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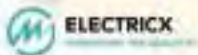
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EDITOR'S NOTE

WELCOME TO THE Big 5 (p46) and the Electricx (p58) edition. As in previous year, these annual events will welcome thousands to Dubai and Cairo respectively. As the cities get ready to play the host, a thought should also be given to the appropriate management of water resources. The region is still battling with insufficient freshwater availability. Although the GCC governments have made tangible progress in desalination projects, the rest of the region needs to catch up (p14). As the UAE's construction activities continue to grow, this has aided the growth of the mining industry in the northern emirates. Read about how FNRC is aligning its HSE practices for better revenues. As HSE gets heightened focus in the region, our 4th Annual Health, Safety & Security Forum will return to Dubai on 27-28 November (p54). Also, do not miss the product previews starting p60.

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

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TECHNICAL REVIEW

الخدمة لسرعات المنطقة منذ 1984

SERVING THE REGION'S BUSINESS SINCE 1984

MIDDLE EAST

النشرة التقنية - الشرق الأوسط

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Briefly

Non-oil drives Bahrain's economy to grow 2.4 per cent in Q2

BAHRAIN'S REAL GROWTH rate increased sharply in Q2 2018 to an annual pace of 2.4 per cent. The data published in the Bahrain Economic Quarterly Report (BEQ) shows a significant increase in growth from the previous quarter, which was underpinned by both the normalisation of oil production and markedly faster non-oil growth.

The quarterly report produced by the Bahrain EDB, found that Bahrain's non-oil GDP expanded by 2.8 per cent in Q2, driven by the construction (+6.7 per cent) and manufacturing sectors (+4.5 per cent). The ongoing expansion in the construction sector is illustrated by the total sum of infrastructure projects in Bahrain reaching US\$87.3bn in mid-September according to MEED Projects, a 3.8 per cent year-on-year growth. The total value of projects facilitated by the EDB in the first nine months of 2018 was 138 per cent higher 2017.

Increased economic growth across the GCC will benefit all countries, but the BEQ concluded that Bahrain will be a particular beneficiary as renewed spending power drives growth in visitors and business activity. The tourism industry continues to grow across a broad range of metrics. Visitor numbers are up 5.8 per cent year-on-year and the average number of nights spent in Bahrain per visitor jumped by 16 per cent.

Dammam transport plan to improve connectivity in Saudi Arabia

THE FIRST PHASE of the public transport plan for Dammam will be launched in November 2018 to establish the main structure for connecting it to other major cities, including Alkhobar, Dhahran, Qatif and Ras Tanura, chairman of the Public Transport Authority (PTA) announced in October. The Bayan e-platform for associating drivers' data with vehicles will be launched in early 2019, Rumaith bin Mohammed Al-Rumaith said.

Al-Rumaith added that the PTA's main goal is to attract investment in the sector in a manner that contributes to achieving the kingdom's Vision 2030 reform plan and turning Saudi Arabia into a global logistics centre.

Dubai ahead in the global construction race

DUBAI TOPS THE list with total project values amounting to US\$374.2bn, just ahead of London in second place with US\$328.7bn and Moscow in third with US\$191.5bn, a GlobalData survey said.

However, the Asia-Pacific region dominates the list, accounting for 25 of the 50 cities, and having a combined projects pipeline valued at US\$1.7 trillion.

A total of 6,645 planned and ongoing construction projects by the world's megacities, valued at US\$4.2trn and fueled by the increase in population, are sparking interest in residential and infrastructural developments, according to GlobalData, a data and analytics company.

The United Nations predicts that, between 2016 and 2030, the percentage of the world's population living in cities with at least a million inhabitants is likely to grow from 23 per cent to 27 per cent, and the number of megacities is projected to increase from 31 to 41.

Following a recent assessment of project pipelines in major cities worldwide by GlobalData, a listing of 50 'Construction Mega Cities', discovers they each have a pipeline of projects with an investment value above US\$30bn.

Yasmine Ghozzi, economist at GlobalData, comments, "The ranking of construction megacities in the GCC states shows they are spending the most on major development projects relative to the size of their populations. Dubai, for example, has a population of 3.2mn, but it holds the top position in terms of the value of the construction mega-projects pipeline per capita."

There are major differences among the 50 construction megacities in terms of the value of the project pipelines compared to the size of the economies. Visakhapatnam, one of India's largest ports and an important industrial town and seaside resort, tops the ranking primarily owing to



Photo Credit: Divijot Ratra/Unsplash

The construction spending in the UAE has been held up by government investment in infrastructure ahead of major global events in the coming years such as Expo 2020 Dubai.

the government's push on infrastructure and affordable housing.

Ghozzi continues: "The two main cities in Vietnam, Hanoi and Ho Chi Minh City, also feature in the top 10 ranking of cities in terms of the value of the project pipeline in relation to the city's economy. Ho Chi Minh City's economy recorded high economic growth in the first six months of 2018, with the construction industry recording growth of 7.7 per cent.

MBR Solar Park adds 250MW to its fourth phase

THE DUBAI ELECTRICITY and Water Authority (DEWA) has signed an amendment to the power purchase agreement (PPA) with the consortium led by ACWA Power for the fourth phase of the Mohammed bin Rashid Al Maktoum Solar Park.

The amendment includes adding 250MW of photovoltaic (PV) solar panels, at a cost of US\$2.4 per kilowatt hour (kW/h), the world's lowest. With this addition, the total capacity of the fourth phase of the solar park will rise from 700MW to 950MW. Following the amendment, the total investment for the ambitious project has reached US\$4.36bn. This achievement is part of DEWA's efforts to achieve the objectives of the Dubai Clean Energy Strategy 2050.

Crown Prince of Dubai and chairman of The Executive Council of Dubai HH Sheikh Hamdan

bin Mohammed bin Rashid Al Maktoum, said, "The capacity expansion of the Mohammed bin Rashid Al Maktoum Solar Park's further consolidates the UAE's leadership in the field of sustainable development and provides another impetus to our clean energy strategy.

"This ambitious initiative also adds a new facet to our cooperation with two of our strongest partners, Saudi Arabia and China. The project brings together a distinctive combination of advanced knowledge and expertise to create the largest single-site solar park in the world," HH Sheikh Hamdan added.

The project will use three technologies to produce clean energy – 600MW from a parabolic basin complex, 100MW from a solar tower and 250MW from PV panels.



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ON THE WEB

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

Saudi Arabia's first SEZ

SAUDI ARABIA HAS announced the establishment of a special economic zone (SEZ). According to the *Saudi Press Agency*, the zone, the first of its kind in the world, will be developed in Riyadh. It will focus on integrated logistics and will enjoy special rules and regulations aiming at attracting more multinational companies to the kingdom. A royal decree has been issued to approve the regulation of the Integrated Logistics Bonded Zone (ILBZ).

www.technicalreview.me/logistics



ILBZ set to attract foreign investment into a number of sectors.

Photo Credit: Bob White/Flickr

Moroccan wind farm certified 'green'

MOROCCO'S KHALLADI WIND farm owned and operated by ACWA Power has been registered with the first International Renewable Energy Certificate Standard (I-REC) by Dubai Carbon. Dubai Carbon is the authorised I-RECs issuer and treasurer for the UAE, Morocco, Jordan and Saudi Arabia. ACWA Power stated that this project is part of a wider sustainable effort to position Morocco as a green differentiator in the region. The North African country is the renewable energy market in the Arab world with a commitment to reach 52 per cent of power generation capacity from renewable energy by 2030, according to ACWA Power. The Khalladi wind farm, located in Jbel Sendouq (30km from Tangier), has a capacity of 120MW generating energy equal to the annual average energy consumption of a city of 400,000 people.

www.technicalreview.me/power-a-water

Bahrain's causeway tender soon

BAHRAIN WILL ISSUE the tenders for consultancy services to manage the transition phase of King Hamad Causeway, a proposed causeway linking the country with Saudi Arabia.

The announcement came from Saudi Arabia's minister of transport Nabil bin Mohammed Al Amudi and Bahrain's minister of transportation and telecommunications Kamal bin Ahmed Mohammed during the Future Investment Initiative (FII).

As reported by BNA, the new causeway is expected to carry vehicles, passenger trains and freight trains. It will extend 75km in both Bahrain and Saudi Arabia, incorporating the 25km span of the King Hamad Causeway over the sea waters. The main construction work of the projects is set to be tendered by 2020.

www.technicalreview.me/construction

Fluor's new Clean Fuels project in Kuwait

FLUOR CORPORATION HAS announced that its joint venture team, FDH JV, has successfully generated first steam into Kuwait National Petroleum Company's (KNPC) Clean Fuels Project in Kuwait.

This project is being executed on the three KNPC-owned and operated refineries in Kuwait. As part of the Clean Fuels Project, KNPC plans the retirement of existing processing facilities at Shuaiba and a major upgrade and expansion of the Mina Al Ahmadi and Mina Abdullah refineries to integrate the refining system into one complex with full conversion operation.

www.technicalreview.me/power-a-water



This project is being executed on the three KNPC-owned and operated refineries in Kuwait.

Photo Credit: Fluor

KSA wins IoT pole technology license

SINGAPORE-BASED SME Photizo Global Pte Ltd signs its first i-Core licensing agreement with Al Sharif Networks and Distribution Limited Co (ASGX), a subsidiary of Al Sharif Group Holdings (ASG), and Taqnia Energy from Saudi Arabia in a

global deal, which is potentially worth more than US\$500mn, in Singapore. There is a global push towards creating smarter cities and smarter buildings. According to a report by Zion Market Research, smart cities accounted for US\$955.3bn in 2017 and is expected to reach US\$2,700.1bn globally by 2024.

www.technicalreview.me/power-a-water



This agreement allows ASGX and Taqnia Energy to manufacture in Saudi Arabia and to sell their products globally.

Photo Credit: Photizo

Telcos can play a central role in AI market

TELECOMS OPERATORS CAN take advantage of the AI revolution by optimising their own business activities and acting as 'technical' AI platform enablers for other industries, which are expected to spend US\$15bn annually on AI business operations by 2021. These are the key findings of a new whitepaper published by Solon Management Consulting, showing the enormous potential for telecommunication operators to play a central role in the AI market. There is an ongoing AI (r)evolution as improved machine learning techniques, which form the most commercially important subset of AI technology, are enabling companies to discover and operationalise previously hidden insights. Increasing data availability and higher processing power are facilitating this evolution, allowing better methods to be used on more data at a lower cost.

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EXECUTIVES' CALENDAR 2018-2019

NOVEMBER 2018

17-19	Electricx	CAIRO	www.electricxegypt.com
26-29	The Big 5	DUBAI	www.thebig5.ae
26-29	The Big 5 Heavy	DUBAI	www.thebig5heavy.com
26-29	Middle East Concrete	DUBAI	www.middleeastconcrete.com
27-28	4th Annual HSE Forum	DUBAI	www.hse-forum.com

DECEMBER 2018

4-6	Gulf Traffic	DUBAI	www.gulftraffic.com
11-13	Saudi Arabia Smart Grid Conference	JEDDAH	www.saudi-sg.com

JANUARY 2019

14-17	World Future Energy Summit	ABU DHABI	www.worldfutureenergysummit.com
20-22	Intersec 2019	DUBAI	www.intersecexpo.com

MARCH 2019

5-7	Middle East Electricity	DUBAI	www.middleeastelectricity.com
10-13	The Big 5 Saudi	JEDDAH	www.thebig5saudi.com

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

Gulf Traffic collaborates with Saudi Transport Ministry to promote kingdom's projects

THE GULF TRAFFIC Exhibition and Conference, which will take place from 4-6 December 2018 at the Dubai World Trade Centre, has, for the first time, signed a strategic partnership with the Saudi Transport Ministry (TM) aimed at increasing collaboration between transport suppliers, as well as giving the TM an international platform to promote their extensive list of current and upcoming transport projects.

A key focus on the TM's transport strategy is the Saudi Vision 2030. The vision seeks to add no fewer than five new megacities and many smaller developments to the country over the next decade or so, with these large and multifaceted developments designed to have regionally specific industrial focuses like global finance, agribusiness, and religious tourism, and will be connected via new transportation investments like high-speed rail on the west coast and an upgraded central airport in the capital city of Riyadh and the country's second largest city, Jeddah.

Commenting on the partnership Turki Al Toaimi, director general for marketing and communications at the Saudi Transport Ministry, said, "This partnership comes at an exciting time for us. We have recently announced a series of signed contracts, worth US\$453.3mn, to extend 23 roads across the kingdom as part of a plan to upgrade our infrastructure. As we progress with our plan for the private sector to operate much of the kingdom's future transport infrastructure, being part of international platforms, such as Gulf Traffic in Dubai, will give us access to the transport suppliers needed to drive this strategy."

"We are excited to have the Saudi Transport Ministry as our official show partner for Gulf Traffic 2018. The kingdom's Ministry officials have a clear objective to source some of the best solutions and technologies in traffic and transportation from around the globe and have chosen Gulf Traffic as the platform to do this. With such a large amount of infrastructure development happening in the Kingdom, this partnership, we believe, will provide some excellent opportunities for the TM, our exhibiting companies and our visiting industry attendees" said Claudia Konieczna, exhibition director, Gulf Traffic.

Gulf Parking, which launched for the first time last year, will again run adjacent to Gulf Traffic, further adding to the brands offering by widening the focus to support other key industry sectors. With a keen focus on smart mobility, Gulf Parking will cater to the latest in smart payment and intelligent access control solutions from across the world, creating a new avenue for companies to showcase their latest product range to the traffic and transport industries.

Exhibitors and sponsors signed up to the 2018 edition include VIA, Miovision, Watopedia, Kapsch, Siemens, FLIR, Ennis-Flint, PTV Group, Secure Parking, Zone Parking, Gridsmart, Q-Free, Gersan Elektrik, Technologica, Geveko and many more.

Officially supported by the UAE's Ministry of Infrastructure Development (MoID) and Dubai Police, Gulf Traffic plans to host over 150 exhibitors and attract approximately 3,000 industry peers from 50 countries, both across the Middle East and beyond.

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Tom Degenis speaks about the advantages of 4D modelling in construction at YII 2018.

Photo Credit: Bentley Systems

3D to 4D BIM: It's time to SYNCHRO(nise)

4D modelling refers to the intelligent linking of a 3D digital model with time-related information and provides precise and useful construction project information. Rhonita Patnaik attended Bentley's Year In Infrastructure (YII) Conference in London from 15-18 October to find out more.

THE OIL PRICE today is almost at US\$80, and as optimism renews, the construction industry is picking pace across the globe. The Middle East is busily completing projects for the much-awaited Expo 2020 Dubai. However, in most markets, the cost factor remains the primary obstacle to completing the projects on time, due to inefficient workflows. As a result, developers are becoming more budget-conscious.

Traditionally, construction projects are based of 3D models that depict their current status. However, there are a lot of concept projects that are solely intended for design. Those do not show the real-time status of projects. Today, the demand is inching towards timely accurate project delivery.

As challenging as it may seem, the good news is that it is not impossible and with Bentley's 4D modelling and Synchro, it is possible to achieve the desired results at an optimal cost.

In June 2018, Bentley Systems announced the acquisition of Synchro, a 4D modelling software, to help overcome project design challenges as well as to smoothen digital workflow. This acquisition broadens Bentley's ProjectWise construction

offerings, which also includes ConstructSim, used mainly for 4D modelling of industrial plants. At the Bentley's Year In Infrastructure (YII) 2018 in London, Tom Degenis, senior director, Constructioneering, Project Delivery, SYNCHRO Platform, spoke to *Technical Review Middle East* about the significance of 4D modelling today.

"Construction is a natural environment of 3D spatial modelling and then you incorporate time. It is our ability to visually see the project as an animation. This means that projects can be scheduled on a day to day basis. This can help owners and developers gain control on the delivery deadlines. Also, the tracking of progress of progress is visible. It is a very transparent process."

Accuracy is the major aspect of Synchro. With a 15-min difference between the reality and the digital modelling, the turnaround time on the project is identical. Now you can keep track of the progress by the minute.

Also Synchro can be adapted to a 3D modelling at any construction phase, the utility of this tool is infinite.

"SYNCHRO will analyse the available plan and create a work platform for construction planning."

Degenis assures that it is an extremely viable investment. It is a promise of a payback but it needs encouragement from the owners and developers.

Steve Jolley, V-P, Construction, adds that the next step is to feed the right information into the model. Once you have the spatial info of the model, it is much easier to adopt the technology. So do not underestimate the value of data, he states.

The Synchro Software's 4D construction-modelling solution can be augmented better with Microsoft HoloLens. Users can now digitally visualise 4D projects with high deal of accuracy and detail. The HoloLens overlays the dimensional Synchro graphics on-the-job site and users can watch the structures as built and systems are installed across the timeline.

Demonstrating HoloLens during the technical presentations, Greg Demchak, technical architect, Bentley Systems says that the representation is almost identical as on the drawings. Microsoft is now working on Version 2.0, which will be a lighter and with improved holographic displays.

As Bentley moves to the future of constructioneering, it took a step back to leverage the potential of aging and existing

infrastructure with digital twins. At the conference, Bentley Systems announced the launch of iTwin Services for infrastructure projects and assets. iTwin Services can be transparently provisioned within Bentley's Connected Data Environment (CDE) for ProjectWise and AssetWise users.

Infrastructure asset owners and their teams have recognised the potential for leveraging digital twins in many ambitious use cases, including the application of analytics, artificial intelligence (AI) and machine learning (ML) in simulations and decision support throughout the lifecycle of design, construction, and operations. To realise this potential, representations of assets need obviously to be digital — but to be safely relied upon as a twin, there must be practical solutions for their synchronisation to changing actual conditions in the real world. Moreover, merely capturing and representing physical conditions, including IoT inputs, can never be sufficient to understand, analyse, or model intended improvements, without also comprehending the “digital DNA” captured in the project or asset's engineering specifications.

To actually be worthwhile would-be digital twins for existing infrastructure must reliably synchronise reflections of both an asset's physical reality, and its “virtuality” (engineering data). A digital twin can meet this requirement by geospatially converging the digital context (representing the physical) and digital components (representing the virtual), naturally resulting in an immersive environment for visualisation and analytics visibility.

To date, however, the evolving 3D physical reality of an as-operated asset has been too formidably difficult to capture digitally, let alone to keep up-to-date. Meanwhile, corresponding, as-operated engineering information tends to be unavailable or at best, dated, as typically an assortment of effectively inaccessible “dark data” in either opaque engineering files or unintelligent document formats. Bentley has now surmounted both these challenges, with the confluence of its reality modeling, iModelHub, CDE, and web-visibility technologies.

Reality modelling

A representation of any infrastructure asset's physical reality can now be reliably captured and maintained through increasingly continuous surveys and Bentley's reality modeling software, providing digital context in the form of “reality meshes”. Overlapping



Keith Bentley explains some of the comprehensive software solutions for advancing the design, construction, and operations of infrastructure at the YII 2018.

photographs and (as needed) supplemental laser scans, largely from drones and ground-level imagery, are processed to generate spatially classified and engineering-ready reality meshes at any desired level of accuracy—within which each digital component can be automatically recognised and/or geospatially referenced. The reality mesh can provide an efficient and immersive visual “twin” to intuitively navigate for finding, viewing, and querying the associated information within, or related to, the asset's digital engineering models.

Web visibility

Once populated and synchronised by way of digital context and digital components, iTwin Services deliver their benefits through Bentley's new (separately announced) open-source iModel.js library (iModel.js.org) for web-based immersive visualisation. Infrastructure teams can easily develop custom applications that connect their digital twin for specific use cases by leveraging a vast open source ecosystem. In addition, a geospatially immersive environment for city-scale digital twins is now available through Bentley's new OpenCities Planner services.

Also at the conference, Siemens and Bentley unveiled PlantSight, a new range of

cloud services to be jointly offered for as-operated digital twins of any process plants. PlantSight will provide increasingly comprehensive as-operated digital twin services, to incorporate Bentley's AssetWise APM with Siemens' operational technologies, MindSphere, and Teamcenter, for industrial plants' asset performance modeling. And to accelerate owners going digital, Atos and Bentley announced a new strategic partnership to create and curate performance digital twins.

Keith Bentley, Bentley Systems founder and CTO, said “Our work with early adopters of iModelHub over the past year has confirmed to me that its unique strengths for alignment, accountability, and accessibility find their highest and best use, in conjunction with our reality modeling technologies, for enabling project digital twins and performance digital twins. I look forward to actively working with users and external developers to create an open ecosystem of innovation for iTwin Services, leveraging the iModel.js library. I expect Bentley Systems to lead the infrastructure engineering community, as the ‘infrastructure digital twin’ company.”

The Bentley Year in Infrastructure Conference was held in London from 15-18 October at the Hilton Metropole London. ■

Most non-GCC countries are struggling to manage their water resources efficiently and to expand coverage of piped water and sanitation services.

Greater water stability, bigger economic rise

The MENA region has the world's lowest water tariffs and spends the highest proportion of GDP on public water subsidies. It now needs to tackle the gap to avoid crisis. Economist Moin Siddiqi reports.

Photo Credit: Adobe Stock

WATER IS A scare commodity in the hydrocarbons-rich Middle East and North Africa (MENA) region, with water resources per capita barely one-sixth of the global average, according to the United Nations' FAO.

Groundwater resources are fast depleting while competition for water is increasing. The scale of water fragility is exacerbated by largely arid to the hyper-arid and highly variable climate across MENA countries, which requires coordinated regional policy responses and improved water management.

"Despite investment in infrastructure and institutions, these problems are likely to deteriorate as water scarcity grows," warns the World Bank's special report *Building Resilience To Shocks and Protracted Crises in the Middle East and North Africa (2018)*. Demographic trends, rising incomes and expanding cities are fuelling robust demand for water and water-intensive food products, while the supply side is more erratic with poor service delivery in most non-Gulf Cooperation Council (GCC) countries. The report added: "If nothing changes, reduced

freshwater availability under climate change and competition from its various users will reduce water availability in cities."

Agriculture is the largest consumer of water in the region, but now demand from other sectors (municipal, industrial and desalination water) is surging. Eight of the world's top 20 groundwater irrigating countries are in MENA (*Global Environment Facility's findings*). However, three-quarters of rain-fed cropland region-wide suffers from

**After the UAE,
other GCC
countries at the
forefront of water
and wastewater
investment include
Saudi Arabia and
Oman.**

land degradation through erosion, nutrient depletion and salinisation – costing the MENA region an estimated US\$9bn/year (World Bank data). Increasing soil resilience and reclaiming degraded lands is a priority in many countries, according to Intergovernmental Technical Panel on Soils, 2015.

The Middle East has developed a greater share of its available water resources, as well as constructing more water storage facilities per capita compared to other regions. Also, several countries, notably Egypt, Iraq and Syria, have access to considerable surface water resources, which flow from outside their boundaries. Almost all MENA countries share at least one 'aquifer' with a neighbouring country. Aquifer is an underground layer of water-bearing permeable rock from which groundwater can be extracted using water wells.

Impacts of water fragility

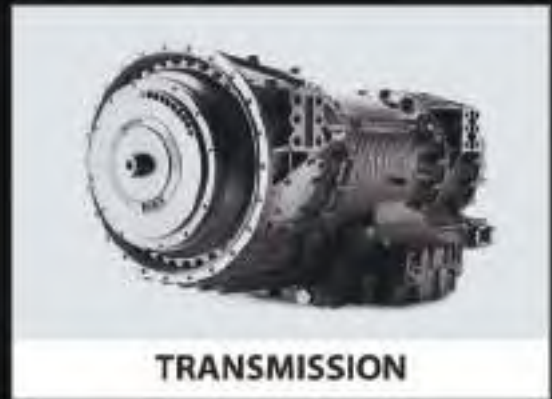
Most non-GCC countries are struggling to manage their water resources efficiently and to expand coverage of piped water and sanitation services. An already high level of water resource development and rising



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usage, particularly from manufacturing and industrial sectors, are driving water scarcity (i.e. structural imbalance between supply-demand), thereby posing serious regional risks to human development and sustainable economic growth in coming years.

Climate change (if left unaddressed) could inflict dire consequences upon a hyper-arid region, reflected in losses in agriculture, income, property and health. A 2016 World Bank report *High and Dry: Climate Change, Water and the Economy* found that climatic risks are more severe in MENA than other regions. It calculated that under a business-as-usual scenario climate change induced water-fragility could reduce regional GDP (i.e. output of goods and services) by between six and 14 per cent by 2050,



The UAE's largest desalination plant is situated at Jebel Ali in Dubai.

Photo Credit: Adobe Stock

compared to global average estimate of 0.09 to -0.49 per cent (see Table 2).

Surging demand and competing forms of water use in a country (e.g. drinking water, water for industry; irrigation; and the maintenance of ecosystems' functions) are diminishing supplies for agriculture, cities and businesses. Moreover, incentive systems across MENA do not accurately reflect the value of water and investment. Cheap water encourages overuse and deters conservation.

Strengthening water management

MENA countries have made tangible progress to improve water practices and governance in recent decades. Access, efficiency, and quality of water supply is generally on a level with peer developing regions, although large disparities exist within countries. Public-private partnerships

(PPPs) in utilities are very active, especially in the GCC-bloc – structured mostly on management and performance-based contracts. The public utility retains asset ownership; while operation and maintenance of municipal water and wastewater systems falls under the private contractor – aimed at enhancing service delivery over the duration of the agreement.

Most non-GCC countries still face problems regarding proper sanitation and wastewater treatment, where septic and cesspits tanks predominate. A septic tank is a settlement chamber that provides treatment to sewerage and drainage water; a cesspit is a sealed underground tank to collect wastewater and sewerage, but there is no processing or treatment of water.

Furthermore, some towns lack sufficient bulk water sources, with supply intervals stretching into weeks or months. Connection rates to the network are reportedly as low as 50 per cent even in capital cities like Amman, Baghdad and Beirut, while physical losses and other non-revenue water can reach 40 per cent (World Bank data).

Financial viability of semi-autonomous utilities is moderate across the MENA region, with tariffs set too low and poor collection rates. Hence, water utilities cannot recover management, operation and maintenance costs (MOM) – needing heavy state subsidies. Not recouping MOM and capital costs also hinders private investment in water infrastructure. Inadequate regulation and cheap energy prices have resulted in 'over-exploitation' of groundwater resources.

The World Bank explained: "For years,

governments across the region focused incentives and investments on increasing supply and use, so that today there is virtually no more water to be harnessed." Generous energy subsidies in oil-exporting countries have improved the financial viability of both surface water lift pumping for irrigation and of groundwater abstraction, according to World Bank research paper, *Estimating the size of external effects of energy subsidies in transport and agriculture, 2015*.

There is considerable scope in many Arab countries to readjust their incentive structures to favour conservation and efficiency; benchmarking utilities' performance; strengthening capacity for regulation; shrewd investment planning process with an emphasis on regional collaboration; and further reduction of energy subsidies for groundwater pumping – thus reflecting the true cost of production and opening the door for private sector participation in water.

Desalination in demand

Saudi Arabia, the UAE and Kuwait have the globe's highest desalination capacities. These three GCC countries alone are responsible for more than one-third of the global desalination capacity. Overall, around 58 per cent of the world's desalination capacity is in the MENA region, according to the International Energy Agency (IEA). The increase in desalination requirements, due to population growth, is also pushing up energy consumption to produce fresh water, with the knock-on effect of more greenhouse gas emissions and increasing levels of chemicals and brine ejected back into seawater following desalination processes.

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Table 1: Freshwater availability, region-wise

	Internal renewable freshwater resources		Annual freshwater withdrawals 2015			Water productivity	Drinking water services 2015	
	Flows billion cu/m 2014	Per capita cu/m 2014	Agriculture	Industry	Domestic	GDP/water use 2010 \$ per cu/m	% of pop	
East Asia & Pacific	10,106.1	4,522.0	64	22	14	17	95.8	91.1
Europe & Central Asia	7,070.9	7,855.0	41	46	13	9	99.1	95.5
Latin America & Caribbean	13,867.7	22,232.0	76	9	15	14	98.8	85.7
Middle East & North Africa	231.3	549.0	52	3	44	27	95.9	86.1
South Asia	1,982.2	1,151.0				3	93.1	85.7
Sub-Saharan Africa	3,883.8	3,984.0	73	2	25	10	81.8	42.8
North America	5,668.0	16,004.0				36	99.8	96.7
WORLD	42,810.0	5,921.0	65	21	14	16	95.2	80.1

Source: World Development Indicators 2018 (World Bank)

cooling tower and boiler controller services in the water treatment industry. The simple, intuitive programming makes it easy to control multiple cooling towers, boilers, closed loops, or virtually any water treatment process.

Earlier this year, Abu Dhabi Water and Electricity Authority (ADWEA) announced its plans to invest US\$1.2bn into the construction of the world's largest water desalination plant. The plant will be located 45km north of Abu Dhabi and operations are expected to begin in October 2021.

Among other high-profile and advanced investigations into more efficient desalination were a set of pilot projects run by Masdar in the Ghantoot area of Abu Dhabi. The government organisation led five pilot projects that looked at energy-efficient seawater desalination. The first four pilots were awarded in 2015, with the fifth (to Mascara NT) awarded in late 2016. Each pilot was awarded following a competitive tender to a different company, which then built a small-scale system to test more efficient desalination methods. Each test ran continuously for at least 15 months.

Meanwhile, Saudi Arabia's Saline Water Conversion Corporation (SWCC) has achieved significant desalination goals with DuPont Sustainable Solutions (DSS) following a partnership in 2016 to help SWCC find ways to optimise operations and reduce production costs, while establishing a mindset of safe operations.

To measure the gap between actual performance and maximum potential for each SWCC facility included in the scope of the project, DSS developed a framework called Overall Equipment Efficiency (OEE). This gave SWCC better insight into the impact of key levers on the water unit cost. The framework accounted for various types of losses that affected three key operating parameters: availability, performance, and quality. In addition to OEE, DSS also assessed

the key cost drivers that affect production including fuel, chemicals and electricity.

In total, more than 100 improvement initiatives were identified, many were implemented and resulted in cutting the cost of water between 10 and 30 per cent across the four facilities. Within 13 months of starting on the transformation project at the Jubail, Khobar, Yanbu and Shoaibah facilities, SWCC was able to increase daily water production by 1.4mn cu/m and set a global record with daily desalination capacity reaching five million cu/m in January 2018.

SWCC has collaborated with ACCIONA Agua to build the Al Khobar desalination plant, about 400km from Riyadh. This EPC contract with a one-year warranty is SWCC's first design and build project with a Spanish company. The facility is expected to be completed by 2020 and will have a capacity of 210,000 cu/m per day, making it one of the largest in Saudi Arabia. The plant will also supply water to Saudi Aramco.

In the UAE, three desalination plants – Ras Al Khaimah, Umm Al Quwain and Fujairah –

producing 511mn litres of fresh water per day, will open in the northern emirates by 2021, managed by the Federal Electricity and Water Authority (FEWA) and Mubadala.

Commending sustainable water treatment practices in some of the GCC countries, Fady Juez, Metito's managing director, said that the regional governments need to look into PPPs as the next step forward to encourage investments. "New, more advanced technologies can revolutionise the water industry, particularly in water-poor nations or less economically developed countries with only basic water infrastructure."

Schneider Electric is also working with Dubai Municipality to explore Big Data analytics across drainage and the sewerage networks.

Supporting digital skills development, Schneider Electric is training government engineers at the Schneider Electric regional headquarters, with Dubai Municipality recently marking an engineering graduation.

The best practices in water digitisation include real-time insights to enhance water efficiency, expand business models, and transform consumer roles. Internet of Things (IoT) infrastructure can help the UAE to predict water peaks, measure water storage, and reuse treated water.

Hanan Darwish, cluster president – Gulf and Pakistan, Schneider Electric, added that it is not just about sustainability. Return of Investment (RoI) is important too. "Our digital solutions provide our customers with 'third layer' applications where they would get the visibility and accessibility on the data on consumption and wastage. Giving them access to this awareness will help them manage water. This is very much required in this part of the world where water is a scarce commodity. For Dubai Municipality, our solutions provide the tools whereby they can effectively measure water management in the emirate."

According to the World Bank data, 82 per cent of MENA's wastewater is not recycled, which leaves open a huge opportunity to combat water shortages.

New water agendas

The growing water fragility challenges suggest a need for changes of policy, especially in MENA countries sharing waterways. “The absence of an inclusive, cooperative framework has been a constraint for the optimal development of the region’s major trans-boundary rivers,” noted an FAO report. Investments conducted at the basin instead of (country-scale) could yield ‘downstream’ benefits to riparian countries from irrigation and water supply, whilst facilitating ‘upstream’ region-wide hydropower development.

Trans-boundary collaboration is difficult in conflict-ridden situation as in the case of Euphrates (Syria) and Tigris (Iraq), although the Nile Basin Initiative (Egypt) has succeeded in attracting US\$6bn in trans-boundary collaborative projects.

Lessons from Australia’s ‘National Water Initiative’ are relevant for MENA. Both regions share similar problems of aridity climate, water shortages and intersectional water allocation. Beginning in the 1990s, three key goals based on scientific data and

Table 2: Economic impact of climate-change-induced water scarcity region-wise, 2050

	Range of variation in GDP	
	Low	High
Middle East	-6.02	-14.0
Sahel	-0.82	-11.7
Central Asia	11.5	-10.72
Central Africa	0.38	-7.08
East Asia	3.32	-7.05
Southeast Asia	1.46	-1.98
North America	0.0	-0.02
Western Europe	-0.01	-0.02
WORLD	0.09	-0.49

Source: World Bank 2016

market economics were identified for water-resource sustainability – guaranteeing water entitlements for irrigators, ecosystems and introducing water sharing plans with legal powers. As a result, Australia has achieved sustainable levels of extraction, and better groundwater management, while respecting needs for environmental water. Such outcomes are needed in MENA.

The changes fostered conditions for open trading of water rights, market-oriented

pricing and private investment in water infrastructure, as well as ensuring water availability in areas of low irrigation supplies. Equally, governance and institutions also played a crucial role, with investment in research/development, efficient water data collection and water accounting.

In sum, water reform in the MENA region is a long-term process. It requires rehabilitation of infrastructure, technology, modernisation of irrigation and capacity building to raise water-use efficiency/productivity and to help countries adapt to climate change. Given the relatively small size of many MENA economies and shared water resources, a coherent integrated regional plan is essential.

As Iraq, Libya and eventually Syria and Yemen attempt to rebuild their shattered economies, water security is critical to underpin development strategies. The World Bank noted: “The challenge is to expand access to ensure that water sources are adequate and sustainably managed and to support the local management and full cost recovery vital to the operating sustainability of water services.” ■

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With its rocky and mountainous terrain holding abundant natural resources, quarries have sprang up, mining for marbles, gypsum and other raw materials that are not only used locally but are also exported.



Photo Credit: Adobe Stock

Fujairah: Mining HSE opportunities

New technologies and increased awareness have been instrumental in creating better safety regulations in the emirate. Rhonita Patnaik reports.

Technologies, such as drones, are playing an important role in the UAE's quarrying industry, thus increasing safety and improve efficiency.

THE CONSTRUCTION MARKET is a major driver of the UAE's economy. Despite low and gas pricing for the last few years, the sector has remained resilient due a strong mining industry across the country and fuelled by spending on mega infrastructure projects across the UAE, the quarrying and aggregates industry has continued to grow year-on-year. With this growth, new regulations have been imposed to ensure that quarries are investing in the latest solutions to ensure a minimal impact to the environment and surrounding communities.

Health and safety is a priority sector in the UAE owing to rapidly evolving industries such as construction, oil and gas, mining, shipping and commercial.

In 2017, the UAE released the new health

and safety diktat to help improve workplace safety as well as ensure less number of job-related accidents. It would be safe to say that the country has long been the frontrunner of ensuring highest standards of workplace safety combined with world-class technology on par globally.

As the administrative capital, Abu Dhabi, and the financial capital, Dubai, continue to build their standards of HSE, the Fujairah government is now joining the leaders to bring in safety compliance to boost both worker wellbeing as well as revenue generation.

Located on the eastern coast, Fujairah has gained prominence in the Middle East for trading, storage and bunkering of goods from across the globe, making it the second largest bunkering port in the world. This is

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what makes health and safety so important in Fujairah.

Fujairah, in particular, is endowed with abundant natural resources such as copper, magnesium, chromite and limestone. Recently, the UAE Federal Government announced the investment of US\$913mn for the mining and quarrying section across the country, 85 per cent of which has been allocated to Fujairah Natural Resources Corporation (FNRC).

Technical Review Middle East spoke to Dr Hithame Elkhodry, IMS advisor and HSE engineer at FNRC about the federal and emirate's governments' support to boost the mining sector.

The FNRC was established as an independent entity by Emiri Decree No. 1 of 2009 issued by the Ruler of Fujairah and is the supervisory body for Fujairah's mining and quarrying industry. It conducts studies and geological surveys to develop rock and mineral sectors and exploit the natural resources of the emirate.

Created to oversee the mining activities in the emirate and support the sector with technical know how, Dr Elkhodry said that the Fujairah government and the ruler have since given full support to build the mining sector with latest technologies and with utmost importance to health and safety in the sector.

For the emirate, mining plays a significant role in its economy and with many investment opportunities that the sector provides, the health challenges that come with it cannot be underestimated.



FNRC's Dr Hithame Elkhodry at The Mining Show 2018.



Photo Credit: Adobe Stock

In 2017, an MoU was signed whereby Abu Dhabi Ports will develop the Fujairah Port's existing infrastructure through its wholly-owned Fujairah terminals.

Located on the eastern coast, Fujairah has gained prominence in the Middle East for trading, storage and bunkering of goods from across the globe, making it the second largest bunkering port in the world.

"Mining can play a detrimental role in the environment. For instance, one such problem is the dust. We are trying to tackle the dust that is a byproduct of the activities taking place everywhere in Fujairah. And the exposure to dust in mining and quarrying continues to be a major risk to the health of workers. At FNRC, we monitor this hazard 24/7 and our competent advisors find immediate solutions to face these impacts."

FNRC takes HSE very seriously and this is

supported by the latest technological advancements that the organisation adopts.

One such is the use of drones to monitor the dust hazards. Designed and manufactured in the emirate, FNRC also uses the drones for firefighting operations. "This is the first time anybody is using drone in firefighting operations. I believe we are leading the way."

FNRC is not only responsible for HSE practices in the emirates. The organisation also supports and encourages companies and other local government departments to monitor and create safety initiatives across Fujairah. Dr Elkhodry stated that with clear HSE rules for the mining sector, FNRC helps local and international companies monitor and operate in a safe way.

FNRC regularly conducts training programmes for its employees and quarrying companies for managing environmental concerns in the sector.

As an HSE advisor in FNRC, Dr Elkhodry plays an instrumental role in advising on all the HSE aspects regarding mining and related sector including strategies for emergency and evacuation plans and methods.

Technology has played a massive role in aiding FNRC's operations across the emirate. "We cannot undermine that technology has helped develop mining sector as well as bettered HSE standards in the emirate. We have technology to rescue people, monitor hazards, and defend the nation." ■



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EGA's overall development since the 1970s has taken the UAE from no aluminium production to being the fifth largest aluminium-producing country in the world.



Photo Credit: Emirates Global Aluminium

Aluminium giant navigates unsettled markets

The stock market will wait longer for Emirates Global Aluminium IPO as alumina expansion drives forward. Martin Clark reports.

THERE ARE SOME mixed messages coming out the GCC's metals industry.

While sales and exports appear to be holding up reasonably well amid the ups and downs of a traditionally volatile commodities sector, it has put the brakes on some highly anticipated market moves.

During the first half of 2018, the global production of primary aluminium was around one per cent below the previous year. Overall, production in China has shown a slight decrease, while the rest of Asia has expanded its production quite significantly, according to the IKB Bank in Düsseldorf. Experts at the bank are expecting to see production reaching around 64mn tonnes in 2018. The bank observed a steady level of production in Europe and a slight downturn in North America. However, the worldwide demand for primary and recycled aluminium has been boosted by lightweight

design in the automotive industry, the good order situation in the aviation industry, a boom in the construction industry and in the packaging sector.

Emirates Global Aluminium (EGA) declared recently that it would hold back its initial public offering (IPO) until next year citing unfavourable market conditions.

The UAE's biggest industrial group outside the oil and gas sector was planning its market debut in 2018. The company, which produces 2.6mn tonnes of cast metal a year, and is the third-largest producer of primary aluminium outside China, announced its plans to float last year.

"The IPO is delayed to 2019 due to market conditions," a source familiar with the deal was quoted as saying by *Reuters* recently.

The delay may also be linked to unsettled global markets after the United States imposed sanctions on Russian aluminium giant Rusal.

Nonetheless, sales and production are holding up pretty well, certainly in Bahrain.

Aluminium Bahrain (Alba) said its total sales for the first nine months of 2018 volume topped 750,202 metric tonnes, an increase of seven per cent on the previous year. Total production jumped by eight per cent to reach 762,952 metric tonnes.

"We expect a strong finish with our target to achieve 1,000,000 metric tonnes for the first time in Alba's history," said its chief executive, Tim Murray.

For EGA, it has had to contend with other difficult issues on the ground as well, including the deaths recently of two workers at one of its industrial furnaces.

Still, its impact on the metals industry of the Middle East overall cannot be overstated.

The UAE is investing billions of dollars in industry, tourism and infrastructure to diversify its economy away from oil. EGA is the third-largest producer of primary



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aluminium outside China. The USA accounts for five per cent of total sales for Emirates Steel, the largest steel producer in the UAE.

The UAE is one of the USA's largest export markets in the Middle East, with Emirates and Etihad Airways big buyers of Boeing aircraft and the government a large purchaser of US defence equipment.

Owned by Mubadala and Investment Corporation of Dubai, EGA was created in 2013 when state-owned companies Dubai Aluminium and Abu Dhabi's Emirates Aluminium merged.

At the time of the merger five years ago, the combined enterprise value was estimated at around US\$15bn.

The group's overall development since the 1970s has taken the UAE from no aluminium production to being the fifth largest aluminium-producing country in the world.

Its operations at Al Taweelah in Abu Dhabi and Jebel Ali in Dubai are now among the country's largest industrial sites.

EGA has become an important symbol of Abu Dhabi's strategy to diversify away from its dependency on oil and gas.

And that expansion and diversification continues, with the company investing heavily and expanding its international footprint.

That includes a US\$1.2 billion bauxite mine in the Republic of Guinea, to supply a new US\$3.3 billion alumina refinery now being built in the UAE.

In 2016, EGA became the first UAE industrial company to license its core process technology internationally, in a major milestone in the development of a knowledge-based economy.

The largest greenfield investment in Guinea in the last four decades, first exports from the West African mine and associated export facilities in Boké province are anticipated in 2019.

EGA's local subsidiary Guinea Alumina Corporation has just taken delivery of the largest single piece of equipment for the mine, a stacker reclaimer weighing 1,300 tonnes.

At full production, it is expected to produce 12mn tonnes of bauxite per year.

EGA said it had imported its first shipment of caustic soda in September for its under-construction Al Taweelah alumina refinery, schedule to open during the first half of 2019. Caustic soda and bauxite are the two



EGA is now collaborating with leading research academics from 10 local universities in the UAE to enhance national academic research capabilities for industry in the UAE.

Photo Credit: Emirates Global Aluminium

most important raw materials for alumina refining. And the materials are required for initial testing and commissioning work at the new plant as it gears up for maiden production.

The Al Taweelah refinery is expected to produce two million tonnes of alumina per year at full capacity, utilising around five million tonnes of bauxite from the Guinea mine.

EGA and the academics agreed to launch two graduate research projects focused on developing engineering solutions to specific technical challenges in aluminium smelting. Engineering undergraduates and post-graduate students are required to complete research projects as part of their studies, and tying them to real-world challenges is intended to strengthen the links between academia and industry.

During the workshop, the EGA team presented the universities with examples of research projects undertaken in the last five years with international university partners, which could ultimately be carried out in the UAE if sufficient local academic research capability is developed.

EGA has local academic partnerships with institutions including the American University of Sharjah, Khalifa University of Science and Technology, and Rochester Institute of Dubai.

Internationally, EGA has long-term collaborations with the University of Auckland, University of New South Wales, and the Massachusetts Institute of Technology.

EGA's research and technology development focuses on continual improvements in the aluminium smelting processes. EGA's latest technology is amongst the most energy-efficient in the global industry. In 2016, EGA became the first UAE industrial company to license its core process technology internationally, in a major milestone in the development of a knowledge-based economy. ■



Florian Fink
Application Engineer

Tomorrow's protection testing, today!

As a power systems engineer it's essential that I keep up to date with what's going on in the market and what our customers need. Based on this, I am constantly looking for better ways of doing things. Take our simulation-based protection testing solution; now even complex networks can be tested automatically from a single point of control. This allows a comprehensive assessment of the entire protection scheme, taking into account the settings and functionality of the individual relays.

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In January 2018, Ducab inaugurated the Ducab Aluminium Company (DAC) in a JV with Senaat to strengthen its supply chain.

Photo Credit: Ducab

Ducab sustaining 'sustainable' growth

The 'Made in UAE' brand continues to deliver alternate power across the country through its specialised cabling products.

OVER THE LAST 40 years, UAE-based Ducab has evolved from being a local cables manufacturer to become a sustainability forerunner.

According to the company, in line with the Dubai Clean Energy Strategy 2050, the realisation of upcoming clean energy projects will increasingly rely on a manufacturing sector that prioritises technological innovation, product reliability and supply chain sustainability. Pushing ahead the UAE's clean agenda, the high-quality cables produced by the company are rapidly evolving to meet the diverse needs of the energy mix. Rhonita Patnaik catches up with Ashish Chaturvedy, marketing manager at Ducab, to understand the company's present goals and future ambitions.

Ashish speaks about aligning Ducab's strategies with the UAE's sustainability goals as the country moves away from hydrocarbons, adding that a clean energy solutions portfolio is the next big step for the company.

Ducab holds the undisputed position of being the number one provider of cable and wire solutions for several business sectors in the Middle East region. Now its solar and nuclear cables and accessories – SolarBICC and NuBICC – are gaining popularity worldwide as well.

"A few years ago, we added cables for the wind energy sector to our portfolio – both for onshore and offshore applications. We have recently supplied our wind energy cables to a project in Europe and are currently working on a project off the coast of Oman. With regards to NuBICC, we are working with Emirates Nuclear Energy Corporation (ENEC) for the UAE's Barakah nuclear plant. In 2016, NuBICC was also selected by Korean Hydro-Nuclear Power Co (KHNP) for the Shin-Hanul 1 and 2 nuclear reactors at the Hanul Nuclear

Ducab is also one of the early adaptors within the manufacturing sector to install solar panels in its local facilities, which will provide 1.5MW of power to the Jebel Ali facility.

Power Plant in South Korea. This project win follows significant testing and qualifications of our NuBICC range and represents the first international nuclear project for Ducab.”

While the company continues to support the oil and gas sector, when one looks at the whole industry of clean energy applications – nuclear, solar and wind – Ducab is gradually trying to up its game on sustainability.

The decision by the UAE government to invest in nuclear power was a perfect fit with Ducab’s new strategic plan to diversify into more specialised cable products.

“One hurdle we face in the regional market is that there is limited need for specialised products. The Ducab management team saw the UAE’s Barakah Nuclear Power Plant project as an opportunity to enter a new, challenging business, with ENEC as a supportive local client. It is difficult to enter into any new market, so to have a project like this in our backyard was a huge advantage.”

In line with the new NuBICC cable specification, Ducab is the first manufacturer in the world to introduce and offer a 60-year plus operating life cycle for its nuclear cables. Additionally, the company offers cables compliant with Enhanced Fire and Smoke tests, as per IEEE standards.

“We are already 30-40 per cent ahead of the minimum requirement,” Chaturvedy adds. “Ducab LV cables were qualified for 84 years and MV cables for 77 years.”

In terms of overseas projects, Ducab is working with experts in the solar industry, supplying solutions to solar power projects in Australia and Jordan. “Only Ducab cables have the capability and reliability that no other manufacturer offers, which is why our cables are being selected for projects as far away as the other end of the globe.”

Closer to home in Dubai, Ducab is currently working alongside two significant solar power-generation projects: Masdar City’s Shams 1, and Mohammed Bin Rashid Al Maktoum Solar Park together with Dubai Electricity and Water Authority (DEWA).

While the company continues to support the oil and gas sector, when one looks at the whole industry of clean energy applications – nuclear, solar and wind – Ducab is gradually upping its game on sustainability.

Ducab is also one of the early adaptors within the manufacturing sector to install solar panels in its local facilities, which will soon provide 1.5MW of power to its Jebel Ali facility for captive consumption. Ducab is partnered with Etihad ESCO to accelerate its pursuit of energy efficiency.

From production to consumption

Over the years, the local company has moved from manufacturer to solutions provider. From production to consumption, the company follows green practices such as sourcing recycled raw materials and promoting waste elimination. “Sustainability cannot be achieved in isolation. From procurement of raw materials to following efficient manufacturing processes, Ducab’s commitment to sustainability is



Ashish Chaturvedy.

Photo Credit: Ducab

evident across all of our business areas. This ensures the reliability and efficiency in our final products offered to our customers.”

At the beginning of this year, Ducab inaugurated Ducab Aluminium Company (DAC) in a joint venture with Senaat to further strengthen its position in the transmission and distribution sector through its overhead conductor portfolio. This is in addition to the high quality HV and EHV cable systems up to 400kV supplied to the utility sector from the Ducab HV facility.

The new DAC facility is located in KIZAD, in Abu Dhabi, close to Emirates Global Aluminium (EGA) – the fifth largest aluminium producer in the world. DAC’s strategic location places it next to a reliable and sustainable source of high-quality ISO9001 certified aluminium; it is an ideal supply chain link for the company, with molten aluminium being delivered directly from EGA’s smelter.

According to the Ducab, receiving molten aluminium saves on both costs and environmental emissions, increasing the competitiveness of the UAE aluminium fabrication industry and supporting the development of a healthy downstream sector.

With the addition of this new facility, Ducab is able to offer a completely new range of overhead transmission cables.

It is therefore no surprise that Ducab won a ‘Superbrands’ title in the UAE in July 2018 for the seventh consecutive year, emerging as one of the leaders in the clean energy segment in the region. The company is also the preferred solutions supplier to ENEC and ADNOC, which is pushing its in-country value (ICV) agenda rigorously.

Going forward, Ashish reveals that Ducab is broadening its horizons in terms of geographical and product expansion. “Both of these areas are being pursued as part of the strategy for the next five years. Ducab currently exports to 30 countries and we are aggressively pushing for market expansion.”

With six manufacturing facilities across four sites in UAE, the company is well-positioned as a global leader in the development, design, manufacture, marketing and distribution of copper and aluminium wire and cable products providing end-to-end solutions for the energy, general construction, oil and gas, industrial, defence, transport, nuclear, marine and ship building, mining and other specialised industry verticals. ■

Why use a sledgehammer to crack a nut?

OMICRON's CMC 310 test set is a small, lightweight and low-priced solution well-suited for protection testing in distribution systems of decentralised energy resources and industrial electric power plants.

THE MAINTENANCE AND routine testing of the medium-voltage (MV) distribution systems of electrical utility companies or industrial electric power plants demands test equipment that is not only easy to use but, most importantly, is economical too.

As the technology behind protection equipment has progressed, simple single-phase and transformer-based test devices are no longer up to the job. The transmission, transformer, motor or generator protection standards to be met in these systems tend to be numerical and three- or multi-phase in nature. Yet, in contrast to high-voltage and extra-high voltage environs, these standards are less complex.

The future energy mix

Renewable energy sources such as wind power, photovoltaic, geothermal and biomass energy play a significant role in the future of energy supply. Their usage has led to an increasing decentralisation of energy generation, which has become a challenge for protection, automation and control in the grids. In particular, the power feed from various locations produces a load flow in different directions, depending on the time of day and weather conditions. In order to assure safety, stability and quality of the power supply with fluctuating feed-in, grid codes are issued by authorities that all distribution energy resources (DERs) must comply with. Hence measurement and quality management must take place locally.

The requirements for testing loss of mains and other decoupling protection functions in transmission and distribution systems are



The small, lightweight and low-priced CMC 310 test set is controlled by the user-friendly and intuitive CMControl P software.

Photo Credit: OMICRON

very demanding. Protection relays in use with DERs must comply with grid codes that specify the behaviour of a DER during system disturbances. Typically, they employ protection functions based on voltage, frequency, including rate-of-change-of-frequency (ROCOF), or direction of power flow. This includes protection functions such as grid decoupling or short circuit protection.

Flexibility and simplicity

A common feature of MV, renewable or industrial systems is the number of different tasks that have to be completed with a relatively low repetition rate. It is, therefore, no surprise that simple, highly flexible and portable test equipment, without fully

automated processes and at a price that even small budgets can afford, is very much in demand. A three-phase, software-controlled test device represents the essential solution for efficient and reliable testing of such protection systems.

This is where the OMICRON CMC 310 is most relevant – a test set for basic three-phase manual testing of protection and measurement devices, perfectly honed to meet all these needs. With its powerful outputs and its compact and lightweight design, it is well-suited for use in the cases described above. Its scope of application is wide, being suitable for testing all kinds of protection relays and relay panels as well as wiring and plausibility checks.

Software-guided manual testing

While the standard models boast hardware that leaves nothing to be desired in terms of current and voltage amplitude, power output and precision, the CMC 310 is extremely user-friendly. Its intuitive and user-guided control software, CMControl P,

While the standard models boast hardware that leaves nothing to be desired in terms of current and voltage amplitude, power output and precision, the CMC 310 is user-friendly.

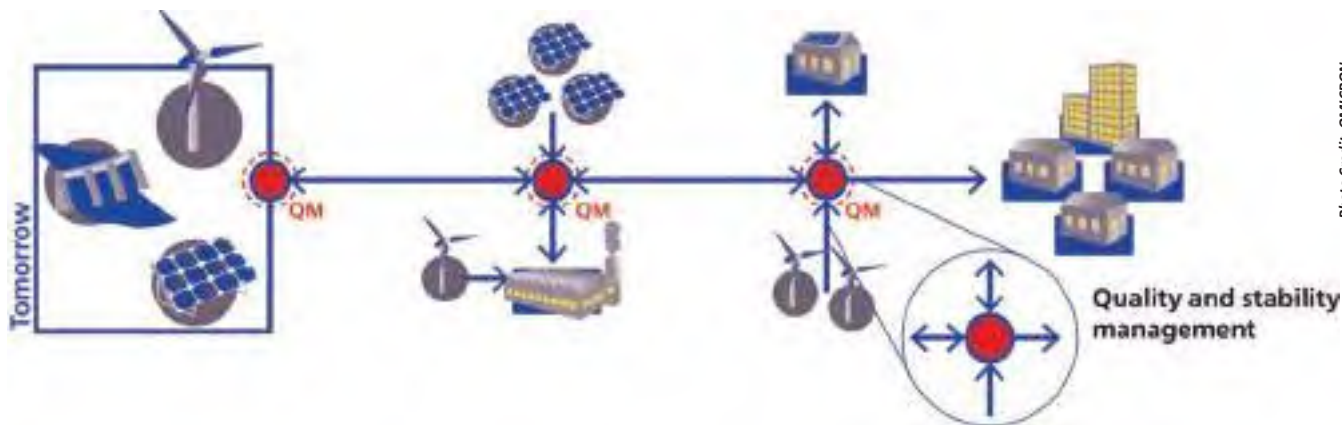


Photo Credit: OMICRON

is optimised for quick manual testing in the field, focusing on testing of response times, tripping limits and tripping characteristics, and needs no special training. The protection-specific parts are enhanced with tools for wiring and polarity testing, energy meters and measuring transducers.

This scope of testing tools enables the user to check the correct operation of the relay to ensure that all functions comply with the grid codes and requirements issued

by the distribution system operator. The results can be saved and a test report is created automatically, thereby documenting the test procedure and the results.

Protection testing for limited budget

This offers a way out from what appears to be an impossible dilemma: how to reconcile shrinking budgets with higher secondary testing requirements. Solving this

conundrum is the concept on which the CMC 310 has been based, and its price is significantly lower than high-end models. ■

About the author

Reinhard Kuntner is an electrical engineer and has worked as OMICRON's sales and application engineer and later as product manager for 24 years. He is specialised in the field of meter, transducer and power quality recorder calibration and testing procedures.

As the leading manufacturer of cold rolled sections and products in Dubai, Hadley Group in the Middle East has also recently diversified into the energy market, now offering bespoke ground and roof-mounted PV panel solar mounting systems.

Manufactured locally in the company's purpose built facilities at Jebel Ali Free Zone, the sections are developed from Hadley Group's signature light gauge steel. The made-to-measure solutions can be brought to market in a timely manner, with no associated import costs or lead wait times.

Hadley Group's products have been specified on some of the most prestigious projects in the region over the years in sectors such as healthcare, education, oil and gas, residential and hospitality.

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SHAPING THE FUTURE IN METAL

Gardner Denver's Ultima sets oil-free technology standards

A MAJOR DRAWBACK that traditional two-stage oil-free compressors have is the reliance on the gearbox. Not only do these consume large amounts of energy, but they also require high volumes of oil to lubricate the gears.

In contrast, the CompAir Ultima compressor has been engineered with two highly efficient, permanent magnetic motors that replace the traditional gearbox design. These two variable-speed motors are capable of achieving speeds of up to 22,000 RPM and efficiencies greater than IE4, which directly drive the airend without the need for a gearbox.

Furthermore, while conventional models still use oil to lubricate and cool both a system's motors and airends, Ultima uses water in a closed-loop circuit to cool these components. This allows greater heat transfer and cooling efficiencies, as well as ensuring as little oil as possible is used in the system for assured air purity. Water-cooling also places less stress on these components, limiting the opportunity for any maintenance issues that might otherwise arise during the compressor's lifetime and reducing servicing costs.

Ultima is offered as standard from 75kW to 160kW, with each unit fully upgradeable



The CompAir Ultima compressor.

between this kilowatt range. This means that if a site's energy demands increase in the future, customers can choose the optimal Ultima variant based on the increased capacity. There is no need to purchase a new compressor, eliminating the associated

downtime or delivery wait that comes with upgrading to a new system.

With the quietest noise level in its class of only 69 db(A) and the smallest footprint available for an oil-free model, Ultima can be installed easily at the point of use, rather than in a separate compressor room. Ultima's highly-efficient internal cooling also means adjacent compressors can be sited close to one another, optimising the space available.

David Bruchof, product manager for industrial compressors at Gardner Denver, explained, "Launched only last year, our Ultima compressor has been installed on sites around the world, quickly establishing itself as a proven and trusted oil-free technology from the CompAir brand. There is no question that Ultima continues to deliver high levels of air quality and purity, due to its highly innovative design and the fact that so many conventional models still rely on the traditional gearbox and single motor set-up.

"Supported by our six-year, free-of-charge PureCare warranty, users can rest assured that they have selected an oil-free compressor that will save considerable cost and deliver high operational efficiencies."

BAUER Kompressoren's new tools continuously monitor air quality

THE ONLINE GAS measurement system from BAUER Kompressoren B-DETECTION monitors the quality of the breathing air produced. It is available in two versions – PLUS i, fully integrated into the compressor system, and the standalone PLUS s for wall mounting.

They are automatic, continuous and reliable, according to the company.

Compliance with the limit values of the DIN EN 12021:2014 Breathing Air Standard can be monitored at all times by checking the display of the B-CONTROL MICRO compressor control unit.

The system measures the oxygen, CO and CO₂ content of the air, with optional measurement of absolute humidity and residual oil (VOCs)¹ in compliance with DIN EN 12021:2014.

When limit values are exceeded, the unit displays a visual warning and shuts down the system before contaminated air can pass into the cylinders being filled. Any infringements of limit values are logged by the B-CONTROL MICRO system control unit and can easily be exported as an Excel file using a standard SD card. In cases where limit values are briefly exceeded, an automatic flush valve



BAUER APP¹ includes a direct link to BAUER's YouTube channel with videos providing practical advice and assistance on a range of servicing topics including replacing filter cartridges or changing oil.

(optional) discharges contaminated air to the outside without interrupting operation of the system. Measurement uses high-quality smart sensors with continuous self-check function ensuring users can rely on the accuracy of the measurement results. An optional humidity membrane can be added to maximise sensor life.

BAUER's B-DETECTION PLUS provides operators with the maximum-security

concerning health and legal liability issues.

Second is the new BAUER APP¹ that communicates with the compressor system using WiFi.

It provides simple, direct remote access to functions of the high-performance B-CONTROL MICRO compressor control unit. The app transforms the smartphone into an at-a-glance monitoring device for the main system levels, including air quality and final pressure, as well as important maintenance information – ensuring convenience and safety. And the integrated calculation tool enables operators to convert units, calculate filter service life with and without B-KOOL and determine filling time and condensate volumes. The app includes a direct link to BAUER's YouTube channel with videos providing practical advice and assistance on a range of servicing topics including replacing filter cartridges or changing oil.

The app can be downloaded free of charge from the iTunes Store (for iOS) and from Google Play (for Android).

¹ Residual oil measurement based only on volatile organic compounds (VOCs). Sensor calibration based on isobutene

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Photo Credit: Byrne Equipment Rental

Working its way up

Byrne Equipment Rental's platforms, hoists and climbers provide versatile options for the infrastructure industry.

AS CONSTRUCTION ACTIVITIES continue to boom in the GCC countries, high-rise buildings form a common sight. And working at a height requires the aid of access equipment. Considering the risks associated with work at height and putting in place appropriate measures to manage them is an important part of safety.

Byrne Equipment Rental's broad range of access solutions are fully equipped with a variety of safety features, which can be added to as required. The company consistently provides a high level of safety awareness throughout its network of 15 operational depots strategically located throughout the GCC, extending into various industry sectors.

This access fleet forms an important and growing part of Byrne's 10,000 plus

strong fleet of mechanical and non-mechanical plant.

Talking about Byrne's specialised range, Pat Fallon, Group COO, adds, "Our fleet is widely regarded as the largest and most diverse available from a single rental source in the region, a reputation that is underscored by the latest additions that includes brand new mobile access (scissor and booms) along with heavy duty and medium class mast climbers, material and personnel hoists – ranging from 2,000kg to 3,200kg safe working load in a wide range of cage sizes."

As with other specialist products in the Byrne fleet, the hoist and access fleet is handled by specialist teams, which form an embedded vertical within the business to generate market penetration and also support special applications that standard

machines do not cover, Fallon states.

Keeping in mind the region's sustainability agenda with regards to energy efficiency, Byrne Equipment Rental's new solutions include low level access products that were added to the group in 2017 to complement its existing fleet. "These offer the users a cost-effective, safe and efficient alternative to large podiums or scaffold towers. Through this range, we also support our oil and gas clients with the ATEX-rated non-powered and powered access."

Another offering from Byrne is the Genie Z-45/25J DC electric and bi-energy articulating boom lifts that are quiet, emission-free and can operate in the most sensitive work environments. They are 48V DC machines with a diesel-powered generator acting as a 100A battery charger, making them ideal for indoor and outdoor applications.

The aftersales services are equally important to Byrne's business strategy as much as its rental offerings.

According to Fallon, apart from the unparalleled service and maintenance offering supporting Byrne's fleet 24/7, the company also offers attractive long-term lease solutions to enable the highest levels of operational efficiency to its clients. ■

Keeping in mind the region's sustainability agenda with regards to energy efficiency, Byrne Equipment Rental's new solutions include low level access products that were added to the group in 2017 to complement its existing fleet.

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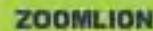
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► Utility Specialized Trucks



► Rough-Terrain (RT) Cranes (35-100 Tons)



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In Kuwait, NFT has 120 tower cranes on hire split between five mega projects including Hyundai Al Zour LNG import terminal project.

Photo Credit: NFT Specialized in Tower Cranes

NFT riding high on global success

The UAE-based tower cranes supplier is winning global accolades this year, thanks to its safety and quality first approach.

NFT SPECIALIZED IN Tower Cranes recently participated as the silver sponsor at the Crane and Transport Middle East (CATME) conference. Held in Waldorf Astoria in Dubai on 10 October, the conference hosted more than 300 participants from across the cranes and specialised transport industry in the region.

During the conference, Nagham Al Zahlawi, NFT's strategy and marketing manager, spoke about the construction market in the UAE and Saudi Arabia from a customer's perspective. Along with business development manager Nawar Al Zahlawi, Nagham also presented a 2016 study by NFT about the buying behaviour, trends and customers' prediction of the construction industry in the GCC.

The conference comes shortly after NFT was named the number one tower crane supplier in the world (according to an independent research conducted by

International Crane Tower Index ranking of the world's largest tower crane-owning companies). Companies are ranked by their IC Tower Index, calculated as the total maximum load moment rating, in tonne-metres, of all tower cranes in a fleet.

With this, NFT retains and further strengthens its place at the top of the table for the third year running. The UAE-based company also strengthened its position with a figure of 995,675 tonne-metres, 30 per cent up from 2017. According to the company, it is an impressive 25 per cent of the top 20 brands in the world.

Looking at the global top five companies, NFT Specialized in Tower Cranes has 42 per cent of the total market share and is more than double the size of its nearest competitor.

Applauding NFT's success, Barry Pennypacker, Manitowoc president and CEO, said, "This industry is very capital intensive

and service dependent. It takes a lot of capital. To grow our market share we need to have partnerships, and we look forward to continuing partnerships around the world."

Standing tall

Starting out as the first supplier of tower cranes in the GCC region, it has now become Potain's number one dealer in the world.

Due to the increase in construction of high-rises in congested areas, Potain luffing tower cranes have become very popular over the past three years. Indeed, high rise towers, which are very popular in this region, require luffing cranes with a big capacity, such as the Potain MR 418. Luffing cranes are special as they allow you to manoeuvre in tight spaces such as neighbouring buildings.

The Royal Atlantis Residences is NFT's flagship project for this model because 10 MR 418s were installed and have been

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working for the past two years. This makes the Royal Atlantis jobsite the first in the UAE to use the new Potain machine. The MR 418s have been fully erected by NFT, on fixing angles at heights ranging from 104 metres to 190 metres free standing. When completed, The Royal Atlantis Resort and Residences will offer 231 Residences and 795 new lavish guest rooms and suites in the resort on more than 10 hectares of land.

But the most popular model for NFT is the MC310 K12, which has a 70-metre jib, 3T at the tip and 12 tonnes maximum. The crane is considered large in Europe, but in the GCC it is the standard. In Bahrain, NFT has erected a handful of this model for the King Faisal Corniche Development in Bahrain.

Another fast selling model is the flat top MCT 205 tower cranes; a beautiful model where NFT has installed at least 23 this year spread across Abu Dhabi and Dubai.

The GCC is quite unique when it comes to special requirements for heavy capacity cranes from 30 tonnes to 60 tonnes. The region has the highest number of such cranes. Recently for the internal airport in Kuwait, NFT has erected many MD 1100s, which are very popular in lifting concrete and steel. The MD 1100 cranes are an increasingly popular option on large infrastructure projects that require the handling of large structural components. They have a maximum capacity of 50 tonnes, while at their maximum jib length of 80 metres they can lift 10.6 tonnes.

“This demand for high-capacity tower cranes is pushing manufacturers to focus on

bigger equipment. NFT’s advantage is that we have the largest tower cranes by Potain in our fleet – such as strong luffers with the MR 418 and MR 608,” added Nagham.

Based in the UAE capital Abu Dhabi, NFT continues to grow regionally and globally. The company has set up bases all over the Middle East, along with partner offices in the UK and Belgium through Radius and NFT Europe. To date, it has supplied tower cranes to 32 countries and is able to export to anywhere in the world. With 20 depots and three main yards in the GCC, NFT is in a strong position to meet demand anywhere, anytime.

NFT has supplied tower cranes to megaprojects such as the Royal Atlantis Palm Jumeirah, Expo 2020 Dubai, Riyadh Metro, Kuwait’s new international airport by Limak, as well as Bahrain’s King Faisal Corniche Development and Oman Tel Headquarters by Al Tasneem.

NFT currently has 208 tower cranes currently on hire between Abu Dhabi, Dubai and Sharjah to date. This does not include cranes sold. In Kuwait, NFT has 120 tower cranes on hire split among five mega projects including Hyundai Al Zour LNG import terminal project.

The UAE has seen a positive growth this year, mainly driven by Dubai and Abu Dhabi. Dubai’s driver is the Expo 2020 that has seen an impressive pace of progress. Construction is well advanced on the three theme districts – Mobility, Opportunity and Sustainability – that form the core of the expo site and are connected by Al Wasl



Nagham Al Zahlawi, NFT’s strategy and marketing manager, at the CATME Conference in Dubai.

Photo Credit: NFT Specialized in Tower Cranes

Plaza, the centrepiece. NFT has been a contributor to the Phase 1 infrastructure package, which includes Expo Village and the Dubai 2020 Metro Line. In the former, NFT has installed 11 tower cranes mixed between MC 175, MCT 205 and MCR 225.

There are a total of 45 tower cranes currently erected that include shade structure and canopy installation. On the other side of the expo site, a mega mall is being built by Salini Impregilo S.p.A where NFT has installed 30 tower cranes and is currently having a full maintenance team on site 24/7 to ensure that the breakdown time is minimised.

For the Dubai Route 2020, six Potain tower cranes have been installed whereby four are MC 310 k 12 and two are MCT 358.

NFT was awarded the main supply of fifteen Potain tower cranes for the Reem Mall in Najmat Abu Dhabi in 2017. These tower cranes include the MDT 368 L12, MC 475, MD 560, MD 310, MC 310 K 12 and the gigantic MD 1100 lifting 40 tonnes. The Reem Mall project involves the construction of a four-story shopping mall built up on 600,000 sq m offering 450 retail outlets spread across an area of 260,000 sq m.

New partnerships

NFT has partnered up with GJJ to create the brand ORBIT, which belongs exclusively to NFT. For the less price sensitive clientele, NFT also is the exclusive dealer for PEGA, a CE certified European brand of hoists that have a load capacity ranging from one to four tons and a speed of between 36 metres per minute and 120 metres per minute, depending on the model. Indeed, a package of 16 PEGA hoists were used on the Burj Khalifa project in Dubai going up 801 metres height, making the dealer operator of the world’s fastest PEGA hoist – 120 m/min with a noticeable 3.2 tonne lifting capacity. ■



Photo Credit: NFT Specialized in Tower Cranes

On the other side of Dubai Expo 2020 site, a mega mall is being built by Salini Impregilo S.p.A where NFT has installed 30 tower cranes.

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Lothar Riebesell, expert in formwork systems at Hahn Schalung.

Modern formwork planning software such as PPL 11.0 supports communication between everyone involved in the project by presenting the planning results in 3D. At the same time, the software ensures that planning requirements are quickly and reliably implemented, even for complex projects.



Photo Credit : PASCHAL

“THE REQUIREMENTS AND the scale of projects in formwork planning have increased considerably. In order to meet these demands, efficient and precise work preparation is absolutely essential nowadays,” said Lothar Riebesell, an employee in the special field of formwork systems at Hahn Schalung.

Builders’ merchant Hahn Schalung from Frechen was founded in 1899 and offers a professional rental service for concrete formwork, including formwork systems and planning services. Hahn has been a long-standing partner of formwork manufacturer PASCHAL and offers the PASCHAL wall formwork systems in its rental park.

Automated work preparation

For formwork projects, Hahn sets great value on effective communication with customers, as well as planning certainty with the lowest possible planning expenses. As such, the use of appropriate software is of particular importance to the company.

Since 2012, Hahn Schalung has been working with PASCHAL Plan Light from planitec – the IT subsidiary of PASCHAL – and is currently using the new BIM-capable version PPL 11.0. PPL 11.0 allows formwork plans already available in DXF, DWG and IFC format to be imported directly into the formwork planning software. If the DXF or

DWG export files are of a high quality, the software can detect the walls on each layer, which are then automatically generated in 3D. Furthermore, the integrated IFC interface enables entire building models to be imported and immediately edited. A clear benefit here is the option of dividing the walls as well as the slabs into phases and using the system-independent H20 or filigree slab modules.

Successful project implementation

“Today, we import up to 95 per cent of our plans into PPL using the DXF interface. Automatically importing formwork plans has become a prerequisite for us to be able to work effectively,” Riebesell added.

In addition to these partially automated processes and the sophisticated interface technology, communication with the customer during project planning is still priority number one for Hahn.

The 3D presentation of the planning results from PPL helps him greatly to interact successfully with the customer. “3D images allow us to see the important details more clearly. This makes communication easier with everyone involved in the project. It allows important details, such as the phases, to be clarified in advance. This reduces the risk of time-consuming changes to the



Photo Credit: PASCHAL

Range of functions and work preparation with PPL 11.0 from PASCHAL.

plans later on. Not only do we save time, but we also increase customer satisfaction,” he explained.

Hahn uses the 3D presentation of the formwork construction effectively even with more complex projects: “During the preliminary planning of the wheelchair-accessible community centre Forum am Deutzer Dom, we were able to use the drawing tools to show the customer the layout of the future fair faced concrete walls over the various floors.”

“In addition to successfully communicating with the customer, the support provided by automated formwork planning, interface technology and the 3D presentation of formwork plans is essential for us.”

From material lists to customised adjustments

PPL 11.0 can be used to create standard material lists for each phase with the required number of formwork panels and the necessary accessories. In addition to this function, planitec has programmed a customised report for builders’ merchant Hahn to prepare offers automatically. PPL 11.0 is used to create high-quality offers with material lists for each phase of the project, even for more complex projects, in a very short space of time. “This not only considerably reduces our workload but also additional error sources,” explains Riebesell.

Prepping with PPL 11.0

The ‘Warehouse’ module in PPL 11.0 allows the user to query dynamically the material availability in the warehouse. This means that not only the current inventory is recorded, but all the inventory movements as well. For instance, if material is returned to the warehouse during the project, the formwork plans can be automatically adapted to the available formwork material. Warehouse therefore allows us to use the formwork inventory in an optimal way. The shortages list can also be used to quickly react to any bottlenecks and any missing material can be rented additionally, for example.

According to Riebesell, the BIM-capable PPL 11.0 is a sustainable tool for formwork planning, and he is looking forward to seeing what technical developments the future holds, particularly with regard to BIM and the IFC interface integrated in PPL 11.0. ■

Peri buys significant ‘minority’ stake in Danish 3D printing company

GERMANY’S PERI GROUP, manufacturer of formwork and scaffolding systems, has acquired a minority stake in new Danish 3D printing company, Cobod International.

Peri said the technology “is now definitely ready for the market”, and believes printing will play an important role in construction.

It will make Cobod’s 3D construction printers available to its customers around the world.

Peri, however, did not disclose the financial details of the deal.

Cobod International was set up by its parent company, Denmark’s 3D Printhuset, which carried out a government-funded, three-year research project into advanced 3D construction printing.

That resulted in the BOD building, Europe’s first printed building, in Copenhagen last year.

This year, 3D Printhuset launched the BOD2 printer, capable of printing layers at a metre per second, and set up Cobod International to market the technology.

“We have been closely following the development of 3D printing in the construction industry. With the current generation of 3D printer of Cobod, this technology is now definitely ready for the market,” said Leonhard Braig, member of the group management of the Peri Group.

In its press release Peri said “3D construction printing is destined to be an important technology for construction activities in the future”.



Photo Credit: Einur/Adobe Stock

'GCC FM growth is healthy'

Earlier this year, the Facilities Management Business Confidence Monitor 2018 on the GCC FM industry reflected steady growth, with increased government spending and growing construction activities. The British Institute of Facilities Management (BIFM) was at the helm of these findings and *Rhonita Patnaik* caught up with its senior international business development manager Neil Everitt in Dubai to find out how BIFM, soon to re-brand itself The Institute of Workplace and Facilities Management (IWFM), can help leverage the opportunities in the GCC FM industry.

THE FACILITIES MANAGEMENT (FM) industry has progressed significantly in the GCC in the last few years. Regional organisations like Middle East Facilities Management Association (MEFMA) have played a huge role in developing new opportunities for FM companies. However, international bodies such as the BIFM are also keenly involved to

AI and IoT are the next big thing in the FM sector. With data being cheaper and more accessible today, technology is much easier to adopt.

further the FM profession and professionalism, not only with regards to economics but also sustainability and workforce improvement.

Beginning with current status of the regional FM industry, Everitt says that the sector has been maturing consistently for the last few years. "Whenever there is an economic downturn, business tends to look at ways to save costs and adopting best practice and new ways of working are ways to achieve this. Therefore, I think that the FM industry has benefitted from the oil price dip as it has encouraged innovation. However, there are still lots of opportunities, one of which is about educating end users about good FM practices. They must not think purely of the costs, but what value the FM services can provide in buildings and to the wider business. Yes, you may have to save costs, but the impact on delivery needs to be considered".

With an 80-nation membership, BIFM has also been working with FM companies in the GCC to support them in developing their

people. Three years ago, BIFM gained its licence to operate in the UAE to support the development of the FM profession “We have a lot of members in the GCC and BIFM will continue to support, where required, national agendas which promote the growth of the service sector. There is masses of work to be done to deliver on the objectives, and we are poised to support where we can add value and bring FM understanding to the market. We are happy to support the organisations here.”

Providing more elaborate details on BIFM’s support, Everitt says that it is a two-pronged agenda. Firstly, BIFM trains and certifies facilities professionals according to global standards. This helps employees progress in their careers and employers to develop their staff and add value for customers. Secondly BIFM promotes FM and increasingly workplace management as a profession and the role it plays to enable business performance.

“There is a lack of understanding still as to what FM really is. We create a better understanding of the nature of the role and what value facilities management, and increasingly workplace management, can deliver for organisations and the wider economy. Construction for example, is the minor lifecycle cost of a building; the majority cost is the actual running of it. For better reach to professionals in the region, BIFM holds monthly seminars in Dubai and Abu Dhabi, as well as face to face and online training and qualification programmes.

There is also a growing sustainability agenda in the region. According to Everitt, energy management is a growing agenda today in the UAE and Saudi Arabia, but for many years this didn’t appear to be a particular focus. He adds that efficient energy usage can be supported by adopting new technologies and managing the energy in an efficient manner. “Today, technology adoption is becoming gradually recognised among the GCC FM practitioners. AI and the Internet of Things (IoT) are increasingly talked about as the next big thing in the FM sector. With the price of data decreasing and being more accessible today, technology is much easier to adopt. Other technologies like CAFM and digitisation will aid energy efficiency management systems.”

Everitt maintains that sustainability doesn’t just mean achieving the Green Agenda but also making sure that people in the business are supported and treated properly. “Companies are seeing their people as key assets and investing in them, although this can be further developed”. It is this insight – how workplaces can positively impact business performance – that is behind the institute’s decision to embrace this concept and rename to IWFM in mid-November.

Even as BIFM supports UAE’s path to better FM standards, Everitt highlights the Emirates’ fire safety management plans. “Grenfell was a terrible disaster and has provoked reflection and adoption of new standards to avoid a repeat. The UAE too has had a couple of high-profile fire accidents without a single loss of life. We need to understand that best practice is not a one-way street and consider adopting some of the reference points that the UAE is working on.”

Although confidence in the FM sector remains positive, lack of understanding of the global standards can deter the advancement of FM sector. However, that challenge can now be overcome with ISO 41001 - the first facilities management system (FMS) standard published in 2018 by the International Organisation for Standardisation (ISO) “With the new global ISO 41001 management standard launched this year, the FM sector now has for the first time, a common language, process and procedures to follow. The new standards provide guidance, opportunity for accreditation and further opportunity to display the development of FM to wider business.”



Neil Everitt.

Photo Credit: BIFM

So the FM sector in the GCC continues to develop, mature and innovate. “FM is delivered by people, investing in them enhances your reputation with customers and provides opportunity for the FM function to truly enable businesses to perform effectively,” Everitt stresses. ■

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Safety with efficiency

The use of flammable refrigerants is expected to increase in the air conditioning and refrigeration industry. *Samantha Payne* caught up with Luigi Zamana, senior marketing director, Danfoss Commercial Compressors, and Alexander Abrass, sales director, Danfoss Cooling Segment, Middle East and North Africa, about how the expansion of its ATEX flammable refrigerant lab — the first of its kind in Europe — will keep Danfoss ahead in an ever changing industry.

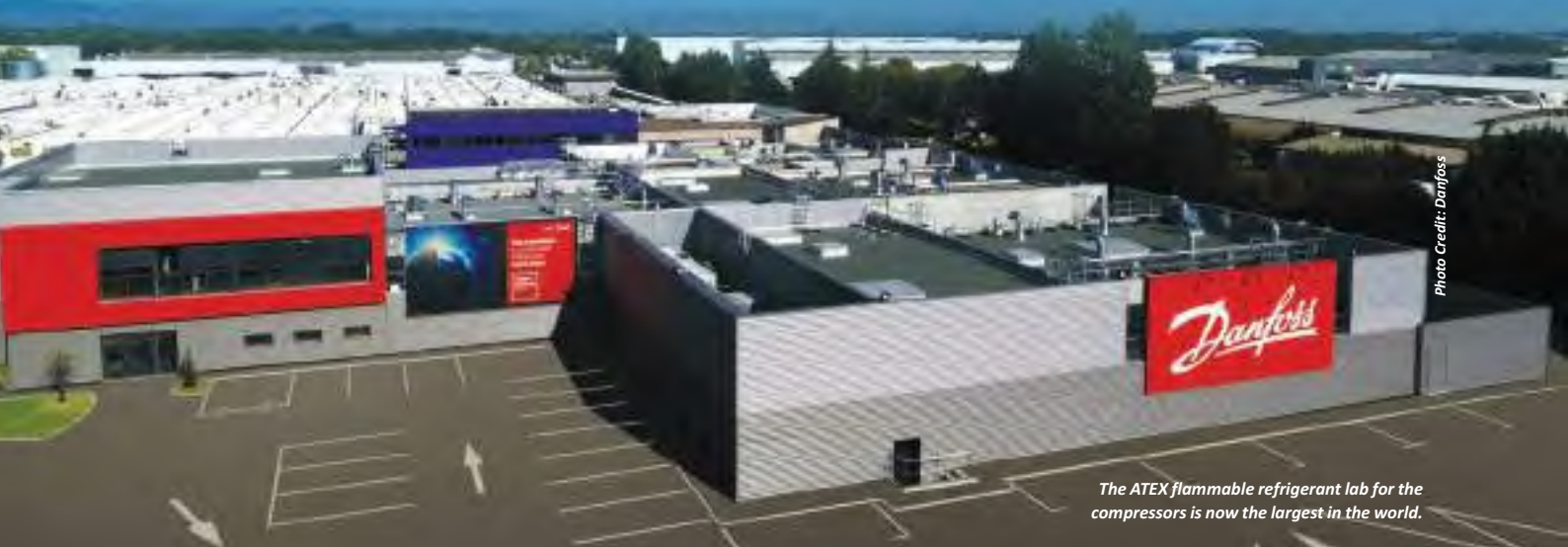


Photo Credit: Danfoss

The ATEX flammable refrigerant lab for the compressors is now the largest in the world.

Technical Review Middle East (TRME):
Please tell us more about the extension of Danfoss' ATEX flammable refrigerant lab?

Alexander Abrass (AA): The ATEX flammable refrigerant lab for compressors is now the largest in the world. It reaches to 3,000 sq m – six times its original size. It is near Lyon, France, where our main R&D and manufacturing site for commercial compressors is located. Here, Danfoss tests new generations of scroll and reciprocating compressors with alternative refrigerants. The ATEX certification means that the building and working processes have been designed specifically for explosive atmosphere conditions (ATEX) and qualify for management of flammable refrigerants.

TRME: What is the relevance of the new ATEX lab in the changing world of refrigerants?

Luigi Zamana (LZ): It is very relevant because different countries have different time schedules for installing flammable/low-GWP refrigerants in their systems. Even though we don't know exactly what that refrigerant will be and for what application, we know for sure that 10 years from now, they are going have low GWP (global warming potential), which will either be slightly or very flammable.

This is the reason why we decided to make a flammable lab, so whatever the end solution will be we are going to be ready for it. In the meantime, we are continuing to

work with our customers to develop solutions. If we don't do this work upfront right now to minimise the disruption to our customers, smaller companies, in particular, could go out of business.

TRME: What regions will the new lab cater to?

LZ: It will cater to Europe, Africa and the Middle East, but we are a global site.

TRME: What equipment standards are required for flammable refrigerants in the Middle East and Africa?

LZ: There are currently no equipment standards for the Middle East and Africa. Neither of these markets follow the F-Gas regulation like in Europe, which put in place an HFC (hydrofluorocarbons) phase-down from 2015 to 2030, banning high GWP refrigerants.

The Middle East is included in the Kigali Amendment of the Montreal Protocol. The phase-down of the Montreal Protocol was established 20 years ago for the HCFC R22, which has already been phased out in the EU and is nearly finished in the USA and other developed countries. Then there was

At the moment, people want to watch what other countries are going to do and then follow suit, and are counting on us to guide them through this transition.

– Alexander Abrass, Danfoss Cooling Segment, MENA

an amendment made in Kigali, Rwanda and they introduced the GWP to the Montreal Protocol, which has different timings of the HFC phase-down for different countries. The Middle East is in the same group as other areas where the first 10 per cent step down of high GWP refrigerant will not be until 2032. R22 is still the most widely used refrigerant used in the region. In Africa, the phase-down deadline is 2029.

What is the general attitude towards the compliance of these new refrigerants in the Middle East?

AA: The general attitude is changing but it is very slow, and there is scepticism in the Middle East towards adopting flammable refrigerants. It will take time for local governments to develop these low GWP standards. At the moment, people want to watch what other countries are going to do and then follow suit, and are counting on us to guide them through this transition. Saudi Arabia, which is one of the biggest markets, will be the last country to adapt their standards because they are not making it a priority at the moment and are still using R22. Nevertheless, there are OEMs which want to comply with the European standards to improve the efficiency of their equipment in order to enter multiple markets. Jordan's Petra Engineering Industries Co., which specialises in heating, ventilating and air-conditioning (HVAC) systems, exports a lot of their systems to Europe and to the USA. They are using R410A and R32 as well as introducing R1234 into their large chillers because they want to penetrate other markets.



Compressors under testing.

Photo Credit : Danfoss

TRME: What will be the market trends for flammable refrigerants in the Middle East?

AA: R32 will be commonly used for packaged units, which is a blend/low GWP refrigerant, and R1234 will be used for the larger chillers, which is a blend with HFCs that are slightly flammable. This is the trend major manufacturers are trying to focus on

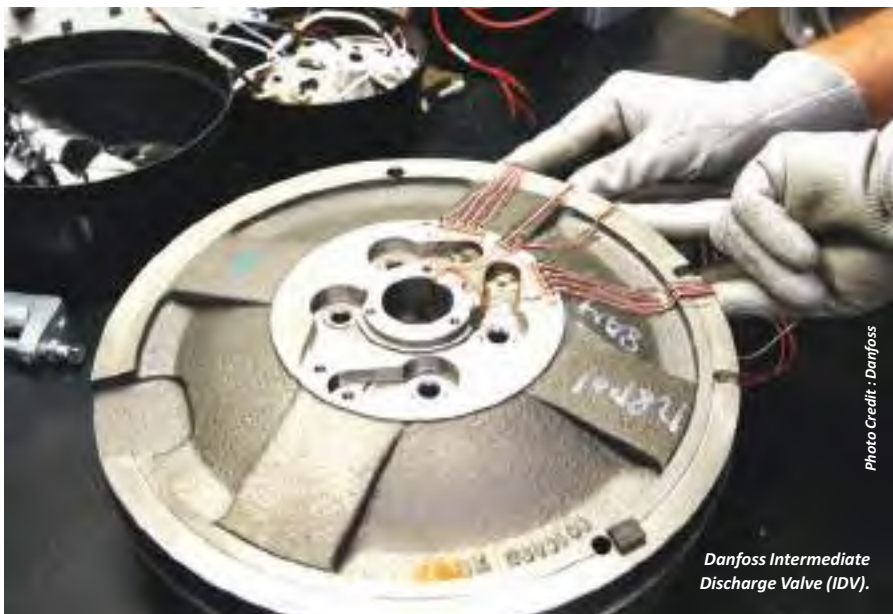
and what Europe is working towards as well.

TRME: Do you think flammable refrigerants are commercially-viable in terms of cost-effectiveness?

LZ: Customers are now demanding to have these alternative refrigerants to bring down the cost of the refrigerant. At the moment, the cost of refrigerants is sky-high at 50/60 euro per kilogramme. It used to be six euros, it is now ten times higher now. Customers want this alternative refrigerant to bring down the costs of the refrigerant in order to use a part of their money to invest in their system to future-proof it for a certain amount of years.

TRME: What are the risks involved in both residential and commercial markets?

LZ: In residential markets, the flammable/slightly flammable refrigerants are used in split systems in small quantities – the limit is 150gm – so, the impact is minimal if there is going to be a leak, the risk is very small. With commercial systems, there are much bigger refrigerant charges where many kilogrammes of refrigerant are used. But as the systems are already packaged there is no installation that can expose you as the end user to the flammable refrigerant. ■



Danfoss Intermediate Discharge Valve (IDV).

Photo Credit : Danfoss

Women make up around 14 per cent of global construction industry professionals and this number can only be set to rise with more and more women choosing construction jobs.

Photo Credit: Adobe Stock

Celebrating women in construction

The global construction industry is moving towards gender diverse roles and the UAE is no different. To further women's empowerment in the industry, Josine Heijmans, portfolio director at The Big 5, elaborates how the event is supporting the cause.

Developing the industry also means supporting its work force, and there's no doubt that empowering women in construction is a priority today.

Technical Review Middle East (TRME): You are a role model for many, especially women, in the construction sector today. What has been your inspiration to take charge of one of the biggest events in the world – The Big 5 Dubai?

Josine Heijmans (JH): In the 15 years that I have been working in events, I had the privilege to live in vibrant, fast-developing and changing cities such as Shanghai and Dubai. Here I have experienced opportunities urban design, planning and construction create for cities and its people.

I feel proud that with the events in my portfolio – The Big 5 in Dubai, The Big 5 Construct Egypt, The Big 5 Solar, HVAC R Expo and the Urban Design and Landscaping Expo we provide the industry leading business, networking and educational platforms for the key stakeholders

contributing to the design, development and construction of these new and smart sustainable cities.

TRME: The Big 5 2018 will focus on 'Women in Construction'. What do you hope to achieve from the outcome?

JH: As The Big 5 prepares to turn 40 next year, we are working on an edition that is all about the future.

Under the theme "Shaping the future of construction", The Big 5 2018 will introduce new features to move the building industry forward. Developing the industry also means supporting its workforce, and there's no doubt that empowering women in construction is a priority today.

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international stage to share their experience and advance the entire industry.

Our goal is to recognise these great women out there and offer them an opportunity to meet, exchange ideas and overcome common challenges.

The UAE government is setting an example in this regard. Federal institutions are leading the way in implementing the UAE's vision to become one of the world's top 25 countries for gender parity by 2021. Today, nine female ministers are part of the country's cabinet, and a UAE Gender Balance Council is at work to support women's empowerment and boost equality.

I trust The Big 5's Women in Construction will go a long way in supporting and achieving this mission.

TRME: How can non-technical professionals contribute to the construction sector?

JH: In functions like HR, Admin, Marketing, Corporate Communications, Finance and Legal, women often outnumber men. These non-technical professionals have an extensive impact on the growth and success of the organisations in the construction sector. At the Women in Construction Seminar we will discuss the importance of non-technical professionals and explore how to build a strong talent pipeline.

Cynthia Corby, audit partner and Middle East Construction Industry Leader at Deloitte & Touche Middle East, Shorouq Hamawi, regional communications and marketing manager at Mott MacDonald, and Marcus Taylor, managing partner at Taylor Sterling, will be part of a dedicated panel discussing this particular topic on November 28.

At the Women in Construction Seminar, speakers will discuss the importance of non-technical professionals and explore how to build a strong talent pipeline.



Photo Credit: dmg events

Josine Heijmans is the portfolio director at The Big 5 Dubai.

TRME: Can you elaborate on some of the initiatives taken by organisations to promote diversity and bridge the gender gap?

JH: Many organisations today understand the importance of having a diverse workforce and are implementing policies to promote equal opportunities for both genders. This process starts first of all by removing the gender section from the ideal candidate profile in the job description. Also, it is important to close the pay gap between men and women, which unfortunately is still quite widespread, not just regionally but at a global level.

TRME: What are the challenges faced by women in the construction sector?

JH: Although the number of women in construction has sensibly grown over the last decade, this is still a male dominated industry. Being outnumbered, women face diverse challenges, spanning from the recruiting phase to the work environment, and even re-entering the workplace after having children.

These challenges are not limited to professionals working in the construction sector though. As Dr Shetha Al-Zubaidi, one of our speakers at the Women in Construction Seminar, rightly noted, integrating leadership into one's core identity is particularly challenging for women today. In fact, they need to establish credibility in a culture that is still often conflicted about whether, when, and how women should exercise their authority.

TRME: Is the future ready for an all-women construction industry?

JH: I believe what truly matters is to recognise talent beyond any gender-related prejudice. Success comes from having the right mix of people working together: diversity is an asset for any organisation, in all industries – including construction. Today, there's definitely a pool of talented women that can truly make an impact and advance the entire construction industry. We look forward to hosting them at The Big 5.

TRME: How are the preparations underway for The Big 5 Dubai 2018?

JH: I am extremely proud and excited to launch the next edition of The Big 5. We're working on a series of new event features that will shake the construction industry and help it move forward by embracing technological innovation.

More than 2,500 exhibiting companies will display their latest and most innovative products and solutions from around the world, while technology will take centre stage at the new FutureTech Construction Summit. On 26 November, this high-level conference will help construction industry professionals achieve higher productivity, greater sustainability and enhanced affordability in their projects with the help of technology.

A dedicated Live Innovation Zone will host an interactive display of the most innovative products presented in real time throughout the show days. Also, at The Big 5 Start-up City, selected start-ups in the construction industry will present the technologies and solutions that will soon shake up the built world.

To improve the visitors' experience, we are creating one mega event for the industry to source all products for the construction cycle from concept through to completion. The Big 5 Solar, the Urban Design & Landscaping Expo, HVAC R Expo, Middle East Concrete and The Big 5 Heavy will all run alongside The Big 5 this year, offering a one stop shop for the construction community.

Our popular Big 5 CPD-certified workshops will come back this year and will run in four dedicated theatres as BIM Talks, Architecture Talks, Project Management Talks and Design Talks. In total, more than 100 educational sessions, including free workshops and high-level summits across the six co-located events, will bring a wealth of knowledge to the construction community.

I look forward to welcoming you at the largest and most influential construction event in the region, The Big 5, from 26-29 November 2018 at the Dubai World Trade Centre. ■

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GROWING TOGETHER

Solar agenda again in focus at The Big 5

The Middle East is expected to more than triple its share of renewable energy from 5.6 per cent in 2016 to 20.6 per cent in 2035, according to a forecast from Siemens earlier this year.



In 2017, the MENA region had 4,903MW of solar projects under construction, 1,142MW under tender or awarded and 1,363MW in operation.

Photo Credit: dmg events

AFTER A SUCCESSFUL launch edition in 2017, The Big 5 Solar will return under the patronage of the Ministry of Energy & Industry, UAE, to showcase solar energy solutions for the construction industry at Dubai World Trade Centre from 26-29 November 2018.

As part of The Big 5, The Big 5 Solar will display the latest solar innovations and solutions from top brands, offer free access to industry leading education sessions, and host the high-profile Global Solar Leaders' Summit.

Josine Heijmans, portfolio director at dmg events commented, "Buildings account for 40 per cent of energy consumed in cities, and with more than 5,000 active projects worth US\$279.4bn ongoing in Dubai's urban construction sector alone, there is no better time than now to showcase solar solutions to construction professionals."

The Big 5 Solar will display the latest in solar innovations for the construction industry across four of the most prominent product sectors including Photovoltaics (PV), Solar Thermal

Technologies, Energy Storage, and Solar Technology and Related Services.

The Big 5 Solar will also bring together the industries' pioneers to host four days of free-to-attend and continuing professional development (CPD) certified education sessions.

The Solar Talks will cover popular topics from commercial and industrial solar growth, building integrated photovoltaics (BiPV), the latest solar hybrid systems in the UAE market and the latest in technological innovations in solar panel manufacturing.

Under the topical theme 'Solar Solutions for Construction', the fourth edition of the

MESIA returns to The Big 5 Solar this year as the Knowledge Partner for the event.

Global Solar Leaders' Summit will address, assess and analyse the way forward for key players in the solar and construction industries.

The Big 5 Solar returns with existing support from leading associations including the Middle East Solar Industry Association (MESIA) and Clean Energy Business Council (CEBC), and welcomes fresh backing from industry heavyweights: GCC Association for Renewable Energy and Sustainability - Green Gulf, Architectural Solar Association (ASA), BPVA (British Photovoltaic Association), Solar GCC Alliance, JinkoSolar, Campion, S5, We Link Group, Sumec, Noor Solar, Sunew, Verditek, Heliatek, Enviro-Smart, NeOn Energy, and Enerray.

Organised by dmg events, The Big 5 Solar is free to attend and will run from 11am to 7pm daily at the Dubai World Trade Centre. The event runs as part of The Big 5, alongside The Big 5 Heavy, Middle East Concrete, HVACR Expo, and Urban Design & Landscaping Expo, offering a one-stop shop for all things construction from concept through to design. ■



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The total estimated value of projects in the GCC is US\$1.7 trillion with approximately 37 per cent of all project values in the design, concept and tender stages of development, indicating a steady flow through of new investments.

Back by popular demand

Both The Big 5 Heavy and Middle East Concrete have been an integral part of The Big 5 in the past.

Photo Credit: dmg events

THE BIG 5 Heavy, dedicated to the infrastructure and heavy construction industry, will run alongside The Big 5 2018.

The first edition that was held as a standalone event in March 2018 finds its way back with its parent event owing to the increasing demand from the construction community.

Running from 26-29 November, the exhibition will be co-located with Middle East Concrete (MEC), The Big 5 Solar, HVACR Expo, and the Urban Design & Landscaping Expo, part of The Big 5 portfolio.

Richard Pavitt, event director of

The Big 5 Heavy, said, "The success of The Big 5 Heavy this year shows a growing demand for PMV, commercial vehicles, foundations and geotechnical, quarrying & mining, road construction, and site equipment in the region.

"We are therefore delighted to announce that the show will now feature as part of The Big 5. The Big 5 Heavy will create one mega construction event for the industry to source products for the construction cycle, from concept through to completion, under one roof."

The Big 5 Heavy follows the recently announced return of the popular Middle

East Concrete (MEC) event at The Big 5. Dedicated entirely to the concrete industry, MEC will host leading exhibitors and four days of world-class education led by The American Concrete Institute, PCI and Precast For All.

This will make the show the only place in the region where more than 65,000+ industry professionals can source everything they need in the global hub of the GCC. The event will feature workshops dedicated to the latest trends in the concrete industry.

Pavitt, who is also the event director for MEC, added, "Technology in the concrete industry continues to push new boundaries as a result the material is fast becoming the backbone of sustainable construction in the Middle East."

Welcoming MEC back into the portfolio, The Big 5 portfolio director Josine Heijmans stated, "Under the theme 'Shaping the future of construction' this year, we have reworked The Big 5 to focus on innovation, and we are excited to present concrete solutions as important products within that."

The Big 5 will also feature dedicated product sectors including MEP Services, Building Interiors & Finishes, Building Envelope & Special Construction, Construction Tools & Building Materials, Construct Technology & Innovation. ■



Exhibitors at the 2016 edition of MEC at Dubai World Trade Centre.

Photo Credit: dmg events

Experience the Progress.



Helping deliver safety across the GCC

The two-day forum will bring together health and safety visionaries to the fore, combined with an audience of leading solution providers, to ensure workplace safety and analyse the role of modern technology in improving overall performance.

Returning by popular demand is Raed Al Marzouqi, head of section, occupational Health and Safety, Dubai Municipality, who will speak on preventing accidents caused by falling from height.

THE 4TH ANNUAL Health, Safety & Security Forum is set to take place from 27-28 November in Dubai, under the patronage of the Ministry of Health & Prevention and with the support of ADNOC, Emirates Authority for Standardization & Metrology, Emirates National Accreditation System and the World Safety Council.

The health, safety and security sector is receiving heightened focus in the UAE. Strengthened government regulation, the evolving security threat landscape, and high profile developments such as Dubai Expo 2020 which prioritise health, safety and sustainability are amongst the factors driving investments. Furthermore, the business benefits of an effective health and safety culture are increasingly being recognised

Fire protection also has huge growth potential, with the Middle East's fire security market estimated to grow annually by 12.5 per cent from 2012 to 2020. During this period, the market will grow from

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Dr. Sajed Al Abdali, medical department leader, EQUATE Petrochemical Company, gave a keynote address at the Kuwait HSS Forum in September.

US\$1.6bn to US\$4.2bn, making it one of the largest in the world.

Following hot on the heels of the first and tremendously successful Kuwait Health, Safety & Security Forum, which took place in Kuwait from 24-25 September, the latest in the highly successful event series will be a debate driven platform for valuable insights into effective health and safety programmes. It will highlight best practices, process improvements, technology advances and innovative applications to enhance HSS performance in the UAE. In addition, the summit will endeavour to align world class principles with local industry requirements.

Some of the major themes this year include occupational health in the era of big data; preventing accidents caused by

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The attendees at the 3rd Annual Health, Safety & Security Forum in Dubai last year.

falling from height; crafting a behavioural change strategy; creating a resilient and productive workforce by investing in employee health; and managing security risks in the oil and gas industry.

Returning by popular demand is Raed Al Marzouqi, head of section, occupational Health and Safety, Dubai Municipality, who will speak on preventing accidents caused by falling from height, while Jorge Manuel Miranda Dias, professor, Electrical and Computer, Engineering Department, Khalifa

University Abu Dhabi will discuss how to detect abnormal behaviour and human crowd modelling using video.

Farah al-Ansari, head – Airport Security, Dubai Airports, will discuss embedding a world class security culture whilst ensuring stakeholder engagement. Dr Mohammed Aref, OSH expert, Ministry of Human Resources & Emiratisation, will address the subject of dealing with fatigue, while Dr Waddah S. Ghanem, senior director – Sustainability, Operational and Business

Excellence, ENOC, will speak on the transformational role of operational excellence management systems.

With numerous studies underlining the business benefits of investing in health and safety, Dr Ola Mira, Head of Environment & Occupational Health & Safety, Ministry of Health, UAE, will discuss the benefits of investing in employee health to create a productive and resilient workforce.

Following their very well-received presentations at the Kuwait Health, Safety & Security Forum, Dr Sajed Al-Abdali, medical department leader, Equate Petrochemical Company, will share his thoughts on corporate wellness and happiness programmes, and Jason Woods, Middle East and India Representative IPAF will address the topic of working at height.

A panel comprising Dr Rebab Al Ameri, director – national Accreditation System, Emirates Authority for Standardization & Metrology; Dr Ola Mira, and a senior representative from ADNOC will discuss how to achieve ‘zero incidents’ in onshore and offshore operations.

Harnessing technology will feature strongly at this year’s event. The role of artificial intelligence (AI) and robots will be discussed, along with leveraging data technologies and analytics to improve HSE performance. The use of UAVs to inspect hazardous locations, VR as a learning tool and the effective use of wearable technology to prevent accidents will also come under the spotlight.

Highlights will include a mock evacuation fire drill to prepare for emergencies, following its successful introduction at previous forums, a workshop presented by the Ministry of Health, and a mock criminal investigation process led by lawyers Clyde & Co, a hit at the 2017 event. ■

For further information see the website at www.hse-forum.com.

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Meaningful interactive sessions at the HSS Forums form a major feature.

Go cool, stay hot

As the heating, ventilation, air conditioning and refrigeration (HVACR) market in the UAE is expected to reach a value of US\$1.5bn by 2019, the launch of the HVAC R Expo promises to help the construction industry move toward a greener and more sustainable future.

THE ONLY EVENT dedicated to the heating, ventilation, air conditioning and refrigeration industry in Dubai, HVAC R Expo will run as part of The Big 5, the largest construction event in the Middle East, from 26-29 November 2018 at the Dubai World Trade Centre.

According to organiser dmg events, launching with a broad industry backing, including partners Fawaz, SKM Air Conditioning LLC, Trox, Finpower, Khansaheb and Technalco, HVAC R Expo also enjoys the support of leading associations like ASHRAE Falcon Chapter, AHRI, BSRIA, and REHVA.

Josine Heijmans, portfolio director at dmg events, said, “We are proud of the huge support we are receiving from the HVACR industry at a regional and a global level for the launch of HVAC R Expo. We look forward to promoting best practices in the region while providing a vital platform for industry professionals to do business, network, learn and source innovative, energy efficient products.”

Dr Omar Abdelaziz, ASHRAE Global Training Center instructor, added, “HVAC R Expo brings a much-needed exposure of the state-of-the-art to the GCC HVAC R industry. It provides an opportunity to learn about the newest commercial HVAC product offering for the GCC market with a special emphasis on hot climate conditions, while offering free-learning.”

Twenty CPD certified workshops will run alongside the exhibition. The complimentary HVAC R Talks will be delivered by some of the most prominent industry names and decision makers.

Training sessions delivered by the ASHRAE Global Training Center for Building Excellence will run at the event providing participants with Continuing Education Credit and a Certificate of Attendance from ASHRAE. These Continuing Education hours may be applied toward maintenance of LEED professional credentials as well.

HVAC R Expo will put the theme of energy efficiency at centre stage this year. According to Faisal Rashid, in fact, “HVAC R accounts for



Omar Abdelaziz is ASHRAE Global Training Center's instructor who will speak about new developments in lower GWP refrigerants in MENA.

Photo Credit: ASHRAE

heavy usage of energy, whether in buildings or industries. Representing 70 per cent of the total energy consumption of a building on average, it puts pressure on energy generation systems and energy needs, with environmental and financial impacts.”

The event will explore the way forward to overcome some of the challenges posed through its educational programme.

Abdelaziz, who will present a session about ‘New Developments in Lower GWP Refrigerants (MENA)’ that also provides ASHRAE Continuing Education Credits, added, “Many opportunities come from the large regional market potential. The GCC has committed to the Kigali Amendment exception, which allows for a better transition towards lower global warming potential (GWP) refrigerants.” ■



The Middle East premier trade show for the metal working, metal manufacturing and steel fabrication industry

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Electricix 2018 set to dazzle power players in Cairo

Solar-Tec and MEFSEC will also be held concurrently from 15-17 November at the same venue.

INFORMA EXHIBITIONS EGYPT is gearing up to host Electricix, Egypt's longest running power event, alongside its sister events Solar-Tec and the Middle East Fire, Safety and Security Exhibition (MEFSEC), from 17-19 November at the Egypt International Exhibition Centre in Cairo.

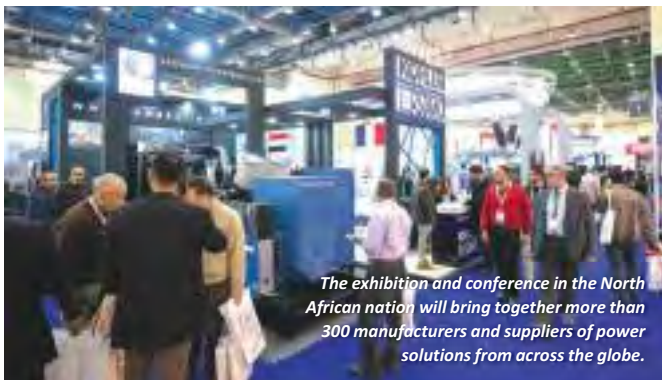
The exhibitions will gather thousands of high-profile industry experts to discuss a wide range of topics related to Egypt's electricity network with Electricix and fire, safety and security with MEFSEC.

This year marks the 28th edition of the event and will host more than 200 exhibitors, over 10,000 visitors, as well as a number of countries represented from across Africa, Europe, Middle East and Asia.

Official country pavilions include China and Turkey. And around 25 per cent of the exhibiting companies taking part this year are new to the show, and come from key markets such as Turkey, Germany, UAE, Czech Republic, Korea, India, Armenia, Jordan, Saudi Arabia and Nigeria.

The organisers for this year's event plan to host a high-level conference with a keen focus on the upcoming 'Egypt 2035' strategy.

The organisers for this year's event plan to host a high-level conference with a keen focus on the upcoming 'Egypt 2035' strategy.



The exhibition and conference in the North African nation will bring together more than 300 manufacturers and suppliers of power solutions from across the globe.

Photo Credit: Informa



To enhance the knowledge sharing experience and to facilitate business networking, the organisers of the show have designed 'Industry Meetings'.

Photo Credit: Informa

This is set to discuss the goal of 40 per cent renewable energy by 2035, followed by sessions identifying key technological and economical changes that must be made to the country's infrastructure to achieve it.

Other free-to-attend content offerings include a series of 'Industry Meetings' hosted by Alam Al Kahraba, one of the key media partners for the event, dedicated to the following sectors – Technicians, Distributors, Solar and Lighting.

Electricix & Solar-Tec will feature the latest equipment and services from the generation, transmission and distribution, lighting and renewable sectors.

Key exhibitors for Electricix and Solar-Tec include El Massalla, EGEMAC, Jinko Solar, ELMACO, AKSA Jenerator, Omicron Electronics, Huawei Technologies, Teba, Diabco Electric, JA Solar, Riad Cables, OTRAC, Al Babtain, Oppl Lighting and many more.

In its 16th edition this year, MEFSEC is one of the largest fire and security events in Egypt and a driving force behind market intelligence and technological advancements in security. The event will welcome more than 3,000 visitors from the industry to address issues specific to innovation and technology.

With a free-to-attend conference stream taking place again this year, the key focus will be on 'testing and commissioning safety code regulations and firefighting systems'. Over the course of the day, there will be a total of six sessions covering specific industry topics, systems and regulations and will be delivered by industry experts.

One of the key sessions for the day is "Lessons in regulation from the London Tower Fire" and will examine the development of the UK Fire Code before Grenfell, ways the fire could have been prevented and what needs to change on an industry-wide level to avoid catastrophes like this happening. ■

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Owing to the kingdom's booming real estate market, the company has invested US\$10mn in its cranes and paints business to expand within the country as well as overseas.

Photo Credit: RANCO

The inheritance of success

RANCO has been supporting Saudi Arabia's infrastructure activities since 1950.

S SAUDI ARABIA'S 2018 budget is the highest ever with the government spending US\$261bn on development and diversification projects under Saudi Vision 2030. The construction sector too has a buoyed optimism to reflect this significant growth and potential.

Providing close support to the government's objectives is one of the oldest leading business groups in the kingdom – Rabiah & Nassar Group (RANCO). The company is the sole dealer for Zoomlion Rough Terrain (RT) cranes in the kingdom. And with its CAPAROL brand of paints, the company has seen positive signs of visibility in the GCC construction sector map.

Owing to the kingdom's booming real estate market, the company invested US\$10mn in its cranes and paints business to expand within the country as well as overseas.

In an exclusive interview with *Technical Review Middle East*, Fahad Al Rabiah, marketing manager at RANCO, tells that he is upbeat about the good times to come.

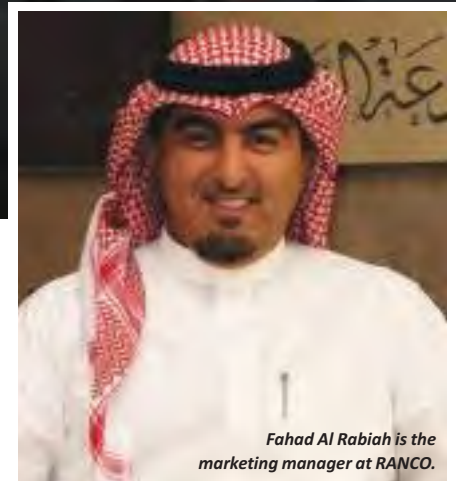
Fahad continues, "In 2015, we won the contract to distribute Zoomlion RT cranes, and in three years we successfully expanded our services in Dammam, Eastern Region, Central Region, and very soon you will see us in the Western Region. We have also exceeded our market share expectations to

more than 50 per cent in RT crane business in the country. All this is because of RANCO's brand equity and our team that works so relentlessly to achieve the goals."

CAPAROL Paint, a part of DAW SE – a German paint manufacturer, was established in Germany 100 years ago. It established a factory in Dubai to cater to the growing Middle East construction market. Three years ago, it became a part of RANCO and has since been associated with big projects in the kingdom such as King Abdullah Project, Al-Ma'ali villas and more recently the upcoming NEOM City. Although the manufacturing facility is still headquartered in Dubai's Jebel Ali, RANCO is in talks to set up a facility in Saudi Arabia.

Besides cranes and paints, RANCO are pioneers in precast in the country. The demand for precast in the construction sector is increasing as developers realise how its use can speed up completion time in major projects, especially in the residential sector. The group is a part of many establishments in the kingdom including hotels, malls, recreational facilities and mosques.

"RANCO's first precast factory was established in early 70s in the Central Region. Today, as part of a strategic partnership with Zamil Group, we have leveraged that strength to accommodate



Fahad Al Rabiah is the marketing manager at RANCO.

Photo Credit: RANCO

more projects in our kitty within the kingdom. Equipped with state-of-the-art facility and automated machinery for concrete batching and mixing plants, hollow core slabs production lines and a circulated pallet factory for panels, we are optimistic about the future of precast in the Kingdom in the coming three to four years. We see a lot of good signs, especially with new housing projects."

Even as the country is entering Industrie 4.0, RANCO's Al Rabiah maintains that human workforce is at the heart of all the development.

"The success of our growth depends on the national content, i.e. Saudisation. We recruit the best of the talent and they are our real assets. Yes, we have replaced high labour costs with mechanised solutions, which has trebled our production capacity but human workforce is our strength. A mix of both will help us serve the construction business better going forward." ■

Convert demolition waste into a productive resource



Photo Credit: MB Crusher

The crusher and screening bucket from MB Crusher.

WITH MB CRUSHER'S product line, the entire aggregate recycling cycle can take place directly on site, simplifying crushing, screening and handling operations. Because the crushers, screeners and grapples are applied directly to the heavy equipment available and work using the machine hydraulic supply, as attachments they simply plug in and work.

Today, construction and demolition waste accounts for around 30 per cent of all waste produced in Europe. As a result many European countries have imposed new recycling laws that companies have to adhere to. Laws are being put in place globally that aim to reduce the percentage of waste to recycling.

There is a new way to operate practically and effectively – reduce to recycle and invest to save money. MB Crusher bucket crushes debris and excavation materials in the same construction site that produced them. Thus, a company avoids moving the material from the site to the landfill. It can easily follow the trucks passage limitations imposed by municipalities. And it saves the environment because it does not pollute or exploit its resources.

Whether it is bricks, mortar, cement, tuff, marble – MB Crusher bucket transforms the stones into different sizes, adjusting on what the site requires. If necessary, an iron separator installed directly on the bucket separates inert from the iron, further reclaiming all different products. Meanwhile, the nebuliser reduces airborne dust particles.

Both kits are operated directly from the cab of the heavy machinery.

Thanks to these technological systems, MB products can work without problems in closed environments (such as inside warehouses and galleries) and in urban and historical centres.

With the MB screening bucket the material is cleaned and ready to be reused. Separation too can be done before crushing, thus reducing crushing time by 60 per cent.

For recycling, choose a crusher and a screener bucket from MB Crusher helps operators to reduce, reuse and recycle many types of materials.

MB Crusher representative models for reuse and recycling include crusher and screening buckets, buckets crusher and screeners for skid steers and backhoe loaders as well as rotary handling grapples for excavators.

Wojciech Koltunowicz
Asset Expert

Experience is what makes the difference in cable testing and monitoring.

As an asset expert for high-voltage cables, I have spent several years working closely with standards committees, cable manufacturers and utilities. The experience I gained has taught me a lot about insulation defects leading to failures in cable systems and their diagnostic requirements. We have built this knowledge into each of our cable testing and monitoring systems to help you detect insulation defects early and to increase cable operation reliability.

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IVECO in sync with global sustainability standards

ACHEIVING A FOSSIL fuel-free transportation system by 2050, as per the Paris Agreement, is not only environmentally sustainable but financially viable, according to IVECO.

In the Middle East, the UAE has been instrumental in leading the standards for the adoption of sustainability in the region. The UAE national Agenda 2021 has set key performance indicators (KPIs) to measure performance against its targets.

IVECO is supporting the government in meeting its goals with its light, medium and heavy vehicle range in CNG and LNG models across the region.

Natural gas offers the possibility for a seamless transition to biomethane and renewable energy, achieving zero emissions and opening the door to a circular economy approach that can go so far as achieving negative emissions and carbon sequestration.

IVECO manufactures electric vehicles of Daily Range up to 5T GVW with 250km of autonomy along with CNG and LNG models, a viable alternative to diesel vehicles – passenger, commercial to long haulage vehicles. The vehicles manufacturer is also the only in Asia and Europe to cover all range light/medium and heavy vehicle in CNG models.

On the heavy vehicles (artic and rigid) side, IVECO offers LNG fuel tank that allows to cover up to 1,500km of autonomy.

Configurations are possible with manual, automated and automatic gearboxes.

IVECO also launched its new Daily 4X4 in September 2018, which is on its way to the Middle East.



Photo Credit: IVECO

The latest generation of IVECO's Daily 4X4 vehicle builds on this family's heritage of versatility, robustness and high driving comfort.

The new Daily 4x4 line-up offers cab, chassis cowl and crew cab models in 3.5, 5.5 and 7.0 tonnes GVW versions, with a choice of single wheels off-road and twin wheels all-road configurations. Powered by IVECO's Euro VI 180 hp three-litre engine, customers can choose the manual transmission with 12 forward and two reverse gears or opt for the absolute driving pleasure of the class-exclusive Hi-Matic automated transmission with 16 forward and two reverse gears. The new range also offers advanced safety features such as the all disk brakes with ABS (anti-lock braking system) and ESP (electronic stability programme) specifically conceived for these 4x4 vehicles.

Volvo Construction Equipment launches A45G articulated hauler in UAE

VOLVO CONSTRUCTION EQUIPMENT, through its UAE dealer Al-Futtaim Auto & Machinery Company (FAMCO), unveiled A45G, the latest version of the 41-tonne articulated hauler in October.

Vladimir Knezevic, managing director at FAMCO UAE, said, "The handover of the new Volvo CE A45G articulated hauler to our first customer in the UAE marks the official launch of the G Series in the country. The G Series haulers deliver a new level of efficiency, reliability and value on the job. FAMCO will continue to invest in such heavy-duty vehicles to ensure the best possible results and high standards of overall operational efficiency for all the construction sites."

Marwan Al Zaiem, managing director of MGCC, added, "The addition of the Volvo CE A45G articulated hauler to our fleet will allow us to move material around site with greater efficiency than ever before. The units will deliver enhanced productivity thanks to its high fuel efficiency, reliability and uptime, which will help us to continue to lead the way in the contracting sphere."

The new model features higher payload capabilities, dynamic and predictive gear selection, excellent fuel consumption, telematics machine monitoring systems such as CareTrack and MATRIS – all of which contribute to optimised production, lower operational costs and improved comfort.

Volvo CE launched the first articulated hauler 50 years ago and has been developing and refining the concept ever since. Today's powerful workhorses have come a long way from the original 10-tonne model. Backed by a decades-long track record of engineering excellence, the A45G can move even more tonnes per hour with a two-tonne increase in its payload, while its Volvo engine and robust, durable and reliable design ensure the best performance in all conditions.



Photo Credit: Volvo CE

The Volvo CE A45G articulated hauler.

Designed to ensure an easy service access, the front grill of the new model swings forward and down to reveal a full-service platform with anti-slip steps, while the electric hood swings up and back by a full 90° to allow full and safe access to the engine compartment.

Despite being made for heavy hauling in severe off-road operations, the Volvo engine delivers excellent fuel efficiency without compromising on power or performance, increasing the profitability of the business and enhancing the total cost of ownership.

Polycon invests in cutting-edge technology for polymer lining

POLYCON, THE ROTO molding specialist, has invested in new infrastructure to improve its roto lining capabilities.

Roto lining is a unique process that has significant advantages in complexity and material performance. This technique allows for a uniform and seamless polymer lining to be applied to the interior surface of hollow metal structures such as carbon steel pipe spools, fittings, metal vessels, tanks or other complex components.

The seamless construction without weld joints ensures increased resistance to permeation, provides corrosion protection and resistance to chemicals, acids, alkalis, oxidisers and solvents. The result is a dramatic reduction in wear and tear and an extended life of the asset using roto lining, as compared to other 'spray-in' liners.

Polycon's new high tech roto molding machine features the latest PLC control systems, offering the facility to control multiple stations with maximum flexibility, making the machine ideal for roto lining.



The facility has a high tech roto molding machine with latest PLC control systems installed that has the capability to control individual carriage movement.

Photo Credit: Polycon Gulf



Polycon's Roto lining.

Photo Credit: Polycon Gulf

This increases productivity and achieves higher quality than any other conventional machine.

The superior cooling system featuring high-efficiency blowing fans, which work with air or water mist spray and hot air extractor, results in a better surface finish and less warpage on the roto lining surface.

It also offers simultaneous running of different articles, and provision of air pressure inside the mould for shrinkage control.

Polycon has capability to make tanks upto 7,500 US gallons suitable to store chemicals, which are highly corrosive in nature, strong acids and alkalis.

Polycon is a market leader with commitment to quality and service. It offers custom molding over and above large range of water tanks, road barriers, portable rest rooms, illuminated planters and more.

INMESOL launches ultra quiet rental genset series and new control units

IN ORDER TO adapt to the constant demands of the rental market, INMESOL has developed one of the quietest ranges of gensets.

INMESOL's technical team designed a special canopy that can transport as many units as possible, thereby optimising logistics. This new canopy has the capacity to house gensets from 85kVA-130kVA PRP.

Compared to the available rental range version, this new version provides the following features:

- Noise reduction: Depending on the power of the generator set located inside, noise emissions measured at seven meters and 75 per cent of the charge have been reduced from 60-64 dB(A) to 50 dB(A).
- New design with a more robust canopy and chassis.
- Equipped with four lifting hooks and wells for forklifts, which facilitate their handling for transfers.
- It features a double-walled metal fuel tank with extended autonomy.

INMESOL's gensets now come with DSE61XX control units

The genset versions that include the DSE6010MKII or DSE6020MKII electronic control units as standard receive get a significant improvement, due to the DSE6110MKII and DSE6120MKII control units.

These new versions not only add new functionalities, which increase the gensets' control possibilities, but also improve the user experience when controlling, manoeuvring and programming the set. The implementation of a design that increases the speed or readability of the texts, different features, and a programming very similar to those of the DSE7310 and 20 MKII control units incorporated as standard in the larger power sets has helped to this improvement.



Photo Credit: INMESOL

DSE6110MKII control unit displays messages available in several languages

The display texts are available in different languages. This has the purpose of making it easier and faster to quickly identify the genset status and the causes of possible breakdowns. Also, the control unit's event log stores up to the last 100 events. Earlier versions were limited to the 50.

These control units have the option to record the evolution of the genset's operating parameters. This makes it possible to display information such as the power evolution or other measured values, like the mains voltage recorded in the genset during a given period, graphically or in editable tables.

The ground shoring products will be supported by virtual and augmented reality techniques.

Gaining ground

Formwork specialist RMD Kwikform has just launched its ground shoring division in the Middle East with the main headquarters in the UAE. David White, general manager, ground shoring – Middle East at RMD Kwikform, explains to *Technical Review Middle East* what this means for the regional construction business

Photo Credit: RMD Kwikform

Technical Review Middle East (TRME): What kind of investment is RMD Kwikform making in the GCC? Also, do you have a strategy in place for better market penetration?

David White (DW): With RMD Kwikform being one of the longest serving formwork and shoring solution providers in the Middle East, we are always innovating to provide our clients with new solutions. With that, we are pleased to announce the launch of our ground shoring division in the Middle East. Following the initial 2015 launch of the ground shoring business in the UK, the new product range embodies RMD Kwikform's commitment to providing innovative, engineering solutions and demonstrates its commitment to better servicing the Middle East construction sector.

With its CE-marked fleet within the ground shoring market, RMD Kwikform has placed 'safety' at the heart of engineering. The proprietary product solutions alleviate the need for structural steel and associated 'hot-working' on site. Each individual product has been designed using advanced structural analysis techniques and higher-yield steels. This has ensured a stronger, yet lighter product, allowing RMD Kwikform to offer clients a 'top-to-bottom' engineering solution. Our ground shoring product range now complements the already established above-ground solutions.

TRME: What is ground shoring and its relevance in the infrastructure sector?

DW: Our ground shoring solutions offer two primary solutions for excavations – a proprietary propping and strutting system called

Tubeshor and trench lining systems, which encompass trench boxes and trench sheets with struts and walers.

Tubeshor is designed to replace structural steel work, which is commonly used out here and offers many advantages including saving time on site as they can be placed in-situ quite easily, allowing ground works to start right away. The trench lining systems also save time and provide a safer and more reliable solution for working on site.

As cities across the Middle East increase in size, and space becomes a constraint, it becomes more and more challenging for construction companies involved in major infrastructure to build safely and efficiently without impacting the surrounding area.

TRME: Why is Tubeshor 160 a better choice than other competitive products?

DW: Tubeshor 160 is a proprietary propping and strutting system, capable of taking loads of up to 10,00Kn. It has a unique design for safe and fast installation and dismantling. Made from S460, it has higher yield and better tensile strength. It allows wider prop spacing requiring fewer strut saving time and cost. This solution is backed by RMD Kwikform's engineering expertise, which ensures that the customer gets the best value for money.

TRME: Please detail the scope of work for ground shoring in the MENA region?

DW: Our ground shoring solutions can be used wherever there is an excavation of more than 1.2 metres, and can be used in a number of applications. The propping and strutting system is designed to replace structural steel work, often found in the construction of basements, entry manholes and infrastructure development.

With our ground shoring division situated in the UAE, the product range will be available across the Middle East and North Africa (MENA) region and supported by our in-country engineering and sales teams backed by regional engineering, operational and commercial teams.

TRME: Lastly, what are the safety features that are guaranteed with the (under) ground shoring systems?

DW: Actually, quite a few. The underground shoring solutions are manufactured from high quality 13.7mm grade S460 that are fully compliant with EN1090. Also, the multiple length variations are easy to build and dismantle.

Keeping in mind the safety of the user, the design incorporates integral lifting points and stands at the bottom of Tubeshor, rotation stops for safe stacking, and 30mm connection flanges with additional bolts for extra strength.





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HIMOINSA develops voltage transformers in portable 10ft and 20ft containers

THE HRS 6300 D5/6 and the HRS 3150 D5/6 transformer substations built by HIMOINSA, in 20 and 10ft container versions, respectively, make transformation possible by increasing the voltage of four generator sets connected in parallel in the same station. This makes it possible to transform 6.3MVA and 3.15MVA depending on whether a 20 or a 10ft container is used. The transformer substations make it possible to increase the voltage from low to medium, or vice versa, depending on the needs of the client in each project.

HRS 6300 D5/6

Each 20ft container is fitted with two 3,150kVA transformers, which make it a good solution for adjusting the necessary voltage in reduced spaces, thereby avoiding having to connect each generator set to individual electricity transformers which would require much more installation work, not to mention space. The engineering team at HIMOINSA has been working on the constructive design of a container to ensure easy transportation.

HRS 3150 D5/6

The 10ft container provides the same functionality as far as transformation and manageability as its 20ft counterpart is concerned. It is able to connect two generator sets working in parallel with a maximum power of 3,150kVA. It features a single transformer, one medium voltage and another low voltage cell, an auxiliary control panel and a quick-connection set for medium voltage. The components come with a voltage protection system depending on what configuration is needed for each project, and it has an auxiliary control panel that allows the user to control all the performance measurements of both transformers.

Both HRS 6300 D5/6 and HRS 3150 D5/6 incorporate a digitally controlled transformer protection relay with measurements that is able to detect the oil pressure of the transformer and any equipment that is attached to it. The design allows medium/low voltage connections to be made easily and quickly due to its built-in connector set.



Photo Credit: HIMOINSA

The substation allows the voltage to be transformed to 3.3kV, 6.6kV, 11kV or 24kV, thus proving how flexible it is when faced with the specific power requirements of any given project.

The benefits include:

- **Transportability:** It can be relocated in different places with no need for any special permits for sea or road transport.
- **Versatile and modular:** Given that they are modular transformers, they can function independently, using only a part of the substation. This independent functionality increases their return on investment.
- **Space optimisation:** The fact that it can connect up to four generator sets directly to the substation makes it possible to considerably optimise the work space.
- **Low maintenance:** Their operational flexibility, together with their constructive and functional characteristics means that the transformer substations require very low maintenance.
- **Minimum power loss:** These transformers have a 98.5 per cent working reliability, which translates into minimum power loss during the transformation process and an increase in the power efficiency of the facility.

This transformer substation is of particular interest to sectors such as the electricity industry, when they have to carry out grid repairs or they need back-up in the event of fluctuations in demand, or in the rental sector (mining and construction) that require specific solutions to power machinery that runs on medium and low voltage.

Eaton's new fire-resistant hose for rail applications

EATON HAS UNVEILED a new, high flexibility SAE 100R4 hose to complement its range of the EN45545-2 compliant hose solutions for the rail industry.

EC190 has been engineered to comply with the new European rail fire safety regulations (EN45545-2), without the use of an extra fire sleeve. EC190 is suitable for low pressure suction applications such as cooling, fuel delivery and on-board washroom facilities.

"Rail industry customers need solutions that comply with new fire safety standards, and Eaton is specifically focused on developing a complete range of hose products that meet that need. We recognised the need for a high quality, low-pressure suction hose, and EC190 is our solution," said Dimitar Atanasov, product marketing manager, hydraulics, Eaton.

"EC190 offers a solution that is incredibly flexible, features high temperature resistance, and the inner tube materials support versatile use within rail applications."

In addition to meeting EN45545-2 standards, Eaton's EC190 also meets HL1/ R22 and HL2/ R23 requirements as well as the common SAE 100R4 standard. Typical applications include suction lines for lubrication oils, petroleum, fuel, gasoline air and water.

Eaton offers a variety of EN45545-2 certified hoses, ranging from wire and textile braided hoses to spiral and air-conditioning

hoses (with fire sleeve only), Atanasov added.

The EC190 is extremely flexible. When compared with the SAE 100R4 standards, it delivers three to four times greater flexibility (subject to the hose size). As there is a direct correlation between hose routing and flexibility, this hose supports the engineering designers need for simplified routing and cost savings. The flexibility, versatility and fire resistance of the EC190 is due to the compounds Eaton specifically developed and uses in the inner tube and hose construction. This presents the opportunity for the rolling stock manufacturers to take advantage of easier routing in order to specify the optimal hose length, in essence only using what is actually needed. This can save customers' money.

EC190 offers +25 per cent temperature resistance vs. SAE100R4 standards and is suitable for deployment in environments that require a temperature range of -40°C to 125°C. This higher temperature resistance means the hose is more versatile in use and may have a longer life in the application. The inner construction of the EC190 is resistant to a number of different chemicals such as petroleum, lubricating oil, air, water and glycol. The hose can be used across multiple applications, supporting OEMs' need to decrease the variation of components across train applications that can lead to stocking and purchasing complexity.



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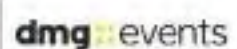
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Atlas Copco launches new air compressors for utility trucks

ATLAS COPCO HAS expanded its range of air compressors for utility trucks with the launch of three models weighing below 500kg. As a result, operators requiring compressed air at flow rates of up to 2.8 cu/m per min are able to reduce the overall weight of their vehicles and save space due to the small footprint of the compressors. At the forefront of the new additions to the 8 Series Utility range is the U110 PACE compressor, which features an innovative controller allowing for multiple pressure configurations between 5-10.5 bar.

Hendrik Timmermans, vice-president, marketing for Atlas Copco's portable air division, said, "We launched our 8 Series Utility range last year with the promise of providing customers with lightweight and versatile compressors that could be easily and securely integrated into their utility trucks. We have now taken that commitment one-step further with the introduction of our three latest models. Not only do they weigh below 500kg, but all compressors in the Utility Air range now offer enhanced industry-leading service intervals."

In addition to introducing three new lightweight compressors, Atlas Copco has



Photo Credit: Atlas Copco

enhanced its top-of-the-range U190 PACE model. The PACE (pressure adjust through cognitive electronics) system allows operators to choose from the widest operating pressure range currently available for a truck-mounted air compressor. With the PACE electronic regulation system, operators use a simple-to-use digital controller to adjust the pressure with pinpoint accuracy depending on their application need. This means that with the U190 PACE compressor any theoretical combinations from 5 up to 10.5 bar is achievable.

Several models can also be equipped with 15kVA non-simultaneous generator to further increase the versatility of just one unit. Furthermore, for enhanced protection of the tools that operators use downstream, all compressors within the 8 Series Utility range can now be equipped with an optional integrated aftercooler and water separator.

All compressors in the 8 Series Utility range feature a robust, corrosion resistant C3 rated canopy. Reliable Kubota Mechanical engines come as standard with 110 per cent fluid containment, starter motor protection and integrated top tanks.

New Bobcat loader developments increase customer benefits

BOBCAT HAS INTRODUCED new features in the compact loader range for the Europe, Middle East and Africa (EMEA) markets. The developments provide an increased choice of features for the Bobcat skid-steer, compact track and all-wheel steer loader ranges.

Complementing this, Bobcat has launched the S100E model for EMEA, an updated version of the company's popular S100 skid-steer loader that meets Stage V emissions regulations. Like the S100, the new S100E skid-steer loader meets customer requirements for manoeuvrability, size, weight, uptime protection, lift capacity and push force for this loader class. In addition, customers benefit from improvements Bobcat has made in operator comfort, ease of operation, noise levels, running costs and asset management.

These new advances come in the year that Bobcat celebrates the 60th anniversary of the loader.

The improvements in Bobcat compact loaders include:

- Auto ride control (factory option and kit): Improves operator comfort when

driving with a load in the bucket especially on rough terrain. This feature lets the operator lock in travel at a speed of their choice, so that they only have to think about where they are going without feeling the need to avoid bumps or any other surface level obstacles.

- Heated cloth air ride seat (factory option and kit): Available on the Bobcat 600, 700 and 800 Series compact loader models. This is an alternative to the previous air ride seat with a vinyl surface and improves operator comfort. It is designed to enhance comfort and productivity, particularly for those operating in cold weather.
- Cloth suspension seat (factory option and kit): On the 400 and 500 Series models, Bobcat has introduced the cloth suspension seat, replacing the air ride seat with a vinyl surface. The cloth surface improves the operator's comfort all year round.
- Cushioned cylinders (standard): Offers advantages when the loader's lift arms are lowered and/or the Bob-Tach system tilted, and the cylinders move



Photo Credit: Doosan Bobcat

- towards the end of a stroke by restricting the hydraulic fluid from flowing out so that the cylinder is slowed down before it fully retracts.
- Auto reversing fan (factory option and kit): Helps to keep the grill clean and to clear out dust that can clog the cooler, thus improving machine uptime and reducing the need to clean so frequently (automatic feature). This ensures the operator does not have to leave the cab as often.
- LED side lights (kit)
- Rear camera (kit)
- Deluxe interior foot-pad (standard)

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ABB brings world's first submersible transformer inspection robot to Middle East

ABB LAUNCHED TXPLORE, a unique submersible transformer inspection robot service solution, for the Middle East market in October.

Equipped with high-definition cameras that provide photographs and video and can be remotely controlled enabling real-time customer inspections without physical presence, the innovative 'robot diver' allows the transformer tank to be inspected without removing the oil and eliminates the need to place a human inspector at risk or exposing the transformer's internal structure to external contaminants.

Power transformers are critical for moving electrical energy over long distances. To ensure a long service life, maintenance must be carried out as transformers age and can create problems. The largest transformers are typically filled with mineral oil, which acts as a coolant and provides electrical insulation for the high voltage transformers, but both mineral oil and the cellulose insulation breakdown due to continuous use and ageing.

Demonstrating the world's first inspection robot, Andre Steinberg, vice-president global



Photo Credit: ABB

ABB Ability TXplore service can be scheduled ahead of time to take advantage of a planned outage with little or no increased downtime. It is also possible to deploy the service team to perform an inspection when unexpected issues are encountered.

sales and marketing, transformer service, said that having a robot to do a human's job is safe from an HSE perspective as inspectors are not exposed to the dangerous fumes and oils inside the transformer.

"TXplore can work up to a temperature of 60 degree Celsius and is equipped with lights and cameras for visualisation and more transmission of data respectively. Live feed is sent back to the station who can then rectify the issue with the transformer, thus eliminating the need of a human to enter the harsh and confined space environment. Also, the robot can reach zones inaccessible to humans. And with hi-res images, any probability of a wrong decision is highly reduced. The evaluation allows the transformer operator to confirm asset readiness and can also be used as baseline data for future comparisons."

An onsite inspector manoeuvres the robot using a wireless controller and with support from ABB Ability platform, transformer inspectors can watch the feed in real-time from remote locations. TXplore can work in aged oil conditions as well due to its LED illumination.

In a traditional scenario, it may take from four to 10 days for the inspection to be complete. With the advanced robotic system, the transformer can be up and running in two days' time.

Scania brings next-gen sustainable trucks to Middle East

SCANIA, LEADING PROVIDER of transport solutions, has announced the launch of its truck range in the UAE.

Scania's new truck generation is extending its offering, and can now, with its unique modular system, supply more performance steps, connectivity, and a comprehensive palette of productivity-enhancing services, as well as customised transportation solutions.

With the new truck range, Scania is setting a new standard for what is premium in the transport industry. The result of 10 years of development work and investments of around US\$2.84bn, the new truck generation builds on the values, strategies and innovations.

Loaded with enhancements, the new range further improves Scania's already strong fuel performance due to factors such as improved powertrains and better aerodynamics. Another notable feature is the availability of 24 different cab models. With driver safety at the forefront of Scania's goals, the new truck range also provides the world's first rollover side curtain airbag.

Speaking on the launch of the new range, Özcan Barmoro, managing director of Scania Middle East, said, "Scania's new truck generation aims to drive the evolution of the transportation industry in line with the ambitions of the UAE National Agenda 2021. Inspired by our core value of putting the customers first, global trends and challenges, this generation of trucks is designed to better meet the needs of our customers and the world we live in. It has efficiency in both fuel economy and performance



Photo Credit: Scania

Scania has launched its new truck generation in the UAE in full range – long-haulage, urban, and construction (XT) applications.

incorporated into a design inspired by the Scania heritage. Our new truck range will contribute to the ambitions of the UAE to become a sustainable nation, powered by smart technology solutions."

Thani Al Shirawi, CEO of Al Shirawi, distributor for Scania in Dubai and Northern Emirates, added, "Scania's trucks are popular in Dubai and Northern Emirates due to their robustness and reliability, as well as the sales and aftersales service support extended 24x7 by Al Shirawi's highly competent factory-trained team. It enables customers to experience value of the advanced design and quality which is built 'for the only business that matters, Yours'. With the arrival of the new truck generation, Scania offers tailor-made, better solutions than ever before which is a result of a deeper understanding of our customers' businesses. We welcome the new range of Scania trucks and are anticipating a strongly positive response from our customers."



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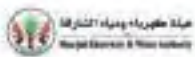
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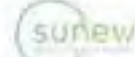
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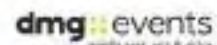
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مشروع محطة قطار الحرمين السريع

هذا، وقد أخذت الهيئة العامة للطيران المدني أن عدد الركاب بمطارات المملكة سجّل نمواً بلغت نسبته ثمانية في المائة في 2017، ليبلغ 91,8 مليون راكب، ومن المتوقع أن يصل عدد الركاب إلى 100 مليون في 2018. وقد اعتمدت الحكومة السعودية أيضاً خطة توسعة لمطارات المملكة يتم بموجبها تجديد المطارات القديمة وإنشاء أخرى جديدة. علماً بأن عدد مطارات المملكة يبلغ 26 مطارا تقدم الخدمات التجارية، إذ وفر، خلال عام 2017، كلاً من مطار جدة والرياض والدمام والمدينة الخدمات لأكثر من خمسة ملايين راكب.

غرب المملكة، ومن المقرر إنشاء مشروع مطار الملك عبد الله على مساحة إجمالية تبلغ 57500 متر مربع على بُعد 30 كيلومترا شمال وسط مدينة جازان، وذكر تقرير، نقلًا عن رئيس الهيئة العامة للطيران المدني، عبد الحكيم بن محمد التميمي، أن المشروع يتضمن بناء استراحة كبار الزوار وصالة المسافرين الرئيسية بطاقة استيعابية تبلغ 3,6 مليون راكب سنويا، وسوف يستغرق تنفيذ المشروع نحو ثلاث سنوات ونصف، وهو مرشح لأن يكون «واحداً من أهم المشروعات التنموية والعلامات الثقافية البارزة في منطقة جازان»، حسبما أورد التقرير.

بشكل ما، لكنها ستضمي قدما في خطط التنويع الاقتصادي. وقالت شركة أرامكو، عملاق النفط، إنها وقعت 15 مذكرة تفاهم بقيمة 34 مليار دولار أمريكي، فيما أكد الرئيس التنفيذي لشركة «نوتال»، ياتريك بويان، أن شركة النفط والغاز الفرنسية ستعلن عن شبكة تجزئة في المملكة مع «أرامكو السعودية».

وذكرت تقارير أن وزير النقل السعودي وقع اتفاقاً لتنفيذ المرحلة الثانية من مشروع قطار الحرمين السريع مع تحالف الشركات الإسباني المشغل للمشروع، علماً بأنه تم الآن افتتاح المرحلة الأولى للجمهور. وقالت مصادر إن تكلفة المشروع تجاوزت 16 مليار دولار أمريكي، وهو يعد الأكبر في الشرق الأوسط.

وسينقل القطار، الذي يُعد أكبر مشروع نقل في المنطقة، الحجاج والمسافرين العاديين لمسافة 450 كيلومترا بين مكة المكرمة والمدينة المنورة في غضون ساعتين. وذكر مسؤولون أن القطارات البالغ عددها 35 قطارا تسافر بسرعة 300 كيلومتر في الساعة ويمكنها اختصار الزمن إلى ساعتين فقط.

كذلك يشهد مجال الطيران في المملكة نمواً هائلاً مدعوماً ببرنامج رؤية 2030 الطموح، والذي يهدف إلى تنويع اقتصاد المملكة. وفي هذا السياق، تم تدشين مشروع لإنشاء مطار جديد بتكلفة 6,66 مليار دولار أمريكي في مدينة جازان السعودية التي تقع جنوب

مذكرة إجمال الأعمال 2018

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26 - 29 معرض بيغ هايف

26 - 20 معرض بيغ هايف للألات الثقيلة

ديسمبر/كانون الأول

4 - 6 المعرض السعودي لتكنولوجيا النقل - ترانزك السعودية الرياض



قطار الحرمين السريع لنقل المسافرين بين مكة المكرمة والمدينة المنورة



تم تدشين مشروع إنشاء مطار جديد بتكلفة 6,066 مليون دولار في جازان جنوب غرب المملكة

السعودية تعزز أهداف التنمية

أعلنت المملكة العربية السعودية عن إنشاء منطقة اقتصادية خاصة ستكون الأولى من نوعها في العالم. ووفقاً لما ذكرته وكالة الصحافة السعودية، سوف يتم إنشاء هذه المنطقة في مدينة الرياض. هذه المنطقة، التي سيكون موقعها مطار الملك خالد الدولي، سوف توجه نشاطها إلى الخدمات اللوجستية المتكاملة، كما أنها ستحظى بلوائح وقواعد خاصة، وذلك بهدف جذب المزيد من الشركات متعددة الجنسيات إلى المملكة.

بين الشركات الموقعة على هذه الصفقات شركة «ترافيجورا» و«توتال» و«هيونداي» و«لورينكو» و«شلومبرجر» و«هالبيروتون» و«يكر هيوز». وأعلن مصدر مَطَّع أنه تم عقد اتفاقيات ضخمة تبلغ قيمتها مليارات الدولارات، من بينها تأسيس مصهر نحاس ووزك ورضاص مع مجموعة «ترافيجورا»، واتفاقية لإنشاء مجمع متكامل للبتروكيماويات، ومنطقة لأنشطة المصب ضمن المرحلة الثانية من مصفاة ساتورب بين «أرامكو» السعودية و«توتال»، واستثمارات في محطات الوقود أيضاً بين «أرامكو» و«توتال». من جانبه، أخبر وزير الطاقة، خالد الفالح، الحاضرين في مؤتمر مبادرة استثمار المستقبل، أن المملكة، وهي أكبر مُصدِّر للنفط في العالم، تمر «بأزمة

المتكاملة الدعم للدول متعددة الجنسيات عبر توفير المستودعات والإنجاز، وإدارة المخزون، وأعمال الصيانة والإصلاح، والتنظيم، هذا إلى جانب الاختيار والتجميع. وتأتي المنطقة الخاصة اللوجستية المتكاملة كخطوة هائلة نحو تنفيذ رؤية 2030 عبر الاستفادة من الموقع الإستراتيجي للمملكة كمحور ربط بين ثلاث قارات، وهي إحدى الركائز الثلاث الرئيسية في رؤية المملكة لعام 2030 التي تم الإعلان عنها في 2016.

وفي مؤتمر مبادرة مستقبل الاستثمار، الذي عُقد خلال الفترة ما بين 23-25 أكتوبر/نشرين الأول، وقَّعت المملكة أيضاً صفقات تتجاوز قيمتها 50 مليار دولار أمريكي في قطاعات منها قطاع النفط والغاز والبنية التحتية. وذكر التليفزيون السعودي أن من

وقد صدر قرار ملكي لاعتماد لائحة «المنطقة الخاصة اللوجستية المتكاملة» (ILBZ) وإسناد مسؤولية إنشائها وتشغيلها إلى الهيئة العامة للطيران المدني بوصفها الهيئة الإدارية للمنطقة. علماً بأن إنشاء هذه المنطقة الجديدة يعتبر جزءاً من منظومة أكبر تهدف إلى جذب الاستثمارات الأجنبية في عدد من القطاعات، من بينها تكنولوجيا المعلومات والاتصالات، إلى جانب السياحة والخدمات المالية.

وقال المهندس إبراهيم العمر، محافظ الهيئة العامة للاستثمار: «هناك نسبة كبيرة من التجارة العالمية تمر عبر المنطقة، ما يجعل هذه المنطقة الخاصة اللوجستية المتكاملة في المملكة موقعا تنافسيا لأي شركة تسعى إلى خدمة هذه الأسواق». ومن المقرر أن توفر المنطقة الخاصة اللوجستية

المحتويات

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تحليلات

السعودية تعزز أهداف التنمية



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- إنشاءات: الألومنيوم والصلب:**
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