

TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

MIDDLE EAST

Vol 39/Issue Two 2023

GCC Report

Resilient growth

Autonomous Control

AI solutions

FUTURE OF ENERGY

EXPLORING THE ENERGY TRANSITION, EFFICIENCY AND
SUSTAINABILITY

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EDITOR'S NOTE

THIS YEAR, THE GCC will again outperform many advanced, emerging and developing economies in GDP growth, says the research by Bretton Woods Institutions. See pages 16-18 to read up on our economist Moin Siddiqi reporting that the GCC bloc enters 2023 from a position of strength, although the outlook may not compare to last year's stellar growth.

Middle East Energy (MEE), is set for the biggest showing in its 48-year history when it opens at the Dubai World Trade Centre from 7-9 March 2023. This issue of Technical Review has a special section on MEE, on pages 24-37.

We also bring you news and views on technology, innovation, autonomous controls in manufacturing and more.

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



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SERVING THE REGION'S BUSINESS SINCE 1984

TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

MIDDLE EAST

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Briefly

International Code Council hosts event in Dubai to promote building safety

HAVING RECENTLY OPENED a regional office in the MENA region, the International Code Council, a world-leading building safety association, hosted its inaugural workshop in Dubai, focusing on a safety-first approach to innovative building systems.

The event commenced with opening remarks from notable industry leaders including Dominic Sims, CEO, International Code Council; Meghan Gregonis, US Consul general, Dubai; Aisha Al-Mulla, head of Research & Building Section, Dubai Municipality; and Eng Riyadh Al Rasheed, director of Technical Affairs, Saudi Building Code National Committee.

More than 90 delegates attended the event from the industry's leading Authorities Having Jurisdictions (AHJs), developers, contractors, architects, designers and manufacturers, among others, where International Code Council showcased its on-ground support to organisations involved in building safety including government entities, construction management corporations, manufacturers and design professionals.

Hosted by Mohamed Amer, regional director of Operations, ICC MENA, the workshop explored the need for increased compliance in the construction industry, especially in growing markets of the MENA region. Joined by Dominic Sims CBO, chief executive officer, International Code Council and Shahin Moinian PE, executive vice president, Conformity Assessment Group, as well as International Code Council senior executives and board members from the United States, the workshop delved into the challenges and opportunities in the region, touching on the importance of robust regulatory framework for advanced and new building systems.

"The region is poised for huge growth in the building and construction industry, especially with the UAE's 2050 vision to make the country the first in the MENA region to achieve net-zero emissions. It's crucial to underpin these projects with effective building codes and standards, especially where innovative materials, systems and methods are being deployed," commented Sims.

UAE ranks first in the business fundamentals rankings

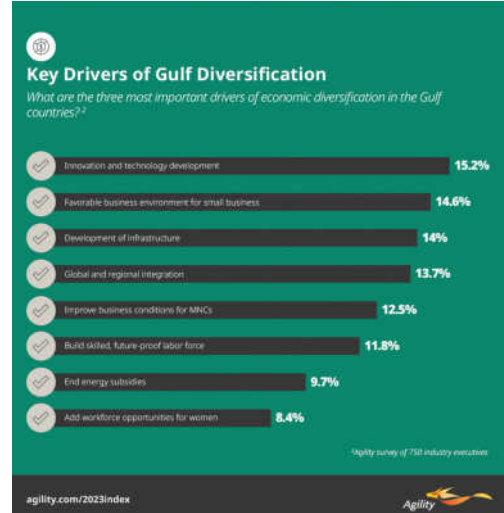
GLOBAL SUPPLY CHAIN executives say innovation and help for small businesses will do the most to drive non-oil economic growth for Gulf economies, which outperformed most others in the 14th annual Agility Emerging Markets Logistics Index.

UAE ranked No. 3 behind China and India in the 50-country Index. Saudi Arabia was No. 6. Both countries were in the top 10 in all four Index categories: domestic logistics, international logistics, business fundamentals and digital readiness. Qatar was in the top 10 in all categories except international logistics, where it was 19th.

GCC countries again dominated the business fundamentals rankings, which compare the legal, regulatory and tax frameworks of emerging markets countries. UAE (1), Qatar (2), Saudi Arabia (3), Oman (5), Bahrain (6) and Kuwait (11) were clustered at the top for best business climate.

Among the six GCC economies, Kuwait (No. 15 overall) did most to improve its competitiveness, gaining ground in every category. In digital readiness, Oman, up five spots to No. 10, and Bahrain, up six to No. 16, made the biggest strides among GCC countries.

The Index and a survey of 750 global logistics industry executives comprise Agility's 14th annual snapshot of industry sentiment and ranking of the world's leading emerging markets. The Index ranks countries for overall competitiveness based on factors that make them attractive to logistics providers, freight forwarders, air and ocean



Industry executives were asked to name the most important drivers of economic diversification for GCC countries.

carriers, distributors and investors.

In the survey, industry executives were asked to name the most important drivers of economic diversification for GCC countries, all of which are trying to reduce dependence on oil and gas by accelerating private-sector growth. Respondents identified the key factors as tech development and innovation; small business environment; infrastructure development; regional and global integration; business conditions for multi-nationals; a skilled labour force; ending energy subsidies; and creating career opportunities for women.

Outside the GCC, conflict, sanctions, political turmoil, economic missteps and continued COVID fallout damaged the competitiveness of some countries, while Bangladesh, Pakistan, Jordan, Sri Lanka and Ghana leapt forward in some categories.

Estedama commissions new CDE soil remediation plant

ESTEDAMA, A FULLY integrated environmental solutions service company, announced it will continue to strengthen its waste recycling capabilities by investing in a contaminated soil wash plant designed and engineered by CDE.

The wash plant will be commissioned at Estedama's Al Damman facility where it will process a range of oil-contaminated waste materials from around Saudi Arabia.

Soil washing involves the recovery of reusable materials from soils, often extracted from oilfield and drilling sites containing pollutants, organics and other contaminants. Estedama's wash plant will process a range of feed materials, including oil-contaminated soils from pipeline punctures, drilling waste and more.

Traditionally categorised as a waste product and destined for landfill, contaminated soils typically contain valuable sand and aggregate resources that can be recovered in a range of specifications, cleaned and reused by the



Faleh Aldossary, general manager, Estedama (left) and CDE regional manager for the Middle East and Africa, Ruchin Garg.

construction industry for a variety of applications.

Faleh Aldossary, general manager, Estedama, commented, "It is our vision to be the leading fully integrated industrial waste management entity in Saudi Arabia. We are always exploring the potential for new strategic partnerships with forward-thinking and innovative technology providers who we believe can help us to make that vision a reality."



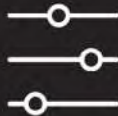
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AquaChemie opens Petrochemical Terminal in Jebel Ali Port

AQUACHEMIE MIDDLE EAST - a leading regional player for process industry chemicals and part of the UAE-based AquaChemie Group - has formally inaugurated its Petrochemical Terminal in DP World's Jebel Ali Port in Dubai.

The advanced US\$50mn terminal will be one of the most functional and versatile bulk liquid terminals in the GCC region, serving as a vital gateway to facilitate and boost the growing petrochemical trade between manufacturers and end-users across the Middle East and globally.

The facility was officially inaugurated on 2 February 2023 by Abdullah Bin Damithan, CEO & managing director, DP World UAE & JAFZA; guest of honour, Dr Aman Puri, Consul General of India, Dubai & Northern Emirates; together with Subrato Saha, managing director, AquaChemie; and Anand Kumar, managing director, AquaChemie; in the presence of senior DP World and JAFZA officials, industry associates, and the media.

AquaChemie commissioned the global engineering, management, and development consultancy, Mott MacDonald, for the new facility's detailed engineering and project management, with the region's leading mechanical, electrical, instrumentation, and civil contractors also being on board for the project's completion in record time.

The facility has been fully CDI-T (Chemical Distribution Institute - Terminal) assessed and is ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018 certified. The terminal has already serviced the first vessel carrying chemicals.

The Chemical Terminal covers an area of 20,000 sq m and is located some 500 m from Chemical Berth 4 in Jebel Ali Port. The new facility is linked by five SS pig-gable jetty pipelines, making it



Photo Credit: AquaChemie

The facility was officially inaugurated on 2 February 2023.

one of the most functional and versatile bulk liquid terminals in the GCC region.

With a total storage volume of over 34,000 cu/m, the 26 large tanks in tank-farm A, B, C, and D are well-equipped to handle over 100 UN Class 3 and 8 chemicals. The terminal has three tanker truck loading bays for top and bottom loading of tankers and ISO tanks, five semi-automatic drumming lines, a warehousing facility with over 6,300 drums, a dedicated ISO tank storage area, and a weigh bridge at the truck entry point. The terminal is fully monitored and controlled from a central control room.

"Our new state-of-the-art terminal is a step towards backward integration of our current oil and gas offering for the upstream and downstream petrochemical sectors. The supply reliability and lower supply chain cost will immensely benefit our existing customers as chemicals will be delivered on time so that the customers'

Hitachi Energy to supply UAE's first charging infrastructure for electric truck fleets

HITACHI ENERGY, A global technology leader, has won an order from Admiral Global DMCC, a Dubai regional headquartered e-mobility and energy solutions provider for industries, to supply the first charging infrastructure for electric truck fleets in the UAE.

The scalable, grid-to-plug fast-charging solution will make it possible for fleets of commercial trucks in the middle-mile category to recharge simultaneously in a single location. The charging infrastructure, which is expected to be in operation by the end of 2023, will be used by multiple fleet operators that lease electric trucks from the Mohamed Hareb Al Otaiba Group, one of UAE's leading entities in transport and mobility solutions. Previously, only standalone chargers, which charge one or two vehicles at a time, was available in UAE.

"We are delighted to help the UAE take a further step on its journey towards a sustainable transportation future by providing the region's first charging infrastructure for electric truck fleets," said Niklas Persson, managing director of



Global demand for electric trucks is growing rapidly.

Hitachi Energy's grid integration business. "Our pathbreaking Grid-eMotion Fleet infrastructure will enable fleet operators to switch from diesel to long-range, low-carbon electric trucks."

Grid-eMotion Fleet offers a unique range of benefits for fleet operators of trucks or buses. This grid-code compliant and space-saving grid-to-plug solution provides fast charging to maximize the use of each vehicle. It can be installed in new and existing logistics centres and scaled

flexibly as the fleet gets bigger and greener. Grid-eMotion Fleet offers a seamless charging infrastructure that includes a robust and compact grid connection and multiple charging points, making it a well-suited solution for heavy-duty trucks requiring high-power charging.

"Our long-standing relationship with Admiral Global DMCC is a testament to our commitment to working closely with our customers to address their unique needs and provide innovative solutions that promote a carbon-neutral and sustainable future," said Dr Mostafa Al Guezeri, Managing Director of Hitachi Energy for the UAE, Gulf, Near East, and Pakistan. "As we look forward to COP28 in Dubai, we remain committed to supporting the global community in its efforts to combat climate change and achieve a net-zero future. We are committed to positively impacting today's generations and those to come."

Global demand for electric trucks is growing rapidly, especially among companies that operate large fleets of middle-mile and last-mile delivery vehicles.

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Briefly

Starlinks bolsters network with extra fulfilment centre

STARLINKS, A LEADING logistics and supply chain solutions provider, has announced the launch of a 400,000 sq ft advanced fulfilment centre in the Kingdom of Saudi Arabia

Adding to the company's 18 fulfilment centres across the country, the facility is equipped with 254 autonomous robots for picking and sorting, thereby providing storage capacity for over 12 million units.

It is located in Agility Logistics Park and, with its launch, Starlinks aims to process an average of 3.6mn units orders per month. It will be fully operational by Q2 2023.

Starlinks has taken the decision in order to address the ever-growing market demand and to stay true to its brand promise of providing the fastest e-commerce fulfilment cycle through an omnichannel fulfilment facility. The project is aligned with the Kingdom's Vision 2030, which aims to maximise the potential of the country's non-oil sectors and bolster its role as a transit hub at the heart of the Middle East.

Starlinks has partnered with Geek+ for automation technology, joining their top tier clientele, which includes Nike, Decathlon, and Walmart. The Fulfilment Centre is run on a hybrid model that employs both robotics and manual picking systems and sortation functions.

Salah Taha, director of Operations at Starlinks, said, "Our new solution comprises a pallet storage and handling storage system, a manual pick tower as well as a robotics solution allowing us to cater to a wide range of customer requirements and operations complemented by micro fulfilment centres distributed strategically across the Kingdom. We are committed to driving further innovation in the logistics and supply chain industry in the region and reducing lead time to e-commerce shoppers.

"Advanced automation and big data analytics enable us to better track and manage inventory, predict demand, and optimise routes for transportation thus helping us to increase efficiency, reduce operating cost and provide seamless services to our customers," Taha added.

Taka Solutions introduces CaaS model to transform cooling in the UAE

LEADING ENERGY SERVICES company, Taka Solutions, has launched Cooling-as-a-Service (CaaS), a disruptive pay-per-use model to decrease energy consumption and associated costs at chiller plants across the UAE.

CaaS enables customers to base their decision on life-cycle cost rather than on the purchase price of the equipment. It allows end customers to pay for the cooling they receive, rather than the physical product or infrastructure that delivers the cooling. Taka Solutions provides its CaaS customers an opportunity to eliminate all cooling-related capital and operational expenditure. Taka Solutions will install and maintain the chiller plant in return for a pre-agreed charge for the actual supply and consumption of cooling.

Taka Solutions' CaaS scope includes combinations of total chiller and auxiliary equipment replacement with brand new equipment and technology, retrofit, upgrade, refurbishment and full recommissioning of existing equipment, redesign of pump and pipework layout, as well as numerous other energy saving opportunities. Additionally, customers can offload all liabilities and risks associated with their chiller plant, including equipment breakdowns and maintenance.

Furthermore, with Taka Solutions, customers can access the latest in cooling technology with direct technical support from the market leaders in energy efficiency, own an improved and efficient

chiller plant, and increase the value of their assets, substantially reduce carbon footprint and qualify for green credentials.

This announcement closely follows Taka Solutions signing its first CaaS project with Green Coast Real Estate (GCRE) for their 11-storey residential Port Saeed building, located in Deira. Taka Solutions will be financing the replacement of the chiller plant with no capital expenditure to GCRE. The plant will also be operated and maintained by Taka Solutions for the contractual duration of fifteen years with no operational expenditure to GCRE, after which the plant will be handed back to GCRE at no further cost.

Mohammed Abdulhaffar Hussain, chairman of Taka Solutions and chairman and co-founder of Positive Zero commented, "The introduction of CaaS follows the recent launch of Positive Zero, an integrated energy transition platform and parent company to Taka Solutions. Positive Zero aim to provide fully financed sustainable energy solutions enabling the transition to a net zero economy."



The signing ceremony between Taka Solutions and GCRE.

Photo Credit : Taka Solutions

TII SCHEUERLE assists world's heaviest building transport

SINOTRANS HEAVY-LIFT CO., utilising SPMTs from TII SCHEUERLE, has set a new world record when it was commissioned to re-position a 7,500 tonne hotel by 500 metres in China.

The heavy goods logistics company has been relying on SPMTs from TII SCHEUERLE for many years now owing to the excellent synchronisation procedure. For the task in the Hainan province in China, Sinotrans therefore turned once again to their partner when it set the record for world's heaviest building transported to date (according to the company).

The specialist transport company distributed the load of the hotel on 254 axle lines. A total of 15 Power Pack Units (PPU) drove the vehicle combination. Sinotrans was tasked with levelling and positioning the structure and had to turn the building clockwise by 63 degrees and



Sinotrans coupled the self-propelled SPMT platform transporters from TII SCHEUERLE at different angles to each other.

subsequently counterclockwise by 63 degrees during transportation.

The heavy goods logistics company coupled the self-propelled SPMT platform transporters from TII SCHEUERLE at different angles to each other to form a fan-shaped combination. achieved the required high level of precision.

Photo Credit : TII SCHEUERLE

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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

UD Trucks expands its operations in MEENA

UD TRUCKS HAS continued its journey of exceptional growth throughout the Middle East, East, and North Africa (MEENA) region by registering an average of 30% growth for the second year in a row. This boost for the Japanese truck manufacturer strengthens its position as a market leader in a largely European-dominated regional truck market. UD Trucks continues to place its "Better life" Strategy for people and the planet at the core of its objective

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



Photo Credit : UD Trucks

UD Trucks continues to grow at an impressive rate of 30% in the region.

Prospects for climate-linked finance in the Middle East

JENNIFER CHAMMAS, REGIONAL head of sustainability and sustainable finance, HSBC Bank Middle East Ltd, discusses the growing role of climate-linked finance in the Middle East. How can sustainable finance help to mitigate climate change? The role of the finance industry in supporting the significant capital investment in the energy transition is crucial. A recent UN report estimated that US\$1 trillion in external finance is needed per year in emerging and developing markets by 2030 (excluding China), which is estimated to be 10 to 20 times more than at present.

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

Significant customer benefits with the Eplan Partner Network

WITH THE EPLAN Partner Network, strategic partners such as Phoenix Contact, Siemens and Rockwell Automation, plus technology partners – including ABB, Lapp Kabel, Wago and Weidmüller – come together under one guiding principle: providing the highest degree of integration capability for their solutions. The Eplan Partner Network was founded to exploit the full potential of productive interactions

<https://www.technicalreviewmiddleeast.com/it/software/>



Image Credit: Adobe Stock

Technology partners make up the most comprehensive area in the Eplan Partner Network.

PROVEN Solutions to promote robotic solutions and immersive technology at LEAP 2023

PROVEN SOLUTIONS WILL showcase its technological solutions at this year's LEAP 2023 convention, taking place from 6-9 February in Riyadh, Saudi Arabia. Under the umbrella brand, PROVEN Consult, PROVEN Robotics and PROVEN Reality will all be showcasing their latest VR, AI and Intelligent Process Automation (IPA) technologies, as well as robotics solutions in line with the company's commitment to demonstrate innovations across sectors. Included in the display will be the company's complete line of robots, including Pepper, Nao, temi, Double 3, BellaBot and KettyBot to impress the visitors and complete various tasks in the exhibition centre, all the while promoting its robotics management platform PRoMS.

<https://www.technicalreviewmiddleeast.com/it/software/>

AMANA construct delivers green logistics centre for DB Schenker

THE AMANA CONSTRUCT vertical of Group AMANA has delivered the third phase of the DB Schenker mega logistics centre in Dubai, which will serve as a key distribution hub for the GCC. AMANA completed construction of the enormous 37,000 sq m of green warehouse space utilising 100% renewable energy.

<https://www.technicalreviewmiddleeast.com/logistics/logistics/>



Photo Credit : The AMANA Construct

AMANA also used BIM and MEP services to streamline the construction process and to collaborate through cloud-based and network servers.

CAD Gulf extends into design and manufacturing with Autodesk software

THE CAD GULF Company, an experienced provider of end-to-end CAD software and services in the UAE, has gained wide visibility for its speciality in the AEC industry, and has now extended its expertise into the design and manufacturing industry. CAD Gulf enables architects, engineers and designers to become more proficient in using 3D technologies to design, develop and manage complex engineering projects efficiently and effectively.

The company's Autodesk Certified instructors specialise in running the demos, webinars and technical training in AEC and PD&M segments. Product design and manufacturing collection provides a seamless workflow for the design process, and the tools enable CAD/CAM/CAE operations without shifting to other technologies.

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MARCH 2023

7-9	Middle East Energy	DUBAI	www.middleeast-energy.com
14-18	CONEXPO-CON/AGG	NEVADA	www.conexpoconagg.com

APRIL 2023

17-21	HANNOVER MESSE	HANOVER	www.hannovermesse.de
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MAY 2023

8-10	World Utilities Congress	ABU DHABI	www.worldutilitiescongress.com
24-25	MENA Construction 4.0 Forum	DUBAI	www.construction-forums.com

JUNE 2023

19-21	The Big 5 Construct Egypt	CAIRO	www.thebig5constructegypt.com
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Readers should verify dates and location with sponsoring organisations, as this information is sometimes subject to change.

Construction industry looks ahead to biggest CONEXPO-CON/AGG to date

CONEXPO-CON/AGG, THE LARGEST construction trade show in North America, is aiming to push the construction industry to the next level by helping professionals elevate their expertise, experience the latest equipment on the market and make new connections within the sector.

The show, which is held every three years in Las Vegas, USA, is expected to be the biggest edition to date, having sold all available exhibit space. It will arrive in Las Vegas from 14-18 March 2023.

"The addition of the new West Hall and Diamond Lot at the Las Vegas Convention Centre gave us, and our exhibitors, a number of new opportunities to show how we are taking the construction industry to the next level," commented CONEXPO-CON/AGG show director, Dana Wuesthoff. "Now at 2.8 million square feet of exhibits, there's more for construction pros to see than ever before."

More than 1,800 exhibitors are showcasing their products and solutions at the event which will reportedly be nearly 5% bigger than the record-setting 2020 edition. Included in these ranks are CASE Construction, Caterpillar, Hitachi, SANY, Hyundai Construction



More than 1,800 companies are exhibiting at the trade show.

Equipment, Bobcat, John Deere, Kobelco, Bomag, Komatsu, Liebherr, Sandvik, Terex, BAUER, Bell Equipment, Doka, and CDE.

Supporting this will be 150 education sessions to help attendees discover ideas and create lasting connections within the construction community.

At present, the current pace of attendee registration is nearly double what it was at this time for the 2020 show.

"This is the event that construction professionals, especially those making company-level decisions, and those needing professional development hours, can't miss," said CONEXPO-CON/AGG show chair and Caterpillar senior vice president, Phil Kelliher. "Seeing the new equipment and techniques on a screen doesn't compare to seeing it all in person. At the show, you can see the equipment, ask questions of the manufacturers themselves, and really understand what the equipment and education can do for your career and business."

For more information on CONEXPO-CON/AGG, visit <https://www.conexpoconagg.com>.





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“ This MoU will enable SAL to utilise Menzies’ global capabilities and expertise. It is also aligned with our ambitious vision to become the logistics champion for a globally connected Saudi Arabia. We believe the MoU will result in significant improvements in Saudi’s airport services, increasing capacity and enhancing the customer experience and satisfaction, in line with the highest international safety and security standards.”

Photo Credit: Menzies Aviation



FAISAL ALBEDAH

Managing director and CEO

SAL Saudi Logistics Services

(On the MoU between SAL and Menzies to develop a comprehensive study on delivering best in class passenger handling services for low-cost carriers at Saudi Arabia airports)

“ We are pleased with Emerson’s investment in SPARK and their trust in our ecosystem’s unique value proposition. Our partnership with Emerson is another step in our commitment to championing the localisation of the value creation through dedicated industrial development that contributes to the local GDP, generates job opportunities, and supports socioeconomic advancement in the Kingdom. With a city that was master planned to seamlessly intertwine industrial areas with vibrant residential, educational, and commercial areas, we look forward to being the pre-eminent integrated global energy and industrial hub in the region and beyond.”

NABIL CHAACHOU

Vice president strategy & business development

King Salman Energy Park (SPARK)

(On Emerson building a manufacturing hub at the King Salman Energy Park in Saudi Arabia)

“ In line with the directives of the UAE’s wise leadership, ADNOC is creating long-term domestic manufacturing opportunities from our procurement pipeline to enhance the UAE’s industrial base and strengthen the resilience of our supply chains as we make today’s energy cleaner and invest in the clean energies of the future. These agreements reinforce our role as a critical engine for the UAE’s industrial growth and they offer significant potential to further increase our GDP contributions, stimulate economic diversification and create more skilled job opportunities for UAE Nationals.”

SALEH AL HASHIMI

Director, commercial & in-country value directorate

ADNOC

“ Our entry to Dubai is a milestone moment for Aldar, and we are excited about our long-term growth potential in the emirate alongside Dubai Holding, a prominent and strategic partner. We will also continue to explore further expansion and investment opportunities in Dubai, reflecting our belief in the market’s maturing real estate fundamentals and our confidence in its status as a growing and lucrative market, where long-term demand from end-users and investors is well supported by a diversified economy, proactive government policy, and population growth.”

TALAL AL DHIYEBI

Group CEO

Aldar Properties

“ A Whole New World with Deloitte is the overarching theme we chose for our participation at LEAP23, as it reflects the transformational impact our services are having, including here in the Kingdom.”

MUTASEM DAJANI

CEO

Deloitte Middle East

“ Whether it’s improving women farmers’ access to finance or encouraging women in the renewable energy sector, empowering women to lead climate adaptation will benefit all of society.”

LAMYA FAWWAZ

Executive director of brand and strategic initiatives

Masdar

“ Having achieved record revenue results in the first half of 2022, the focus for Etihad Cargo was building on this momentum to ensure the carrier continued to meet customers’ capacity demands with agility. Exceeding OTP and DAP targets, which measure the carrier’s ability to deliver cargo at the agreed time and the punctuality of its freighter fleet against schedule, demonstrates Etihad Cargo’s strong commitment to reliability, building trust and being the air cargo partner of choice.”

MARTIN DREW

Senior vice president – global sales & cargo

Etihad Aviation Group

“ Reducing humanity’s burden on the environment while further improving global living standards requires us to maximise the use of the resources we have, and that means thinking of all waste as potentially valuable feedstock. With our partners in other industries, we have made great progress at EGA in developing a circular economy in the UAE and I am confident we will make further progress in the years ahead.”

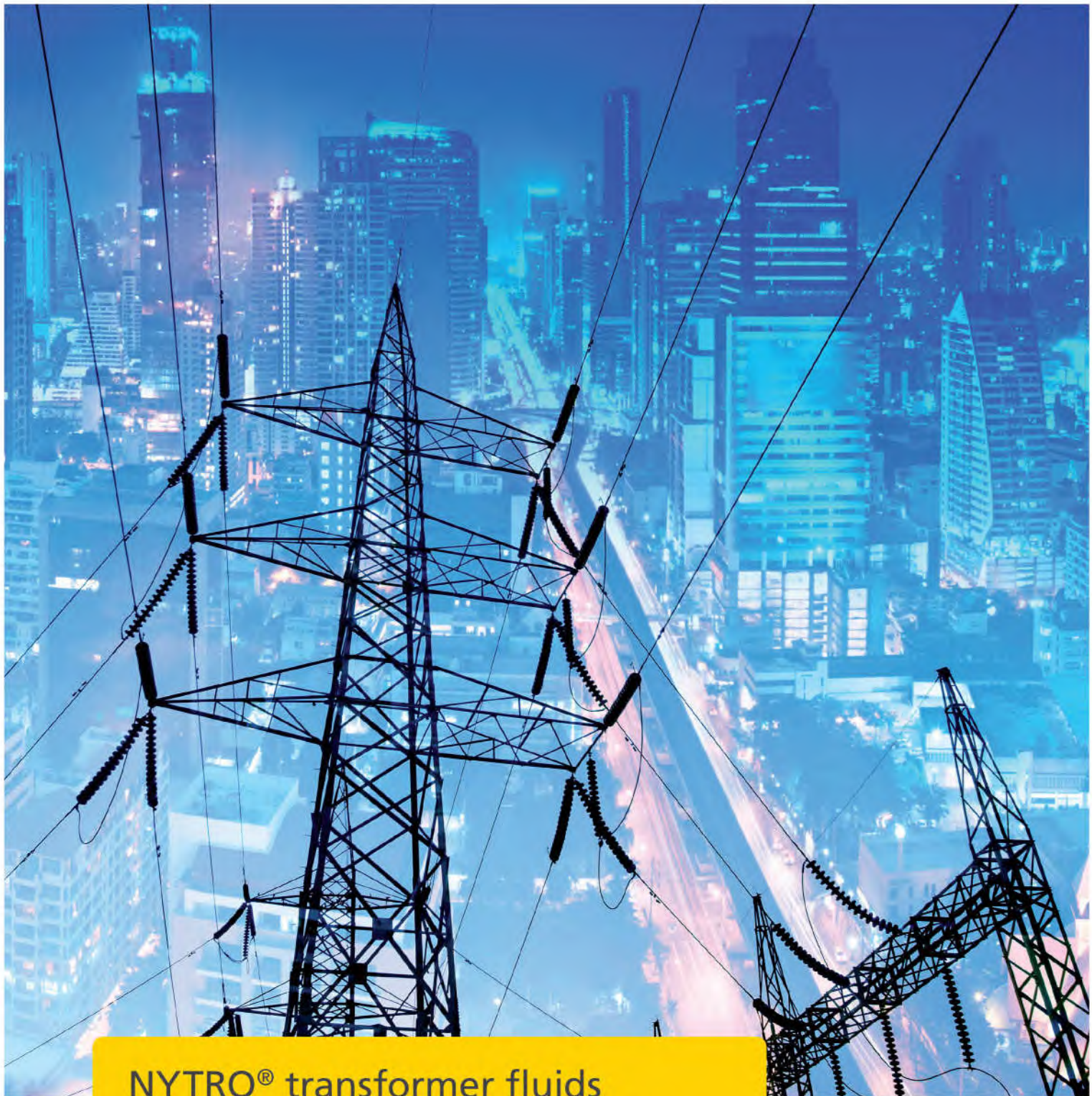


Photo Credit: Emirates Global Aluminium

ABDUNASSER BIN KALBAN

CEO

Emirates Global Aluminium



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After a turbulent year for many, the GCC remained resilient in the face of adverse circumstances.

GCC region 'bright spot' amid global stagflation headwinds

The Gulf Cooperation Council bloc enters 2023 from a position of strength, despite at least a third of the world's population expected to experience recessions, according to the International Monetary Fund. Moin Siddiqi, economist, reports.

The GCC will again outperform many advanced, emerging and developing economies in GDP growth.

Bretton Woods Institutions

WHILE 2022 WAS a 'turbulent year' marked by geopolitical tensions, Europe's energy crisis, continued supply chain disruptions and financial market volatility, the GCC proved resilient by recording the strongest expansion in almost a decade, underpinned by a double-digit increase in oil production and brisk non-oil sector activity as domestic demand rebounded from pandemic-related contractions in 2020.

The region continues to be driven by bumper hydrocarbon receipts; robust investment spending; macroprudential policies, active transformation programmes; solid logistic capabilities; robust local demand; and increased intra-regional trade flows – especially with Saudi Arabia. Tourism and travel recovered strongly, supporting growth across a range of other

services industry. The post-COVID-19 recovery in GCC has been led by the non-oil private sector, with this confidence and regional resilience shared by the credit rating agencies reflected in upgrades for GCC sovereigns and prime corporates.

Bucking the global downturn

The 2023 outlook may not compare to last year's stellar growth. OPEC+ policy has weakened prospects for the oil sector, while sombre global conditions and tighter domestic financing costs weigh on the non-oil economy.

That said, the GCC will again outperform many advanced, emerging, and developing economies (excepting India and China) in GDP growth and moderating inflation, while recording strong 'twin' surpluses (fiscal and external), according to Bretton Woods Institutions.

However, business spending and aggregate demand will be affected by higher interest rates and slower global trade at a time when the GCC bloc is seeking new investment to diversify their non-oil economies. High oil prices will ensure generous fiscal support, thus cushioning regional slowdown.

“The outlook for 2023 is more cautious, given the weaker external environment, although the GCC will likely continue to outperform many developed economies in terms of GDP growth. While oil and gas output growth is expected to slow down this year, continued investment to boost production capacity in the region should see the sector contribute positively to headline GDP again in 2023,” outlined Emirates NBD Research.

GCC policy rates, as a function of their US dollar-pegged currencies, are likely to peak in H2 2023 in line with the Federal Reserve monetary policy. Yet, inflation-adjusted interest rates remain positive in the GCC despite regionwide monetary tightening over the past year in marked contrast to other regions.

The resurgence of the non-oil economy, where Purchasing Managers’ Indices (PMI’s) remained well in expansion territory, will continue into 2023. Overall, the Gulf’s financial sectors remain healthy and able to support non-oil businesses. Banks’ capital adequacy ratios are well above regulatory requirements with non-performing loans (NPLs) to total loans ratios reportedly around 4% on average and provisioning near or exceeding 100% (IMF data).

However, the GCC is not insulated from externalities such as the oil price slump, tighter than expected financial conditions and/or further global supply chain constraints (exacerbated by the Russia war in Ukraine), which can affect imports of capital equipment, thus hampering diversification and investment strategies.

Drive towards greater diversification

Longer-term structural transformation is pivotal to the economic evolution of the GCC. Strong oil prices, coupled with planned investments and structural reforms, would further stimulate non-oil activity.

“Preserving and continuously enhancing competitiveness remains critical for diversification and investment, especially in the context of a global transition to lower carbon-intensive economies,” said the IMF.

The GCC governments have taken steps to attract foreign direct investment (FDI) by improving regulatory/legal environment,

GCC: selected macroeconomic indicators

	2020	2021	Est. 2022	Proj. 2023
Real GDP Growth (annual % chg)	-4.5	3.1	6.9	3.7
Non-hydrocarbons	-3.6	4.5	4.0	3.7
Consumer Price Inflation, (average %)	1.2	2.2	3.6	2.6
Government Fiscal Balance (% GDP)	-8.9	-0.6	7.3	6.0
Current Account Balance (% GDP)	-1.2	8.2	16.7	13.7
International comparison (% chg)				
World Growth	-3.2	5.9	2.9	1.7
Advanced Economies	-4.3	5.3	2.5	0.5
Emerging Markets & Developing Economies	-1.5	6.7	3.4	3.4
World Trade Volume	-8.2	10.6	4.0	1.6
Oil price (Brent spot) US\$/barrel	40.8	70.9	100.9	83.1

The World Bank expects 2023 to be the weakest year for global growth since 2009 aside from 2020. However, GCC outlook remains benign.

Sources: World Bank January 2023 Global Economic Prospects, IMF staff calculations and U.S. Energy Information Administration.

The GCC is expected to once again outperform many global economies in terms of GDP growth.

The GCC is expected to outperform G-7 nations in 2023

Real GDP, annual % chg			
U.S.	1.4	Saudi Arabia	3.7
Germany	0.1	UAE	4.2
Japan	1.8	Qatar	3.4
France	0.7	Kuwait	2.6
U.K.	-0.6	Oman	4.1
Canada	1.5	Bahrain	3.2
Italy	0.6		

Sources: IMF, World Economic Outlook January 2023 and World Bank.

aligning business procedures with global standards, and reducing costs associated with setting up a business in their respective markets.

National development strategies signal commitments to diversify economic bases. Advanced and industrial manufacturing are a core part of these strategies. The UAE’s industrial strategy, ‘Operation 300 billion’ aims to double the industrial sector’s contribution to the GDP from AED133bn (approximately US\$32bn) to AED300bn (approximately US\$82.5bn) and increase non-oil exports to AED800bn (approximately US\$118bn) from current levels by 2031. Qatar’s third National Development Strategy, currently under planning, will likely redouble diversification efforts.

Similarly, tourism features prominently in

most national visions. Saudi Arabia is investing heavily in non-religious tourism in order to increase GDP share of this sector to 10% by 2030. Similarly, the UAE Tourism Strategy 2031 aims to raise the contribution of tourism to economic output to AED450bn (approximately US\$122.5bn) by attracting 40 million hotel guests.

Stephen Anderson, partner at Middle East Strategy and Markets Leader PwC, added, “The GCC countries are working to maintain the momentum for the non-oil economy through concerted policy interventions and investments. National visions and economic and development strategies in Qatar, the UAE, Saudi Arabia, and Oman are excellent examples of the GCC countries’ efforts to increase the economic contribution of non-oil sectors such as tourism, exports, the industrial sector, and the green economy.”

Despite the likelihood of stronger energy market, GCC governments are intensifying efforts to diversify their economies and eventually ‘decouple’ growth from oil prices. Governments are also saving a large share of hydrocarbon windfalls – thus avoiding past procyclical patterns (i.e., boom & bust cycle). The IMF said GCC countries are expected, on average, to save about one-third of oil revenues – hence boosting future financial buffers.

Longer-term structural transformation is pivotal to the economic evolution of the GCC.

Middle East powerhouse

The region is probably the fastest-growing economic bloc in the world. The IMF estimates US\$1.4tn in oil and gas windfalls will flow into the GCC over the next five years. These will further boost coffers of the region's sovereign wealth funds (SWFs), which already account for 40% of the US\$5.5tn in assets held by SWFs globally. Combined portfolios of GCC's SWFs, notably, Kuwait Investment Authority, Abu Dhabi Investment Authority, Public Investment Fund (Saudi Arabia), Qatar Investment Authority and Investment Corp; of Dubai are put at US\$2.2tn – exceeding 100% of the region's GDP.

It is estimated that around US\$4.3tn of large-scale infrastructure projects are planned or are underway across the Middle East & North Africa (led by GCC).

Automating pricing procedures from data collection and competitor analysis can produce customised pricing recommendations.”



Photo Credit : Adobe Stock

US\$1.4tn in oil and gas windfalls is estimated to flow into the GCC over the next five years.

GCC Primary Energy Consumption by Fuel*

	Exajoules
Kuwait	1.74
Oman	1.50
Qatar	1.93
Saudi Arabia	10.82
UAE	4.53
Middle East & North Africa (total)	45.05

*Energy mix comprises almost entirely of crude oil and natural gas, with a negligible share of coal, nuclear power, hydro-electricity and renewables.

Source: bp Statistical Review of World Energy, June 2022.

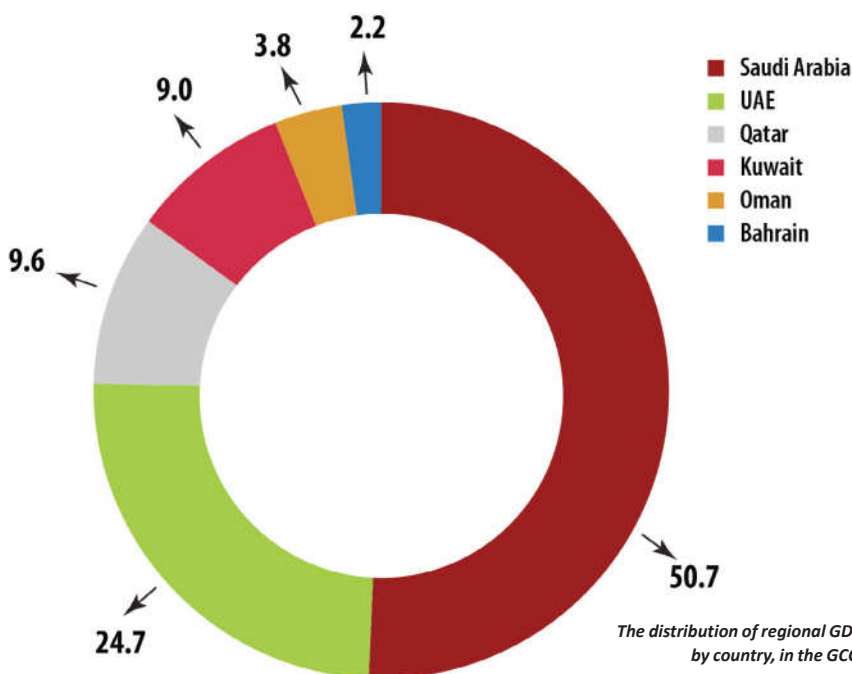
Productive-enhancing investments in power and energy, transport as well as real estate and social services will create a lucrative environment for international business and trade in coming years. ■

Purchasing Power Parity, Gross National Income (per capita)

	US\$ 2021
Bahrain	40,730
Kuwait	59,040
Oman	28,850
Qatar	92,080
Saudi Arabia	47,700
UAE	66,680

World Bank Development Indicators 2022.

Distribution of regional GDP by country, 2022



Source: Statista database company.

Photo Credit : Adobe Stock

Fact File on GCC-bloc

Gross Domestic Product (US\$bn), 2022: Bahrain (42.0); Kuwait (183.57); Oman (77.0); Qatar (195.0); Saudi Arabia (1029); UAE (501.0).

Population (2022, mn). Bahrain (1.55); Kuwait (4.89); Oman (4.77); Qatar (2.61); Saudi Arabia (35.8); UAE (10.75).

Sovereign Credit Rating (Standard & Poor's): Bahrain (B+); Kuwait (A+); Oman (BB); Qatar (AA); Saudi Arabia (A-); UAE (AA).

FDI Inward Stock, net (US\$m), 2021: Bahrain (33,471); Kuwait (14,799); Oman (40,814); Qatar (27,534); Saudi Arabia (261,061); UAE (171,563).

Emerging-Market Logistics Index, 2022 (1-50 countries): UAE (3); Saudi Arabia (6); Qatar (7); Oman (14); Bahrain (15); Kuwait (17).

The 2022 Institute for Management Development (IMD) World Competitive Ranking (1-63 countries) – based on economic performance, government & business efficiency, and infrastructure quality: UAE (12); Qatar (18); Saudi Arabia (24); Bahrain (30).

GCC Oil Production (2022): 19.66mn bpd, equivalent to 20% of world's total.

GCC Natural Gas Output (2021): 370.7bn cu m, equivalent to 9% of world's total.

Proved Hydrocarbons Reserves (2021): Oil (527.4bn barrels) and Natural Gas (1379.1 trillion cu ft), representing 30.4% and 20.7%, respectively, of global total.

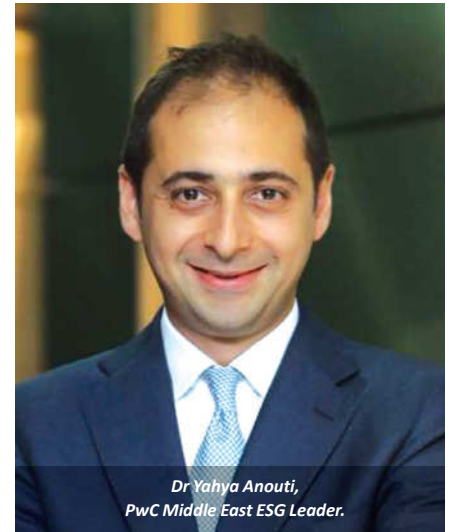
The hydrocarbons industry on average constitutes one-third of regional GDP and generates more than half of fiscal and export receipts.

Sources: World Bank, IMF, UNCTAD, OPEC, BP, and Statista.

MOIN SIDDIQI, economist

The Middle East's evolving role in tackling climate change

Dr Yahya Anouti, PwC Middle East ESG Leader, discusses the potential for the region to assume a leadership role in climate technologies.



Dr Yahya Anouti,
PwC Middle East ESG Leader.

Photo Credit: PwC

Technical Review Middle East (TRME): To what extent is tackling climate change a focus for the Middle East? And what progress has the region made so far?

Dr Yahya Anouti (YA): A number of countries in the region have taken major steps to reach their climate change goals, with a focus on pioneering technologies. A few days prior to COP27, Saudi Aramco unveiled a US\$1.5bn sustainability fund that would invest in the technology required to facilitate the transition to green energy. The UAE also signed a US\$100bn strategic agreement with the United States in clean energy projects, focusing on investing in reliable and responsible supply chains and encouraging investment in green mining. This was a significant development as the country prepares to host COP28. Other significant announcements in the region included the UAE-based Mashreq Bank's plan to increase its sustainable financing to US\$30 mn by 2030 and the Arab Coordination Group's promise to provide at least US\$24 bn in climate finance by 2030 alongside the OPEC Fund for International Development, which coordinates climate finance.

With targeted investment, the Middle East will be able to assume global leadership in a number of climate tech domains where it now enjoys a competitive advantage.

First of all, Middle Eastern nations can take advantage of their natural resources by building sustainable hydrogen and solar power plants thanks to differentiated availability of land. The cost of producing solar based electricity, and green hydrogen in the Gulf is significantly competitive due to the fact that the region enjoys some of the highest solar voltaic output in the world. Both the UAE and Saudi Arabia have made solar energy cost competitive as a result, and renewables have become an important

regional investment focus.

At the same time, sovereign wealth funds are in a position to support a significant push into climate tech innovation locally as well as globally, at a time when the global economy is in a phase of slowing growth. Add to the aforementioned, the fact that the region is investing largely in new industrial zones that are set to be sustainable and circular. The region can easily pivot its capabilities in the chemicals sector towards the hydrogen economy, and direct its youth towards STEM education in related fields.

Despite the plummeting of the overall venture funding for climate tech start-ups by US\$52bn over the first three quarters of 2022, our analysis reveals an increasing desire for investment in the Middle East. However, broader tech investment trends in the Middle East also follow the global trend: after sharp increases in overall tech funding over the past few years that continued into the first half of 2022, the investment momentum slowed in the second half of the year.

TRME: What areas offer the most promising opportunities to take a leading role in developing innovative solutions?

YA: The region has the right to win in six climate tech areas:

1. Green fuels: green hydrogen and synthetic fuels
2. Green industries (e.g. heavy industries – steel, aluminum, titanium; and consumer centric products – sustainable fashion)
3. Climate resilient agri tech (precision fermentation)
4. Decarbonising the built environment with circular economy (e.g. plastic recycling, construction waste recycling, energy recovery from waste)
5. Direct carbon capture from air
6. Nature-based solutions for arid

environment (e.g. mangroves plantation, high carbon capture trees with low water intensity, blue economy concept on the Red Sea side).

TRME: What factors will need to be leveraged for the region to successfully play a leadership role in climate tech?

YA: Success requires a holistic and mission-oriented or moonshot approach:

- **Connect the dots between sovereign wealth funds, government programmes, and national champion plans**
- **De-risk through longitudinal collaborations:** creating off-take markets for local innovations, by connecting green product end-consumers such as airlines or shipping companies for synthetic fuels with the green fuel supplier, supply-chain innovators including electrolyser manufacturers, and carbon feedstock providers, where relevant.
- **Make climate tech a major R&D priority**
- **Pivot existing capabilities:** GCC countries could leverage their expertise as global leaders in oil and gas to develop other, capital-intensive, and geological complex green energies, including geothermal energy and carbon air capture and sequestration. The region's capabilities and knowhow in petrochemicals could likewise be critical to develop synthetic fuel production and the hydrogen economy.
- **Create an enabling ecosystem:** new approaches could be tried and tested in a careful but encouraging environment
- **Galvanise the younger generation:** That will require a focus on education, to ensure that climate science and its ramifications become part of the core curriculum. Employers can also help unleash youthful energy. ■

Liebherr wheel loaders to meet global challenges

Liebherr has launched three new wheel loaders, tailored to markets outside of Europe and North America.

SINCE 2010, LIEBHERR has been offering a series of wheel loaders tailored to markets outside of Europe and North America. Now Liebherr is modernising the three largest wheel loaders in this series with the new L 550, L 566 and L 580 models.

Liebherr has developed the three new models at the Bischofshofen plant, its long-standing centre of excellence for wheel loaders. Decades of experience in designing wheel loaders was one of the keys to success in the development process. "We also analysed our international customers' demanding wheel loader operations over a long period. This included observing different mining operations around the world, some in Africa and South America, coal handling in India and timber work in several countries. Our customers' experiences were crucial to the development of the new wheel loader series," explains Wolfgang Rottensteiner, who is responsible for sales of the wheel loader series at Liebherr-Werk Bischofshofen GmbH.

Performance increases

The new L 550, L 566 and L 580 wheel loaders feature the proven hydrostatic Liebherr travel drive, which is renowned for its great efficiency. Thanks to increases in engine power – approximately 17% for the L 550 – the travel drive is even more powerful while maintaining the same low fuel consumption. This is advantageous when accelerating or penetrating material and lowers fleet fuel costs.

Liebherr has installed the diesel engine in the rear, where it also acts as a counterweight thereby increasing the tip load for the wheel loaders.

Liebherr has three lift arm versions on offer for the new models. Firstly, the z-bar kinematics, which come to the fore particularly in the lower lifting range and for the break-out force. Secondly, the industrial kinematics, which have been designed for working with heavy working tools such as high dump buckets and log grapples. Finally there are the High Lift arms – an extended version of the z-bar kinematics with the longest lift arms in this wheel loader segment. These ensure greater reach and more productive loading procedures at great heights.

The working hydraulics of the wheel loaders are now characterised by larger components and new electrohydraulic pilot control. This technology also ensures responsive movements of the lift arms, independent of the size or weight of the working tool. Liebherr also offers a new, optional weighing device on the bases of the electrohydraulic pilot control. The assistance system works automatically as a check scale and provides real time information about the loading procedure. This data helps machine operators to



A Liebherr L 550 wheel loader from the new series feeding a mobile crushing plant.

Photo Credit : Liebherr

precisely fill dumpers, lorries and railway wagons with the specified quantities and to avoid overfilling.

Increased safety

The electrohydraulic pilot control enables operators to perform individual adjustments on the new wheel loaders. For example, they can set lift limitations and maximum tilt-out heights, thus reducing the risk of accidents in areas where space is restricted. The tilt-out speed can also be programmed to protect lift arm components and the installed equipment.

In addition to these optimisations for operating safety, Liebherr has also invested in the operational reliability of the new wheel loaders. Because they are faced with an abundance of challenges such as remote operating areas, extreme climates, demanding loading materials and multi-shift operation over a long period demand a high degree of reliability. For this reason, Liebherr has installed larger axles than were fitted on predecessor models. When maintenance and servicing are required, Liebherr supports its customers with a global sales and service network.

Comfort and functionality

The modern design of the new L 550, L 566 and L 580 wheel loaders has particular functional advantages in addition to the bold look. The clean lines on the rear as well as the large glass surfaces in the cab facilitate good all-round visibility. Furthermore, the new reversing camera, which is installed in a protected position in the engine bonnet, assists the machine operator to keep an eye on the area to the rear. Numerous details that have been seamlessly integrated in the wheel loaders' exterior design make service work easier.

A sturdy cab access leads to the redesigned and spacious operator's cab. One of the special features of the cab is the height-adjustable 9-inch touch display with intuitive menu navigation. The high-resolution display provides a clear overview of all the wheel loader's operating information. The Liebherr control lever enables the highly-sensitive control of work movements as part of the modern operating concept. Hydraulic working tools, such as the log grapple, can also be precisely controlled with the optional mini joystick on the control lever. The new electrohydraulic pilot control also makes an important contribution here. Large window surfaces and well-thought out storage areas complete the modern cab design. ■



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How Rokbak haulers help to save money

With the current economic situation, it's more important than ever to reduce costs and achieve the lowest total cost of ownership possible. Rokbak's senior product manager, Scott Pollock, explains how the company is helping customers achieve this.

A fuel-efficient drivetrain

Rokbak's fuel-efficient drivetrains deliver powerful performance and meet worldwide emission standards with low cost of operation and low environmental impact.

Fuel consumption is the biggest cost of operating a machine. The Rokbak RA30 and RA40 EU Stage V engines produce a fuel consumption saving of up to 7%, when compared to the previous EU Stage IV engines. This means lower operating costs and less impact on the environment. The RA30 EPA Tier 4 Final machines also achieved a fuel saving of up to 5% when the latest eight-speed transmission was introduced.

The aspirated air engine filter

An important feature towards increasing productivity and reliability for the customer is the engine air intake filter. Within the dry-type, 2-stage aspirated air cleaner, this small suction draws out major contaminants, extending the time between maintenance intervals, lowering total cost of ownership and potentially increasing machine life cycle.

Data-driven savings

Rokbak's Haul Track telematics system helps machine owners to reduce total cost of ownership (TCO) by keeping an eye on everything from fuel consumption and machine usage to issues that, if neglected, could lead to repairs or unplanned downtime.

The system enables you to remotely monitor your machine to manage performance, plan preventative maintenance, proactively control production and track the condition of your hauler. By taking a deep dive into a variety of software parameters – such as travel speed, fuel consumption, temperatures and pressures – owners can look for patterns and identify improvement areas that can reduce TCO.

Haul Track connects to the onboard weighing (OBW) system, so any under or overloading can be easily identified and used to help educate operators in correct machine usage. 2022 saw the re-introduction of improved fault alerts, with improved maintenance alerts being reintroduced shortly. These not only notify the dealer of upcoming service intervals, but also provide a list of required parts for that specific task – enabling faster servicing and greater machine uptime.

Lengthened maintenance intervals

Both Rokbak articulated haulers are installed with hydraulic system magnetic suction filters, which reduce the risk of contaminants entering the hydraulic system, saving on disposable maintenance materials and maximising productive uptime through cleaner systems and prolonged component life.

The RA30 and RA40 both adopt modern hydraulic fluids that



Rokbak's senior product manager, Scott Pollock.

Photo Credit : Rokbak

maximise time between maintenance periods to 4,000 hours. The RA40's transmission has high-performance fluid and up to 6,000 hours between service intervals, while the RA30's long-life transmission fluid supports 4,000 hours between oil maintenance intervals. As a result, customers can achieve increased productivity and uptime, as well as low cost per tonne.

Operator comfort = operator productivity

Rokbak has created the ideal ergonomic environment for the articulated hauler operator to work within. Operators can have a huge influence on TCO. A happy operator is a productive operator, and the more your machines move the more you earn.

Spacious, pressurised cabs have been designed to avoid fatigue and be highly comfortable – with low noise, an active air suspension operator's seat with adjustable arm rests, cushioned steering, and high-capacity heating and air-conditioning.

The RA30 is equipped with true independent front suspension as standard, further enhancing operator comfort and enabling excellent traction control and maximum productivity, even in challenging conditions. ■

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Middle East Energy

to unpack MEA's challenges and opportunities

Middle East Energy, the exhibition and conference powerhouse, is set for the biggest showing in its 48-year history when it opens at the Dubai World Trade Centre from 7-9 March 2023.

FOR THE FIRST time, the event will host a strategic conference, the only high-level forum exclusively focused on unpacking today's complex opportunities and challenges for senior energy and utilities decision-makers in the Middle East and Africa (MEA).

The conference, themed 'Powering The Energy Transition' has been launched by Middle East Energy organiser, Informa Markets, as energy leaders look for fresh insights into enabling sector transition, efficiency, supply resilience and sustainability.

"For almost 50 years, Middle East Energy has brought together global buyers and sellers who have advanced the sector, but the 2023 event comes at a pivotal time in the industry's evolution as worldwide energy challenges impact economic and social performance, fuelling intense governmental and consumer pressure to find solutions," explained Azzan Mohammed, Informa's exhibition director, Energy portfolio – MEA.

Over the event's three days, the Strategic Conference will delve into the planning and policies that will drive MEA's future energy outlook and examine ways of decarbonising the energy and utilities sectors, and drive industry-wide digitalisation and innovation.

Unprecedented challenges such as a growing demand hydrogen, and need for investment and collaboration to tackle carbon emissions has boosted interest in the event – more than 20,000 energy professionals are now forecast to attend. Over 800 exhibitors from 170 countries are so far confirmed for the exhibition's five dedicated product sectors of backup generators and critical power, transmission and distribution, energy conservation and management, smart solutions as well as renewables and clean energy.

"Registrations are pouring in, and all the signs are for a record turnout," added Mohammed. "And with companies looking to invest in alternative and technology-led solutions, we also envisage the show beating the onsite business deals tally of the last show which totalled over US\$705mn."

Alongside the Strategic Conference, the event will also host the Intersolar Middle East Conference, in partnership with Intersolar and Electric Energy Storage, to unearth insights into the transformative global dynamics of renewables. The Forum is designed to be an unrivalled platform for both public and private sectors to explore critical issues, key developments, investment opportunities, and rising energy ecosystem trends.

Technical seminars will explore the practical application of the latest sector research, innovation, and technological advancements empowering stakeholders building, operating, and maintaining



power plants, as well as transmission and distribution grids. Meanwhile, newly introduced CEO Roundtables will see industry leaders engage in peer-to-peer discussions focused on emerging market opportunities in the renewables and critical and backup power sectors, as well as grid investment plans.

Driving business

The 2023 event will also see the return of Middle East Energy's successful Hosted Buyer Programme, which brings key industry stakeholders, investors, and suppliers from across the globe in direct contact with more than 100 direct purchasing authorisers and influencers to explore business opportunities. The programme has a strong track record of business development and has won acclaim from both sides of the buying equation.

Caroline Chema Eric, a public-private partnerships consultant with the World Bank, was hosted at the last event and noted, "The Hosted Buyer programme was incredible, from the preparation and logistics to attend the show and conference. I was looking for contacts as the World Bank is preparing a number of projects in the power sector and my role is to find credible private sector actors for various components from generation to transmission distribution and also product suppliers, and I found them."

Sponsors include Al Fanar, Baudouin, and Ducab at this year's event. ■

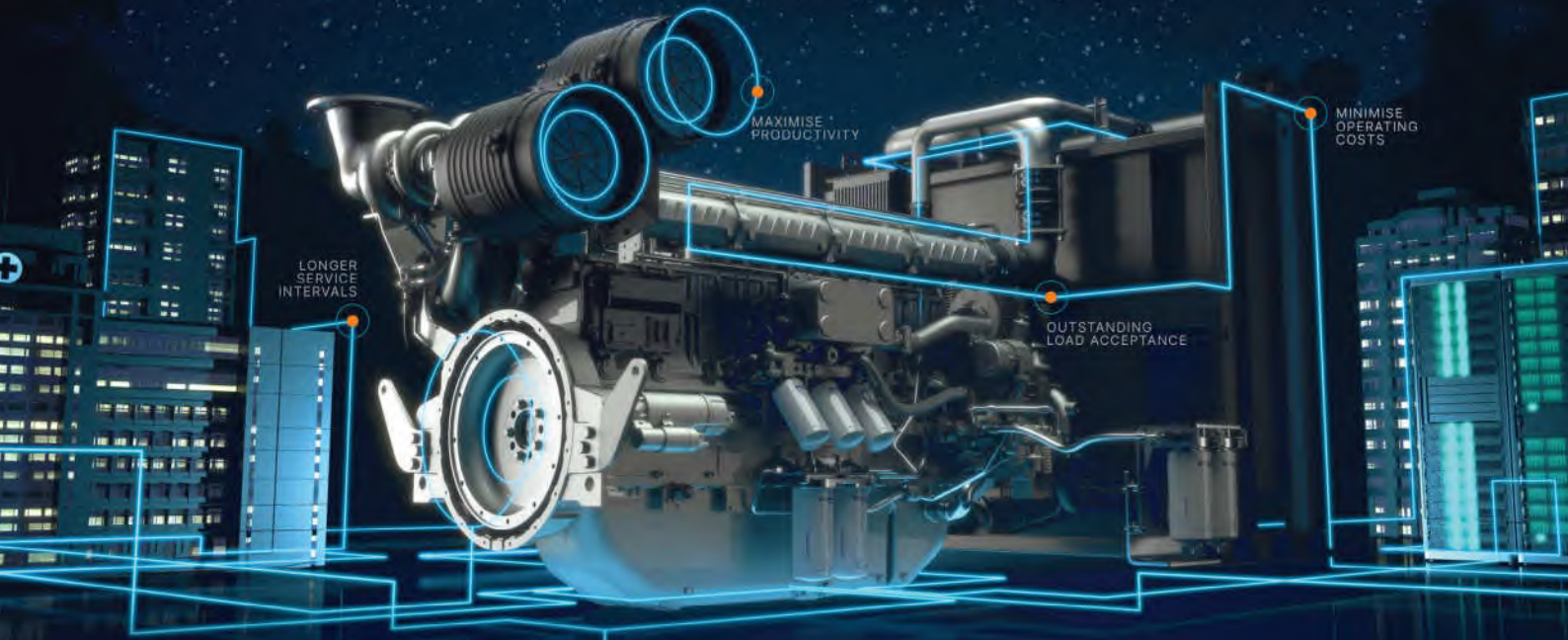
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Perkins' top tips to keep engines running effectively

Experts from Perkins Engines walk through the do's and don'ts of engine maintenance to help users keep their equipment functioning effectively for longer.

IT IS REALLY not that difficult to get the most out of a modern diesel engine, but it does take a bit of planning and effort. Probably the most important thing a user can do is to develop, and then stick to, a preventive maintenance programme that includes daily checks and regular inspections. Things that should be checked every day include:

- Air filter and pre-cleaner condition and emptying the pre-cleaner if necessary
- Cooling system coolant level
- Engine oil level
- Fuel system primary filter
- DEF condition and level
- Drain water from the water separator
- Driven equipment, belts and electrical system.

Then, do a walk-around inspection of the machine, paying special attention to guards and the drive system. Users should also make sure there is plenty of airflow for the cooling system. That is particularly important in hot weather, but also in winter when snow or ice might obstruct intakes.

But, don't be tempted to open access panels or other parts of engine enclosures to 'let in more air'. That can actually make things worse by disrupting the engineered airflow pattern around the engine and cooling system while allowing dirt, dust and other contaminants to more easily reach the engine. There are a few other things that users should not do:

- Don't top off the coolant with plain water
- Don't use expired DEF, or DEF stored more than a year in hot or cold conditions
- Don't put anything but DEF in the DEF tank
- Don't pour cold fuel into a hot fuel tank, it can cause water condensation.

On start-up

Every time the engine is started the operator should look for both visual and operational indicators like excess smoke, power loss, hard starting or overheating. Smoke, for example, can tell you a lot about engine condition and



Photo Credit : Perkins Engines

help identify emerging problems before they become maintenance issues.

Learning to 'read' smoke and paying close attention to any unusual engine behaviours or sounds should be part of every operator's training. While modern diesel engines are robust and reliable, they are mechanical devices that are subject to wear over time. As that happens, they will usually provide signs and signals that a perceptive operator can recognise and report in time to avoid major maintenance issues.

On a regular schedule

Inspections provide a more in-depth look at the engine's health and should be performed on a regular schedule, most typically based on service meter hours. Every Perkins engine comes with a detailed list of checks and inspections and the intervals at which they should be done. These will vary by engine type and operating conditions, so it's best to check the operating manual or contact a Perkins authorised distributor for assistance.

Avoid the engine killers

Dirt is the number one engine killer and filters are the first line of defence. The air filter is particularly important in protecting turbocharger vanes and bearings that are

especially sensitive to dirt damage and costly to repair. That is why the air filter should be checked every day and changed on schedule – or even more often in dusty environments.

Oil and fuel filters also help to keep dirt and other contaminants from damaging precision engine components. They should be checked for leaks or damage during the daily inspection, but more importantly, they should be changed on a regular schedule based on run time, operating conditions and the environment where the engine is used.

Water is another engine killer. It can cause corrosion of precision components, clog filters, damage injectors and even turn to ice in cold conditions. All fuels contain some water in suspension, even with the best storage and handling practices. That is why it is very important to inspect and drain water separators at least once every day and perhaps even more often in cold weather.

Finally, it is a very good idea to use the genuine manufacturer's air, oil and fuel filters that are engineered to meet the needs of an engine by the people who built it. Saving a little on a cheaper filter can cost a lot in the long run. Keeping an engine running efficiently isn't difficult, all it takes is a bit of planning and commitment. ■

For the 34th year running the UK Pavilion at Middle East Energy is hosted by BEAMA the UK association for manufacturers of vital products, technologies and services that deliver a safe, reliable and smart end to end energy system.

This year's Pavilion will host a unique display of UK manufacturers' products and innovations, all that demonstrate the exceptional ability of companies within the UK energy sector. Please make sure you come and meet the experts in Hall 2 to find out more about how UK manufacturers can help you and your business.

Atkore Flexicon H2.F18

Roman Way, Coleshill, Birmingham, B46 1HG, United Kingdom

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Contact: Vera Pokoo

BEAMA represents and works with manufacturers of vital products, technologies and services that deliver a safe, reliable and smart end to end electricity system. As an association, BEAMA represents manufacturers in the energy, power and electrical installation sectors, a UK industry with a turnover of £13 billion and employing 137,000 people.

BPC Energy Limited H2.G10

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www.bpc-ups.com
Contact: Kim Watkinson

The British Power Conversion Company is an international company offering a ground-breaking range of power protection products and services aimed at the Computer, Telecom, Midrange Computer, Data Centre, Emergency Lighting, Industrial and Three Phase sectors of the market. BPC Energy Ltd sells a variety of products & services to suit all applications and are at the forefront of modern power protection technology with expertise in design, development and manufacturing. Come visit us at Stand H2.G10 to view the newest additions to our extensive range of products and discuss how we can assist you with your power protection requirements.

HOBUT (Howard Butler Ltd) H2.G19

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Hobut is a UK manufacturer employing over 100 people. We manufacture current transformers, analogue and digital instrumentation, protection relays, transducers, earth leakage devices and more.

IPEC H2.F12

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Contact: Carl Eastham

IPEC Ltd are experts in On-line Partial Discharge (PD) testing of MV and HV plant. We have world-leading technology for the detection and location of PD in cables, switchgear, GIS and accessories. Our PD test equipment ranges from handheld to permanently installed solutions and is used all around the world.

Marshall-Tufflex Ltd H2.G18

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www.marshall-tufflex.com
Contact: Michael Ballard

Marshall-Tufflex, the UKs leading manufacturer of cable management solutions is partnered with Vivasvaan Industrial Co. to introduce its products to the GCC region. From its factory in Abu Dhabi, Vivasvaan will manufacture conduit plus surface and flush mounted boxes to Marshall-Tufflex's specification and standards meaning customers in the Gulf region can expect the same great quality as they would from their UK manufacturing facility.

REPL International Ltd H2.F19

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Tel: +44 (0)1793 828025
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Contact: Steve Cooper

REPL International Ltd is a global manufacturer of Cable Accessories for low and medium voltage cables. We design and produce joints and terminations of all kinds of jointing technologies: heatshrink, coldshrink and premoulded/push-on. REPL is the leader in Smart Cable Accessories where current and voltage sensors are embedded in our accessories.

Scolmore International Electrical Trading LLC H2.F10

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Silver Fox H2.F11

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Email: sales@silverfox.co.uk
Web: www.silverfox.co.uk
Contact: Dominic Michaelson

Silver Fox is a leading UK manufacturer of innovative time saving, cable, wire and equipment labelling solutions. They have over 20 years of experience, on projects in GCC area. Ongoing, prompt supply and support, is also an important element in their success. This is made possible by a growing network of specialist distributors. If you would like to discuss how the team at Silver Fox can help you with one of your projects or maybe you would like to discuss becoming a distributor, or just want to find out about their solutions generally – you are most welcome to meet the team on their stand.

Terasaki Electric (Europe) Ltd H2.G11

80 Beardmore Way, Clydebank, UK, G81 4HT

Tel: +44 (0)141 941 1980
Email: marketing@terasaki.com
www.terasaki.co.uk
Contact: Jamie Halliday

Terasaki is a world class specialist in innovative circuit protection, control and system products for electrical energy distribution. We supply low-voltage circuit breakers for industrial, marine and commercial building projects. Our products and our people work with safety and protection as their prime purpose.



Connecting the energy landscape

THE LATEST PRODUCT offering that Deep Sea Electronics (DSE) is launching into the MEA market and globally in 2023, is a brand-new range of high-end paralleling controllers for advanced applications, called the G8 Series. This range is the most technologically advanced DSE has ever developed and includes an extensive number of features for complex paralleling installation environments.

The G8 Series has been designed from the ground-up and introduces a completely new look to the DSE controller line-up. A new case front has been added made from black silicone that is ultra-resistant to scratches and on-site contaminants. The front panel mimic has been made digital to provide the user with complete flexibility when configuring installations. The G86xx modules introduce a brand new enhanced 240 x 128-pixel resolution display that delivers outstanding clarity in multiple application environments.

There is also an integral heater that automatically turns on when an external temperature of 0°C or less is detected. This ensures information is clearly presented to operators in extreme environments down to -40°C. The G8 Series introduces brand new load demand scheme functionality, including spinning reserve, calling for more/less sets, spinning reserve and balanced engine hours. For the first time DSE has included a group controller for paralleling applications.

The G8600 Group Controller makes the G8 Series the outstanding choice for sites with multiple generators. 64 group controllers can sit within the same system, each with 63 generators connected, meaning that the G8 Series can handle a maximum of 4,032 generators on the same site. The MSC (multi-set communications) link seen in previous DSE paralleling controllers has been completely re-engineered to deliver premium advanced multi-set communications (AMSC) link technology. This advancement ensures there is no need to break the AMSC link through bus-ties.

The G8 Series identifies the topology by simply setting bus segment numbers within the DSE configuration suite software. The

G8 Series also provides the ability to add 64 controllers to the AMSC link. The G8 Series also offers bus sectioning functionality. This high-level feature allows certain parts of a bus to be separated into multiple sections. When a power failure / fault occurs then sections of the bus can be isolated from the system until it can be safely restored.

Phase-locking has also been added to the G8 Series, allowing generators to be held in sync without having to close a breaker. The breakers can be kept ready to close instantly when instructed. The G8 series also includes a G8680 Bus-Tie Controller that can be used as a load switch controller for controlling essential and non-essential loads. Increased PLC functionality is also a standard feature of the G8 Series, delivering the most sophisticated version of DSE advanced PLC software to date.

At Middle East Energy 2023

The G8 Series is the primary focus for DSE at MEE 2023. We are looking forward to seeing how the industry receives the advancement in technology and getting a clearer understanding of the advanced application environments our customers require products of this type for.

This will be the first year that MOTORTECH, DSE's sister company and part of the Controls & Automation Business Group has been given a dedicated section of the DSE exhibition stand to promote its range of gas engine controllers and accessories. DSE are looking forward to collaborating with MOTORTECH to provide a wide range of solutions for the diesel, hybrid, and gas generator markets. Middle East Energy gives DSE and MOTORTECH the perfect platform to connect with existing and potential customers, attracting companies for all over the world with a strong presence from the Middle East and African territories.

At Middle East Energy 2023, Deep Sea Electronics will be exhibiting at stand S3: C10.



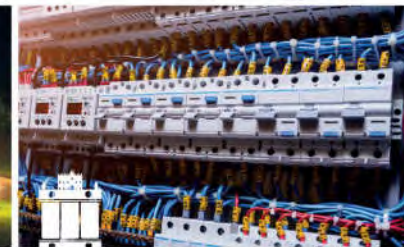
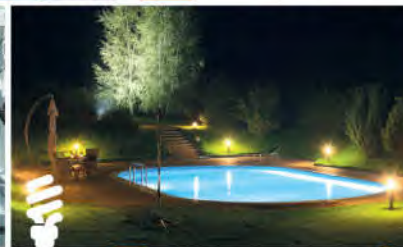
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RII-AEE N°6665

Volvo Penta launches its most powerful genset engine

VOLVO PENTA HAS extended its power generation engine range with the introduction of its most powerful model – the D17.

The 17-litre Volvo Penta TWD1744GE industrial genset engine will help support both the current demands of industrial customers as well as their future business needs. The D17 – together with the rest of the power generation line-up – will evolve to enable customers to transition to significantly lower emissions utilising alternative fuels.

The D17 offers up to 5% less fuel consumption per kWh than D16. This is largely the result of recent evolutions in combustion technology such as the modernisation of the fuel-injection system with a common-rail design. An important new feature – which will also be made available to D16 models – is the option of a viscous fan to further reduce fuel consumption and noise emissions.

Volvo Penta further leveraged its existing power generation platform with the adoption of the D16's inline six-cylinder block as the starting point for the new design, ensuring the D17's basic footprint would remain the same. The company's engineers developed a larger bore engine which thereby enabled the larger volume

“Combining this with its dual-stage turbochargers means the D17 can provide much higher power from a smaller envelope, comparing favorably with larger alternatives, while offering the additional benefit of far more economical operation,” says Kristian Vekas, product manager, Volvo Penta. “To find something with equivalent power density, you'd have to look beyond automotive-based designs – which will likely add further cost implications.”

Be prepared

Designed to power a variety of stand-by and prime-power generator sets, the dual-speed (1500/1800 rpm) D17 is suitable for a wide range of applications, most notably where sufficient back-up electrical power must be available at all times. Like all Volvo Penta genset engines, the new unit therefore complies with the most-stringent ISO8528 G3 standard for load acceptance, a measure of how quickly it can meet power demand in response to a blackout.

“Our customers were instrumental in inspiring the D17's introduction,” adds Kristian. “In addition to wanting extra power to provide more electricity, they were keen for it to retain commonality with the D16 for seamless integration.

The D17 – together with the rest of the power generation line-up – will evolve to penable customers to transition to significantly lower emissions.



Photo Credit: Volvo Penta

Road to net zero

“We've leveraged our D16 platform and capitalized on its real-world use and testing across the Volvo Group,” concludes Hannes Norrgren, president of Volvo Penta Industrial. “We are taking our power generation offer to the next level by extending the range while developing new technologies to achieve net zero value-chain emissions.”

The D17 will be on display for the first time at Volvo Penta's stand S3.B39 at the Middle East Energy (MEE) exhibition in Dubai, from 7-9 March.

Volvo Penta strengthens genset range with new D8 power node

VOLVO PENTA IS introducing a new 200 kVA D8 Stage II, 8-litre power generation engine which offers exceptional power density and a compact size, combined with low fuel consumption and noise levels.

Volvo Penta's new 200 kVA D8 Stage II engine further strengthens the company's robust range of

industrial genset engines and boasts up to a 8% reduction in fuel consumption per kWh, compared to the D7 model it replaces. The

D8 is now available in four power nodes:

200, 253,

303 and 326 kVA at 1,500 rpm (50 Hz) at prime power to meet different application configurations.

“The D8 is based on mature technology concepts that have undergone significant testing and real-world use throughout the Volvo Group,” says Kristian Vekas, product manager at Volvo Penta. “It has been built with a high power to weight ratio, giving it excellent power density and a compact design for its power class. It has been designed for quick, easy and economical installation as well as ease of operation and maintenance.”

Like all Volvo Penta genset engines, the new unit complies with the most-stringent ISO8528 G3 standard for load acceptance, a measure of how quickly it can meet power demand in response to a blackout.

The new D8 200 kVA engine will be on display at Volvo Penta's stand S3.B39 at the Middle East Energy (MEE) exhibition in Dubai, from 7-9 March.

Volvo Penta's new 200 kVA D8 Stage II engine further strengthens the company's robust range of industrial genset engines.

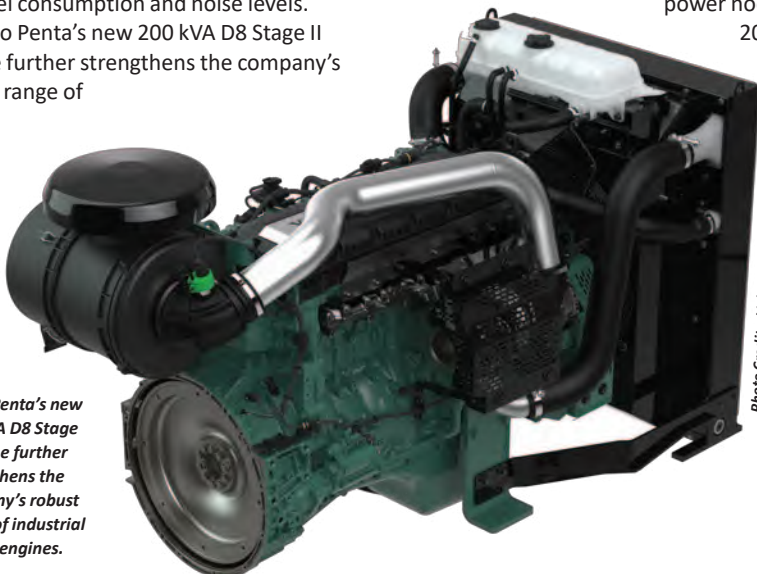


Photo Credit: Volvo Penta

NEW Purpose-built State-of-the-art Medium Voltage Lab in the Middle East is NOW Operational!

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SCAN ME

Volvo Penta to present new power solutions at MEE

VOLVO PENTA IS expanding its genset engine offer and will showcase its new power solutions at the Middle East Energy (MEE) exhibition. The latest releases will support the current demands of industrial customers as well as their future business needs. Volvo Penta is continuously updating its offer to deliver high performing, robust and fuel efficient solutions, while collaborating with customers to meet their needs towards a decarbonized future.

New milestones in power generation

Alongside service offering highlights, the new solutions will take center stage on Volvo Penta's stand S3.B39 at MEE, held at the Dubai International Convention & Exhibition Centre from March 7th-9th. Volvo Penta will be exhibiting together with its partner Al Masood Power Division.

Volvo Penta continues to invest in and evolve its power generation engine offer. The new solutions will be pivotal to new generations of combustion engines set to run on lower-emission renewable fuels, while expanding the company's offer to meet new



Volvo Penta will showcase its new power solutions at the Middle East Energy (MEE) exhibition.

Photo Credit : Volvo Penta

segment demands for energy storage.

Powerful partnerships

As an independent supplier, Volvo Penta provides purpose-built and reliable industrial power generation engines. The company's partnership approach includes collaboration every step of the way, from the design stage to aftermarket service.

Volvo Penta, with approximately 3,500

dealers in over 130 countries, is a world-leading and global manufacturer of engines and complete power systems for boats, vessels and industrial applications. The engine program comprises diesel and gasoline engines with power outputs of between 10 and 1000 hp. Volvo Penta is part of the Volvo Group, one of the world's leading manufacturers of heavy trucks, buses and construction equipment.

Teledyne FLIR set to exhibit Electrical Utility Solutions at MEE 2023

TELEDYNE FLIR WILL be showcasing its Electric Utility Solutions product portfolio at Middle East Energy 2023. Exhibiting at Stand H4.E50, the company will demonstrate energy saving solutions such as the FLIR HD thermal camera with viewfinder, industrial acoustic imaging camera, optical gas imaging camera, and Extech test & measurement solutions for the Utilities industry.

Visitors at the FLIR Teledyne stand can experience new energy solutions and technologies and perfect their own energy strategies. The ground-breaking product on display is the Teledyne FLIR T1020 HD thermal imaging camera. For decades, electrical and mechanical industries worldwide have recognised the importance of predictive maintenance programmes, with thermal imaging cameras playing a significant role in their effective delivery. With an impressive temperature measurement range of -40°C up to 2000°C, up to 3.1MP resolution thermal imaging using FLIR's UltraMax technology and a choice of 3 high-fidelity OSX precision HDIR lenses, the T1020 is a powerful tool for maintaining industrial systems.

FLIR will also showcase the FLIR Si124 industrial acoustic imaging camera. The



The FLIR GF306 optical gas imaging camera.

camera can help detect partial discharge from high-voltage electrical systems up to 10 times faster than traditional methods. Built with 124 microphones, this lightweight, one-handed solution produces a precise acoustic image that visually displays ultrasonic information, even in loud industrial environments. The acoustic image is transposed in real time on top of a digital camera picture, which allows the user to accurately pinpoint the source of the sound.

The Si124-PD features a plug-in that enables users to import acoustic images to FLIR Thermal Studio suite for offline editing, analysis, and advanced report creation. Field analysis and reporting can also be done using

the FLIR acoustic camera viewer cloud service. Through regular maintenance, the FLIR Si124-PD can help facilities save money on utility bills. It is available in additional models which include a cordless battery option: the Si124-LD for leak-detection applications, or the Si124 for both electric utility and leak-detection applications.

The FLIR GF306 optical gas imaging camera visualises sulfur hexafluoride (SF6) and other gas emissions without the need to shut down operations. GF306 inspections are faster than traditional leak detection tools, and capable of detecting SF6, anhydrous ammonia (NH3), and ethylene (C2H4).

T P Singh, senior director of Sales – Instruments in Middle East, said, "Teledyne FLIR designs, develops, manufactures, markets and distributes technologies that enhance perception and awareness. Teledyne FLIR strives to strengthen public safety and well-being, increase energy and time efficiency, and contribute to healthy and intelligent communities. Middle East Energy is a perfect platform to showcase our solutions, which are designed to maximise efficiency, safety and uptime in a multitude of industrial environments."

Photo Credit: Teledyne FLIR

BASEC's cable testing facility comes online

The first Middle East specialised MV laboratory for cable testing.



Photo Credit - BASEC

FOLLOWING A PHASE 2 investment of UK£1.2mn (approximately US\$1.4mn), BASEC, a global leader in product testing and certification services for the cable industry across numerous sectors, has announced that its fully-equipped medium voltage cable testing facility in a new regional lab in Dubai is now fully operational. The new medium voltage testing laboratory will significantly increase BASEC's scope of testing to further complement the recent investments made in solar, EV, data communication and compound analytics testing and support manufacturers in the competitive MV cable market to verify competitive designs and raw materials to ensure that quality is not compromised.

This facility continues BASEC's roadmap in becoming the preferred testing and certification partner to the worldwide cable industry and builds upon other recent investments to add capability, technology, and global reach.

Tony Lioveri, BASEC's CEO, states, "BASEC

has been working in partnership with cable manufacturers for more than 50 years and has a strong brand and heritage of being the mark of quality and safety. Phase 2 investment and extension into medium voltage testing is another milestone in this journey. The Dubai facility is strategically located to support the global market, as seen from the opening of the LV lab in 2021. We continue to push our roadmap to establish BASEC as a worldwide partner delivered through our regional offices of dedicated teams of technical experts and superior customer care. Our goal is to give end users and manufacturers confidence that by using the BASEC mark, they can be assured of guaranteed quality and safety throughout the supply chain. When quality matters, use BASEC."

Akram Abdelwahab, BASEC's group technical manager and medium voltage expert, states, "With the increase in demand for manufacturing higher volumes of MV cable, BASEC MV laboratory will enhance the quality of the MV cable industry by helping

both cable manufacturers and stakeholders. BASEC offers a full testing solution for the MV cable industry by bringing European quality and cable testing speciality to the Middle East. The unique location will make it easier for all cable manufacturers worldwide, especially those in the Middle East, to send their heavy MV cable samples to Dubai; It will save time and money.

BASEC purpose-built the lab to achieve the objective of the highest quality testing in its new MV facility with four earth electrodes to get a low PD sensitivity in the presence of background noise (< 1 pC). Its construction is one of many enhancements to ensure the labs' wiring layout is optimised with power isolation. Improved grounding provides effective noise suppression with market-leading lab equipment to improve its offering.

BASEC is the global leader in product testing and certification services for the cable industry across numerous sectors, including construction, electrical installation and power distribution, rail, marine, oil and gas and renewables. ■

The AG10 line offers excellent cost effectiveness.

Photo Credit: WEG

Bespoke solutions for power generation

This year, WEG will be present at MEE to promote its alternator products for use within diesel power generation.

GLOBAL INDUSTRIAL EQUIPMENT manufacturer, WEG will exhibit at Middle East Energy (MEE) at the Dubai World Trade Centre, from 7-9 March. WEG will showcase its well-established alternator range suited to diesel power generation as well as popular motors and drives.

Returning for its 48th edition, Middle East Energy – formerly Middle East Electricity – is one of the most reputable and long-established events in the energy industry. At the three-day show, WEG will showcase alternators from its AG10 line and G Plus line. WEG's extensive experience in design and manufacturing has resulted in a modern world class product range of alternators that can be engineered to fit the bespoke specifications of a customer's project.

The AG10 line offers an excellent cost effectiveness, simple maintenance concept and great performance when used in continuous, prime power or standby operation. The G Plus line of alternators is also suitable for a wide range of continuous, prime and standby applications. However, it does not stop there, generator engines require cooling and this is done with fans or radiators – ultimately requiring motors and drives. Therefore, WEG will also be showcasing a robust line of motors and variable speed

drives (VSDs) to meet this need.

“Our primary objective at MEE is to promote our alternator products for use within diesel power generation and to engage with generator manufacturers all over the world,” explained Manoj Kakaya, high voltage solutions sales manager for Europe and the Middle East at WEG. “We've experienced rapid growth in the alternator

WEG will also be showcasing a robust line of motors and variable speed drives.

and generator market in Europe and the Middle East. Part of this is attributed to the vertically integrated nature of our business – we manufacture our own varnish, electrical wires, enamelling, frames, laminations, and several other components that are required for alternator manufacture.

“We have also been involved in many prestigious projects such as the Stadius City Hall of Antwerp, in Belgium. WEG was

selected to supply an alternator for the generator in the basement of the Stadhuis – this has been crucial in maintaining a secure power supply for the building.

“We've designed and manufactured high quality alternators at our headquarters in Brazil for years,” continued Kakaya. “In fact, we've manufactured more than 200,000 in our company's history. While this may be surprising to some, we're making a statement that we're serious about the continued growth of our alternator market share within Europe and the Middle East.”

Alongside its own product showcase, WEG products can also be seen incorporated into the gensets of Albanian based FMT Group and Turkey based Starkgen – both of which are also exhibiting at the show.

WEG will be exhibiting at stand S3.B51, at MEE.

Further information about the company's AG10 and G Plus alternator lines can be found on the website.

www.weg.net/institutional/MR/en/all-news/all

Founded in 1961, WEG is a global electric-electronic equipment company, operating mainly in the capital goods sector with solutions in electric machines, automation and paints for several sectors. ■

Rystad Energy forecasts low-carbon investment to rise by US\$60bn in 2023

RESEARCH PUBLISHED BY Rystad Energy has estimated that spending on low-carbon projects will increase by US\$60bn in 2023, spurred on primarily by increased focus on wind; hydrogen; and carbon capture, utilisation and storage (CCUS).

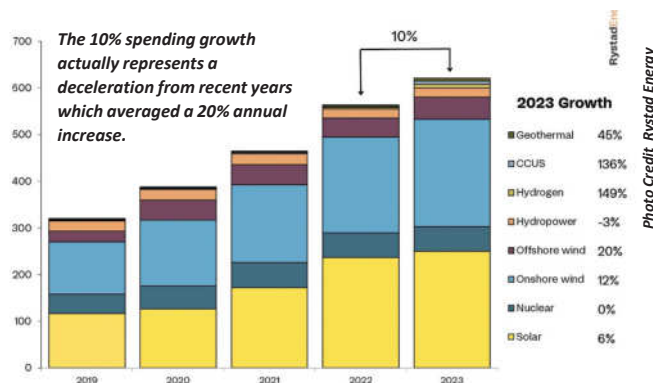
Although this spending is 10% higher than 2022 (a year which saw investments in green sectors overtake oil and gas spending for the first time), this actually represents a deceleration from recent years which averaged a 20% annual increase.

Nevertheless, as inflationary pressure weakens, Rystad expects spending to rebound. Investments in the geothermal, CCUS, hydrogen, hydropower, offshore and onshore wind, nuclear and solar industries are set to hit US\$620bn in 2023, up from about US\$560bn last year.

Solar and wind lead the way

Solar and onshore wind will contribute the most from the low-carbon investment areas with spending on solar investments to total US\$250bn this year, rising only 6% over 2022. However, thanks to the falling cost of polysilicon, the primary cost driver of solar PV cells, capacity growth will be more substantial. Despite a relatively insignificant rise in investment value, installed capacity is expected to grow by roughly 25% to 1,250GW.

Rystad have indicated that spending growth will vary widely across industries. Hydrogen and CCUS are expected to see the most



significant annual increase, growing 149% and 136%, respectively. Total hydrogen spending will approach US\$7.8bn in 2023, while CCUS investments will total about US\$7.4bn. In contrast, the hydropower market is expected to shrink over 2022, while nuclear investments are forecast to stay relatively flat. Audun Martinsen, head of supply chain research with Rystad Energy, commented, "The weaker-than-expected growth is not a reason to panic for those in the low-carbon sector. The outlook for hydrogen and CCUS is especially rosy as technology advances, and the large-scale feasibility of these solutions improves."

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Photo Credit: Linz Electric

Linz Electric alternators are used in a range of industrial settings.

Success through reliability

Alberto Azzolini, sales manager – alternators, Linz Electric discusses the main characteristics of its alternators, the factors contributing to its success and growth prospects in the Middle East.

Technical Review Middle East (TRME): What are the main factors contributing to Linz Electric's successful completion of 20 years in the industry?

Alberto Azzolini (AA): Linz Electric specialises in the design, production and sale of 100% Made-in-Italy alternators. It is part of the Pedrollo Group, a leader in the production of electric pumps. The Group and CEO's industrial vision, with continuous investments in automation and the development of new products, have been the main factors contributing to its success.

For the future, we are expecting to grow even more in the MEA market, thanks to important commercial activities that are underway.

Added to this, the quality and reliability of Linz Electric solutions and the company's customer-centric approach, with the aim of being a part of our customer success, as clearly stated in our mission:

"We produce the best electric rotating machines and the most efficient solutions in energy transformation to successfully impact

ours and our customers' development".

Also, Linz Electric's quickness and reactivity are really important for our partners. The decision chain is short and we are quick and agile in taking strategic decisions.

An important feature of the company is the flexibility guaranteed by a strong vertical integration of production processes – the main product components, including windings, die-cast components, shafts, electronic regulations and inverters are entirely manufactured within its factories.

TRME: How important is the MEA market to the company's growth?

AA: The MEA market is extremely important and in the recent years it has been playing a key role in Linz Electric's growth. For the future, we are expecting to grow even more thanks to important commercial activities that are underway. Every year we are starting new collaborations with OEMs that decide to rely on Linz Electric.

The company will attend the Middle East Energy exhibition in Dubai. You can find us at booth S3.C36.

TRME: Please explain the features characterising the reliability and efficiency of Linz Electric alternators.

AA: Linz Electric alternators are used in areas ranging from assembly on gensets and light towers to integration on special machinery for use in the industrial, agricultural, construction sectors and in

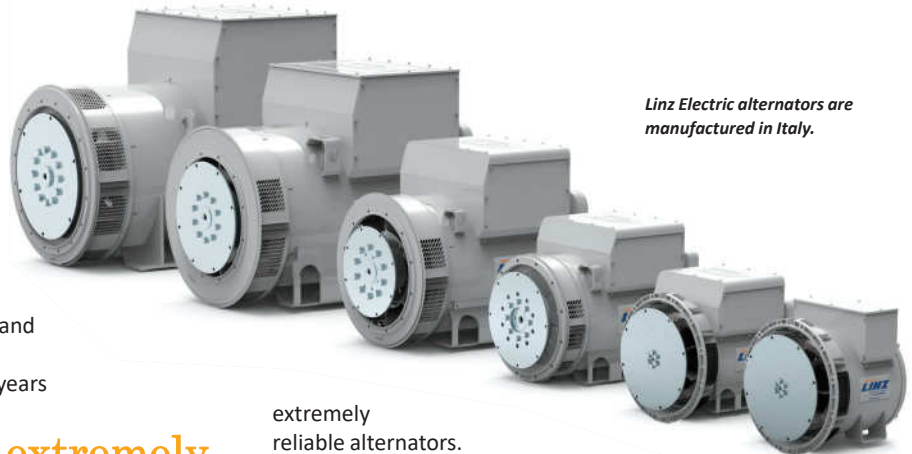
vehicular power units. As part of the ecological transition, Linz Electric alternators perform a back-up and support function in hybrid systems using alternative energy resources and an electricity generation function for wind and hydroelectric power plants. The high efficiency of the proposed solutions also makes them particularly suitable for integration into cogeneration, trigeneration and biomass generation systems.

The portfolio has been designed over the years

The MEA market is extremely important and in the last years it has been playing a key role in Linz Electric's growth.

without compromising quality. So, all the technical decisions were taken to create the most reliable and efficient solutions. Also, all the components used in the manufacturing of alternators come from qualified suppliers that passed strict quality tests.

100% of production is made in Italy, with integrated production chain and large and extensive use of automation, which lead to



Linz Electric alternators are manufactured in Italy.

Photo Credit: Linz Electric

extremely reliable alternators.

Additionally, every alternator that is shipped from our factory is fully tested.

How has the partnership with Mitsubishi proven to be beneficial for Linz Electric?

Being chosen for this partnership with such an important brand is an honor for us, as it proves the overall quality of Linz Electric and Linz Electric's solutions.

Today, joining forces to seize all the opportunities coming from the market is really important and this partnership will provide important and mutual benefits to the both of us. The OEM can take advantage of this collaboration by having just one contact point for engines and alternators. ■

Hydrogen shifting towards low-emissions solutions

A JOINT STUDY conducted by the European patent Office (EPO) and the International Energy Agency (IEA) has indicated hydrogen technology development is shifting towards low-emissions solutions.

The report provides a comprehensive analysis of innovation in all hydrogen technologies – from hydrogen supply to end-use applications – and indicates that innovators are responding to the need for competitive hydrogen supply chains. Technologies motivated by climate concerns accounted for nearly 80% of all patents related to hydrogen production in 2020, with growth driven chiefly by a sharp increase of innovation in electrolysis. The most innovative regions are now competing to host the first industrial roll-out phase, with the data suggesting that Europe is gaining an edge as a location for investment in new electrolyser manufacturing capacity.

The study, which presents the major trends in hydrogen technologies from 2011 to 2020, found that global patenting in hydrogen is led by the EU and Japan (accounting for 28% and 24% respectively of all international patent families) while the US registered 20% of all hydrogen-related patents. Patenting activity in hydrogen remained modest but still on the



Hydrogen production technologies accounted for the largest number of hydrogen patents over the 2011-2020 period.

Photo Credit: Adobe Stock

rise in South Korea and China. Other countries generating large amounts of hydrogen patents include the UK, Switzerland and Canada.

Hydrogen production technologies accounted for the largest number of hydrogen patents over the 2011-2020 period. While global hydrogen production is currently almost entirely fossil-based, the patenting data shows that low-emissions innovations generated more than twice the number of international patents across all segments of the hydrogen value chain than

established technologies.

EPO president, António Campinos, commented, "If hydrogen is to play a major role in reducing CO₂ emissions, innovation is urgently needed across a range of technologies. This report reveals some encouraging transition patterns across countries and industry sectors, including Europe's major contribution to the emergence of new hydrogen technologies. It also highlights the contribution of start-ups to hydrogen innovation, and their reliance on patents to bring their inventions to market."

Applying the 4 Ds of robotisation to mining

Sam Wood, of Navtech Radar, discusses the 4 Ds of robotisation and automation in mining.

INDUSTRY 4.0, IIOT, AI and machine learning are all terms now synonymous with industrial automation. Likewise, commentators have given much thought in recent years around the '4 Ds of robotisation: dull, dirty, dangerous and dear'. In fact, 'difficult' and 'demeaning' have also been thrown into the mix.

Here, Sam Wood, industrial automation product manager for Oxfordshire-based Navtech Radar, argues that industrial automation isn't just about robots picking up the tasks that don't require human reason or decision-making. So dynamic are the technological advancements in mining that radar technology can be deployed to help manage ever more demanding tasks, in turn improving efficiencies, reducing downtime and reducing the risk of injury.

It's taken for granted nowadays that our lives, both in the workplace and at home, have been improved immeasurably through automation. In extreme working environments, industrial automation delivering extraordinary results.

So what are the challenges?

Let's start with those four Ds. Mining environments are invariably dirty, and by their nature dangerous too. Replacing the number of human operators with machine-automated processes and equipment should take us a step closer towards our objective, reducing the field of risk and injury. But it's not as simple as that. Much of the automation in mining happens above ground, with autonomous mining trucks (AMTs) and other plant traversing cluttered and hazardedly dusty terrain.

Where are the technological glitches?

AMTs rely upon data, deploying a multitude of sensors to navigate their terrain, without any human intervention, as they make their way along mine haul roads. Data is processed to calculate set numbers of manoeuvres, such as determining speed of travel around nearby machinery and equipment, all leading to potential decisions needing to be made by onboard software. Likewise, the exact location of each AMT is tracked, with data shared via wireless networks and GPS, working in tandem with onboard obstacle detection and avoidance systems.

It is vital that the sensors deployed are capable of operating at the highest levels of situational awareness, so that every possible hazard is identified at the earliest opportunity.

Radar provides reliable performance even in the most adverse conditions, including rain, fog, dust, and dirt - even when other sensors fail. Moreover, high-resolution, 360°, long-range radar builds a data-rich picture of its surroundings, working far beyond the limits



Photo Credit : Adobe Stock

of a person's line of sight. Radar sees what humans can't, adding that vital extra layer of safety to challenging environments.

Navtech Radar's sensors are fully compatible with the open-source Robotic Operating System (ROS), quick to integrate, and give full access to the radar's raw data. Radar works through extreme sunlight as well as through 'blind spots' where GPS can't, meaning that assets can be tracked in literally all conceivable conditions. Crucially moreover, radar-based solutions can be seamlessly integrated with LiDAR and GPS to deliver multi-sensor fusion applications at mine sites.

So what else might be at play here?

No mine site should have a single point of failure, and the reliance upon implementing just one sensor-based technology for autonomous operation is a huge risk, with the potential for costly downtime, or impacts on personnel safety, as a result.

One of the greatest threats right now to GPS is 'jamming', or 'spoofing', where a frequency-transmitting device can be used to block or interfere with radio communications. Equally, GPS denied environments need redundancy, should there be no line-of-sight, quite often an issue in mining environments because of natural geometry or infrastructure.

To compound this, there is the ever-looming threat of solar excitation events, which can seriously degrade the performance and accuracy of any Global Navigation Satellite System (GNSS). Navtech's radar localisation solution combines radar technology with mapping and localisation software to deliver never-seen-before pinpoint, centimetre-level localisation, even in the harshest conditions and environments. This can also be augmented through multi-experience mapping, combining the radar solution with world-leading autonomous vehicle software to collect the data needed to map any environment in incredible detail.

Back to the 4 Ds

Industrial automation in mining is continually improving processes and production. Yes, the dull, dirty, dangerous, and dear tasks are now being performed autonomously, but progress isn't just about completing these tasks – progress is about being dynamic. Being more dynamic will mean using industrial automation to take us to the next level, to do what humans can't, and to perform tasks that make mining more productive, more cost-effective, and of course more positive in their impact upon both the bottom line as well as the wellbeing and safety of operators. ■



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Gearing up for a smart ecosystem

Metito advocates for multi-layered solutions to address water scarcity.

Technological advancements are emerging to protect the world's most valuable asset.

RAMI GHANDOUR, MANAGING director at Metito, outlines the technologies that enable cost-effective and efficient solutions to address the growing water scarcity issue.

The MENA region is one of the most water-stressed regions in the world given the arid climate, limited freshwater from rivers and lakes, and dwindling non-renewable groundwater reserves. While supply is a challenge, demand is soaring, and likely to rise even further given rapid urbanisation, population growth, industrialisation, and economic development. With the region being abundant in solar energy, there is a massive potential for water projects to be low carbon by incorporating this renewable energy in projects.

To ensure the water scarcity issue is addressed in the most sustainable way possible amidst the climate emergency, there is a pressing need for innovation within the sector. As governments accelerate efforts to achieve water security, we are seeing more investment into water recycling and reuse including wastewater treatment and desalination.

Water recycling and reuse reclaims spent water in industrial and agricultural

processes, treats it, and puts it back into circulation, creating a closed-loop water supply reducing waste and provides a consistent supply of treated water. When designed correctly, it can reduce dependency on fresh and extracted water by more than 90%, slashing carbon emissions.

“We need to continuously rethink the linear urban water model of take, make, consume and waste, by providing a systemic and transformative approach to delivering water supply in a more sustainable, inclusive, efficient, and resilient way. Metito’s work is geared towards pursuing the vision of a smart water ecosystem. Through high-value engineering capabilities, we are integrating intelligent digital technologies, reducing freshwater and energy use, and recovering nutrients and materials – with an aim to be a carbon-free, sustainable hydrological cycle,” said Ghandour.

Metito’s new technology introductions

- Membrane storage tanks: above-ground and underground-engineered geo-membrane storage tanks that are more cost-effective, quicker to implement and more environmentally-friendly compared

to concrete or steel tanks.

- Copper-silver ionisation (CSI): this is the most effective technology for the systemic eradication of bacteria such as legionella in potable water systems, ensuring a high degree of disinfection. The treatment action is attributable to the positively-charged copper and silver ions forming electrostatic bonds with negatively-charged sites on micro-organism cell walls.
- Chip based biomedica: biochip media is used for biological treatment of municipal and industrial wastewater for Moving Bed Biofilm Reactor (MBBR) systems. Due to the light configuration of biochip media, it uses a fine bubble-diffused aeration system which leads to a lower carbon footprint and high efficiency of the system.
- ION and OBI AI software: these are based on artificial intelligence that collects operating data to better plan preventative maintenance, reduce power consumption and ensuring enhanced plant reliability.
- Process modelling and advanced control/optimisation software platforms: provide up-to-date diagnostics to continuously improve a plant’s performance. ■

Photo Credit : Adobe Stock

Egypt's hydrogen hopes

Despite Egypt's gas sector roaring back to life in recent years it is other innovative niches, such as hydrogen, that may offer the greater potential long-term. Martin Clark reports.

EGYPT'S GAS ECONOMY has roared back to life in the past few years, driven by a series of big offshore discoveries in and around the prolific Nile Delta area. This has powered the local economy and also revived exports, including the reboot of the North African country's liquefied natural gas (LNG) facilities.

Eni, bp and other leading firms have poured billions of dollars in investment to unearth and harness Egypt's new-found natural gas deposits. The new year started with a bang as well after Eni and Chevron announced a new offshore find in January with their Nargis-1 well.

It is still only early days in terms of development, but the new find builds on multiple other discoveries in the Eastern Mediterranean in recent years.

The latest wave of investment and excitement was triggered by Eni's discovery of the giant Zohr field back in 2015. The new Nargis-1 well encountered 200 net ft of gas-bearing sandstones and will be developed utilising other facilities and infrastructure nearby, Eni said in a statement, without mentioning any timescale.

Hydrogen hopes

It is more good news for Egypt's gas sector, but officials are looking beyond hydrocarbons too. The government has made it a priority to explore alternative energy sources, in keeping with global plans to reduce carbon emissions, especially after hosting the COP27 climate conference in Sharm el-Sheikh at the end of 2022. Egypt has been proactive in rolling out utility-scale solar and wind farms to complement gas-fired power generation, though attentions are now turning to more advanced energy technologies, including hydrogen.

There appears to be a lot of momentum in this area too, as development finance groups pledged large sums of money and even some of the big oil names showing an interest. At the COP27 summit, Egypt signed eight framework agreements to develop green hydrogen and ammonia projects with a number of well-known industry partners. Green hydrogen is produced by the electrolysis of water, powered by renewable energy. The agreements signed were with companies including AMEA Power, Alfanar, TotalEnergies, Globeleq, EDF, Fortescue Future Industries, ReNew and Scatec, and are mainly concentrated around the Red Sea port of Ain Sokhna and the Suez Canal Economic Zone.

Going forward, Egypt hopes to position itself as a regional hub for the nascent hydrogen sector.

Egypt Green

The European Bank for Reconstruction and Development (EBRD) is supporting the decarbonisation drive with a US\$80mn loan to Egypt Green to develop the country's first green hydrogen facility.



Photo Credit : Adobe Stock

Egypt's gas resources are a mainstay of its economy.

Egypt Green is owned, built and operated by Fertiglabe, one of the largest seaborne exporters of combined urea and ammonia, Scatec ASA, a Norwegian power producer, Orascom Construction, and the state-owned Sovereign Fund of Egypt. The cash will be used to build a 100 MW electrolyser facility to be powered by renewable energy. When developed, it will deliver up to 15,000 tonnes of green hydrogen annually. This, in turn, will be used as an input for the production of green ammonia to be sold on the Egyptian and international markets.

Ammonia production is energy intensive and responsible for around 1.8% of global carbon dioxide (CO₂) emissions. "We see a massive green hydrogen demand driven by strong policy support globally, and Africa is perfectly positioned to take advantage of its low-cost renewables and strategic position," said Mikkel Tørud, chief financial officer at Scatec ASA.

bp's diversification drive

The major oil companies in Egypt have also shown similar intent. In December, bp signed a memorandum of understanding (MoU) with the government to explore the potential for establishing a green hydrogen facility. Under the MoU, the energy giant will carry out studies to evaluate the technical and commercial feasibility of developing a multi-phase, large scale green hydrogen export hub in Egypt, including exploring possible sites and locations.

The MoU was signed with Egypt's New and Renewable Energy Authority (NREA), the Egyptian Electricity Transmission Company (EETC), the General Authority for Suez Canal Economic Zone (SCZONE), and the Sovereign Fund of Egypt for Investment and Development (TSFE).

Hydrogen is one of bp's five energy transition growth engines, and the group is working on a portfolio of options for the development of green and blue hydrogen projects globally.

"Expanding the remit of our business in Egypt is testament to bp's long-term commitment to Egypt," said Nader Zaki, BP's regional president, Middle East and North Africa.

The move into hydrogen builds on bp's long-established presence in the country, where it has over US\$35bn in investment already.

Gas search continues

While hydrogen may bring with it hopes for a new era in energy long-term, it is a niche that is still in its infancy, with high associated costs. For now, it is Egypt's oil and gas that continue to keep the lights on in homes and businesses, and to keep the money rolling in. ■



Utilising solar to build a brighter future

Jim Prosser, CEO and founder, NEXSYS-ONE, spoke to *Technical Review Middle East* to discuss the company's Alternative Energy software solutions.

With TASK-ONE, we support the durability and effectiveness of solar panels with our preventative and corrective maintenance software solutions.

Technical Review Middle East (TRME):
What would be the top emerging trends within the solar energy industry?

Jim Prosser (JP): A) Introducing AI

The solar industry has seen tremendous innovations by integrating AI into its products. It's currently being used to forecast energy demand like a weather report and manage energy distribution so homeowners will always have power. With SITE-ONE, we introduce machine learning algorithms to predict a wide range of data projections.

B) Declining costs and increased affordability

Unlike smartphones and laptops, which seem to cost more with each passing year, the cost of solar technology is on a steady downward trend. Utilising the supply chain management of NEXSYS-ONE, we can manage the cost comparisons, product quality and demand planning. This then in turn, is integrated within the procurement modules of NEXSYS-ONE to process the

network build while reducing costs.

C) Improvements to solar panel durability

In the early days of renewable energy systems, technology was unreliable and ineffective on its best day. This, coupled with the massive upfront cost to install a solar power system, made it not worth looking at for many. However, every type of solar power system, from grid-tied to an off-grid solar system, has seen massive improvements in durability and effectiveness. With TASK-ONE, we support the durability and effectiveness of solar panels with our preventative and corrective maintenance software solutions.

TRME: What are some of the ongoing challenges and opportunities related to the solar energy sector in the Middle East and North Africa region? How has your product provided a solution to this?

JP: Feasibility studies and analytics, permitting, lease management, regulatory requirements and documentation handling

are all ongoing challenges when deploying solar energy networks. With more than 20 years of experience in meeting such challenges as a service provider and operators ourselves, we built NEXSYS-ONE to streamline such processes.

Utilising the suite of advanced software modules of NEXSYS-ONE, we offer the alternative energy industry solutions to build and maintain their infrastructure. While fossil fuels will run out in 40-60 years, the sun will always shine, the wind will always blow, and the Earth will always have geothermal energy. NEXSYS-ONE is committed to supporting the rapid deployment of alternative energy solutions.

TRME: As the Middle East continues to leverage the transformational power of solar energy, how is your company helping to drive this development?

JP: The NEXSYS-ONE modules are predominantly built and tailored to support the Middle East's continuous growth. We support this transformation by offering our one stop software solutions to build and maintain solar energy infrastructure.

NEXSYS-ONE empowers our customers to efficiently deploy their network infrastructure with techniques and processes built within our platform by industry experts since 2001. Our platform includes; project planning, technical site



Jim Prosser, CEO and founder, NEXSYS-ONE.

Photo Credit : NEXSYS-ONE

surveys, procurement, budgeting, IoT sensor analytics to measure outputs, alarm handling and system performance, asset management, warehouse management, vendor management, work order management, project deployment tracking and reporting, quality and acceptance, custom reports, forms, documentation control, contract management, billing, personal dashboards, self-administration, GIS applications, mobility, task management, resource management, spares handling and much more. ■

The NEXSYS-ONE modules are predominantly built and tailored to support the Middle East's continuous growth. We support this transformation by offering our software solutions to build and maintain solar energy infrastructure.

LEAP23 debuts DeepFest with rise of the robots

SAUDI ARABIA ENHANCED its game-changer status in the global data and artificial intelligence (AI) sectors with the opening instalment of DeepFest - a new co-located event held in partnership with the Saudi Data & Artificial Intelligence Authority (SDAIA) - on the side-lines of the LEAP23 tech event.

The inaugural DeepFest gathered drivers of the global AI ecosystem to unveil multi-sector initiatives in a three-day thought-leadership conference with sector-specific tracks, trainings, live-demos, and startup pitches.

Complemented by a dedicated exhibition featuring companies transforming the world we live and work in, the DeepFest conference programme - themed 'AI Beyond Imagination' - homes in on AI implementation in areas such as clean tech, the Metaverse, women in technology, robotics and more.

Robots and avatars take centre-stage

Amid the assembled pool of change-makers, big tech pioneers, data scientists, innovators, enterprises, academia, startups, and innovative business entrepreneurs, famed roboticist Hiroshi Ishiguro delivered an inspired session titled 'Avatar and the Future Society'.

Ishiguro, the director of the Intelligent Robotics Laboratory - part of the Department of Systems Innovation in the Graduate School of Engineering Science at Japan's Osaka University - has been pioneering advancement in humanlike robotics since 1997. The 59-year-old has also been creating eerily realistic androids for over 15 years, including Geminoid HI-1 - the roboticist's own virtual twin, who joined him on stage at DeepFest.



Hiroshi Ishiguro and his robot twin.

Photo Credit : LEAP23

Having spent his career dissecting the nature of what it means to be human, Ishiguro outlined how advances in robotics and avatars are narrowing the separation between human and humanoid.

Other sessions in day one DeepFest agenda included 'Neural-Symbolic AI Driving Progress Toward Artificial General Intelligence' with Dr Benjamin Goertzel, CEO of the SingularityNET Foundation; Generative AI Revolution with Leonid Zhukov, director of Boston Consulting Group's Global AI Institute; 'How Technology is Inspiring the Future Workforce' with Beverly Rider, CCO of Tonomous and CEO Tonomous VentureStudio, and more.

Yokogawa leads the way in industrial autonomy

How reinforcement learning AI was successfully used in the autonomy of production, maximisation of ROI and environmental sustainability of a chemical plant for 35 consecutive days.

Distillation columns at the JSR chemical plant.

Photo Credit : Yokogawa Electric

YOKOGAWA ELECTRIC CORPORATION and JSR Corporation*

have successfully tested the use of a reinforcement learning AI solution to control quality and yield, save energy, and prevent sudden disruptions in the operation of a distillation column at a chemical plant. This test ably demonstrated that reinforcement learning AI can be safely applied at a working plant and is superior than existing control methodologies.

The initiative described here was selected for the 2020 Projects for the Promotion of Advanced Industrial Safety subsidy programme of the Japanese Ministry of Economy, Trade and Industry. The Factorial Kernel Dynamic Policy Programming (FKDPP) protocol used was jointly developed by Yokogawa and the Nara Institute of Science and Technology (NAIST) in 2018 and recognised at an IEEE International Conference on Automation Science and Engineering, as being the first reinforcement learning-based AI in the world that can be utilised in plant management.

Control in the process field spans a broad range of industries, from oil refining and petrochemicals to high-performance chemicals, fiber, steel, pharmaceuticals, food, and water, all of which entail chemical reactions and other elements that require an extremely high level of reliability. In this field test, the AI solution successfully dealt with the complex conditions needed to ensure product quality and maintain liquids at an appropriate level, while making maximum possible use of waste heat as a heat source. In so doing it stabilized quality, achieved high yield, and saved energy.

Kenji Hasegawa, vice president and head of the Yokogawa products headquarters,

Separate substances with similar boiling points and achieve high quality and energy savings while taking into account sudden external disturbances (rain, snow, etc.)



Photo Credit : Yokogawa Electric

Results of the field test

Autonomous control	35 days	Safe operation and improved productivity	Reduced cost and time loss
<p>Areas that previously couldn't be controlled with PID control and APC were autonomously controlled by reinforcement learning-based AI (the FKDPP algorithm)</p>	<p>Managed and controlled with CENTUM™ VP[®] integrated production control system</p>	<p>Simultaneously achieved safe operation and improved productivity, with stable quality, high yield, and energy saving</p>	<p>Only high quality products were produced, so losses in the form of fuel, labor costs, time, etc. that occur due to production of off-spec products were eliminated</p>

Areas controlled and results.

said, "The success of this field test came from bringing together the customer's deep knowledge of the production process and operational aspects with Yokogawa's strength in leveraging measurement, control, and information to produce value." He added, "It suggests that an autonomous control AI can significantly contribute to the autonomy of production, maximisation of ROI, and environmental sustainability."

Based on its concept of industrial automation to industrial autonomy (IA2IA),

Yokogawa is leading the way forward in the energy, materials, pharmaceuticals, and many other industries with the achievement of robust and flexible production systems that take into consideration the impact of differences in humans, machines, materials, and methods. Together with its customers around the world, Yokogawa will accelerate the development of autonomous control AI solutions.

*The JSR elastomer business unit that participated in this test was acquired by ENEOS Materials Corporation in April 2022. ■



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Working together for Net Zero

Nancy Hantour, principal nuclear engineer for nuclear and net zero energy, Middle East & Africa, Atkins, speaks about the energy trilemma and the role of nuclear power in the energy transition.

Technical Review Middle East (TRME): What are the benefits of an industry balance of cost, security and sustainability and how can this be achieved?

Nancy Hantour (NH): Balancing the three core dimensions of the Energy Trilemma (determined by the World Energy Council) is the basis for prosperity and competitiveness of individual countries. The Energy Trilemma Index (determined by the World Energy Council) can be used as a tool to help classify countries to determine common but differentiated responsibilities and capabilities such that their progress can be tracked against their targets and positioning within the energy sector. Humanising energy is the greatest challenge in managing the energy transition. The government, energy business leaders, policymakers, and investors must work together to provide the public with an understanding of the challenges in obtaining a balance within the energy trilemma, while building trust.

Improving energy efficiency will most easily unlock aspects of improving the energy trilemma. High sustainability scores are typically driven by implementing renewable energy through wind and solar, but in order to provide grid stability, energy security and ultimately affordability, a diverse means of clean baseload energy including large-scale deployment of low-emission energy sources such as nuclear power is needed. Due to the time taken to install such plants, let's not forget that gas plants still have a very important role to play in the whole transition. The ultimate solution rides in finding the right combination of policies, investments, technologies and ideas; that's when taken together, will move us one step closer to making the future energy system reliable, secure and affordable.

TRME: How is Atkins helping to promote the Net Zero ambitions of the region?

NH: Atkins and the wider SNC-Lavalin Group

continue to play a big role in helping the public and private sectors in the region achieve Net Zero ambitions, as we have the largest private nuclear capability globally, and we are at the forefront of nuclear new build programmes in the UK, Canada and the Middle East. Atkins continuously pushes the boundaries of innovation to enable clients to develop solutions for positive change, and push the region in ways to become global energy leaders. In 2021, SNC-Lavalin published the 'Engineering Net Zero in the GCC' report that is publicly available to help the region achieve its targets towards net zero carbon future. The report brings together global expertise and local knowledge of the SNC-Lavalin Group, including Atkins and Faithful+Gould, and outlines challenges, opportunities, and key recommendations to decarbonise the energy, built environment, and transport sectors in the region. The GCC countries are working at an incredible pace in developing a mix of utility-scale solar, wind, waste-to-energy, and nuclear power as part of their planned low-carbon energy with the Company being at the heart of it all. We are involved in every waste to energy project in the Middle East and launched 'decarbonomics', a data driven, end to end solution that helps asset owners decarbonise. We also help clients with captive power plants, ensuring they are grid connected and not impacted by grid stability as the country introduces more renewables. In addition, we are heavily involved in the design of the UAE's first utility scale green hydrogen projects and support a wide range of work from design, construction to operation of the Barakah Nuclear Power plant.

TRME: What is the continuing role of nuclear energy in the transition?

NH: No energy source is perfect, but nuclear is the most ethically responsible form of energy generation which is an important



Photo Credit : Adobe Stock

Humanising energy is the greatest challenge in managing the energy transition.

part of the net zero solution. Nuclear Power has the ability to limit the impacts of climate change. The world is moving at a rapid rate in the attempt to reduce its dependency on fossil fuels to bring down greenhouse gas emissions. Nuclear energy is a low-carbon solution that can be deployed on a large scale at the timescale required, supplying the world with clean, reliable, and affordable electricity. It takes care of all externalities associated with its operation – from uranium mining through operation, to used fuel disposal. This cannot be said of any other energy source.

In recent years, solar and wind power have been the main means of renewable energy in the power sector, however, they cannot meet energy demands alone. If climate goals are to be met by 2050, then other forms of low or zero emission electricity generation must be prioritised, leading to the nuclear industry being of interest again among countries. Solar and wind cannot overcome the challenges of intermittency, whereas nuclear power can ensure a permanent balance between supply and demand. Despite producing massive amounts of carbon-free power, nuclear energy also produces more electricity on less land than any other clean-air source. Nuclear energy is certainly a necessary technology for the transition towards a new energy model. ■

Golden opportunities within the energy transition

Mohammed Atif, area manager UAE, DNV, discusses how long duration energy storage (LDES) and the onset of the green hydrogen economy represent golden opportunities for the MENA region.

IN THE ONGOING energy transition, there is a plethora of new technology and solutions seemingly introduced every day, dedicated to feeding into and driving the revolution. While some are certainly more substantial than others, two of which are gaining increasing momentum within this space are LDES and green hydrogen, as demonstrated by the numerous panel sessions dedicated to them at the World Future Energy Summit. As part of these, Atif participated in a select number, and provided commentary around the subjects.

In regards to LDES, Atif mentions that this would always have been a hot topic at the conference, however, with notable technical and cost leaps being taken (with the exception of hydro storage), it has catapulted this discussion further into the spotlight. He explained that new advances have been made with batteries to supply greater hours of support and they have become easier to monetise for their role in black starts, reactive power/voltage support and the EV industry.

“As power systems push to accelerate decarbonisation, integrate more renewables, and strive for net zero, LDES is seen as a significant part of the solution to achieving this. For MENA and the rest of the world, anywhere where power systems are looking to achieve increasing contributions from renewable energy surpassing 30% and beyond – LDES would be a strong facilitator,” Atif explains.

He adds that while Europe and North America could take the lead in regards to LDES implementation, anywhere where there is a drive towards renewable penetration and net zero, will make LDES appealing. With COP27 held on Egyptian soil in 2022 and COP28 to be hosted in Dubai, this certainly applies to both the African continent and the Middle East region.

Remarking on what has driven the appetite for this solution so far, Atif surmises, “Physics to an extent is driving the need (LDES provides a technical solution to take higher amounts of energy for longer), however governments and policy makers are increasingly aware that such a solution can facilitate their own commitments, and the private sector can be leveraged for its innovation and industrial know-how to deliver the solution.”

On the topic, he concludes that, in order to drive LDES engagement on to new heights, “Clear pricing for the ‘flexibility service’ in power systems – in other words, power markets or systems need to demonstrate value for storage that provides services for days, weeks or months – will drive the profit signals to invest and commercialise the solutions.”

A hydrogen future

There is perhaps no topic more widely discussed in the present day than hydrogen, which has the potential to comprehensively change the global energy network. According to IRENA, the vast green hydrogen potential equates to more than 20 times global primary energy demand in 2050 and, according to the IEA, the current energy crisis has contributed to the urgent need for energy diversification – driving hydrogen demand to new heights.

However, this is a jump which will take time, and Atif notes that he does not expect to see many large scale projects coming online until the 2030s, despite its prominence. That being said, once again, the hydrogen future presents a golden opportunity for the Middle East and Africa where renewable potential is abundant.

Atif says, “Countries such as Oman and Egypt are positioning themselves for a green hydrogen exporting future. The size will really



Photo Credit: Adobe Stock

depend on commitments from key markets in Europe and Asia. However, from announced plans, there are hundreds of billions of dollars of potential investment opportunities over the longer term.”

In order to ensure that countries in this region are not left behind in this revolution, Atif advises, “Consumer countries need to commit to various standards and targets for hydrogen in their national energy mix. Producer countries need to demonstrate economic viability, supply chain readiness and then FIDs. Oman is moving the quickest, with the release of a tender for green hydrogen developments.”



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The company aims to be close to its customers in the GCC to support them with its application knowledge and competencies.

BBC Cellpack in the GCC

BBC Cellpack Electrical Products, a global company in cable accessories has extended its presence to the Middle East.

Quality is everything

For more than 50 years, BBC Cellpack Electrical Products has produced cable connection systems and accessories for low and medium voltage applications. This has given the company unique know-how, covering the entire range from preparation of raw materials, specification of cast resins and gels, creating the formulas for the plastics, to installation and packaging of cable accessories.

Sherif S Soltan, the managing director of operations commented, "I am honoured to represent the operation in the Middle East. The region is full of potential and we are here to provide the GCC with the latest possible technologies in cable accessories. I aim to position BBC Cellpack Electrical Products as a trusted consultant and reliable partner for our GCC clients."

Sherif added that cable accessories do not represent more than 2% of any project value. However, production or installation failure can cause huge disasters for multi-billion projects. So, the company insists on delivery high quality products and solutions and continually provides training to its partners on the latest productive methods to ensure a clear reliability of the network. Jasmin Reineck, the CPO of BBC Cellpack Electrical Products said, "We spend a lot of resources in our product lifecycle management to make sure that our products

are right, from the idea, throughout the technical feasibility and development phase with the ultimate goal of producing high quality products with improved product safety, reduced failures and covering the customer needs with the latest successfully tested solutions."

We want to enable our customers to manage the challenges in the grid networks with environmentally friendly, easy to use and high-quality products.

Roger Braun, CEO, BBC Cellpack Electrical Products

Rainer Crevecoeur, the CSO of BBC Cellpack Electrical Products, highlighted the importance of GCC operations to the company's global growth. "We are so proud of extending our business to the GCC countries. Through our presence in the

region, we improve our supply chain by being closer to our clients on a day-to-day basis and ensure that our clients are satisfied by the quality and the services we provide to them," he said.

As a service provider of medium-voltage systems, original manufacturer of low-voltage switchgear assemblies or cable distribution cabinets for local networks, supplying turnkey transformer stations and providing installations, BBC Cellpack's solutions are deployed to guarantee reliable and safe energy distribution.

Roger Braun, CEO of BBC Cellpack Electrical Products, confirmed, "We are experts in underground cable connections and aim to be close to our customers in the GCC region to support them with our application knowledge and competencies in the most professional way. Being closer to our customers also allows us to adapt faster to changing market requirements and improve constantly to remain the preferred supplier. With our work, we want to enable our customers to manage the challenges in the grid networks with environmentally friendly, easy to use and high-quality products."

As a reliable partner of energy supply and energy distribution companies, delivering to retail, wholesale and industry, the company's product quality ensures the supply performance in the distribution grid. ■

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'Technology advancements are increasing projects in GCC'

Trimble highlights the growing trend in the use of technologies across different fields of construction.

TRIMBLE, A LEADER in construction technology, revealed that most projects and developments across the GCC region, today, employ various cutting-edge technologies. This comes as a result of GCC countries seeking to advance the infrastructure as well as promote economic diversification through a number of long-term initiatives such as the Saudi Vision 2030 and Dubai 2040 Urban Master Plan.

According to recent industry reports, 100% of industry professionals agree digital technology improves project delivery, with 58% claiming that digital transformation will have the largest effect on overall project management.

The construction technology provider stated that the adoption of numerous advanced innovative technologies such as Building Information Modelling (BIM), Connected Construction, Digital Twins, Robotics, and Artificial Intelligence (AI) is largely due to the stringent deadlines and desire to deliver projects on schedule and accurately. These are significant especially

The adoption of numerous advanced innovative technologies is largely due to the stringent deadlines and desire to deliver projects on schedule and accurately.



Paul Walleit, regional director of Trimble Solutions, Middle East and India.

Photo Credit : Trimble

for large-scale and complex projects such as Neom, Red Sea Project, Etihad Railway, etc. Industry analysis indicates that the construction industry in the GCC region is geared for a rapid expansion, outpacing the broader economy with an average annual growth expected to range between 3.5 and 4% in 2023–2024 period. During this expansion phase, Trimble anticipates a large adoption and deployment of its advanced

Tekla software solutions for constructible BIM, structural engineering, and steel fabrication management.

Paul Walleit, regional director of Trimble Solutions, Middle East and India said, "In this fast-growing, highly competitive construction landscape, technology has risen to prominence, taking centre stage for the successful completion of projects. For instance, due to the increased teamwork,

more convenient dataflow, and the capability to keep all project stakeholders informed, BIM and connected construction technology are being used extensively across numerous mega projects. The governments of the GCC are approving large infrastructure projects that will require a significant amount of work, prompt completion, and labour. At Trimble, we have always encouraged teamwork, and have developed several innovative solutions to support construction companies in adapting to diverse project demands or needs. The Middle East region has advanced, embracing construction technologies and encouraging enterprises to adopt those. The ME region could anticipate a large number of projects in the upcoming months at this rate.”

The suite of solutions offered by the Tekla software includes Tekla Structures, Tekla

Structural Designer, Tekla Tedds, and Tekla PowerFab, which have already been employed on some of the region's complex structures including the Burj Khalifa, One Za'abeel, Riyadh Metro, Museum of the Future, Lusail Stadium, the Grand Egyptian Museum, and the Red Sea Project.

At present, the GCC countries are boosting their investments in various digital

initiatives. For instance, Saudi Arabia developed its Saudi Vision 2030 programme, while the UAE is launching numerous advanced initiatives through its UAE Digital Government Strategy 2025. More businesses in the region are resorting to adopting new technologies since it helps companies in the construction sector meet and overcome a variety of obstacles. ■

In this fast-growing, highly competitive construction landscape, technology has risen to prominence, taking centre stage for the successful completion of projects.

Paul Wallett, regional director of Trimble Solutions, Middle East and India

Emerge partners with Coca-Cola Al Ahlia Beverages' on new solar project

EMERGE, A JOINT venture between the UAE's Masdar and France's EDF, has signed an agreement with Coca-Cola Al Ahlia Beverages, Coca-Cola's bottler and distributor in the UAE, to develop a 1.8 MWp solar photovoltaic (PV) plant for its Al Ain facility.

The commercial & industrial (C&I) project, located at the Al Ain facility, will be a combination of ground-mounted, rooftop, and car park installations. Emerge will provide a full turnkey solution for the 1.8 MWp peak project, including the design, procurement, and construction, as well as operation and maintenance of the plant for 25 years. The agreement was signed by Mohamed Akeel, CEO of Coca-Cola Al Ahlia Beverages and Michel Abi Saab, general manager of Emerge, at the sidelines of the Abu Dhabi Sustainability Week (ADSW) which took place from 14-19 January in the UAE capital.

“Emerge is pleased to be increasing its C&I footprint in the UAE with our collaboration with such a reputed company. We are confident the 1.8 MWp solar PV plant we will build, operate and maintain for Coca-Cola Al Ahlia Beverages – like the facilities we are building for our other partners Miral, Khazna Data Centers, and Al Dahra Food Industries – will provide stable and clean energy for its Al Ain facility for decades to come,” said Michel Abi Saab, general manager of Emerge.

“This is a significant milestone for us as we continue to drive and embrace innovation in every part of our business while reducing our carbon footprint. Our agreement with Emerge will allow us to reach yet another sustainability milestone - a big aspect of which is the integration of more renewable energy into our operations,” said Akeel.

The C&I solar segment has been witnessing unprecedented growth since 2021, boosted internationally by the high cost of fuel and electricity. IHS Markit has predicted that 125 GW of C&I rooftop solar will be installed globally by 2026. Rooftop solar PV could provide approximately 6% of the United Arab Emirate's total power generation by 2030 according to the International Renewable Energy Agency's (IRENA) REmap 2030 report.



1.8 MWp PV plant to provide clean energy to Coca-Cola Al Ain facility.

Emerge was formed in 2021 as a joint venture between Masdar and EDF to develop distributed solar, energy efficiency, street lighting, battery storage, off-grid solar and hybrid solutions for commercial and industrial clients. As an energy services company, Emerge offers clients full turn key supply and demand side energy management solutions through solar power agreements and energy performance contracting at no up-front cost to the client. Coca-Cola Al Ahlia Beverages is the bottler for Coca-Cola in the UAE, having a bottling plant in Al Ain and distribution centers across UAE to manufacture and distribute Coca-Cola, Sprite, Fanta, Arwa Water, Smart Water and Schweppes, among others.

Photo Credit : ADSW

High quality data is the key to retail success

Laith Al-Bazirgan, sales director, Middle East at SoftServe Inc. discusses the advantages of using digital data to grow customer engagement in retail.

DATA HAS BECOME the single most critical factor behind accurate product recommendations, timely delivery, better pricing rates, and product availability for retail organisations. However, not all data is valuable. In an increasingly digital world, the significance of high-quality data is what distances successful innovators from the competition.

Reliable data further facilitates a better understanding of market and consumer trends to enable more accurate inventory planning. It has become crucial to make transaction data, customer profiles, and social media analytics accessible to businesses so they can more easily gather the information that helps to optimise prices, forecast demand changes, and boost investment returns.

Recent years have witnessed tremendous changes in consumer behaviour and disruptions in global supply chains due to multiple factors. A global economic slowdown has also driven retailers to revamp business models to become more agile and maintain their relevance, competitiveness, and profitability. Improving customer engagement and creating more durable supply chains with product manufacturers have become

“In an increasingly digital world, the significance of high-quality data is what distances successful innovators from the competition.”

necessary to meet these challenges. To maximise the efficiency of these new capabilities, it is therefore critical to analyse substantial amounts of data that can facilitate effective decision-making.

Digital twins

An important early step towards preventing global supply chains from becoming a liability or being able to respond to changing situations is to create a digital twin. This is essentially a virtual mirror image of current operations that can simulate business conditions and allow alternative scenarios and actions to be tested.

It becomes a critical tool that combines the entire chain from supplier management, warehousing, and transport to last-mile optimisation for resource savings and ideal distribution models. It also can model scenarios and prepare for potential rapid transition of operations.

The capacity of this new approach to acquire all the different data points and carry out data mining and automation procedures allows terabytes of data to be translated into usable, actionable insights. It will simply demonstrate how retailers can make better decisions once they have access to reliable and valuable data.

Product intelligence

Another vital component of ensuring better insights into evolving consumer behaviour and repurposing brick-and-mortar stores with the digitalisation of customer experience is greater product intelligence. Retailers should improve efforts to bridge the gaps between offline and online sales as consumer loyalty becomes more brittle and price conscious. A vital component is integrating an efficient tool for implementing strategies such as product-bundling and discounting, which can then maximise product up-selling and cross-selling effectiveness.

To keep ahead of customer expectations, IoT capabilities and video recognition



*Laith Al-Bazirgan,
sales director, Middle East,
SoftServe Inc.*

Photo Credit: SoftServe

solutions can also be leveraged to enable superior quality and more customer-centric shopping experiences. For example, with the use of video identification of customer behaviour, retailers can enhance shoplifting detection, as well as help manage inventory, monitor and avoid in-store queues, and improve in-store layouts.

Automating pricing procedures from data collection and competitor analysis can produce customised pricing recommendations. It can further streamline sales promotions, which later strengthens decisions on products, discount ranges, and promotion strategies that boost customer loyalty and increase value and volume sales.

Data driven

These actions' success will still depend on receiving the relevant information at the proper time and place. It will take a robust data infrastructure to secure this, one that not only gathers all the data but also ensures it is cleaned, harmonised, normalised, and modelled to suit decision-making requirements. Integrating these cloud-based infrastructure projects will eliminate data silos and enable comprehensive views of operations, clients, and supply chains, allowing for the management of tight profit margins and improving profitability.

Laith Al-Bazirgan, sales director, Middle East at SoftServe Inc, advises retailers and businesses to make the visibility and analysis of quality data, a central component of any business strategy. The results will make a business more agile, meet the unexpected challenges ahead and anticipate customer needs while improving competitiveness and profitability. ■

Project Databank

Compiled by Data Media Systems

INFRASTRUCTURE PROJECTS, EGYPT

Project Name	City	Facility	Budget (US\$)	Status
NAT - Cairo Metro - Line 4 - Phase 1 - Hadaek El-Ashgar to Grand Egyptian Museum till El Mesaha Square	Cairo	Mass Transit Systems	4,780,000,000	Construction
Ministry of Transportation - Gargoub Port	Matruh	Transportation	10,000,000,000	Construction
NAT - Cairo Metro - Line 6 - Northern Cairo to New Maadi	Cairo	Railway	2,500,000,000	Engineering & Procurement
NAT - Cairo Metro - Line 3 - Phase 3 - Al-Attaba to Al Kit Kat; Al Kit Kat to Rod El Farag; Al Kit Kat to Cairo University	Cairo	Mass Transit Systems	1,800,000,000	Commissioning
Ministry of Housing, Utilities & Urban Communities - Central Business District (CBD)	New Capital	Mixed-Use Development, Commercial Buildings	3,000,000,000	Construction
WOTECH - Medium Density Fibreboard (MDF) Plant	Bahira	MDF Plant	228,000,000	Construction
NAT - Cairo Metro - Line 3 - Phase 4 - Cairo Airport to El Bohy and Shehab	Cairo	Mass Transit Systems	1,200,000,000	Construction
Alexandria Port Authority - Dekheila port - Container Terminal	Alexandria	Port	400,000,000	Feasibility Study
Mountain View - Sisban - NUCA - Mountain View I-City Residential Units	New Cairo	Residential Development	3,600,000,000	Construction
Ministry of Transport - King Salman Causeway	Sharm El Sheikh	Causeway	4,500,000,000	Feasibility Study
SCZone - El-Tor Port - Multi Purpose Terminal	El-Tor	Port	100,000,000	Feasibility Study

McDermott and Eunice Energy Group to collaborate on Greece-Africa power interconnection

MCDERMOTT AND EUNICE Energy Group have announced the signing of a memorandum of understanding (MoU) for cooperation on the two-gigawatt (2 GW) electrical interconnection between Greece and Egypt, known as the Greece-Africa Power (GAP) Interconnector project. The submarine link will interconnect Egypt's North Mediterranean coast and Greece at the island of Crete.

Eunice Energy Group is leading the transnational consortium between Greece and Egypt for the GAP project, which aims to contribute to regional energy security and stability by facilitating intercontinental clean energy transfer. As part of the consortium, McDermott, a leader in engineering, procurement, construction and installation (EPCI) for subsea and deepwater, will be providing engineering and construction guidance for the project.

American foreign policy is aligned with the strategic energy objectives of Greece, and GAP represents a project within the national interests of both countries.

"This is an MOU of strategic importance at a time when Europe is working to ensure energy security," said Michael McKelvy, McDermott president and CEO. "I am proud to join forces with Eunice Energy Group on the GAP project and help build the future of energy in the region."

George Kalavrouziotis, Eunice Energy Group CEO added, "Eunice



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is thrilled to partner with an American industry leader like McDermott. The GAP Project is the leading electrical interconnection project in the East Mediterranean region, being at the top of the list in terms of technical feasibility and regulatory approval. The 2 GW interconnector will help Egypt export its surplus power to Europe, and enable Greece to export its domestically produced green energy into the Balkans and Italy, thus contributing to Europe's energy independence from Russia's energy resources."

Project Databank

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Project Focus

Compiled by Data Media Systems

NAT - Cairo Metro - Line 4 - Phase 1 - Hadaek El-Ashgar to Grand Egyptian Museum and El Mesaha Square

Name of Client	NAT - The National Authority for Tunnels
Estimated Budget (US\$)	4,780,000,000
Award Date	2019-Q3
Main Contractor	Mitsubishi OCI - Orascom Construction Industries
Facility Type	Arab Contractors (Osman Ahmed Osman & Company) Bouygues Construction OCI - Orascom Construction Industries Vinci Construction
Facility Type	Mass Transit Systems
Status	Construction
Location	Cairo, Egypt
Project Start	2014-Q4
End Date	2027-Q1

Background

The National Authority for Tunnels (NAT) plans to construct a new underground double-track line passing through the urban centre of the city. Phase 1 will run for 18.8 km from Hadaek El-Ashgar in Giza to El-Malek El-Saleh station in Cairo, with possible connections to the planned 6th October tram, Giza railway station, and Metro Lines 1 and 2. The 12 stations within the metro will be located in Hadaek El Ashgar, Hadaek El Ahram, El Nasr, Grand Egyptian Museum, El Remaya Square, El Ahram, El Marrioutiya, Al Areesh, El Matbaa, El Talbiya, Madkour, and El Mesaha Square.

Project Status

Date	Status
Feb 2023	The construction has been started on station no. 4 and station no. 6, while the work is ongoing on station no.10.
Jan 2023	The client has signed a US\$301mn agreement with JICA for the second tranche of development financing to fund the implementation of the project.
Aug 2022	99% of the panel walls of station 4 have been completed.
Mar 2022	NAT has signed an MoU with Hitachi Rail to conduct the feasibility studies for the operation, maintenance and management of Line 4.
Jan 2022	NAT is in negotiations with Taisei Corporation and Orascom Construction for the civil works package.
Nov 2020	A consortium of the local Hassan Allam Construction, Arab Contractors, Petrojet and Concord for Engineering & Contracting has signed a contract for the civil works package.

Project Scope

The scope of the project includes:

- 12-station metro line with a capacity of 2,000,000 passengers
- 10.73 kilometers (km) metro line with 8 stations and 23 railcar
- Civil works between 0.100 km and +13.616 km, (13.7 km) from Hadaek El-Ashgar to Grand Egyptian Museum and then to Remaya Square along Pyramid Street to El Mesaha Square
- 7.955 km metro line with 8 stations
- Electromechanical systems work

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الطاقة النظيفة. وفي الوقت نفسه، ومع تسارع وتيرة التحول إلى الطاقة النظيفة، سوف يزداد تأثير الأحداث المناخية على الطلب على الكهرباء بسبب زيادة استخدام الكهرباء في التدفئة. هذا بينما تستمر حصة مصادر الطاقة المتجددة، التي تعتمد على الطقس في توليد الكهرباء، في الزيادة. لذا، فإن زيادة مرونة أنظمة الطاقة، مع ضمان أمن الإمداد ومرونة الشبكات يصبح - بلا شك - أمراً بالغ الأهمية.

ديلويت تتوقع نمواً في أسواق العقارات في دبي والسعودية

أصدرت شركة ديلويت تقريرها السنوي التاسع بشأن توقعات العقارات في منطقة الشرق الأوسط 2023، الذي ركز على أداء أسواق العقارات في دبي والمملكة العربية السعودية خلال العام الماضي. ويقدم التقرير نظرة مستقبلية إيجابية لعام 2023 ويتعمق في قطاعات الاستثمار العقاري المختلفة بما في ذلك قطاعات الضيافة والقطاعات السكنية والتجزئة والمكاتب التجارية والصناعية.

من بين النتائج الرئيسية، يكشف التقرير عن تعافي قطاع السياحة بعد جائحة كوفيد-19 في كل من دبي والمملكة العربية السعودية. إذ أشارت المؤشرات الرئيسية في قطاع الضيافة إلى الزيادة خلال العام الماضي في نسبة الإشغال ومتوسط السعر اليومي (ADR). كما يسلط التقرير الضوء على نمو المبيعات السكنية في كلا المنطقتين الجغرافيتين، هذا فضلاً عن ارتفاع أسعار إيجارات المساحات المكتبية التجارية في إمارة دبي. كما أن النمو الكبير في الناتج المحلي الإجمالي للمملكة العربية السعودية يجعلها من بين أكثر الوجهات العالمية جاذبية للمستثمرين.

يقول ستيفان بورش، الشريك ورئيس قسم العقارات في شركة ديلويت للشرق الأوسط: «مع إعادة فتح الاقتصادات العالمية بشكل كامل بعد جائحة كوفيد، نتوقع استمرار النمو في سوق العقارات في المملكة العربية السعودية طوال عام 2023. ومن المقرر أن يكون النمو مدفوعاً بالإنفاق القوي عبر مجموعة واسعة من المبادرات الحكومية، بالإضافة إلى وجود قطاع خاص قوي الاستجابة لمستويات الطلب على المشاريع العقارية ذات الجودة العالية. وعلى الرغم من أن عام 2022 قد شهد مستويات قياسية من الطلب على المساحات المكتبية التجارية نتيجة لمبادرة «برنامج المقرات الإقليمية»، فإنه يبدو أن عام 2023 سيهيمن عليه تقديم مخططات متعددة الاستخدامات عالية الجودة يتزعمها القطاع السكني مع استمرار التركيز على مشاريع السياحة والترفيه والتسليّة»

كما قال أوليفر مورجان، الشريك ورئيس قسم التطوير في فريق ديلويت للعقارات في الشرق الأوسط: «لقد كان عام 2022 عاماً مزدهراً للمستثمرين في قطاع الإسكان ممن واجهوا أوقاتاً عصيبة بالنظر إلى الاتجاهات الحديثة في دبي. بينما في المملكة العربية السعودية، لا يزال هناك طلبٌ زائدٌ في جميع القطاعات السكنية، مع تزايد عدد شركات بناء المنازل التي تتنافس على حصتها في السوق، مع جودة وتميز منتجاتها. كذلك لا تزال الرياض ودبي سوقين تجاريين جذابين. فشاغلو هذين السوقين يبحثون عن النمو بعيداً عن الشرق الأقصى وأوروبا. كما أن الاستثمار في البنية التحتية، بالإضافة إلى عروض البيع بالتجزئة والأطعمة والمشروبات المتطورة، هي حلم المسوّق الاجتماعي الذي يستمر في جذب مستويات قياسية من السياح إلى كلا الموقعين».

مفكرة الفعاليات 2023

مارس/آذار	معرض طاقة الشرق الأوسط	دي
7 - 9	المؤتمر العالمي للمرافق <td>أبو ظبي</td>	أبو ظبي
8 - 10	معرض بيغ فايف مصر للبناء <td>القاهرة</td>	القاهرة

حتى يتمكن العالم من ضمان تأمين إمدادات الكهرباء في ظل تحقيق الأهداف المناخية».

والنمو القوي لمصادر الطاقة المتجددة يعني أن نصيبها من مزيج توليد الطاقة العالمي من المتوقع أن يرتفع من 29 في المائة في عام 2022 إلى 35 في المائة في عام 2025، مع انخفاض حصة توليد الطاقة التي تعمل بالفحم والغاز. ونتيجة لذلك، ستستمر كثافة ثاني أكسيد الكربون لتوليد الطاقة العالمية في الانخفاض في السنوات القادمة. غير أن أوروبا خالفت هذا الاتجاه العالمي العام الماضي.

وقد تباينت اتجاهات الطلب على الكهرباء على نطاق واسع حسب المنطقة في عام 2022، حيث ارتفع استهلاك الكهرباء في الهند بقوة، في حين كان النمو في الصين أبطأ بسبب السياسة الرامية لإنهاء حالات الإصابة بفيروس كورونا المستجد «صفر كوفيد» التي تؤثر بشكل كبير على النشاط الاقتصادي.

كما سجلت الولايات المتحدة زيادة قوية في الطلب، مدفوعة بالنشاط الاقتصادي وزيادة الاستخدام السكني وسط طقس صيفي أكثر حرارة وطقس شتوي أكثر برودة من المعتاد. كما تقلص الطلب في الاتحاد الأوروبي بسبب اعتدال طقس الشتاء بشكل غير معتاد وانخفاض استهلاك الكهرباء في القطاع الصناعي، مما أدى إلى تقليص الإنتاج بشكل كبير بسبب ارتفاع أسعار الطاقة وتعطل الإمدادات بسبب الغزو الروسي لأوكرانيا. وكان الانخفاض بنسبة 3.5 في المائة في طلب الاتحاد الأوروبي هو ثاني أكبر انخفاض منذ الأزمة المالية العالمية في عام 2009، وكان أكبر انخفاض هو الانكماش الاستثنائي بسبب جائحة كوفيد عام 2020.

ويشير التقرير الجديد، الصادر عن وكالة الطاقة الدولية، إلى أن العرض والطلب على الكهرباء في جميع أنحاء العالم أصبحا معتمدين - بشكل متزايد - على الطقس، مع تكرار الظروف القاسية التي وقعت عام 2022. وبالإضافة إلى حالة الجفاف في أوروبا، اجتاحت الهند موجات من الحر الشديد، مما أدى إلى تحقيق أعلى ذروة في الطلب على الطاقة في البلاد على الإطلاق. وبالمثل، اجتاحت المناطق الوسطى والشرقية من الصين موجات من الحر والجفاف، مما تسبب في زيادة الطلب على تكييف الهواء وسط انخفاض توليد الطاقة الكهرومائية في مقاطعة سيتشوان. كما شهدت الولايات المتحدة أيضاً عواصف شتوية شديدة في شهر ديسمبر/كانون الأول، مما أدى إلى انقطاع كبير في التيار الكهربائي.

يشير التقرير إلى أن هذه الأمور تبرز الحاجة إلى إزالة الكربون بشكل أسرع، ونشر سريع لتقنيات



سيزيد نصيب الطاقة المتجددة من مجمل توليد الطاقة العالمي

توقعات بتزايد الإقبال على مصادر الطاقة المتجددة

على الرغم من التأثيرات العكسية لأزمة الطاقة، فقد تباطأ نمو الطلب على الكهرباء في العالم بشكل طفيف في عام 2022، ومن المتوقع أن يتسارع في السنوات القليلة المقبلة. فمن المقرر أن تهيمن مصادر الطاقة المتجددة على نمو إمدادات الكهرباء في العالم على مدى السنوات الثلاث المقبلة. إذ أنها ستلبي، جنباً إلى جنب مع الطاقة النووية، الغالبية العظمى من الزيادة في الطلب العالمي حتى عام 2025، مما يجعل من غير المحتمل حدوث ارتفاعات كبيرة في انبعاثات الكربون في قطاع الطاقة، وذلك وفقاً للتقرير الجديد الصادر عن وكالة الطاقة الدولية.

الدولية للطاقة إلى أنه: «من المقرر أن يتسارع الطلب العالمي المتزايد على الكهرباء، مما ينتج عنه أكثر من ضعف استهلاك اليابان الحالي للكهرباء على مدى السنوات الثلاث المقبلة. ويتمثل الخبر السار في أن مصادر الطاقة المتجددة والطاقة النووية تنمو بسرعة كافية لتلبية كل هذه الاحتياجات الإضافية، مما يشير إلى أننا نقترّب من نقطة تحول لانبعاثات قطاع الطاقة. كما تحتاج الحكومات حالياً إلى تمكين المصادر منخفضة الانبعاثات من النمو بشكل أسرع وخفض الانبعاثات

الجائحة. ومن المتوقع أن تكون الصين والهند وجنوب شرق آسيا هي مصدر أكثر من 70 في المائة من الزيادة في الطلب العالمي على الكهرباء على مدى السنوات الثلاث المقبلة، على الرغم من استمرار التذبذب بشأن الاتجاهات السائدة في الصين حيث إن اقتصادها حديث عهد بقيود صارمة فرضها فيروس كورونا المستجد (كوفيد-19). وقد أشار فاتح ييرول، المدير التنفيذي للوكالة

بعد تباطؤ طفيف العام الماضي كانت نسبته 2 في المائة وسط اضطراب أزمة الطاقة العالمية والظروف الجوية الاستثنائية في بعض المناطق، من المتوقع أن يتسارع نمو الطلب العالمي على الكهرباء بمتوسط 3 في المائة خلال السنوات الثلاث المقبلة (تقرير سوق الكهرباء لعام 2023 الصادر عن وكالة الطاقة الدولية). كما أن الاقتصادات الناشئة والنامية في قارة آسيا هي القوى الدافعة وراء هذه الوتيرة السريعة، بمتوسط نمو يبلغ 2,4 في المائة في المائة خلال السنوات التي سبقت

المحتويات

القسم العربي

تحليلات

توقعات بتزايد الإقبال على مصادر الطاقة المتجددة ٤
ديليوت تتوقع نمواً في أسواق العقارات في دبي والسعودية ٥



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توقعات بتزايد الإقبال على مصادر الطاقة المتجددة

يتوقع تقرير وكالة الطاقة الدولية أنه
من المقرر أن تهيمن مصادر الطاقة المتجددة على نمو إمدادات الكهرباء
في العالم على مدى السنوات الثلاث المقبلة