikh Children's Hospital	Kuwait	Roads	392,000,000	FEED
MPW - Special Needs School Complex	Shuwaikh	Medical/Health Facilities/Spa	800,000,000	Design
MPW - Farwaniya Cultural Center	Fintas	Education/Training Facilities	1,226,000,000	FEED
MOH - Ibn Sina Hospital Expansion	Farwaniya	Leisure Facilities	400,000,000	Design
	Farwaniya	Medical/Health Facilities/Spa	413,000,000	EPC ITB

Project Databank

Compiled by Data Media Systems

Project Focus

Compiled by Data Media Systems

MPW - DGCA - Kuwait International Airport Expansion - Package 3 - Aircraft Apron, Taxiways and Service Buildings

Name of Client	DGCA - Directorate General of Civil Aviation MPA – Ministry of Public Works
Estimated Budget (US\$)	132,000,000
Award Date	2022-Q1
Facility Type	Airport
Status	EPC ITB
Location	Farwaniya, Kuwait
Project Start	2019-Q1
End Date	2023-Q1

Background

The Ministry of Public Works plans to establish the third construction package which is directly associated with the new Terminal 2 building. The package covers construction of taxiways, aprons, roads, tunnels, airfield lighting, special systems, consolidation centre, catering building, fuel network, airport-related utilities and enabling works.

Project Status

Date	Status
Jan 2022	The bidding deadline for the PMC tender has been extended to January 23, 2022.
Dec 2021	Eight companies have submitted their bids for the main contract: -Power Construction Corporation of China, US\$750 million; Alghanim International, US\$755 million; Shanxi Construction Investment Group, US\$773 million; Limak, US\$779 million; Makyol Construction Industry Tourism and Trading, US\$789 million; Ahmadiyah Contracting & Trading, US\$821 million; AVIC International, US\$850 million; Kolin Insaat, US\$1 billion.
Nov 2021	The bidding deadline for the main contract has been pushed back to December 7, 2021, while the bidding deadline for consulting services to supervise the implementation of the project has been extended to December 26, 2021.
May 2021	MPW has issued a tender for consulting services to supervise the implementation of Package 3. The bidding deadline is set for August 31, 2021.
Feb 2021	Penspen is bidding for detailed engineering design for EPC. The company has previously performed FEED for the project as well as design for the fuel hydrant system.
Nov 2020	The Ministry of Public Works (MPW) has issued a tender for the construction, completion, and maintenance of the aircraft's apron, taxiway and service buildings as Package 3 of Kuwait International Airport expansion project. The bidding deadline is set for December 29, 2020 and the contract duration is 730 days.

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توجد فرص عظيمة عبر سلسلة القيمة

كما يمكن أن تشهد دول مجلس التعاون الخليجي تطورا فائق السرعة للتقنيات التالية والإقبال على استخدامها: التسخين بالطاقة الشمسية في العمليات الصناعية، والتبريد بالطاقة الشمسية، وتحلية المياه بالطاقة المتجددة، والشبكات المصغرة ومتناهية الصغر، وخلايا الطاقة الكهروضوئية المستخدمة في المباني. وسوف يقتضي زيادة إدخال حلول الطاقة المتجددة في شبكة دول مجلس التعاون الخليجي الاستثمار في تحديث الشبكة واستخدام التقنيات الرقمية. وتفكر المؤسسات المعنية بالفعل في حلول العدادات الذكية والمحطات الفرعية الرقمية. وفيما تنبض سلسلة القيمة بفرص كبيرة، يتوقف تحقيق هذه الفرص على عدة عوامل، ومنها ما يلي:

- 1 - تطبيق السياسات واللوائح التي تسمح بقدر من تكافؤ الفرص أمام التقنيات البديلة.
- 2 - ربط أسعار الطاقة والكهرباء بالأسعار والتعريفات العالمية.
- 3 - توعية العملاء بفوائد التوليد الموزع وكفاءة استخدام الطاقة وغيرها.

- على تنفيذ الحلول الرقمية القائمة على الاعتمادية لمراقبة المحطات الفرعية عن بعد وصيانتها.

الأنظمة الهجينة

يستلزم ذلك باقة من مصادر الطاقة المتعددة التي يكمل بعضها البعض، لتوفير الكهرباء في المواقع التي تعاني من ضعف شبكة الكهرباء.

الكهرباء كخدمة

الكهرباء كخدمة أو الطاقة كخدمة، هي عبارة عن مفهوم يشير إلى استثمار شركات خدمات الطاقة والقائمين على مشاريع الطاقة الشمسية الكهروضوئية في المستخدمين النهائيين لتوفير الكهرباء أو توليدها في مواقعهم. ويسير هذا الاتجاه بالفعل بوتيرة سريعة في دبي، حيث تقوم شركات خدمات الطاقة التابعة لشركة الاتحاد لخدمات الطاقة «الاتحاد إسكو» بإجراء تعديلات لرفع كفاءة استخدام الطاقة من خلال نماذج توفير مشتركة/مضمونة.

دول مجلس التعاون الخليجي قبله لاستثمارات الطاقة المتجددة، وذلك بفضل انخفاض تكاليف التقنية، وتحسن إجمالي أحجام المحطات المركبة وقدراتها. وإذا أدركت كل دولة الإمكانيات الحقيقية الكامنة في حلول الطاقة المتجددة المنصوص عليها في وثائق رؤاها واستراتيجيتها، يمكن أن يتراوح حجم الطاقة التي تنتجها محطات الطاقة المتجددة المركبة في منطقة مجلس التعاون الخليجي من 100 إلى 105 جيجاوات بحلول عام 2030. ويقدم ذلك، بجانب تكاليف التوطين التي يكثر الترويج لها في المنطقة، فرصة كبيرة للشركات العالمية الرائدة في مجالات الهندسة والمشتریات والبناء، ومصنعي المعدات الأصلية، مع تعزيز التنوع الاقتصادي وتوفير فرص العمل في المنطقة.

وعلاوة على التطورات التي تشهدها مشاريع الطاقة المتجددة على نطاق الشبكة، فستوفر تقنيات الطاقة الموزعة كالألواح الشمسية الكهروضوئية على الأسطح، وأنظمة الديزل والخلايا الكهروضوئية الهجينة، ومولدات الديزل والغاز، فرصة بقيمة 3,5 مليارات دولار أمريكي بحلول عام 2025. وتعتبر مبادرة «شمس» في دبي ومبادرة «ساهم» في عُمان من أمثلة اللوائح والسياسات التي سيكون لها أثر إيجابي على سوق الطاقة الموزعة في المنطقة. علما بأن سوق الطاقة الموزعة في دول مجلس التعاون الخليجي يزخر بفرص فريدة من نوعها، ومن أمثلتها:

تخزين الطاقة خلف العداد

يسمح تخزين الطاقة في بطاريات، والشائع في منازل المستخدمين، للعملاء بتخزين فائض الطاقة المولدة لاستخدامها خلال ساعات الليل، أو يسمح بإعادة إمداد الشبكة بالكهرباء باستمرار. وتقدم معظم مصانع شبكات الطاقة الشمسية المصغرة للأسطح في الإمارات خيارات تخزين الطاقة في بطاريات، وذلك في إطار الحزمة التقنية أو المنظومة التي تقدمها، وبناء على متطلبات العملاء.

الشبكات الرقمية والعدادات الذكية

ونمذجة الطاقة وتجميع موارد الطاقة الموزعة

العدادات الذكية، ونمذجة الطاقة، والقدرة على التنبؤ (نمذجة الطاقة)، وتجميع موارد الطاقة الموزعة، وتطوير محطات الطاقة الافتراضية، تأتي كلها في إطار توسيع الشبكة ورفع كفاءتها واعتماديتها. ويمكن أن تتراوح الفرصة السوقية للشبكات الرقمية، والحلول المرتبطة بها بشكل عام، في ظل إضافة محطات الطاقة المتجددة المقترحة، من 35 إلى 45 مليار دولار أمريكي، من المتوقع تحقيقها على مدار السنوات العشر إلى الخمس عشرة القادمة في ربوع مجلس التعاون الخليجي. وتعمل هيئة الربط الكهربائي لدول مجلس التعاون الخليجي - بالفعل

← مفكرة الفعاليات 2022

مارس/آذار

دي	7 - 9	معرض طاقة الشرق الأوسط
الرياض	28 - 31	معرض بيج فايف السعودية

مايو/أيار

أبوظبي	9 - 11	المؤتمر العالمي للمرافق
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أصبحت دول مجلس التعاون الخليجي قبلة لاستثمارات الطاقة المتجددة

مستقبل قطاع الطاقة في مجلس التعاون الخليجي

تقرير «فروست آند سوليفان للطاقة والمياه في مجلس التعاون الخليجي» يستعرض حالة قطاعي المياه والطاقة في دول مجلس التعاون الخليجي، وسعيها الحثيث لجعل المنطقة تنعم بمستقبل يتصف بالاستدامة على المدى الطويل. وفي هذا المقال، يسلط نيراج سانجاي مينس، استشاري الممارسات الصناعية بشركة «فروست آند سوليفان»، الضوء على أبرز الاتجاهات التي تشكل مستقبل قطاع الطاقة في دول مجلس التعاون الخليجي، والتقنيات التي يتزايد انتشارها، والفرص التي يمكن للأطراف المعنية الاستفادة منها في هذا المشهد المتطور.

- على خفض الانبعاثات الكربونية في إطار المساهمات المحددة على المستوى الوطني لكل منها، ويشكل قطاع الطاقة نسبة 83 في المائة من إجمالي الانبعاثات، 37 في المائة منها بسبب توليد الطاقة والحرارة. وقد حددت كل دولة من دول مجلس التعاون الخليجي مسارها الخاص للتخلص من الكربون. ومن محاور هذه المسارات دمج حلول الطاقة المتجددة، ورفع كفاءة استخدام الطاقة، وجمع الكربون وتخزينه، وإنشاء اقتصاد قائم على الهيدروجين. وقد حظي محور الطاقة المتجددة مثلاً بأكثر قدر من الاهتمام، وحقق أكبر مردود. إذ بلغ معدل النمو السنوي المركب للمحطات المركبة 69 في المائة بين عامي 2015 و2020، ومن المتوقع أن تحقق محطات توليد الطاقة المتجددة نسبة 39 في المائة من إجمالي محطات توليد الطاقة المركبة بحلول عام 2030 ما إن تمكنت دول مجلس التعاون الخليجي من تحقيق أهدافها المعلنة بشأن الطاقة المتجددة. وسرعان ما غدت

النتيجة عن توليد الطاقة ومجمل سلسلة قيمة الطاقة. ومن أمثلة ذلك زيادة محطات الطاقة المتجددة القائمة على الشبكة وإجراءات رفع كفاءة استخدام الطاقة لتقليل الانبعاثات الكربونية في مختلف محطات توليد الطاقة والمستخدمين النهائيين.

الرقمنة: التطوير التقني للبنية التحتية لشبكة الكهرباء الحالية حرصاً على فعاليتها وإدارتها ومراقبتها، مع النجاح في دمج مختلف حلول الطاقة المتجددة، والتخزين في بطاريات، وتقنيات رفع كفاءة استخدام الطاقة في المواقع الصناعية والتجارية، واستخدام الكهرباء في وسائل النقل.

اتجاهات وتطورات مجلس التعاون الخليجي

تتجه الحكومتان الإماراتية والسعودية نحو أشكال أخرى من الطاقة، كالطاقة الشمسية، تتصف بقدر أكبر من الاستدامة. وتحرص دول مجلس التعاون الخليجي - كافة

يقول التقرير إنه في حين أن التحول في قطاع الطاقة والكهرباء كان نابعا - في البداية - من ضرورة تقليل الانبعاثات والتخفيف من تأثير تغير المناخ، فإن تراجع تكلفة التقنية وتحسن قدرات التصنيع وكثرة الابتكارات، جعلت بعض التقنيات الحديثة قادرة على منافسة التقنيات والعمليات التقليدية التي اعتمدت على الهيدروكربونات كمصدر للطاقة.

وفيما يلي المحاور الثلاثة التي تلعب دوراً رئيسياً في تحول قطاع الطاقة على مستوى العالم:

اللامركزية: الانتقال من مرحلة توليد الطاقة في محطات كبيرة ومركزة إلى التوليد الموزع على محطات أصغر لتوليد الطاقة. ومن أمثلة ذلك وحدات الطاقة والحرارة المدمجة، وأنظمة الطاقة الشمسية الكهروضوئية على الأسطح، والأنظمة الهجينة (الديزل/الغاز والطاقة الشمسية معاً) مع التخزين في بطاريات. التخلص من الكربون: الحد من الانبعاثات الكربونية

المحتويات

القسم العربي

تحليلات

مستقبل قطاع الطاقة في مجلس التعاون الخليجي



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