

TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

MIDDLE EAST

USA: \$16.50, United Kingdom: £10

Vol 32/Issue Four 2016

I AM THE POWER

Kuwait calling

With a strong balance sheet, the country is pushing ahead with reforms to boost development

Concrete technology

'Green concrete' ushers in sustainability in construction

G PROFITS

POWER MARKET CONTINUES TO
ECONOMIC CONDITIONS



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INSIDE

HVAC
Glass
Data Storage
Automation
Printers

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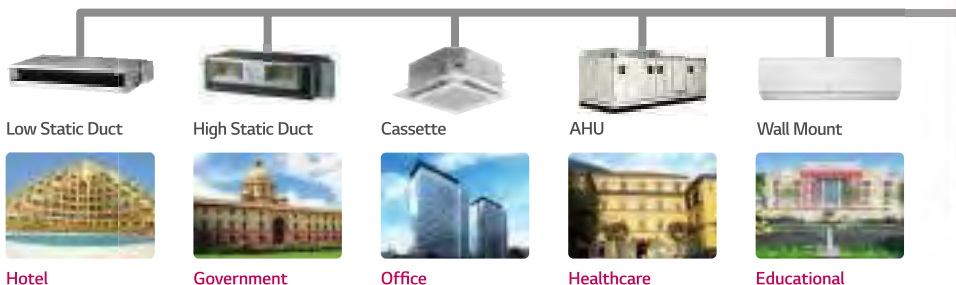
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EDITOR'S NOTE

WE ARE BACK with yet another power-packed edition of *Technical Review Middle East*. The region is now on its way to becoming the biggest rental power market in the world and in this issue, we discuss the trends and developments affecting the Middle East genset market in our regional power showcase (p28). Our detailed analysis on Kuwait's improved economic growth (p16) as well as the show preview of The Big 5 Kuwait (p22) are expected to boost investors' mindsets about the country. Also, as GCC governments move to fulfil their sustainable vision, the emergence of 'green concrete' (p36) and the glass sector boom (p40) are unmissable. Elsewhere, in this issue we also have news from the HVAC industry (p34), the automation business (p42), and the latest industrial innovations in the Middle East (p62).

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

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TECHNICAL REVIEW

الخدمة لشركات المنطقة منذ 1984

الشرق الأوسط - التقنية - الشرق الأوسط

MIDDLE EAST

Managing Editor: Rhonita Patnaik - Email: trme@alaincharles.com

Editorial and Design team: Prashanth AP, Hiriyti Bairu, Sejal Bhat, Miriam Brtkova, Ranganath GS, Georgia Lewis, Rahul Puthenveedu, Zsa Tebbit, Nicky Valsamakis, Vani Venugopal and Louise Waters

Publisher: Nick Fordham

Publishing Director: Pallavi Pandey

Magazine Sales Manager: Graham Brown - Email: graham.brown@alaincharles.com
Tel: +971 4 448 9260, Fax: +971 4 448 9261

Special Projects Manager: Jane Wellman - Email: jane.wellman@alaincharles.com

Production: Kavya J, Nelly Mendes and Sophia Pinto Email: production@alaincharles.com

Subscriptions: circulation@alaincharles.com

Chairman: Derek Fordham

Country	Representative	Telephone	Fax	Email
India	Tanmay Mishra	+91 80 65684483	+91 80 67710791	tanmay.mishra@alaincharles.com
Nigeria	Bola Olowo	+234 8034349299		bola.olowo@alaincharles.com
UK	Steve Thomas	+44 20 7834 7676	+44 20 79730076	stephen.thomas@alaincharles.com
USA	Michael Tomashefsky	+1 203 226 2882	+1 203 226 7447	michael.tomashefsky@alaincharles.com

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Head Office: Alain Charles Publishing Ltd
University House, 11-13 Lower Grosvenor Place, London, SW1W 0EX, UK
Tel: +44 20 7834 7676, Fax: +44 20 7973 0076

Middle East Regional Office: Alain Charles Middle East FZ-LLC
Office 215, Loft 2a, Dubai Media City, Dubai, UAE
Tel: +971 4 448 9260, Fax: +971 4 448 9261

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Briefly

Egypt completes 31 water and sanitation projects in 2015-16

A TOTAL OF 31 drinking water and sanitation projects have been completed in Greater Cairo and Alexandria for the fiscal year 2015-16, according to the Egyptian minister of housing Mustafa Madbouli.

The projects were implemented by the executive authority for potable water and sewage, as part of the investment plan for the fiscal year that ended in June along with carrying out utilities projects in number of new cities.

A total of 18 projects were for waste water sanitation, with 13 drinking water projects, in addition to completing five drinking water projects in new cities, said Hassan Al Far, head of the executive authority for potable water and sewage. He added that one of the completed projects is the rehabilitation and expansion of drinking water plants in the Fustat district of Cairo to increase their capacity from 900,000 cu/m to 1.1mn cu/m per day.

The project serves 1.2mn people in areas such as Dar El Salam, Maadi, North Helwan, Tora, Al Manial, Al Darassa, Downtown, Zahraa El Maadi, Saqr Quraish, Al Basateen, Nasr City, and Moqattam.

Iran to build two new nuclear plants, finances allocated

FINANCIAL RESOURCES HAVE been set aside for construction of two new nuclear power plants in Iran, according to spokesperson for the Atomic Energy Organization of Iran.

State-owned Iranian media *IRNA* reported Behrouz Kamalvandi as saying that President Hassan Rouhani has given the go-ahead for the construction of two nuclear plants and the financial resources have been earmarked.

"We are going to set a date in the near future for the ground-breaking ceremony," Kamalvandi added.

He also revealed that Iran and the United Nations Atomic Energy Organization are closely cooperating with each other.

According to a report by IAEA Chief Yukiya Amano, 65 nuclear power plants are under construction around the world.

Duqm to accelerate Oman's construction sector growth

AS INTERNATIONAL INVESTMENTS continue to pour in into Duqm, Oman's construction sector is expected to post healthy growth in the coming years.

Global investors, mainly from China, are filling the funding gap caused by weak oil prices and the consequent cut by the government in its spending on infrastructure projects, *Oman Observer* has reported.

According to analysts, the Sino-Oman Industrial City, which is the result of Oman government's efforts to involve private partnership in major projects, will help underpin growth for construction activities in the Sultanate.

This, they said, will accelerate growth from an unexpected 2.4 per cent this year, the lowest since 2000, to 4.9 per cent by 2019.

"Although Oman possesses a degree of private investment in its construction sector, the state still plays a pre-eminent role in funding infrastructure projects, and as oil accounts for approximately 85 per cent of government revenue, the collapse in price has had a negative impact on its ability to finance projects," stated David Lee, an infrastructure research analyst at Business Monitor International.

A number of sectors are expected to show healthy growth in the sector, with transport, electricity and water projects expecting to make strong improvements over the medium term.

"Growth in Oman's construction sector will come primarily from investment in transport infrastructure projects and the government's push for private partnership to mobilise investment in the construction sector. This will become increasingly important as global oil prices remain low, curbing government spending," added Lee.



Underscoring Port of Duqm's strategic importance is its planned development into an integrated, multimodal logistics hub, encompassing the maritime, road, air and rail modes of transportation. (Photo: Port of Duqm)

Residential and non-residential construction is also expecting positive growth, supported by a growing tourism industry and popular support for various social infrastructure projects.

According to the agreement between Oman and China in May last, a consortium led by Ningxia China-Arab Wanfang, is planning three separate zones – heavy manufacturing, light manufacturing and a mixed-use area.

The consortium, which is formed of six private companies and has the backing of the regional government from Ningxia (northern China), is committed to developing at least 30 per cent of the site by 2022.

In all, 35 projects will be undertaken, including construction of an oil refinery capable of processing 235,000 bpd, a petrochemicals complex, a concrete plant, a steel smelter, a glass factory, an aluminium plant and a solar factory producing panels and batteries.

The city is being developed in about 11.7 sq km of land within the Special Economic Zone next to Port of Duqm at a cost of US\$10.7bn.

Al-Futtaim Engineering wins contract for refinery project

AL-FUTTAIM ENGINEERING (AFE) has won a multi-million dollar contract from Petron Emirates to provide access scaffolding solutions for Emirates Global Aluminum's (EGA) Al Taweelah Alumina Refinery project.

The project is scheduled for completion in 2018, according to AFE.

AFE's scaffolding and access solutions division will provide access solutions to Bechtel Petrofac Joint Venture to install permanent steel structures that rise up to 30 metres. AFE will also provide access to install a conveyor belt through suspended scaffolds from



Al Taweelah Alumina is a greenfield refinery project in Khalifa Industrial Zone Abu Dhabi. (Photo: Al-Futtaim)

the structure.

The AFE project team will follow the European EN12811 standards that specify performance requirements and methods of structural and general design for access and working scaffolds.

Dawood Bin Ozair, senior managing director, Al-Futtaim Engineering and Technologies said, "We are pleased to win the access scaffolding contract for the

Al Taweelah Alumina Refinery project. The access solutions recommended by the team will ensure there is no stoppage in work due to the suspended scaffoldings."



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Briefly

Bahrain utility firm selects PAS solutions for its operations

BAHRAIN-BASED AL DUR Power and Water Company (ADPWC) has selected a key solution from PAS, provider of process safety, cyber security and asset reliability for energy, power and process industries, for its plant.

According to the terms of the deal, PAS will provide alarm and event analytics, documentation and rationalisation software and services that enable plant operators to respond to alarms more effectively and mitigate risks.

The PAS PlantState Suite (PSS) will help optimise operator situation awareness and improve plant safety, which is expected to make power and process plant operators more effective at identifying, evaluating, and managing alarms.

ADPWC general manager of operations and maintenance Jim Barrett said, "We are confident that PAS PlantState Suite software and alarm management experts will help us meet our alarm management performance goals and address industry best practices such as EEMUA 191."

Saudi Electricity Company to privatise assets by end of this year: chairman

SAUDI ELECTRICITY COMPANY (SEC) has plans to privatise its assets by 2016-end as part of a drive to increase efficiency in the Kingdom's utilities, chairman Saleh Al Awaji said.

The Kingdom's utility regulator had said in February this year that SEC would be split into several firms to increase efficiency.

SEC also recently signed MoUs with Chinese and Japanese firms for power projects in Saudi Arabia.

The agreement with Shanghai Electric is to boost local content in the country's power services and to invest in independent power producer (IPP) projects, whereas the deal with Power China and Saudi Aramco is to finance, build and operate power projects and invest in renewable energy. Tokyo Electric Power Company (TEPCO) will manage power demand in the Kingdom. The Saudi Arabian utility firm also secured an agreement with Mitsubishi Corporation to finance and build power and renewable energy projects.

Dubai ruler reveals 'city of the future'

VICE-PRESIDENT AND PRIME Minister of the UAE and Ruler of Dubai HH Sheikh Mohammed bin Rashid Al Maktoum has announced the launch of Jumeirah Central, an urban mixed-use city district that will be a comprehensive model for future urban planning in Dubai and around the world.

The district will comprise 4.3mn sq m of gross floor area along Dubai's Sheikh Zayed Road and will introduce new international standards in city planning to balance requirements from an environmental, urban development and societal perspective, according to Dubai Holding.

The Jumeirah Central masterplan is a product of the collaborative work of over 19 government and private agencies, international experts and consultants under the leadership of Dubai Holding over the last two years.

Jumeirah Central will have smart world-leading infrastructure that includes a multi-modal transport network, environmentally-friendly transport options and aerial gondolas. The district, of which over half will be open space, will offer 92,903 sq m of climate-controlled arcades for all-season lifestyle and a comfortable pedestrian experience.

The district will be home to 35,000 residents and will host 100,000 people annually. It will be connected by a comprehensive cycling network that spans over 33 parks and open spaces.

HH Sheikh Mohammed Bin Rashid Al Maktoum said, "Jumeriah Central is a clear milestone in our journey towards building the city of the future and



Construction of the first phase of Jumeirah Central is set to start in mid-2017 and will cost around US\$6.5bn, according to Morgan Parker, COO at Jumeirah Central, a unit of state-owned Dubai Holding. (Photo: Dubai Holding)

the creation of engaged and happy communities. We will not stop investing in our economy, and these projects are tools to expedite that journey of growth. We are confident in the strength of our economy and are optimistic for the future of our nation. To that end, our vision will continuously evolve and expand."

The district is located on Sheikh Zayed Road with 25 points of vehicular access.

Mohammed Abdullah Al Gergawi, chairman of Dubai Holding, added, "Jumeriah Central is a result of extensive research into future urban development and the creation of more cohesive societies. It is a clear demonstration of our leadership's vision, aiming to further Dubai's global position as an attractive destination for residents and tourists alike. The uniqueness of this project will not only be a model for advanced urban development, but will also play a key role in enhancing the quality of life and in shaping future generations. All project plans and designs have been endorsed by government authorities in Dubai and we expect to start development in the coming months."

Nakilat Damen delivers five vessels for Qatar's NPP

NAKILAT DAMEN SHIPYARDS Qatar (NDSQ), one of the region's leading shipbuilding companies, has delivered five brand new vessels as part of an eleven-vessel order for **New Port Project (NPP)**, considered to be world's largest greenfield port developments.

Built at the Erhama Bin Jaber Al Jalahma Shipyard, located in Ras Laffan Industrial City, the vessels were delivered to NPP after successful completion of their sea trials.

Measuring 15.4 metres long with a beam of five metres and a speed of 25 knots, the two Damen Stan Pilot 1505 pilot boats – Um Alhou 1 and Um Alhou 2 – will be used to carry out pilot duties and the transportation of personnel. The three Damen Stan Tug 1606 mooring boats – Mwani 1, Mwani 2 and Mwani

3 – measure 16.7 metres long with a beam of 5.9 metres and have a bollard pull capacity of 13.7 tonnes. These vessels will be used to assist ships entering and departing the port.

Abdullah Al Sulaiti, Nakilat managing director, said, "This project is a reflection of hard work incorporated with vision that has worked well on all levels. The cooperation between Nakilat and NPP is an excellent example of how local organisations are working together to support the development and growth of our local economy, that will in turn contribute to the achievements of Qatar National vision 2030."

NDSQ is a joint venture between Nakilat, a leading Qatari LNG transport company and Dutch shipbuilder Damen Shipyards.



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- UAE :** AL Shirwi Enterprises, charan@ase.ae

Head Office: Laxmanrao Kirloskar Road, Khadki, Pune - 411 003, India, Tel: +91 (20) 25810341/5341 Fax: +91 (20) 25813208, E-mail: Milind.Panadare@kirloskar.com
Middle East Office: Kirloskar DMCC, P. O. Box 37745, Unit No. 504, Jumeirah Business Centre 5, Jumerirah Lake Towers, Dubai, UAE, Tel: +971 4 441 4532, E-mail: enquiry@kirloskar.ae

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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

ADSB commissions first floating drydock

ABU DHABI SHIP Building (ADSB), provider of construction, repair and refit services for naval, military and commercial vessels, has commissioned the company's first floating dock located in Mina Zayed.

The opening of the floating drydock signifies a new phase of growth for the company as it looks to expand its commercial service offering, according to ADSB.

Khaled Al Mazrouei, CEO of ADSB, said, "The addition of the floating drydock contributes to our commitment to expand our service offering, strengthening our local maritime services and industries." www.technicalreview.me/logistics



The new floating dock offers a myriad of services including structural steel, mechanical, pipe and electrical repairs, state-of-the-art hull treatment with the aid of robotic machines and tank coating work. (Photo: ADSB)

More than 25,000 construction sites under Dubai Municipality supervision

DUBAI MUNICIPALITY IS currently undertaking engineering supervision of 25,124 buildings under construction in various areas of the emirate. Dubai Municipality director of buildings department Khalid Mohammed Saleh said, "During the first half of the year, the municipality received 25,419 requests for structural audit, a 20 per cent increase from the number of last year's requests for the same period. We also received more than 3,000 requests for scrutiny for issuing completion certificates and the first half of the year saw issuance of certificates to 5,837 buildings, whereas the number was 2,906 during the same period last year." www.technicalreview.me/construction

SADAFCO launches solar power project in Riyadh

SAUDIA DAIRY AND foodstuff company (SADAFCO) has commenced operations of its solar power project, utilising a photovoltaic (PV)-diesel hybrid system that can deliver up to 40 per cent of the facility's daytime energy requirements. The solar cells cover a surface area of about 1,600 sq m and more than 2,000 have been installed atop the carport structures in the parking area. The project will operate high performance thin film PV modules from US-headquartered First Solar, Inc. According to the company, the hybrid system will result in cost savings from reduced diesel consumption on the generators necessary for an off-the-grid facility. www.technicalreview.me/power-a-water

UAE and Morocco join hands for climate conference

A UAE DELEGATION, headed by Dr. Thani Al Zeyoudi, UAE minister of climate change and environment, recently met with the Moroccan Steering Committee for the 22nd session of the Conference of Parties (COP22) of the United Nations Framework Convention on Climate Change (UNFCCC). The event will be held in Marrakech, Morocco, in November 2016.

The meeting was attended by Salaheddine Mezouar, Morocco's minister of foreign affairs, and COP22 president and Hakima El Haite, Morocco's minister of environment. During the meeting, the ministers discussed ways to enhance the UAE-Morocco cooperation on climate change in support of COP22. www.technicalreview.me/power-a-water

New Cat L Series medium wheel loaders released

CATERPILLAR HAS ROLLED out new Cat® L Series medium wheel loaders – 950L and 962L – that are more powerful and fuel-efficient than its predecessor models.

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The 950L and 962L use a 5F/3R countershaft power-shift transmission. (Photo: Caterpillar)

Panasonic and Yahsat sign broadband connectivity deal

PANASONIC AVIONICS (PANASONIC) and Yahsat have signed an MoU to explore new ways to offer a broadband connectivity solution serving several mobility markets in the Middle East within the next three to five years. The MoU will allow both parties to further investigate the launch of a Yahsat satellite constellation, which will serve Panasonic's general mobility needs in aviation, maritime and terrestrial transportation. The deal will also provide Yahsat with the ability to use Panasonic communication-related technologies and services where practical. www.technicalreview.me/it

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25-27	The Big 5 Kuwait	KUWAIT	www.big5kuwait.com
27	The Iranian Water Summit	TEHRAN	www.iranianwatersummit.com

OCTOBER

4-6	WETEX	DUBAI	www.wetex.ae
4-6	Dubai Solar Show	DUBAI	www.dubaisolarshow.com
5-8	Tehran International Industry Exhibition	TEHRAN	www.idro-fairs.com
9-13	World Energy Congress	ISTANBUL	www.2016istanbul.org.tr
10-13	Project Iraq - Erbil	ERBIL	www.project-iraq.com
17-20	Saudi Build	RIYADH	www.saudibuild-expo.com
23-24	2nd Annual Health, Safety & Security Forum 2016	DUBAI	www.hse-forum.com
25-26	The Mining Show 2016	DUBAI	www.terrapinn.com

NOVEMBER

5-8	IEE 2016	TEHRAN	www.elecshow.ir
5-8	Iran ConMin	TEHRAN	www.iranconminfair.com/en
6-9	The Exhibition of SABIC Technical Conference	JUBAIL	www.exhibitionofstc12.com
18-20	FM Expo	DUBAI	www.fm-expo.com
21-23	WEPower	DAMMAM	www.wepower-sa.com

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

Dubai Municipality to play leading role in 2nd Health, Safety & Security Forum

AGAINST THE BACKDROP of the construction boom in the run-up to EXPO 2020 Dubai, as well as recent high-rise building fires in the UAE, there has never been a more important time to focus on the promotion of an effective health and safety culture.

Building on the success of the inaugural HSE Forum in September 2015, the 2nd Annual Health, Safety & Security Forum 2016, taking place on 23-24 October at the Intercontinental Dubai Festival City, Dubai, will bring together HSE and security professionals, policy makers, regulators and solutions providers to share knowledge and experiences on proven methodologies and best practices in the drive for better health and safety performance.

Organised by Health, Safety & Security Review Middle East magazine, and endorsed by Dubai Municipality, the Health, Safety & Security Forum 2016 will showcase the latest developments and



Dubai has been plagued by fire incidents in high-rise buildings. (Photo: Bir/Pixabay)

innovations, and will help to bridge the gap between the increasing demands for health and well-being and the reality of workplace conditions.

A highlight of the event, and a first for the region, will be a mock court trial, which will offer valuable insights into the working of justice systems after a serious workplace accident, to be followed by a panel session led by IOSH and Dubai Municipality.

Another unique and innovative feature will be a thought-provoking mock evacuation fire drill, a live set-up of a practice drill in case of a fire/evacuation emergency, in recognition of the importance of preparing employees in case of emergency and calculating incident response time.

Keynote speakers include Eng Raed Mohammed Al-Marzouqi, head of occupational health & safety at Dubai Municipality, Najeeb Mohammed Ali, executive director, EXPO 2020 Bureau, Ahmed El Hadidi, chair IOSH UAE, and senior figures from Dubai Civil Defence, ENOC and ADMA-OPCO amongst others.

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

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Generating efficient solutions for Middle East

Genset manufacturer HIMOINSA is taking every effort to realise regional governments' sustainable vision.

WITH THE LAUNCH of new products in the beginning of 2016, Spain-headquartered HIMOINSA continues to further its presence in the Middle East region with growing markets like Saudi Arabia and Qatar.

Guillermo Elum, HIMOINSA sales and marketing director, says, "The economic development in Middle East countries is opening up new opportunities for the company. Our growth strategy is to bring our factory and energy solutions closer to markets like Qatar, which is growing at an estimated annual rate of 15 per cent."

Speaking about the buoyant regional market that includes the UAE, Saudi Arabia, Qatar and Kuwait, he adds that the demand for energy continues to grow exponentially, driven by the economic and population growth. "New shopping centres, new cities and hospitals have aided to the rise in the genset market to cater to the ever-growing need for continuous power source," the HIMOINSA executive adds.

The strength lies in Saudi Arabia

According to a recent TechSci Research report, the market for diesel gensets in Saudi Arabia is forecast to surpass US\$700mn in next four years. The country may witness robust increase in infrastructure expansion and development projects in residential, commercial and manufacturing sectors in the coming years. This, along with the government's focus to reduce dependence on oil, in form of government investments in non-oil sectors will propel demand for diesel gensets in the country over the next five years.

Elum mirrors the report's opinion. "Without doubt, the giant in the market at the moment is Saudi Arabia. Also, the country is becoming increasingly committed to hybrid solutions. The Kingdom has announced developing 3.5MW of renewable energy by 2020 because there is no way it can meet the demand of the growing population with traditional energy sources alone. Also, the creation of isolated industrial areas in Saudi Arabia will create the need to generate energy autonomously and this is where gensets will have a key role to play. HIMOINSA is taking small, but definite, steps to realise this goal."

Furthermore, the genset industry is now beginning to



HIMOINSA sales and marketing director Guillermo Elum.
(Photo: HIMOINSA)

manufacture efficient diesel units to reduce environmental and noise pollution. In this respect, HIMOINSA is currently working on a new range that will ensure higher soundproof levels. Elum reveals that the new range should be ready by the end of the year and will help rental sector in urban areas to significantly lower levels of noise pollution.

Across the Middle East, even as diesel gensets see a propelling growth, natural gas gensets are not far behind. According to HIMOINSA, with the encouragement in the use of natural gas, particularly in Saudi Arabia and Qatar, the long-term tendency will be the shift towards an increase in gas but both diesel and gas gensets will continue to co-exist for a long time to come.

Efficiency means hybrid

As environmental concerns grow in the Middle East due to carbon emissions, the tendency to use hybrid solutions that combine diesel or gas generator sets with solar panels, batteries or wind turbines, is even greater.

"If we are talking about efficiency, we are talking hybrid solutions. Diesel engines are more efficient, consume less fuel and have longer maintenance cycles. The improvement in energy storage systems has also been decisive. Add to this, the fact that the cost of photovoltaic (PV) systems has dropped in recent years makes it possible to generate energy at a much more competitive price. This way, solutions that combine diesel and gas generator sets with PV systems and batteries reduce fuel consumption, operation costs and CO2 emissions, Elum states.

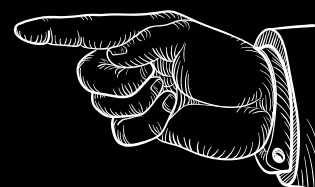
"HIMOINSA believes that the key to success is to take advantage of this growth to create an efficient, one that remains insulated from fuel price fluctuations. The applications that are most sensitive to variations in the price of fuel are those that work in prime power, and it is precisely those applications that have to be increasingly efficient."

Looking ahead to the future prospects in Middle East, Elum emphasises that HIMOINSA will continue to work with distributor profiles that are at par with other markets where the company has consolidated distributors so that HIMOINSA can provide a service that is local, agile and highly technically trained. ■



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Kuwait's latest Development Plan will aim to have a significant impact on the country's aims of fulfilling the goals of its 2035 Vision. (Photo: philipus/Fotolia)

Kuwait strives for 'balanced' future growth

Kuwait's government is reforming its investment framework in order to overcome slow economic growth amid weak oil prices and financial concerns. Economist Moin Siddiqi reports on the country's plans to balance the books.

“Policy buffers provide some room for manoeuvre even as economic growth is set to slow.”

Oxford Business Group

AS THE WORLD'S sixth-largest crude exporter, Kuwait has been impacted by weak oil prices, which led to tepid growth and deteriorating fiscal and current account balances during 2014-15. The emirate, however, can withstand the challenges of depleting oil revenues, while continuing to support non-oil growth through heavy investment spending. The government is also committed to reforms in a phased manner over the medium term.

Unlike most other oil-exporters, Kuwait faces low oil-price environment from a position of strength. The emirate's 'balance sheet' is solid as reflected in hefty financial buffers, negative (net) external debt and macro-prudential policies over many years, coupled with a well-capitalised and liquid banking system and a profitable corporate sector, which provide the enabling environment for sustained growth.

UK-based Oxford Economics concurs, “Kuwait, relative to its Gulf peers, is well

placed to weather the storm. Despite its oil dependence, the country has ample reserves and low public debt levels. These policy buffers provide some room for manoeuvre even as economic growth is set to slow.”

Most importantly, foreign assets held by the Kuwait Investment Authority, the emirate's sovereign wealth fund – estimated by National Bank Kuwait (NBK) at US\$550bn, equivalent to 452 per cent of 2015 GDP – provide a cushion to cope with external shocks and execute several key infrastructure projects, notably in the power generation and transport sectors under the country's Development Plan (DP). The new 2015-19 DP prioritises capital expenditure and encourages private investment (domestic and foreign), thus creating jobs for nationals in the private sector.

Shaikha Al-Bahar, deputy group chief executive at NBK, has been quoted as saying, “We expect growth in non-oil

SERIES 2016



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BUT WAIT... SOMETHING'S UP DOWNTOWN...

economy to improve. The reason is a strong commitment by the country's government to stay the course on its Development Plan, as well as its capital spending targets and robust fiscal position.

"We are positive on Kuwait's economic outlook as more projects are expected to be implemented in the future," he added.

Non-oil diversification

Real non-oil GDP growth is expected to pick-up this year and next (see Table 1), boosted by higher public investment activity and a steady growth in consumption, reflecting a robust consumer sector. The 2015/16 budget appropriately reduces current expenditure growth, but increases capital spending on infrastructure that, in turn, boosts future output capacities. More than KWD7.5bn (US\$24.8bn) in projects were awarded in 2014 and another KWD12bn (US\$39.8bn) during 2015.

Upcoming projects include a new airport terminal and seaport, rail and metro schemes, as well as a large-scale network of new and upgraded roads. Substantial fiscal buffers should help Kuwait pull through relatively easily, without making deep spending cuts.

The International Monetary Fund (IMF) stressed the urgency of diversifying Kuwaiti economy – aimed at reducing over-reliance on oil revenues and increasing private sector's share in economic activity, which lags behind most of its GCC peers.

The non-oil economy should receive strong fiscal stimulus from the 2015-19 DP, which entails investments of about KWD34bn (US\$113bn) over a five-year

period and structural reforms, including introducing corporate tax and reducing gradually expensive fuel subsidies.

In this regard, a number of key initiatives were taken over the last year. They include the formation of the National Fund for Small and Medium Enterprises (SMEs) Development; establishment of the Direct Investment Promotion Authority, the Information and Communications Technologies (ICT) Authority and Transportation Authority; issuance of the privatisation bylaws to convert some public assets to the private sector; and raising mandatory national labour ratios. The DP also encourages private businesses to invest more in high-tech and capital intensive industries. Enhanced competition and higher foreign direct investments (FDIs) should benefit SMEs and create productive jobs for nationals.

The execution of the DP stands to benefit from the new public private partnership (PPP) law (effective April 2015), which is closely in tune with international norms. Global law firm Ashurt LLP explained Kuwait's PPP law improves the ease of changing, extending or renewing a project, while making it easier for sponsors to provide security to project funders.

"The government has presented its vision for economic reform in order to expand the non-oil sector, including developing greater partnerships between the public and private sector," said secretary-general of the Kuwait Banking Association. "Currently, there are more than 10 mega-projects waiting to be implemented in Kuwait under the PPP system."

The creation of Direct Investment Promotion Authority has resulted in additional FDI. According to World Investment Report 2016, Kuwait's inward FDI stock in 2015 totalled US\$14.6bn, up from US\$11.9bn in 2010.

Megaprojects

The Ministry of Electricity & Water (MEW) has several schemes underway to boost power generation and water desalination capacity over the coming years. With annual demand rising at three per cent, Kuwait needs 17GW of additional power generating capacity by 2030, while water consumption could surge by six per cent/year over the same period – with peak desalination capacity projected by the MEW at 850mn imperial gallons per day (MIGD) by 2030.

The bulk of additional power demand – as much as 13,500MW – will derive from new housing and commercial developments; for water usage, housing and commercial projects will require an additional 200 MIGD of supply.

Kuwait's first independent water and power project, the Al-Zour North 1 – structured on a build own operate transfer model with a 40-year power purchase agreement – is due online in late 2016 with a power generating capacity of 1,500MW and a water desalination capacity of 486mn litres per day. Once fully active, the US\$1.8bn project owned by three sponsors – France's GDF Suez; Japan's Sumitomo Corporation; and local-based AH Al Sagar & Brothers will comprise 10 and 20 per cent, respectively, of Kuwait's electricity capacity and water production. GDF Suez and Sumitomo will operate and maintain the plant.

This project has also benefited other companies, including South Korea's Hyundai Heavy Industries and Sidem, a subsidiary of France's Veolia. They are building the power and water components of the project, respectively, under a US\$1.4bn contract.

Other upcoming IWPPs include Al-Zour North 2 with installed generation capacity of 1,800MW, plus a water desalination component of 107 MIGD; Al-Khiran 1 IWPP (1,500MW and 125 MIGD); and the giant Al-Nuwiseeb phase-1 plant (3,000MW and 75 MIGD).

A number of contracts have been awarded to raise crude oil production capacity from currently three million bpd to four million bpd by 2020 and expand the capacity of refineries and petrochemical complexes. The hydrocarbons investment programme amounts to about KWD27bn (US\$89.5bn). In July 2015, downstream

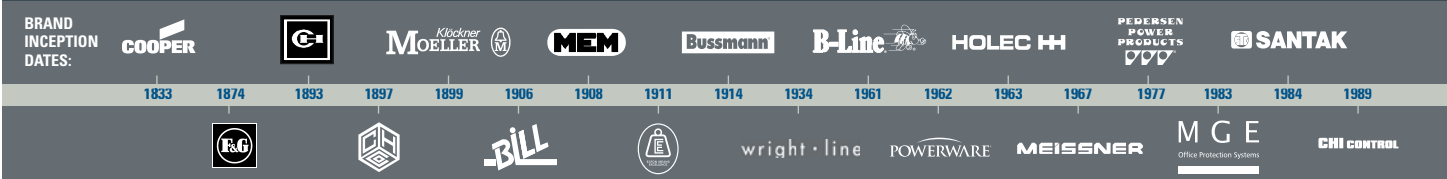
Table 1: Key macro-economic indicators on Kuwait (in US\$m, unless otherwise indicated)

	Projections				
	2013	2014	2015	2016	2017
Domestic Economy					
Nominal Gross Domestic Product (GDP)	175,800	172,400	121,700	125,200	138,000
Real GDP growth (per cent) ¹	1.0	0.0	1.6	2.4	2.6
Real non-oil GDP ¹	4.2	3.2	4.0	4.5	5.0
Consumer Price Index (period average) ¹	2.7	2.9	3.4	3.0	3.0
Gross Capital Formation ²	14.2	15.5	21.8	22.5	22
Gross National Savings ²	56.6	46.8	32.2	31.6	33.3
Overall Fiscal Balance ²	11.7	7.5	-6.2	-3.8	-3.6
Nominal Gross Public Debt ²	3.6	3.1	3.2	4.2	3.9
External Sector					
Exports, FOB ³	115,800	104,800	58,700	58,300	65,000
Of which: non-oil exports	7,200	7,300	6,900	7,300	7,800
Imports, FOB	25,600	27,400	25,700	26,100	27,200
Merchandise Trade Balance	90,200	77,400	33,000	32,200	37,800
Current Account Surplus	69,500	53,800	12,500	11,200	15,600
In percent of GDP	39.5	31.2	10.2	8.9	11.3
Foreign Exchange Reserves, net ⁴	32,200	32,300	33,000	33,300	34,300
In months of imports of goods and services	8.3	7.6	8.2	8.1	8.0

¹ Annual percent change; ² Per cent of GDP; ³ Crude oil accounts on average for more than 90 per cent of total exports; ⁴ Exclude external assets held by Kuwait Investment Authority. Sources: National Bank Kuwait; Ministry of Finance; Central Statistical Bureau; IMF; World Bank; BP.

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Upcoming projects in Kuwait include a new airport terminal and seaport, as well as rail schemes and a large-scale network of new roads. (Photo: Arlo Magician/Fotolia)



operator Kuwait National Petroleum Company (KNPC) finally approved a KWD3.9bn (US\$12.9bn) scheme to build the Middle East's largest refinery at Al-Zour, with an installed capacity of 615,000 bpd – mostly for exports.

Meanwhile, the 'Clean Fuels' project (costing an estimated US\$15bn) is underway to upgrade the quality and output of petroleum products at the Mina Abdullah and Mina Al-Ahmadi refineries, and close the existing Shuaiba refinery, increasing production to 800,000 bpd. This programme is KNPC's biggest portfolio. Last March, KNPC also awarded a US\$3.9bn contract to South Korea's Hyundai Engineering to build an LNG import and regasification terminal at Al-Zour.

In the transportation sector, excluding metro and mainline rail projects whose combined budget is reportedly US\$15bn, some US\$7bn worth of road network projects are presently under bidding process, with a further US\$3.2bn and US\$5bn in the prequalification stage and initial study and design phases, respectively, according to official sources.

Comprehensive reforms

The government is taking hard decisions on reforming the economy, affecting state subsidies and labyrinthine bureaucracy, which are frequently cited as impediment to FDIs.

According to the IMF, subsidies currently absorb one-tenth of GDP. To further advance economic diversification, Kuwait in tandem with its GCC peers is acting to improve the business environment by streamlining registration and licensing procedures for investors, while creating more private investing opportunities throughout non-oil sectors.

“We are positive on Kuwait's economic outlook as more projects are expected to be implemented in the future.”

NBK deputy group chief executive Shaikha Al-Bahar

The IMF notes, “The authorities strive for a more robust and dynamic corporate sector that is essential for the diversification process. Issuing the new corporate law was a step in this direction.”

In addition, Kuwaiti firms need to expand domestic operations, develop export markets and improve vocational training to equip workers in acquiring the necessary skills – a prerequisite for competing in competitive global markets.

Further deepening of local capital markets will provide companies alternative means of financing and investment. The high costs of doing business in Kuwait, relative to GCC peers, need to be reduced. Establishing bankruptcy procedures and reliable data availability to investor would contribute to the better performance of the corporate sector and support ongoing diversification efforts.

In sum, the new DP is expected to contribute to the emirate's longer term 2035 Vision of becoming a hub for financial services and intraregional trade, thus building a vibrant private sector led economy that drives sustained growth and attracts more FDIs. ■



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Capitalising on the market opportunities

Reports suggests that, in 2015, Kuwait was the sole GCC country to exceed project award forecasts after giving the go-ahead for projects worth a record US\$30bn in the first 10 months.

WITH PLANNED DEVELOPMENTS

worth an estimated US\$123.6bn, according to MEED, and US\$68.9bn government construction budget for 2016, Kuwait's construction industry offers huge business opportunities.

The construction industry is also expected to grow at a CAGR of 6.44 per cent from 2016 to 2020, says a Timetric report. This is due to the government developing projects in areas including rail, infrastructure and airport under its Vision 2035 programme, the report reveals.

To effectively tap into the Kuwaiti market, dmg events will host The Big 5 Kuwait 2016 from 25-27 September at the Kuwait International Fair.

Last year, The Big 5 Kuwait grew by 21 per cent across all participants, with a 43 per cent growth in international exhibitors. This year, more than 200 local and international exhibitors are expected to converge in the 4,700 sq m of space.

Ashley Roberts, event director of The Big 5 Kuwait, says, "The 2015 figures are a clear sign of the show's success and they are set to grow even further in 2016 as we will bring the best of The Big 5 show to Kuwait."

Latest trends, findings, insights and issues in the sector will be discussed at The Big 5



Visitors at The Big 5 Kuwait will be able to meet exhibitors from 24 countries. (Photo: dmg events)

Kuwait in free-to-attend CPD-certified workshops delivered by industry experts from DLA Piper, KEO International Consultants, Kuwait Oil Company (KOC), among many others.

Also, 'How to Trade in Kuwait' seminar will offer useful tips and information to tap into the market and effectively conduct business in the current scenario.

Roberts adds, "Today, The Big 5 Kuwait is an unmissable event for all industry players interested in the business opportunities that Kuwait has to offer."

To address growing demand, visitors at The Big 5 Kuwait will be able to meet new

exhibitors from 24 countries including Germany, Italy, Turkey, among many others. This year also sees a Serbia exhibit for the first time. Visitors will have the opportunity to source new certified products and review existing ones and meet suppliers.

On Day Three, a free-to-attend Sustainability Day will be held to offer strategic insights and highlight best practices and opportunities for industry players. With the recent introduction of New Direct Investment Promotion Law, Kuwait has also encouraged the creation of new and larger companies in the country.

Roberts states, "The sector is now benefitting from the government's initiative to develop the public private partnership (PPP) model. To leverage the fresh momentum experienced by the Kuwaiti market, our event will highlight advanced solutions and products for the local construction sector."

The Kuwait government's Vision 2035 comprises five separate five-year plans that aim to reduce oil dependency by transforming Kuwait into a diversified commercial and financial hub. The latest plan (2015-2020) sets aside US\$116bn for a broad range of projects including 45,000 new housing units, a metro and railway system and a new refinery.

With an investment of US\$7bn, the 171km Kuwait Metro Rail is due for completion by 2020. The government also plans to start construction work of the Kuwait National Rail Road System, a long-distance railway project, under the five-year development programme 2015-2020. The projects are expected to be completed by 2018 at a cost of US\$10bn.

According to the organiser dmg events, The Big 5 Kuwait is set to capitalise on the opportunities that will be created with such a high level of investment, giving visitors access to thousands of innovative products, knowledge and new contacts that will help them drive their business forward. ■

Kuwait's construction industry is expected to grow at a CAGR of 6.44 per cent from 2016 to 2020, according to a Timetric report.



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Counting the cost of fuel subsidies in the GCC

The availability of cheap energy supply in the GCC has fuelled rapid economic development in the region over the past four decades, but the costs of this policy have also risen in terms of soaring energy usage per capita. Economist Moin Siddiqi

PROVIDING ENERGY AT well below international prices to industrial and residential sectors effectively absorbs resources that could otherwise have been invested in public capital stocks or saved for future generations. The International Monetary Fund (IMF) special paper ‘Energy Price Reforms in the GCC-What Can be Learned From International Experiences?’ estimated the implicit cost of subsidised energy prices, in terms of foregone revenue, at around five per cent of the combined GCC’s GDP in 2015.

Like in most hydrocarbons exporting countries, energy products in the GCC region are sold well below global prices, despite the slump in oil and gas prices since mid-2014. Average petrol and diesel prices in GCC (except the UAE) are about 48 and 38 per cent, respectively, below pre-tax US prices. Natural gas prices are also generally lower than US prices, which averaged US\$2.75 per million British thermal units (Btu) in July 2016. By contrast, prices in Qatar, Saudi Arabia and UAE were just US\$0.75 per MMBtu, providing large comparative advantages to the GCC’s heavy industries. Excluding the UAE, electricity tariffs also remain low compared with tariffs in the USA, most notably in Kuwait and Bahrain.

Cheap energy feedstock may have deterred the growth of skill intensive high-tech industries as well as far-reaching economic diversification in the GCC. Echoing this view, the IMF paper noted, “This might help to explain why skill intensive sectors, including those that could be engines of economic diversification, have not grown as much as they could have if a policy that favours low domestic energy prices had not been in place.”

Wasteful consumption

Primary energy consumption is influenced by several factors, including income, climate, geography and, most importantly, fuel subsidies. Thus, heavily subsidised energy feedstock has made GCC region

Table 1: Prices for energy products: The GCC and the USA

	Petrol 1 Aug 2016 Litre, US\$	Diesel 1 Aug 2016 Litre, US\$	Natural Gas US\$ per Mn Btu July 2016 (avg)	Electricity US\$ per KWh Jan-Aug 2015
Bahrain	0.41	0.41	2.5	0.03
Kuwait	0.21	0.36	1.5	0.01
Oman	0.42	0.45	3.0	0.04
Qatar	0.39	0.38	0.75	0.05
Saudi Arabia	0.23	0.2	0.75	0.09
The UAE	0.44	0.48	0.75	0.1
GCC Average	0.35	0.38	1.54	0.05
GCC Maximum	0.44	0.48	3.0	0.1
USA Pre-tax	0.64	0.61	2.75	0.1

Sources: Prices in GCC countries come from GlobalPetrol, prices.com and government agencies. USA petrol and diesel prices come from the IEA. Natural gas price for the USA is spot prices at Henry Hub. Electricity tariffs for the USA include taxes and come from US EIA.



A heavily subsidised energy feedstock has helped to turn the GCC region into one of the world’s biggest consumers of energy, as measured on per capita fuel consumption. (Photo: hanmaomin/Fotolia)

among the world’s biggest consumers as measured on per capita fuel consumption. In 2014, the region consumed 9.2 tonnes of oil equivalent (TOEs) per head, compared to global average of four TOEs per head. According to BP’s database, Qatar (23 tonnes); UAE (12 tonnes); Bahrain (11 tonnes); and Kuwait (10 tonnes), respectively, were ranked among the largest energy consumers per head.

Moreover, the GCC region’s energy usage is not only currently high, but it has also grown rapidly. For example, energy offtake per person in Qatar, Saudi Arabia and UAE has surged at an annual rate of 2.6; 2.5; and 1.9 per cent, respectively, in the last four decades. The average growth rate for economies with similar income per capita was just one per cent. In fact, advanced economies – notably the USA, Germany and the UK – reported average negative growth, reflecting a drop in oil intensity (i.e. the quantity of energy required per unit output or activity) and efficiency improvements in the transport sector.




Table 2: GCC per capita electricity consumption
Billion kilowatt-hours per million population, 2014

Kuwait	19.0
UAE	18.0
Qatar	16.5
Bahrain	9.0
Saudi Arabia	8.0
Oman	6.5

Sources: EIA, International Energy Statistics.

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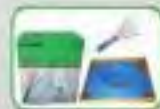
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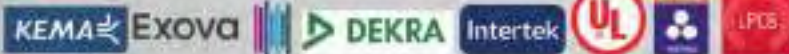
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Renewable technologies

Led by the UAE, the GCC countries have also started investing in renewable sources of energy, through principally solar photovoltaics. The GCC bloc is expected to invest more than US\$300bn into some 20 energy projects by 2020, which will generate eight gigawatts (GW) of additional power, according to Doha-based Gulf Organisation for Industrial Consulting (GOIC). Thus far, 75GW of renewable energy projects worth US\$200bn are already in the pipeline, making the region a global power player in the sector.

Despite recent adjustments (see: Energy subsidy reform in the GCC), GCC energy prices are still cheap compared with developed and emerging regions. Looking ahead, further steps are needed to raise fuel prices in order to reduce over-consumption and costly subsidies that are necessary in current low oil-price environment, while improving energy efficiency in the Gulf.

Saudi Arabia, Qatar and the UAE have recently created independent bodies to oversee energy efficiency awareness programmes for users and have established stricter building codes and appliances standards.

The International Energy Agency stated, "Energy efficient buildings often yield greater year-round comfort levels, which in turn can be a low cost means to provide health benefits for its occupants.

"Reducing energy demand will lower pollution levels by cutting unnecessary power generation and reduce urban heat island effects. Public buildings should be energy efficient and use renewable energy where possible and local authorities should include the purchase of energy efficient products and services in their procurement rules." ■



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Energy subsidy reform in the GCC

Bahrain:

Prices for low-grade petrol and transport diesel were increased by 60 and 20 per cent, respectively, at end-2015. The electricity and water tariff structure was adjusted for non-domestic users, increasing tariffs for higher consumption levels – applied specifically to commercial and industrial users (October 2013). The authorities raised the gas price to industrial users by about 10 per cent from April 2015 with phased annual increases until it reaches US\$4.0/Mn Btu by April 2022.

Kuwait:

The emirate is struggling to lower the cost of subsidies by a third from US\$19bn in 2015. In 1966 Kuwait dropped its electricity tariff from 27 fils per kWh to 2 fils – which has remained the same ever since. For larger houses or villas, the price of electricity was raised to 10 fils/kwh (US\$3.50). Kuwait doubled diesel prices in January 2015.

Oman:

In January 2016, Oman raised the price of low-grade petrol by a third and diesel by 10 per cent, with the aim of cutting subsidies for petroleum products, electricity and other goods by more than 60 per cent. Oman also doubled gas tariffs for industrial producers and the power industry in January 2015.

Qatar:

The country raised the price of low-grade petrol by 35 per cent in January 2016, after raising the price of diesel by 50 per cent in May 2014. Water and electricity tariffs were increased and tiered according to consumption in October 2015.

Saudi Arabia:

The Kingdom announced at end-2015 a five-year plan to raise fuel prices. The largest price increases were for ethane (133 per cent); transport diesel (79 per cent); and 67 per cent each for natural gas and low-grade petrol. Prices of electricity and water were also raised by 60 per cent for higher tiers of residential consumption and by varying amounts for commercial and industrial users.

The UAE:

The emirates adopted a monthly adjustment of transport fuel prices aligning them with international levels in August 2015. Electricity prices were also adjusted but mainly applied to expatriates. On public utilities, new pricing were announced in January 2016 with the tariff for expatriates in Abu Dhabi increasing by 50 per cent for electricity and 6.6 per cent for water. This followed a tariff hike of 40 and 170 per cent applied for electricity and water respectively in January 2015. Natural gas, accounting for bulk of UAE subsidies, remains well below international levels.



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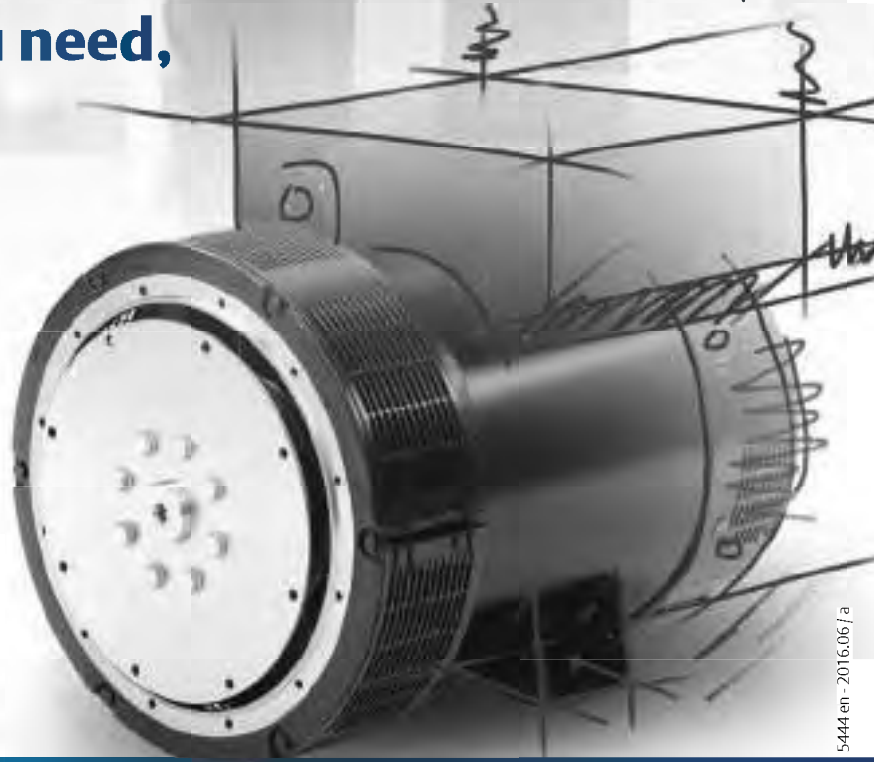
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The global market for diesel gensets is expected to reach US\$21.37bn by 2022, according to a new report. (Photo: Altaaqa Global)



The backup plan

Even with the slowdown of some megaprojects in the Middle East, the genset industry is witnessing growth in an upward trajectory. Rhonita Patnaik reports.

DESPITE THE OIL market entering a new normal of lower prices and the price per barrel is projected to settle in the range of US\$53 to US\$60 by 2020, the economies in the Middle East continue to go ahead with projects due to rapid urbanisation and industrialisation. Due to this, the region is an important hotspot for power demand and hence, there lies a huge market for rental power business for various sectors. The region is also blessed with abundant oil reserves that make this region a potential market for generator vendors.

Driven mainly by oil and gas and

A high supply-demand gap for electricity is expected to drive the market for backup energy sources such as diesel gensets.

construction sector, a Global Data report states that the Middle East will witness the highest power rental market growth globally between 2014 and 2020, with its value doubling from US\$1.4bn to US\$2.8bn in the given period. Experts say that Qatar will lead the region with its own power rental arena expanding at a CAGR of 18.5 per cent from US\$225mn in 2014 to US\$622.2mn by 2020 as it prepares to host the 2022 FIFA World Cup. The UAE and Saudi Arabia will follow with respective growth of 13.1 per cent and 10.3 per cent per year.

Altaaqa Global's CEO Peter den Boogert says, "The power rental market has been

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constantly growing in the Middle East, owing to the region's continuous economic growth, sustained industrial and infrastructure activities, improvement in the standards of living, occasional utility shortages in key areas, and observed unreliable electricity connection in various cities and provinces.

"The above mentioned factors lead to the requirement for alternative power sources, such as multi-megawatt temporary power plants, to support the region's existing power infrastructure. As the intense industrial and construction activities, coupled with a massive electricity requirement on the part of residents, especially during summer months, put a heavy load on the region's utilities, this is where turning to temporary power becomes beneficial."

According to HIMOINSA's sales and marketing director Guillermo Elum, the demand for energy continues to grow exponentially in the Middle East, driven by the economic growth and the population rise throughout the entire region.

Growth market

The global market for diesel gensets is expected to reach US\$21.37bn by 2022, according to a new report by analysis firm Grand View Research, and a high supply-demand gap for electricity is expected to drive the market for diesel gensets.

The global industrial diesel genset market was estimated at US\$3.97bn in 2014, the report said, and is expected to see growth over the forecast period due to heavy production losses resulting from power failure issues. The establishment of new industrial production facilities, particularly in Asia Pacific and Middle East and Africa region, is also expected to result in market growth. Meanwhile, even as the global market for gensets that are used for backup and onsite power generation has been extremely volatile in recent years, the Middle East has seen a balanced growth as governments in the region move ahead to actualise their national visions.

In the UAE, over the last decade, the demand for electricity has increased with rising public and private infrastructure, and

a significant share of power is generated from temporary power sources.

According to Altaaqa Global CEO, "It has been predicted the CAGR of the temporary power market in the UAE to be at 16.8 per cent from 2015-2021, taking into consideration the Expo 2020 Dubai. Preparations for the global event including the construction of trade centres, hotels, hospitals, rail networks and airports are seen to be driving the growth."

In the UAE, the diesel genset rental market has generated a majority of the revenues and is expected to maintain its dominance through the forecast period.

The Saudi Arabian economy, on the other hand, has borne the wrath of the lowered oil price. But this has not deterred the Kingdom's investments in various projects. Analysts highlight the country's cash reserves for the continuous development in Saudi Arabia's public infrastructure, utilities, healthcare and education, to name a few. "Thus, the sustained construction and industrial activities in the country, coupled with a constantly increasing electricity



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demand from its residents and businesses, are spurring the buoyancy of the power rental market,” den Boogert reveals. Even HIMOINSA’s Elum states that Saudi Arabia is the power rental market giant. But the push is being generated towards hybrid to fulfil the Kingdom’s renewable energy target by 2020 to 3.5MW, Elum reveals.

According to Avishrant Mani, senior research analyst, research and consulting, 6Wresearch, “In Saudi Arabia, diesel generators have accounted for the majority of share in the overall power rental market. Easy availability and inexpensive diesel have poised the growth of diesel gensets on rent in the country. However, in the forecast period, the penetration of hybrid and gas powered gensets will increase and the government’s initiatives towards reducing carbon emissions are expected to boost the demand for such gensets in the country.”

The CAGR of the power rental market in Saudi Arabia is expected to be at 12.6 per cent from 2015-2021.

As mentioned earlier, many believe that Qatar will lead the market for gensets as the rental power market is heavily influenced by the country’s preparations for the 2022 FIFA World Cup. The increasing infrastructure development (building of eight new stadiums, renovation of three existing stadiums, establishment of Lusail City), expanding the transportation network, surging public and private investments, rising hospitality sector and continuous economic reforms are driving the growth of the temporary power business in the country. 6W Research pegs the growth of the sector in the country at 23.3 per cent from 2014-2020.

Another significant market for multi-megawatt rental power solutions is Kuwait. As the price of diesel in the country is much lower than compared to the worldwide average, diesel gensets continue to rule the rental power sector in the GCC nation.

Meanwhile, as Iran’s economy opens up after decade-long sanctions, Turkish genset manufacturer Aksa Power Generation opened an office in Tehran this year. Alper Peker, CEO of Aksa Power Generation, says, “The Iranian economy has started to achieve rapid growth and this brings Iran to the centre of interest for investors.”

“It is worth noting that temporary power solutions can also prove beneficial for countries that may require infrastructure rebuilding and rehabilitation, or re-establishment of a reliable power connection like Yemen, Iraq and Syria. As the governance of these countries become more stable in the coming years, we believe that they will represent excellent market opportunities for temporary power providers,” den Boogert mentions.

Power play

Traditionally, diesel gensets meant a reliable and economical option but they were also noisy. Gas gensets, on the other hand, meant cleaner air but were on the expensive side. Now, due to advanced technologies in engines and components, the divide is no longer clear. Altaaqa Global CEO states, “It is expected that the diesel generator market will continue to grow in the next several years, owing to easy availability, safety and economy of fuel and ease of installation of diesel equipment.

“However, we are noticing a gradual increase in the requirement for natural gas and dual-fuel power generation technologies, largely influenced by the increasing availability of fuel resources and government initiatives towards reducing carbon emissions.” As development projects continue to progress even with lowered oil prices and unless the electricity grid is fully developed in the region, the genset market will continue to flourish because of the need for continuous power supply. Rapid technological development, coupled with growing purchase power parity in Saudi Arabia and the UAE, is expected to enhance the market in the coming years. ■



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Operational analytics help lower maintenance and energy costs

THE IMPLEMENTATION OF data analytics has provided Danfoss, which specialises in producing refrigeration monitoring equipment, compressors and controllers, with a solution that helps its customers view their operations, create reports on alarms and performance and reduce energy costs across 5,000 sites worldwide.

A recent report by the company revealed that there are many key solutions that have enabled Danfoss customers to manage their supermarkets more efficiently. Central to these was the alarm management system to monitor food quality and energy efficiency along with a visualisation component to bring all information together on a single platform.

The collection, organisation and visualisation of operational information presented customers with a real-time visualisation of performance and current conditions. They are able to view alarm counts and status, view and email reports on performance on a daily, weekly, monthly, or annual basis, as well as access the facility to create ad-hoc reports as required.

Alarm management system

An underlying alarm management system is another tool that has helped to streamline operations as this ensures that alarms are raised automatically upon a potential failure or a threat to an asset when a threshold has been reached. Danfoss uses Bentley's Amulet software to evaluate repeated alarms and identify the true and false ones and notify the user, leading to a more proactive approach to maintenance.

According to the company, eliminating false alarms from the system significantly cuts costs by reducing needless callouts of



The operational analytic solution provided by Bentley's Amulet has helped Danfoss customers to manage their supermarkets more efficiently, the company said. (Photo: Adisa/Shutterstock)

maintenance engineers. Alarm histories can also be used against the asset, the fault or the site to highlight patterns such as determining the reason why a particular alarm was occurring against the same asset consistently across multiple stores.

HACCP reporting

Danfoss stated that it has addressed regulatory food compliance with hazard analysis and critical control points (HACCP) reports, a monitoring and reporting system that assures that food production and storage facilities are safe.

HACCP reports show the average temperature during an hour (from typically four 15-minute intervals) of any asset containing food using the Amulet software for data collection and visualisation. These reports are displayed within Amulet's dashboards and allow the users to spot any

differences in behaviour in an asset's temperature through colour coded boxes that indicate whether an asset is operating above or below its normal level.

Coupled with the temperature quality index report, which displays the overall performance of an asset in terms of how much of a percentage it is operating within its set points, the reports bring a complete picture of asset performance in near to real-time, where certain events can be predicted and actions taken ahead of time.

Through the use of operational analytics, Danfoss has achieved complete visibility of its whole operation, including energy usage against external parameters like outside/inside temperatures and other factors. By monitoring these patterns for their customers, Danfoss claims that it can regulate the environment in which its assets work.

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For every kilo of cement produced, around the same amount of CO₂ is released into the atmosphere, IEA figures state. (Photo: Juanan Barros Moreno/Shutterstock)

A sustainable foundation

The world's most common building material is being reinvented in a bid to make the Middle East construction industry environmentally friendly. Vani Venugopal reports.

The past few years have seen interest surge in green concrete in the Middle East.

CONCRETE IS THE most widely used synthetic material in the world. According to the International Energy Authority (IEA), concrete is only second to water in total volumes consumed annually by society. However, the production of concrete is one of the most environmentally unfriendly. The IEA recently published a report that indicated that concrete production accounts for almost five per cent of the world's greenhouse gas emissions.

The production of cement, an essential component of concrete, co-produces carbon dioxide (CO₂) and according to IEA estimates, for every kilogramme of cement produced, around the same amount of CO₂ is released into the atmosphere.

With the boom in the construction industry and rapid urban development, the demand for concrete is expected to increase even further and hence the need for

sustainable approaches to cement has become paramount.

Green concrete

'Green concrete' is a term given to a concrete that has had extra steps taken in the mix design and placement to insure a sustainable structure and a long-life cycle with a low maintenance surface. It aims to reduce the environmental impact of concrete by reusing waste, reducing the water and energy consumption and reducing the CO₂ emissions.

The easiest way to reduce the carbon footprint of concrete is by replacing cement with by products of other industries, for example ground slag from the steel industry, or fly ash from power plants. Substituting supplementary cementitious material (SCM) for up to half of Portland cement in the concrete can result in reduction embodied energy as great as one-third.

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Describing the different approaches to green concrete across the world, James A Meltz, the exhibition director for the Middle East Concrete (MEC) show said, "The concrete industry is taking a variety of steps to reduce the carbon footprint of concrete. There have been developments such as precast concrete, which provides cost and time savings to developers as well as offer significant environmental benefits. Then there is self-healing concrete wherein researchers use ground-borne bacteria to block the concrete's pores, keeping out water and other damaging substances to extend the life of the concrete."

He also added that geopolimer concrete is an emerging class of cementitious material that utilise fly ash, one of the most plentiful industrial by products, as a substitute for Portland cement. Turkish researchers are currently experimenting with sunflower seed husks, a waste product of the vegetable oil, to develop eco-friendly fillers or aggregate for concrete. Similarly, Malaysian researchers have proposed using dried sewage sludge as an alternative cement material for concrete. Denmark has developed a low CO₂ cement clinker by using alternative fuels in the cement kiln.

Renewable goals

The past few years has seen a surge in the interest for green concrete in the Middle East. Concrete manufacturer Readymix Abu Dhabi's chief technical officer Fouad Yazbeck described the UAE government's initiatives in Dubai and Abu Dhabi, which made it mandatory for construction companies to use of alternative ingredients to supplement the use of cement in concrete



The UAE government plays a very important role in promoting and enforcing policies to reduce carbon footprint in the emirates. (Photo: Alexmar/Fotolia)

production, as a 'turning point' in the growth of green concrete in the region. These initiatives by the Dubai Municipality and Abu Dhabi Urban Planning Commission, in a bid to reduce greenhouse gas emissions, have been instrumental in getting construction companies to switch to green alternatives.

"For projects it has been a very quick learning curve over the last 10 years," Yazbeck said, adding, "Companies have quickly adapted to the use of green concrete. What has helped was that these alternatives were readily available in the market and were earlier used to improve the durability of concrete. This made it easier for companies to make the switch."

While green concrete might seem more expensive, over the lifecycle of the material, this cost is recovered as it provides better durability.

Future prospects

Describing the challenges in the use of green concrete, Yazbeck noted, "The use of different material changes the behaviour of concrete, so it requires more attention. Cost impact is another issue. However, while green concrete might seem more expensive, over the lifecycle of the material, this cost is recovered as it provides better durability."

In spite of these challenges, the future looks bright for green concrete in the Middle East. Yazbeck is confident that other countries of the Middle East would follow suit of the UAE and embrace the use of green concrete.

Given the significance of green concrete to the industry, workshops on green concrete, sustainable concrete structures and the significance of precast concrete have been included as part of the educational programme at MEC show, taking place from 21-24 November 2016 at Dubai World Trade Centre.

"I believe that the focus on developing new ways to make concrete greener is a huge step forward," Meltz stated. ■

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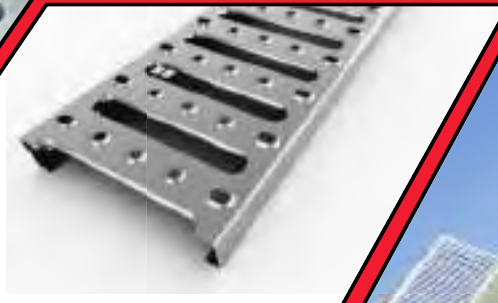
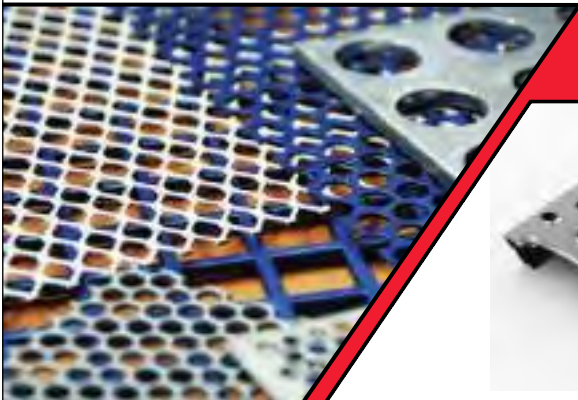
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Shattering barriers

A boom in the use of large format sheets is opening a world of opportunities for the glass industry in the Middle East.

THE GLASS INDUSTRY in the Middle East is predicted to see steady growth. A report on the flat glass industry by Mordor Intelligence reveals that the production of flat glass in the Middle East and Africa (MEA) was 3.09mn metric tonnes (mmt) in 2016 and is estimated to reach 3.83 mmt by 2021, at a CAGR of 3.6 per cent. In terms of revenue, the market was worth US\$2.5bn in 2016 and is projected to reach US\$3.83bn in 2021, at a CAGR of 7.38 per cent, the report adds.

Recent studies have also shown that the worldwide per capita demand for flat glass is booming and is predicted to grow on an average of six per cent in the coming years. Glass manufacturer LiSEC points out that there has been an increase in the use of glass for structural and design elements in the XXL formats.

Large-format insulating glass sheets find applications in construction sector including shopping malls, museums, office buildings, exhibition centres and convention centres. The advantages of continuous large formats in the glass, according to LiSec, are that it allows completely different designs in architecture and allows play with spatial dimension and light.

Commenting on the rise of large format glass, ARUP facade engineer Hannes Spiss said, "Years ago, it was unthinkable that there will ever be glasses, which are wider than 3.21 metres and longer than six metres. Today, the maximum width of glass in the global market amounts to 3.6 metres and the maximum length amounts up to 18 metres. It will only be a matter of time until we will have to redefine oversize sheets."

However, the production of large format glass sheets is a complex process, and one fraught with challenges. It calls for particularly delicate handling in production, logistics and assembly.

LiSEC's head of the business unit insulating glass production Clemens Macarei adds, "The last few months, we have intensively focused on solutions for the production of large size insulating glasses.



The various properties of flat glass such as energy saving, noise control, cost benefits, luxury design, fire resistant, chemical inertness and self-cleaning properties are making it one of the preferred choices for the construction industry. (Photo: Bobkeenan Photography/Shutterstock)

Our approach is based on process reliability and an absolute top end quality. A stable process is a must for manufacturers of such special solutions made of glass – rejects are inconceivable in this league."

LiSEC production lines for large-size insulating glass sheets are designed for insulating glass elements of up to 350 kg per running metre. The use of modular construction in the steps of four metres and

2.5 metres allow for different variations (for instance, 16 metres length and 350 kg/running metre).

According to the company, these lines are characterised by their ease of use due to self-learning formula/recipe settings, low assembly tolerances as a result of high-quality machine engineering and a precise control technology.

"The challenges for the construction of such a plant are to process a series of XXL sheets absolutely reliably as well as to produce standard insulating glass elements in an economical way and this under the common production conditions including multi-shift operation, several types of spacers, also small batch sizes and in a short cycle time," Macarei states.

LiSEC has collaborated with Germany's sedak GmbH & Co KG to install and commission a production line for oversized formats, which manufactured sheets of 15 metres with a running metre weight of up to 450 kg and the spacer applied with an accuracy of 0.5 mm, claimed to be the largest insulating glass line in the world. ■

A majority of the large-format sheets is used for displays/shop windows and reception areas of commercial buildings.

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IA solutions use control equipment to operate hardware in various industries. (Photo: Baloncici/Shutterstock)

The automatic choice

Automation systems are replacing manual operations in order to control quality and cut costs, and the GCC region is well served by international suppliers of equipment and services to fulfil the checks. Bob Adams reports.

ALL INDUSTRIAL AUTOMATION (IA) systems use control equipment to operate hardware such as boilers, network switches, process plant, valves and robots. The purpose of the equipment is to save costs by eliminating human labour and increasing security, output quality and consistency in the process. The savings in energy costs are benefitting too for companies.

IA equipment are universally used in the oil and gas industry. In the GCC and North Africa, they also optimise the operations of a host of manufacturing and service activities like catering, retailing, telecoms and other utilities.

Today's IA systems incorporate feedback sensors that allow the control of a sequence of mechanical and electronic actuators within parameters that are pre-set by the designer. Outside these, they often shut the entire system down, often diagnosing and reporting the problem in the process.

How and when the controls physically react to changing circumstances defines the type of IA system installed.

An automatic on/off switch like a

thermostat is the starting point. 'Closed continuous' control relies on monitoring a series of variables so that throughput can be adjusted constantly, including remotely. More complex is a 'sequential' system, illustrated by the controls governing the operation of a multiple-shaft elevator system in a high-rise building. Input is being constantly received and updated by a relay logic centre that decides how to move up to

“Almost no manufacturing or service activity can be established nowadays without a solid industrial automation system at its core.”

a dozen individual cages in optimum fashion, minimising the wait time for users.

This pre-programmed all-options sequencing – event-driven control – is also required when a series of large electric motors are individually started and stopped. The status of one device will adversely affect the performance of all the others if a programmable logic controller is not incorporated.

An operator specifies the load that is to be served and the automatic controller decides how this will be achieved, being connected to a series of solenoids and other actuators that make physical and electrical adjustments. A motherboard is usually involved somewhere along the line to keep track of multiple inputs, using algorithms specifically designed for the process involved. Results can be displayed in real-time for human intervention, if pre-set limits are approached. Many of the replaceables involved in these systems, both hardware and software, are available off the shelf.

Business owners and managers in the GCC, especially in the UAE, have better access to both local and international IA

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suppliers than almost any other region. The big international names include ABB, Emerson, Honeywell, Omron, Rockwell, Schneider Electric and Siemens. France-headquartered multinational Alstom is to be found in more than one energy development centre and the key regional supplier Saudi Controls is situated in Al-Khobar and Riyadh. As an automation service focus we see that Sharjah is developing fast, but the highest concentration of the highly specialised companies is located in Dubai. International IA supplier Avanceon International of the USA uses an arresting image of Dubai's metro system to promote its worldwide online activities. Carrying driverless self-contained units the twin lines of this rapid transit system demonstrate the potential of IA, including for expansion. Some of the competitive local companies, also wholesale suppliers and designers and fabricators, include Saudi Controls, include Aliyat in Dubai and CESCO in Jeddah.

It is mainly the energy industries that draw them all, but no manufacturing or service activity can become established here nowadays without a solid industrial-automation system at its core. These include food and beverage (F&B) production, region-specific chemicals such as nitrogen and compound fertilisers, pharma, telecoms, utilities and all other forms of modern industrial processing units. Also, there are at least as many international sources of information and co-operation in automation as in any other industrial specialisation. The ISA International Society, headquartered in North Carolina's Research Triangle Park, produces a vast range of standards and technical monographs, including the InTech periodical, as well as its own regular conference reports.



AUTOMATICA, in Germany, is world's leading trade fair for industrial automation and mechatronics. (Photo: AUTOMATICA)

Two of the world's leading national associations are located in Germany — VDMA's own Robotics & Automation Association, and the Automation Division of the matching Electrical/Electronics Industries Federation. So when it comes to commercial exhibitions it is not surprising that Germany comes out on top. The big one is AUTOMATICA and is held every alternate June in Munich (the next edition is in 2018). But there are many others, both general-purpose and sector-specialised such as Hanover's CEBIT (where the emphasis is on office products) in Hamburg and Friedrichshafen.

The other two countries where commercial/technical events are regularly staged are China and India. Shanghai will be the venue for the next Factory Automation Asia, to be held from 1-5 November this year. Other centres where important events are held in this heavily-focused country include Shenzhen and Tianjin.

In India, Mumbai is the key exhibition city to head for. IA India runs from 1-3 December next, and in 2017 you can look forward to both Indian Automation & Control World (January) and Automation (August). Industrial Automation Singapore will be held from 4-7 April 2017, but the deadline for the key event in Chicago (Industrial Automation North America, 12-17 September 2016) has just been passed.

Within the Middle East region Elec Expo Casablanca — a trade show, which includes regionally relevant industrial automation product, will be taking place later this year between 12-15 October, and across the GCC in Tabriz Autex from 26-29 May 2017.

A good turnout of exhibitors is expected next year because of Iran's recent re-entry to the world trading system. These are the big specialised shows, but the industry is so well entrenched here in the GCC that most of the dedicated single-sector events like ADIPEC (7-10 November) and Plastics & Petrochem Arabia (21-23 November, Abu Dhabi and Dammam respectively) always feature automation products heavily.

All that said, IA solutions are not universally applicable across all industries and sectors. There are times when manual control simply cannot be replaced. High set-up costs are normal for IA systems, and production of one-off prototypes by additive manufacturing (3D printing) is one current example where they may not apply.

However, machines tend to make fewer mistakes than their operatives, and if cost control is combined with consistency of quality then investment in more automation is definitely worth every penny. ■

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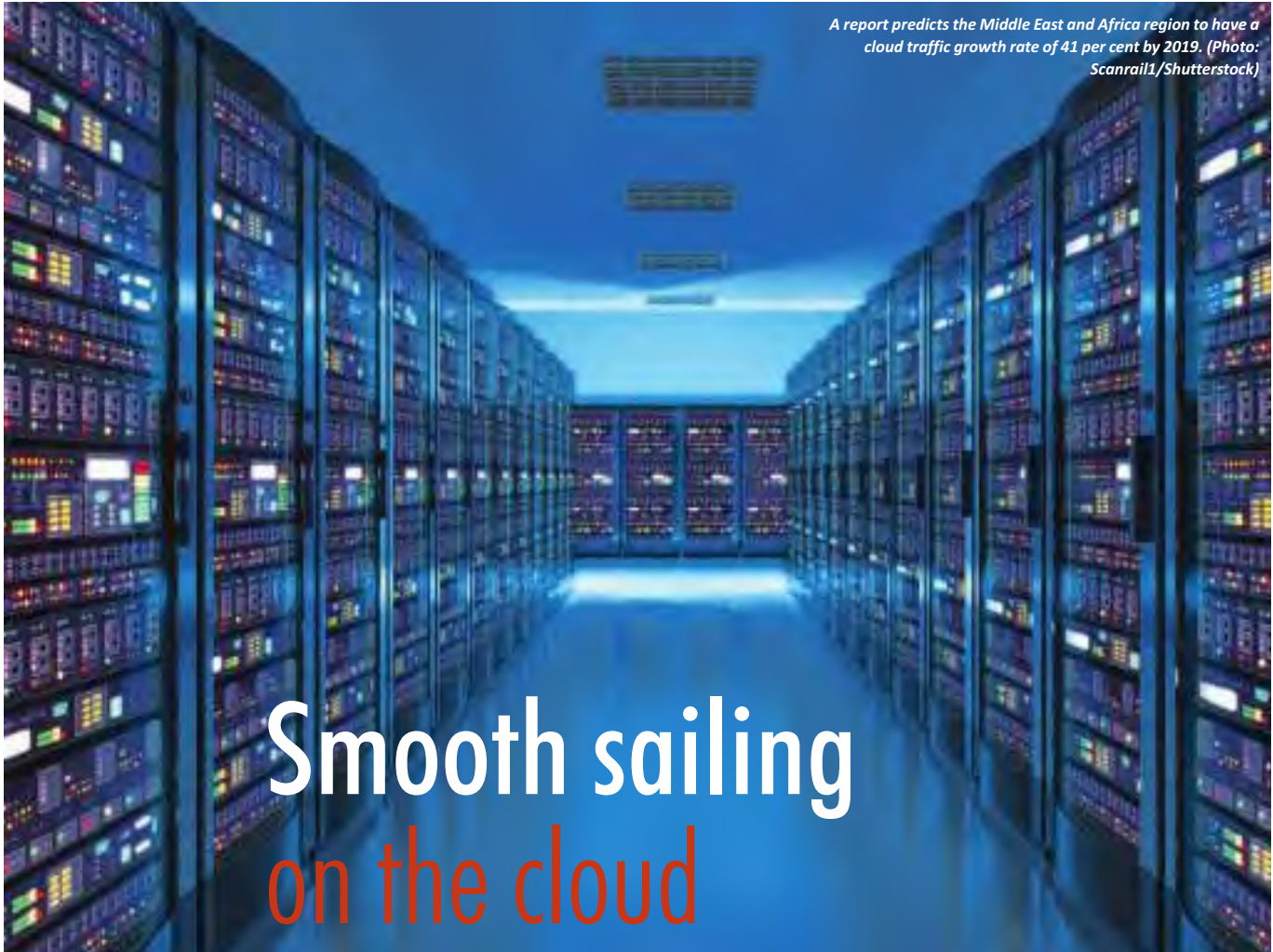
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A report predicts the Middle East and Africa region to have a cloud traffic growth rate of 41 per cent by 2019. (Photo: Scanrail1/Shutterstock)



Smooth sailing on the cloud

Cloud services are no more a thing of the future. Data storage in the cloud has become a mainstream form of storage for both commercial and personal use.

ADVANCEMENTS IN INFORMATION and social technology have paved the way for unabated data growth, which is one of the primary factors contributing to the rise in adoption of advanced enterprise data storage solutions globally.

Cloud traffic in the Middle East is expected to hit 262 exabytes in 2018, states a report by Cisco. The report also predicts the Middle East and Africa (MEA) region to have a cloud traffic growth rate of 41 per cent by 2019, the highest in the world.

The overall data storage market is expected to register a CAGR of 14.4 per cent between 2015 and 2025, according to a report by Future Market Insights last year.

Overcoming concerns

Earlier, there were apprehensions about public cloud services wiping out the legacy

The market is increasingly embracing cloud services in addition to the older data storage applications.

systems in place, but the market is increasingly embracing cloud services in addition to the older data storage applications. There has been an increased investment in both big cloud services like

salesforce.com for CRM solutions and small ones like LinkedIn for recruiting.

For a seamless adoption

The challenges in the legacy-to-cloud migration process rise out of issues like duplication of data as a result of not being able to efficiently move information from a previous platform. It is easy to add services to an application portfolio, but a lack of understanding of the services available can result in duplicated investments and incompatible applications. Maintaining a cloud solution along with an older legacy application only ends up doubling the effort and cost and reducing flexibility as well.

For a seamless transition, companies will have to keep these hurdles in mind before making the big move and have a well-developed IT strategy and architecture in place for maximum productivity. ■

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Creating a good impression

The adoption rate of 3D printing technology in the GCC's manufacturing sector is around 11 per cent, which is above average compared to the global adoption rate.

OWING TO GROWING infrastructure and associated developments in the region, the Middle East and North Africa's (MENA) printing industry will continue to witness rapid growth, International Expo Consults (IEC) has stated.

"Investment in 3D building printing technology has huge potential in the Middle East, particularly Saudi Arabia, over the next couple of years," experts say.

This new technology, which is becoming increasingly prevalent in the construction industry, involves creating solid 3D objects from a digital model by laying down many successive layers of material on top of the other. 3D printing can either be achieved through a computer aided design (CAD) file or by the use of a 3D scanner that forms a 3D digital copy of a physical object.

3D printing has many advantages that include faster construction, lower labour costs and less waste production.

According to Andrew Elias, Group CEO of Dubai-based Kele Contracting, "This new method of construction will provide an attractive solution to construction companies who wish to extend their projects to remote areas where traditional construction techniques prove challenging."

He adds that if buildings in the Middle East can withstand the environmental extremes and harsh climate, this could then herald the start of a new wave of innovative 3D printed low-rise buildings, representing a new untapped niche market for construction companies.

As Qatar prepares for 2022 FIFA World Cup, scientists at Qatar University are currently testing 3D printed models of stadiums that need to be desert-proof and withstand sand and dust storms.

For this, a team from Europe and the Middle East is exploring how the stadiums can be adapted. "We're looking at aerodynamics, how changing the shape of the stadium affects the dust, heat and wind



The setting up of various 3D printing manufacturing units, along with the emergence of many 3D printing technology-based start-ups in the region, is expected to bolster overall growth of the industrial manufacturing sector in the region. (Photo: riccardomajana/Fotolia)

inside," Saud Ghan, Qatar University's engineering professor, reveals.

Dubai too recently unveiled plans via 3Dprint.com to develop an entire 185.8 sq m office building, including its fittings, in its city centre using 3D printing techniques.

Textile printing is also set to gather momentum as the UAE stands as the world's fourth-largest trading centre of textiles, generating approximately US\$17.5bn annually. Screen printing continues to hold a major share of the global textile printing market, in terms of production volume of printed textiles.

Meanwhile, the third drupa Global Trends report 2016 highlighted that in order

for printers and suppliers to succeed in the current market they must have a positive strategy.

The report found that printers and suppliers have stated that despite a difficult economic market they will maintain strong investment levels in 2016.

Around 37 per cent of the global panel of printers in the report described their current condition in 2015 as good, while 12 per cent said their condition was poor – a positive net balance of 25 per cent. Printers are, in general, more positive on the long-term outlook, with 50 per cent expecting their economic condition to improve in 2016 compared with only six per cent expecting it to get worse – a positive net balance of 44 per cent.

Turning to suppliers, overall the outlook was promising, with a positive net balance of 49 per cent. However, a breakdown by region showed that current performance was marked down for the Middle East, among other regions.

The report also noted that the key change for the commercial and publishing markets is the use of digital communications. Printing companies said the key challenges they have had to overcome are the lack of sales and being faced with stiff competition. ■

Canon launches new printers at drupa 2016

To cater to the growing printing market, Canon recently launched the new Arizona 2200 series of UV flatbed printers at drupa 2016 in Germany.

Canon stated that the new product is an enhanced solution for print service providers (PSP) who need to increase their production capacity and expand their range of applications. The firm also showcased a wide range of products at the show across toner, continuous and sheetfed inkjet, wide format and workflow. Other new product launches for Canon at drupa were the imagePRESS C8000VP toner production press, Océ ColorStream 6000 Chroma continuous inkjet and VarioPrint i3000 cutsheet inkjet press ColorGrip version.

"The Océ Arizona 2200 series provides a flexible and scalable solution with decreased delivery times and high-quality printing and finishing on a diverse range of materials. We believe this will empower PSPs to maximise their offering and work to deliver a range of superb products, quickly and cost-effectively," said Matthew Faulkner, European marketing manager for Wide Format Print Group, Canon Europe.

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Showcasing state-of-the-art technology

The Exhibition of the 12th SABIC Technical Conference (formerly known as the SABIC Technical Meeting) will bring together companies and professionals from across the GCC and the world to showcase their innovative technologies and solutions.

THE EXHIBITION OF STC-12 takes place from 6-9 November in Jubail Industrial City, Saudi Arabia, the Kingdom's industrial heartland, in conjunction with the SABIC Technical Conference. The exhibition provides a collaborative technology and innovation platform which, over the years, has become a prominent event representing a unique opportunity for engineers, project owners, operators, scientists, researchers, chemists and technical experts from SABIC and other industrial companies operating within and in collaboration with the Jubail Industrial City, to network and build on cumulative experience.

The event is being held under the patronage of HRH Prince Saud bin Nayef Al Saud, the ruler of the Eastern Province of Saudi Arabia, home to the majority of the Kingdom's oil, gas and mineral wealth. The opening ceremony will take place on the evening of 6 November in the presence of HRH Prince Saud and other dignitaries.

With over 12,000 industry experts expected to attend, the exhibition takes place in a 30,000 sq m purpose-built exhibition space, with more than 450 exhibitors from up to 40 countries already registered and only 10 per cent of exhibition space remaining. The largest technical exhibition in Saudi Arabia, it will provide a prime opportunity to meet face-to-face with decision-makers from SABIC, Sipchem, Sasref, Sadara Chemical Company, Sahara Petrochemicals Company, Tasnee, Saudi universities and many more companies who are looking to shortlist future suppliers and stay up to date on the latest technologies available in the market.

The exhibition focuses on core industrial sectors in the Kingdom of Saudi Arabia, highlighting diverse solutions from sectors including petroleum and mineral resources; chemicals; transportation and shipping; agriculture and water; communications and electronics; education and training; environment and renewables; health and



safety; power and water; infrastructure and development; operations and maintenance; and ICT.

The 2016 event takes place against the backdrop of the launch earlier this year of Saudi Arabia's Vision 2030, its long-term plan to diversify the economy and boost local manufacture, and the associated objective of creating a world-leading downstream sector with a focus on promoting advanced technologies and innovation. Abdulrahman Al-Fageeh, SABIC's executive vice-president for Polymers, speaking at a recent conference,

The largest technical exhibition in Saudi Arabia, it will provide a prime opportunity to meet face-to-face with decision-makers

highlighted SABIC's role in stimulating innovation and creating jobs by helping lead the way in the development of Saudi Arabia's downstream, commenting, "The petrochemical industry can serve as the cornerstone for industrial diversification into new market segments and industries, in accord with Saudi Arabia's recently announced Vision 2030 plan."

According to the exhibition organisers, the event has generated a huge amount of interest, in particular from China, in the wake of Saudi Arabia's recent visit headed by Deputy Crown Prince Mohammed bin Salman, which has resulted in the raft of joint development proposals, including a potential joint venture between SABIC and a Chinese company to build a coal-to-chemicals complex. Strengthening economic relations with China and other key markets is seen as central to the Kingdom's Vision 2030 aim of becoming a global economic power, adding a further global dimension to the event. ■

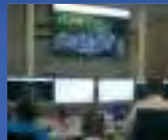
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Current ongoing projects constitute 82.4 per cent of overall construction activities in the Kingdom. (Photo: swisshippo/Fotolia)

Saudi Arabia construction sector hits US\$600bn

With the Saudi Vision 2030 and National Transformation Plan (NTP) 2020 announced by Deputy Crown Prince Mohammed Bin Salman, the Kingdom is eyeing growth and investment, which is likely to result in good news for the construction market in the coming years.

IN THE CONTEXT of the boom in the construction industry in the Middle East, the 2016 edition of Saudi Build, the international construction technology and building materials exhibition, gains renewed relevance. According to the organisers, Saudi Arabia's construction sector is currently valued at US\$600bn, with infrastructure projects alone amounting to US\$350bn. Current ongoing projects constitute 82.4 per cent of overall construction activities, reflecting the continued growth and development.

This year, the event, held from 17-20 October, will bring three exhibitions under one roof, combining Saudi Build with Saudi Stone-Tech 2016 and Saudi Build-The PMV Series 2016.

Returning for its 19th international edition, Saudi Stone-Tech will gather a mix of top distributors, suppliers, manufacturers,

agents and professionals in the sector from across Saudi Arabia, the region and the world.

Saudi Build-The PMV Series 2016, the 7th International Exhibition for Construction Equipment, Plant, Machinery and Vehicles,

The event will bring three exhibitions under one roof, combining Saudi Build with Saudi Stone-Tech 2016 and Saudi Build-The PMV Series 2016.

is set to attract the biggest and the most prominent local and international companies along with a large number of visitors, according to the organisers.

Held under the patronage of Saudi Arabia's Ministry of Municipality & Rural Affairs, the event aims to present a platform for companies to present their latest products and techniques in front of an audience of industry professionals from around the region.

"The feedback has been very positive – it is better than last year, with perfect organisation. We are satisfied with the outcome and received many high quality visitors on our stand. We will be here again in 2016," said Besser - USA international sales manager Mike Munro, who participated in the 2015 edition, which saw 16,274 visitors with 875 exhibitors from 21 countries. ■

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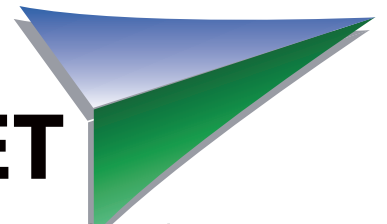
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The Middle East's biggest infrastructure events – PMV Live and MEC – will take place simultaneously with The Big 5 Dubai.



According to the organisers, exhibiting companies closed deals for approximately US\$3mn during the 2015 edition. (Photo: dmg events)

A RECENT DELOITTE REPORT estimated the total value of planned projects in the GCC at US\$3 trillion. Along with numerous megaprojects across the region, events like Expo 2020 Dubai and 2022 FIFA World Cup in Qatar are boosting local infrastructure development, leading to an increased demand for concrete and plant machinery.

The commitment of regional governments towards economic diversification is, in fact, translating into a renewed impetus of the construction sector, accounting for 52 per cent of the projects, followed by transport (19 per cent) and power (11 per cent).

The event, taking place from 21-24

November, will see the Middle East's biggest infrastructure platforms – PMV Live and Middle East Concrete (MEC) – gather major regional and international construction industry players under one roof at the Dubai World Trade Centre to capitalise on this growing business trend.

Organised by dmg events and co-located with The Big 5, PMV Live and MEC will build on a successful 2015 edition, which saw the participation of 32,792 visitors from 134 countries, over 400 exhibiting companies and more than 200 media attendees.

This year, the show is set to be even bigger: a new floor plan with over 15,000 sq m indoor and 9,000 sq m outdoor space that

will provide attendees with an opportunity to network, learn about latest industry trends, and boost their businesses.

The organisers also revealed that exhibiting companies closed deals for at least US\$3mn during the 2015 edition. Last year, both shows welcomed a record number of 450 exhibitors from 33 countries.

PMV Live and MEC event director Nathan Waugh said, "This figure is tangible proof of how the shows turn market opportunities into real business, being a strategic and unmissable event in the region."

According to MEED, contract awards for 2016 stand at US\$140bn, with the UAE and Saudi Arabia leading the market.

PMV Live and MEC will feature private meeting rooms, machinery showcases, free CPD certified educational sessions, live demonstrations, and direct road access to offer exhibitors and visitors an enhanced experience at the only infrastructure event in the Middle East. ■

Last year, exhibiting companies closed deals for at least US\$3mn, organiser dmg events revealed.

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Renewables now form an important part of GCC governments' strategies to diversify the domestic energy mix, with the region's consumption anticipated to grow rapidly over the next two decades.

AS INTERSOLAR MIDDLE East gets ready to debut in Dubai, leveraging the opportunity for job creation within the industry will be the major focus of the event from 19-21 September.

Intersolar Middle East will be held under the patronage of UAE minister of energy Suhail Al Mazrouei and will include a wide range of educational workshops and features aimed at providing key insights into global best practices.

"With the scale of solar energy projects in the pipeline, the GCC region continues to be a global energy leader. The solar industry can also drive local economic growth and job creation. As that happens, the need for qualified and experienced professionals will be immense," says Rabia Ferroukhi, deputy director of knowledge, policy and finance, International Renewable Energy Agency.

Last year, the solar industry was expected to create 1,000 new jobs in two years, but that figure could increase further as governments seek to step up efforts to diversify economic activity and capitalise on record low solar energy costs and as oil prices remain volatile.

Education workshops are to be delivered by experts in the fields of system design, installation, commissioning and maintenance, with a particular focus on how emerging trends are creating synergies across the national development agenda, higher education, and the demand for skills.

Toufic Hawat, research director at Middle East Solar Industry Association (MESIA), adds, "With solar PV projects becoming profitable proposition, countries across Middle East and North Africa (MENA) have been incentivised to launch an increasing number of PV programmes to support a booming electricity demand.

"The growth of utility-scale solar projects in the region has helped the continued development of innovative technologies and services that are further driving down the cost of solar products, offering the

The GCC countries are richly endowed with renewable resources and benefit from strong regular sunshine and the space to develop large solar power plants. (Photo: Intersolar Middle East)



rapidly growing region a valuable and economically viable energy alternative to conventional fossil fuels. Most of the GCC countries have committed billions of dollars in new clean energy projects over the last four years, which has attracted companies to bring in new ideas, technologies and more investment into the region."

The GCC governments are looking to step up efforts to diversify economic activity and capitalise on record low solar energy costs.

According to reports, more than US\$3.5bn was spent on regional solar projects in 2015, following the blueprints of UAE Vision 2021, Saudi Arabia Vision 2030 and Oman 2020, among others.

With 200-plus world leaders, including energy ministers from the UAE, Jordan and Egypt set to attend the Global Solar Leaders' Summit during Intersolar Middle East, thousands of companies will showcase their latest innovations in solar technology during the three-day exhibition.

Both the exhibition and conference will focus on the areas of PV, PV production technologies, energy storage systems and solar thermal technologies. Intersolar Middle East is organised by Solar Promotion International GmbH, Pforzheim, Freiburg Management and Marketing International GmbH (FMMI) and dmg events Middle East and Asia.

In conjunction with GulfSol, Intersolar Middle East is a dedicated international exhibition and conference for the Middle East solar industry. ■



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IEE looks to push Iran's electricity sector

As the global markets open their doors to Iran, the annual event in November aims to spur better business opportunities locally and internationally.

THE 16TH INTERNATIONAL Electricity Exhibition of Iran (IEE), which will focus exclusively on national electrical industry, will be held from 5-8 November 2016 in Tehran International Fair Ground.

Iran has recently devised plans worth US\$30bn for developing its power infrastructure in the coming five years, which include building power plants, repairing and upgrading current ones, as well as developing and making the power grid smart, Iran's minister of energy Hamid Chitchian has revealed.

According to *Tasnim News Agency*, the country's electricity industry currently ranks 14th in the world and first in the Middle East in terms of electricity generation.

Mehr reported that with the connection of Gol Gohar Combined-Cycle Power Plant (CCPP), a natural gas-fueled power plant in the southern province of Kerman, to the Iranian national grid in August 2016, the country's nominal capacity to produce electricity has reached 75,365MW. "We expect the output to hit 125,000MW in 10 years," Chitchian added.

Also, as part of the drive to reduce the energy sector's role in air pollution, a number of gas-fueled power plants in Iran are being replaced with combined-cycle plants. A CCPP uses both gas and steam turbines to produce up to 50 per cent more electricity from the same fuel than a traditional simple-cycle plant. The waste heat from the gas turbine is routed to the nearby steam turbine, which generates extra power. The CCPP efficiency hovers



The attendee list includes, and is not limited to, electrical companies, equipment manufacturers and vendors. (Photo: IEE)

around 60 per cent and they constitute 25 per cent of Iran's power generation. However, the minister stated that it may go up to 50 per cent in five years.

"Iran is trying to replace as much as possible old gas power plants with new combined-cycle versions," he added.

Iran also expects to have actualised 5,000MW of the power generated from renewable sources. "So far contracts have been signed for creating 1,000MW renewable energy power plants. Companies from Denmark, Germany, Spain, the UK and China have also visited Iran, holding talks for new contracts," the minister revealed.

He said the average efficiency of power plants in Iran stands at 37.7 per cent, but added that the number will improve in five years' time.

"Iran will use new turbines of classes F

and H with efficiencies around 40 per cent. We are producing class E power plants with efficiencies of 33 per cent."

As Iran tries to push its power generation market, according to Management and Trade Solutions Company, organisers of IEE, the event will give the country a much-needed boost in achieving self-sufficiency. The objective of the event is to act as a comprehensive resource for the industry, its members, prospective business visitors and customers by providing in-depth information about the industry and the latest trends influencing its progress.

The attendee list includes, and is not limited to, electrical companies, equipment manufacturers and vendors. The event will offer participants the opportunity to network, learn about new technologies and techniques, exchange ideas and discuss about industry trends.

Some of the benefits include companies sharing knowledge, building vendor relationships and working with prominent electrical companies to enhance their market spread; good exposure in terms of potential customers and business generation; a platform for business collaborations, deals, product launches, brand building and more. ■

Iran is currently exporting around 12bn kWh of electricity to its neighbours each year, while imports stand at an annual level of four billion kWh.

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The power behind Lebanon

FG Wilson has sold more than 30,000 gensets in partnership with its dealers until now and is optimistic about its growth in the country.

F G WILSON GENERATOR sets have been a familiar sight across Lebanon over the last few decades and they have played a major role in contributing towards the country's economic reconstruction. This year, FG Wilson marks its half century and a few other major anniversaries.

FG Wilson offers a full range of generator sets up to 2,500 kVA but the average product comes in at about 150 kVA and it is these compact generator sets for which FG Wilson is probably best known. The generator sets trace origins back to the 1980s with the launch of a new, and during that time, innovative range of high volume, ready-to-run, standard generator sets.

FG Wilson managing director Ann Brown says that this was a game changer. "We probably did not realise it at the time, but FG Wilson revolutionised an entire industry with a new approach to manufacturing and marketing generator sets, developing self-contained small power units, which were easy to buy and operate and required a minimum of installation work. Before this, the industry was populated by small, bespoke operations, but FG Wilson's approach to design, quality, manufacturing and service took the industry to a new level."

Soon, agreements were signed with major suppliers, particularly Perkins, and 30 years ago in 1986, FG Wilson became Perkins first electric power OEM. "That close working relationship continues today with validation and testing data shared between the two brands," Ann reiterates.

"In the 80s, FG Wilson revolutionised the industry with developing self-contained small power units."

The new ready-to-run products were perfect for the Lebanese market. FG Wilson had been present in Lebanon since the late 1970s, and when most Western companies were exiting the market, FG Wilson took great care to maintain the same presence in Lebanon, even during the difficult times of the early 1980s.

In 1986, dealers including A.R. JUBAILI & CO, who have been the mainstay of FG Wilson's presence in Lebanon, were also appointed. Today A.R. JUBAILI & CO are a full service dealer offering the complete FG Wilson range of generator sets including P Models (Perkins-powered), F Models (FG Wilson-powered) and power solutions for projects. The service include a full range of pre and



According to Ann, Lebanon today, feels more like a home market for FG Wilson. (Photo: FG Wilson)

after-sales support including installation and commissioning, on-site support, preventive maintenance contracts, 24/7 emergency call-out support for repair and overhauling, warranty and parts across the entire FG Wilson product range.

Service and support play a big part at A.R. JUBAILI & CO's business. Loyal Shoumar, operations and corporate strategy manager at A.R. JUBAILI & CO, states, "People have very low tolerance of power outages today, especially those who have grown up with the internet and expect instant telecommunications connection. When you buy an FG Wilson generator set today, you get a quality product and the same level of service as you would see in the automotive industry. In other words it is a complete lifetime support. It is as close as you get to a guarantee of power."

Ann echoes this point. "It is very easy to think of a generator set only in terms of the engine inside and while that is important, our global research indicates that an engine in a generator set only accounts for about one in four after-sales support needs. You need a supplier who can fully support the entire package. A.R. JUBAILI & CO has been outstanding service partners for our Lebanese customers."

Today, Lebanon feels more like a home market for FG Wilson. Over 30,000 generator sets have been shipped there since 1990, with a total power output of 3GW, which is greater than the local installed mains supply.

But there's no resting on laurels. Ann maintains, "We cherish the past but we're also looking forward to the future. Yes, there's a lot of uncertainty in the world right now, but we live in an exciting and demanding world with a growing need for electric power and we are designing products and services aimed squarely at meeting those needs." ■

The Power Behind Lebanon

Since the 1970s, FG Wilson generator sets have been hard at work across Lebanon, quietly guaranteeing electric power.

In Lebanon, over 30,000 FG Wilson generator sets have been installed since 1990 alone, with a combined electric power capacity of 3GW, more than the installed capacity of the entire Lebanon mains supply.

A.R. JUBAILI & CO. uphold that strong heritage today, offering the complete FG Wilson generator set range including P Models (Perkins-powered), F Models (FG Wilson-powered) and power solutions for projects, together with a lifetime of service to customers.



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Focusing on switchgear maintenance

IN RECENT TIMES, there has been a paradigm shift in the outlook of regional utility sectors with the drive to conserve energy and curb excessive power wastage. A key factor is the financial strain on landlords and building owners, but of particular significance is the load placed on utility authorities to maximise resources to keep up with the surge in energy consumption, particularly during the peak summer months. Many regional utility authorities are endorsing maintenance of switchgear equipment and particularly the servicing of capacitor banks; the average lifespan of a capacitor bank is 100,000 working hours or approximately 12 years. Neglected for a long time, they are gaining an all-important role now in ensuring energy wastage is kept to a minimum. While growth of the switchgear sector in the GCC is projected at a CAGR of six per cent over the next five years, the switchgear maintenance market is expected to grow at an accelerated pace.

At Powertech Switchgear, the service team is engaged in projects across Dubai,

Abu Dhabi, and Northern Emirates. The company is certified by SEWA (Sharjah Electricity & Water Authority) to provide capacitor bank maintenance services in the Emirate of Sharjah. Each site warrants a different approach depending on the age of the equipment, network of load and other factors. Powertech Switchgear is also approved by Abu Dhabi Distribution Company (ADDC) and EWA (Electricity & Water Authority, Kingdom of Bahrain) to supply capacitor banks. At Powertech Switchgear, the capacitor banks are fully type-tested up to 450kVar and the company supplies to projects across the GCC.

Capacitors, reactors, controllers and other components are sourced directly from Europe and are fully type-tested to meet the local regulatory requirements. Maintenance services provided by Powertech Switchgear include troubleshooting, rectification of faults and renovation of equipment. Old equipment in particular is usually overlooked, and landlords often encounter various problems including burnout, due to lack of maintenance. In some cases, a



The average lifespan of a capacitor bank is 100,000 working hours.

complete overhaul of the capacitor bank is required in order to curb the excessive wastage of power.

Megger introduces SPI225 high current primary injection test system

MEGGER HAS LAUNCHED the model SPI225 high current primary injection test system for all forms of high current testing required in a substation. This includes testing overcurrent relays, circuit breakers, motor overloads and current transformers.

The SPI system is the first high current test system to permit a user to type in a predetermined current, whereby the SPI system will generate and regulate the requested high current without preheating the test sample, by pulsing the output current at high currents.

The SPI system also has the unique ability to turn on at the current zero crossing every time for any load by automatically adjusting the output firing angle. This eliminates DC offset for every circuit breaker type and the need for the user to determine and adjust the firing angle for different loads and circuit breakers.

All SPI systems are fully automated and/or manually controlled. The Smart Touch View Interface (STVI) permits users to manually control the unit and also perform automated testing. The SPI unit can also be controlled by a PC for fully automatic testing and report generation.

Universal in application, the SPI225 has the ability to perform high current commissioning tests as well as test low-voltage molded-case circuit breakers. A single SPI225 is designed to test low-voltage molded-case circuit breakers up to a rating of 225A.

The key features and benefits are the ability to generate up to 2,000A for seven seconds or 500A for 30 minutes. Ampacity can be increased by simply stacking multiple units together. More current can be obtained by adding additional units together in

The Megger SPI225 high current primary injection test system.



parallel. Two units in parallel will test a 400A breaker and generate 4,000A, and three units in parallel will test a 600A breaker and generate 6,000A.



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Pramac launches new generator series for rental market

TO MEET THE needs of the rental companies, PRAMAC has developed a new range of mobile diesel generators – the GRW series. According to the company, the GRW series can work in a wide variety of applications where temporary power supply is needed.

PRAMAC also claims that as a result of the versatility, high efficiency and high structural resistance, this range of generators is the ideal solution for rental companies.

The GRW series rely on the last generation components and this enables it to offer a wide range of supplements to meet the most demanding applications from events to oil and gas industry.



The GRW series is conceived to work in a wide variety of applications where temporary power supply is needed. (Photo: PRAMAC)

It has low environmental impact due to low noise emissions and fully bundled base frame able to retain 110 per cent liquids,

With a power from 20 to 560 kVA, they are provided with EU Stage 3A engines and brushless alternators.

complete with leak detection sensor, a company press release stated.

It also features a wide access doors, fork lift pockets, large and user-friendly control panel and canopy panels with cutting-edge washable soundproofing material for ease of use and maintenance.

The generators come with long lasting and long running due to 1000+H tested salt spray resistant canopy and large metal fuel tank (at least 20/24h autonomy depending on genset model) with internal baffles.

INMESOL provides gensets in Libya

POWER SOLUTIONS PROVIDER INMESOL has supplied its distributor in Libya, Assalam Addaem, with gensets from 6 kVA to 160 kVA LTP in the portable and standby ranges.

According to the Spanish genset manufacturer, these gensets will be used in construction works currently taking place across the North African country.

“The gensets play an important role in this period and there is no doubt about how helpful the reliability of the energy supplied by these gensets will be in the facilitation of this construction works,” INMESOL said in a press release.

It also stated that Assalam Addaem is a company with an extensive experience in engines and gensets. “It offers an excellent technical and post-sales support that guarantees their clients the swift maintenance and repair of the equipment purchased due to the wide range of spare parts in stock at their facilities,” INMESOL reiterated.



A display of different ranges of gensets at INMESOL SL's facilities. (Photo: INMESOL)

Terex Trucks haul deep in Jordan



The country is the world's fifth largest producer of phosphates. (Photo: Terex Trucks)

JORDAN'S LARGEST PHOSPHATE mining contractor – COMEDAT – is using 90 Terex Trucks machines across three sites to mine phosphate in the north and south of the Middle Eastern country.

Phosphate is commonly used in fertiliser and Jordan is the fifth largest producer of phosphates globally with an estimated 1.3bn tonnes of the mineral reserves.

The company owns one of the largest fleets of Terex Trucks' haulers in the world, consisting both 100-tonne capacity TR100s and versatile 60-tonne TR60s.

According to the company, the Terex Trucks machines work round-the-clock. The trucks provide good rim pull due to a resilient drive train and rear axle configuration that are used to haul overburden removal.

“Terex Trucks delivers excellent performing machines,” said Sameh Dababneh, CEO of COMEDAT, adding, “From experience, no matter how hard I push the trucks they keep on going, so over the years whenever I have expanded my fleet there is only one company I look to. The trucks are simple, reliable and durable. It is a tough running vehicle and works with very basic maintenance.

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New Bobcat backhoe loader range for Middle East and Africa

BOBCAT HAS LAUNCHED a new range of backhoe loaders for Middle East and Africa (MEA) markets. Comprising four models – the B700, B730, B750 and B780 – the new Bobcat backhoe loader range offers a choice of different specifications for applications in construction, utility, rental, roadwork, demolition, excavation and agriculture.

All the models are powered by Perkins 1104C-44T 4.4 l engine with direct fuel injection and output of 74.5 kW (100 HP) of power at 2,200 rpm and maximum torque of 408 Nm at 1,350 rpm, while delivering low operating costs due to lesser fuel consumption. With a high-quality filtration system, the Perkins engine ensures longer life, and its single-side service components mean that maintenance is easy.

The standard two-year powertrain warranty adds to the reliability and durability of the components and the design of the powertrain in the backhoe loaders, providing extra protection and peace of mind. Also, there is a choice of four-speed synchroshuttle, powershift or auto



The low-effort loader joystick controls in the B750 provide control and comfort to enable operators to work for longer periods, thus increasing productivity. (Photo: Bobcat)

powershift transmissions in the models to meet various applications.

All the models have an open centre hydraulic system and are equipped with tandem gear pumps with high flow capacities of 136 litres/min in the B700 and 154 litres/min in the B730, B750 and B780 models, respectively. An unloader valve is standard in all the models as is the electrohydraulic differential lock, with a limited slip differential being used on the

B730 and B750 models. All the new Bobcat backhoe loaders are supplied with class-leading Michelin tyres. The B700 is an entry-level machine, which includes many of the features of the next model in the range, the B730. Driven via a synchroshuttle transmission, it has cab and canopy and two-wheel drive or four-wheel drive options.

The B730 is driven through a standard powershift transmission, and controlled by mechanical levers. This model is equipped with 18-inch front tyres and has two-wheel steer. Double loader bucket cylinders provide superior breakout force and reduce maintenance costs by using a bolt type cylinder head design. The B750 has the same features as the B730, except for 20-inch front tyres and a hydraulic joystick control system.

The B780 has the same features as the B750 and is driven through a standard auto powershift transmission, producing a manoeuvrable, four equal-sized wheel backhoe loader that can be steered using three different modes: two-wheel steer, four-wheel steer and crab steer.

UD Trucks unveils a new truck range for the Middle East

JAPANESE HEAVY TRUCKS manufacturer UD Trucks has unveiled a range of trucks specifically built for the Middle East region. Launched in Saudi Arabia, Qatar and Oman, the all-new Quester is a modern and robust heavy-duty truck platform designed to serve a wide range of applications including construction, distribution and long-haul transportation.

According to the company, the launch of the new range is a major step in UD Trucks' history, which has seen it become the first Japanese truck brand to enter the region.

The Quester range provides world-class fuel efficiency, reliability and durability with a wide range of applications and variants at affordable prices, making this unique combination of the best of three worlds, the company added.

Commenting on the Quester's arrival in the Middle East, Lars-Erik Forsbergh, UD Trucks' president in Middle East, said, "With the new Quester, we have

built on our tradition of reliability and durability to launch our new customer promise, 'going the extra mile'. I am confident that Quester will be a big game-changer for UD Trucks. More than 400 experts from around the world, with extensive knowledge and experience, have been involved in designing, developing and validating Quester and its associated services. The team has spent over a million engineering hours and 65,000 tests hours to build the ultimate trucking machine."



All-new truck range specifically developed for the regional market. (Photo: UD Trucks)

Three Quester units were also tested by six customers in Saudi Arabia's Jeddah and Riyadh for more than six months. The three units – a water tanker, a tipper and a garbage compactor – were tested in real working conditions by customers and the feedback was positive. The trucks are made to operate in rough working conditions like dusty, hot environments and challenging roads.

"The Quester range has truly exceeded our expectations. Its performance never ceased to impress. Even during the soaring

heat of the summer and dusty conditions, the performance was excellent.

"The gross vehicle weight of 34 tonnes and the net vehicle weight of 26 tonnes make the truck very suitable for our field operations, especially since we deal with waste collection and city sanitation. We are currently in the process of ordering 50 more waste compactors, which will be the UD Trucks' Quester,"

said Abduljwad Al Qenawi, materials management manager at Ahmed Soliman Al Fahhad & Sons Ltd.

The strong and robust Quester range also offers telematics hardware: a wireless communication tool that allows the trucks to collect information from the truck while it is on the road.

With this, UD Trucks can assist its customers with a variety of services, including breakdown assistance, preventive maintenance analysis and corrective service scheduling.

Developing the Suez Canal Corridor

A NEW ROAD tunnel up to 25 metres, below the bed of the Suez Canal and 70 metres below the ground level, is currently being built north of the city of Ismailia in Egypt, midway between Port Said and the Suez alongside the Suez Canal. The Ismailia road tunnel is a twin tube road tunnel that will cross the existing and new Suez Canal. The project is part of the investments made in the context of the Suez Canal Corridor Development Project.

Bauer Egypt SAE, the Egyptian subsidiary of Bauer Spezialtiefbau GmbH, has been carrying out the specialist foundation engineering works as subcontractor for the joint venture between Egypt-based companies Petrojet and Concord for Engineering & Contracting and on behalf of the



The twin-tube Ismailia road tunnel is scheduled for completion in 2018. (Photo: Bauer)

Egyptian client Engineering Authority-Armed Forces-Military Engineers Administration since May 2015.

For the ventilation system in the tunnel, Bauer is constructing four shafts with a depth of up to 85 metres and a diameter of 21 metres using diaphragm wall technology; additionally, a diaphragm wall around 110,000 sq m in size and up to 50 metres deep to serve as start and target shafts for the tunnel boring machine is also being constructed.

The scope of works also includes the construction of a soft gel blanket covering 21,250 sq m and the installation of 150 temporary anchors. Among other equipment, a BAUER MC 128 and an MC 96 duty-cycle crane, both equipped with a BC 40 cutter, are being used along with two BAUER BG 28 drilling rigs.

Once completed in 2018, the twin-tube Ismailia road tunnel, including the tunnel approaches, will stretch approximately six kilometres underneath the Suez Canal.

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RANCO and ZOOMLION join hands



ZOOMLION entered the Saudi Arabian market with its first crane in 2002 and has since then exported more than 1,000 units of equipment with more than 600 units of cranes to the Kingdom. (Photo: RANCO)

Chinese equipment manufacturer ZOOMLION eyes deeper penetration into the Saudi Arabian market with Rabiah & Nassar Group's (RANCO) support.

RANCO HAS RECENTLY announced that it has entered into an exclusive dealership with Chinese construction machinery manufacturer ZOOMLION to distribute its rough-terrain category of cranes in Saudi Arabia.

ZOOMLION is a Chinese manufacturer mainly engaged in developing and manufacturing major high-tech equipment for agricultural, building, energy, environmental and transport engineering. With revenue of over US\$4bn, it is one of the largest equipment manufacturing company in China, reveals the company.

Through the cooperation with RANCO, ZOOMLION will focus on the products that are suitable for the market along with service and spare parts support.

According to ZOOMLION, the Middle East is a key market and Saudi Arabia covers more than 50 per cent share in the region for the construction machinery. It is also one of the biggest markets for rough terrain cranes. ZOOMLION entered Saudi Arabia with its first crane in 2002 and has exported more than 1,000 units of equipment with more than 600 units of cranes to Saudi Arabia since then.

Commenting on its market in Saudi Arabia, the company said that its performance was supported by local partnership with RANCO. "ZOOMLION is

functioning on a globalisation strategy that depends on partnerships with local establishments. The company and its agents have developed a long-term development strategy for the Saudi Arabian market involving providing incentives to customers in areas such as price, financing, services, and accessories, and continuing promotional events in Riyadh, Dammam and other cities to drive on-going sales of ZOOMLION earthmoving products," the Chinese manufacturer reiterated.

ZOOMLION also stated that it was

**RANCO has
invested more than
US\$10mn in the
market that include
opening new
facilities and
implementing new
sales strategies and
methodologies.**

confident about the future of Saudi Arabia and that it was firmly committed to contributing to the development of the construction sector in Saudi Arabia.

RANCO has invested more than US\$10mn in the Kingdom including opening new facilities and expanding the work force as well as implementing new sales strategies and methodologies.

Established in 1950 in Khobar City, RANCO began operations as a road-building contractor. It is currently one of the biggest conglomerates in Saudi Arabia and has in the recent years stepped up its diversification process in order to maintain a strong position in the Saudi market.

RANCO Commercial Division (RCD) diversified its operation in the Eastern Region in 2013 as a subsidiary of RANCO Group.

According to the company, the RCD is an innovative and dynamic rapidly growing division specialised in managing, trading, servicing and rental of construction, material handling and mobility equipment.

As the exclusive dealer of ZOOMLION RT Cranes and other leading construction and material handling equipment manufacturers, RCD has established an operational base in Khobar with branches in Riyadh and Jeddah that caters to the entire Kingdom. ■

Gareth McMurray, Regional Manager METs

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Siemens' smart building tech can reduce GCC's cooling bill

SIEMENS HAS INTRODUCED two key technologies for building management and district cooling, which according to the company, can reduce the amount of energy required for cooling by up to 40 per cent.

"Cooling is considered to be responsible for approximately 70 per cent of the GCC's electricity demand during peak summer months, so it is extremely important that we evaluate the entire cooling chain to identify where technology can generate savings," said Siemens Middle East building technologies division senior executive vice-president Koen Bogers.

He added that digital technologies have huge potential to make cities more sustainable, and that the company had proved it was possible to almost halve the energy used for cooling by applying two technologies to the supply and demand sides.

Siemens Demand Flow technology uses specialised algorithms to optimise the entire chilled water system of a cooling plant, delivering energy savings of between 15 and 30 per cent.

According to the company, by simplifying operations, increasing the cooling capacity and improving efficiency, the system is able to reduce flow in periods of lesser demand, lowering operation and maintenance costs and significantly lowering energy use. The system is already in place at Wafi Mall in Dubai.

The second technology – Desigo CC – is a building management platform that reduces energy usage by controlling and optimising a building's systems including ventilation, air conditioning, lighting, shading, fire safety and security services. The impact on a typical building is a saving of between 10 and 25 per cent of the energy required for cooling, the company said.



Cooling accounts for approximately 70 per cent of the GCC's electricity demand during peak summer months. (Photo: Panya7/fotolia)

Earlier versions of the Desigo building management platform have been implemented in numerous buildings across the Middle East including Sheikh Zayed Grand Mosque in Abu Dhabi, Qatar's Tornado Tower, Atlantis Hotel in Dubai and Siemens' own regional headquarters in Abu Dhabi's Masdar City.

"Aside from the clear environmental benefits, there is also a very strong business case for these types of technology," says Bogers.

"At Dubai's Wafi Mall, our Demand Flow solution achieved a 30 per cent saving on utility costs in its first year, representing an annual cost saving of some US\$439,000 with a guaranteed payback period of two-and-a-half years," he states.

With 100+ reference projects, Mosdorfer eyes expansion in the Middle East

AUSTRIAN COMPANY MOSDORFER, which specialises in the development and manufacturing of power network fittings and damping protection systems for overhead transmission lines up to 1,200 kV, has been expanding its presence in the Middle East market.

In the Middle East, the company has already more than 100 reference projects. Over the last ten years, the experts of Mosdorfer have supplied customers in the

UAE, Oman, Kuwait and Saudi Arabia with hardware fittings from 110 kV to 400 kV for all types of insulators and various types of conductors. In the product segment of damping systems, Mosdorfer has been present under its brand name Damp for more than 35 years.

According to the company, approximately one million Damp spacer dampers of various types have been installed in the GCC countries.

"Persistence in product optimisation and improvement of services make Mosdorfer a reliable and future-oriented partner for the energy industry not only in the Middle East, but also worldwide," states the company.

Mosdorfer's product range comprises of fittings for overhead transmission lines, damping systems, insulators and end fittings as well as fittings for high-temperature conductors up to 1,200 kV. The latest hi-tech simulation by the company based on broad experience allows the development of safe products in shortest time. Mosdorfer also offers complete turnkey systems as well as customised components always adapted to local conditions, according to the company.

Mosdorfer, which has been in business for more than 65 years, is today active in more than 70 countries across the world and is a strategic partner for the global energy industry, utilities, grid companies and contractors. This global presence is supported by its company locations in Austria, Italy, Slovakia, the UK, the USA, India and Thailand.



Mosdorfer specialises in the manufacture of power network fittings and damping protection systems for overhead transmission lines. (Photo: Mosdorfer)



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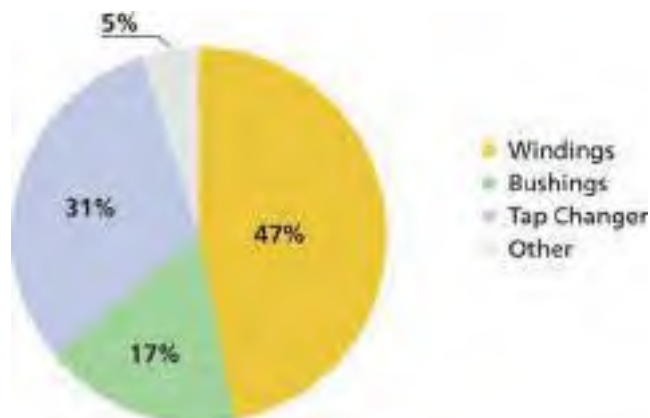
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Timely and right diagnostic a must for 'healthy' transformer

WITH ADVANCING AGE, transformers require regular checks of their operating conditions. An internationally conducted survey on power transformer failures in substations found the majority of the failures in windings, bushings and tap changers. The most frequently reported failure modes were dielectric, electrical and mechanical.

Several tests can be performed to determine the condition of power transformers and dissolved gas analysis (DGA) is one of the examples for routine testing. Other electrical values like winding and



The table shows that the majority of failures are reported to have occurred in windings, tap changers and bushings.

insulation resistance, no-load current or capacitance and dissipation/power factor at line frequency are also periodically measured on site. Online monitoring systems were introduced to gather current data about voltage, current and temperature. These systems can help to recognise changes in the transformer condition.

In power transformers, paper and pressboard immersed in oil is the predominant insulation system used today. The dielectric property of this insulation is dependent on temperature, oil conductivity, geometry and water content in the paper and pressboard. In the past, the dissipation or power factor was measured at line frequency (50 or 60 Hz) only. Investigations, however, show that the influencing factors become more dominant at different frequencies and measurements over a wider frequency range can be employed to increase the sensitivity of the method.

DGA is, perhaps, the most widely accepted and used measurement routinely performed on transformers. Determining the gas concentrations and rate of change in the oil has proven to be meaningful in indicating a fault. Especially, if increased proportions of hydrogen (H₂) and hydrocarbon gases are detected, the fault must be located soon. Additional diagnostic methods such as dielectric, electrical and mechanical may also be required to identify faults.

Omicron recommends, whenever possible, to use different test methods to confirm fault conditions indicated by the initial measurement. This may save a lot of time and money before committing to cost intensive maintenance measures.

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Gensets Buyers' Guide

2016

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

Section One: International and regional suppliers of Gensets

Section Two: Contact details of Middle East agents & subsidiaries listed by country, page 86

Section One: Suppliers of Equipment and Services

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Via Molinello 8B, Jerago Con Orago
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Fax: +971 4 2857512
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Kirloskar JLT

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Jumeirah Business Centre 5
Jumeirah Lake Towers, Dubai
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Fax: +971 4 8810593
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Jebel Ali Free Zone (South 2)
Dubai, 262796
Tel: +971 4 8143700
Web: www.scania.com

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Internet City, Dubai
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Fax: +971 4 4586985
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E-mail: alahlasi@hotmail.com

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E-mail: al-ahram@y.net.ye

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PO Box 55811, Gamal St. Taiz
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Fax: +967 1 207596/213380
E-mail: elaghil@y.net.ye

Italian construction company ventures into the UAE market

TWO OF ITALY'S leading construction companies, Cimolai and Rimond, have formed a joint venture headquartered in the UAE, with the aim of bringing 360° advanced architectural, turnkey, manufacturing, engineering and project management solutions to the region.

The new initiative, Cimolai Rimond Middle East, operating from its regional base in Abu Dhabi's Masdar City, offers complete turnkey construction based on the latest advances in integrated project delivery solutions using building information modelling (BIM) technology.

"We tailor solutions with bespoke BIM systems and are truly innovating by using advanced manufacturing tools like 3D printing with our allied partner, Italy's World's Advanced Saving Project (WASP). The sustainability benefits of 3D printing are game-changing, because it reduces transportation requirements and waste and enables extensive use of bio-based materials," Cimolai Rimond Middle East country manager/projects director Robert Di Franco said.

Both parent companies have previously been involved in significant projects in the

UAE. While the Cimolai was involved in the delivery of Doha's landmark Aspire Tower and the giant maintenance hangar at Hamad International Airport, Rimond was the construction contractor for the showpiece, Foster+Partners designed UAE Pavilion for Expo Milano 2015.

The company also aims to share its knowledge bank with regional professionals. Di Franco added, "As pioneering industry educators, we look forward to transferring our knowledge to the region with initiatives such as an online academy, to develop local talent."

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نموذج واحد يحسن الاتصال بين فريق التصميم والإنشاء

المعلومات المتوفرة في قاعدة البيانات يمكن أن يساعد على زيادة كفاءة الجميع وتوفير فرص جديدة لزيادة العائدات. إن استخدام النمذجة، بدلا من الرسومات، يمثل نمودجا جديدا لتعزيز التعاون والابتكار وتوفير مدخرات جديدة خلال فترة التشييد والبناء. وتشمل الفوائد الناتجة عن ذلك ما يلي:

- تعزيز التعاون في تنفيذ المشروعات ومراقبتها فيما بين أصحاب المصالح.
- تحسين الإنتاجية وزيادتها.
- تحسين أداء المشروعات وجودتها.
- إنجاز المشروعات على نحو أسرع.
- تقليل الخسائر.
- خفض تكاليف الإنشاء.

توفير مصادر دخل وفرص تجارية جديدة. وختاماً، تمثل هذه الأوقات مرحلة التحدي بالنسبة لنا في سوق الإنشاء والتعمير، وذلك نتيجة لتوسع قوى السوق المختلفة في هذا المجال. فالاستفادة من تقنية نمذجة معلومات البناء عبر هذه المشروعات الضخمة التي يجري تنفيذها في المنطقة، ستؤدي دورا هاما في إنجاز هذه المشروعات في الوقت المحدد وتسليمها على وجه السرعة. ويمكن أن يساعد حل التصميم المتطور هذا في تصور دورة حياة تنفيذ المشروع وتحليلها ومحاكاتها حتى قبل إقامة مراسم وضع حجر الأساس. كما أنها تضمن تسليم المشروعات الضخمة المحددة بوقت مثل معرض إكسبو ٢٠٢٠ أو استادات استضافة نهائيات كأس العالم لكرة القدم ٢٠٢٢ بنجاح في الوقت المحدد وبجودة عالية وتكاليف منخفضة، وذلك من خلال توقع العقبات والتحديات، وبالتالي تقليل التغييرات المحتمل تنفيذها في المراحل اللاحقة خلال دورة حياة تنفيذ المشروع إلى أقصى قدر ممكن.

معلومات البناء ذات قيمة في عملية تطوير مبان أكثر استدامة والنظم المتعلقة بها. وحيث إن التصميم المستدام أصبح المعيار وليس الاستثناء، فستبرهن قدرة تقنية نمذجة معلومات البناء على حفظ كميات كبيرة من البيانات المتعلقة ببيئة البناء ومعالجتها على أنها أداة لا تُقدر بثمن.

فوائد تقنية نمذجة معلومات البناء

لا بد من الإشارة إلى أن فوائد تقنية نمذجة معلومات البناء لا تقتصر على الرسومات فحسب. ففي الواقع، تمثل تقنية نمذجة معلومات البناء مستودع بيانات لتصاميم البناء والمعلومات الخاصة بالتشييد والصيانة مُجمعة في نموذج واحد مناسب لمشاركته مع جميع أصحاب المصالح. ونظرا لزيادة أصحاب المصالح من التزامهم بالعمل على نجاح المشروع باستخدام تقنية نمذجة معلومات البناء، فإنه ينبغي عليهم أيضا الاستفادة من هذه التقنية جنبا إلى جنب مع تقنية التسليم المتكامل للمشروع، وبالتالي الاعتماد على النمذجة وليس تصميم الرسومات فقط. وبناء على ما قد أوضحناه توطأ، فقد يؤدي عدم استخدام تقنية نمذجة معلومات البناء بشكل كبير إلى تأخر إنجاز هذه المشروعات وتسليمها، وعدم تلبية الجودة المنصوص عليها في المواصفات العالمية بالنسبة للتشييد والبناء. وكما ذكر سابقا، تُتيح تقنية نمذجة معلومات البناء للمُصنِّعين والمصممين وخبراء التكامل مزايا تتمثل في كفاءة التصميم والتحكم في الجودة. كما أن توافر نموذج واحد مترابط يعمل على تحسين التواصل فيما بين فرق التصميم والبناء، ويعمل توافر العناصر المعيارية على إنشاء قاعدة بيانات قوية. ويمكن لمالك المبنى ومدير المنشأة استخدام هذه البيانات المتوفرة ضمن هذا النموذج أثناء استعمال المبنى. كما أن الحصول على هذه

حيث التكلفة. فعمليات البناء الحالية تعتمد على الرسومات التقليدية ثنائية الأبعاد (D2) أو ثلاثية الأبعاد (D3) المُصممة بمساعدة الحاسب (CAD). ويتم الإبلاغ عن تصاميم المباني من خلال عشرات أو حتى مئات المستندات المنفصلة غير المتناسقة في كثير من الأحيان. ومع ذلك، تشمل المستندات المُصممة بمساعدة الحاسب (CAD) المعلومات الصحيحة اللازمة لتقييم التصميم الفعال ورسومات التشييد، مثل مستندات المناقصة والعقد والفواتير الخاصة بالمواد (BOM) والجداول الزمنية والمواصفات وقوائم الأسعار والكتيبات التوضيحية للتركيب والصيانة وقوائم الكابلات والمصقات. وقد أدرك الخبراء في قطاع الإنشاء أن هذه الطريقة، أو العملية، غير فعالة لتلبية مواعيد التسليم الضيقة، وأيضاً لمعالجة التعقيدات المختلفة في المشروعات الرأسمالية المُحددة بوقت. وفيما يلي بعض التحديات التي يتم مواجهتها في تشييد المشروعات الرأسمالية المُحددة بوقت عند استخدام الرسوم التقليدية ثنائية الأبعاد أو ثلاثية الأبعاد المُصممة بمساعدة الحاسب.

- الأخطاء والإغفالات في المستندات الخاصة بالتشييد والبناء.
- عدم التنسيق والتعاون بين المؤسسات المختلفة التابعة للفريق المعني بالمشروع.
- كثرة إعادة صياغة المستندات/فقدانها.
- دورات موافقة العميل البطيئة للغاية.
- التحكم في تكلفة وإدارة ميزانية المشروعات الرأسمالية الكبرى المُقدّمة والمحددة بوقت.
- التأثير البيئي والتحديات المُعددة المرتبطة بالمشروعات الرأسمالية المُحددة بوقت.

في ظل هذه التحديات الصعبة المتعلقة بمواعيد التسليم والتوقعات، تتمثل الطريقة الوحيدة، للزمي قدما في هذه المشروعات بشكل أسرع وأكثر كفاءة، في اعتماد تقنية نمذجة معلومات البناء (BIM) طوال دورة حياة تنفيذ المشروع كاملة. فقد وصف الخبراء في قطاع الإنشاء تقنية نمذجة معلومات البناء بأنها تمثيل رقمي للخصائص المادية والوظيفية لأي منشأة. وعلى هذا النحو فإنها تعمل بمثابة مورد معرفة مشترك للحصول على معلومات حول منشأة ما، مما يجعلها تُشكل أساسا يمكن الاعتماد عليه في عملية اتخاذ القرارات خلال فترة تنفيذ المشروع من بدايته إلى نهايته. كما وصفت تقنية نمذجة معلومات البناء بأنها العمود الفقري لطرق التصميم والبناء المرنة الجديدة، مثل تسليم المشروعات المتكاملة (IPD)، والتصميم الافتراضي والبناء (VDC). ويمكن من خلال هذا المفهوم المتطور المُقدم من شركة أوتوديسك، الرائدة في مجال التصميم بمساعدة الحاسب، تصميم مبنى ما افتراضيا وتشبيده وتشغيله، مما يبرهن على أنه يمثل أداة مهمة لزيادة الإنتاجية وتحسين جودة العمل كذلك في الوقت ذاته. إضافة إلى ذلك، ستكون تقنية نمذجة

كيف يمكن لتقنية نمذجة معلومات البناء (IM) إحداث ثورة في تصميم المباني

من المتوقع أن يشهد قطاع التشييد والبناء في منطقة الشرق الأوسط - خلال عام ٢٠١٦ - تقدماً تدريجياً ولكن بحذر، لا سيما مع مواجهة مشكلة انخفاض أسعار النفط. وتوسى الجهات الحكومية والمطورون أيضاً إلى الدخول إلى الأسواق بشكل أسرع بكثير مما سبق، مع الحفاظ على الميزانيات والالتزام بجداول المواعيد. ووسط هذه العوامل، فقد بدأ خبراء هذا القطاع المخاوف المتعلقة بذلك بتصريحهم بأنه بالرغم من هذه التحديات، فإن نشاط التشييد والبناء سيظل فعالاً وراسخاً، بما في ذلك الاستعدادات المختلفة للعديد من الفعاليات الدولية التي سوف تستضيفها المنطقة؛ مثل معرض إكسبو ٢٠٢٠ في دبي، ونهائيات كأس العالم لكرة القدم ٢٠٢٢ في قطر.

بنحو ٨١,٩٥ مليار دولار أمريكي بالقرب من موقع معرض إكسبو ٢٠٢٠. ويأتي في مقدمتها، موقع المعرض، الذي سيقام في مركز دبي التجاري بجبل علي، والذي من المُقدر أن يستوعب ما يصل إلى ٣٠٠ ألف زائر، بمتوسط حضور متوقع ١٥٣ ألف زائر في اليوم الواحد من الأسبوع. وفي الوقت نفسه، تستعد قطر لاستضافة نهائيات كأس العالم، لتصبح أول دولة عربية تستضيف مثل هذا الحدث، وذلك بوضع خطط طموح تتضمن بناء ثمانية استادات لهذا الحدث. وتهدف هذه الاستادات إلى توظيف تقنية تبريد بإمكانها خفض درجات الحرارة داخل الاستاد بنسبة تصل إلى ٢٠ درجة مئوية. ومع وضع ذلك في الاعتبار، فقد منحت الحكومة عقداً تبلغ قيمته حوالي ٨٥١ مليون دولار أمريكي لمجموعة شركة سالييني إمبريجيو الإيطالية لتشييد استاد البيت بمدينة الخور لاستضافة نهائيات كأس العالم ٢٠٢٢. وذلك على مساحة تبلغ ٢٠٠ ألف متر مربع ويتسع لاستيعاب ٧٠ ألف مُتفرج، ومن المُقرر أن يتم الانتهاء من تشييد هذا الاستاد الضخم في سبتمبر/أيلول عام ٢٠١٨.

التحديات التي تواجه استخدام الرسومات

التقليدية المُصممة بمساعدة الحاسب (D)

لقد أشار داعمو هذا المجال الصناعي إلى أنه من المتوقع أن يتم تسليم هذه المشروعات الرأسمالية الضخمة، المُحددة بوقت والمُقرر تشييدها في المنطقة، في الوقت المُحدد ووفقاً لأعلى مستويات الجودة والفعالية من

والبناء، وخاصة اعتماد تقنية نمذجة معلومات البناء (BIM) وتنفيذها. فتقنية نمذجة معلومات البناء (BIM) تمكن المُستخدمين من اتخاذ قرارات أكثر استنارة بشأن التصميم وبناء المباني وتشبيدها على نحو أكثر كفاءة وفعالية من حيث التكلفة، وكذلك إدارتها وصيانتها بسهولة أكبر.

وعلى النحو المذكور سابقاً، عملت استضافة معرض إكسبو ٢٠٢٠ ونهائيات كأس العالم ٢٠٢٢، على إثارة نشاط التشييد والبناء الرئيسي في المنطقة. وقد وصلت الاستعدادات لهذه الفعاليات العالمية إلى ذروتها حيث تتضمن تشييد وتطوير البنية التحتية الرئيسية التي تم تصميمها خصيصاً لاستيعاب عدد كبير من الأشخاص الذين سيزورون دبي وقطر خلال هذه الأحداث العالمية. وبالنسبة لمعرض إكسبو ٢٠٢٠، فبمجرد أن تقرر استضافة دبي لهذه الفعالية، تم بالفعل البدء في الاستعدادات اللازمة لتعزيز البنية التحتية في المنطقة استعداداً لاستضافة هذا الحدث الرائع لمدة ستة أشهر. ومن شأن هذه الفعالية، التي تتبع فكرة «ربط العقول وخلق المستقبل»، تعزيز مكانة الإمارة باعتبارها مدينة للمستقبل. وللمساعدة في القيام بذلك، تستعد دبي بتنفيذ عدة مشروعات رئيسية؛ مثل مُجمع محمد بن راشد للطاقة الشمسية، ومشروع قناة دبي وجزيرة المياه الزرقاء. وقد أوضحت التقارير الخاصة بهذا المجال الصناعي أنه من المتوقع أن تقوم دبي بتشييد مشروعات إسكان وترفيه ومشروعات للبنية التحتية تُقدر قيمتها

ومع ذلك، فقد وُجد أن المشروعات الرأسمالية الكبرى في جميع أنحاء العالم تعاني من معدل إخفاق يبلغ ٦٠ في المائة من حيث الالتزام بالتكلفة والجدول الزمني المطلوب، وذلك وفقاً لدراسة أجراها المعهد المستقل لتحليل المشروعات.

فمشروعات البنية التحتية تتسم بأنها مشروعات مُعقدة، ويشوبها تأخير في الوقت وتجاوزات في التكاليف، وذلك نتيجة لمجموعة متنوعة من الأسباب. وتشمل مثل هذه التحديات التنسيق فيما بين المشروعات المختلفة والتعاون فيما بين الفريق العامل بالمشروع، وإدارة سلسلة الإمداد، وكذلك دعم عملية التكامل.

وقد أدى هذا الأداء الهزيل إلى حدوث ركود في معدل الإنتاج في هذا المجال الصناعي، مما أدى بدوره إلى زيادة التكاليف في مشروعات البنية التحتية، وكل ذلك في بيئة تعاني من زيادة الضغوط المالية على القائمين على تسليم هذه البرامج. هذه الفجوة في الأداء أصبحت أكثر انتشاراً في «البرامج المُحددة بوقت» مثل معرض إكسبو ٢٠٢٠ ونهائيات كأس العالم لكرة القدم ٢٠٢٢ عن مشروعات البناء العادية، وذلك حيثما تكون البرامج الرأسمالية الكبرى غالباً أكبر حجماً وأكثر تنوعاً.

وللحد من هذه المخاطر، يلزم إجراء تغيير هيكلي طويل الأجل وذلك من خلال مشاركة أصحاب المصالح في جميع جوانب هذه الصناعة، واستبدال المنهجيات التي عفا عليها الزمن، واستخدام نُهج أكثر تعاوناً من خلال تبني تقنيات جديدة وأساليب حديثة ناشئة في مجال التشييد



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جديدة من النمو. وهذا سيجعلها تطمح إلى توسيع خدماتها التجارية».

والتقى دكتور المزروعى مع الرئيس التنفيذي لشركة موانئ أبوظبي، الكابتن محمد جمعة الشامسي، فضلاً عن وفود من كبار الموظفين من كلا الطرفين، في حفل توقيع رسمي في المكتب الرئيسي لشركة موانئ أبوظبي في ميناء زايد.

وعلق الكابتن الشامسي قائلاً: «إن اتفاقنا مع شركة أبوظبي لبناء السفن لإنشاء مرفق إصلاح سفن مزود بحوض عائم، سيلعب دوراً رئيسياً في تعزيز التجارة والصناعة البحرية في أبوظبي، وتعزيز مساهمة القطاع في الناتج المحلي الإجمالي لدولة الإمارات العربية المتحدة».

الكويت تكشف النقاب عن خطة التنمية لعام ٢٠١٧ - ٢٠١٨

مذكرات رجال الأعمال

سبتمبر / أيلول

٢١ - ١٩ معرض ومؤتمر إنترسولار دبي

٢٩ - ٢٢ المعرض الألماني للشاحنات التجارية هانوفر

٢٧ - ٢٥ معرض بيج فايف الكويت الكويت

٢٩ - ٢٨ مؤتمر الخرسانة الخضراء لدول دبي

مجلس التعاون الخليجي دبي

أكتوبر / تشرين الأول

٦ - ٤ معرض تكنولوجيا المياه والطاقة والبيئة ويتس

٦ - ٤ معرض دبي للطاقة الشمسية دبي

٢١ - ١٨ معرض مشروع العراق إربيل

صرح الأمين العام للمجلس الأعلى للبلاد للتخطيط والتنمية، خالد المهدي، قائلاً: «تعتزم الكويت استثمار ١٥,٧٥ مليار دولار أمريكي في خطة تنميتها لعام ٢٠١٧-٢٠١٨». وأضاف المهدي أن ميزانية الدولة ستتمثل ٥,٢٧ مليار دولار أمريكي، أما باقي المبلغ فسيأتي من القطاع العام، بما في ذلك قطاع صناعة الطاقة ومن مستثمري القطاع الخاص. وسيجري تقسيم تمويل خطة التنمية الخمسية للبلاد بين الحكومة العامة (بنسبة ٤٩,٣ في المائة)، وقطاع النفط (بنسبة ٣٣,٨ في المائة)، والقطاع الخاص (بنسبة ١٦,٩ في المائة). هذا وتهدف الخطة إلى تحقيق العديد من الأهداف، بما في ذلك توفير دعم حكومي فعال، واقتصاد مستدام ومتنوع، وبنية تحتية متطورة، وبيئة مستدامة لكسب الرزق، ورعاية صحية عالية الجودة، وقوى عاملة مبدعة، ووضع مرموق للكويت على الصعيد الدولي. ويشمل الهدف الأول للخطة توفير خدمات الحكومة الإلكترونية، وإجراء إصلاحات هيكلية، وكذلك تنفيذ ثمانية مشروعات لإنعاش الإدارة. ويشمل ذلك أيضاً تحديث هيكل الدولة، وتنفيذ خطة تكنولوجيا معلومات لمدة خمس سنوات بحلول نهاية عام ٢٠١٩. أما بالنسبة للمبادرة الثانية، فتخطط الحكومة لتحسين نوعية التعليم، وتوسعة أماكن الإقامة في كليات الدراسات العليا، ودمج «المواطنين من ذوي الاحتياجات الخاصة» في المجتمع، وتحسين خدمات الرعاية للمسنين، وتعزيز التماسك الاجتماعي، وتمكين الشباب في البلاد من خلال تنفيذ ٤٠ مشروعاً تابعاً للدولة. ولتحقيق هدف الاقتصاد المتنوع، تخطط الحكومة الكويتية لتعزيز مشاركة القطاع الخاص من خلال إجراء إصلاحات اقتصادية ومالية بالدولة، والتركيز على الاقتصاد القائم على المعرفة وتحسين صناعة السياحة.

ومن حيث تطوير البنية التحتية، تخطط الحكومة لتنفيذ خمسة مشروعات رئيسية في قطاعات النقل وتكنولوجيا المعلومات والبنية التحتية للاتصالات، علاوة على «تعزيز» الطاقة الكهربائية. مع العلم أنه من بين الـ ٣٢ مشروعاً التي سيجري تنفيذها، مشروع توسعة مطار الكويت الدولي، الذي سيتم الانتهاء منه بحلول نهاية شهر يناير/كانون الثاني عام ٢٠٢٢، ومشروع جسر الشيخ جابر الأحمد، ومن المقرر الانتهاء منه في شهر نوفمبر/تشرين الثاني عام ٢٠١٨. وأشار المهدي أيضاً إلى أن التأمين السريع للمنازل للمواطنين، واستخدام الطاقات المتجددة، والحفاظ على نوعية الهواء وإدارة النفايات، بالإضافة إلى ١٦ مشروعاً آخر، يُعد ذلك كله جزءاً من خطة الحكومة لتحسين سبل العيش في البلاد.

عمان تخطط لبناء محطتي توليد طاقة بحلول عام ٢٠٢٢



من المنتظر أن تصدر سلطنة عمان طلب مؤهلات لمشروع الطاقة الجديد في الربع الثالث من ٢٠١٦

إصدار طلب الاقتراحات في الربع الأول من عام ٢٠١٨. وسيتم تقديم العروض في الربع الثالث من عام ٢٠١٦، في حين من المتوقع أن يتم إرساء العطاء في الربع الأول من عام ٢٠١٩. وبشكل كبير، سيتم طرح مشروع محطة الطاقة «٢٧٠٠ ميغاواط» في ظل منهجية شراء جديدة، سيتم العمل بها لأول مرة في عام ٢٠١٧. ووفقاً للشركة العمانية لشراء الطاقة والمياه، ستسمح هذه المنهجية الجديدة للمحطات الخارجية عن العقود بالتنافس للحصول على تراخيص توليد الطاقة، جنباً إلى جنب مع مقدمي العطاءات لمحطات الطاقة الجديدة.

والبدء في عملية الشراء، مع طلب الحصول على المؤهلات (RFQ) في الربع الثالث من عام ٢٠١٦، وسيكون ذلك رهن موافقة الجهات الرقابية». وقال التقرير إنه سيتم مسبقاً إصدار طلب بالاقتراحات للمطورين المؤهلين في الربع الأول من عام ٢٠١٧، مع احتمال منح العطاء في الربع الثالث من العام المقبل. وبعد فترة وجيزة من منح العقد، ستبدأ الشركة العمل على شراء المحطة المقترحة التي تبلغ قدرتها ٢٧٠٠ ميغاواط.

وكشفت الشركة العمانية لشراء الطاقة والمياه عن أنه سيتم إصدار طلب المؤهلات لهذا المشروع في الربع الثالث من عام ٢٠١٧، ومن المقرر أن يليه

تخطط عمان لتطوير محطتين رئيسيتين لتوليد الطاقة بحلول عام ٢٠٢٢، وذلك في إطار المنظومة الرئيسية المترابطة (MIS)، وهو ما يمثل ٩٠ في المائة من إجمالي إمداد الكهرباء في البلاد. فقد أوضح تقرير لجريدة «عمان ديلي أوبزيرفر» أنه بينما كان من المتوقع بدء تشغيل محطة توليد طاقة مستقلة (IPP) بقدرة ٨٠٠ ميغاواط في عام ٢٠٢١، فمن المخطط تنفيذ مشروع ضخم بقدرة ٢٧٠٠ ميغاواط بحيث يكون جاهزاً للعمل بحلول عام ٢٠٢٢.

وستصدر السلطنة طلباً بالمؤهلات (RFQ) المطلوبة لتنفيذ محطة توليد الطاقة المستقلة الجديدة بقدرة «٨٠٠ ميغاواط» في الربع الثالث من عام ٢٠١٦. وسيعمل طلب المؤهلات هذا على تحفيز العملية التنافسية لشراء مشروع تشييد محطة توليد الطاقة الجديدة، وهي عملية تديرها الشركة العمانية لشراء الطاقة والمياه (OPWP)، التي تعتبر المالك الوحيد لمصادر الطاقة الجديدة. علماً بأنه يجري حالياً تقييم المواقع المرتقبة ومتطلبات البنية التحتية بالتعاون مع أصحاب المصالح المعنية، مثل شركة الغاز العمانية (OGC) والشركة العمانية لنقل الكهرباء (OETC).

وأوضح التقرير، نقلاً عن بيان توقعات الشركة لمدة سبع سنوات (٢٠١٦-٢٠٢٢)، «أن الشركة العمانية لشراء الطاقة والمياه تتوقع تحديد الموقع

يعكس النمو الإيجابي الواضح في قطاع بناء السفن وإصلاحها بدولة الإمارات العربية المتحدة».

وأضاف: «إن مساحة الـ ١٢٠٠٠ متر مربع الجديدة ستساعد في تحقيق رؤيتنا بأن نصبح شركة رائدة في مجال بناء السفن وتطوير خدمات الصيانة والإصلاح والتشغيل من الدرجة العالمية. وتضم المنطقة الجديدة ورش عمل السفن وكذلك الحوض الجاف العائم الذي سينقل خدمات شركة أبو ظبي لبناء السفن إلى حقبة

تزويد ميناء زايد بمرفق إصلاح سفن جديد

متخصص يبلغ ٤٣٠ متراً طولياً من جدار الرصيف، ويزيد عن ١٢٠٠٠ متر مربع من مرافق الفناء.

وصرح الرئيس التنفيذي لشركة أبو ظبي لبناء السفن، الدكتور خالد المزروعى قائلاً: «إن التوسع التشغيلي لشركة أبو ظبي لبناء السفن من خلال إنشاء حوض عائم جديد في ميناء زايد،

وقعت مؤخراً شركة موانئ أبوظبي وشركة أبو ظبي لبناء السفن (ADSB) عقداً طويل الأجل ينص على إنشاء مرفق إصلاح سفن مُجهز بالكامل ومزود بحوض عائم داخل ميناء زايد.

والهدف من إنشاء هذا المرفق يتمثل في تعزيز الصناعة البحرية والتجارة في أبوظبي. وتشمل المرحلة الأولى من المشروع تطوير وتشغيل مرسى

المحتويات

القسم العربي أخبار

٤ عمان تخطط لبناء محطتي توليد طاقة بحلول عام ٢٠٢٢

٤ تزويد ميناء زايد بمرفق إصلاح سفن جديد

٥ الكويت تكشف النقاب عن خطة تنمية عام ٢٠١٧ - ٢٠١٨

تحليلات

٧ كيف يمكن لتقنية نمذجة معلومات البناء (IBM) إحداث ثورة في تصميم المباني



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النقل واللوجيستات

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تحليلات: التقرير الإقتصادي للكويت، أسعار الطاقة.

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المترجم: عز الدين م. علي، ezzeddin@movistar.es

التصميم والإخراج الفني: محمد مسلم النجار، alnajjar722@gmail.com



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