

TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

MIDDLE EAST

Annual Power Review 2023

ANNUAL POWER REVIEW 2023

MENA Construction 4.0

Highlighting digital solutions

Volvo Penta

Accelerating decarbonisation

TOUGH BALANCING ACT

THE ENERGY TRILEMMA IS
DRIVING DIVERSIFICATION TO
CLEANER POWER

Inside

Networks
EV
Hydrogen
Cables

INCLUDES ELECTRICAL EQUIPMENT
AND MATERIALS BUYERS' GUIDE 2023

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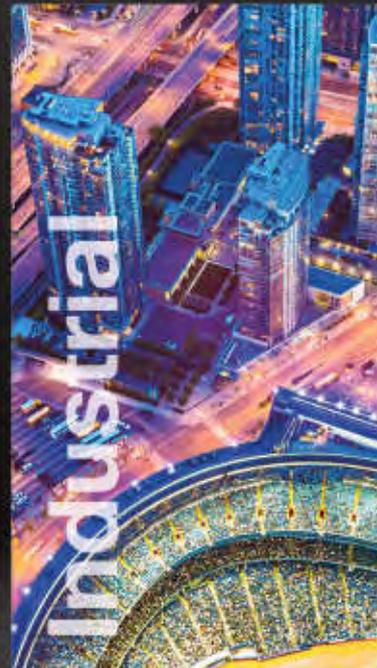
Advanced Paralleling Gen-Set Controller Platform



DSEG6600 Parallel Gen-Set Controller with Integral Heater

DSEG6680 Bus-Tie Controller

Key Applications



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EDITOR'S NOTE

IN OUR ANNUAL Power Review, Martin Clark reports on the shift happening in the Gulf region to cleaner energy development. The energy trilemma is driving an increasingly diversified energy portfolio into wind, solar, fossil fuels and generation from nuclear (Pages 24-25).

We received an overwhelming response to the MENA Construction 4.0 Forum, conducted in association with Technical Review Middle East. Please read the review on pages 16 and 17.

This issue also shines the spotlight on how electric vehicles are gaining popularity in MENA (Page 32) as well as how Schneider Electric is accelerating the circular economy (Page 34).

The Buyers' Guide on pages 40-44 brings you a comprehensive list of the region's electrical equipment suppliers.

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



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TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

MIDDLE EAST

SEVING THE REGION'S BUSINESS SINCE 1984

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Briefly

10 GW onshore wind farm coming up in Egypt

ABU DHABI FUTURE Energy Company PJSC - Masdar, a clean energy company, along with Infinity Power, a renewable energy developer in Africa, and Hassan Allam Utilities, a sustainable infrastructure-focused investment platform, signed an agreement with Egypt's New and Renewable Energy Authority to secure land to build a 10 GW capacity onshore wind farm in Egypt. It is set to be one of the largest in the world, with a project value of more than US\$10bn.

The signing in Cairo was witnessed by Egyptian Prime Minister Moustafa Madbouly; Sultan Al Jaber, UAE Minister of Industry and Advanced Technology; Mohamed Shaker El-Markabi, Minister for Electricity and Renewable Energy; Mohamed Jameel Al Ramahi, CEO of Masdar; Nayer Fouad, CEO of Infinity Power, and Hassan and Amr Allam, CEOs of Hassan Allam Holding.

The landmark wind project will produce 47,790 GWh of clean energy per year and reduce around 9% of Egypt's annual carbon emissions by displacing 23.8 mn tonnes of carbon dioxide annually. The wind farm will also help Egypt meet its strategic objective of sourcing 42% of its energy from renewables by 2030. The 10 GW plant will save the North African nation an estimated US\$5bn in natural gas costs a year.

As the UAE's flagship renewable energy company, Masdar's role demonstrates its deep and lasting commitment towards supporting African nations such as Egypt to meet their ambitious renewable energy objectives. The project is being developed by the consortium led by Masdar and its partners: Infinity Power, Masdar's joint venture with Egypt's Infinity, which is Africa's largest pure play renewable power company; and Hassan Allam Utilities, a sustainable infrastructure focused investment platform.

Al Jaber said, "This 10 GW onshore wind project is set to be one of the largest wind farms in the world, and largest on the African continent. It is a sign of the strong partnership between the UAE and Egypt, with great potential to create jobs, cut emissions and power homes with clean electricity at competitive economical costs."

Saudi Arabia to see world's largest green hydrogen facility in NEOM

NEOM, THE SUSTAINABLE regional development in northwest Saudi Arabia, has outlined a clear path towards the at-scale production of green hydrogen in NEOM for the global market, playing a key role to meet Crown Prince Mohammed bin Salman, Prime Minister and chairman of the NEOM Company Board of Directors' vision to diversify the economy and pave the way for the kingdom's plan to reach net zero emissions by 2060.

The NEOM Green Hydrogen Company (NGHC) facility being built in Oxagon is set to be the world's largest commercial-scale green hydrogen production facility. Once operational in 2026, it will produce an initial 600 tonnes of green hydrogen per day, which will be available for global export, saving as much as 5 mn tonnes of CO2 emissions per year.

During the announcement of its recent financial close, NGHC – an equal joint venture between NEOM, ACWA Power and Air Products – highlighted the support of 23 financial institutions, including Saudi Industrial Development Fund (SIDF), National Infrastructure Fund (NIF), as well as local and international banks. This funding is not only a critical milestone on the way towards delivering NGHC's global ambitions, but a vote of confidence from partners and financiers in NEOM as an incubator for renewable energy solutions and a hub for carbon-conscious investment.

NEOM's attainment of several key enabling milestones recently, falls in line with Energy Minister HRH Prince Abdulaziz bin Salman's goal for Saudi Arabia to be a leading exporter of hydrogen to the world.

Nadhami Al-Nasr, CEO, NEOM and chairman, NEOM Green Hydrogen Company, said, "NEOM is



Photo Credit : NEOM

Nadhami Al-Nasr, CEO NEOM and chairman NGHC, presents NEOM's hydrogen ambition at NGHC event in Riyadh in Oxagon.

committed to addressing global challenges, which includes minimising carbon emissions through the advancement of clean energy solutions such as Green Hydrogen. Along with our partners Air Products and ACWA Power, NEOM is investing in technology and industry innovations that will support a global transition to clean and sustainable energy. Through this work, we will create jobs, attract and develop local and international talent, as well as help drive economic diversification in the kingdom."

Oxagon, the home of advanced and clean industries in NEOM, was selected as the location for NGHC due to its natural resources, strategic coastal location and the opportunity for industrial efficiency as a result of proximity to supporting cutting-edge facilities and future tenants based there.

With NGHC as the renewable energy flagship tenant within the manufacturing eco-system being developed at Oxagon, immediate downstream and upstream localisation opportunities are already emerging.

Dubai Industrial City brings in lucrative investments from local and global companies

DURING ITS PARTICIPATION at the Ministry of Dubai Industrial City Industry and Advanced Technology's Make it in the Emirates Forum in the UAE, Dubai Industrial City, a member of TECOM Group PJSC and one of the region's largest industrial and logistics hubs, announced that it has attracted nearly US\$272mn in investments from local and global manufacturing companies.

Investments by local rubber products producer Universal Rubber Belt Manufacturing and local polymer solutions provider Stars Plastics Industries, were among the investments confirmed on the sidelines of the forum.

The investments reflect growing confidence in Dubai Industrial City's holistic ecosystem as



Photo Credit : Dubai Industrial City

Investments align with Operation 300bn and Dubai Economic Agenda 'D33.'

an enabler of sustainable, long-term growth, in line with the Operation 300bn and Dubai Economic Agenda 'D33' strategies to increase the industrial sector's overall economic contribution and localise supply chains.

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Briefly

Daikin publishes report on UAE's indoor air quality

DAIKIN MIDDLE EAST and Africa, a global manufacturer of heating, ventilation, air conditioning & refrigeration (HVAC-R) solutions released its first Art of Air survey findings, shedding light on the impact of Indoor Air Quality amongst residents in the UAE. Daikin collaborated with Censuswide, an independent market research consultancy, to conduct the study with the aim of increasing awareness of the importance of Indoor Air Quality – enabling residents to take action to improve quality of life.

The air we breathe determines the quality of life we can lead. The survey concluded that while 90% said the air quality around them impacts their quality of life and overall health only half take action to breathe clean air. The Art of Air survey by Daikin reminds us that Indoor Air Quality plays a critical role in our overall health and well-being. Indoor air temperature and humidity have a strong effect on our comfort, sleep, and health at home.

Studies show that indoor air can be several times more polluted than outdoor air. This is particularly relevant in the Middle East, where the region's weather conditions often lead people to spend over 90% of their time indoors. Consequently, it becomes imperative to prioritise and maintain fresh, clean Indoor Air Quality.

Apart from the impact the quality of air has on our health, investing in sustainable air conditioning systems is key. Air conditioning accounts for as much as 70% of UAE's electricity consumption. Overall, well designed, and high-quality air-conditioning system and air purification are vital to our health as much as a healthy diet.

Unfortunately, concentrations of some pollutants indoors are often two to five times higher than typical outdoor concentrations leading to a range of health issues, including allergies, respiratory problems, sleep, and reduced productivity. With a strong commitment to creating healthier living environments, Daikin is at the forefront of innovation, providing advanced systems that optimise air conditioning, heating, ventilation, climate control, and air purification.

Uzbekistan and TAQA strike power deal

ABU DHABI NATIONAL Energy Company PJSC (TAQA) has announced a collaboration with the government of Uzbekistan to explore strategic opportunities for investment in the country's power sector. These opportunities include new and existing power plants as well as associated power infrastructure, which could collectively be worth more than US\$3bn.

A strategic framework agreement and an implementation agreement were signed by His Excellency Azim Akhmedkhajev, First Deputy Minister of energy and His Excellency Sarvar Khamidov, Deputy Minister of Investment, Industry and Trade. The agreements were signed on behalf of TAQA by Jasim Husain Thabet, TAQA's group CEO and managing director.

The implementation agreement covers proposals for a greenfield combined cycle power plant with a capacity of approximately 1.5 GW. The new project is set to be developed adjacent to the existing Talimarjan power complex where TAQA has already announced plans to invest in the privatisation of two gas-fired power plants. The new partnership is expected to cover the design, financing, engineering, procurement, commissioning, testing, ownership, and operation of the power plant by TAQA.

The agreements are also looking at opportunities to invest in existing and further greenfield gas-fired power generation plants with a combined capacity of more than 3 GW along with electricity transmission and distribution infrastructure in Uzbekistan.

This strategic collaboration between TAQA and the government of Uzbekistan is another significant milestone in TAQA's international growth strategy. These agreements open the door for TAQA to bring its operation and maintenance



Photo Credit : Adobe Stock

The collaboration will include new and existing power plants as well as associated power infrastructure.

expertise to Uzbekistan in support of new and existing power generation projects. The company will also support the Uzbekistan government's process of reform for the sector. In transmission and distribution, the company will bring in international best practice infrastructure development and operation to help the Uzbekistan Government achieve substantial improvements in transmission and distribution network performance, network asset modernisation, customer experience, and collection services.

Khamidov said, "The Uzbekistan government is pleased to collaborate with our partners TAQA once again on these important power and infrastructure projects. This partnership and the pipeline of projects builds on the existing opportunities between our countries and our shared interests to invest and support a sustainable and reliable power sector. We look forward to working with TAQA to advance Uzbekistan's transformation."

Badeel, ACWA, SPPC sign PPAs on IPP projects in Saudi Arabia

THE WATER AND Electricity Holding Company (Badeel) and ACWA Power announced the signing of power purchase agreements (PPAs) with the Saudi Power Procurement Company (SPPC) for the development and operation of three major new solar PV Independent Power Producer (IPP) projects in Saudi Arabia.

The solar projects are part of the National Renewable Energy Programme (NREP), which is led and supervised by the Ministry of Energy, with PIF mandated to develop 70% of NREP's target capacity.

These projects intend to produce a combined capacity of 4.55 GWac of renewable energy, powering approximately 750,000 households. The Ar Rass 2, Saad 2 and Al Kahfah projects have a capacity of approximately 2,000 MWac,



Photo Credit : ACWA Power

The solar projects are part of the NREP.

1,125 MWac and 1,425 MWac of renewable power respectively, with a combined value of US\$3.25bn. Financial close for these projects is expected by the third quarter of 2023.

The Ministry of Energy aims to achieve the goals of Saudi Arabia's Vision 2030 in reaching the optimal power generation energy mix.

First Liebherr mobile cranes for Sankyu Saudi Arabia Co.

MACHINES THAT ARE used in refineries and other industries must meet the highest demands with regard to quality, safety and fast, reliable service.

Liebherr now has a new customer, Sankyu Saudi Arabia Co., which has taken delivery of its first mobile cranes from the market leader. The specialist in plant construction, operational support and logistics services will mainly use the LTM 1050-3.1 and LTM 1160-5.2 for maintenance work in refineries and other industries. Mahdi Al Salem, deputy branch manager of Sankyu Saudi Arabia says, "To grow

our business in Saudi Arabia and live up to our vision and mission of being number one in mechanical industry maintenance, we need to rely on strong customer service and products with a high level of safety. The new cranes from Liebherr are a perfect fit for our support team. With Liebherr, we can rely on competent and fast service should the cranes ever break down. Crane operations in refineries and other sensitive industries are very challenging." Liebherr provides this highly qualified service through Saudi Liebherr Company Ltd. with headquarters in Jeddah and branches in Dammam and Riyadh.

Sankyu also cites the price-performance ratio and reliability as key factors in its decision to use Liebherr cranes. The 50-tonne LTM 1050-3.1 mobile crane and the LTM 1160-5.2 with a maximum lifting capacity of 180 tonnes, combined with special equipment for working in different industries, precisely meet the requirements of major Saudi clients such as the oil production company Saudi Aramco.

With their long telescopic booms and high lifting capacities in their respective crane classes, the Liebherr mobile cranes are the perfect choice for the jobs planned by Sankyu.

Photo Credit : Liebherr



High safety standards of the Liebherr cranes and the reliable service were important purchasing criteria for Sankyu.

Shuqaiq 3 SWRO plant awarded at Global Water Summit Awards

AT THE GLOBAL Water Summit Awards on 9 May this year, the Shuqaiq 3 desalination plant was awarded in the 'Desalination Plant of the Year' category.

The highly energy-efficient SWRO plant is a key project in the modernisation of the water sector currently being carried out in Saudi Arabia by the Saudi Water Partnership Company (SWPC).

The GWI awards recognise major achievements in the water sector in the previous year, rewarding initiatives and companies that contribute to the development of the industry through improvements in operational performance, the adoption of innovative technologies, and sustainable financial models.

Shuqaiq 3 SWRO is one of the biggest seawater desalination plants using reverse osmosis technology in the Kingdom of Saudi Arabia, capable of supplying two million people in the Asir and Jizan areas. The plant, which is already producing water at full capacity, produces 450,000 cu m of potable water per day, making it a



This year, the emphasis of the GWI awards has been on recognising initiatives that represent progress in the field of desalination.

milestone in sustainable and innovative desalination. In September 2019, Shuqaiq 3 IWP was also awarded the 'Utilities Project of the Year' at the Middle East Energy Awards held in Dubai, UAE. The consortium, composed of ACCIONA, Almar Water Solutions, through Abdul Latif Jameel Enterprises, Marubeni Corporation, and Rawafel Alhadarah Holding Co., was awarded the contract by Saudi Water Partnership Company (SWPC) in 2019, as a key element in the seven-year statement project that sets out to modernise the water sector in Saudi Arabia.

Briefly

Green steel boosts SMS Group's revenue

SMS GROUP HAS significantly boosted its order intake to US\$4.9bn in the last financial year, thanks to increased sustainable business transformation.

The main drivers of this strong growth were the green transformation of the steel and metals industry as well as robust economic activity in both India and the USA. Sales also rose considerably to US\$3.3bn.

"Last year was again marked by problem areas and crises around the world," commented Burkhard Dahmen, CEO of SMS group. "Against this background, 2022 proved to be a good year, in which we achieved our interim goals despite various challenges and took the company forward significantly in terms of its organisation."

With the construction of the first climate-neutral steel plant in Sweden for H2 Green Steel and the transformation of thyssenkrupp Steel's iron and steel mill in Duisburg, SMS group has recently signed two major orders with a combined volume of over US\$3.24bn within just a few months.

"Our mission is #turningmetalsgreen. The latest mega projects are testament to our leading market position and, going forward, enable us to strike a careful balance in the order structure between equipment and service contracts. Since the green transformation is closely linked to services and digital solutions for more sustainable plants, our strategy in recent years has set the right course for successful business growth," commented Burkhard Dahmen.

In recent years, SMS has successfully transferred its core technological expertise in metallurgical plant engineering to new business areas by setting up the two joint ventures Primobius (battery recycling) and BOXBAY (port logistics).

Based on the good order situation, SMS expects a significant improvement in its operating result for the current fiscal year. The EBITA margin is expected to reach seven percent by 2026.

Photo Credit : Acciona

Briefly

DHL continues net zero journey with electric truck introduction

DHL GLOBAL FORWARDING'S digital road freight platform Saloodo! is set to be the first logistics company to introduce the electric Mercedes-Benz truck to the UAE.

The fully electric 40-ton eActros 300 Tractor is particularly suitable for heavy-duty distribution transport and compatible with all common semitrailers. Exclusively used by Saloodo!, the truck will contribute to reducing carbon emissions in the UAE in line with DHL's ambition to achieve net zero carbon emissions by the year 2050.

The Saloodo! team began investigating sustainable road freight solutions within the MEA region towards the end of last year. After shortlisting the suitable options, the Mercedes-Benz eActros 300 from Daimler Commercial Vehicles MENA (DCV MENA) and Emirates Motor Company – Commercial Vehicles (EMC CV) was chosen to be the first Saloodo! electric truck in the UAE and MEA region.

President and CEO of DCV MENA, Kay-Wolf Ahlden commented, "As the first truck customer in the MENA Region to embrace our Mercedes-Benz eActros 300 Tractor, DHL sets a powerful example in the realm of zero-emission transportation solutions."

"This fully electric marvel, equipped with our cutting-edge eAxle technology and two integrated electric motors, delivers both power and efficiency. With a remarkable gross combination weight of up to 40 tons, it proves that heavy-duty distribution transport can be environmentally friendly without compromising performance."

Tobias Maier, CEO of Saloodo! MEA said, "As we march towards our goal of zero carbon emissions by 2050, DHL remains committed to serving our customers with smart digital solutions that improve sustainability and efficiency. Our investment in the UAE's first electric truck, Mercedes-Benz eActros 300, is another step to pioneer innovative solutions which help us achieve our ambitious sustainability goals and create unique solutions for our valued customers. We are proud to put vision into practice."

ACWA Power signs agreement to enhance seawater pre-treatment technology

ACWA POWER, A leading developer, investor, and operator of power generation, water desalination, and green hydrogen plants, has signed a memorandum of understanding (MoU) with Nanostone Water Inc., a global membrane solutions company, to perform R&D and knowledge transfer to evaluate Nanostone's UF ceramic membranes and process technology in seawater desalination applications.

The partners will fulfil the agreement at the King Abdullah University of Science and Technology (KAUST), a leading innovation hub in Saudi Arabia. They will pursue applied industry-oriented research to develop a robust pre-treatment process for seawater desalination applications with superior protection and an extended lifetime for downstream reverse osmosis membranes.

"As the world's leading water desalination operator, ACWA Power is a catalyst for innovation in Saudi Arabia. Our contribution to the country goes beyond providing the greenest solutions and lowest costs for water desalination. We are also developing the world's most advanced engineering and technological expertise by constantly pursuing new solutions to address global water needs. It is imperative that we bring the best of the local and global innovation ecosystem, including research institutions and business partners, to Saudi Arabia, enabling us to develop innovative solutions for our future facilities," commented Marco Arcelli, CEO of ACWA Power.

Nanostone's UF technology provides partners and end-users with a solution against variations in water quality, including harmful algal blooms, along with reliable delivery of high-quality pre-treated water at a lower total cost of ownership.



Photo Credit : ACWA Power

The agreement was signed during the European Desalination Society Conference in Cyprus.

Both ACWA Power and Nanostone Water aim to capitalise on the outcome of this successful collaboration to jointly promote Nanostone's technology for commercial use in world-scale desalination plants throughout the GCC region.

Thomas Altmann, EVP innovation and new technology at ACWA Power, remarked, "Ceramic membrane is a robust pre-treatment technology with the potential for reliable operations, ensuring enhanced and consistent seawater quality. It offers long-term benefits for desalination operations, including the potential to reduce energy consumption and the carbon footprint of desalination plants."

John Ritter, president and chief operating officer of Nanostone, added, "We are delighted to work with ACWA Power to advance the next generation of ceramic membrane and process technology. Through this collaboration, we expect to prove our industry-leading ceramic ultrafiltration technology as an ideal pretreatment solution for seawater desalination."

ENEC certifies 39 nuclear operators

THE EMIRATES NUCLEAR Energy Corporation (ENEC) has announced that a further 39 certified national nuclear operators have joined the ranks of certified senior reactor operators (SROs) and reactor operators (ROs) in the UAE.

This brings the full number of SROs and ROs in the country up to 193, 69 of whom are UAE nationals. The new graduates received their certifications from the Federal Authority for Nuclear Regulation (FANR), the UAE's nuclear independent nuclear regulator.

Working alongside a host of international experts, they are now certified to operate the Barakah Nuclear Energy Plant as part of the operations crews of Nawah Energy Company (Nawah), the operations and maintenance subsidiary of ENEC mandated to operate and



Photo Credit : ENEC

Each individual received their certifications after passing rigorous examinations.

maintain the plant.

With Units 1,2 and 3 commercially operating and Unit 4 in the final stage of commissioning, more operators are now in training to ensure a sustainable pipeline of talent for the next 60 years of operations, and the long-term success of the UAE Peaceful Nuclear Energy Programme.



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Briefly

GAC Bahrain completes major solar project

GAC BAHRAIN HAS reached a major milestone in its drive to boost its sustainability with the installation of more than 550 solar panels on the rooftop of its warehouse in Bahrain Investment Wharf in Al Hidd. The solar array is expected to generate up to 487,000 kWh of clean and renewable energy annually and reduce GAC Bahrain's CO2 emissions by more than 485 tonnes and make about 195 tonnes of standard coal savings in the first year – the offsetting equivalent of Renewable energy solutions provider, Al Mannai Projects, carried out the five-month long project in full adherence with all relevant local regulations and safety standards.

"We are fully committed to minimising our impact on the environment and taking further steps towards sustainability," said Johan Fulke, managing director of GAC Bahrain.

The solar panel project is the latest part of GAC Bahrain's commitment to environmental responsibility, which is aligned with the wider GAC Group's sustainability strategy that includes a commitment to UN Sustainable Development Goals, particularly Goal 7: Affordable and Clean Energy and Goal 13: Climate Action. By investing in renewable energy, GAC Bahrain aims to reduce its carbon footprint, lower energy costs, and contribute to a cleaner and more sustainable future.

Its efforts are also part of a larger trend towards renewable energy adoption in the Kingdom of Bahrain, which has set a target of generating 5% of its electricity from renewable sources by 2025, and the Kingdom's Economic Vision 2030, which aims to reduce carbon emissions by 30% through local decarbonisation projects and doubling the development of regional renewable infrastructure.

Talal Al Mannai, chief executive officer of Al Mannai Projects, added, "We are delighted to have completed the installation of 550 Wp high-efficiency GCL solar PV modules, high-quality Al Mannai aluminium anodised solar mounting structure and balance of system (BOS) equipment for GAC Bahrain. The project was finished on schedule and met all international and Bahraini Electricity and Water Authority (EWA) standards."

New sustainability accreditation for The Surpluss

GLOBAL CLIMATE-TECH PLATFORM, The Surpluss, has launched a new certificate to encourage engagement across industries and support SMEs in achieving their sustainability goals. Current certifications and accreditations are often narrow in scope, expensive, and claims are hard to verify. The Surpluss Standard is being introduced to fill this gap, allowing smaller businesses that are new to sustainability to be assessed only on their collaborative efforts outside their own vertical supply chain.

The Surpluss Standard, acknowledged by the UK government IP Office, measures engagement based on how companies work together towards sustainability. It shares the same principles as The Surpluss platform, a digital ecosystem where businesses can share resources to enhance sustainability, encourage innovation, generate new income, and become more competitive.

The Surpluss member companies can apply for consideration by submitting evidence of their top synergies. Eligibility requirements include completing collaborations aligned with the 17 United Nations Sustainable Development Goals (SDGs), diverting waste from landfill, co-sharing resources such as warehouse space, and exchanging knowledge hours with other industries.

The standard recognises that companies will have varying synergies as no two businesses are the same. As such, it measures the quality of collaborative efforts, not quantity, to even the playing field for SMEs while simultaneously providing access to new opportunities outside of their conventional operations.

The Surpluss founder, Rana Hajirasouli,



The standard recognises that companies will have varying synergies.

explained, "Although standardisation is important for sustainability, it is unfair to assume companies have access to the same resources. We wanted to provide a standard which can assist organisations, irrespective of their size, to find the right sustainable business models that work for them, while also driving revenue."

"Collaboration has historically been a neglected component of accreditations, as has the need for building financial resilience whilst companies commit to undergoing the lengthy process of certification. We wanted to disrupt that cycle to embed a framework that is easily digestible for all businesses, so they can focus on creating a lasting positive social and environmental impact in their communities, instead of struggling against paperwork that yields no business benefit."

Developed in the UAE, The Surpluss' mission is to empower businesses to become passionate about climate action by creating a collaborative ecosystem to share resources and waste nothing.

A solution for network connectivity in Automated Container Ports

IN A DRIVE to increase the efficiency of international shipping, BTG and Anybus from HMS Networks have partnered to deliver positioning measurement systems for automated container ports.

BTG's IRM400 range is a modular measurement system designed to accurately control the position of a crane's spreaders and cargo. It measures sway, skew, and inclination using an infrared transmitter and high-resolution receiver mounted on the crane. Real-time data is collected from multiple sources to enable precise control of multi-ton loads traveling in three dimensions at high speeds.

BTG's IRM Spreader Measurement Sensor consists of a transmitter and a receiver. The Anybus CompactCom B40 was embedded into the receiver. The Anybus CompactCom provides high-performance data exchange that can handle even the most demanding synchronised motion applications - up to 1448 bytes of process data in each direction.



The Anybus CompactCom B40 embedded into the receiver.

Photo Credit - HMS

Photo Credit : The Surpluss

Masdar doubles its clean energy capacity



ONE OF THE world's leading clean energy companies, Masdar, has announced it has almost doubled its clean energy capacity and CO2 displacement in the span of two years. It is currently on track to fulfil its ambition of becoming one of the world's largest renewable energy companies by 2030.

Masdar achieved a clean energy capacity of 20 GW in 2022, generating 18,000GWh of clean energy and displacing 10 million tonnes of CO2 – an 85% increase since 2020. Masdar is set to be a key player in the overall success of the UAE's Year of Sustainability with an abundance of projects and agreements in the pipeline.

HE Dr Sultan Ahmed Al Jaber, UAE Minister of Industry and Advanced Technology, chairman of Masdar and COP28 President-Designate, said, "In the past 17 years, Masdar became one of the world's largest renewable energy investors and drivers of the energy transition. Our momentum will see us accelerate global clean energy growth, expand our renewable energy footprint, and play a vital role in delivering the UAE's Net Zero by 2050 strategic initiative."

In 2022, Masdar signed several significant agreements in new and existing markets. The Sharjah Waste-to-Energy project, the first commercial scale waste to energy project in the Middle East, was inaugurated in partnership with BEEAH. Work also continued on the Al Dhafra Solar Photovoltaic Independent Power Producer Project, which is set to be the world's largest single-site solar power plant upon completion.

Masdar also emphasised its commitment to become a global green hydrogen leader with plans to produce up to one million tonnes of green hydrogen per annum by 2030.

Karcher and BEEAH Group sign MoU to strengthen waste management solutions

GLOBAL LEADER IN cleaning technology, Karcher, and one of the region's leading sustainability experts, BEEAH Group, have entered into an agreement to collaborate across multiple projects and areas of interest that aim to maintain a cleaner city environment. Both parties signed a memorandum of understanding (MoU) to enhance their strategic collaboration in key areas of technology enhancements, such as robotic cleaning solutions.

"This collaboration reflects our shared commitment to driving innovation and delivering state-of-the-art solutions for cleaning, waste management innovation and sustainability," said Joe Lahoud, managing director, Karcher Middle East.

Under the MoU, Karcher will be the preferred partner in the supply of equipment for large sweepers for BEEAH's municipal contracts. The collaboration will enable BEEAH Group to leverage Karcher's cutting-edge cleaning technology to enhance waste management operations.

Empower's sustainable solutions to district cooling operations

EMIRATES CENTRAL COOLING Systems Corporation PJSC (Empower) has launched new policies and plans to ensure sustainability in its district cooling operations across Dubai, including the adoption of Reverse Osmosis (RO) technologies to purify and reuse water.

The company has now confirmed the commencement of construction of reverse osmosis plants in three of its eight district cooling plants in Palm Jumeirah, in line with the government's strategy to rationalise the consumption of desalinated water in district cooling operations, and instead promote the use of other alternatives such as sea water, dark water and treated sewage in order to enhance sustainability approaches and applications.

In 2022, Empower saved 412 million imperial gallons of fresh water by using recycled water in its operations.

HE Ahmed bin Shafar, CEO of Empower, said, "Environmental issues and the protection of natural resources have been a cornerstone in Empower's programme since its inception, and therefore the company adopted an integrated agenda that contributes to achieving positive environmental impacts."



His Excellency Ahmed bin Shafar.

Photo Credit: Empower

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“Only 25% of the Earth’s land mass today is covered by cell towers. At OQ Technology we are working to address this problem by enabling 5G-based massive machine communication all over the world using a constellation of nanosatellites which ensure a truly low latency of only a few milliseconds. By partnering with IoT squared, we will now be able to use our shared networks, resources and expertise to identify new target markets and applications that require satellite IoT services in Saudi Arabia and work together to identify solution requirements, while advancing the adoption of IoT solutions in support of the country’s digital transformation objectives.”

“Since embarking on its digitalisation strategy in 2018, Etihad Cargo has developed, trialled and launched new technologies and solutions to provide customers and partners with an improved service offering. The recently completed trials of Speedcargo’s AI-powered solutions have demonstrated it is possible to improve cargo capacity utilisation across Etihad Cargo’s fleet and standardise cargo acceptance and build-up processes to improve the consistency and quality of cargo handling at stations within Etihad Cargo’s network.”

“We are delighted to launch the Decarbonisation Technology Challenge alongside our partners. ADNOC has earmarked US\$15bn for landmark decarbonisation projects by 2030, including carbon capture, electrification, new CO2 absorption technology and enhanced investments in hydrogen and renewables. We look forward to nurturing companies with the most promising innovations that can help transform, decarbonise, and future proof the global energy sector.”

MUSABBEH AL KAABI

*Executive director of low carbon solutions and international growth directorate
ADNOC*

MARTIN DREW

Senior vice president – global sales & cargo

Etihad Cargo

“This new contract is the latest in our proud 50-year journey of supporting the state and people of Kuwait to meet their power needs with Mitsubishi Power’s industry-leading, reliable technology and local capabilities. As Kuwait embarks on its next phase of ambitious growth in line with Vision 2035, we are committed to continue supporting the Ministry in expanding its power infrastructure and ushering its transition towards a low carbon society. We are honoured to provide our advanced and innovative solutions and services to the Kuwait Ministry of Electricity & Water & Renewable Energy for the landmark Sabiya station, which has played a vital role in the continued economic growth of the country.”

“Our partnership with Ivanhoe Electric provides Ma’aden with a platform to pursue high impact growth opportunities, as we explore the tremendous mineral wealth potential of the Kingdom of Saudi Arabia. This joint venture is going to enable us to roll out Ivanhoe Electric’s cutting-edge Typhoon technology to accelerate our exploration programme as we look to grow our production pipeline faster, and for less. Together with partners like Ivanhoe Electric, we are confident in our ability to continue to drive the rapid growth of the sector in Saudi Arabia.”

ROBERT WILT

*CEO
Ma’aden*

“The Polished Water Plant is a sustainable solution that will deliver a significant amount of usable water to clients daily, adding great value to the existing industrial sector, and supporting the vision of our wise leadership in providing environment-friendly solutions for industry. Such measures are necessary as we look for ways to support the viability of industry while aligning with our government’s vision for economic diversification.”

MOHAMED AL KHADAR AL AHMED

*CEO
Khalifa Economic Zones Abu Dhabi – KEZAD Group*



KHALID SALEM

*President of Middle East & Africa
Mitsubishi Power*

OMAR QAISE

*Founder and CEO
OQ Technology*

“We’re delighted to team up with Air Canada Cargo to offer expanded access to more destinations in Canada via our European gateways, all bookable online creating a seamless digital experience. This arrangement with Air Canada will benefit many of our customers, particularly those in West Asia, Middle East and Africa seeking to transport agricultural equipment, machinery, aircraft parts, as well as perishables and general cargo into Canada and other points in North America.”

NABIL SULTAN

*Divisional senior vice president
Emirates SkyCargo*



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

Honeywell introduces game-changing tech for warehouses, maximising worker efficiency

HONEYWELL, THE GLOBAL technology leader, has revealed the latest trends for warehouses across the region with increased demands for efficiencies bolstering technology adoption and growing the e-commerce sector.

In the Middle East, there is an increasing demand for efficiency in warehouses to ensure workers are fast and effective in distribution.

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



Photo Credit : Honeywell

Honeywell develops and deploys an innovative range of digital tools to help empower warehouse workers amidst growing e-commerce demands.

Empower briefs key customers on latest district cooling industry trends

EMIRATES CENTRAL COOLING Systems Corporation PJSC (Empower), the world's largest district cooling services provider, held the first meeting with its key customers for the year, aimed at highlighting the new developments in district cooling sector and educating on Empower's practices in the district cooling operations.

The company also showcased its advanced technologies used in the production and distribution of chilled water. During the meeting, professional leaders of Empower highlighted the sustainable business model developed by the company using national and international expertise. The meeting also featured a discussion with the customers on many revolutionary ideas, challenges and opportunities.

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

L&T construction to build world's largest green hydrogen plant at NEOM

THE POWER TRANSMISSION & Distribution Business of Larsen & Toubro has achieved important milestones for the world's largest green hydrogen plant being built by NEOM Green Hydrogen Company. Located at Oxagon in Saudi Arabia's region of NEOM, NEOM Green Hydrogen Company (NGHC) is an equal joint-venture by ACWA Power, Air Products and NEOM.

NGHC is setting up a mega plant to produce green hydrogen at-scale for global export in the form of green ammonia with a total investment of US\$8.4bn. Supported by 23 local, regional, and international banking and financial institutions, the project has now achieved full financial close, and construction is moving forward.

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

AUS enhances 3D concrete printing with industry collaborations

AMERICAN UNIVERSITY OF Sharjah (AUS) researcher and professor in civil engineering, Dr Adil Al-Tamimi, has been researching the use of robotics in 3D printing. "Since the construction industry plays a major role in the economic growth of the UAE, we are researching 3D concrete printing as one of the means to achieve automation in the construction industry," said Dr Al-Tamimi.

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



Photo Credit : AUS

Dr Al-Tamimi developed a Semi-Automation System in the AUS civil engineering lab to conduct research experiments and produce samples of constructed concrete.



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EXECUTIVES' CALENDAR 2023-24

OCTOBER 2023

2-4 **WETEX & Dubai Solar Show** DUBAI www.wetex.ae OCTOBER 2023

NOVEMBER 2023

21-22 **The Mining Show** DUBAI www.terrapinn.com/miningme

DECEMBER 2023

4-7 **The Big 5 Show** DUBAI www.big5global.com

JANUARY 2024

26-29 **Big 5 Construct Saudi** RIYADH www.big5constructsaudi.com

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

12th edition of Big 5 Construct Saudi to return to Riyadh in February 2024

BIG 5 CONSTRUCT Saudi will return to the Riyadh Front Exhibition and Conference Centre from 26 - 29 February in 2024.

According to the show's organiser dmg events, product sectorisation will take centre stage next year, apart from steel fabrication, concrete, urban design and landscape, and construction technology.

The event will highlight the most recent advancements, including artificial intelligence, automation, and digital construction solutions, as technology continues to advance the construction sector. With the inclusion of these industries, Big 5 Construct Saudi will provide a comprehensive exhibition experience that spans all facets of the construction industry, from design to completion.

Muhammed Kazi, vice president – construction at dmg events, said, "Big 5 Construct Saudi's focus on product sectorisation in 2024 is a timely response to the evolving needs of the Saudi construction market with a project pipeline worth US\$1.6trn."

"By bringing together industry players from specific sectors, the event offers a valuable platform for networking, knowledge-sharing, and exploring new business opportunities. We believe that this targeted approach will help drive innovation and growth in the construction industry."

The largest trade show in Saudi Arabia will also return with its series of free-to-attend CPD-certified Industry Talks as well as specialised co-located events including HVAC R Expo, Stone & Surface Saudi Arabia, and FM Expo Saudi Arabia.

This year's edition concluded with more than 44,542 visitors. It featured more than 820 local and international exhibitors from 40 countries, who collectively showcased latest products, services, and technological innovation that cater to the entire construction value chain. Companies signed US\$560.6mn worth of deals at the show, with US\$1.12bn generated in expected sales.

"The sixth edition of the HVAC R Expo promised to be yet another key event in the Saudi construction landscape. The HVAC R expo being organised along with The Big 5 Saudi event was once again



Photo Credit: Big 5 Construct Saudi

Product sectorisation will take centre stage at the Big 5 Construct Saudi next year.

instrumental in bringing key decision-makers and manufactures under one roof where state of the art solutions for the Saudi market were presented to key contractors, distributors, end users and various other stakeholders. Our Carrier team welcomed industry professionals and the distinguished guests at our stand," said Amr Elmasry, general manager, Carrier Saudi Arabia.

Last year, Saudi Arabia's PIF-backed projects such as NEOM, Red Sea Global, Diriyah Company, Qiddiya, and ROSHN attended the show and engaged in various content programmes.

"As the largest construction event in the Kingdom, Big 5 Construct Saudi continues to demonstrate the industry's resilience and determination to keep driving the country's growth on the sidelines of its ambitious pipeline of new, ongoing, and planned mega and giga projects in line with the Vision 2030 objectives. We are proud to be a part of this journey towards shaping the future of the Kingdom's construction industry," concluded Kazi.



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The forum gathered experts from the region's leading companies.

Photo Credit: MENA Construction 4.0 Forum

MENA Construction 4.0 Forum highlights digital solutions to boost sustainability

“Everyone has a responsibility to embrace digital technologies, and stakeholders that adopt [these technologies] will have greater benefits.”

Mohammed Faisal Aziz, principal segment consultant for digital buildings, Schneider Electric

THE MENA CONSTRUCTION 4.0 Forum, which took place on 24-25 May at the Habtoor Grand, Dubai, was a resounding success.

The event sponsored by Group AMANA, Superior Essex, and Oppidum delivered an exciting mix of presentations and panel discussions and was attended by more than 150 delegates from the construction community of the UAE and Saudi Arabia.

Experts from the region's leading companies, including Azizi Developments, Red Sea Global, Dubai Holding, Sobha Realty, ROSHN, Group Amana, Majid Al Futtaim, Consolidated Contractors Company and the UAE's Ministry of Energy and Infrastructure came together to discuss current developments, share experiences and best practices as well as access the latest innovations to advance digitalisation and sustainability.

“At the MENA Construction 4.0 Forum

this year, stakeholders identified the need for technologies that will not only provide optimal solutions but also cater to the growing demands for sustainability, apart from highlighting the trends that are revolutionising the industry. We have always worked to provide platforms that enable value creation for all regional stakeholders, so we were thrilled to have hosted this event for the influential actors in the region, especially the UAE and Saudi Arabia,” said Vinay T, head of events MENA at Alain Charles Events, the organisers of the forum.

A wide range of topics was explored over the two days, through a combination of thought-provoking presentations, case studies and interactive panel discussions, which generated lively questions and debate from the audience. Attendees were also able to answer polls at the beginning of the sessions.

Day 1

The programme commenced by exploring various aspects of greener, and more effective building solutions, including presentations by Alaa Basamh, senior business development engineer at Group Amana. He explained how digital integration and the Internet of Things (IoT) can create smart buildings that can optimise energy consumption and user experience.

This was followed by a session on how data can be accurately used to come up with innovations in the construction industry, by Bisrat Degefa, head of digital development at Gleeds. Billel Dridi, digital transformation lead at Bureau Veritas, gave an insightful presentation on BIM, digital twins, AI, and IoT.

The first panel discussion on Day 1 further examined the digital world of construction. The panel members' discussion focused on creating smart cities, and how digitalisation would play a role in that.

Yasmina Kridly, BIM Manager at Jacobs, highlighted the importance of interconnectedness when developing cities.

"Now, we have all these experts who can meet in a virtual environment, who can work simultaneously on a project. All the stakeholders can view and discuss issues at once. You take any design meeting in an open 3D environment, and you can actually visually see issues that were never seen before," she said.

"Smart cities need to be sustainable, not just driven by technology," said Dr Marwan Abu Ebeid, digital construction lead at Turner Construction International, adding that "by 2050, cities will be the highest drivers of growth in the world."

Schneider Electric's principal segment consultant for digital buildings gave a presentation on how construction companies can achieve sustainability goals. "Buildings are responsible for more than 60% of emissions," said Mohammed Faisal Aziz, adding that "everyone has a responsibility to embrace digital technologies, and stakeholders that adopt [these technologies] will have greater benefits."

The second panel session looked at selecting the right transformation and optimisation technology, as well how important it is to develop in-house technology. Here, BIM and digital twins emerged as important technologies in the construction industry. "If there's no BIM model, there's no digital twin," said Ahmad Faeq M Salih, senior director - knowledge management & operational excellence at Khatib & Alami PTE.

Syed Saud, director- systems projects delivery at Red Sea Global, said that the company uses BIM for data collection as well. "Live data is collected from the site and it feeds into BIM modelling."

director for Building Information Modelling Mohammad Aldawood devoting a session to it. How data sources can be used to create an accurate representation of the built environment was the key theme of the presentation.

The event ended with a panel session on sustainable construction technologies, where professionals from companies such as Majid Al Futtaim, Sobha Realty, Omnium International Ltd., and Elevation Sustainable Building Solutions were present.

The forum was ably chaired by Stephen Board on Day 1, who is director at Quantum Global Solutions. On the second day, it was chaired by Michael Davies, country director



The event held interactive panel sessions.

Photo Credit : MENA Construction 4.0 Forum

Day 2

The next day, attendees returned to another power-packed programme of informative sessions. We began with Dubai Holding's presentation on efficient project delivery by Mohamed Ahmed Elattar. The second session was by KEO International Consultants digital projects manager Mateusz Lukaszewicz, who showed the attendees different kinds of tools and softwares they could use for data validation.

BIM continued to be the highlight of the event, with Red Sea Global's associate

at Quantum Global Solutions.

Speaking on his experience at the MENA Construction 4.0 Forum, Omnium International's Dubai branch director Nicky Dobreanu said, "The conference provided an insightful and informative experience, and I was particularly impressed by the updates on projects in Saudi Arabia and the UAE.

I strongly believe that the presentations, panel discussions and networking sessions shed light on the significant developments and advancements in these areas, offering valuable takeaways for all attendees."

Ayad Chammas, partner at Nirman Ventures added, "The thing I particularly liked about the event was the diverse range of topics covered. From the implementation of AI and robotics to the integration of sustainable practices, the event provided valuable insights into the transformative potential of the construction industry. I highly recommend the Construction 4.0 event to anyone seeking to stay at the forefront of industry advancements." ■

“From the implementation of AI and robotics to the integration of sustainable practices, the event provided valuable insights into the transformative potential of the construction industry.”

Ayad Chammas, partner at Nirman Ventures

Championing intelligent construction solutions

Group AMANA's latest digital offerings can cut emissions by 50% and improve safety at sites.

GROUP AMANA IS one of the regional leaders in the design-build of industrial and commercial facilities, based in the UAE. The company was one of the sponsors of the MENA Construction 4.0 Forum, held in Dubai last month.

During the event, the company showcased its technologies, and highlighted its commitment to digitalisation and sustainability. Group AMANA's senior business development engineer Alaa Basamh kickstarted the forum with a presentation on intelligent construction solutions. He explained to the audience how IoT is helping create smart buildings. The company's 'Manufacture' vertical includes offerings such as DuBox and DuPod, which are changing construction in the region with intelligent solutions and innovative technology. DuPod industrialises the entire construction process by shifting construction activities to an off-site controlled facility using loose parts and MEP cages.

AMANA's 'Construct' vertical includes AMANA Contracting and AMANA Aviation Fueling, building on the Group's rich legacy of industrial construction. Meanwhile, the 'Enhance' vertical includes AMANA Solar and AMANA Energy-Saving, which are driving the region's sustainability agenda. With more than 8,000 employees in 11 cities across seven countries, Group AMANA continues to build on its formidable legacy, shaping the future of construction.

AMANA has been a pioneer in adapting modular construction to solve complex challenges, streamline efficiencies, and build greener.

Hattan Ghazi Nazer, vice president KSA at Group AMANA



Group AMANA builds the world's largest vertical farm in Dubai South.

Photo Credit: Group AMANA

A pioneer in modular construction

As projects across the region race to completion, modular construction has emerged as a viable solution, leading to the increased involvement of DuBox and DuPod in several projects spanning multiple industries. The off-site modular construction approach offers several advantages, including a safer building environment, decreasing the need for manpower by 30% and making it an ideal solution for the post-pandemic environment. It enables a faster time to market for fully designed structures, with a 30-50% decrease in construction duration.

Moreover, this methodology significantly

enhances safety measures, reducing the associated safety risks by up to 70%. Additionally, embracing off-site modular construction helps minimise environmental impact by cutting carbon emissions by 50% and decreasing construction waste by 50%. The final products are easily relocatable, further enabling the client to shift and relocate in sync with market demands.

For its digital transformation approach, AMANA has used BIM and digital twins, which aid in faster delivery. Its off-site construction manufacturing in Rabigh in Saudi Arabia had eight modules finished daily, with a 15-day production cycle.

In 2019, the company expanded its operations to Saudi Arabia, where it is working with clients such as Red Sea Global and The Saudi development company, which is the primary firm behind the construction of NEOM.

Hattan Ghazi Nazer, vice president KSA at Group AMANA said, "AMANA has been a pioneer in adapting modular construction to solve complex challenges, streamline efficiencies, and build greener." ■

PlanRadar introduces Document Management System to streamline project efficiency

PLANRADAR, ONE OF Europe's leading digital construction, real estate and facilities management platforms, has enhanced its comprehensive suite of digital management tools with a new document management function.

The intuitive Document Management feature has been specifically designed in response to calls from existing PlanRadar subscribers for an easy-to-use, intuitive and streamlined way to collate and manage data between the in-field and back-office teams. It answers the call by offering a painless way to track, plan and document approvals to make it easier to maintain a tamper-proof audit trail and a clear picture of all sign-offs during projects. Complementing the wider PlanRadar platform, the new feature

improves document organisation, versioning and collaboration, combining plans and documents into the same approval flow. Users can digitally store all project data in easy-access folders, mark up plans, share feedback and approvals on up-to-date documents and compare file revisions in real-time.

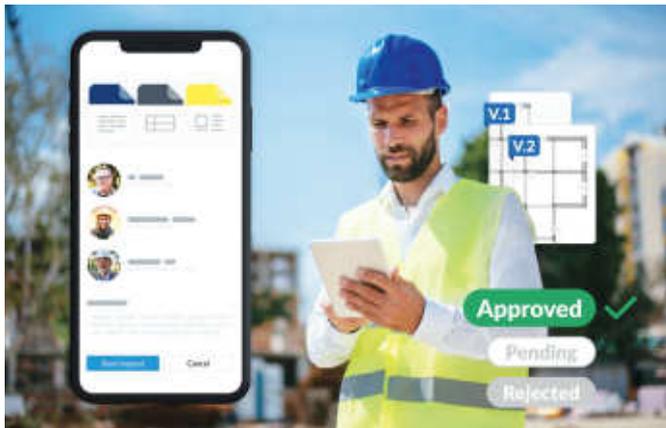
The improved functionality achieved by incorporating this new feature means files and records can be accessed and shared effortlessly, helping users save time. Project teams can guarantee vital documents are safe, secure and easy to find on request, supporting compliance-related activities.

Acknowledging the constant evolution of software systems, the Document Management feature has also been developed with interoperability in mind. PlanRadar has created this feature to stand alone as its own document storage and management solution - purpose-built for construction and real estate professionals - or to integrate with other software customers already use. Documents from Sharepoint, Dropbox and Google Drive can be uploaded directly into PlanRadar, no-code integrations allow automatic document sharing with other software systems and an easy-to-use interface keeps onboarding fast and simple.

Ultimately, PlanRadar's new feature will minimise costly mistakes with all documents, changes and approvals tracked in one place, reducing potential risk and rework while maintaining complete documentation for claims protection and preventing extra costs to the project.

For more information, visit: <https://www.planradar.com/ae-en/product/construction-document-management/>

Photo Credit : PlanRadar



The intuitive new feature is set to revamp project record keeping.

BUTTING partners with Cronimet Envirotec for enhanced metal waste recycling

BUTTING, A PROMINENT stainless steel processor known for its corrosion-resistant and low-maintenance materials, is actively seeking ways to optimise its operations, particularly in metal waste recycling. Since 2021, BUTTING has forged a close collaboration with recycling specialist Cronimet Envirotec, aiming to reduce waste volumes and improve recycling rates by repurposing waste generated during the production process.

Currently, Cronimet Envirotec handles the recycling of residues from BUTTING's cutting and grinding processes, as well as dust from their filter systems. Through a specialised recycling process, materials that require mandatory waste disposal can be effectively separated into their individual constituents, reintegrating them into the general value chain. This marks a significant step forward.

By transforming materials subject to mandatory waste disposal into recyclable materials, they can be utilised as additives in metal production. The company employs vacuum distillation technology to process their metal waste containing oil and water. This process involves drying and de-oiling sludge from grinding processes, resulting in the production of distilled water, oils, and metal powder, enabling the complete recycling of all metallic components.

To handle powders and dust containing metal, a dedicated briquetting plant is employed, utilising a natural binding material. This ensures effective binding of even the finest particles, transforming the dust into solid metallic briquettes.

Aligned with the United Nations' Sustainable Development Goals, BUTTING aims to adhere to the 12th goal, 'Responsible consumption and production'. In pursuit of this goal, the company envisions expanding their environmentally friendly recycling efforts to



Photo Credit : BUTTING

BUTTING recycles metal waste sustainably.

encompass other types of metal waste in the future.

BUTTING waste management officer, Werner Peesel, tracks and supports the responsible disposal of various types of waste of the company.

"Our goals are, on the one hand, to minimise waste from our various processes and, on the other hand, to subject it to ever finer separation at the point of origin. We are aware that our waste contains valuable raw materials, so we strive to return these raw materials to the general value chain in order to conserve natural resources. We have been steadily improving our recycling rate for several years now," said Peesel.

Transforming tomorrow: harnessing the potential of technology

Networks are fundamental to digital transformation, and Nokia is uniquely positioned with its portfolio across fixed, mobile, and cloud networking technologies. We find out more on the technology innovation leader's refreshed brand and strategy from Rima Manna, VP, Middle East marketing unit, Nokia MEA.

TECHNICAL REVIEW MIDDLE EAST (TRME): This is a substantial change in Nokia's updated strategy. What prompted the rebrand?

RIMA MANNA (RM): The new logo is needed to reflect the energised, dynamic and modern Nokia of today – a B2B technology innovation leader playing a pivotal role in an increasingly digital world, driving productivity, sustainable growth, and inclusive access. It underpins our strategy to be solely focused on being a B2B technology innovation leader and scale the B2B business as we capture the opportunity of digital transformation, in every industry.

The refreshed brand is a visual representation of Nokia's purpose – "to create technology that helps the world act together." Created from five abstracted letterforms, each works together to read as 'Nokia'. This is symbolic of our belief in collaboration. We are bringing together customer and partner ecosystems to create tomorrow's digital services and applications – delivering collaborative advantage, together.

The brand refresh directly supports Nokia's company and technology strategy to deliver sustained long-term growth as we capture the opportunity of digital transformation in every industry.

Having successfully reset the business, we are refreshing our company and technology strategy to move into the 'Scale' phase of our long-term strategic transformation to drive sustained growth.

Our long-term strategic transformation and refreshed technology strategy is enabled by our renewed brand. Other 'enablers' we are firmly focusing on including investment in R&D, future-fit talent, and ongoing digitisation.



Photo Credit : Nokia

Rima Manna, vice president,
Middle East marketing unit, Nokia MEA.

TRME: Why did you identify the need to develop ESG into a competitive advantage and how do you intend to do so?

RM: Sustainability is a core component of Nokia business and technology strategies. The way we see it, there is no green without digital.

Last year, we announced our enhanced ESG strategy, designed to maximise Nokia's impact. Combining our technology, solutions and capabilities to address some of the biggest global challenges, our strategy also aims to create increased value.

Nokia has been chosen as one of the most ethical companies for several years in a row. We pride ourselves on our ethics and compliance practices.

TRME: Could you describe what you mean by "a future where networks going beyond connecting people and things – they're adaptable, autonomous and consumable". How will this be implemented in businesses and what will be the benefits?

RM: They are networks that sense, think and act, and they maximise the opportunity of digitalisation.

Nokia has been at the forefront of harnessing the exponential potential of networks and we also have a clear vision of how to create technology that helps the world act together. Just recently, at Mobile World Congress in Barcelona, we showcased to the world the importance of networks that sense, think and act. Now this all sounds great, but why is it necessary?

We live in a world that is increasingly becoming more complex. While lives may be getting longer, healthier and richer, the world is facing fundamental challenges – Productivity is stalling, pressure on the planet is increasing and access to opportunity remains stubbornly unequal. Digitalisation is central to the solution. This is where Nokia's expertise can help.

TRME: How important do you consider the Middle East region to the company and how has this been incorporated into the long-term strategic transformation strategy?

RM: The Middle East has quickly expanded, adapted and evolved to meet the challenges of the 21st century. The region has a rich history and diverse ecosystem of critical industries that keep the world's societies and economies moving forward.

While known best for its rich oil and gas resources, the Middle East also leads the

world in low-carbon footprint desalination technology. With so many key global industries the region is a key market for digitalisation. Digitalisation allows enterprises to build greater resilience for their business and their operations. Helping to address supply chain challenges, but also providing the tools needed to diversify business models for the future. Whether it's connected sensors and infrastructure for monitoring environmental conditions or optimising operations to create less waste, digitalisation holds the key.

Nokia's products and services are at the very heart of digital age development. We are dedicated to bringing technologies like 5G, private campus networks and modernised mission-critical IP/MPLS networks to enterprises, delivering solutions that go far beyond "good coverage." Our solutions for enterprises provide the elements needed to support productivity-enhancing operational tools

like digital twins and AR-guided work instruction for manufacturing. They are essential for increased automation for port operations and mining, and remote and offshore communications coverage for renewable energy operations. Our society-critical network technologies allow for improved situational awareness for public safety and accessibility to smarter citizen services.

TRME: Which industries in the Middle East do you envision has the most to gain from digitalisation and how will Nokia help unlock this?

RM: Digitalisation allows enterprises across different industries to build greater resilience for their business and their operations. It also helps to address supply chain challenges and provides the tools needed to diversify business models for the future.

Historically, the region has lagged North America in digital transformation, but it's

seeing a wave of technological evolution. Industries and enterprises aren't just planning to evolve, they're actually implementing cutting-edge technologies. Heavy industries such as oil and gas and maritime ports are among the fastest when it comes to adopting these technologies.

In oil and gas, the industry is actively pursuing the 'killer use case' of remote wellhead connectivity. 5G is making that a reality by bringing pervasive, reliable coverage to remote and offshore rigs, enabling new levels of automation that can improve productivity by 10%, reduce emissions by 20% and, according to PwC, boost global GDP by US\$1.3 trillion by 2030. And for port operators, 5G is bringing an average improvement of 25,000 more terminal berth moves per year, with a boost in TEU throughput by 10%.

And it's not just 5G. Technologies like digital twins are proving to be equally revolutionary. ■

Optimising the manufacturing industry through digitisation

The UAE's manufacturing sector has been remarkably agile. Vibhu Kapoor, regional vice president, Middle East, Africa and India at Epicor, highlights three trends that will shape the industry.

MANUFACTURERS MUST KEEP one eye on the drawing board, ready to change when the need arises. Meanwhile, they must investigate every part of their operations and sniff out opportunities for streamlining processes.

The UAE's recently launched Industrial Technology Transformation Index (ITTI) is aimed at formally assessing the readiness of UAE manufacturers and advising them on the best ways to digitise their operations. What will emerge from this programme is likely a further acceleration of technology implementation, which I believe, will be defined by three main adoption trends.

Connected cloud environment

The cloud's capacity to optimise is what makes it so attractive to manufacturing decision-makers whose principal concerns are efficient production and minimal waste. In a tight market, high yields and customer satisfaction also play leading roles. Cloud-native ERP solutions help connect the business in a way that premises-based platforms cannot. All stakeholders have



Vibhu Kapoor, regional vice president, Middle East, Africa and India, Epicor.

Photo Credit: Epicor

critical information at their fingertips, on their device of choice, and at the time of their convenience.

This means that information silos are swept away and replaced with centralised repositories of corporate wisdom which detail the entirety of the production lifecycle, from design and resource procurement to production and sales. This connected environment is, of course, a boon to real-time operations, but it also offers opportunities to fine-tune those processes.

Investing in quality data

Manufacturing has always used data to optimise individual processes, deliveries, warehousing, and sales. But now, data has become central to the overarching strategy

of businesses. However, when it comes to data, we should think in terms of quality over quantity. Clean, accurate data will give actionable insights, and suboptimal data may hurt more than it helps. Part of the challenge of ensuring that an organisation has access to sufficient data lies in the existence of silos — fiefdoms of ownership characterised by a territorial claim to data. If it is financial data, it should belong to finance; and if it is employee data, it should belong to HR. These barriers must be demolished, and data must be united in a store owned by everybody. A common data model will ensure each team has a comprehensive view, not only of what matters to them most, but of how their work fits into the enterprise as a whole.

Automation and integration

UAE manufacturers should look out for opportunities to integrate new tools that have the potential to supercharge their entire technology environment. Given the leading role the UAE has played in the rollout of 5G networks, we can expect many local and regional technology companies to offer IoT solutions that will bolt into the existing cloud environment and into ERP systems. This will represent a sea of change in the capabilities of the modern manufacturer, in terms of optimisation and predictive maintenance. ■

IVECO launches heavy-range vehicles in Saudi Arabia

IVECO's newest S-Way range of trucks focus on the driver experience, efficiency and business productivity.

IVECO AND ARABIAN AUTO AGENCY unveiled the IVECO S-Way range of long-haul trucks in Saudi Arabia in May. After the regional launch in Dubai in December 2021, the vehicles were presented to the Saudi market at an event held on 17 May at the Intercontinental Golf Riyadh Hotel.

The S-Way vehicles will be locally assembled by Zeemat Manufacturing (ZMT), which is the authorised assembly factory for IVECO trucks in Riyadh. It is a wholly owned subsidiary of Arabian Auto Agency.

The vehicles will deliver fuel savings up to 4%, on top of its existing fuel efficiency that IVECO offers. The vehicle's aerodynamic performance is further enhanced by additional features that reduce drag by closing gaps. They include the optimised aerodynamic kit with rubber extensions to close up the space between tractor and semitrailer. The new design of the door, which extends all the Way range down to the second step, creates a smooth surface on the sides of the cab, reducing turbulence at cruising speed.

The new design also comes with improved direct visibility for the driver with the one-piece side windows and rearview mirrors. It offers full LED lights, which have a sharper beam that improves visibility and obstacle perception by 15%, further enhancing safety in low-light conditions. The cab also addresses security when the vehicle is parked with the new design of the door which now extends all the way down, leaving only the bottom step exposed, and includes an additional mechanical door lock inside the cab. The cab has been redesigned and reinforced to ensure high levels of passive safety. The dashboard and central stack have been redesigned to improve operating comfort and efficiency with a new layout and greatly increased functionalities. The new start/stop engine button and the slot for the electronic key with integrated remote control are conveniently placed on



IVECO and AAA launched the S-Way vehicles in Riyadh.

Photo Credit : IVECO

the dashboard near the DNR area.

The new engine line-up meets Euro III/ V emissions standards. The Cursor 9 and 13 engines provide a wide range of power ratings starting from 360 hp to 560/570 hp. The engine efficiency has been improved with the introduction of the Common Rail injection system.

The 9 and 13-litre engines have been coupled with new, high-efficiency Hi-Tronix 12 speeds automated gearbox which enables substantial improvement in electronic clutch control, resulting in greater efficiency,

The S-Way vehicles will be locally assembled by Zeemat Manufacturing in Riyadh.

enhanced durability and better performances.

IVECO also has the T-Way models, which are engineered for the most extreme off-road missions.

IVECO's Way Range consists of four models. The most durable vehicle on the heavy market, T-Way pushes the boundaries of performance, dependability, and adaptability, while the S-Way ON is perfect for long-haul highway travel when fuel efficiency is essential. The S-Way ON+ can be used for local and light off-road missions, and the S-Way OFF is a cross between S-Way and T-Way vehicles.

Shahram Falati, IVECO Africa & Middle East business director, said, "With the introduction of the new IVECO Way Range in Saudi Arabia, where some models will be produced locally, we plan to further consolidate and increase our presence in this important Market, thanks to our ever-growing collaboration with our partner Arabian Auto Agency." ■

Digitalisation a must for manufacturing companies

Digital transformation is the key to agile supply chains and meeting rapidly evolving consumer needs, writes Michael Schwarz, MES/MOM software expert at AVEVA.

TODAY'S MANUFACTURERS MUST

adapt to pre-existing challenges, such as retiring workers, a shortage of skilled workers, and ever-more pressing sustainability drivers pushing energy and waste reduction.

To maintain competitiveness, such organisations should:

- Enable cross-functional supply chain visibility and collaboration to create production plans which are feasible to execute.
- Deploy advanced production planning and scheduling methods to optimise plant schedules for throughput and on-time delivery and to adapt to more frequent change.
- Digitise and standardise best practices, key performance indicators (KPIs), and reporting across their distributed network of plants.
- Leverage operational data with predictive and prescriptive artificial intelligence (AI) for continuous productivity, asset reliability, and eco-sustainability optimisation.
- Create a digital thread that contextualises information across the supply chain to provide the visibility, transparency, and traceability consumers and regulators demand.
- Establish new KPIs to measure and improve the speed and agility of their supply chains.

Digital twin technology can provide real-time situational awareness and lays the data foundation for more advanced capabilities as well. In today's demand-driven marketplace, reliable and predictable operational performance can be the difference between a resilient, agile stance and falling short of customer expectations. Put simply, digital transformation turns disruption into opportunity. ■



Michael Schwarz, MES/MOM software expert at AVEVA

Photo Credit: AVEVA

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The region must stay ahead in managing the energy transition while also meeting the rising-global energy demand.

Middle East power sector faces tough balancing act

Changing times as the Gulf shifts footing to cleaner energy development. Martin Clark reports.

Long term, the intention is to move away from fossil fuels altogether and switch to more sustainable alternatives.

THE WORLD'S GREATEST oil and gas producing region has a significant task on its hands – the Gulf faces the dual challenge of managing the energy transition, but at a time of fast-rising demand. The success of the region's major economies is fuelling rapid growth, which is putting added strain on power supplies. That means accelerating investment in new infrastructure – generation, transition and distribution facilities – but in an era where climate concerns and emission targets loom large.

Saudi Arabia, for example, wants 50% of its electricity to come from renewables by 2030. For a country that can mastermind mega projects such as NEOM, that should not be too much to ask.

But the Kingdom has long burned oil in its power stations, an expensive and polluting method that reflects the scale of the transition needed – today, Saudi Arabia remains one of the world's largest CO2 emitters.

The use of natural gas, a cleaner-burning alternative, has been fast-tracked and is now a leading source of power generation across the Gulf states, including Saudi Arabia.

Long-term, however, the intention is to move away from fossil fuels altogether and switch to more sustainable alternatives, such as solar, wind, hydro and hydrogen. The UAE has also become the first Gulf state to launch nuclear power production from its Barakah plant – a first for the Arabian Peninsula – which began operations in 2021. It will play a vital supporting role for decades to come in maintaining a stable electricity supply during a time of great change.

High stakes

The UAE has been among the prime movers when it comes to building up its renewables sector. Total installed renewables capacity has increased tenfold

since 2017, reaching 3.1GW in 2022.

While Saudi Arabia has equally ambitious plans, it has been much slower to act with just 443MW of installed capacity, mainly from the Sakaka solar plant. If the Kingdom is to meet its target of generating half its power from renewables by 2030, then it will require a huge acceleration in the years ahead, both in terms of timing and investments.

Politically, the stakes are high. The UAE, which has a net zero target of 2050, is to host the COP28 climate summit later this year, during November and December.

Abu Dhabi is also the world headquarters of the International Renewable Energy Agency (Irena). By its own admission, there is a lot of work to be done. Irena says the entire region currently has approximately 29GW of renewable generation capacity, a global share of just 1% – though this is rising faster than elsewhere.

The Middle East recorded its highest increase in renewables on record, with 3.2 GW of new capacity commissioned in 2022, an increase of 12.8%. As well as building new renewable infrastructure and projects, the UAE is also deploying a bit of creative thinking, including efforts to decarbonise its vast oil and gas industry. That includes rolling out commercial-scale carbon capture, utilisation and storage (CCUS) facilities, such as Al Reyadah, and drawing on clean energy sources to power upstream operations.

Saudi Arabia

The task facing Saudi Arabia is even more immense, as it aims to achieve net zero by 2060. If it is to produce half its electricity from renewables by the end of the decade, that will mean elevating solar and wind production up to around 58GW in just seven years.

Given the scale of renewable developments in China, it may well be possible, but it won't be an easy feat and will require a concerted effort from suppliers and contractors – as well as a large sum of money.

At the same time, the Kingdom is building up its oil and gas production capacity and increasingly views renewable investments as a way to also free up more crude reserves



For Saudi Arabia to meet net zero targets, it will have to elevate wind and solar production by 58GW in seven years.

Photo Credit: Adobe Stock

for exportation. Potentially, this could lift nameplate oil capacity to 15 million barrels per day (bpd) by 2030.

More than a dozen renewable projects, worth around US\$9b, are currently under development with a total capacity of 11.4GW. These projects follow the launch of the 300MW Sakaka solar project, the first ever utility-scale renewable energy project under the National Renewable Energy Programme of Saudi Arabia.

Saudi-based Sakaka developer, ACWA Power, is also active in the embryonic hydrogen sector.

The NEOM Green Hydrogen Project – which groups ACWA Power with NEOM and Air Products – will be the world's largest commercially-based hydrogen facility powered entirely by renewables with commissioning set for 2026. The plant will run on 4GW of wind and solar power and when complete will help mitigate the impact of five million metric tonnes of carbon emissions annually.

The facility will ultimately produce 600 tonnes per day of clean hydrogen by electrolysis using thyssenkrupp technology, as well as nitrogen by air separation using Air Products technology, and also up to 1.2 million tonnes per year of green ammonia.

Embedding innovative clean technologies such as this into the development of its mega projects – the NEOM blueprint alone is valued at approximately US\$500bn – adds momentum and drive to Saudi's nascent renewables sector.

Global challenge

Of course, what is happening in the Middle East is not isolated. The energy trilemma – balancing security, sustainability and affordability – is testing all countries around the world at the same time.

Irena estimates that the world will collectively require some US\$35 trn in investments by 2030 for a successful transition.

It will see an increasingly diversified energy portfolio, encompassing solar, wind and fossil fuels, as well as other generation from nuclear, while Iran is already a regional frontrunner in hydro power.

Geothermal energy harnesses the heat generated within the earth's core to provide a constant energy source, unlike solar or wind, which are intermittent in nature. Industry is also on board with the transition, which has resulted in solar and wind plants popping up in support of commercial projects across the region.

Masdar and EDF recently inaugurated a 7MW rooftop solar project for Warner Bros. World Abu Dhabi on Yas Island, making it the largest of its kind in the UAE capital. Together, such collaborations will begin to build and reimagine the new energy infrastructure required to displace the entrenched role of fossil fuels in the region's power supply – and start to chip away at carbon emissions on the road to net zero. ■

The Middle East recorded its highest increase in renewables on record, with 3.2GW of new capacity commissioned in 2022, a 12.8% increase.

Solar and wind energy to boost global renewables industry

In its latest report, the International Energy Agency highlights the future of the renewables sector.

GLOBAL ADDITIONS OF renewable power capacity are expected to jump by a third this year as growing policy momentum, higher fossil fuel prices and energy security concerns drive strong deployment of solar PV and wind power, according to the latest update from the International Energy Agency (IEA).

The growth is set to continue next year with the world's total renewable electricity capacity rising to 4500GW, equal to the total power output of China and the United States combined, said the IEA's new Renewable Energy Market Update.

Global renewable capacity additions are set to soar by 107GW, the largest absolute increase ever, to more than 440GW in 2023. The dynamic expansion is taking place across the world's major markets. Renewables are at the forefront of Europe's response to the energy crisis, accelerating their growth there. New policy measures are also helping drive significant increases in the United States and India over the next two years. China, meanwhile, is consolidating its leading position and is set to account for almost 55% of global additions of renewable power capacity in both 2023 and 2024.

"Solar and wind are leading the rapid expansion of the new global energy economy. This year, the world is set to add a record-breaking amount of renewables to electricity systems – more than the total power capacity of Germany and Spain combined," said IEA executive director Fatih Birol.

Solar PV additions will account for two-thirds of this year's increase in renewable



Photo Credit : Adobe Stock

The growth is set to reach 4500GW by 2024.

power capacity and are expected to keep growing in 2024, according to the new report. The expansion of large-scale solar PV plants is being accompanied by the growth of smaller systems. Higher electricity prices are stimulating faster growth of rooftop solar PV, which is empowering consumers to slash their energy bills.

Wind power additions are forecast to rebound sharply in 2023, growing by almost 70% year-on-year after a difficult couple of years in which growth was sluggish. The faster growth is mainly due to the completion of projects that had been delayed by Covid-19 restrictions in China

and by supply chain issues in Europe and the United States. However, further growth in 2024 will depend on whether governments can provide greater policy support to address challenges in terms of permitting and auction design. In contrast to solar PV, wind turbine supply chains are not growing fast enough to match accelerating demand over the medium-term. This is mainly due to rising commodity prices and supply chain challenges, which are reducing the profitability of manufacturers.

While the competitiveness of wind and solar PV has improved since last year, government policies need to adapt to changing market conditions, particularly for renewable energy auctions, which were undersubscribed by a record 16% in 2022. Moreover, policies need to focus on timely planning and investment in grids in order to securely and cost-effectively integrate high shares of variable renewables in power systems. ■

Solar PV additions will account for two-thirds of this year's increase in renewable power capacity, which are expected to keep growing in 2024.Quote

Barakah Plant preapres for Unit 4 operations

THE EMIRATES NUCLEAR Energy Corporation (ENEC) has announced that Unit 4, the fourth and final unit at the Barakah Nuclear Energy Plant in Abu Dhabi, has begun its operational readiness preparations. The operations team at Barakah have now commenced the operational readiness testing required to demonstrate the unit is ready to receive the operating license from the UAE's independent nuclear regulator, the Federal Authority for Nuclear Regulation (FANR).

The news comes following commercial operations of Unit 3 earlier in 2023, which joined



Photo Credit: ENEC

Unit 4 of the Barakah nuclear energy plant.

Units 1 and 2 in generating 30TWh annually.

Once commercially operational, Unit 4 will raise the Barakah plant's total clean electricity generation capacity to 5.6GW, equivalent to 25% of the UAE's electricity needs, delivering more than 40TWh of clean electricity per year.

ENEC's leadership has showcased a new model to the world for nuclear developments, with Barakah widely recognised as one of the most advanced nuclear plants in the world.

It is the first of its kind nuclear new-build project in 27 years and has set an international benchmark for project management and cost effectiveness.

Gas demand in Abu Dhabi emirate is now at an 11-year low because of the significant transformation in how the emirate is generating its electricity.

ENEC is now leading efforts in research across areas like development of Small Modular Reactors (SMRs), clean hydrogen, and other clean technologies.

The Barakah plant's baseload, constant clean electricity provides the 'always on' foundation for the emirate's solar plants while removing millions of tonnes of carbon emissions annually.

Bahrain's first clean energy data centre

BEYON CHAIRMAN, SHAIKH Abdulla bin Khalifa Al Khalifa, announced the completion of Phase 2 of the company's Solar Park at a ceremony which took place, in the presence of H.E. Kamal Bin Ahmed Mohamed, president of Electricity and Water Authority; H.E. Mohamed bin Thamer Al Kaabi, Minister of Transportation and Telecommunications; H.E. Yasser bin Ibrahim Humaidan, Minister of Electricity and Water Affairs; H.E. Noor Bint Ali Al Khulaif, Minister of Sustainable Development; and Mohamed Almoayyed, director YK Almoayyed & Sons.

The event was held at the Royal Golf Club in Riffa, where members of Beyon's Board of Directors,

Beyon's Executive team and team members involved in the project were present on the occasion.

Speaking on the occasion, Al Khalifa said, "Beyon's efforts towards sustainability and clean energy production continues, and we have made great progress since the launch of the first phase of the Solar Park in November 2021. Today, we are glad to announce the completion of the second phase of the project.

"We are also very proud of an unprecedented achievement in the telecommunications and technology sector, as Beyon's Data Centre became the first in Bahrain to rely entirely on clean energy generated from the company's Solar Park, which is located in the Beyon Data Oasis."

Beyon's Solar Park Phase 1 and 2 will generate 3.6 GWh of clean energy leading to a carbon footprint saving of more than 2,000 tonnes and a cost saving of US\$278,540 annually.



The event marked the completion of Phase 2.

Photo Credit: Beyon

Briefly

ACWA Power to develop wind energy and battery storage in Kazakhstan

SAUDI ARABIAN COMPANY ACWA Power has signed an agreement with the Ministry of Energy of Kazakhstan and Samruk-Kazyna, Kazakhstan's Investment Development Fund and sovereign wealth fund, for the 1GW wind energy and battery storage project within the Central Asian country.

The agreement was signed by H.E. Almassadam Satkaliyev, Minister of Energy of the Republic of Kazakhstan; Nurlan Zhakupov, CEO of Samruk-Kazyna; Basil Yernat Duisenbekuly, Deputy Governor of the Zhetysay region; and Marco Arcelli, CEO of ACWA Power. The ceremony also had the honour of the presence of HRH Prince Abdulaziz bin Salman Al Saud, the Minister of Energy of the Kingdom of Saudi Arabia.

"The signing today exemplifies the remarkable progress of the 1GW wind and battery storage project, setting the stage for Kazakhstan's stride towards its clean energy ambitions. The transformative project will have a profound impact on the country's socioeconomic landscape, and we are truly honoured to be an integral part of this journey," said Arcelli.

With the head of terms agreement announced earlier this year, the 1GW wind project represents ACWA Power's entry into Kazakhstan, and with an investment tag of US\$1.5 billion, marks the biggest Saudi investment in Kazakhstan's power sector to date. The project aims to support national climate action, utilise renewables and promote sustainable development through innovation and technology integration. With completion scheduled for 2027, the development will play a crucial role in decarbonising fossil fuel-based power generation.

Central Asia is ACWA Power's second-largest market in terms of investments, underscoring the company's long-standing commitment to the region. This endeavour seeks to unlock new value and capitalises on emissions abatement and energy transition opportunities through the utilisation of wind turbines and battery storage.

Leading the way in energy transition

On the sidelines of MEE 2023, Hannes Norrgren, president industrial of Volvo Penta, spoke to Fyna Ashwath on stepping into new segments, and how his company's latest industrial power generation engines are accelerating decarbonisation.



Photo Credit : Volvo Penta

The D17 offers up to 5% less fuel consumption per kWh than the D16.

TECHNICAL REVIEW MIDDLE EAST (TRME): **How are the new D8 and D17 enabling the road to net zero? How is Volvo Penta using alternative fuels to add value to the energy transition?**

Hannes Norrgren(HN): Volvo Penta continues to invest in and evolve its power generation engine offer. The D17 is an evolution of our 16-litre flagship product and we have plans to further bolster this model. Looking ahead, the D17 – together with the rest of the power generation line-up – will enable customers to transition to significantly lower emissions by utilising alternative fuels.

The D17 offers up to 5% less fuel consumption per kWh than the D16. This is largely the result of recent innovations 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.

The D17's basic footprint is the same, with the inline six-cylinder block of the earlier model, as the starting point for the new design. The company's engineers developed a larger bore engine which thereby enabled the larger volume. This paved the way for nearly 10% increase in

maximum standby power over the TWD1645GE at 1800 rpm.

Combining this with its dual-stage turbochargers means the D17 can provide much higher power from a smaller envelope, comparing favourably with larger alternatives, while offering the additional benefit of far more economical operation.

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 segment demands for energy storage.

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. Now available in 200, 253, 303 and 326 kVA at 1,500 rpm (50 Hz) at prime power, the D8 is based on mature technology concepts that have undergone significant testing giving it excellent power density and a compact design for its power class.

Since 2016, Volvo Penta's industrial engines can run on renewable diesel (HVO), enabling a lower-emissions power option. Further supporting customers who are looking to transition to low-carbon solutions, is the dual-fuel hydrogen engine

– an evolution of the company's proven D8 model. The engine mainly uses hydrogen as a renewable fuel source and reduces CO2 emissions by up to 80%, without impacting power or performance. Volvo Penta will continue to evolve its engine range to run on compatible alternative fuels, enabling the transition towards lower emissions.

TRME: In your new role as president industrial, what is the vision and positioning you want to pursue for the company?

HN: It's a completely integrated approach for various systems. We work closely with our customers to bring these to the market and to really scale quickly. So, we position ourselves to seize these opportunities together with our customers. While Volvo Penta provides the subsystem to the battery energy storage, our partners have deep grid operability and application expertise. Our cooperation enables a way of working that will help us both to scale up quickly. When it comes to grid integration, there are many local standards where we think there are companies we worked with for a long time, or new customers that can do that in a much more efficient and better way, so we provide a partnership that is mutually beneficial.

Volvo Penta is launching a high-performance subsystem based on the Volvo Group's electromobility platform, optimised for OEMs' BESS applications.

This represents another step towards the company's road to net zero ambitions.

Battery energy storage is increasingly in demand for a variety of applications including utilities, factories, decentralised microgrids, and mobile charging stations. As our solution is application agnostic, we see huge potential for its adoption. Together with OEMs, our solution provides possibilities to store energy from and add resiliency to renewable solar or wind-powered sources, opening new business models that appeal to end customers on their road to net zero emissions.

The signature attribute in Volvo Penta's modular and scalable BESS subsystem is a high-energy-density and high-power battery system with a favorable C-rating, which ensures quick and substantial charge and discharge, in response to sudden demand. These battery systems are energy and power-optimised to meet business and operational needs. From just one, to as many units as are required for the OEM's BESS applications, Volvo Penta's solution is scalable up to hundreds of megawatt hour in energy.

Volvo Penta's value-added systems-supplier approach ensures that its offer is deployed in a holistic way to manufacturers.

The signature attribute in Volvo Penta's modular and scalable BESS subsystem is a high-energy-density and high-power battery system.

The value chain, which spans from the design of the battery packs to meet safety, industry and performance standards for repeat operation, all the way to its transportability and integration into turnkey BESS applications, is secured.

BESS will enable highly flexible energy solutions, making low to no emissions a far more viable proposition for mobile and stationary use. We are starting by introducing the solution to customers in North America and Europe, followed by other markets, and are eager to begin collaborating with OEMs to kickstart new opportunities.

On the generators side we will also get closer to the engineering, procurement and construction companies for larger deployments and more decentralised power generation applications. That's going to be a major focus area.

Beyond the technologies relating directly to power generation or energy storage, I think we will see a lot more around connectivity, and on electronics and embedded systems. We will move much

more into the connected electronic and software domain. So, we will be bringing advancements not only in power systems, but also providing integration capabilities.

TRME: With reference to the Middle East and North Africa market, what, in your opinion, is the extent of acceptance for hydrogen technology?

HN: Having spent quite a lot of time in the Middle East, there are explicit targets on reducing the direct emissions, as well as an emphasis on energy saving by how much households and businesses can contribute to be energy efficient. So I think that is very much in line with our endeavours towards reducing fuel consumption.

There is a great emphasis on decarbonisation of our business in the Middle East, aligning with the specific political initiatives in that direction, in all countries of the region. So we continue to evolve and develop with our partners in the Middle East, while working primarily with private distributors, or importers. ■



Volvo Penta's latest offer expands its power generation business into battery energy storage systems with OEMs.

Photo Credit: Volvo Penta

Coal as the key to a HYDROGEN FUTURE?

Scientists believe geologic formations can store large amounts of hydrogen to meet the peaks and valleys as energy demand changes daily or seasonally.

A TEAM OF SCIENTISTS from Penn State have found that coal may represent a potential way to store hydrogen gas, addressing a major hurdle in developing a clean energy supply chain.

“We found that coal can be this geological hydrogen battery,” said Shimin Liu, associate professor of energy and mineral engineering at Penn State. “You could inject and store the hydrogen energy and have it there when you need to use it.”

Currently, much work remains to build hydrogen infrastructure and make it an affordable and reliable energy resource. This includes developing a way to store hydrogen which is currently expensive and inefficient. However, according to the Penn State scientists, geologic formations are an intriguing option because they can store large amounts of hydrogen to meet the peaks and valleys as energy demand changes daily or seasonally.

Liu continued, “Coal is well-studied, and we have been commercially producing gas from coal for almost a half century. We understand it. We have the infrastructure. I think coal would be the logical place to do geological hydrogen storage.”

To test their theory, the scientists analysed eight types of coals to better understand their sorption and diffusion potential, or how much hydrogen they can hold. All eight coals showed considerable sorption properties, with low-volatile bituminous coal from eastern Virginia and anthracite coal from eastern Pennsylvania performing the best in tests.



Photo Credit : Adobe Stock

According to the scientists, coal would be the logical place to do geological hydrogen storage.

Depleted coalbed methane reservoirs may be the best candidates. These seams contain unconventional natural gas like methane and have become an important source of fossil fuel energy over the last several decades. The methane sticks to the surface of the coal, in a process called adsorption.

Similarly, injecting hydrogen into coal would cause that gas to absorb or stick to the coal. These formations often have a layer of shale or mudstone on top that act as a seal keeping methane, or in this case hydrogen, sealed until it is needed and pumped back out, the scientists said.

Based on their results, the scientists determined anthracite and semi-anthracite coals are good candidates for hydrogen storage in depleted coal seams, and low-volatile bituminous coal are better candidates for gassy coal seams.

According to the team, developing hydrogen storage in coal mining communities could bring new economic opportunities to these regions while also helping create the nation’s hydrogen infrastructure.

Liu remarked, “In the energy transition, it’s really coal communities that have been the most impacted economically. This is certainly an opportunity to repurpose the coal region. They already have the expertise – the energy engineer and skills. If we can build an infrastructure and change their economic opportunities – I think that’s something we should consider.”

According to the team, future work will focus on the dynamic diffusivity and dynamic permeability of coal, features which determine how quickly hydrogen can be injected and pumped back out. ■

Developing hydrogen storage in coal mining communities could bring new economic opportunities to these regions while helping create the nation’s hydrogen infrastructure.

Penn State scientists



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Super-charging the growth of EVs in MENA

Despite several challenges, MENA countries such as the UAE, Saudi Arabia and Jordan, are spearheading EV adoption in the region.

IN ITS LATEST report, the International Energy Agency (IEA) projected that global EV sales are expected to leap by 35% this year, to reach 14 million.

The organisation added that most of these sales will be driven by China, with 60% of the global electric car sales taking place there, IEA executive director Fatih Birol said during a webinar on the launch of the report. China is followed closely by Europe and the USA respectively. Birol added that by 2030, even with existing policy measures taken by governments, the share of EV sales will increase drastically in these markets.

However, EV sales in the Middle East were less than 1% of global sales. Moreover, the high costs of batteries, coupled with reluctance from insurance companies to invest in such vehicles, means that the Middle East EV market will continue to face some challenges. There is also not enough infrastructure to support the growing market. For example, the Middle East still lags in the number of charging stations, when compared to global standards.

Despite this, trends in the UAE are promising. The UAE has a target of putting 42,000 EVs on the streets by 2030, and the government has already converted 20% of its agency cars to EVs.

According to a report by consultancy firm Arthur D Little, the country's EV market is expected to grow at a CAGR of 30% until 2028. The UAE also has one of the highest



A charging station by ABB installed by Powertech Mobility.

Photo Credit : Powertech Mobility

charging-station-to-vehicle ratios in the world, with 325 charging stations currently and plans to increase this number significantly in the coming years, the firm added.

Partnerships and more

Meanwhile, government-owned entity Dubai Silicon Oasis has partnered with Schneider Electric to install charging stations, and ADNOC announced a 70,000 electric vehicle charging point plan this year.

As electric car companies witness growth in the MENA region, so do the supporting businesses. AI Futtaim has also launched its own electric vehicle company, which is a franchisee for EV brands such as Polestar and

BYD, apart from offering charging solutions. AI-Futtaim Electric Mobility Company's managing director Hasan Nergiz told *Technical Review Middle East* that, "We also partnered with global technology pioneer Siemens to create Charge2Moov charging stations, offering a complete end-to-end solution for customers, with plans to extend into public charging solutions by installing 3,000 stations by 2030 to add to the fast-growing EV infrastructure within the country.

Powertech Mobility is a provider of upstream EV infrastructure solutions in the UAE, including hardware and software. It also supplies electric charger products from global suppliers. It is part of Powertech Switchgear Industries, which provides low-voltage switchgear maintenance, repair and modification and for the supply and installation of Electric Vehicle infrastructure in the UAE.

The company's sales director Vinay Premachandran highlighted public-private partnerships as necessary for the growth of the EV market in the GCC.

Speaking to *Technical Review Middle East*, Premachandran said, "Powertech

“There is a movement towards developing fast charging networks within the country through Public-Private partnership (PPP) initiatives that encourage engagement of the private sector with government entities.”

Vinay Premachandran, sales director at Powertech Mobility

Mobility engages with government entities and private establishments on projects related to the electrification of car parks. We are seeing an increased appetite from fleet operators, government entities and consumer segments towards the transition from combustion vehicles to electric vehicles, whether for mass transit or passenger vehicles.

“There is a movement towards developing fast charging networks within the country through Public-Private partnership (PPP) initiatives that encourage engagement of the private sector with government entities. Joint efforts towards building infrastructure have proven to derive greater synergies between government entities and the private sector, thereby expediting the development of charging networks across the UAE.”

The company also witnessed a 250% demand growth in 2022 over 2021 for fast-charging infrastructure, and is looking to increase the accessibility of efficient fast-charging solutions facilitating a steadily growing electric transport landscape.

Powertech Mobility added that it has seen a rapid increase in demand for fast and ultra-fast charging EV infrastructure. According to its own data, there has been an increase of 40% in residential areas, 70% in automotive dealerships and 100% in public fast-charging during the last year alone.

IEA’s energy technology and transport analyst Elizabeth Connelly, said, “Electric truck sales lag the most, as heavier vehicles are more difficult to electrify.” However, Powertech has supplied electric charging infrastructure for a pilot programme of an electric fleet of trucks in the UAE as part of its sustainability goals to reduce CO2 emissions and facilitate the shift towards electric mobility in heavy-duty vehicles.

Moreover, during the Mobility Live ME held in May this year, electric vehicles stood out as significant markers of sustainability at the event. Partnerships and agreements between companies took place as well.



Companies are racing to electrify heavy vehicles such as trucks.

Photo Credit : Adobe Stock

Admiral Mobility, which provides urban transit services in the UAE, announced an agreement with AVIS Rent A Car to bring electric commercial trucks to the leasing market in the UAE.

Composed of electric commercial trucks split between 6T and 8T, the EVs have a range of up to 220km, and take less than 90 minutes to fully charge via efficient, and safe, liquid cooled CATL LFP battery. As such, the partnership is being hailed as the GCC’s largest rollout of electric commercial trucks.

Beyond the UAE

In Saudi Arabia, the country has launched its own EV called Ceer. The brand will be developed by electronic company Foxconn, which purchased land in Saudi Arabia for the EV factory in November last year.

In addition, the Ministry of Industry and Mineral Resources of the kingdom obtained US\$6bn for a complex of steel plate mills last year. This also included an electric vehicle battery metals plant as part of strategies to entice US\$32bn in investment into the mining sector.

Meanwhile, the EV space in Jordan is accelerating as well. According to the IEA, the country has one of the highest EV adoption rates.

Statistics provided by IEA’s analyst Bruno Idini show that battery electric vehicles went from 10% of total vehicle sales in 2021 to 30% in 2022. They reached 40% of total sales in the first three months of 2023.

Jordan also lowered the purchase tax on electric vehicles to just 10%, which was previously 25%. This has reduced prices significantly. Apart from that, sales of pure internal combustion engine vehicles already dropped below 50% last year, and are set to further decrease with the current trend of 2023.

Jordan, which is heavily reliant on energy imports, will benefit greatly from EV adoption.

“EV adoption rates are higher among net energy importers, where electricity prices tend to be much lower than prices at the pump. This trend will continue unless net energy exporting countries develop policies to incentivise EV uptake,” Idini told *Technical Review Middle East*.

All of this shows that the UAE, along with countries such as Saudi Arabia and Jordan, are poised to lead the MENA region in adopting electric vehicles.

Globally, EV manufacturers are adopting even more sustainable practices, making it more strategic for individuals and companies to make the switch to electric vehicles. The IEA added that global trends are promising: carmakers are showing willingness to fully electrify EVs, meaning that they could be made smaller and cheaper, while battery manufacturing capacity has also increased.

“For the Middle East, encouraging smart charging will be important to align charging with the time of day when solar generation is highest (middle of the day) and to avoid significant increases in peak demand (typically the biggest concern in the mornings and evenings),” Connelly said. ■

EV adoption rates are higher among net energy importers, where electricity prices tend to be much lower than prices at the pump. This trend will continue unless net energy exporting countries develop policies to incentivise EV uptake

Bruno Idini, analyst at IEA

Feeding the circular economy

Gary Lawrence, segment president, power and grid at Schneider Electric, speaks on public-private partnerships and sustainability at the World Utilities Congress held from 8-10 May.

Technical Review Middle East (TRME): How does Schneider Electric see its growth in the Middle East?

Gary Lawrence (GL): Firstly, I would say it's imperative that we have that link with private and public partnerships. I think it's important not only for company growth, but also to speed up infrastructure, engagements, and employment. So we're very supportive of PPP initiatives, particularly in the UAE. Last year, we signed an agreement with both ADNOC and the ministry of infrastructure and technology. We are also focusing heavily on manufacturing locally, such as electrical equipment.

TRME: How is Schneider helping clients with sustainability?

GL: We're first and foremost a technology company. What does that mean for our clients? Of course, we talk a lot about decarbonisation and sustainability. We support that with digitisation, our software, and the suite of services that we have, that help our clients to do their business here in the UAE. Watching them lead the way in sustainability with the various private and public sectors is very satisfying for us.

There's a number of factors apart from decarbonisation, such as resilience, reliability, efficiency, and flexibility that we need to adapt in order to reduce the amount of CO₂ in the atmosphere.

One of them is the creation of a digital twin. It can support the integration of all those physical assets into a digital format. That actually helps in the energy transition because it helps us do more with less, not just in terms of cost, but also in terms of resources and physical activities. So having a tool and asset like a digital twin, really enables us to speed up this transition.

TRME: What are Schneider's own sustainability goals?

GL: Last year, we won the 'best use of renewable energy' award at the Gulf Sustainability Awards. This was for our warehouse in Jebel Ali, which has 2,000 solar panels put on the site's rooftop, and can

There are a number of factors apart from decarbonisation, such as resilience, reliability, efficiency, and flexibility that we need to adapt in order to reduce the amount of CO₂.

Gary Lawrence, segment president, power and grid at Schneider Electric



offset roughly 1,500 metric tons of CO₂ emissions.

The system consists of 16 Schneider Electric solar inverters that change the alternating direct current output of photovoltaic solar panels into alternating current that may be utilised by the grid of the Smart Regional Distribution Centre.

We also believe in providing upskilling options to the next generation of employees, especially because having access to skilled people is not easy these days. So we just had an agreement with American University of Sharjah to upskill and train the engineering students, where they would be able to work in their labs, and give them internships at Schneider Electric. We're doing that soon with many other universities as well.

TRME: What future infrastructure projects do you hope to see in the region?

GL: There is a massive upswing in renewable generation here in the UAE and globally as well. But if we need to increase renewable penetration in the region, then that will require further technologies to integrate those renewable assets. We need a massive investment in the grid to support the penetration of further renewables to, for example, 60% of electricity generation from renewables. I think the technology for that is available. I think we have some good willingness in the government and in the private sector. Now, it's time to physically act upon those technologies. ■

Safety and efficiency in the age of automation

At the World Utilities Congress held from 8-10 May, IFS's Vijay Jaswal, chief technology officer, APJ&MEA and Thomas Ligocki, senior vice president for utility, spoke about the company's cloud technology offerings.

Technical Review Middle East (TRME): How can IFS cloud technology reduce costs and drive efficiency?

Vijay Jaswal (VJ): If you look at cloud technology generally, there's a lot of cost reductions involved in supporting the actual infrastructure. Those costs then go to a cloud service provider, because it becomes a managed service. So organisations can focus on what they're there to do, which is providing energy, providing electricity, providing water, instead of trying to solve issues related to IT.

IFS cloud also provides a unique ability to connect different islands of information within organisations together. I think that's really important because of the amount of data utility companies or power companies have. Collecting all of the information together from back end systems and supplier systems means having better ways to link them with each other.

Thomas Ligocki (TL): One example of this is maintaining infrastructure worth billions of dollars. IFS can help understand which areas are put under heavier stress, and design a programme for inspections, maintenance, or repair replacement.

TRME: What are some major industry challenges that IFS technology can help with?

TL: One industry trend is the high number of people retiring, and not enough resources available. In addition to that, the assets in the field are becoming more sophisticated. We can give more tools to the field worker so that they can engage



Thomas Ligocki, SVP, Utility, IFS.

with smart products, so that they can interrogate them. That way, you can know whether you should provide more service or whether you should replace them.

VJ: With experienced workforce retiring, the industry is also losing knowledge experts. We've got a number of remote assistance tools, which use merged reality as well, and are available on smart glasses and web browsers. An experienced engineer who is based, for example, in Vancouver, will be able to help an inexperienced engineer in Abu Dhabi through this technology.



Vijay Jaswal, CTO, APJ&MEA, IFS.

TRME: What other tools does IFS use?

TL: Whether it's for use in tunnels, mines, pipelines, or water management, sensors come in handy for both maintenance and worker safety.

We have had situations where people faint and collapse, and our software will soon notice that the worker has been inactive. That will send an alert to the team.

VJ: Sensors can also detect poisonous gases, and determine when it will be safe for field workers to enter mines and tunnels.

Our technology can help with identifying not only the right time to send in field inspectors, but also protect them from potential harm.

IFS is working with utilities stakeholders in the region, which includes both governmental organisations as well as the private sector. We've got key utility companies, both in Saudi Arabia and, and the UAE. IFS technology gives them this competitive edge to do things more efficiently. ■

We've got key utility companies, both in Saudi Arabia and the UAE. IFS technology gives them this competitive edge to do things more efficiently.

Vijay Jaswal, chief technology officer, APJ&MEA, IFS.

Advancing solutions for the future

Cable companies in the MENA region are creating innovative solutions involving renewable energy.

THE POWER INDUSTRY continues to adopt new technologies. In recent times it is evolving faster to accommodate the growing renewables sector.

This has produced both challenges and opportunities, but cable companies in the Middle East are not far behind when it comes to innovations.

One of the drivers in this sector is the Prysmian Group, a major energy and telecom cable systems company based in Italy.

This March, during the Middle East Energy conference held in Dubai, the company showcased its innovative cable solutions for the solar power industry. Within the product portfolio on display at MEE 2023, including HV/EHV underground and submarine cable systems and innovative specialties such as the PRY-CAM technology, the group presented an array of products that reinforce the group's commitment to sustainability. This includes innovative leadless cable designs for challenging environmental conditions and cable solutions for renewable energy applications.

"Middle East Energy is a premier platform in the region and Prysmian Group is proud to present our full range of products," stated Cinzia Farisè, CEO MEAT region Prysmian Group. "We rely not only on a vast product range, but also on a strong presence with offices and factories throughout the Middle East to support the energy transition in the Region," she added.

The company also showcased its Prysmian PRYSOLAR cables for the Middle



Photo Credit : Adobe Stock

Cables companies are now catering to the renewables sector.

East Region. Prysmian's PRYSOLAR offers extreme climate strength and 30 years' lifetime, reduced OPEX and lower levelised cost of energy.

Meanwhile, Prysmian's subsidiary Oman Cables Industry also highlighted its latest products. OCI in March signed an agreement with Fujairah Gold to jointly develop green copper rod from 100% secondary copper. They also aim to establish acceptability of Green Copper rod for cable manufacturing and jointly develop a value proposition for Green Copper to achieve sustainability goals and support net zero carbon targets by 2050.

At the MEE 2023, Middle East Specialised

Cables' (MESC) CEO Fadhil Al Saadi said that his company is looking to diversify its portfolio to provide cables not only for the oil and gas industry but also for the renewables industry, especially for solar and wind energy. MESC has already begun supplying solar cables to companies in the Middle East. At this stage, MESC has begun manufacturing cables for electric vehicles, as well as nuclear cables.

Commercialisation of these new cables will take some time, he added, explaining that it has become important for the company to diversify. Saadi also added that the company intends to add the transportation sector to its portfolio.

Not dissimilar to industrial cables is the internet cables sector. Superior Essex Communications provides PoE cabling technologies, which are not only designed to enable sustainable intelligent buildings, but they are also equipped with sustainability attributes.

The new cables industry is creating the backbone for advanced networks of the future. ■

We rely not only on a vast product range, but also on a strong presence with offices and factories throughout the Middle East to support the energy transition in the region

Cinzia Farisè, CEO MEAT Region Prysmian Group

100-year-old Kohler Co becomes Kohler Energy

KOHLER CO ANNOUNCED the evolution of its power businesses to Kohler Energy, aligning with Kohler's strategy of providing energy resilience to homes, businesses and communities around the world.

"Our newly named Kohler Energy celebrates the industry-leading solutions Kohler has been offering for over 100 years and aligns with our ongoing leadership in resiliency, performance, and energy capabilities that delight our customers," said Brian Melka, Kohler Energy Group president.

"Our new brand presence better reflects the modern, forward-looking and design-oriented characteristics that Kohler is known for and highlights the solutions we bring to market that provide energy resilience to our customers' homes, businesses, and tools to get jobs done."

In its first 100 years, Kohler delivered light where there was none before, powered Admiral Richard Byrd's historic Antarctic exploration, lit the way forward for industrial revolution in America, helped astronauts reach the moon, delivered clean water where it was needed most, and has

innovated in nearly every energy category across the industry and around the globe.

Kohler continues to invest in new product development to drive down CO2 emissions through low carbon fuels, improved engine efficiency and power density, EV controls, and grow its portfolio of high technology solutions. Most recently, Kohler was the first global manufacturer to certify all of its Diesel engines and generators on HVO, a 90% carbon reduced fuel.

Kohler Energy offers solutions across Home Energy, Industrial Energy Systems, and Powertrain Technologies branded under KOHLER, as well as a robust portfolio that includes Power Systems, Clarke Energy, Kohler Uninterruptible Power, Heila Technologies, Engines and Curtis Instruments. Kohler will be implementing new Kohler Energy brand elements across its portfolio of businesses in the coming months.

Earlier this year, Kohler partnered with Robert Swan, OBE (Order of the British Empire), on his successful expedition across the Antarctic landmass to the Geographic South Pole relying solely on renewable



Kohler continues to invest in new product development to drive down CO2 emissions.

energy sources. Like its energy support of Admiral Byrd more than 90 years earlier, Kohler equipped Swan's journey with a customised KOHLER generator that utilized a KOHLER diesel engine fueled by HVO and a microgrid system controlled by Heila EDGE technology.

"Our collective focus is to help sustain people and communities around the world and build energy resiliency. As we start to design our future to best support our customers, we are investing in clean energy, advanced technologies, and improved production and performance capabilities," says Melka.

Share of electricity in transport to rise to 23% in 2050: DNV

THE SHARE OF electricity in transport will grow from 1% today to 23% in 2050, according to DNV's latest 'Transport in Transition' report.

The report explores the vast changes in fuels, electricity and infrastructure needed to transport growing numbers of people and volumes of freight while at the same time decarbonising the sector. Despite oil demand in the transport sector forecast to half by 2050, the present pace of the transition still falls severely short of the goals of the Paris Agreement, the report says.

Today, transport of passengers and goods accounts for about a quarter of global energy-related CO2 emissions, a share that will grow to 30% by 2050. Transport remains the dominant consumer of oil to 2050, still accounting for 50% of global oil primary supply in 2050 despite the accelerating shift to electricity, SAF, hydrogen, and ammonia in road, aviation, and maritime transport.

Road transport leads the way in reducing reliance on fossil fuels, falling from 38mn bpd, to 19mn bpd in 2050, reducing share from 91% to 57%. 78% of all road transport will be electric by 2050. Conversely, the consumption of oil within aviation will be virtually flat to 2050, with hydrocarbons set to have a 60% share in the sector in the same year.



The report explores the vast changes in fuels, electricity and infrastructure needed to 2050.

Driven by the decarbonisation push, the fuel mix in the maritime sector will also change significantly over the coming decades. By 2050, it will likely transition from being almost entirely oil-based to an energy mix comprising of 50% low- and zero-carbon fuels, 19% natural gas and 18% biomass. Electricity will obtain only a 4% share, from short sea shipping and port stays for larger vessels.

Regions such as Europe, North America and Greater China are frontrunners in the uptake of battery electric vehicles (BEVs), while regions including sub Saharan Africa and North East Eurasia remain far away from establishing the infrastructure and producing the quantities of renewable electricity required to decarbonise road transport. In the Middle East, the report notes the

increased efforts seen in EV promotion through introduction of generous uptake incentives in the UAE, and support to onshore EV manufacturing in Saudi Arabia.

Remi Eriksen, group president and CEO at DNV said, "Our Transport in Transition report highlights the challenges facing the industry and where further policies and investments are urgently needed to fast-track decarbonisation of the transport sector. There is a pressing need for reliable non-fossil fuels to support emission reductions, particularly in the maritime and aviation sectors. It is essential that policy makers accelerate efforts to incentivise research and development, pilot projects and commercial uptake of carbon-neutral and zero-carbon fuels across the transport sector to support mid-century net zero goals."

The report also underlines the clear challenge in deriving a single solution for the decarbonisation of transport with a number of constraints associated to the adoption of biofuels, renewable electricity and CO2.

A variety of energy sources are needed to such as BEVs for passenger vehicles and trucks, fuel cell electric vehicles for the heaviest long-distance trucks, and bio- or hydrogen-based synthetic low or zero-carbon fuels for maritime and aviation.

Global UPS market size is expected to grow at a CAGR of 3.9% this year.

Photo Credit : Adobe Stock

Optimising power solutions

A look at some innovative solutions to increase UPS efficiency.

WORLDWIDE, THE TRENDS of more digitisation as well as manufacturing and data storage boosts are driving the demand for uninterruptible power supply technologies.

As such, the global industrial UPS systems market size reached US\$2516mn in 2022, and is expected to grow at a CAGR of 3.9% this year, according to research company Market Watch. According to Omdia's UPS hardware market tracker and analysis of 2022, there's an increased demand for three-phase UPS in Europe, Middle East, and Asia (EMEA) from markets outside of cloud, colocation, and telco. These include retail, wholesale, healthcare, manufacturing and other industries. By 2026, the three-phase UPS market in EMEA is expected to grow from US\$1.66bn in 2021 to US\$2.07bn, a CAGR of 5.84%.

Meanwhile, companies like Schneider Electric, Eaton, Emerson, ABB, Toshiba, and Delta are among the companies poised to take a major share of the market, said Market Watch.

But these companies are also innovating solutions to increase UPS efficiency. Schneider Electric, for example, has introduced the Easy UPS 3-Phase Modular. It is designed to safeguard vital loads including edge computing apps, convergent IT, network

closets, and data centres. This system also includes cutting-edge technological components such as a high-efficiency design, intelligent battery management, real-time monitoring, and control capabilities, making it one of the most affordable and energy-efficient UPS options on the market.

In addition, scheduled downtime is significantly reduced through self-diagnosing third-party certified Live Swapable power modules and static switches. This can aid in increasing reliability and availability. It is easy to select, configure, install, and maintain, which makes the deployment process seamless.

In February this year, Vertiv launched the Liebert GXE, an online double-conversion single-phase UPS, which is available in 6 and 10 kVA power ratings in tower or rackmount

BPE is launching its Modular UPS systems, ranging from 300kW to 1000kW, scalable up to 8 MW.

configuration. More recently, the company announced key enhancements to its dedicated offering for channel distributors and resellers. Its Liebert ITA2 features a true online double conversion technology, a unity power factor and an extremely compact rack/tower design. Compared to single-phase systems, three-phase UPS allow higher power capacity and up to 99% efficiency in ECO mode.

The system is intended to supply reliable power to edge computing applications and dispersed IT networks in a variety of market sectors, including corporate, government, manufacturing, finance, education, and retail. For countries and organisations that use 230V solutions, the product is accessible worldwide. It is also now delivering from stock in EMEA.

Meanwhile, Indian manufacturer of end-to-end strategic power solutions Best Power Equipments (BPE), is expanding to the UAE. BPE caters to various industries including government, industrial and plant automation, IT/ITES, banking, healthcare, financial institutions, corporate sectors, small and medium businesses, and data centres.

BPE is launching its Modular UPS systems, ranging from 300kW to 1000kW, parallelable, and scalable up to 8 MW. It is equipped with lithium-ion battery technology. ■

Caterpillar launches more efficient dozer

CATERPILLAR INTRODUCED ITS latest bulldozer called Cat 10 Dozer (D10) in May, which is expected to burn less fuel, increase productivity and improve uptime.

The new design features a stator clutch torque converter and load-sensing hydraulics, and is up to 6% more efficient than the Cat D10T2. It also reduces maintenance and repair costs up to 8%.

The new D10 is powered by the Cat C27 engine, which offers aftertreatment solutions to meet U.S. EPA Tier 4 Final/EU Stage V as well as Tier 2 equivalent emissions standards for meeting the needs of the global market. The C27 switches power settings based on travel direction to offer up to 20% more power in reverse, reducing cycle times. In addition to delivering productivity gains of up to 3%, the new D10 offers up to a 4% fuel consumption advantage over the D10T2 and up to 10% over the D10T.

During high-load and retarding conditions, the stator clutch locks

without the need for operator input. Load-sensing hydraulics deliver more power to the ground for increased responsiveness and added fuel efficiency.

The new cab for the D10 not only creates a comfortable operating environment that lowers noise, vibration, stress and fatigue, it is an integrated electronic platform designed to maximise productivity. The operator's new multicolor touchscreen display monitors machine performance and allows machine parameters to be quickly tailored to the application.

Replaceable push-arm trunnion bearing inserts are one of the new features in the D10 design, which means the dozer will spend less time in the shop and more time dozing. A single-plane cooling system that is up to 30% more plug-resistant and enhances heat dissipation is integrated into the redesigned engine compartment to prolong component life. Radiator doors with easy access make cleaning simpler.

Requiring no on-site network requirements, the portable and lightweight Command console provides quick and efficient line-of-sight remote control from up to 400 m (1,312 ft) for optimum operator visibility.

The new oil pan increases capacity by 50%, enhances the quality of the average oil, and increases change intervals by up to 250 hours. To save downtime, Remote Troubleshoot enables the dealer to remotely carry out dozer diagnostic testing while the unit is in use. The D10 runs with the most recent software to maximise equipment performance thanks to Remote Flash, which enables the dealer to transmit software updates to the machine.

Photo Credit : Caterpillar



The D10 is 6% more efficient than the Cat D10T2.

Wirtgen introduces large milling machine technology for compact F-Series

WIRTGEN HAS LAUNCHED a compact milling machine, which can execute precise milling in confined spaces. The W 100 Fi incorporates technology from the larger machines, and takes only two passes with the 1 m wide milling drum to remove the entire asphalt package.

This was done for the rehabilitation of an almost 2 m wide cycle lane in Aachen, Germany. As such, the machine can solve challenges in small to medium-sized construction sites in inner-city areas, which are often related to navigating obstacles and offloading material. In Aachen, the construction site project was completed in a very short time, allowing the lane to be quickly reopened for cycling traffic.

The F-Series compact machine consists of optimum visibility of the area in front of the milling drum unit. It also has a milling drum at the rear of the machine, along with a discharge conveyor with a large slewing angle of 65 degrees, and a laterally adjustable operator's platform and the movable roof. This can be beneficial for material loading in the direction of travel.

Mill Assist increases productivity

In automatic mode, the innovative Mill Assist machine control system always selects the operating strategy that strikes the best balance between performance and costs. Process optimisation functions automatically adjust the engine and milling drum speeds, the travel drive, the water spraying system, and the machine's advance speed. The semi-automatic Active Conveyor slewing angle control system also helps by reliably aligning the discharge conveyor in the direction of the transport truck when the milling machine has to steer around obstacles in its path.

Environmentally friendly engine technology from John Deere

Working closely with John Deere, an engine has been adapted



Wirtgen's compact milling machine W 100 Fi.

Photo Credit WIRTGEN

specifically for use in a road milling machine. The six-cylinder in-line engine runs in an extended speed range. The engine already delivers sufficient torque at engine speeds of 1,200 rpm, achieves maximum torque at 1,500 rpm, and offers a very wide working speed range of between 1,200 and 2,100 rpm. All in all, this guarantees lower fuel consumption and fast, productive work, even at maximum milling depths.

Easy transport – optimal servicing accessibility

Thanks to the compact dimensions of the W 100 Fi, it is easy to transport the milling machine to the job sites. Another advantage lies in the ease of access for servicing work. All service and maintenance points are conveniently located within reach from the ground, and the new, ergonomically designed footstep considerably increases operator comfort.

Electrical Equipment and Materials Buyers' Guide

2023

The Middle East's annual where-to-buy guide

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Section Three: Contact details of Middle East agents & subsidiaries listed by country, page 44

Section One: Listings by category

AC Drives

Cantoni Motor S.A.

Air Compressors

Bauer Kompressoren GCC FZE
Rotair S.P.A

Air Conditioning / Chillers / Heat Exchangers

Rittal Middle East FZE

Air Purification & Cleaning Equipment

Bauer Kompressoren GCC FZE

Cable Jointing & Termination

Eland Cables
KuDos Mechanical Co., Ltd
Mosdorfer GmbH

Cable Labeling

Brady Corporation

Cable Laying Equipment

Rotair S.P.A

Cable Trays

Eland Cables
Galva Coat Industries

Cable Trunking & Support

Galva Coat Industries

Cables & Cable Accessories

Brady Corporation
Eland Cables

Cogeneration

Caterpillar Electric Power
KOHLER

Compressor and Turbine Blades

Bauer Kompressoren GCC FZE

Compressors

Rotair S.P.A

Conductors

A.N. Wallis & Co. Ltd.

Control Equipment/Systems

MOTORTECH GmbH

Control Safety, System Protection & Monitoring Equipment

Bauer Kompressoren GCC FZE

Damper System

Mosdorfer GmbH

Data Logging

Nidec Leroy-Somer

Diesel Engines

Cummins Middle East FZE
GET FZC
Jubaili Bros
KOHLER
Perkins Engines Company Limited

Earthing / Lightning Equipment & Accessories

A.N. Wallis & Co. Ltd.
Cressall Resistors Ltd.

Electric Drives

Cantoni Motor S.A.

Electric Generators - Turbo Generators & Hydro Generators

AJ Power Ltd.
Cummins Middle East FZE
Linz Electric S.p.A
Mecc Alte UK Ltd.
Nidec Leroy-Somer
Visa S.p.A.

Electric Motors / Repairs Equipment

Cantoni Motor S.A.

Electrical Wiring Accessories

KuDos Mechanical Co., Ltd

Emergency Lighting

Visa S.p.A.

Enclosures

Jubaili Bros
Rittal Middle East FZE

Energy Efficiency/Savers

ORTEA S.p.A.

Energy Measurements

Lovato Electric S.p.A.

Engineering Services

Jubaili Bros
Mosdorfer GmbH
MOTORTECH GmbH

Engines/Motors/Engine Parts

Cantoni Motor S.A.
Cummins Middle East FZE
KOHLER

Equipment for Power Transmission Lines

Cressall Resistors Ltd.
Galva Coat Industries
Mosdorfer GmbH

Field Instrumentation / Process Control / Valves

MOTORTECH GmbH

Filters

Jubaili Bros

Firefighting Equipment & System

Bauer Kompressoren GCC FZE

Galvanizing Products

Galva Coat Industries

Gas & Power Equipment

KOHLER
MOTORTECH GmbH
Nidec Leroy-Somer

Gas Engines

Cummins Middle East FZE

General Renewable Energy Services

GET FZC

Generating Sets

AJ Power Ltd.
Caterpillar Electric Power
Grandwatt Electric Corp
Jubaili Bros
KOHLER
Linz Electric S.p.A
Lovato Electric S.p.A.
Mecc Alte UK Ltd.
Standard Aggregatebau Evers GmbH & Co. KG
Visa S.p.A.

Generating Technologies

KOHLER
Visa S.p.A.

Generators

AJ Power Ltd.
Cummins Middle East FZE
GET FZC
KOHLER
Linz Electric S.p.A
Mecc Alte UK Ltd.

Geothermal Power Engineering

Cummins Generator Technologies
Grandwatt Electric Corp

High-Voltage Equipment of Distribution & Control

Cressall Resistors Ltd.

Industrial & Power Automation

Lovato Electric S.p.A.

Industrial Power Engineering

KOHLER
Rittal Middle East FZE

Installations

KuDos Mechanical Co., Ltd

Irrigations Systems

Visa S.p.A.

Junction Boxes

Rittal Middle East FZE

Lighting Equipment & Fittings

Galva Coat Industries
GET FZC
Grandwatt Electric Corp

Lightning Protection

A.N. Wallis & Co. Ltd.

Load Banks

Cressall Resistors Ltd.

Measure & Test Equipment/Systems/Monitoring

Mosdorfer GmbH

Motors & Motor Winding Equipment

Cantoni Motor S.A.

New & Renewable Energy

Grandwatt Electric Corp
Visa S.p.A.

Overhead Line Equipment

Materials/ Hardware & Accessories

Galva Coat Industries
KuDos Mechanical Co., Ltd

Pipe Laying

Rotair S.P.A

Pneumatics

MOTORTECH GmbH

Power Control & Regulation

Equip for Generators & Motors

Nidec Leroy-Somer

Power Factor Correction

Equip/Regulators

Nidec Leroy-Somer

ORTEA S.p.A.

Power Plant Design

KOHLER
Standard Aggregatebau Evers GmbH & Co. KG

Visa S.p.A.

Power Transformers

ORTEA S.p.A.

Pump Equipment and Services

Visa S.p.A.

Pumps, Compressors & Filters

Rotair S.P.A

Solar Energy Equipment

Grandwatt Electric Corp

Solar Power Engineering

Caterpillar Electric Power

Stand-Alone Sources of Energy

AJ Power Ltd.
Caterpillar Electric Power
Standard Aggregatebau Evers GmbH & Co. KG
Visa S.p.A.

Energy Management & Services

Galva Coat Industries
Lovato Electric S.p.A.

Switchboards & Switchgear

GET FZC
Standard Aggregatebau Evers GmbH & Co. KG

Switchgear Products, Low & Med Voltage

A.N. Wallis & Co. Ltd.
Caterpillar Electric Power

Rittal Middle East FZE

Telecommunication Equipment

Mecc Alte UK Ltd.

Visa S.p.A.

Transformers

ORTEA S.p.A.

Transmission & Distribution

KuDos Mechanical Co., Ltd

Uninterruptible Power Systems

Standard Aggregatebau Evers GmbH & Co. KG

Voltage Stabilizers & Regulators

ORTEA S.p.A.

Welding Equipment / Electrodes / Services

A.N. Wallis & Co. Ltd.

Wiring Identification / Wire Markers

Brady Corporation

AC Alternators

Mecc Alte UK Ltd.

Section Two: Suppliers

**A.N. Wallis & Co. Ltd.**

Greasley Street
Bulwell
Nottingham
NG6 8NG
United Kingdom
Tel: +44 115 9271721
Web: www.an-wallis.com
E-mail: info@an-wallis.com

A. N. Wallis is a world leader in the design, manufacture and sale of high-quality Earthing & Lightning Protection, Exothermic Welding and Surge Protection materials. We also offer advanced technical backup including the design of Lightning Protection, Earthing Systems and Site services. Wallis is always your first point of contact.

Agents:

United Arab Emirates - A. N. Wallis & Co. Ltd.

AJ Power Ltd.

1 Charlestown Drive
Carn Industrial Area
Craigavon
Northern Ireland
BT63 5GA
United Kingdom
Tel: +44 28 38361000
Fax: +44 28 38361010
Web: www.ajpower.net
E-mail: sales@ajpower.net;
info@ajpower.net

AJ Power specializes in the volume manufacture and design of diesel generating sets from 10kVA to 4376kVA. These are provided as open skid base units, as well as in sound attenuated canopies and containers. Our range includes 110V single phase to 13.8kV, 60Hz. The company offers volume production of high sets on short lead time at highly competitive prices.

Agents:

United Arab Emirates - AJ Power Ltd.

APAR Industries Ltd.

APAR House
Corporate Park
Sion Trombay Road
Chembur
Mumbai
400071
India
Tel: +91 22 25263400/67800400
Fax: +91 22 25246326
Web: www.apar.com
E-mail: corporate@apar.com

Agents:

United Arab Emirates - Petroleum Specialities FZE

Ascend Access System Scaffolding LLC

PO Box 182519 Nad Al Hammar
Behind Dyna trade
Dubai
United Arab Emirates
Tel: +971 4 8855001
Fax: +971 4 8855230
Web: www.ascenduae.com
E-mail: sales@ascenduae.com

Ausonia S.r.l.

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91025
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Tel: +390923722311
Fax: +390923721274
Web: www.ausonia.net
E-mail: ausonia@ausonia.net

Since 1925, we design, produce and offer a wide range of AC gensets up to 4000 kVA available in different configurations (Open-sets, Soundproofed canopies or shelters, Mobile sets for trailers, No-Break Power Systems, Gas gensets, Cogeneration power plants, etc.). Within our power products portfolio, we also include customized solutions for very critical applications (Oil & Gas, Mining, Data Centers, Telecom), as well as Hybrid Gensets and High Efficiency DC energy Solutions. OPEX model also available.

DIESEL GENERATING SETS

for Emergency Power, Peak Power and Continuous Power



S.A.B.

Tailor-made System Solutions from Design to Commissioning

Our Range of Service:

Diesel-Power Generators · stationary and mobile · mobile Light Towers
400 Hz Ground Power Units · Control Panels/ Switchgears
Rental Units/ Spare Parts · Service



STANDARD AGGREGATEBAU EVERS GmbH & Co. KG

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Germany

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www.generatingset.com



Bauer Kompressoren GCC FZE

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United Arab Emirates
Tel: +971 4 / 8860259
Fax: +971 4 / 8860260
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E-mail: sales@bauer-kompressoren.ae

Agents:

United Arab Emirates - Bauer Kompressoren

Brady Corporation

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United Arab Emirates
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Fax: +971 4 8813183
Web: www.bradymiddleeast.com
E-mail: cs_me@bradycorp.com

Brady offers a full range of wire & cable labelling solutions - professional labels that remain legible and stay attached in harsh condition for years, retaining their readability, portable label printers that can be operated using one hand only, and a range of benchtop printers, adapted to printing larger volumes of labels.

**Cantoni Motor S.A.**

3 Maja 28 Street
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Fax: +48 33 813 87 01
Web: www.cantonigroup.com
E-mail: motor@cantonigroup.com

Cantoni Group is a global leader in manufacturing of electric motors, brakes and tools with over 150-year-long tradition. Cantoni Motor, the International Sales Office located in Poland, coordinates the sales and purchasing for the whole Group. We offer a full range of induction electric motors, from 0,04kW up to 7000kW, in standard and special executions.

Caterpillar Electric Power

USA
Web: www.cat.com/demand_cat
E-mail: Electric_Power@cat.com

Caterpillar has the widest electric power portfolio in the industry including diesel and gas generator sets, containerized power modules, cogeneration systems, rental units, solar microgrids and energy storage solutions, and advanced monitoring and control systems. The Cat dealer network provides long-term service agreements, technical training, and parts availability. Visit cat.com/dealer-locator.

Cressall Resistors Ltd.

Evington Valley Road
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United Kingdom
Tel: +44 116 2733633
Fax: +44 116 2737911
Web: www.cressall.com
E-mail: sales@cressall.com
Cressall Resistors manufacture high power resistors, neutral earthing resistors (NERS),

portable load units, bespoke LV and HV load banks, dummy loads and dynamic braking resistors as well as resistors for use in high voltage filters such as HVDC, SVC and MSC Systems.

Agents:

Oman - Mohsin Haider Darwish LLC
Saudi Arabia - Naizak Power System
United Arab Emirates - Ali Haji Abdulla Awazi-Gargash LLC

Cummins Generator Technologies

Fountain Court
Lynch Wood
Peterborough
PE2 6FZ
United Kingdom
Tel: +44 1733 395300
Web: stamford-avk.com
E-mail: newagestamfordavk@cummins.com

Agents:

Lebanon - Cummins Generator Technologies (Middle East)

Cummins Middle East FZE

PO Box 17636
South Zone 2
Jebel Ali Free Zone
Dubai
United Arab Emirates
Tel: +971 4 8809911/800 CUMMINS
Fax: +971 4 8860518/9
Web: www.middleeast.cummins.com
E-mail: cummins.middleeast@cummins.com

For more than 100 years, Cummins' technology has powered success around the world. Our comprehensive portfolio delivers innovative solutions for your unique power need - commercial, industrial, marine, mining, recreational, emergency and residential. Products include diesel engines ranging from 49 to 5,500 hp, diesel and gas powered generator sets ranging from 15 to 3750 kVA, alternators, generator-drive engines and integrated power systems, combining generator sets and power control and transfer technologies. Services range from system design, project management, operations and maintenance contracts to the development of turnkey power plants. With more than 10600 certified dealers and distributor locations in approximately 190 countries and territories, we offer global capabilities and local support wherever and whenever you need us. Cummins technologies and employees are always innovating for a world that's always on.

**Deep Sea Electronics LTD**

Address: Highfield House, Hunmanby
Industrial Estate
Hunmanby
North Yorkshire
England
Postcode: YO14 0PH
Country: United Kingdom
Tel: +44 1723 890099

Eland Cables

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London, NW1 7HW
United Kingdom
Tel: +44 20 72418740
Fax: +44 20 72418700
Web: www.elandcables.com
E-mail: international@elandcables.com
Global supplier of power, data, instrumentation and control cables to industries including mining, renewables, petrochemical and infrastructure projects. Focused on quality, expert technical support, and customer service. Our IECCE CBTL & ISO/IEC 17025 accredited cable testing laboratory provides rigorous QA assessments. Delivered with tailored logistics services.

**Galva Coat Industries**

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Fax: +971 2 5510188
Web: www.galvaccoat.ae
E-mail: galvaind@eim.ae

Galva Coat, 3 times winner of Sheikh Khalifa Industrial Golden Award, and Sheikh Khalifa Excellence Award in 2013. ISO 9001-2015, ISO 14001-2015, ISO 45001-2018 & OSHAD Certified. Galva Coat is one of the leading manufacturers of various types of lighting & power transmission poles, Guard Rails and PEB. Also, they provide Hot Dip Galvanizing Services in the UAE.

Agents:

Saudi Arabia - M/s Inanra Co. Ltd.

GET FZC

Hamriyah Free Zone (phase 2)
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United Arab Emirates
Tel: +971509596119
Fax: +97165249893
Web: www.get-uae.com
E-mail: info@get-uae.com
Energy Service Company specialised in Power Generators, Diesel Engines, Lighting Towers, Switchgears, Diesel Storage Tanks, Trailers sales and aftersales services.

Grandwatt Electric Corp

816 Curtis Saunders Ct.
Chesapeake
VA 23321
USA
E-mail: faisal@grandwatt.com
Web: www.grandwatt.com
GRANDWATT is a global manufacturer with more than 30 years' experience in Lighting Towers available in various configurations. Our products covers Environmental light tower (Solar light tower, Hybrid light tower and Portable light tower), Diesel, gas light tower and surveillance towers.

Jubaili Bros

Jebel Ali Free Zone
United Arab Emirates
Tel: +971 4 8832023
Web: www.JubailiBros.com
E-mail: jbdubai@jubailibros.com
Jubaili Bros with over 45 years of experience, is a leading provider of Energy Solutions in the Middle East, Africa and Asia. Jubaili Bros serves its customers by offering high quality diesel generating sets through 11 countries with 3 manufacturing plants and 30 branches & service centers that are dedicated to customer satisfaction.

Agents:

Kuwait - Jubaili Bros (Kuwait)
Lebanon - Jubaili Bros (Lebanon)
Qatar - Jubaili Bros (Qatar)

KOHLER

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France
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Fax: +33 2 98416307
Web: www.kohler-sdmo.com

Kohler Power system Industries is one of the world's leading generating sets manufacturers. A wide range of standard products from 1 kVA to several Megawatts through an efficient engineering department meets non-standard requirements. Present in over 150 countries through a dense network, Kohler Power system Industries devotes its energy to supporting you in the successful completion of each of your projects world wide.

Agents:

United Arab Emirates - KOHLER MIDDLE EAST

**KuDos Mechanical Co., Ltd**

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Tel: +886-2-2662-7367
Fax: +886-2-2662-7882
Web: www.kudostools.com
E-mail: info@kudos.today

KuDos is one of major manufactures and building to meet customer's market demands, especially, OEM/ODM service is also provided. We continuously our philosophy of dedication, innovation, professionalism to maintain our goal of Long-Term & mutual support business partnerships and providing high quality tools for service all customers around the world.

LIEBHERR

Liebherr-Export AG

General-Guisan-Strasse 14
Nussbaumen
5415
Switzerland
Web: www.liebherr.com
E-mail: info.lex@liebherr.com

The Liebherr Group comprises more than 140 companies in every continent of the world and employs a workforce of more than 51,000 people. In 2022, the Liebherr Group achieved a total consolidated turnover of more than 12.6 billion Euros. The Liebherr Group's Holding Company is Liebherr-International AG in Bulle, Switzerland, which is entirely owned by members of the Liebherr family.



Linz Electric S.p.A

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E-mail: info@linzelectric.com

Linz Electric S.p.A specializes in the production of alternators from 1.7kVA to 1,500kVA and rotating welders up to 500amps. The company's main goal is customer satisfaction through high quality Made in Italy products and fast and comprehensive service. Linz Electric is part of the Pedrollo Group with which it shares values and production synergies to ensure the highest quality standards.

Lovato Electric S.p.A.

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E-mail: info@lovatoelectric.com

Lovato Electric, Italian solid tradition with almost 100 years of on-going activity, is the leader in industrial controls, diesel gen-set, energy management product manufacturing field for industry. The presence of Lovato Electric in the most important world markets is the result of the company's constant international strategy, which is now exporting its products in over 100 countries.

Mecc Alte UK Ltd.

6 Lands End Way
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Fax: +44 1572 771161
Web: www.meccalte.com
E-mail: info@meccalte.co.uk

Mecc Alte design and build high performing alternator solutions for low, medium and high voltage power classes for standby and prime power applications, from 1-5,000kVA. With manufacturing in Italy, the UK, China and India, their network of factories is supported by wholly-owned subsidiaries across the globe who specialise locally in the sales, distribution and after-sales for all Mecc Alte products. As an integrated genset component supplier we can also supply, control panels, battery chargers and bespoke kit solutions.



Mosdorfer GmbH

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Fax: +43 3172 250529
Web: www.mosdorfer.com
E-mail: office@mosdorfer.com

Mosdorfer specializes in fittings and damping systems for high-voltage overhead transmission lines. More than 1,000 projects worldwide with numerous references in the Middle East are obvious sign of international competence as global supplier. The product portfolio includes string fittings, fittings for OPGW, OPPC, ADSS, damping systems, insulators, end fittings, fittings for high temperature conductors and GRIDPULSE, the Transmission Line Monitoring System for industry experts.

MOTORTECH GmbH

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Germany
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Fax: +49 5141 939999
Web: www.motortech.de
E-mail: sales@motortech.de

MOTORTECH GmbH is an international developer and manufacturer of ignition components, gas regulation and engine management systems as well as other accessories for the worldwide energy generation industry with stationary gas engines.

Nidec Leroy-Somer

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Angoulême Cedex 9
16915
France
Tel: +33 5 45644564
Web: www.leroy-somer.com/epg
E-mail: contact@leroy-somer.com

Nidec Leroy-Somer is the world leader in low, medium & high voltage alternators from 10 kVA to 35,000 kVA. We specialize in high-quality products combining long-lasting performance and reduced lifetime costs. With generator set manufacturers and electric power producers worldwide, we help the industry to provide reliable, efficient power solutions

Agents:
United Arab Emirates - Nidec ASI LLC

ORTEA S.p.A.

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20873
Italy
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Fax: +39 02 95917801
Web: www.orteanext.com
E-mail: ortea@ortea.com

Founded in 1969, Ortea is a leader in the design and manufacture of innovative products and customised solutions for power quality and energy efficiency. The process of renewal and continuous improvement strengthens Ortea Next's leadership as your ideal partner to meet the challenge of the global energy transition.

Perkins Engines Company Limited

Eastfield
Peterborough
Cambridgeshire
PE1 5FQ
United Kingdom
Tel: +44 1733 583000
Web: www.perkins.com
E-mail: info@perkins.com

Perkins, a global power systems powerhouse in the 4-2000 kW market, helps customers achieve climate-related goals by designing, building, and servicing power solutions that are tailored precisely to their requirements. Collaborating with over 800 equipment manufacturers, Perkins' power solutions are supported by a global distribution network and digital aftermarket services.

Agents:
United Arab Emirates - Power Systems Gulf LLC

Rittal Middle East FZE

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United Arab Emirates
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Web: www.rittal-middle-east.com
E-mail: info@rittal-middle-east.com

Founded in 1999, Rittal Middle East FZE - a subsidiary of Rittal GmbH & Co. KG, composing an active team with over 30 professionals addressing the Middle East market, with headquarters based in Herbon, Germany. Rittal Middle East is one of the recognized innovative suppliers for

the industrial and electrical sectors as well as a key player in the networking infrastructure & datacentre arena. A perfectly coordinated platform with a vast product range covering industrial/electrical enclosures, system climate control and power distribution suitable for oil & gas, energy, industries, construction etc. Ri4Power Form 2-4: New structured solution for reliable low-voltage switchgear system compatible with international players (breakers), type tested to 5500A as per the worldwide standard, IEC60439-1 and IEC61439-12.

Agents:
United Arab Emirates - Al Ghandi General Trading

Rotair S.P.A

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Italy
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Fax: +97165579980
Web: www.rotairspa.com
E-mail: jayanthan@rotairspa.com

ROTAIR S.p.A is an Italian manufacturer of Portable Screw Air Compressors. The company has been manufacturing highly efficient and reliable compressors since 1961 with active presence in 70 plus countries. Product range: 25-900 CFM / 7-14 bar Aired: Manufactured in-house Engines: Perkins / Kubota / Honda / Deutz / JCB / Cummins Version: Diesel / Petrol / Hydraulic



SAB

Standard Aggregatebau Evers GmbH & Co. KG

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Fax: +49(0)40 522 50 11 40
Web: www.generatingset.com
E-mail: info@generatingset.com

Reputable German manufacturer of diesel-driven generating sets from 50 to 4000 kVA in stationary, transportable or mobile executions for standby, peak load, or baseload applications world-wide. The main competencies are the planning, designing, manufacturing, and servicing of global plant constructions under consideration of individual customer and project requirements.

**Visa S.p.A.**

Via 1° Maggio 55
Fontanelle (TV)
31043, Italy
Tel: +39 04 225091
Fax: +39 04 22509350
Web: www.visa.it
E-mail: visa@visa.it

Visa S.p.A. is one of the world's leading gensets supplier, based in Italy, designing and manufacturing diesel generators, from 9 to 3000 kVA, in standard or customized versions to meet your every need in a large variety of applications (telecommunications, construction and engineering industry, hospitals, data centers, etc.). With its network currently present in more than 100 countries worldwide, it provides versatile, high-tech energy solutions guaranteeing a highly operational flexibility and qualitative standards for which it has become a leader in the market for more than 60 years.



More Possibilities. The Scaffolding System.

Wilhelm Layher GmbH & Co KG

PO BOX 40
Gueglingen - Eibensbach
74361, Germany
Tel: +497135700
Fax: +49713570265
Web: www.layher.com
E-mail: info@layher.com

Layher is the world's leading manufacturer of scaffolding and protective systems. For more than 75 years the Layher brand has been synonymous with proven safety, ground breaking innovation, exceptional quality and complete dependability. With its global presence, Layher can make its expertise and experience available wherever they are needed.

Agents:
United Arab Emirates - Layher FEZ

Section Three: Agents/Subsidiaries**KUWAIT****Jubaili Bros (Kuwait)**

Shuwaikh Industrial 2
Block 1 Str 17,
Asyawah Bldg
Tel: +965 24610356
Web: www.JubailiBros.com
E-mail: jbkwait@jubailibros.com

LEBANON**Cummins Generator Technologies (Middle East)**

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Fax: +971 4 8860518
Web: stamford-avk.com
E-mail: farouk.fatairy@cummins.com

Jubaili Bros (Lebanon)

Sidon
Tel: +961 7 730871
Web: www.JubailiBros.com
E-mail: jblebanon@jubailibros.com

OMAN**Mohsin Haider Darwish LLC**

PO Box 880, Postal code 112
Ruwi,
Muscat
Tel: +968 24788933
Web: http://www.mhdoman.com
E-mail: Fauzan.a@mhd.co.om

QATAR**Jubaili Bros (Qatar)**

Doha
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SAUDI ARABIA**M/s Inanra Co. Ltd.**

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Naizak Power System

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Fax: +966 3889 2086
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E-mail: alalimj@naizak.com

UNITED ARAB EMIRATES**A. N. Wallis & Co. Ltd.**

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Fax: +971 4 2368589
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E-mail: info@an-wallis.com

AJ Power Ltd.

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Web: www.ajpower.net
E-mail: sales@ajpower.net

Al Ghandi Electrical and Automation

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Dubai
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Fax: 04-3245723
Web: www.alghandigtr.ae
E-mail: aggtr@alghandigtr.ae

Ali Haji Abdulla Awazi-Gargash LLC

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Bauer Kompressoren

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KOHLER MIDDLE EAST

Dubai Airport
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Fax: +971 4 4586985
Web: www.kohler-sdmo.com
E-mail: jerome.quere@kohler.com

Layher FEZ

ware house
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Jebel Ali
Dubai
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Fax: 97148808072
Web: www.layher.ae
E-mail: info@layher.ae

Nidec ASI LLC

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Bin Zayed Street
Abu Dhabi
Tel: +971 2 6508023
Web: www.leroy-somer.com
E-mail:
Mohamed.Yarfaa@mail.nidec.com

Petroleum Specialities FZE

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Fax: +971 6 526 9477
Web: www.apar.com
E-mail: aarif.patel@apar.com

Power Systems Gulf LLC

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Tel: +97143479794
Web: www.psgulf.com

Project Databank

Compiled by Data Media Systems

INFRASTRUCTURE PROJECTS, BAHRAIN

Project Name	City	Facility	Budget (US\$)	Status
Eagle Hills Diyar - Marassi Al Bahrain	Muharraq	Mixed-Use Development	400,000,000	Construction
MOW - Busaiteen Link Causeway (New Manama to Muharraq Bridge)	Manama	Causeway	300,000,000	Construction
Alba - Block 4 - Power Station 5 (PS5) Expansion	Alba Industrial Area	Combined cycle Power Plant	500,000,000	Construction
MTT - Bahrain Metro	Various	Railway	2,000,000,000	EPC ITB
MOT - Bahrain Airport Project	Muharraq	Airport	10,000,000,000	Project Announced
Grnata Group - Golden Gate Project	Manama	Residential Development	212,000,000	Construction
MOH - East Sitra Town Development	Sitra	City	700,000,000	Construction
MOW - Bahrain Gas Interchange	Isa Town	Roads	52,000,000	Design
EWA - New 400 kV Jasra Grid Substation - 400 kV Feeder Cable Works	AlJasra	Substations	300,000,000	EPC ITB
EWA - New 400 kV Jasra Grid Substation - Overview	AlJasra	Substations	670,000,000	EPC ITB
EWA - New 400 kV Jasra Grid Substation - Substation Switchgear, Systems and Civil Works	AlJasra	Substations	190,000,000	EPC ITB
EWA - New 400 kV Jasra Grid Substation - Transformer and Reactor Works	AlJasra	Substations	180,000,000	EPC ITB
MOT - King Hamad Causeway (Bahrain - Saudi Link)	Various	Causeway	3,500,000,000	Design
Alba - Line 7 Project	Alba Industrial Area	Aluminium Potline	3,500,000,000	Feasibility Study
Ministry of Youth and Sports Affairs - Integrated Sport City Stadium	Sakhir	Sports Stadium/Facilities	450,000,000	Design
Acwa Power- 100 MW Askar Solar Power Plant	Askar	Solar	130,000,000	Engineering & Procurement
Amlak International Investment - Bahrain Marina - Phase 2 - Aqua Park	Budaiya	Beaches and Resorts	200,000,000	EPC ITB
Amlak International Investment - Bahrain Marina - Phase 1 - Five Star Luxury Hotel	Manama	Mixed-Use Development	250,000,000	EPC ITB
Tameer - Danat Al-Bahrain	South Bahrain	Mixed-Use Development	1,500,000,000	Construction
Commercial Real Estate Development - Symphony Al Tijaria Tower	Hooraa	Residential Development	45,000,000	Construction
Bin Faqeeh - Water Bay	Manama	Mixed-Use Development	2,500,000,000	Construction
Bin Faqeeh - Layan Project	Durrat Marina	Mixed-Use Development	80,000,000	Construction
Ministry of Works, Municipality Affairs and Urban Planning - Waste-to-Energy Plant	Askar	Waste Incineration Plant	1,000,000,000	EPC ITB
EWA - Al Dur Independent Water & Power Project (IWPP) - Overview	Al Dur	IPWP (Independent Power & Water Project)	2,000,000,000	Project Announced
Ministry of Health - King Abdulla Bin Abdulaziz Medical City	AlJasra	Medical/Health Facilities/Spa	1,000,000,000	Construction
EWA - Al Dur Independent Water & Power Project (IWPP) - Overview	Al Dur	Independent Water & Power Project (IWPP)	6,000,000,000	Project Announced
Edamah - Al Jazayer Beach Development - Overview	Bahrain	Theatre/Entertainment/Leisure Facilities	1,200,000,000	Construction
MOW - North Manama Causeway Project - Phase 2 - 2.4 KM Causeway	Manama	Roads	500,000,000	Construction
Gulf Holding Company - Harbour Heights	Manama	Residential Development	650,000,000	Construction
Manara Developments - Hasabi Waterfront Development	Durrat Marina	Mixed-Use Development	1,800,000,000	Design
GBCORP - Marsa Al Seef Project	Seef District	Mixed-Use Development	2,500,000,000	Construction
MOT - GCC Railway Network	Various	Railway	15,400,000,000	Design
Ministry of Housing - Umm Al Hassam Residential Complex	Umm Al Hassam	Mixed-Use Development	292,000,000	Feasibility Study

Project Databank

Compiled by Data Media Systems

Project Focus

Compiled by Data Media Systems

Alba - Block 4 - Power Station 5 (PS5) Expansion

Name of Client	Aluminium Bahrain (Alba)
Estimated Budget (US\$)	500,000,000
Award Date	2021-Q4
Main Contractor	Mitsubishi Corporation SEPCO3
Main Contractor	Midmac Contracting PORR Construction
Facility Type	Combined cycle Power Plant
Status	Construction
Location	Alba Industrial Area, Bahrain
Project Start	2018-Q2
End Date	2024-Q4

Background

Aluminium Bahrain (Alba) is planning the expansion of its Power Station 5 (PS5) located in the Askar Industrial Area, in Bahrain. PS5 Block 4 project is the addition of a fourth Block of similar 1:1:1 configuration with J-class gas turbine technology and with a minimum nominal ISO rating of 680.9-MW and includes a tie into the existing 220 kV Substation. The efficiency of this combined cycle power plant is much higher than the combined cycle power plants of PS3 and PS4. On completion of the PS5 Block 4 Expansion project, the nameplate capacity of PS5 will increase from 1,800 MW to 2,481 MW.

Project Status

Date	Status
May 2023	The project continues to progress according to schedule. The EPC contractor consortium of Mitsubishi Power and SEPCO3 has started the mechanical equipment installation work.
Mar 2023	The procurement process has been finished for the centerpiece of the project, namely the M701 JAC gas turbine, the steam turbine, and the turbine generators.
Feb 2023	The entirety of the civil foundation works for the main equipment have been completed.
Nov 2022	Alba has reached the financial close for the plant. China Export and Credit Insurance Corporation (Sinosure) is supporting the project with a US\$225 million facility and a 15-year tenure.

Project Scope

The project scope includes:

- Expansion of Power Station 5 with a capacity of 680.9 megawatts (MW)
- Additional steam turbine generator
- Combined cycle power unit
- M701JAC gas turbine
- Air-cooled version of J-series gas turbines and a steam turbine
- Air-cooled condenser
- 220 kV/21.5 kV transformer for gas turbines
- 220 kV/20 kV transformer for steam turbines
- Feed water pumps
- Main stacks
- Bypass stacks
- Electrical and control building
- Cooling water pumps
- Gas turbine halls
- Steam turbine halls
- HRSG halls

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مشاريع جديدة للطاقة الشمسية في السعودية



مشروعات الطاقة الشمسية جزء من البرنامج الوطني للطاقة المتجددة

الجديدة جزءاً من التزام صندوق الاستثمارات العامة بتطوير 70 في المائة من الطاقة المتجددة في المملكة العربية السعودية بحلول عام 2030، بما يتماشى مع البرنامج الوطني للطاقة المتجددة. ذلك أن الطاقة المتجددة هي أحد القطاعات ذات الأولوية لصندوق الاستثمارات العامة، مع التركيز على إطلاق قدرات القطاعات الواعدة وتمكين القطاع الخاص من تعزيز جهود المملكة العربية السعودية في تنويع الاقتصاد». ويقول ماركو أرشيلي، الرئيس التنفيذي لشركة أكوا باور: «يمثل توقيع ثلاث اتفاقيات لشراء الطاقة، علامة بارزة لشركة أكوا باور، إذ تمثل أكبر صفقة فردية لمشاريع الطاقة الشمسية في تاريخ شركتنا. يوضح هذا الإنجاز التزامنا الراسخ بمستقبل مستدام للمملكة العربية السعودية وخارجها».

أعلنت الشركة القابضة للمياه والكهرباء (بديل)، وهي شركة مملوكة بالكامل لصندوق الاستثمارات العامة (PIF)، وشركة أكوا باور عن توقيع اتفاقيات شراء الطاقة (PPA) مع الشركة السعودية لشراء الطاقة (SPPC) من أجل التطوير، وتشغيل ثلاثة مشاريع رئيسية جديدة لإنتاج الطاقة الشمسية الكهروضوئية المستقلة (IPP) في المملكة العربية السعودية.

الاستثمارات العامة المتجددة - سدري، الشعبة 2، الرس 2، الجحفة، سعد 2 - إلى تمكين ودعم القطاع الخاص المحلي، وذلك من خلال متطلبات المساهمة الكبيرة في المحتوى المحلي وشراء المعدات والإمدادات والخدمات من خلال سلاسل التوريد المحلية.

ويقول محمد البليهد، رئيس الطاقة والمرافق في صندوق الاستثمارات العامة: «تعتبر مشاريع الطاقة الشمسية الثلاثة

وتعتبر مشاريع الطاقة الشمسية جزءاً من البرنامج الوطني للطاقة المتجددة (NREP) الذي تفوذه وتشرف عليه وزارة الطاقة، مع تفويض صندوق الاستثمارات العامة لتطوير 70 في المائة من السعة المستهدفة للبرنامج. وستكون المشاريع الجديدة مملوكة بشكل مشترك لكل من شركة «بديل» وشركة «أكوا باور»، المطور والمستثمر والمشغل الرائد لتوليد الطاقة وتحلية المياه ومحطات الهيدروجين الخضراء في جميع أنحاء العالم.

هذه المشاريع تهدف إلى إنتاج قدرة مجمعة تبلغ 4,55 جيجا واط من الطاقة المتجددة، وتزويد ما يقرب من 750,000 أسرة. وتبلغ الطاقة الاستيعابية لمشاريع الرس 2 وسعد 2 والجحفة حوالي 2000 ميجاواط و1125 ميجاواط و1425 ميجاواط من الطاقة المتجددة على التوالي، بقيمة مجمعة تبلغ 12,2 مليار ريال سعودي (3,25 مليار دولار أمريكي). ومن المتوقع الإغلاق المالي لهذه المشاريع بحلول الربع الثالث من عام 2023.

ويقوم صندوق الاستثمارات العامة حالياً بتطوير ما مجموعه خمسة مشاريع، بقدرة تراكمية تبلغ 8 جيجا واط وأكثر من 6 مليارات دولار أمريكي من الاستثمار من صندوق الاستثمارات العامة وشركائه. وتهدف مشاريع صندوق

← مفكرة الفعاليات 2023

يونيو/حزيران		
القاهرة	معرض بيج فايف مصر للبناء	19 - 21
أكتوبر/تشرين الأول		
دبي	المعرض والمؤتمر الدولي للمياه وتقنيات الطاقة والبيئة - WETEX	2 - 4
	ومعرض دبي للطاقة الشمسية	
نوفمبر/تشرين الثاني		
دبي	معرض التعدين	21 - 22



ينتظر لتقنية خلايا الوقود التي تعمل بالهيدروجين أن تصدر سوق الطاقة النظيفة

فيوتشر ماركت إنسايتس: توليد الطاقة الثابتة لخلايا الوقود بديل مناسب للمستقبل

من المتوقع أن تصل السوق العالمية لخلايا الوقود للطاقة الثابتة إلى 5,676.8 مليون دولار أمريكي بحلول عام 2033، مقارنة بقيمة الحالية 1,981.4 مليون دولار أمريكي في عام 2023. وتقنية خلايا الوقود، التي تعمل بالهيدروجين، تعتبر مصدراً مستداماً يمكن أن يحل محل متطلبات الوقود التقليدية بكفاءة ومستويات منخفضة من التلوث.

الوحدات الصناعية والتجارية. وكذلك تعتبر بطاريات الليثيوم أيون المادة المثالية، في حالة مصادر الطاقة غير التقليدية الأخرى، والتي تعد مورداً غير متجدد. ومع زيادة الطلب على مصادر الطاقة النظيفة، واستبعاد مخزون عناصر الليثيوم، من المتوقع أن تتجاوز خلية وقود الهيدروجين سوق الطاقة الخضراء.

التطورات الأخيرة

في ديسمبر/كانون الثاني 2020، أعلن روبرت بوش عن خطته للاستثمار في الإنتاج الكامل لخلايا وقود الأكسيد الصلب (SOFC)، وإنشاء وحدة إنتاج بقدرته سنوية تبلغ حوالي 200 ميجاوات. ومن المتوقع أن يؤدي هذا التطور إلى زيادة القيمة السوقية لخلايا الوقود الثابتة من شركة بوش في جميع المناطق.

وفي أكتوبر/تشرين الأول 2021، أطلقت شركة كومينز (Cummins Inc.)، الرائدة عالمياً في مجال الطاقة، المحلل الكهربائي بغشاء تبادل البروتون الكبير (PEM) الذي يعمل في مدينة كيبك بكندا. وقد اعتُبر منارة لمستقبل خالي من الكربون.

تستند هذه الرؤى إلى تقرير عن خلايا الوقود لسوق الطاقة الثابتة من شركة فيوتشر ماركت إنسايتس (Future Market Insights)

إن توليد الطاقة دون احتراق من خلال التركيبة الكيميائية لغاز الهيدروجين، يجعل النظام يطلق كمية ضئيلة من الملوثات مع تحقيق كفاءة عالية، مقارنة بطرق توليد الطاقة التقليدية. كما أن المزايا التي تتحقق من توليد الطاقة الثابتة لخلايا الوقود تجعلها بديلاً مناسباً لعالم المستقبل. ويدعم هذا أيضاً تزايد عدد سكان العالم، إذ أصبح هناك قلقٌ متزايدٌ بشأن التدهور البيئي واستنفاد موارد الوقود الأحفوري، ومن المتوقع أن يشهد العاملون في السوق، الذين يتعاملون مع أية خدمة أو منتج يتعلق بخلايا وقود الهيدروجين، نمواً كبيراً في السنوات المقبلة.

آليات السوق العالمية لخلايا الوقود للطاقة الثابتة

تعتبر زيادة الإنفاق الحكومي على توفير البنية التحتية المناسبة لإنشاء مصادر طاقة نظيفة وخضراء، العامل الرئيسي لمثل هذا النمو الملحوظ في محطات توليد الطاقة التي تعمل بخلايا الوقود الثابتة في مختلف البلدان. فالجهات الفاعلة في السوق تعمل على تحسين التقنيات المستخدمة في صنع خلايا الوقود، وذلك وفقاً لأغراض محددة لجعله شائعاً للاستخدام في الحياة اليومية. كما يُعتبر عدم الاعتماد على شبكة الإمداد بالكهرباء سبباً رئيسياً آخر لزيادة عدد تركيب مولدات الكهرباء الهيدروجينية من جانب العديد من

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القسم العربي

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٤ توليد الطاقة الثابتة لخلايا الوقود بديل مناسب للمستقبل

٥ مشاريع جديدة للطاقة الشمسية في السعودية



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٤٠٠ فعاليات: منتدى التشييد والبناء لمنطقة الشرق الأوسط وشمال أفريقيا.

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الشرق الأوسط

توليد الطاقة الثابتة لخلايا الوقود بديل مناسب للمستقبل

تعتبر زيادة الإنفاق الحكومي على توفير البنية التحتية المناسبة لإنشاء مصادر طاقة نظيفة وخضراء، العامل الرئيسي لمثل هذا النمو الملحوظ في محطات توليد الطاقة التي تعمل بخلايا الوقود الثابتة في مختلف البلدان