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EDITOR'S NOTE

WELCOME TO ANOTHER packed edition of *Technical Review Middle East*. In this issue we explore developments and trends affecting the regional power industry in our annual industry review (p22). We take a detailed look at the improving economic situation in Egypt (p14) and consider ways in which countries throughout the Middle East could effectively tackle ever-growing waste management problems (p28). Our annual Genset Buyers' Guide (p78) offers a comprehensive list of industry suppliers and manufacturers working throughout the GCC region, while we present the latest updates on developments from across a range of industry sectors, including fall protection (p36), glass (p42) and data storage (p46). We also look ahead to Big 5 Kuwait (p70), Saudi Build (p74) and PowerGen Middle East (p76).

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

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TECHNICAL REVIEW

المنشور التقني - الشرق الأوسط

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Briefly

Jindal Shadeed set to commission rolling mill in Q4 2016

SOHAR-BASED JINDAL SHADEED Iron and Steel Company's rebar rolling mill project, with production capacity of 1.4mn tonnes per annum (MTPA), will be commissioned in Q4 2016.

Cold trial of the mill is expected in October this year, according to Jindal Steel and Power Limited (JSPL), the Indian company which owns the Oman plant.

In its financial results for the quarter ended 30 June 2015, JSPL said that its Oman operation continued its robust performance during the first quarter. "At the Oman plant, billet and rounds production increased to 0.25 metric tonnes (MT). Similarly, sales and EBITDA on a year-on-year basis grew by six per cent and nine per cent respectively," JSPL said.

Last November, Indian media had reported that JSPL was considering listing its Oman-based wholly-owned subsidiary on the Muscat Securities Market (MSM) to raise around US\$500mn.

Aluminium Bahrain seeks credit rating ahead of funding for line expansion

ALUMINIUM BAHRAIN (ALBA) is seeking a credit rating before it approaches banks to raise US\$3.5bn for its Line 6 expansion, Reuters reported. In June this year, the company had secured government approval for the expansion plan of its facility, which would boost its annual output by 514,000 tonnes to 1.45mn tonnes.

The company was considering a range of options to fund the expansion, including loans, export credit agency finance and a capital markets transaction, said the Reuters report.

"We will be looking at the funding mix in conversations with our financial advisers, but no decisions have yet been made on how this important project for Alba and Bahrain will be financed," stated the report, quoting an unnamed Alba official.

Construction of the project, which will make Alba the largest single-site aluminium smelter in the world, is expected to start in 2016, and production from the new line will begin from 2019.

Track laying on Saudi rail network edges closer to completion

CONSTRUCTION OF RAIL tracks between Usfan and Medina, as a part of the Haramain High Speed Rail Project, has been completed, sources close to the project have told a local newspaper. The 350 km stretch of the railway track, which passes through King Abdullah Economic City in Rabigh, has 70 bridges that intersect major roads, the sources revealed.

Sleepers have been laid down for the tracks between Rabigh and Jeddah and the airport bridge will be linked to the new direct road leading to Mecca, the sources said. Construction of a bridge across the Haramain Expressway linking the Jeddah train station in Sulaimaniyah District is also progressing well, they added.

All bridges on Haramain Road have been demolished and new structures constructed in their place. Several bridges in Mecca, including a 1,500 metres long and 70 metres wide bridge on the third ring road, are under construction.

It has also been revealed that a test run would be carried out on the entire stretch of the rail network before the end of the year. The Haramain Express Train had already completed a successful test run on a 100 km stretch between Rabigh and Medina. That 100 km stretch and the 350 km of tracks that have been laid make up the entirety of the 450 km high speed rail link that connects the holy cities of Mecca and Medina via Jeddah and Rabigh.

The Haramain trains will be equipped with the latest signalling and communications system and provide the safest mode of high-speed rails with the latest techniques.

Pandrol CDM Track has won a contract to supply its CDM-QTrack embedded track system for installation at the stations on the tracks. In this



Talgo will supply the same trains to Haramain that are currently used by Spain's Renfe. (Photo: Carlos Teixidor Cadenas/Wikimedia Commons)

track form, the rail is continuously supported without fastenings, which avoids the need for difficult tamping operations within the stations. The contract covers a total of 17 km of the network, and installation is scheduled to begin in Q4 2015.

Ana Pastor, Spain's minister for public works and transport, expressed satisfaction with progress on the project during her visit to Egypt for the inauguration of the new Suez Canal. She said that the project, being built by a Spanish-Saudi consortium of 14 companies, is going according to schedule and that it would be completed by the end of 2016.

The network is expected to become fully operational next year, reducing the travel time between Mecca and Medina to less than two hours. Trains on the electrified double-track lines will run at speeds of up to 300 kmph and the network is expected to carry three million passengers per year.

UAE utility inaugurates power plant in Umm Al Quwain

THE UAE FEDERAL ELECTRICITY and Water Authority (FEWA) has announced the commissioning and inauguration of a US\$35.4mn power plant in Umm Al Quwain.

The plant forms part of the federal



The third phase of the project will start by October 2015. (Photo: Philip Lange/Shutterstock)

government's plans to expand the country's transmission and dispatch network in order to meet the Emirates' energy demands which, fuelled by the growing economic activity, are constantly increasing.

Mohammed Saleh, director of FEWA, said that the 270 MVA and 132/33/11 kV station is part of the second phase of the plan to expand power stations in the northern parts of UAE.

"Completed in 30 months, the new station will cater for the present and future developmental and industrial demands in the Emirate of Umm Al Quwain through 2021," Saleh added.

Saleh also revealed that FEWA will launch the third phase of the electricity network expansion within the next two months. The third phase of the project will be undertaken at a total cost of about US\$408mn.



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Briefly

Egypt seeks funding for two power projects

EGYPTIAN ELECTRICITY HOLDING Company (EEHC) is in talks with banks to secure financing worth US\$525mn. The money is required to resume work on two power plants. One of them is in Assiut, located about 320 km south of Cairo, and the other is in Damietta, about 200 km north of the capital.

State-run EEHC is seeking the loan from a banking consortium to also pay off its dues to the contractors working on the two plants, Orascom Construction and General Electric, reported *Amwal Al Ghad*.

The report went on to say that EEHC had recently received financing from banks to the tune of US\$521mn, which was dedicated for carrying out construction works.

Three units out of a total eight at the Assiut plant are expected to be operational in the first phase, and will produce 375MW.

Orascom Construction has already completed the first phase of the Damietta power plant with a capacity of 250MW.

Al Gharbia Pipe Company to open new facility

ABU DHABI PORTS has signed an agreement with Al Gharbia Pipe Company to open a new pipe manufacturing facility at Khalifa Industrial Zone Abu Dhabi (KIZAD).

The agreement will see the company invest a projected total of about US\$300mn for the new facility, which will be spread over 200,000 sqm.

Al Gharbia Pipe Company expects the facility to be completed by March 2018. The plant will employ more than 370 workers and produce up to 240,000 tonnes of steel pipes a year.

The company will utilise Abu Dhabi's highway network to enable the movement of large loads and structures to the city and throughout the rest of the emirate.

Jamal Salem Al Daheri, acting CEO at Senaat, an industrial holding company, expects the agreement to provide a significant supply chain.

"By housing our production facilities at a strategic location like KIZAD, we will be able to utilise a range of world-class services and infrastructure, allowing us to improve delivery time and service to our customers," he said.

Iran to increase renewable energy capacity

IN A MOVE to diversify its energy mix and to increase its renewable energy capacity, Iran plans to generate 5 GW of renewable energy by 2021. The plan was revealed by Aarash Kordi, managing director of Iran Power Generation, Transmission and Distribution Management Company (TAVANIR).

Speaking at a conference on generating electricity and clean energy from city wastes, Kordi said that the country needs to pay more attention to producing new and renewable energies, which currently provides power for just one per cent of the country's total energy consumption.

Cities with the capacity to produce 200 tons of garbage a day have the ability to commission a garbage incinerator power plant. Kordi said that TAVANIR will offer special support for the construction of such power plants. He added that a new directive from the country's Energy Ministry guaranteed purchasing of generated electricity, which would assure investors of a return on their capital.

In anticipation of the finalisation of Iran's nuclear deal with world powers, many countries are looking to enhance cooperation with the country. In early August, Spain signed an agreement with Iran to boost cooperation in Iran's renewable energy industry, and will extend technical cooperation in the design and manufacture of renewable energy equipment.

The agreement was signed between Sunir, an Iranian exporter of electrical equipment and Spain's Bester, a renewable energy project developer. Bester will work as a consultant to Sunir on various technical aspects of renewable energy generation for 18 months. After that, the two companies are expected to jointly develop renewable energy projects in Iran. The contract is aimed at transferring the technology of producing renewable energy equipment to Iran.

Iran expects German companies to invest in a wind energy project being developed by Development Environment Arvand, a German-Iranian renewable energy developer, which is planning to set up a 46 MW wind energy project in the Khuzestan province, in southwest Iran. The project is expected to require an investment of US\$48mn, and Iran expects German companies to meet most of that requirement. Turbines for the project would be supplied by Vestas Wind Systems of Denmark and China-based Goldwind. The project is expected to be commissioned by the middle of next year.

Due to its geographical position, Iran enjoys enormous potential for the production of different kinds of renewable energies, including geothermal, solar and wind power. The country is also planning to generate 700 MW from biopower plants by 2020.

Iran wants to reduce its reliance on energy generated by hydrocarbons. (Photo: Phattana Stock/Shutterstock)



Saudi Arabia extends Pöyry's desalination project contract

SAUDI ARABIA'S SALINE Water Conversion Company (SWCC) has awarded Pöyry with a two year extension to the engineer services assignment for the Ras Al Khair power and desalination plant in the Kingdom.

The project started in November 2010 and is scheduled to achieve full power and water production by the end of 2015. Finland-based Pöyry will continue to support SWCC to finalise the project until the preliminary acceptance by the client in May 2016 and will act as warranty engineer until May 2017.

The scope of work includes the design review, project management and site supervision on behalf of the client. Pöyry currently has more than 60 employees on site supporting the construction and commissioning of the plant.

The Ras Al Khair plant is crucial to Riyadh's water supply. (Photo: shao weiwei/Shutterstock)



The Ras Al Khair facility, a combined power and desalination plant, is the largest facility of its kind in the world. It converts more than one billion litres of seawater into potable water every day. It also produces 2,400 MW of power for Saudi Arabia's Eastern Province.



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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.technicalreviewmiddleeast.com

IFC power deal for North Africa

IFC, A MEMBER of the World Bank Group, has increased its investments in large-scale infrastructure projects in North Africa and across the Middle East.

IFC sealed a deal on a US\$208mn debt package to finance the construction of seven solar photovoltaic plants in Jordan.

"With demand for infrastructure, especially power, rising rapidly every year in the region, these projects demonstrate the importance of the private sector in increasing capacity and boosting renewable energy generation," said Wiebke Schloemer, regional industry head of infrastructure in Europe, the Middle East and North Africa for IFC.

www.technicalreview.me/power-a-water



The deal will lead to financing of major solar and wind power project across the region. (Photo: Vaclav Volrab)

HOCHTIEF ViCon awarded BIM contract

HOCHTIEF VICON WILL implement, manage and execute BIM on the central section of Ashghal's Inner Doha Re-sewerage Implementation Strategy — IDRIS MTS02 — in Qatar.

The contract was signed with a joint venture consisting of Al Sraiya Strabag for Roads and Infrastructure, HOCHTIEF Solutions ME and Petroserv.

The construction of the 14.7 km-long central tunnel section with related access and shafts forms part of Ashghal's US\$2.75bn key programme to provide a long-term wastewater treatment solution and vital drainage infrastructure for southern parts of Doha. The scheme will include a major deep tunnel sewer network and advanced sewage treatment works, and will provide a long-term wastewater treatment solution to serve the needs of Doha, Al Wakra and Messaieed.

www.technicalreview.me/power-a-water

Firms to bid for port expansion

INTERNATIONAL ENGINEERING CONSULTANCY firms have been considering bids for a contract to study and design the Phase 3 expansion of Port of Salalah on behalf of Oman's Ministry of Transport and Communications.

Three new container berths, new government berths, a dedicated cruise terminal, expanded breakwater arms and a new approach channel have been planned for implementation as part of the expansion.

Touted to be the largest upgrade since the port came into operation in 1998, the Phase 3 expansion is expected to cost several hundred million dollars to implement.

www.technicalreview.me/logistics

UAE and India sign trade deal

THE UAE HAS agreed to enhance its investments in India to US\$75bn, including the establishment of a dedicated infrastructure fund, while the two nations will also aim to raise bilateral trade by 60 per cent in the next five years.

While deciding to elevate the India-UAE relationship to a comprehensive strategic partnership, India Prime Minister Narendra Modi and Crown Prince of Abu Dhabi, HH Sheikh Mohamed Bin Zayed Al Nahyan, have also agreed to facilitate participation of Indian companies in infrastructure development in the UAE.

www.technicalreview.me/construction



Narendra Modi, who recently made the first visit to the UAE by a sitting Indian Prime Minister in 34 years. (Photo: arindambanerjee)

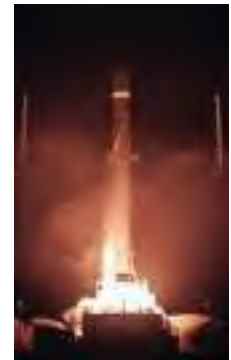
Successful launch for satellite

EUTELSAT COMMUNICATIONS HAS confirmed its Eutelsat 8 West B satellite has successfully been put into orbit.

To be used to broaden the range of TV channels available to 52 million homes across the Middle East and North Africa, the 5.8 tonne satellite was launched by an Ariane 5 rocket from its base in Kourou, French Guyana.

Eutelsat 8 West B partially deployed its solar panels four hours after separation from the rocket — a manoeuvre followed by three firings of the satellite's apogee motor to complete its climb into geostationary orbit.

www.technicalreview.me/it



The satellite was launched on an Ariane 5 rocket. (Photo: Eutelsat_SA)

Increasing the focus on health and safety

WITH WORKPLACE HEALTH and safety becoming a key priority for GCC governments, organisations across all sectors need to have the right strategies in place and ensure best practice.

The new chair of the Institution of Safety & Health (IOSH) UAE, Ahmed El Hadidi, said, "Despite the variations, we can say that there is progress on awareness and implementation. The maturity level depends on each country, but in general there is a positive trend towards a conscious attitude in considering employees' and workers' health and safety."

While great strides have been made in recent years to ensure better HSE conditions for workers and the public, it is essential that modern health, safety and environmental management be fully incorporated and integrated into businesses.

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14-16	Big 5 Kuwait	KUWAIT	www.big5kuwait.com
14-16	Materials Handling Middle East	DUBAI	www.materialshandlingme.com

OCTOBER 2015

4-6	Power-Gen Middle East	ABU DHABI	www.power-gen-middleeast.com
5-8	Project Iraq	ERBIL	www.project-iraq.com
6-7	The MENA Mining Show	DUBAI	www.terrapinn.com
25-27	HR Forum: Oil & Gas	DUBAI	www.hrforumoilandgas.com
26-27	Power Qatar Summit	DOHA	www.powerqatar.com
27-29	Saudi Mining & Minerals	DUBAI	www.saudi-mining.com

NOVEMBER 2015

15-17	ARABAL	DAMMAM	www.arabal.com
23-26	The Big 5 Dubai	DUBAI	www.thebig5.ae
23-26	PMV Live	DUBAI	www.pmvlive.com
23-26	Middle East Concrete	DUBAI	www.middleeastconcrete.com

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

Egypt in focus at power industry event

EGYPT, AS THOSE who have read our country analysis piece earlier in the magazine will know, is enjoying something of an economic renaissance at present. One show hoping to take full advantage of that fact is Electrix, which is this year celebrating its 25th anniversary.

Set to take place at Cairo International Convention Centre from 6-8 December 2015, the event will bring together representatives from across the country's power industry, as well as play host to the Solar Energy Investment and Development Conference (SEIDC) – the first conference dedicated to the solar energy industry in Egypt.

Jointly organised by Egytec and Informa Exhibitions, exhibitors will consist of a broad range of manufacturers, suppliers and certification bodies from across the nuclear, renewables, general power and water sectors.

The event, Egypt's largest power industry event and a partner event of Dubai's international power trade show Middle East Electricity, will look to provide visitors with access to a large number of local, regional and international energy and environmental technology material suppliers and distributors.

The event will be co-located with MEFSEC, where a host of technologies and products from across the fire, safety and security industries will be on display from leading suppliers and manufacturers. Meanwhile, elsewhere in the exhibition centre, Solar-Tec will be giving visitors the opportunity to find the latest opportunities within Egypt's growing solar power market.

Extracting Saudi opportunities

MINING MACHINERY AND equipment firms will head to Saudi Arabia in late October for Saudi Mining & Minerals 2015, which will take place at Riyadh's Al Faisaliah Exhibition & Convention Centre.

The event will bring together exploration and extraction companies, as well as financing and industrial development firms, all looking to make the most of opportunities in the kingdom's burgeoning mining and minerals industry, which has been declared by the government as the country's third economic pillar.

Formerly known as Mining Arabia, the show will be held under the Patronage of H.E. Ali bin Ibrahim Al-Naimi, Minister of Petroleum and Mineral Resources, and will be supported by Ma'aden, whose showpiece stand will be surrounded by its key stakeholders and procurement partners.

Alongside the exhibition, the Saudi Mining & Minerals Conference will take place in partnership with Ma'aden, the driving force behind Saudi Arabia's status as a global mining business and marketplace.



Mining has been declared as Saudi Arabia's third economic pillar by the country's government. (Photo: kaband)

Used equipment and technology comes to life at Karlsruhe exhibition

MORE THAN 300 exhibitors and 5,000 trade visitors were on site for USETEC, the world trade fair for used technology and equipment.

The event was supported by RESALE and took place at Messe Karlsruhe, Germany, in April 2015, attracting buyers from 92 countries.

Fuelled by positive economic conditions, the three-day industry platform saw a large number of sales completed or in the pipeline, according to the event's organisers. More than two-thirds of buyers at the event travelled from abroad, of whom some 20 per cent hailed from the Middle East, all looking to take advantage of opportunities in the global market for used equipment and machinery.

With close to 90 per cent of visitors to USETEC 2015 involved in making purchasing decisions within their companies, exhibitor and visitor feedback was overwhelmingly positive with many participants noting the quality of the event.



USETEC, the world trade fair for used technology and equipment, drew hundreds of visitors from the Middle East. (Photo: NooScapes)

"Our member companies commented on the high quality of the visitors coming to their stands," remarked Ton Matena, president of the European Association of Machine Tool Merchants (EAMTM).

"They were all customers genuinely looking for machines. I sold three processing centres to an Indian dealer colleague and another processing centre to a German end-user," he added.

Ahead of recent breakthrough nuclear negotiations, Iran was the best represented country at USETEC 2015, ahead of Turkey, India, Egypt and Nigeria.

"Iranian companies and infrastructure are in need of modernisation," said BDEX's Gregor Wolf. "Iran is an exciting market, not just because of its size, but also because it has a diversified economy."

Thomas Nessel, used machinery sales manager for Joseph Vögele AG, noted, "We received a lot of enquiries from Iran even on the first day of the trade fair, and one of the interested parties bought one of the largest road pavers."

For the first time, the organisers have offered exhibitors the chance to rebook stand areas for USETEC 2016, with several already taking advantage of the service.

USETEC will return next year, supported once again by RESALE, and taking place at Messe Karlsruhe from 25-27 April 2016.



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Urbanisation, a growing workforce and a burgeoning middle-class are all contributing towards growth in the Egyptian economy. (Photo: kainsaw)

New beginnings in Egypt

As Egypt starts attracting huge amounts of foreign direct investment, Moin Siddiqi examines how the market could provide lucrative openings for all types of service providers.

“It’s a big market, with a growing population; the local market is large and the location is excellent for reaching further.”

THE ARAB WORLD’s most populous nation is once again attracting mega investment projects, helped by a return to stable government and business-friendly policies.

“Egypt is a very exciting economy and once the completion of the political roadmap and the necessary economic reforms are in place, we will witness sustainable growth in the economy. Egypt continues to feature strongly as one of the HSBC Group’s 19 global priority markets,” said HSBC earlier this year.

Over the past year, companies from the Gulf Cooperation Council (GCC) – along with their respective governments – have played a pivotal role in the re-emergence of Egypt as a leading foreign direct investment (FDI) destination. Saudi Arabia, Kuwait and the

UAE are major foreign investors – the latter alone investing US\$14bn in Egypt. Real GDP growth in fiscal year (FY) 2015 is projected to reach 4.3 per cent and should increase further thereafter (see table 1), driven by upturns in services and manufacturing and fiscal stimulus – thanks largely to ‘colossal’ Gulf inflows, totalling some US\$20bn through a mixture of central bank deposits, cash and in-kind grants, and project aid.

Egypt was ranked the No.1 destination country in the Middle East and Africa by capital investment, with US\$18bn worth of FDI projects announced in 2014, while the number of greenfield projects rose 42 per cent to 51, according to London-based fDi Markets in June 2015. UAE-based investors launched about twice as many projects as in 2013.

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Table 1: Egypt's Macroeconomic Indicators (2012-2017)

	2012	2013	2014	2015	Forecast 2016	2017
Gross Domestic Product (GDP) US\$bn	257.3	271.8	286.5	310.8	344.2	382.2
Real GDP Growth Rate % (year-on-year)	2.2	2.1	2.2	4.3	4.7	5.0
National Investment Ratio % of GDP	16.4	14.2	14.0	15.3	15.8	16.5
Annual Inflation Rate (period average)	8.6	6.9	10.1	11.0	10.5	10.0
Overall Budget Deficit % of GDP	10.6	13.7	12.8	11.3	10.5	10.1
Gross Domestic Debt % of GDP	75.0	82.4	87.0	87.8	87.7	87.2
Fuel Subsidies % of GDP	6.1	6.8	6.3	3.4	3.1	2.7
Merchandise Trade Balance US\$bn	-34.5	-31.5	-33.8	-35.4	-37.5	-40.1
Overall Balance of Payments % of GDP	-4.4	0.1	0.5	0.3	1.0	0.6
Official Forex Reserves US\$bn	15.2	14.5	16.3	18.7	21.2	23.8
Import Cover (in months of total imports)	2.7	2.5	2.8	3.1	3.2	3.3
Foreign Direct Investment (net) US\$m	6,031	4,192	4,783	6,900	7,917	9,555
External Debt % of GDP	13.4	16.0	16.1	16.3	17.0	15.3

Sources: World Bank, International Monetary Fund and World Investment Report 2015 (UNCTAD).

One observer remarked, "It's a big market, with a growing population; the local market is large and the location is excellent for reaching further. The economic situation is improving all the time, and there are duty advantages for GCC and COMESA (the Common Market for Eastern and Southern Africa) countries wanting to do business here."

With strong demographics, chiefly urbanisation, a growing workforce, a burgeoning middle-class, natural wealth endowment, as well as infrastructure needs and geographical location being situated in the centre of a triangle formed by Europe, Africa and the Middle East, Egypt remains a strategic choice for transnational corporations. Preferred sectors for Gulf investors include construction, hospitality and real estate.

Global community goodwill

During this year's Egypt Economic Development Conference (EEDC) on 13-15 March in Sharm el-Sheikh, the government outlined its medium-term strategy to the investor community, pillared on three objectives: curbing the swelling fiscal deficit and public debt; improving the business climate and facilitating private investment, both domestic and foreign; and encouraging growth-enhancing infrastructure projects in energy, utilities, transportation and housing.

The International Monetary Fund (IMF) stated, "Following four years of political uncertainty and economic slowdown, Egypt has chosen a path of adjustment and reform, which, if followed resolutely, will lead to economic stability and growth.

"The authorities' objectives are ambitious, but are broadly within reach with steady policy implementation."

The conference – in which 121 capital projects across key sub-sectors were showcased (see chart 1) – culminated with the signing of sizeable FDI deals worth US\$36bn, securing bilateral funding pledges of US\$24bn, plus a further US\$12.5bn in investment from GCC states as well as other foreign inflows (project financing, credit facilities and official development assistance).

The World Bank announced doubling its annual fresh lending to reach US\$4bn-US\$5bn over the medium term, and the Islamic Development Bank signed six agreements worth US\$3.9bn with the



The Egyptian government has earmarked major infrastructure investments for the country's most populous cities. (Photo: Baloncici / Shutterstock.com)

FACT FILE:

Population: 83.3mn (2014);
GDP per capita: US\$6,579 (2014);
GDP (PPP): US\$553.6bn;
FDI stock: US\$87.88bn (2014);
Mobile penetration (% of population with mobile access): 101.8 per cent;
Sovereign credit rating: Moody's Investors Service (B3); Fitch Ratings (B), with a stable outlook.
Proved hydrocarbons reserves (end-2014): Oil 3.6bn barrels; Natural gas 65.2 trillion cubic feet.

Table 2: Egypt's Top 10 Investors (2007-12)

	(By most capital invested)		New projects
	FDI (US\$m)	Jobs created	
UAE	23,811	28,715	63
UK	5,302	4,648	26
Italy	3,876	3,773	14
US	3,008	9,484	60
China	2,980	2,792	14
India	2,875	5,443	20
Saudi Arabia	2,679	11,624	26
France	2,454	5,098	51
Spain	1,540	4,851	21
Germany	1,410	1,259	15
TOTAL	49,935	77,687	310

Middle East investors (mostly from the GCC) provided two-thirds and one-third, respectively, of all capital invested and projects.

Source: Ernst & Young, Africa By Numbers 2013-14.



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Egyptian authorities. In total, US\$130bn of funding was pledged by the international community to the North African country.

Structural reforms

Accelerated public infrastructure spending and an ambitious plan to pursue mega projects would underpin the ongoing economic revival, whilst supporting potential growth and job creation in a country where some 600,000 new entrants are projected to join the labour market each year over the medium term, according to the IMF. The main risk and priority are to sustain and enhance the economic recovery, which requires improved security conditions and steadfast reform implementation, advised the World Bank.

Ashraf Salman, Egypt's minister of investment, said, "It is widely felt that after two years of revolution, the Egyptian people deserve better. We are making long-term structural changes to the economy that will, in some cases, be painful. But the Egyptian people recognise the necessity of this change and the longer-term benefits that will be reaped. We don't have the luxury to fail again."

In mid-2014, Egypt announced bold reforms, slashing costly energy subsidies and increasing selected taxes, with value-added tax (VAT) due later in 2015.

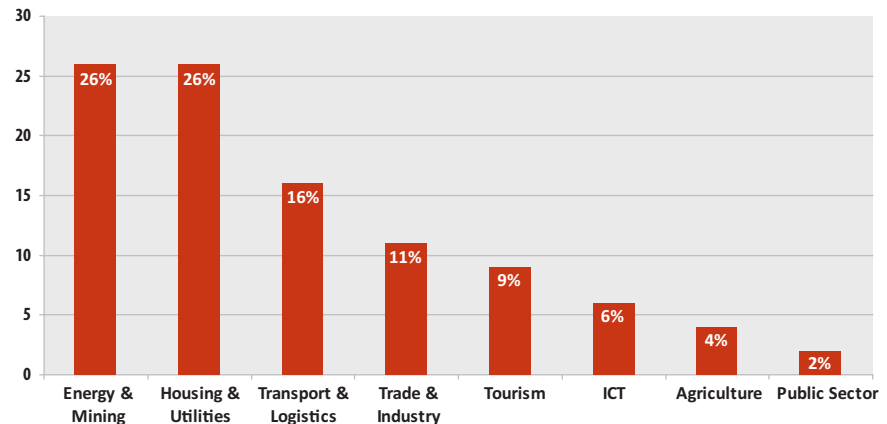
In relation to the business environment, where Egypt ranks low on several competitiveness indicators, a new unified investment law was ratified last March with three key features: (1) the General Authority for Investments (GAFI) affiliated to the Ministry of Investments is acting as a 'one-stop shop' in certain sectors and activities, obtaining all necessary licences from other government entities on behalf of the investor; (2) official procedures and timescale for issuing FDI licences, procuring land and obtaining utilities services were simplified; and (3) a new legal framework for resolving disputes was introduced, setting out clear procedures to address future investments disputes.

The 2015 FDI target is reportedly US\$8bn-US\$10bn, mainly concentrated on the energy and industrial sectors, though down from a peak US\$13bn in 2008. Rebuilding confidence in the market, as well as clarity on current fiscal and structural reforms are prerequisites for attracting higher FDI inflows.

Upgrading infrastructure

As the country moves forward, social and transportation infrastructure are the

Chart 1: Showcase Projects at March 2015 Conference
(Percentage of Total Number)



Source: EEDC, 13-15 March 2015.

“Following four years of political uncertainty and economic slowdown, Egypt has chosen a path of adjustment and reform.”



Egyptian President Abdel Fattah el-Sisi has overseen a period of stability since taking power in 2014.
(Photo: 360b)

priorities for development. The government has allocated EGP401bn (US\$51.2bn) for capital expenditure in the coming years. Planned major projects include:

- The Suez Canal Corridor, which comprises digging a parallel canal and widening of the current one (now completed) and in phase two, creating an industrial zone in the surrounding area
- The building of one million new housing units around greater Cairo and the reclamation of one million acres of land.
- The construction and rehabilitation of 3,600 km of new roads
- Boosting the capacity/reach of Cairo's metro system and modernising/expanding the rail network and building new port facilities
- Developing renewable energies (mainly solar and wind)
- The 'Golden Triangle' aimed at exploitation of natural resources in the region between Qena, Quseir and Safaga, as well as developing the region for agricultural, commercial, industrial and tourism activities.

Egypt is host to a number of mega deals reported in the past year involving greenfield investments. Such multi-dollar projects in the pipeline include:

- Arabtec Construction (UAE) is working on a huge US\$40bn scheme to build one million new middle-income housing units across 13 locations over six years
- BP reportedly has signed the biggest deal in Egyptian history worth US\$12bn over five years to produce three billion barrels of oil equivalent. Egypt also signed a contract with British Gas worth US\$4bn over two years and with UAE's Dana Gas for US\$400mn

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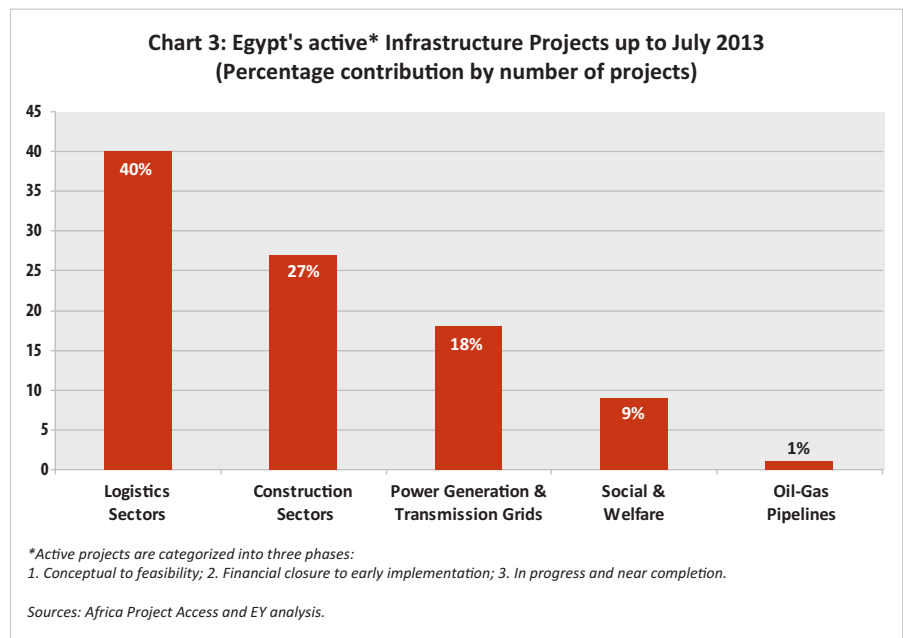
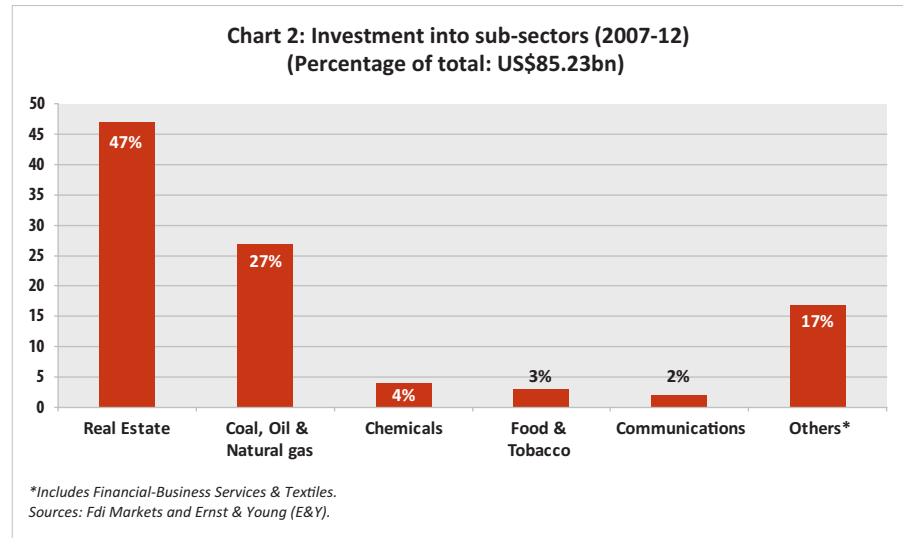


- Greece-based Mac Optic, a petrochemicals specialist, plans to invest US\$10bn, of which US\$5.2bn will go towards building a chemicals facility and US\$4.8bn for a 250,000 barrels per day oil refinery. Both projects will be situated in Suez Governorate
- International Petroleum Investment (Abu Dhabi) and local Orascom Construction Industries signed a memorandum of understanding for the development of a 3,000 MW power plant near El-Hamrawein port on the Red Sea. Al-Nowais (UAE) is also planning a 3,600 MW power plant in south Sinai
- Saudi Beyti pledged additional investments worth US\$4bn in Egypt's agro-sector, including building a new juice factory in Beheira Governorate
- UAE retailer Majid Al Futtain plans to invest US\$2.3bn over the next four to five years. While Coca-Cola and Pepsi each announced US\$500mn of new investments in the coming 12 to 18 months.

Power supply

Energy is a catalyst for robust growth and the transformation of Egypt into the world's top 30 nations – as envisaged in its *2030 Sustainable Development Strategy*, which focuses on infrastructure development and energy efficiency initiatives. Egypt boasts extensive energy resources: fossil fuel (including coal), hydro, wind and solar power, all far from completely exploited. As of May 2015, installed capacity had reached 31.45 GW, with electricity consumption rising much faster than capacity expansion.

The Electricity and Energy Ministry estimates that 54 GW of new capacity is needed by 2022 to tackle current shortages at peak periods. The total programme, including transmission/distribution upgrades, would cost US\$71bn, of which 65 per cent is expected to come from the private sector. The ministry aims to develop new fossil fuel sources by awarding contracts for 2,300 MW and 2,000 MW of photovoltaic (PV) solar and wind projects, respectively, by the end of 2016. The government has adopted a 'feed-in-tariff' programme – US\$0.14 for solar plants



(capacity: 20-50 MW) and US\$0.12 for wind farms – and will also guarantee the bank loans of private investors.

Egypt recently signed deals for the construction of giant coal-fired power stations, which, if built, would boost the nation's installed capacity, notably the US\$10.6bn (6,000 MW plant) with Al-Tharwa Investments; US\$7bn (4,000 MW plant) with Acwa Power Saudi Arabia; US\$6.4bn (4,640 MW plant) with Shanghai

Electric China; and US\$3bn (1,980 MW plant) with Dongfang Electric China.

In conclusion, Egypt could develop into a 'project-driven' market with lucrative openings for project financiers, engineering, procurement and construction companies, as well as general services providers. Multiplier effects of megaprojects would lead to a larger and more diversified industrial base. The country needs some US\$200bn-US\$300bn of investment to put the economy onto a much higher growth trajectory, according to Egypt's President Abdel Fattah el-Sisi. A new period of stability promises more opportunities, growth and expansion for existing and new businesses in Egypt – the gateway to the Middle East and sub-Saharan Africa. ■

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Power drive leads to genset growth

Robust construction activity in the GCC, coupled with rising public and private infrastructure development and a growing population, has led to electricity demand surging exponentially in the last decade. A significant share of power is generated from temporary power sources such as diesel and gas gensets that have a high demand on rent.

Altaaqa Global provides large-scale temporary power plants focused on utility markets, extractive industries such as mining and oil and gas, large process industries and major construction infrastructure projects. (Photo: Altaaqa Global)

THE MIDDLE EAST power rental market is one of the fastest growing in the world as well as one of the largest. Increased demand, driven by ever growing construction activity, is the main reason for this growth, which is compounded by the inability of permanent producers to meet the demand, especially during hot months, when the demand peaks. Alternating power spikes create a temporary demand, where rental is much more feasible than building power plants.

“These factors, coupled with competitive oil prices, have also made diesel generator sets a cost-effective option for the rental market,” says Simon Gray, electric power marketing manager at Perkins.

According to genset manufacturer Inmesol, sectors such as construction as well as commercial fairs and other professional

events, where the application of gensets is temporary, are growing exponentially. In these cases, the renting of gensets is the most viable option as the investment will be only for the actual time of use of the genset and with the additional advantage of service and maintenance offered by the rental company.

“At Perkins, our continued investment in the durability and reliability of our engines, such as the 4000 Series, ensure our engines meet the requirements of the rental power market,” Gray adds.

Julian Ford, chief commercial officer (CCO) at Altaaqa Global, opines that the buoyancy of the rental power market in the MENA region is spurred by several factors including utility shortages, particularly in Saudi Arabia, Kuwait, Oman and Iraq, especially during peak summer months; the gradual recovery of the construction industry in the UAE and Saudi Arabia, as well as the sustained production of oil and gas and repair and maintenance of refineries and associated infrastructure. He adds that unreliable electricity grid connection in many areas in the region has also led to the rise in the dependency on gensets in the region.

“Large industrial customers companies are turning to rental power to maintain the effectiveness and productivity of their operations in times of power interruptions or peak shaving,” remarks Ford.

The UAE – host nation of World Expo 2020 – will further fuel the power rental business in the country, according to industry experts, and the growth of the UAE power rental market is primarily driven from cities such as Dubai and Abu Dhabi.

The demand for diesel gensets will thrive on public infrastructures, industrial, retail and hospitality sectors and supplying power in remote areas.

According to 6Wresearch, the UAE power rental market is projected to grow at a CAGR of 16.8 per cent during 2015-2021. The diesel genset rental market has generated the majority of the market revenues and is expected to maintain its dominance through the forecast period. However, on account of the increasing market for power generation from cleaner fuels, penetration of gas and alternative fuel gensets is expected to surge in the country. In 2014, the UAE imported a total of 99,325 gensets with top exporters being China, UK and USA.

According to one of the leading genset suppliers in the Middle East, Jubaili Bros, diesel generating sets are still the top choice for emergency power, areas with power network failure/shortage and also for the construction and telecom industries.

HIMOINSA has also been witnessing strong growth and believes that the industry will grow further, supported by the continuing project base and the robust rental market here. Keith Webb, general manager at HIMOINSA Middle East, reveals that its sales in the region are mainly driven by construction activities in Saudi



In the rental market, HIMOINSA sees a strong demand from 35 kVA to 640 kVA and for standby applications from 1,250 kVA to 1,500 kVA. (Photo: HIMOINSA)

Arabia, the UAE and Qatar. "Lack of extensive grid infrastructure in some areas in the region has led to high demand of diesel generator sets," Webb notes.

Saudi Arabia tops the list

Among all GCC countries, Saudi Arabia is the leading country in the construction

segment. To build these infrastructures and supply power at the construction sites, diesel gensets are primarily used in the Kingdom. Energy and utilities is another contributing application in Saudi Arabia's diesel genset market, where they are required to provide auxiliary or back-up power.

Pradeep Kurunakaran, Cummins director - Power Generation Business Unit, says, "Saudi Arabia is the biggest market for power rental in the Middle East region. The primary drivers are construction activity as well as oil and gas activities. The transmission of power in the Kingdom is also a big challenge given the age of the grid and geographic spread."

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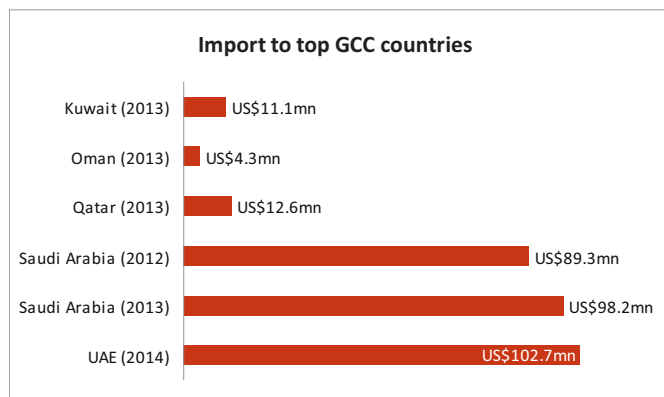
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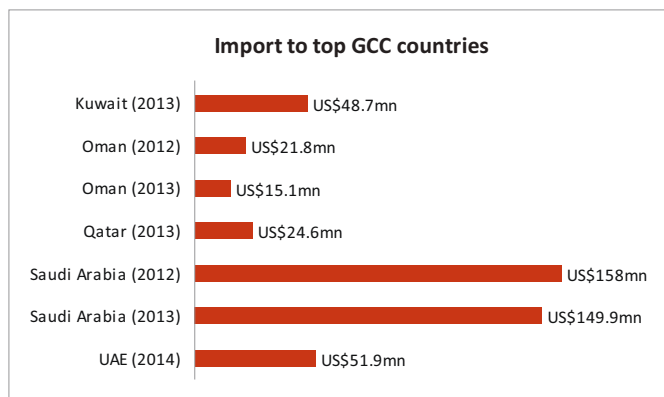
Saudi Arabia's diesel genset market recorded a healthy growth rate during 2010-14 and is expected to witness an upward trend over the next six years. According to 6Wresearch, Saudi Arabia's diesel genset market is forecast to grow at a CAGR of 13.55 per cent during 2015-21.

The Italian-headquartered genset manufacturer Pramac's main markets remain Kingdom of Saudi Arabia, Qatar and, to a smaller extent, the UAE, which are all showing signs of growth mainly driven by construction.

According to managing director of Pramac's Dubai-based office that oversees all the operations in GCC, East Africa, Asia and Pacific, Cristian Cavazzuti, Qatar's construction industry is driven by the FIFA World Cup in 2022. As for Saudi Arabia, even with the slowdown due to lower oil prices, there are lot of construction projects in the pipeline and the Kingdom is spending a lot of money.



Generating sets, diesel, output < 75 kVA



Generating sets, diesel, output 75-375 kVA



Generating sets, diesel, output > 375 kVA

The residential sector, which accounted for a majority volume share in the country's diesel gensets market in 2014, has been growing consistently in Riyadh and Jeddah, and both of these regions are expected to fuel growth in the diesel gensets market in the coming years as well.

Pramac's Cavazzuti notes, "However, in the UAE, although there is a lot of hype and buzz around Expo 2020, the market is not brimming like Saudi Arabia and Qatar. And with tough competition, the UAE has less to offer in terms of business in the genset market."

With regards to applications in the GCC region, Pramac operations and sales are mainly driven by the construction industry although telecom remains its primary market elsewhere in the world. Depending on the stage of site preparation to the completion of a project, the genset ranges from 20 kVA to 3 MW. For the telecom sector, the range is from 10 kVA to upto 50 kVA.

With a booming genset industry, surprisingly renting is more popular than purchase. Cavazzuti attributes this to flexibility in mobility and 'on the go' solution.

Qatar rising

According to Perkins, there has been substantial infrastructure growth in Qatar and there are many opportunities.

Qatar's power rental market is expected to grow at a CAGR of 23.3 per cent until 2020, making it a key power rental country in the Middle East.

6Wresearch's report *Qatar Power Rental Market 2014-2020* has mentioned that more than US\$200bn is going to be invested across various projects that would necessitate the need for reliable power rental equipment such as gensets. Specifically, the renovation of three stadia, construction of nine new stadia, Doha Metro Rail, Lusail City, new expressways and hotels are key projects in Qatar that would require gensets.

The country's diesel genset market accounted for most of the market share due to ease of availability, stated the report. Gensets with rating 100.1 kVA-350 kVA and 350.1 kVA-750 kVA were preferred due to their extensive usage across various applications. According to analysts, Qatar's construction sector growth will continue, regardless of the status of the World Cup, as much of the infrastructure pipeline is not directly linked to the event.

The expanding transportation network, surging investments, growing hospitality sector and changing economic reforms are also anticipated to drive the growth of power rental business in Qatar. Therefore, it is but logical for Qatar to see a rise in genset demand. But the volume of generators imported and used in Qatar is surprisingly still less than the volume in Lebanon, Jubaili Bros reveals.

Qatar, being a natural gas-rich country, is expected to show higher demand for gas powered gensets, reports have stated.

"From a forecast perspective, Qatar is very promising, given the FIFA World Cup in 2022. Another big market is Iraq, but given the geo-political situation, very few risk takers are willing to bet on that country. Some of the regional conflicts will pose their own challenges as well as opportunity. For instance, the Iran market will be opening up, which will create a huge demand for power rental players. Another country to watch for is Yemen, as the situation gets better and rebuilding begins."

Boom in Kuwait

Kuwait's diesel genset industry is expected to have a booming future in this region. According to a study, in 2013, the Kuwait diesel gensets market stood at US\$49.1mn. It is expected that this market will

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register growth at a CAGR of five per cent during the period of 2014 to 2023 and will reach US\$79.7mn by the end of the forecast period.

Kuwait's construction industry is thriving, with a series of new projects set to be completed in the near future. Kuwait's overall energy construction spending is expected to reach US\$100bn over the next five years as it begins the implementation of its comprehensive 2030 strategy, research compiled by Ventures Middle East reveals.

However, this region has faced major problems of power supply shortage in recent times. Consequently, the demand for diesel gensets is expected to rise in the coming years as the gensets, apart from being a steady source of standby power, are also utilised for continuous power supply in large construction projects. On the other hand, the added power generation capacity and increased deployment of renewable energy in this region is likely to curb the dependency on diesel-fuelled power solutions, limiting the market for diesel gensets in Kuwait.

The rental diesel gensets market generates more revenue than the new diesel gensets market, and is thus considered the dominant segment based on product type. The residential sector utilises these gensets as a source of backup power, whereas the hydrocarbons and defense industry often uses these as prime power sources. 500-2,000 kVA and over-2,000 kVA diesel gensets are generally employed in large establishments as a source of standby power. Large industrial users such as airports and refinery complexes deploy such large diesel gensets for power backup.

Upward trajectory for diesel gensets

Altaaqa Global's Ford said, "Saudi Arabia, Qatar and the UAE have been demonstrating high economic growth rates buoyed by industrial and commercial development. As such, these countries have been the biggest market for gensets in the region, for both rental and generator sales. On the sales front, a recent report by Frost and Sullivan shows that the genset market in the GCC is set to grow to as much as US\$950.4mn in 2018. Rental figures follow a similar trajectory. It is interesting to note that certain markets, like the UAE, reflect encouraging genset sales figures because they are vital trading hubs for re-exporting generators to nearby markets.

"A number of other Middle Eastern markets like Yemen, Iraq and Libya, are currently going through a very difficult period. As the governance of these countries becomes more stable in the coming years, we believe that they will represent excellent market opportunities for temporary power providers."

He adds that in near future, there will also be significant opportunities for infrastructure rebuilding and development in countries such as Iraq, Libya and Syria.

HIMOINSA's Webb asserts that the lack of extensive grid infrastructure in some areas in the region has led to high demand for diesel generator sets.

Surge in the number of gas gensets

Inmesol, a provider of gensets for telecom industry and standby sectors, said that as in the rest of the world, the telecom market in the GCC region is asking for more and more hybrid solutions. Hence, gas powered gensets is a growing sector. "The gas genset market will probably grow more than the diesel market because the burning off or flaring of the residual gases from refineries needs to be put to better use and this will lead to the use of such gas. The return can be economical as well."

HIMOINSA too maintains that gas gensets are gaining ground in the region. Webb notes that he is hopeful that increased interest in

natural gas gensets would emerge, but for that to happen appropriate distribution infrastructure must be in place. "The real challenge now is the availability of the gas where it is needed," the GM notes. Currently, HIMOINSA's natural gas gensets range from 8 KW to 1,500 KW.

According to the Altaaqa Global CCO, availability of diesel and the nascent increase in the supply of natural gas, particularly in African markets, is creating a growth market for the sector. He adds that there is also gradual expansion of the natural gas and dual-fuel genset markets, particularly where inexpensive locally-extracted natural gas is available. The growth of such markets is supported by the increase in unconventional gas resources and by the development of stringent emission regulations in many countries around the world.

Adding onto this, Jubaili Bros also opines that there is a growing optimism towards gas generating sets in the region. "Gas gensets are on the rise in areas where gas is affordable and where the large generators are required to run in continuous operation for long, but they are not as popular as the diesel ones.

"Diesel is easy and faster to set up for the lower initial cost, but it takes a higher cost to maintain. With regards to gas, there is a higher initial cost but it is cheaper to maintain. This, again, depends on the area and application and capacity needed for the generator."

In conclusion, Perkins' Gray asserts that the users' decision on whether to select diesel or gas ultimately depends on their individual power requirements.

Brand matters

Looking at different segments, construction and short-term rentals figure in ranges below 500 kVA and prime power opportunities tend to be around 1,000 kVA. "Though there are many Chinese players in the low-end market, rental players tend to stick with two or three major brands. This is due to the critical nature of application and reliability associated with major brands. The service network and capability of top suppliers is also a driving factor, which is hard to replicate by smaller players in the market," Cummins states.

For Inmesol, the preferred genset range in the region is between 150 kVA and 650 kVA.

For the Middle East region, Perkins has a large range of engines for the electric power market, offering power from 5 kVA to 2,500 kVA. It also offer 60 Hz engines for Saudi Arabia and 50 Hz models for the rest of the region. The 400 and 1103 engine models are popular with telecommunications solutions in the region as they are compact and effective sources of power for hybrid tower installations or the standard standby power generator set. The 1100 Series and 1500 Series engines are for small manufacturing industries throughout the Middle East, while the 4000 Series meets prime power requirements in remote locations and large standby power requirements for infrastructure projects.

HIMOINSA covers the full range of genset power demand, from 3 kVA to 3,000 kVA. In the rental market it sees strong demand from 35 kVA to 640 kVA, as well as 1,250 kVA to 1,500 kVA for standby applications for construction, retail and healthcare. The Spanish multinational firm predicts that the industry will continue to grow as long as infrastructure activities continue in the GCC region.

Among the key genset manufacturers and distributors in the region are Jubaili Bros, Perkins, Inmesol, Altaaqa Global, HIMOINSA, Pramac and Cummins. ■

– Graph sources: UN Comtrade, Powergen-Statistics



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¹Based on HP internal testing of predecessor devices completed 1/2015 or published information and subject to device settings. Actual results may vary. Faster refers to First Page Out Time (FPOT). For energy efficiency, the HP M252 is 15%, HP M277 is 16% and the HP M553 is 53% lower versus predecessor. For details see hp.com/go/ljclaims

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Conquering the garbage summit

Nnamdi Anyadike examines some of the innovative policy solutions being explored to help the Middle East overcome its ever-growing 'waste mountain'.



More than 150mn tons of waste is generated throughout the MENA region each year. (Photo: Jose Angel Astor Rocha)

SLOWLY BUT SURELY the Middle East is suffocating under a gigantic 'waste mountain' of its own making.

Environmental experts are warning that unless the region can quickly get to grips with the challenge of managing its domestic waste in a more sustainable way, the environmental disaster that looms could pose a serious threat to urban ways of life.

The Gulf's rapid increase in wealth, accrued through the many tens of billions in petrodollars earned over the past few decades, has gone hand in hand with a massive leap forward in urbanisation. Indeed, such has been the extent of this urban growth that some countries – Kuwait and Qatar – now have an urbanisation rate of more than 90 per cent.

Terry Tommason, city executive at Arcadis, which produces the Sustainable Cities Index, says that both Dubai and Abu Dhabi serve as an example of what happens when urban infrastructure fails to keep pace with growth.

"Dubai and Abu Dhabi will see an urban population growth of more than 80 per cent from now to 2030. This growth will place tremendous stress on transport networks, water supply, waste collection systems, sewage systems and land values," Tommason remarks.

The two cities performed particularly poorly in the index's environmental category, which looked at energy use and share of renewable energy, waste management, greenhouse gas emissions, air pollution, drinking water and sanitation and exposure

to natural catastrophes. Abu Dhabi was ranked 44th, while Dubai came 47th.

The reason, say many environmentalists, is clear. The Gulf's urban populations may be adopting the sophisticated tastes and lifestyles of their western counterparts, but they have yet to adapt to western levels of waste management. A study by Synovate recently concluded that even though consumers in the UAE are among the top purchasers of ecological and organic products, they nonetheless rank near the bottom when it comes to recycling household waste.

The total waste generated throughout the Middle East North Africa (MENA) has now crossed the 150mn tons per year (tpy) mark with GCC countries alone producing 80mn



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tonnes. But less than 20 per cent of this solid waste is properly treated, and less than five per cent is recycled.

In the wider MENA region, Egypt is the greatest producer of municipal solid waste (MSW) – comprised of paper, glass, plastics, metals, wood and other organic matter – with a total of 20mn tpy.

Fifty-five per cent of all waste in the GCC was estimated to come from construction and demolition.

This is closely followed by Saudi Arabia with 15mn tpy; the UAE with six million tpy; Morocco with five million tpy; Qatar with 2.5mn tpy; Tunisia with 2.3mn tpy; Jordan and Kuwait with 2mn tpy each; Lebanon with 1.6mn tpy and Bahrain with 1.5mn tpy.

However, consumer waste is not the main culprit. Rather, it is construction waste stemming from the region's construction boom over the past few decades. Indeed, during the height of the boom, 55 per cent of all waste in the GCC was estimated to come from construction and demolition.

There is also a huge quantity of sewage sludge, which presents a serious problem due to its high treatment costs and risk to environment and human health. This sewage output is rising by 25 per cent every year across the region. And EcoMENA – the independent environmental consultancy in the MENA region – estimates that, on average, the rate of wastewater generation is 80-200 litres per person each day.

Unsurprisingly, officials and environmentalists are desperate to arrive at a satisfactory answer to the vexed question of what to do with the region's rapidly accumulating waste, with schemes such as 'pay-as-you-throw' being proposed.

But tackling the Middle East's waste problem will need more than that. It will require nothing less than the development of a comprehensive and definitive waste prevention plan, along the lines of similar plans that have been developed over the past two decades in the US and the EU.

To achieve this, environmentalists say that discussions involving both business and Middle Eastern governments on the promotion of a waste hierarchy and the need

to place greater emphasis on waste prevention and resource efficiency, need to be taking place with much greater regularity than they are at present.

They urge the proposal of measures such as tool kits on waste minimisation, business waste reduction trials and a 'waste prevention fund'. Municipal officials in the region, they say, also need to urge residents to help tackle the increasing volumes of waste by changing entrenched habits and taking personal responsibility to ensure clean surroundings.

One solution to the problem of MSW that is being touted is biomass conversion or waste-to-energy (WTE).

Almost 50 per cent of the region's solid waste is contributed by organic matter. And this, argue WTE's proponents, can be efficiently converted into energy and fuels by advanced thermal technologies, such as gasification and pyrolysis by conventional technologies including incineration, mass-burn and landfill gas capture.

In recent years the UAE, Qatar and Saudi Arabia have all unveiled multi-billion dollar investment plans to improve the waste management scenario, including WTE. In Qatar, a Domestic Solid Waste Management Centre has been established, and it is garnering interest in the deployment of similar waste-to-energy systems elsewhere in the Middle East.

Ernst & Young (E&Y) says that leading jurisdictions are beginning to develop regulations, tipping fees and tariffs to increase quantities of recyclable and recoverable material. This, it claims, will most certainly lead to more quality, high calorific value material on the market for treatment facility investors that will drive market growth in the WTE field.

Earlier this year, Frost and Sullivan forecast that the GCC region will continue to sustain the 20 to 25 per cent WTE growth rate it has attained over the past three years. The company's report predicts that upcoming regional WTE projects in the region will, by 2020, produce between 300-500MW of power. This burgeoning interest in WTE is now beginning to open up significant opportunities for industry players who are interested in the market's immense potential. But a complicating issue for WTE and the Middle East's waste management as a whole is the growth of electronic and packaging waste.

Over the past decade, the EU has dealt with the problem with the introduction of various legislation such as the Waste Electrical and Electronic Equipment (WEEE)

Directive (2002 – first) and the 2008 Waste Framework Directive. Experts say that the Middle East now needs to move forward with similar measures, arguing that priorities for waste prevention should include electrical and electronic equipment, clothing and textiles, construction materials, food waste and packaging. Meanwhile, a number of local entrepreneurs are refusing to wait for the introduction of a comprehensive waste and recycling framework before tackling the problem. And they are increasingly seizing the opportunity to launch their own grass roots waste recycling initiatives.

In April 2015, an Egyptian-headquartered electronics re-manufacturing and recycling company, Speak Ink, opened what CEO Essam Hashem described as "the first franchise in electronic waste recycling in the Arab region".

The offer includes a new electronics recycling franchise programme in Dubai and a collections and processing warehouse. Speak Ink, accredited by Egypt's Ministry of Environment, currently operates a processing warehouse in the Alexandria Public Free Zone in Ameriyah, near Cairo. The company has already earned collection contracts from the Royal University of Bahrain and from Orascom Telecom in Egypt. Another local initiative is the regional Waste Free Environment (WFE) cleanup campaign, launched by the Gulf Petrochemicals and Chemicals Association (GPCA) in 2013 and backed by the Qatar Petrochemical Company (QAPCO).

Now in its third year, it kicked off its 2015 campaign in Qatar in February amid what the organisers claimed was an enthusiastic response from the local community, which they hope will lead to even greater success than in 2014. Last year saw a record collection of 11 tons of waste from 5,512 participants from GPCA member companies, schools and local communities in nine GCC cities. Volunteers included students from 71 schools and universities, and included clean-up teams in beaches and waters as part of the day-long campaign. The GPCA says it is committed to the principle that plastics should not be disposed of irresponsibly and that they should be reduced, reused, recycled and finally recovered for their energy value. QAPCO sees the WFE campaign acting as a much needed catalyst to propel waste disposal best practices across the community.

But laudable though these separate local initiatives may be, the mammoth task of cleaning up the Middle East's environment will ultimately rest on the provision by the regional authorities of a solid regulatory waste and recycling framework. ■

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The incorporation of chemical and mineral admixtures to cement alter the properties of poured or cast product.

CONCRETE IS THE Gulf's most widely used construction material, so it is not surprising that world-leading innovations are employed here thick and fast. The problem for local designers and contractors is simply keeping up with the trends.

Most of the world's concrete is based on conventional powdered cement, the production of which is one of the biggest contributors to global warming, because of the unavoidable emission of greenhouse gases. Cement and aggregates are also very costly products to move around, so major efforts continue to be made to economise the use of these materials and to recycle low-cost waste at the same time. One of the key technologies designed to achieve this is the incorporation of chemical and mineral admixtures, which alter the properties of the poured or cast product.

Chemicals can be used to accelerate or retard the curing (hardening) of the poured

material. Air entraining agents can be incorporated to increase its insulation qualities, while plasticisers can be used to enhance and extend workability. Various corrosion inhibitors, bonding and colouring agents can be used, and there are materials that can enhance 'pumpability' (essential for the ultra high-rise structures commonplace in GCC cities) too.

Mineral additives such as fly ash (from thermal power stations) and ground slag (from blast furnaces) are used to "stretch" the material, reducing cost of per cubic metre poured. Compressive and tensile strengths can be increased by fine tuning the mix at the same time. Modern batching plants can be set up to adjust recipes automatically.

A key source of information about innovations is the US-based Portland Cement Association (PCA). Referring to their website (www.cement.org) will reveal a treasure trove of data about the latest



Chemicals can hasten or slow down curing.

developments in concrete design and uses. Among the many applications that were featured on the PCA's site as we went to press included:

- White (Portland) cement as the key ingredient on decorative concretes that are "made to be seen" through pigmenting, special forms including piercing and other finishing techniques
- RPC or reactive powder (ultra-high performance) concrete is an extremely workable material that avoids the use of coarse aggregates altogether (some other concretes minimise fines). It can be toughened by incorporating steel and various other types of fibre, including organics. Very impressive tensile and compressive strength (7,000 psi and well over 20,000 psi respectively) can be achieved by varying the mix with silica fume, water reducers and various other reactive ingredients in fine powder form
- Self-consolidating concrete is designed to flow easily into restricted spaces without the use of vibration. A smooth surface can be created without any segregation of the mix
- Insulated concrete form walls facilitate rapid construction and a quieter commercial or residential environment without any loss of durability. High blast and trauma resistance are claimed too. Light, hollow foam blocks that provide excellent sound and heat insulation can be stacked and then in-filled with steel reinforced concrete
- Post-tensioning can be used as a way of reinforcing concrete by pre-stressing it. Post-tensioning is a method of treatment whereby the steel tendons are tensioned after the concrete has cured, the pre-stressing force being transferred through the end anchorages (in pre-tensioning, the tendons are stretched before the concrete is placed). Extra fire resistance is claimed too.

Another useful organisation to be aware of is the German Society for Concrete & Construction Technology, or DBV. Their website (www.betonverein.de) provides access to an invaluable range of state-of-the-art publications about European advances in concrete technologies and applications. Germany is home to some of the world's leading admixture producers, such as Munich-based Wacker Chemie which promotes dry-mix mortars modified with its own range of high-tech polymers to produce energy-saving insulation systems, flexible tile applications and self-levelling floor compounds.

A third worthy resource is the UK-based Institute of Concrete Technology (www.ict.concrete.org.uk), which specialises in professional development. A scientific group, Concrete Society (www.concrete.org.uk), and an association for commercial interests, Ready-mixed Concrete Association (www.brmca.org.uk), are other useful UK-based resources.

Light, hollow foam blocks that provide excellent sound and heat insulation can be stacked and then in-filled with steel reinforced concrete to make insulated walls.

Closer to home, Gulf states have a rich tradition of hosting world-scale construction trade shows, several of which have a significant emphasis on cement-based products and the equipment for their production and use. The multinational Big 5 series incorporates PMV displays and others, such as Middle East Concrete (23-26 November this year in Dubai) are more specific. This year's Saudi Build (26-29 October) will also be incorporating a subsidiary event within its own popular PMV series.

Finally, away from the Gulf, but an essential venue for professionals, is the long-running World of Concrete trade exhibition (www.worldofconcrete.com), held every year in Las Vegas, USA. Next year's event will be held from 2-5 February.

So there we have it, *Technical Review ME's* mid-decade guide to all that's best and newest, in terms of information sources on industrialised countries' most popular building material. ■

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The four-wheel lift in action.

Crown Equipment extends range of forklift trucks

The new SC 6000 Series forklift truck provides all-round visibility, precision control and safe, easy manoeuvrability.

CROWN EQUIPMENT CORPORATION (Crown), the world's fifth largest manufacturer of powered industrial lifts, has extended the range of its electric counterbalance lift trucks with the launch of the Crown SC 6000 Series. The new three-wheel and four-wheel models have capacities ranging from 1.3 to 2.0 tonnes and lift heights of up to 7.5 metres. They offer a combination of stability, advanced technology and task-focused ergonomics. The new lift trucks are capable of performing a wide variety of material-handling tasks in both indoor and outdoor conditions.

The SC 6000 Series incorporates Crown's proven ergonomics for operator comfort and control. The low step height of 375 mm and good head clearance make it easier to get on or off the truck. The truck design also gives operators unobstructed views in all directions, even when fitted with one of the many available cab options. The partial cabin includes a windshield, rear panel and roof with an optional reading light. The soft

cabin features flexible doors with integrated magnets for weatherproof side protection. Even the all-weather hard cabin for outdoor use offers unobstructed line of sight in all directions including upwards. It comes with clear-view doors, two-way sliding windows

The cab design offers unobstructed views in all directions, even when fitted with one of the many available options.

and a heater option. Operators' freedom of movement remains unimpaired irrespective of the cabin option chosen. Thanks to a wide variety of other options for controls, lighting and accessories, the lift trucks can be customised precisely to each customer's specific needs.

The solid design, which includes a solid floor plate beneath the battery, keeps the truck in excellent shape even in tough conditions. Steel is used instead of plastics at crucial points. The steer axles feature steel/cast-iron construction and heavy-duty tapered roller bearings which enable the truck to withstand jolts as it travels over rough surfaces and dock boards. Even the four-wheel truck's turning circle is nearly zero, making it almost as agile as the three-wheel version. A clear view of both front wheels facilitates taking advantage of the manoeuvrability this affords.

Crown SC 6000 trucks are also fitted with high quality, heat-resistant drive motors that are designed to avoid the need to reduce the motor's power output to

prevent overheating. The high thermal ratings of the motors minimise downtime, as well as spare part and maintenance costs.

The intelligent on-board control system delivers precise control, providing great stability and comfort. The system ensures that the SC 6000 maintains constant speed on ramps and assists operators by automatically adjusting the operation of control functions in correspondence to different load weights, lift heights, steering angles and travel speeds. For instance, tilt speeds are automatically limited, based on fork height and load weight, and below free lift height, operators have access to the full range of forward tilt and full tilt speeds.

The SC 6000 helps operators by automatically adjusting control functions in accordance with different load weights, lift heights, steering angles and travel speeds.

Customers who tested the new multifunction trucks on their premises prior to the market launch confirm the high quality of the Crown products. "The four-wheel model is exceptionally versatile and offers great ease of use, impressive hydraulic performance, and superb all-round visibility, even when a cab is fitted," said Werner Drnec, purchasing and operations Manager at Gebrüder Weiss.

Detlef Erdmann, warehouse management group Leader at Carl Kühne K of Germany, another customer involved in trialling the new trucks, commented on the driving performance and ergonomic handling of the SC 6000 counterbalance lift truck. "When working on ramps in particular, the forklift can be easily and safely manoeuvred, thanks to the ramp hold function and automatic speed control. The mast is extremely robust and offers

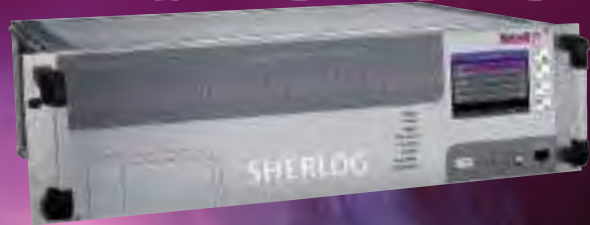
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The importance of fall protection

ManSafe fall protection solutions from Latchways plc can be utilised across a variety of buildings and structures. (Photo: Latchways plc)

Tim Bissett, Technical Manager at UK-based fall protection specialists Latchways plc, highlights the importance of standardisation and the growing demand for its solutions in the Middle East.

STANDARDS AND SPECIFICATIONS are all part of the job for Tim Bissett. In fact he estimates he spends around 60-70 per cent of his time contributing to the development of product standards for personal fall protection equipment.

With his key involvement in various CEN/TC 160 (European Committee for Standardisation) working groups, as well as membership of the American National Standards Institute (ANSI) Z359 Fall Protection Committee and BSI Technical Committee PH/5, Bissett, who has been with Latchways plc for over 20 years, is a strong advocate of standardisation as a driver for improvement.

“The UK has some of the best HSE regulations and requirements from a legal

perspective,” he comments. “The Construction Design and Management (CDM) regulations, which were published not long after I joined the company, have been instrumental in promoting health and safety in construction from the design

“As fall protection specialists, our key target is to improve workers’ safety at height.”

stage to delivery. The European CEN regulations also adopt an end-to-end approach, requiring the architect to take into account safe working practices throughout the lifecycle of the project.”

The importance of standardisation and the need for products to be tested to recognised standards using the correct testing methods are the focus of Bissett’s presentation at the Middle East Health & Safety Forum in Dubai, taking place in September. The presentation highlights the importance of fall protection to prevent accidents working at height, as well as the continual evolution and improvement of European and ANSI fall protection standards. It also gives insights into the range of Latchways plc solutions and their compliance with international standards.

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Latchways plc's ManSafe® fall protection solutions are used to ensure worker safety at height on a wide range of buildings, towers, bridges and structures throughout the world. The company has more than 40 years of experience in providing specifications for all kinds of projects ranging from complex structures such as the walkway on the O2 Arena in London, to standard building protection designs, such as those used by multisite retail groups.

Its systems can be specified to work horizontally, vertically, along inclines and overhead, and can be permanent or temporary installations. In line with demands from the industry, the company focuses on the engineering of complete fall protection systems, rather than the provision of individual products. "We pay close attention to specifications and determining how the product will work with the structure we are fitting it to from the point of view of loading calculations," he explains. "So, from an engineering perspective, we are not focusing solely on designing a product, but also on testing it in combination with the structure it may be attached to, and feeding the results into our R&D."



Tim Bissett, technical manager at Latchways.

"We see a growing emphasis on prevention of falls from height by the correct use of fall protection equipment in the Middle East."

"One of our strengths is our ability to tailor our products to customer requirements – when it comes to big projects, no two structures are completely identical," he continues. And, while the equipment may be relatively complex in terms of design, testing and installation, it is nevertheless user-friendly and straightforward to operate, he maintains.

Latchways plc in the Middle East

Headquartered in the UK and with an office in the USA, Latchways plc operates globally through its network of specialist registered installers who provide a complete installation, training and maintenance service.

Its Registered Installers based in Dubai operate throughout the Middle East, monitoring industry developments, particularly in the construction and oil and gas sectors, quoting for projects, and carrying out installations. The company has installed systems on a wide range of projects throughout the region, from the Mekkah, Madinah and KAEC stations for the Haramain High Speed Railway in Saudi Arabia; to the Burjuman Tower Refurbishment in Dubai.

Bissett is on hand to provide technical support. "I visited Dubai around a year ago for the refitting of new fall protection equipment on oil rigs that were coming

up for maintenance, which involved demonstrating the benefits of Latchways plc's systems, particularly the vertical fall protection systems, conducting training, assisting with specifications and generally handling the technicalities of the products," he says.

"Rooftop systems are our biggest product line in the region, reflecting our global business," says Annemieke van der Vaart, Business Development Manager at Latchways plc.

"But in the case of ports, for example, we are dealing with a variety of industrial systems, which could be overhead or horizontal wall-mounted, or retractable blocks. In oil and gas too, you are seeing a variety of systems."

The company has its sights set firmly on Middle East expansion. "We will continue to focus on the construction sector where we are performing well," she remarks. "We are also targetting growth in oil and gas, where we are working to raise awareness of our products, as well as in general industrial applications such as chemical plants and aluminium smelters."

In geographic terms, the UAE is a growth market and in Saudi Arabia the company is keen to capitalise on the opportunities, building on its current successes with the Haramain stations. Kuwait is also of interest and the company has highlighted strong potential in Qatar.

What is the company's experience of operating in the Middle East? "It can be challenging, but also very rewarding," says Bissett. "Middle Eastern clients are often keen to drill into the detail of projects. This can work to our advantage as it gives us an opportunity to show how we stand out from the crowd."

Bissett remarks that attitudes towards industrial health and safety have changed significantly in the region over the past decade.

"Over the last 10 years we have seen a growing emphasis on the prevention of falls from height by the correct specification and use of fall protection equipment," comments Bissett. A key factor has been the influence of the international contractors in the market, he adds.

"What I would like to see is more local work on height legislation, which would act as a driver for improvement, as we have seen with the UK CDM and work at height regulations in the UK."

"As fall protection specialists, our key target is to improve workers' safety at height," he concludes. ■

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Laying the foundations for success

The flooring and floor-covering market in the Middle East is set to continue to grow along with the region's construction sector.

THE COMMERCIAL FLOORING industry is on the up. A recent study by business consultancy firm Grand View Research predicted that the global market will be worth US\$166.63bn by 2020. Nowhere in the world is this trend more apparent than in the Middle East, where continued growth in the construction industry, spurred by government investment in infrastructure and the scheduled arrival of 'mega events' like Dubai Expo 2020 and the 2022 World Cup in Qatar, has spawned a number of events dedicated to the flooring sub-sector. International building and construction show The Big 5 has long hosted sections serving the flooring and floor covering markets, but the creation of a number of new events – such as Middle East Covering and the Arab Carpet and Flooring Expo, both of which celebrate their inaugural edition in 2015 – stand as testament to the sector's promise in the region.

Visible Growth

"The Middle East is an important market for the simple reason that this is the region where growth is visible and expected," says Thomas Koshy, Middle East sales manager for UK-based raised flooring company Kingspan Access Floors. "As more and more business activity gets localized, and with the region at the cross roads of the West and Asia, it is natural that more infrastructure to support commercial activity is required."

Koshy says the UAE, Oman, Saudi Arabia and Qatar are Kingspan's largest markets within the region, in line with official statistics from the IMF and MEED, which rank all four amongst the top five

countries in the Middle East and North Africa (MENA) in terms of both construction market share and the overall value of building projects from 2014 to 2020. "The Middle East is home to world class companies and market leaders in air transportation, petroleum, banking and the like which, in tune with their expansion plans, need more facilities," Koshy explains, pointing also to the predominance of vertical construction in multi-storied office towers as an important driver for his company in particular.

Providing raised access floors, certified to the internationally recognised European EN12825 and UK PSA, MOB and CISCA standards, Kingspan supplies mainly high-end internal fit out companies serving commercial properties such as offices, server rooms and data centres. Highlighting figures from ICD Research, Koshy says the Middle Eastern commercial construction segment alone will reach a value of US\$5.7bn in 2015 – an increase of 38.2 per cent over 2010 – with the value of tourism and leisure construction (US\$1.2bn) retail buildings (US\$2.2bn) and other construction (US\$1.4bn) also forecast to reach new heights this year.

Necessity breeds innovation

The industry, though, is not without its challenges. Grand View Research said the cost of transportation and raw materials – including fossil fuels from which many types of carpet and resilient flooring are derived – has significantly impacted upon manufacturers' margins. It is often said, however, that necessity breeds innovation, and constraints have helped to spur the development of new products and techniques which Grand View said have "considerably widened the scope across residential, commercial and industrial flooring applications".

One such example would be the development and use of eco-friendly flooring materials such as Polyester (P.E.T) Berber, linoleum, cork and reclaimed hardwood, partially driven by high petrochemical prices. "This trend has been coming into prominence in recent years with buildings seeking to become LEED [Leadership in Energy & Environmental Design] certified," says Koshy. "The UAE has been a leader in this and it suits well that our products are being made of environmentally sustainable materials."

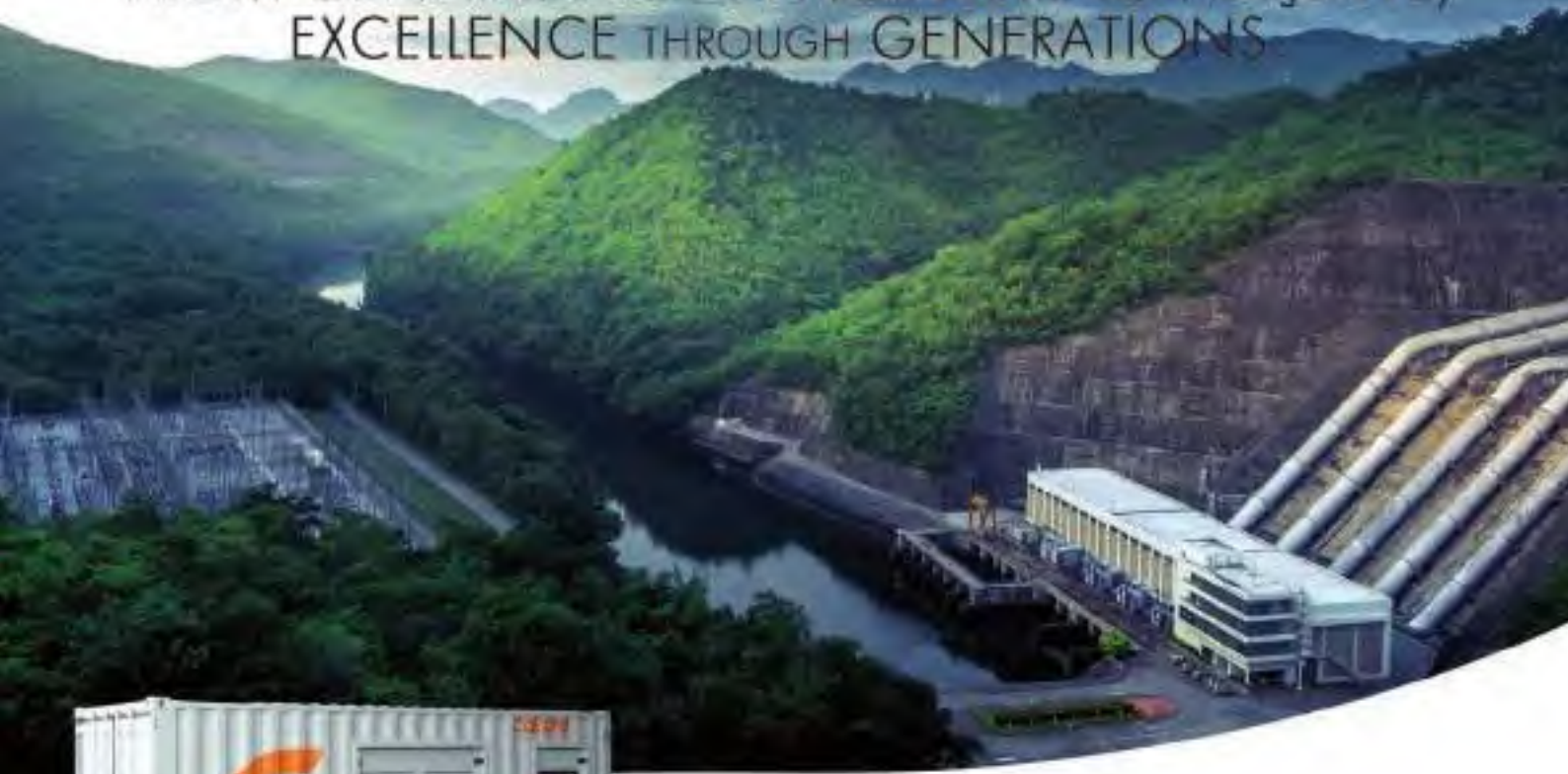
Koshy says Kingspan was one of the first to obtain FSC [Forest Stewardship Council] certification for its chipboard core, and the first access flooring manufacturer in the world to issue an Environmental Product Declaration. "There is an increasing requirement from architects, contractors, developers and end users for detailed information about the sustainable qualities and environmental impacts of our products," Koshy says. "The EPD gives all the information required and shows that we are providing full transparency." ■

Continued growth in the Middle East's construction sector has fuelled the need for flooring. (Photo: Omar Chatrivala/Flickr)



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Clearer emissions for the glass industry

(Photo: Alex Ander)

A look at the challenges facing glass manufacturers in light of changes to glass emission controls and monitoring.

TEN AND A half thousand tonnes of NO_x; eighty thousand tonnes of SO₂; twenty-two millions tonnes of CO₂; and six and a half thousands tonnes of dust. These are the estimated emissions vented into the ambient air by the European glass manufacturing industry as reported by the European Environmental Agency back in 2008.

Industrial emissions, including those emanating from the high-temperature and energy-intensive glass manufacturing process, can have major environmental and health risks. To combat these risks the European Parliament developed the Industrial Emission Directive 2010/75/EU (IED). The directive has the objective of standardising maximum emission levels across a very broad range of combustion-based industries throughout the EU, and will have oversight for the licensing, operation, monitoring and decommissioning of industrial plants to prevent and reduce pollution to the air and water.

Beyond that, the IED describes how measuring and monitoring should take place, and is driven and enabled by an increase in the use of "best available techniques" (BAT). The BAT approach is aimed at identifying and applying the best technology available worldwide, applying it as cost effectively as possible on an industrial scale, to reduce emissions and achieve a high level of environmental protection.

The BREF documents that outline BAT will herald new lower Emission Limit Values (ELV) for industries and set the standards to obtain better consistency and quality of implementation across the EU member states.

For the transition of the IED into national law in relation to glass manufacturing, EU member states had four years from the publication of the Best Available Technique (BAT) conclusions on 8th March 2012. The corresponding authority in each state has to review and, if necessary, update all permit conditions to ensure that glass manufacturing plants comply with those conditions.

The implementation period must be met by all EU member states and must be verified in formal reporting by 2016/2017. The European Commission's IED will mean a considerable

change for glass manufacturers in terms of what is required of them from an emissions reduction and monitoring viewpoint.

For glass melting furnace operations and many other natural gas combustion industries, much of the impact will be focused on three pollutants: SO₂, NO_x and CO. Since SO₂ and CO emissions are more manageable for glass manufacturers – for example, through post-combustion for CO and chalk additives in the filter for SO₂ – it is the NO_x emissions that really pose the challenge.

Current NO_x emissions from glass furnaces are typically between 1,200-1,500 mg/Nm³ NO_x. The IED defines significantly reduced new emission limit values – 800 mg/Nm³ NO_x for existing furnaces and 500 mg/Nm³ for new furnaces – measured in right per cent residual oxygen on an hourly average.

There are three mechanisms for NO_x creation during combustion: 'thermal NO_x', 'fuel NO_x' and 'prompt NO_x'. Thermal NO_x is created by high temperatures (T>1400°C; Zeldovich principle); fuel NO_x by nitrogen contained in the fuel, reacting with the oxidizers; and prompt NO_x by CH radicals during combustion.

To reduce NO_x, the BREF notes recommend primary control measures seeking to generate unfavourable conditions for NO_x formation. These primary techniques can be combustion modifications, special furnace design, electric melting and oxyfuel melting. With regard to combustion modifications there are several BATs outlined, including reduction of the air/fuel ratio, reduced combustion air temperature, staged combustion, employing flue gas recirculation, the installation of low NO_x burners and adjusting fuel selection.

Industrial gases and gas application technologies can play a significant role in helping reduce combustion pollution including NO_x. In general, employing greater levels of oxygen substantially increases the thermal efficiency of a furnace, as radiant heat transfer of furnace gases produced by oxyfuel combustion is significantly more efficient than those of air fuel. In the combustion process nitrogen can essentially be regarded as ballast – with this ballast acting as a

negative influence as it neither takes part in, nor helps, combustion.

One such gas technology to considerably reduce NO_x emissions is Linde's COROX® LowNO_x for recuperative and regenerative endport furnaces. The novel part is that this technology combines several BATs of the combustion modification part, such as reduction in air fuel ratio, staged combustion of both air and fuel, flue gas recirculation and the use of low NO_x burners. The process involves injecting additional oxygen through high-pressure lances to create a more intense, directional flue gas recirculation effect within the furnace. As a result, the main air/gas burner system produces a diluted, staged combustion process. The fuel dilution leads to a more homogenous flame and a reduced flame temperature.

As the flame temperature has a direct impact on thermal NO_x levels, this lowers emissions significantly. A lower flame temperature also reduces the concentration of hydrocarbon radicals in the furnace and limiting prompt NO_x formation. In addition, an improved heat transfer rate shortens the window during which thermal NO_x can form.

Combining COROX® LowNO_x technology with oxyfuel hotspot burners optimises its process and NO_x reduction efficiency. Operating the furnace under these conditions, with staged combustion leading to a lower flame temperature and more homogeneous energy distribution, reduces the energy consumption by approximately three to five per cent. Large combustion furnaces with a typical lifetime of 10-12 years, and in some cases up to 20 years or more, represent a large capital commitment. Often major changes in melting technologies are implemented if they coincide with furnace rebuilds. However, COROX® LowNO_x can be easily added to existing facilities during a furnace lifetime with minimal space requirements. ■

This article was written by Rainer Mieth, senior application engineer – glass and fibres, Linde; and Stephen Harrison, global head of specialty gases and specialty equipment, Linde. To find out more, please visit www.linde.com

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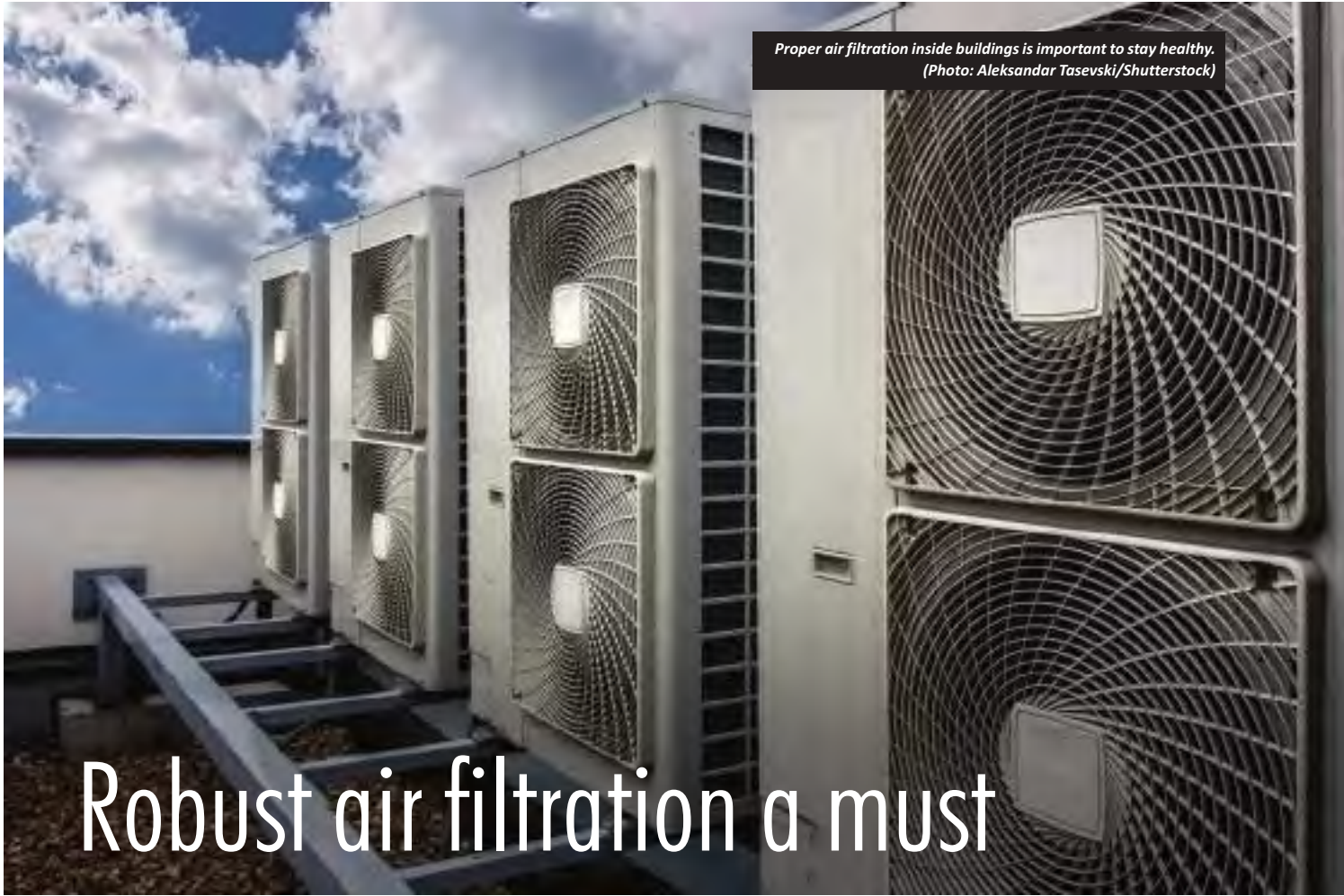


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Proper air filtration inside buildings is important to stay healthy.
(Photo: Aleksandar Tasevski/Shutterstock)



Robust air filtration a must

for society and commerce

With a glut of construction activity, a growing number of vehicles and the occasional sandstorm, Dr. Iyad Al-Attar tells *Technical Review Middle East* about the importance of air filtration systems for countries in the Gulf.

“To make a difference, our approach and attitude towards air quality requires a renaissance, rather than just a mere change.”

Why is air filtration important?

Air cleaning is now an important branch of social engineering, and protection of the public from harmful emissions, both in urban and rural areas, is the subject of legislation in all civilised countries.

Increasing public concern about indoor air quality in residential and commercial buildings has led to the development of high-efficiency air filters. Research has revealed that exposure to ultra-fine particles can impact our DNA, and respiratory and cardiovascular systems. It is also important to highlight that filtration is not only important for air intake, but also for exhausts. Several studies have demonstrated

that installation and operation of kitchen exhaust hoods lead to pollutants such as carbon monoxide, nitrogen dioxide, polycyclic aromatic hydrocarbons and ultra-fine particles that are capable of drastically impacting our health.

What is air filtration? When are particles considered to have been filtered?

Air filtration is the process of separating dispersed particles from a dispersing fluid by means of porous media. It is a preventative measure to protect the human respiratory system as well as heating, ventilation and air conditioning (HVAC) equipment. Air filters are used to remove aerosol particles from air

at different efficiencies with the least possible resistance. To consider particles to have been filtered, air filters must separate and retain dispersed particles on the surface and/or within the filtration medium from a dispersing fluid by means of porous media. The performances of air filters have a transient behaviour and never operate at steady state conditions.

Where are air filters used?

Clean air is required for HVAC systems in buildings, clean rooms, pharmaceutical industries and closed environments like engine and gas turbine intakes, where air filters act as the preventative line of defense for the cooling/heating coil and subsequent components to minimise particle deposition on them. Growth of microorganisms and dust cake formation are two common factors that impede the performance of HVAC equipment and also degrade the indoor air quality. Dust fouls the heat sinks found in personal computer power supplies, causing over-heating and failure. Air filters are also used in operating theatres in hospitals to prevent post-operative infections. A crucial application of air filtration is in IVF laboratories where apart from dust, many other air-borne pollutants can threaten the treatment.

What is the connection of gas turbines with HVAC?

Air conditioning is a key element in buildings in GCC countries, and is one of the highest power consumers, especially during summer. In countries where power usage is close to the generation rate, gas turbine performance becomes critically important.

“We still deal with sandstorms as an enigma, but it is time to characterise them, knowing that they exacerbate our urban and rural air quality.”

From a gas turbine perspective, what are the filtration challenges?

The inlet of a gas turbine is designed to introduce large masses of clean air. Obviously, atmospheric air cannot be brought in without appropriate filtration. Several contaminants can coat the compressor blades and cause erosive or corrosive damage to the turbine components, thus causing performance downgrade. Further, sticky contaminants can alter the blades' surface and mass, which would further contribute to performance reduction. The dilemma of increasing the number of filter stages and/or their efficiency poses the risk of increasing the pressure drop of the entire filter section. The choice is between increasing the pressure drop on the one hand, and reducing the number of filter stages and/or their efficiencies to allow greater volume of less clean air, on the other. Some other techniques such

as compressor washing are introduced in combination with filtration to achieve a better performance.

In the GCC region, what do you think is the main problem facing air filtration practices?

A problem arises when the performance of air filters used in gas turbine and HVAC applications deviates from what is predicted by laboratory results using standard air dust. This is especially true in regions like the Arabian Peninsula that are known to have dust with characteristics deviating from that of standard dust. Therefore, it is imperative to correctly characterise, chemically and physically, the GCC atmospheric dust in order to investigate the possible impact of those characteristics on the filter performance.

Why are sandstorms a challenge?

Sandstorms create abrasive climate conditions and assault our indoor spaces, adding to the complexity of the filter performance deviation problem. They bring elevated concentration of suspended atmospheric particles that affects most human and industrial activity.

What do you suggest we do to solve the problem?

Air filtration is an engineering practice and therefore, its performance must be verified prior to any hasty installation mistakes that cause unrecoverable losses. On this point, the involvement of governments is imperative, as a body to approve filter performance and permit only those manufacturers who meet specific approval parameters for the concerned markets. Our action plan to regulate supply of air filters to the GCC markets must include:

- Comprehensive testing to verify the air filtration performance
- The establishment of government laboratories to conduct air filtration performance tests and provide approval for selling products in the local/regional markets
- Establishment of regional standards to accommodate GCC climate conditions as guidelines for manufacturers
- Involvement of academic institutions to conduct research and development
- Incentivising the industry to sponsor air filtration research ■

– Dr. Iyad Al-Attar is a mechanical engineer and air filtration consultant



Dr. Al-Attar advocates for a strong environmental policy where governments take a more proactive approach.

Kingdom of Saudi Arabia gears up for IoT

Around 27.7mn people use the Internet in Saudi Arabia, making it a sound market for the penetration of Internet of Things (IoT).

THE INTERNET OF Things (IoT) comprises a network of things that enable data transmission through a network, without human-to-human or human-to-computer interaction.

IoT is popular across major economies the worldover, especially for industrial or business purposes. The concept is also gaining momentum in Saudi Arabia, as more businesses are embracing the utilities of IoT. According to a report by IDC, machine-to-machine (M2M) and IoT applications are growing at a rapid pace, as organisations across verticals are outperforming each other to offer the latest ICT solutions for customer satisfaction. Tolga Yalcin, senior research analyst for telecommunications and networking at IDC Saudi Arabia says, "The share of M2M and IoT applications within the ICT ecosystem is growing. While most of the applications are essentially M2M based, IoT solutions are also increasingly being applied, particularly in Smart City projects." Yalcin goes on to reiterate how the current market is conducive to telecom companies, and recommended that they "capture opportunities by driving market development and building end-to-end solutions, rather than restricting themselves to mere connectivity".

Major players in the IoT and M2M sector include Alcatel-Lucent, AT&T, ZTE, IBM and Huawei Technologies. Chinese telecom major Huawei Technologies showcased its IoT solutions in Dubai in June 2015. Huawei regional vice-president for smart cities and IoT Safder Nazir explored how IoT helps



More businesses are embracing IoT applications in Saudi Arabia. (Photo: Bobboz/Shutterstock)

makes cities smarter. With the region becoming city-centric, cities of the future have to become more intelligent by connecting with each other and enhance businesses. In a bid to lead the way in IoT deployment, the company is trailing its latest cellular IoT, reveals Nazir.

Meanwhile, French telecom major Alcatel Lucent joined hands with Saudi Arabia's Mobily to deliver virtualised radio access network (RAN) in Saudi Arabia to improve

performance, reliability, scale and operational efficiency. This is the first time the French company's Wireless Cloud Element Radio Network Controller (WCE RNC) has been deployed by a telecom service provider. Running a virtual radio network functions over open, carrier-grade platforms and provides considerable advantages in data transmission.

The change is just about beginning in the country, feel experts. According to Yalcin, Saudi Arabia is more of a follower than an initiator when it comes to adopting new technologies and smart ICT solutions. With the advent of IT majors such as Huawei, Alcatel Lucent and IBM among others, there is scope for better, more improved technologies to make their way into Saudi Arabia in the future and enhance the manner of carrying out business. ■

Telcos should capitalise on the current opportunities in the market by driving market development and end-to-end solutions.

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Briefly

Nokia Networks to deploy small cells in Qatar

NOKIA NETWORKS HAS signed a deal with Ooredoo Qatar to deploy small cells in hotspots across the country to boost voice and data services to customers even in interior locations.

Ooredoo Qatar chief operating officer Waleed Al Sayed said, "Our customers demand high-quality services, even in complex hotspots and crowded urban zones. Nokia Networks small cells will enable us to provide more capacity, higher availability and reduced latency."

According to Nokia Networks, the agreement follows a trial where its LTE and 3G small cell solutions in high-traffic indoor and outdoor locations in Doha, including the historic Souq Waqif area, were deployed. At the time, Nokia experts identified key hotspots using advanced planning and analysis tools. Nokia Flexi Zone small cells were installed discreetly in strategic locations, in a bid to ensure additional capacity, coverage and better network availability.

Nokia Networks' small cell base stations also have the same software and processing capabilities as macro base stations, but require lesser space and can be deployed easily and in a cost-efficient manner, revealed Nokia officials.

Nokia Networks vice-president and head of Middle East and Africa Bernard Najm said, "Nokia's advanced mobile broadband solutions will help Ooredoo achieve its goal of supporting the Qatar National Vision of boosting the knowledge-based economy."

Dubai Smart Government carries out feasibility study

DUBAI SMART GOVERNMENT, along with other government entities, is carrying out a feasibility study that aims to establish the utility of a shared modern fibre-optic network.

The integrated network is aimed at connecting all government entities, thereby improving efficiency of their technological structure and ensure seamless transmission of data. The larger objective is to elevate Dubai's position as a smart city, stated officials from DSG.

DSG director general Ahmad Bin Humaidan said, "This step comes in implementation of the initiative of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE, and Ruler of Dubai, for shifting to smart government."

The study is expected to take around six months to get completed, and will cover two phases. Phase 1 is underway and will collect current and future requirements of government entities through electronic surveys and workshops with government partners. Meanwhile, the second phase will be completed by the end of December, resulting in practical recommendations on the specifications of the Dubai government's fibre-optic network, the shared network's infrastructure and the return on investment.



Phase 2 of the study will provide recommendations on the government's proposal to establish a shared fibre optic network. (Photo: Datskevich Aleh/Shutterstock)

In order to achieve improved results, DSG conducted an introductory workshop at the Hamdan Bin Mohammed Smart University to highlight the project and the methodology of the study. Sixty employees attended the workshop, where the current capabilities of government entities were discussed and assessed. The workshop also studied the emirate's future needs, and the corresponding designs and criteria necessary to set up the fibre-optic network.

Dell dealership opens new Saudi Arabia office in Jubail City

HILAL COMPUTER & Technical for Trade Company (Hilal CTTC) Saudi Arabia has opened a new office in Jubail City, Saudi Arabia, in a bid to deliver high-end IT services in the industrial area.

Hilal CTTC is the authorised dealer in Saudi Arabia for technology major Dell. The new Jubail City office will be endowed with a range of IT solutions that cover cyber security, risk management, cloud computing as well as a host of support services. The services are expected to extend to Ras Al-Khair and the wider area to meet customer demands.

Geoffrey Milne, general manager of the Northstar Group of companies (owner of Hilal CTTC) said, "The strategic decision to establish a base in Jubail City was taken to meet increasing demands in Saudi Arabia for our products and services. Many of the blue-chip companies operating in Jubail already use Hilal CTTC services and utilise Dell technologies and IT solutions."

The new office represents a strategic first with the only Dell-authorized dealership in Jubail City.

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Representatives from across the global aluminium industry will be in attendance at ARABAL 2015.

Aluminium industry set for Saudi spotlight

Saudi Arabian mining and minerals giant Ma'aden set to host leading Arab aluminium conference at Dhahran International Exhibitions Center in November 2015.

GCC aluminium production hit five million tonnes in 2014 and looks set to continue growing over the coming years.

PARTICIPANTS FROM ACROSS the global aluminium industry will converge on Saudi Arabia in November for the Arab Aluminium Conference (ARABAL), with technology and innovation set to be at the forefront of this year's conference, according to the CEO of Saudi Arabia's largest aluminium producer.

The event, which takes place from 15-17 November 2015 at Dhahran International Exhibitions Center, will be hosted by the Saudi Arabian Mining Company (Ma'aden), owner of the largest vertically integrated aluminium complex in the world – a US\$10.8bn joint venture with Alcoa.

The 2015 conference will focus on “the integration of the upstream and downstream aluminium industry in the GCC”, as it looks to cover a broad range of topics including the future of the global aluminium industry and the promotion of

cooperation between aluminium producers and consumers.

“Hosting ARABAL consolidates the position of Ma'aden and its successful journey towards becoming one of the largest mining companies in the world,” said Ma'aden CEO Eng. Khaled bin Saleh Al Mudaifer. “The conference will discuss current and future challenges for the aluminium industry, and the opportunities for industrial integration of aluminium in the Gulf region.”

Ma'aden, the leading mining and metals company in Saudi Arabia, uses Saudi bauxite to produce aluminium ingots, billets, T-bars, automotive and can sheet for domestic and international markets, as well as to facilitate the development of domestic downstream industries throughout the Kingdom.

Among the highlights at the industry showcase will be Ma'aden's presentation of its integrated supply chain via a tour of

its aluminium complex in Ras Al-Khair. The tour will provide delegates, industry representatives and exhibitors with the chance to view the company's facilities and the processes that go into the application of its manufacturing vision of "from the mine to the end product".

The tour will include all the components of the supply chain starting with the stockpiled bauxite, delivered by rail from the mine, passing to the refinery and the smelter and finishing with the rolling mill and aluminium can reclamation facility.

Enduring appeal

This year marks the 19th edition of ARABAL, which was last held in Bahrain in 2014 under the theme "GCC: An aluminium power house". The event attracted more than 700 delegates from across the global aluminium industry

“Hosting ARABAL consolidates the position of Ma’aden and its successful journey towards building a reputation as one of the largest mining companies in the world.”



The supporting conference will feature participation from international and regional companies.

and was hosted by Aluminium Bahrain B.S.C. (Alba).

The event began life back in 1983 when Kuwait Aluminium Company brought together a selection of leading figures from across the Middle East aluminium industry, with the intention of strengthening ties and discussing the issues that were key to the aluminium industry's development at the time.

As the event edges closer to its 30th anniversary, it has grown over the decades into one of the leading international events for the aluminium industry, bringing together a broad range of leaders from across the aluminium sector, providing them with a notable platform on which to network and conduct business.

ARABAL 2015 will be organised by international events company BME Global Ltd who were appointed by Ma'aden to manage the conference. The firm has experience of operating in Saudi Arabia

and operates a branch in Cairo, Egypt. Through its events, BME Global has covered a number of industries key to economic development throughout the wider Middle East, including petrochemicals, water, power, environment, security and construction.

Aluminium in the Arab world

It is believed that the GCC's aluminium production hit five million tonnes in 2014, and with global demand for aluminium set to reach 70mn metric tonnes annually by 2020, the industry looks set to continue growing over the coming years.

Describing the ARABAL Conference as one of the most important events within the global aluminium industry, Eng. Al Mudaifer remarked, "It is an opportunity to present the Kingdom as an investment hub for aluminium companies, which contributes to attracting foreign capital and the localisation of global technologies."

ARABAL chairman Mohamed Al-Naki confirmed that the conference will feature participation from international and regional companies, with panel discussions and debates set to centre on the latest developments throughout the aluminium industry, as well as recent economic developments and their effect on aluminium production. Alongside the conference there will be an exhibition that will allow participating companies to showcase a wide range of their latest services and technologies in the aluminium industry. ■

To find out more details about ARABAL 2015, please contact James Lamb at james@bme-global.com or on +44 (0) 203 328 9581.



A tour of Ma'aden's nearby aluminium complex will be on the agenda for a number of the event's delegates.

Building confidence

The upswing in construction activity is expected to boost water management solutions provider AES Arabia's already steady presence in Saudi Arabia.

SAUDI ARABIA IS one of the fastest growing markets for construction. The sector can provide vast opportunities to AES Arabia, a specialised water management solutions provider, feels Asad Iqbal Khan, AES Arabia's business development manager.

A large agricultural and industrial base in Saudi Arabia, supported by an increasing number of infrastructure projects, has provided a sound backdrop for AES Arabia to expand its presence. Specifically, the need for desalinated water is on the rise due to water scarcity, hence AES Arabia's reverse osmosis (RO) water management solutions are in demand, said Khan. The company's signature solutions include demineralisation packages, condensate polishing packages, effluent treatment plants and sewage treatment plants.

Specifically, RO has a dominating presence in brackish water desalination, and the trend is moving over to seawater desalination, he stated. RO desalination will increase due to the rise in water demand, mainly propelled by the energy and municipal sectors in the country. To cater to varying demands, different technologies are coming up such as dissolved air flotation (DAF) and pressurized inside-out ultra filtration (UF) for power industries. In conjunction with seawater reverse osmosis (SWRO), the process is applicable to the oil and gas and petrochemical sectors as well. However, Zero Liquid Discharge (ZLD), which either purifies or recycles almost all the wastewater produced, is expected to emerge as an affordable and widely-used process in industrial applications and especially where the regulation is stringent for the disposal of brine, added Khan.

In addition to the above processes, AES Arabia is a leading specialist in chemical injection skids, which inject a precise amount of specific chemicals into a system at a required temperature, pressure and flow rate. Most chemical injection skids deliver concentrated chemical at specific volumes to ensure bulk concentrations in the main process line are maintained. For maximum efficiency and accuracy, chemical injection systems designed by AES Arabia



AES Arabia's reverse osmosis water management solutions are in demand. (Photo: Asaf Eliason/Shutterstock)

also contain fully automatic PLC control, precise control logic and control panel (NEMA-4X). Based on different applications, chemical injection skids manufactured by AES Arabia include corrosion inhibitors, scale inhibitors, demulsifier injections and an antifoam dosing package.

"We are always looking to meet the requirements of our customers through our expertise and capability of doing regular to large size projects for multiple construction companies and end users," Khan stated.

Given the slump in oil prices, there was considerable concern among the major oil and gas industry players, as well as the sectors that support it. Specifically, the desalination market was affected due to

financial conditions in 2014, but Khan revealed that only a few of AES Arabia's projects were cancelled. In fact, most of the company's projects were temporarily on hold, but are now gathering momentum.

"We have not experienced a slump, rather slower growth as a result of the financial hit at the time," he said.

Things are definitely looking better this year though. Through 2014-15, Saudi Arabia has registered the fastest growth in construction, mainly due to major projects such as King Abdullah Economic City, King Abdulaziz International Airport, Haramain High Speed Rail and the Riyadh Metro. The country is expected to invest more money in construction, where AES Arabia hopes to maximise its profits.

"AES has been active in oil and gas, power, water, petrochemicals, construction and infrastructure projects. In the GCC, we have the reputation of successfully completing projects in a given time frame, as well as delivering precise engineering and quality execution," noted Khan.

Being an established name in the GCC, AES Arabia is now looking to expand in Africa and the Caspian regions, revealed Khan. The company hopes to achieve broader exposure and heightened mileage in other regions through trade shows, which Khan views as an investment to reach potential and existing customers. "It is possibly the best way to understand and learn industry trends as well," he concluded. ■



Asad Iqbal Khan, business development manager of AES Arabia.

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F Model growth driven by demand

With the Chinese market growing, FG Wilson has begun to vastly expand its dealership network in the Asian country.

LESS THAN A year since FG Wilson launched its F Model range, the global manufacturer of diesel and gas generator sets is set to expand the range further throughout the next 18 months.

The 32–125 kVA range of generator sets, which complements the existing suite of FG Wilson product ranges, has already proven popular with customers across the world with its design providing a more diverse and competitive product offering across multiple customer segments such as domestic, retail and industrial.

The range, until recently, had only been available in 50 Hz from 32–125 kVA but customers can now purchase this range from 8.5–137.5 kVA in both 50 Hz and 60 Hz.

The company also revealed that plans have been advanced for the launch of the F Model range in a number of smaller and larger sizes to meet the rising demand for the product in countries such as China, Brazil, Russia and Africa.

Over the next 18 months the range will become available in 8.5–22 kVA, 200–220 kVA, 275 kVA and 340–390 kVA.

Neil McDougall, retail global sales director, said, “The F Model product range has delivered on our promise of providing performance, serviceability and durability with a FG Wilson engine and a simplified choice of options.

“The forthcoming introductions of the new F model sizes will allow us to compete in even more new markets and broaden our customer base further.

“Such new product introductions are part of Caterpillar’s strategic plans to position FG Wilson as the volume brand within its Electric Power Division for all diesel and gas generator sets from 6.8 – 750 kVA.”

An exclusive feature of the F Model range, which has been an important factor in its success during the first year, is the introduction of the FG Wilson engines.

Coupled with robust components, the F models deliver a high quality, ready-to-run



The F Model generator sets are optimised for performance and fuel consumption.

product that meets industry standards for the value-utility market.

FG Wilson’s official dealer network has also increased across China. During 2014, the company expanded its network in China with the recruitment of five high-quality companies which has improved its reach across four key provinces namely Shandong, Jiangsu, Hunan and Sichuan.

Currently, dealer recruitment has been ongoing throughout China and the firm is

**Until recently,
the F model was
only available from
32–125 kVA in 50
Hz. But it is now
available from 8.5 –
137.5 kVA in both
50 Hz and 60 Hz.**

engaging with a number of firms to establish new dealers in areas including Jiangsu, Anhui, Fujian, Jiangxi, Hubei, Henan, Hainan, Guizhou, Yunnan, Gansu, Shanxi, Inner Mongolia, Jilin, Heliangjiang, and Ningxia.

McDougall added that FG Wilson has been continually searching for opportunities to consolidate its position as the leading global manufacturer of diesel and gas generator sets.

“The expansion of our dealer network in China comes just six years after the relocation of FG Wilson’s Asia Power Systems to a 28,000 sq m world-class facility in Tianjin, purpose built to fulfil increasing demand. The APS plant in China is one of the main source plants for the recently-opened Product Distribution Centre (PDC), located at Antwerp, Belgium.”

With manufacturing plants located in many countries such as the UK, Brazil, China, India and the USA, FG Wilson’s ‘One Global Standard’ guarantee ensures that each generator set is designed and manufactured to the same global standard, the company added. ■





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Improving energy efficiency using power factor correction

HARAMAIN HIGH SPEED Rail project represents one of the most important transport projects in the expansion of Saudi Arabia's railway network. It links the holy cities of Mecca and Medina via Jeddah and King Abdullah Economic City. A passenger station is currently being constructed in each of these cities.

The four stations are designed on the principle of a modular approach to enable speedy delivery of high-quality buildings while simultaneously enhancing the passenger experience. In addition to the main building and arrival and departure concourses, each station also has a mosque, a civil defense fire station, a helipad, terminals, short- and long-term car parking, VIP lounges, shops, restaurants and cafes.

Energy efficiency is an important factor in a project of such scale. Icar S.p.a., through the distributor Dash Control Systems, has improved the energy efficiency of the Haramain High Speed Rail stations with power factor correction systems. The



Power factor correction reduces the 'unnecessary' current in power components.

system reduces electricity costs both in terms of elimination of penalties in the bill for excess consumption of reactive energy and of reduction of the energy dissipated by Joule effect. Authorities overseeing electrical utilities often force companies involved in distribution to apply financial penalties to facilities that have a substantial

contractual power and low energy cos phi (generally 0.9).

Power factor correction also impacts the power quality of electric plants of the railway stations. In many electric plants that are powered by an MV transformer, a considerably distorted tension due to excessive load of the MV/LV transformer is commonplace.

Appropriate power factor correction and consequent load reduction by the transformer allows for it to be brought back to operating conditions within linearity limits, substantially reducing the voltage distortion.

Some of the substantive benefits from using the power factor correction are:

- Optimised dimensioning of the components (transformers, switching devices, cables)
- Reduction of voltage drops along the lines
- Reduction of losses due to Joule effect/heating
- Reduction of ageing components

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Dialight launches new LED floodlights

DIALIGHT HAS LAUNCHED its new 15,000 lumens DuroSite and Safesite floodlights in UL, CE and C1D2 versions. The higher lumen floodlight can replace up to 400W traditional HID lighting fixtures, making for energy efficient illumination for industrial and hazardous applications worldwide.

DuroSite and Safesite floodlights consume 50 per cent less energy than typical HID lighting sources and also reduce overall maintenance costs. Fixtures have a tempered glass lens and a die cast aluminium housing which is corrosion resistant, and weigh a maximum of about 13 kg.

The fixtures feature an in-house designed power supply and isolated wiring compartment with standard 6kV surge protection. They can operate in ambient temperatures ranging from -40°C to +65°C.

Each LED floodlight ships standard with a stirrup-mounting bracket and includes 10-year warranty from Dialight. A wide range of other mounting accessories are also available.



LED saves power and money compared to conventional lights. (Photo: Mike Deal/Flickr)



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Powertech Switchgear positive about business growth in UAE

POWERTECH SWITCHGEAR INDUSTRIES (Powertech) remains optimistic about the near future despite the declining oil prices affecting economic activity in the Gulf countries. As ABB's channel partner for low-voltage systems in UAE, the company maintains that demand for ABB as a preferred make among consultants and contractors is on the rise, even amidst intense competition.

Vinay Kumar, sales manager at Powertech, said that due to the "global decline in oil prices, the UAE government has initiated various measures to tackle this by curbing subsidies and diversifying income to strengthen the economy".

"A direct impact of this has been the slowdown in trade receipts as well as a mull in decision-making. The build-up to the Dubai Expo 2020 will fuel momentum in a bid to creating and developing the required levels of infrastructure for the event," Kumar added.

As a part of its plan to stay ahead of competition, Powertech is currently pursuing type-test of certain ratings for its low-voltage panels. There is an increasing emphasis within the organisation for technologically integrated processes for greater efficiency while keeping the customer at the forefront.

Kumar indicated that the company has invested in optimising its resources to meet the requirements of customers both within the UAE and regionally. He said that the company has developed a fully equipped 24-hour service team for onsite maintenance and



The capacitor bank meets IEC 61439 and IEC 61921 standards.

troubleshooting with a view to providing support to customers for issues related to drives (VFD), capacitor banks, PLC and other onsite troubleshooting.

Powertech Switchgear Industries is headquartered in Ajman Free Zone and has a branch office in Dubai. The company assembles low-voltage control panels, suited mainly to the construction sector. Its products are type-tested and certified by regulatory bodies both within UAE and outside. Products are tested in LOVAG-recognised laboratories to ensure their safety, durability and functionality. In 2012, Powertech became an authorised value partner for ABB's low-voltage drives in UAE.

DEWA establishes electric vehicle points

TO REDUCE CONSUMPTION of hydrocarbons and associated carbon footprint, Dubai Electricity and Water Authority (DEWA) announced that it is building infrastructure to build 100 electric vehicle charging stations this year. Sixteen of the stations under the Green Charger initiative have already been built and are open for public use, and DEWA said it would build the remaining 84 stations by the end of this year.

The new charging stations will be of three types that are compatible with the latest international technologies used in electric vehicles and will be launched on main highways, at government buildings, malls, airports and parks, and in hotspots such as Jumeirah Beach Residence and other major developments. Charging stations that are exposed to the sun will be solar-powered for a carbon-neutral option, meaning that no greenhouse gases will be emitted into the atmosphere.

The rate for charging an electric vehicle at public charging points is about US\$0.08 per kWh. For electric vehicle owners who charge their vehicles at home, the standard residential electricity rate will be applied.

The Green Charger initiative is said to contribute to introducing electric vehicles in Dubai and making them a choice among residents. The initiative is part of the three-pronged approach that Dewa is implementing to turn Dubai into a smart city, which includes connecting solar energy to houses and buildings, and smart applications through smart meters and grids.

Power-saving sun control fabric from Hunter Douglas

HUNTER DOUGLAS, A manufacturer of sun control systems based in The Netherlands, has released its new Screen Nature Ultimetal sun control fabric, which reflects 70 per cent of sun light that strikes buildings, thereby substantially reducing energy costs spent on cooling. Using the fabric, buildings in GCC countries can reduce energy costs by up to 25 per cent.

In projects with a lot of glass, such as skyscrapers, Screen Nature Ultimetal can cut the amount of energy needed for cooling by 25 per cent by blocking out glare, while minute holes allow for light and openness. Screen Nature Ultimetal is recyclable as it is made with fiberglass with a reflective aluminum layer, is fire-safe and also free of PVC, odours and toxic vapours.

Job Hoevenaars, product manager at Hunter Douglas, said, "The fabric halves the solar heat gain coming through the window. This means the interior temperature will remain pleasant in summer without much additional cooling."



Highrises with glass exteriors use a lot of energy to cool the interior of the building. (Photo: Henk Sijgers/Flickr)

My Dad is an IEC 61850 expert



Dad

My Dad says that with **IEC 61850**, protection and communication are increasingly converging also in railway substations. Therefore, his testing and analysis tools must be able to handle the new communication mechanisms and support him in acquiring the necessary knowledge easily. With the following products, OMICRON helps him to do a great job:

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Generator sets targeting pollution reduction at global ports

AS GLOBAL COMMERCE increases, an increasing number of ships traverse the oceans and are berthed at ports from time to time. While berthed at ports, ships traditionally use their auxiliary engines to produce own energy to meet the requirements of the ship's functions. This power generation leads to emissions that are considered pollutants, and also causes noise pollution, which not only has an impact on the environment, but also cause inconvenience for those who live or work at or near the ports. Depending on the specific layout of the city, the impact from these emissions could vary in intensity, but it is desirable to reduce it as much as possible.

If the ships were to be supplied with power from the port city, instead of relying on their own auxiliary engines, it would require a



A genset on a mobile kit can reach remote areas of the port. (Photo: Inmesol)

substantial investment to set up the necessary infrastructure. It would involve substations that have switches, circuit breakers, a transformer, an automatic ground switch, safety equipment such as protective relays for transformers, communication systems between ships and port and, in most cases, frequency converters to adapt the local grid voltage to the ship's. In addition, it is necessary to have a management system for the port wires. On top of that, the ship needs an additional electric panel board and in most cases a step-down transformer.

Generator sets, such as those from Inmesol, can be used along with other methods to reduce air and noise pollution caused by ships while berthed at ports. They can offer various voltages and frequencies, according to what the ship needs.

Some of the advantages in using a generator set to supply power to berthed ships are:

- Can be adapted to different voltages and frequencies that ships may need
- Mobility allows it to be easily taken to any part of the port
- Has low emission engines
- Can be soundproofed to be barely audible
- Lack of heavy fuel creates less pollution

Taking into account the reduction on fuel costs made by the ship if it uses port-based gensets instead of its own auxiliary engines, the investment on the genset will pay off in a short amount of time. It will also be easier for ships to meet the increasingly strict standards for energy conservation and reduction of carbon blueprint.

Thermostat aims to reduce energy consumption at mosques throughout the GCC

HONEYWELL HAS LAUNCHED the VisionPRO 8000 thermostat for mosques to reduce energy consumption across GCC countries and the Middle East.

Mosques often have large and open spaces in the interior, which means they are energy intensive to cool. That makes ensuring a comfortable, yet energy efficient environment, during the five prayer times everyday a challenge across the Middle East region.

Honeywell's VisionPRO 8000 thermostat comes with a GPS enabled call-to-prayer feature called 'auto-azan', which detects prayer times depending on the mosque's location and lowers temperatures during crowded peak times automatically, while saving energy when the building is unoccupied.

With more than 5,000 mosques across the UAE alone, the thermostat for mosques has the potential to save enormous amounts of energy annually. Honeywell had originally designed the VisionPRO 8000 thermostat to provide optimal comfort and energy savings in homes and offices. The company customised the product for the Middle East market after consultations with mosque caretakers revealed a gap in the market for an intelligent AC system.

Dilip Sinha, regional business leader for Honeywell Middle East, said, "We designed this product with our customers in mind. We observed how they used their thermostats, and measured the ebb and flow of worshippers as well as the temperatures required to ensure optimal comfort. The VisionPRO 8000 thermostat for mosques provides optimum comfort levels for worshippers, while also providing an intuitive and energy efficient temperature management solution that assures the proper cooling at the appropriate time for the mosque's administration."



Large, open spaces on the insides of mosques interiors are very energy intensive to cool effectively. (Photo: HISHAM BINSUWAIF/Flickr)

The VisionPRO 8000 thermostat for mosques is designed to offer a return on investment within three months from installation. Other noteworthy features of the VisionPRO 8000 thermostat for mosques include dual power (AC/DC) functionality, as well as the capacity to operate even when only using batteries. For long-term efficiency of the thermostat, its system software and programmes can be easily upgraded using memory cards. The upgrades will come in handy during special occasions such as Ramadan and Eid, to accommodate extra prayer timings. The thermostat has completed its pilot testing phase in the UAE over the last year. Honeywell is also currently planning on commencing new pilot projects with mosques across key cities in the Middle East.

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Work on the new centre began in the first week of August.

LiSEC to set up new centre for service and training

The upcoming centre will be used for training customers and service technicians of all subsidiaries, as well as for exhibitions and presentations.

LISEC, THE AUSTRIA-BASED provider of comprehensive glass solutions, is setting up a new service and training centre at its production site in Seitenstetten. The group of companies is investing more than US\$3.2mn into the planned centre which will be a part of its globally active service department.

The centre will start with the construction of a 1,200 sqm machine hall and a 950 sqm office wing. Following that, an exhibition and training hall with state-of-the-art machinery will be built, which will be used for presentations as well as for the training of customers and the service technicians of all subsidiaries. It will also house the team that handles the international service hot-line.

Construction of the centre began in the first week of August 2015 and is expected to be completed by the end of 2015. The company hopes to be able to use the new fully-functional service and training centre from January 2016.

Peter Rattinger, head of the service department at LiSEC, said, "With its finger on the pulse of the time, the new service and training centre is equipped with the latest infrastructure, which meets the global requirements of our customers."

As a result of its increasing use in the construction industry across the Middle East, glass is becoming an ever more intelligent building

material. Aside from its use as thermal and sound insulation or for attractive building facades, new areas of application are constantly evolving. To keep up and to stay ahead of the developments, LiSEC's team of specialists work on the technical development of special machines in its INOVA Engineering Centre at the Seitenstetten site. Highly qualified engineers, backed up by the most up-to-date CAD/CAM systems, together with an integrated research and development department are continually engaged in creating new techniques to solve the diverse requirements of the glass industry in the Middle East.

The solar industry can use the LiSEC's tempered thin glass, whether as cold-bent parabolic reflectors or for glass-glass modules. The company's encapsulation technique is perfectly suitable for crystalline, organic and thin-film solar cells. The thin glass makes the photovoltaic modules is very lightweight when compared to conventional ones. The company's sealing technology makes the modules diffusion-tight and UV-resistant, increasing the modules' life to more than four decades.

LiSEC's flatbed tempering process is especially suitable for tempering thin glass which produces flexible and lightweight glass sheets which can be used in the production of insulating glass as well as in the solar field. The thin glass has a maximum thickness of 0.9 mm and has no roller waves, and the process allows for both sides of the sheet to be tempered.

Triple insulating glass is another innovation from LiSEC. Using tempered thin glass, the thickness and weight of the triple-glazed glass is the same as that of double-glazed glass. The triple-glazing provides considerably improved sound and thermal insulation.

LiSEC develops and produces glass cutting and sorting systems, individual components and entire production lines for the production of insulating and laminated glass, as well as machines for the processing of glass edges and tempering systems. ■

The new service and training centre will be equipped with the latest infrastructure to meet the global requirements of LiSEC's customers.

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Briefly

Panasonic launches new multi-function printers

PANASONIC MIDDLE EAST and Africa (PMMAF) has launched KX-MB2168 and KX-MB2128 from its new range of multi-function printers (MFP). The printers can print double-sided documents at a rate of 24 pages per minute.

Multiple sets of data can be printed onto a single page by dividing the page into two, four, six, eight or 16 parts. It is a convenient way to see an overall view of the data when it is not necessary to see the details of each part. By combining this with duplex printing, the number of recording pages is reduced, and the printing time is shortened by reducing the number of sheets.

Faxes received can be viewed on a PC web browser first, therefore minimising wasteful printouts and saving on paper costs.

"With Secure Print, it can prevent confidential documents from being leaked by protecting them with very high level security," said Nelson Edward, manager for system networks and communication at PMMAF. "Print data is password-protected and temporarily stored on computer's hard drive. Information leaks caused by fax transmission mistakes are also prevented by protecting against erroneous dial number input and by placing restrictions on direct dialing. Copying and printing can be restricted by the use of a department code. Also, the code effectively manages copying and printing usage."

Up to 30 computers can be connected to a single network unit.

Julian Ford appointed CCO at Altaaqa Global

ALTAQA GLOBAL HAS appointed Julian Ford as chief commercial officer (CCO). In this role, Ford's remit will be to ensure that Altaaqa Global achieves revenue growth targets and overall commercial success, and to facilitate the formulation and implementation of innovative global commercial strategies.

Ford is an energy industry veteran, with 15 years of experience in the rental power segment. He had a hand in introducing the concept of power project rental to governments of developing economies, which allowed them to hire power capacity to address short-term energy issues. Ford has been instrumental in taking the rental power concept to different regions across the globe, including Middle East and Africa, South America, East Asia and South Asia.

Ford led the way for the development of the gas-fuelled temporary power equipment market in the mid-2000s. "At that time," explained Ford, "diesel costs were rapidly rising, and it was imperative to diversify the product offering and capitalise on the growth of natural gas reserves." Focussing on markets where gas reserves were not vast enough to be commercially developed, Ford pioneered a new business model that allowed countries to



Julian Ford is a global pioneer in temporary power projects.

monetise their 'stranded gas' reserves to generate useful low-cost electricity for the national grid.

Speaking of what he plans to do in his new role at Altaaqa Global, Ford said, "Our objective is to create a highly skilled, motivated and experienced, world-class, power projects team. My vision is for Altaaqa Global to lead the evolution of the industry, and to be recognised as the premier source of innovative technical solutions and the highest level of customer service and support."

Elliptical tempering furnace from LandGlass Technology

A NEW GLASS tempering furnace from LandGlass Technology Company has an elliptical structure design that ensures a smoother and faster air flow compared to the square-shape design of traditional heating furnaces.

Other than its unique appearance, the LandGlass Cyclone also has an optimised inner structure which includes the convection blower and convection box. All of these allow unparalleled evenness of air flow and uniformity of heating of the glass inside the heating furnace.

The Cyclone furnace uses convection technology for tempering glass of various types. It produces minimal waviness, up to a maximum of 0.12, and depending on the type of glass, can take up to 21 loads an hour with maximum power consumption of 3.75kWh per sqm, which is up to 10 per cent less than standard convection tempering furnaces. The eAdapt system adjusts various settings, such as pressure and temperature automatically, reducing dependence on the operator.

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Smart Palms to offer free charging and Wi-Fi access in Dubai

D IDEA HAS planted a new species of palm tree – Smart Palm – in Dubai, which instead of producing dates, harnesses the sun’s energy to allow people to look up city information, access Wi-Fi and charge their phones, all for free.

Topped with nine leaf-shaped photovoltaic (PV) modules, the six-meter-tall Smart Palm can generate around 7.2 KWh per day, enough to operate without ever drawing off the grid.

Each of the two prototype palms that were installed in May this year – one at a beach near the Burj Al Arab hotel and other at centrally located Zabeel Park – carry a Wi-Fi hotspot, eight charging stations for phones and tablets, and a touch-screen panel giving local details on information such as the weather and transportation services.

The Dubai-based firm said that connectivity is just the start of the Smart Palm’s potential.

CEO Viktor Nelepa told Reuters, “Subsequent Smart Palms will have ATM machines and utility bill payment services. Our team has also started to find new ways in which the Smart Palm can support other forms of sustainable generation, specifically through air and water purification modules.”



Each Smart Palm runs entirely on its own solar power source and lights up at night. (Photo: Smart Palm)

Over the next 12 months, D Idea plans to install 103 Smart Palms across the city.

The next generation of the device, due to be launched soon, will be created by 3D printer and have a different design.

Made from a combination of fibre-reinforced plastic and concrete, the new Smart Palms will also be better able to withstand Dubai’s tropical desert climate.

“The device will not only look attractive, but would counter the extreme weather conditions,” Nelepa noted, adding that the project has been receiving funding from Dubai Municipality. The company plans to turn to advertising and branding to meet future costs, he said.

According to the CEO, the Smart Palm project is one of several initiatives that are part of Dubai’s push to create a greener economy.

In a country where 88 per cent of the population uses their phones to access the Internet, the Smart Palm already has happy users.

“The device is actually useful as we spent almost four hours on the beachfront today and that’s enough to drain my battery,” said Nawaf Al Qinae, a professional photographer from Kuwait, after spending time on a Dubai beach.

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Enhancing growth in the solar power industry

With a number of huge solar power projects on the way across the Middle East and North Africa, the Global Solar Leaders' Summit in Dubai will aim to play an important role in determining the future of solar throughout the region.

THE SECOND EDITION of GulfSol 2015, scheduled for 14-16 September, will host the region's first Global Solar Leaders' Summit on Day 1 to discuss the benefits of solar energy and the ways to build a brighter future.

Taking place at Dubai World Trade Centre, the summit will bring together some of the world's most influential leaders at the event, which will be held alongside Gulf Glass 2015.

GulfSol is dedicated to the solar industry and will showcase the latest solar thermal and photovoltaic technologies available in the region. First launched in 2013, GulfSol has established itself as a leading solar event among key players in the industry, according to organisers dmg events. With the addition of the Global Solar Leaders' Summit, the event will look to carve out a role as a key industry event for leading players from across the solar power sector.

Last year proved to be a breakthrough 12 months for solar power in the Middle East. To put 2014 into perspective, in the previous seven years only 70 MW of solar photovoltaic system (PV) projects were awarded across the region. In 2014 alone, that figure stood at 287 MW — a fourfold increase — according to a new report published by the Middle East Solar Industry Association (MESIA). Regional solar projects with the capacity to produce up to 1,800 MW are set to be awarded or tendered over the next 12 months, MESIA added. By 2020, it has been estimated that the Middle East and North Africa (MENA) region will attract more than US\$50bn of solar investment.



According to Muhammed Kazi, senior event project manager, GulfSol 2015, solar energy plays an important role in constructing sustainable buildings and, therefore, GulfSol and Gulf Glass are witnessing more customers wanting to connect with key industry decision makers.

Solar energy is a leading renewable energy source, transforming communities and driving sustainable economic development in emerging countries from India to South America. With the costs of solar PV modules and systems dropping, there has been a surge in the growth of the sector, particularly in the MENA region.

With renewable energy initiatives set up across 164 countries, renewable energy is fast becoming a preferred choice for global investors looking to diversify their portfolios, with US\$50bn-worth of 'green bonds' forecast for 2015. According to a report from US-based strategic consultancy firm, Arthur D Little, these costs have dropped by 65-70 per cent over the last five years.

However, despite these investments the unveiling of ambitious plans for sector development in recent years has not, as of yet, translated into widespread action, according to the Arthur D Little report. This delay means that the GCC's total solar energy capacity share represents less than five per cent of the region's installed generation capacity as of 2014.

Muhammed Kazi, senior event project manager, GulfSol 2015, said, "We have seen a great spike in interest this year, which we believe is down to the fact that we are seeing a growing need for the implementation of renewable energy in the region. The success of the event is also down to the growth of the construction industry across the region. With the economy booming, more projects are being awarded, most of which are competing for LEED certification. Solar energy plays an important role in constructing sustainable buildings and, therefore, we are seeing more customers at GulfSol and Gulf Glass wanting to connect with key decision makers.

"We would like to thank HH Suhail Al Mazroui, the UAE Minister of Energy, for opening the Global Solar Leaders' Summit and delivering a keynote speech on the UAE's ambitious plans in the renewable energy sector."

The Global Solar Leaders' Summit will take place at Al Multaqua Ballroom at Dubai World Trade Centre. GulfSol 2015 and Gulf Glass 2015 will take place from 14-16 September. ■

With one of the highest rates of insolation, the GCC has ample resource potential to develop solar power as a primary energy source.



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Building firm foundation

Co-located with The Big 5 Dubai and PMV Live, Middle East Concrete will return this year to showcase a selection of industry firsts. *Technical Review ME* speaks to event director Nathan Waugh ahead of the November event.

Technical Review ME (TRME): What makes Middle East Concrete (MEC) unique?

Nathan Waugh (NW): Middle East Concrete (MEC) is the only event in the region that is dedicated to concrete. Every year, thousands of revolutionary ideas, innovative technologies, and ground-breaking products are showcased from across the supply chain. The show is also co-located with PMV Live and The Big 5 Dubai, which together become the region's largest and most attended construction event. In this way, not only is MEC able to leverage on one of the more rapidly expanding sectors in the industry, but it is also capable of connecting visitors with the building and construction sector.

TRME: How was the show received in 2014 and can you tell us more about what people can expect in 2015?

NW: The show has consistently grown tremendous from 179 exhibitors and 5,424 sqm of floor space in 2011 to more than 400 exhibitors and over 10,000 sqm of floor space in 2014. And the numbers are expected to just keep getting better. Last year, more than 36,500 people participated in the show over four days, making it one of the most successful events since it was launched five years ago. This is a huge indicator of the overall outlook for the market, and we are currently focussing on working with our exhibitors to incorporate even more live demonstrations. Besides that, we have a few new things happening this year for MEC. For example, Laticrete, a concrete company based in Ras Al Khaimah, plans to hold a live demonstration at the event of a new method of laying concrete.

TRME: What feedback did you receive from last year's visitors and how has this influenced planning for 2015?

NW: A staggering 91 per cent of industry professionals we surveyed ahead of the 2015 edition of MEC said that direct relationships with suppliers was a key influence in making a purchase decision. This is important when you also consider that of the top three reasons visitors attend MEC, sourcing new products ranked highest among international visitors — at 60 per cent. This is one of the big reasons we are looking to increase the number of live demonstrations. Fifty-nine per cent came in search of the latest product innovations and trends, and over half said they came to meet current suppliers.

TRME: Will MEC be running any free education workshops for visitors this year?

NW: Our educational programmes were a huge success in 2014 and this year we plan to hold more panel discussions, technical seminars and certified workshops. These will be located in the open seminar theatre on the ground floor and will feature presentations of the latest industry topics, including 'How to trade in UAE', and 40 technical seminars on topics such as infrastructure, sustainability, fire and safety and more.

The workshop programme has also been expanded, providing even more Continuing Professional Development (CPD)-accredited



According to event director Nathan Waugh, MEC is currently focussing on working with exhibitors to incorporate more live demonstrations into the exhibition.

courses so that professionals can benefit even more out of their visit with certification and the leading industry knowledge.

Must-attend MEC sessions

With 54 sessions in four days and 65 speakers discussing the biggest trends and topics, the event organisers have put together a list of the absolute must-attend sessions at Middle East Concrete 2015. Here are the top tips:

- **Technical Seminar:** An introduction to Dubai's new green concrete regulations
- **Panel Session:** Top tips and best practice in project management for construction projects in the GCC
- **Project Case Studies:** Optimising building envelopes integrity with concrete wall systems: Louvre Abu Dhabi and 'Green Building of the Year 2014'
- **Technical Seminar:** The implementation of multi-geodetic and geotechnical sensors in structural health monitoring for mega structures
- **Panel Session:** Assessing new models of construction procurement and risk allocation and mitigation strategies
- **Workshop:** Industrial manufacturing and the application of drymix mortars
- **Technical Seminar:** Determination of the thermal history on concrete structures by thermogravimetric analysis and infrared spectroscopy
- **Technical Seminar:** Exploring applications and methods of waterproofing, coating and concrete admixtures and overcoming
- **Workshop:** The service life and life-cycle cost of reinforced concrete structures
- **Workshop:** Environmental legislation and regulations governing UAE cement plants ■

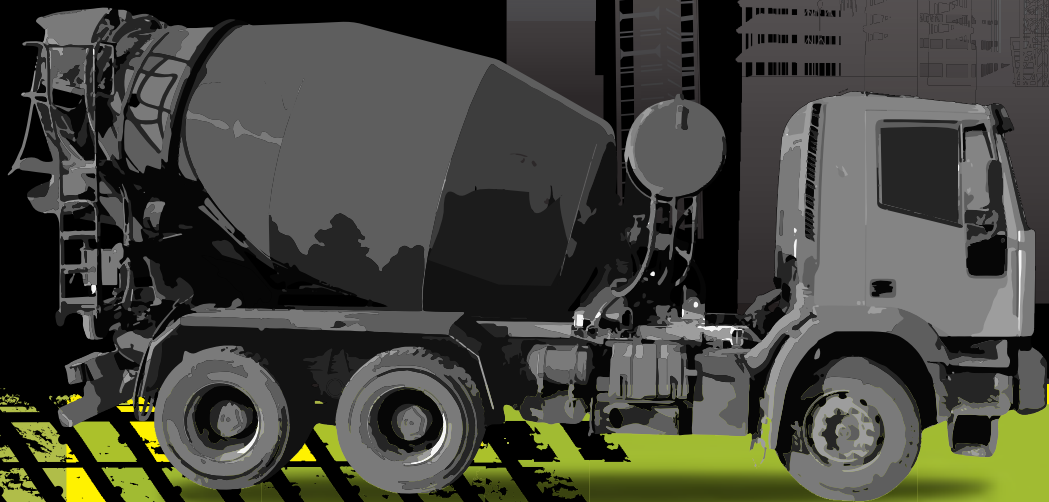


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Crossing the US\$100bn mark

As Kuwait's construction business booms, The Big 5 Kuwait is set to play a pivotal role for decision makers wanting to invest in the country.

KUWAIT HAS RECENTLY approved the construction of a series of power plants, desalination facilities and other infrastructure projects worth a total of almost US\$10bn.

The Big 5 Kuwait, which will be held from 14-16 September 2015, comes at a time when the country's growing construction market is being driven forward by the energy sector.

The country's overall construction spending is expected to reach US\$100bn over the next five years as it begins the implementation of its comprehensive 2030 strategy, according to research carried out by Ventures Onsite. While oil continues to account for 94 per cent of Kuwait's export revenues, according to the US Energy Information Administration, decreasing oil revenues is unlikely to affect project spend.

In order to diversify its economy and increase revenue from non-oil sectors, the government announced a five-year (2015-2020) US\$116bn spend last year. The plan aims to boost Kuwait as a regional trade and financial hub by 2035. In addition, the introduction of a new law to regulate all public private partnerships (PPP) in 2014 is likely to invigorate private sector involvement and boost the construction projects market throughout 2015.

The total construction contractor awards in Kuwait have been estimated to increase from US\$27bn in 2014 to US\$31bn in 2015. This 14.3 per cent increase is due to the government's plan to construct 45,000 housing units, an airport expansion and a large number of mega oil projects, including a new refinery as part of its five-year plan.

According to a recent survey conducted by dmg events, approximately 64 per cent of respondents affirmed that industry-focused educational content would influence their decision making.

A wide range of construction industry topics delivered by renowned international



Kuwait International Airport Expansion Project is one of the major projects underlined for development. (Image: Directorate General of Civil Aviation, Kuwait)

industry speakers will be featured at the upcoming Big 5 Kuwait, which is set to take place at the Kuwait International Fair.

During the three-day course of the event, some of the topics that will be discussed include an update and overview of Kuwait's 2035 renewable energy targets and Kuwait's green building framework; new trends and innovations in interior design; BIM modeling and applications; health and safety in construction masterclass; making smart cities a reality; and a cost-benefit analysis of internal facilities management.

A half-day workshop on 'How to trade in Kuwait' will also be staged to help international exhibitors and local distributors navigate the unique process of doing business in Kuwait. The session will provide delegates with important information on how and where to get started; local partnerships; licensing, permits and visas; premises and employment; taxation requirements; Kuwait foreign offset contributions; and risk management and exit procedures.

The third edition of The Big 5 Kuwait would also provide participants access to free workshops that are CPD accredited.

Continuing professional development is vital to career advancement and helps individuals keep their skills and knowledge up to date, according to organiser dmg events. The free-to-attend sessions will feature topics ranging from investment and sustainability to innovations, and will form part of the workshops that will be held over the three days, providing the latest industry trends, tools, applications and techniques for architects, interior designers, urban planners, contractors, engineers and consultants.

Among the industry professionals set to provide their expert knowledge throughout the workshop programme will be Simon Palmer, partner, DLA Piper; Loic Finlan, senior sustainability manager, KEO International Consultants; Stewart Cripps, HSE coordinator, SSH; Alaa Dalghan, general manager UAE, and director Middle East and Africa, B&B SmartWorx; Mike Wood, consultant, Ministry of Electricity and Water; Mohammed Abdulrazzak, vice-chairman, Technical Committee, Kuwait Green Building Council; and Moetaz Al Hawary, president, American Concrete Institute Kuwait Chapter. ■

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EXHIBITOR LISTINGS



COMPANY NAME	STAND NUMBER	COUNTRY	COMPANY NAME	STAND NUMBER	COUNTRY
A.R.Albisher & Z.Alkazemi Co. "Authorized General Distributor of Mercedes-Benz in Kuwait"	OS 500	Kuwait	Core Metal	6 A50	UAE
A.V. ENTERPRISES	6 D43	India	Cyber International Co.	6 A61	Kuwait
AAREN EXPORTS	6 H40	India	Dammam Factory for Metal Products	6 B13	Saudi Arabia
ACE HARDWARE PVT. LTD.	6 H46 & 6 G47	India	Danyang Dongtai Hardware I/E CO.,LTD.	6 E32	China
ACICO Industries	6 A64	Kuwait	DASEN WOOD	6 G18	China
ADONAI HARDWARE	6 F44	India	Deal GTC (ARITCO)	6 C51	Kuwait
AGIR HADDECILIK A.S.	6 A21	Turkey	Deco-T factory	6 A08	UAE
Ahlia Chemicals Company, Kuwait	6 A40	Kuwait	Desiccant Rotors International	6 E24	India
Al Kuthban	6 A56	Kuwait	DESIGAO	6 E34	CHINA
Al Waleed Stone Manufacturing and Marketing	6 D11	Palestine	DurkeeSox® (Wuhan) Air Dispersion System Co., Ltd.	6 A71	China
ALAHGAF	6 A52	Kuwait	EAST AHMADI HYDRAULICS EST	6 E44	Kuwait
Alarabiya Electrical Company	6 B61	Kuwait	Ecore International	6 B50	United States
Al-Bahar Plus for Automatic Doors (FAAC)	6 E52	Kuwait	Ecotherm Austria GmbH	6 D66	Austria
AlHasawi Industrial Group	6 D61	Kuwait	ELAR INDUSTRIES	6 D45	India
ALLMARC INDUSTRIES	6 G45	India	Emilam Industries LLC	6 F11	UAE
ALP CELIK SAN. VE TIC. A.S.	6 A27	Turkey	Encyclomedia	6 H29	Lebanon
Al-Qatami Insulation Material Factory - Works & Building Co.	6 C67	Kuwait	EVEREST INDUSTRIES LTD.	6 F43	India
Al-Sultan & Khalaf Trading Co.	OS 300	Kuwait	FG YAPI URUNLERI SAN. TIC. LTD. STI.	6 B20	Turkey
ALUCOBOND ALUMINUM FACTORY L.L.C	6 H30	UAE	FRAMUSA	6 C41	Spain
Anping Wanhua H ardware Products Co.,Ltd.	6 G37	China	Fujairah Rockwool Factory	6 A10	UAE
ARKITECH ILERI YAPI TEK. INS. IML. SAN. VE TIC. LTD. STI.	6 C23	Turkey	FUJIAN EXCELLENCE HONCHA ENVIROMENTAL INTELLIGENCE EQUIPMENT CO.,LTD.	6 G31	China
Armacell Zamil Middle East Co.	6 B50	Saudi Arabia	FUTAI	6 H19	China
Armstrong Fluid Technology	6 A31	UK	G.TECH SPLICING PVT. LTD.	6 F42	India
Assan Panel San ve Tic. A.S.	6 B26	Turkey	Gale Pacific	6 B31	UAE
Bahrah Trading Company WLL	OS 700	Kuwait	GDPA FASTENERS (INDIA)	6 D41	India
Bait Al Nokhada Tents & Fabric Shades LLC	6 A38	UAE	Genplus Corporation	6 D40	Korea
Bayt.com	6 C70	UAE	Georg Fischer Piping Systems	6 B50	Switzerland
Bianco Cave	6 B07	Italy	German Pipes Centre	6 A48	Kuwait
Bitugulf	6 E50	Kuwait	GETECH EQUIPMENTS INTERNATIONAL PVT. LTD.	6 F41	India
Bitumode Qatar Water Proofing Factory	6 D36	Qatar	GFS General Trading and Contracting Company	6 A51	Kuwait
Blue Ocean	6 B41	UAE	Ghannam Hardware	6 D67	Kuwait
Bonar Natpet Geosynthetics	6 D27	Saudi Arabia	GOCMAKSAN MAKINA SAN. VE TIC. A.S.	6 C20	Turkey
Boo Kwang Metal Co. Ltd	6 D42	Korea	Guangdong Jiahua Aluminum Co., Ltd.	6 F15	China
Brightstone	6 B02	Kuwait	GUANGZHOU GOODSSENSE DECORATIVE BUILDING MATERIALS CO.,LTD.	6 G12	China
British Berkefeld Water Filters	6 A24	UK	Gulf Energy Company	6 B51	Kuwait
Buahinian General Trading & Contracting Company	6 A02	Kuwait	Halaika Marble & Stone Industries Ltd	6 E16	Palestine
CAPIOUS ROADTECH PVT. LTD.	6 F46	India	HAOWEI	6 H18	China
Catnic - Tata Steel UK Ltd	6 A26	UK	Heatrae Sadia	6 A22	UK
CCGrass	6 D33	China	HEBEI METAL TRADING CO., LTD	6 F17	China
Changzhou M2 Flooring Co.,Ltd	6 G16	China	HERZ	6 B50	Austria
China Stone	6 F34	China	HL Jerusalem Stone and Marble Co.	6 E10	Palestine
CLIFF SCAFFOLDINGS (P) LIMITED	6 G41	India	Hornitex	6 C37	Germany
COOLEX	6 C61	Kuwait	Hot Engineering & Construction Company	6 D51	Kuwait



EXHIBITOR LISTINGS

COMPANY NAME	STAND NUMBER	COUNTRY	COMPANY NAME	STAND NUMBER	COUNTRY
Hotline Trading LLC	6 A42	UAE	Pop-still	6 G15	China
Hurricane Technologies	6 E26	UAE	PRIME STEELTECH (I) PVT. LTD.	6 E46	India
Instant Access	OS 600	Kuwait	RANDACK FASTENERS INDIA PVT. LTD.	6 F40	India
Instant Access	6 D50	Kuwait	Reach Holy Land for Marble and Stone	6 C11	Palestine
INTEGRATED FIRE PROTECTION PVT. LTD.	6 G44	India	Reliance Air Conditioning Co.	6 A71	Kuwait
Interplast SA	6 B50	Greece	Riham JCB	OS 200	Kuwait
IS YAPI VE YAPI MALZEMELERI SAN. VE TIC. A.S.	6 D20	Turkey	RITSCHER	6 G13	China
J K Cement Works (Fujairah) FZC	6 E20	UAE	SABIC	6 A41	Saudi Arabia
JAB Co., LTD	6 D46	Korea	Scent Pur Manufacturing (M) Son BHD	6 Co1	Malaysia
JIANGSU HUAHAI STEEL STRUCTURE CO.,LTD	6 F32	China	Schnell SPA	6 A28	Italy
Jumeirah Messilah Beach Hotel & Spa	6 B71	Kuwait	SENKRON IC VE DIS TIC. ITH. IHR. LTD. STI.	6 C26	Turkey
K METAL SANAYI IC VE DIS TIC. LTD. STI.	6 D26	Turkey	Serge Ferrari	6 B05	UAE
K.D. Industries	6 C30	UAE	SHANGHAI ALUBANG DECORATIVE MATERIAL CO., LTD	6 H32	CHINA
KANG WEW LLC	6 F35	UAE	SHANGHAI WANQIU INTERNATIONAL TRADING CO., LTD	6 H36	China
Kent Stainless	6 B50	Ireland	Shenzhen Shoulder Tent Co. Ltd	6 F37	China
KIMMCO INSULATION	6 C57	Kuwait	SHREE MAHAVIR METALCRAFT PRIVATE LIMITED	6 G40	India
Klimak srl-Italy - Air Handling at its Best	6 B30	Italy	Sintra/Portugal Global Invest	6 C31	Portugal
KLR INDUSTRIES LTD.	6 E45	India	SM Cables Ltd - Malta Europe	6 A37	Malta
KnaufAMF	6 C36	UAE	SOMANY CERAMICS LIMITED	6 E41	India
Kuwait German Group	6 D57	Kuwait	Suhail & Saheb for Marble ans Stone Co.	6 D17	Palestine
Leca CO	6 A36	Iran	SURIE POLEX	6 F47	India
LESSO Middle East	6 B37	UAE	Technical Review Middle East	6 H31	UAE
LXDL	6 D35	China	Tekla Middle East	6 D21	UAE
M.B. EXPORTS LIMITED	6 E40 & 6 E42	India	Three Flags Co.	6 A67	Kuwait
Made-in-China.com	6 F31	China	Tip-Top	6 G17	China
Margraf Spa	6 B09	Italy	UNIQUE ROOF PRIVATE LIMITED	6 H44	India
Marmo Classic Stones Factory (UAE)	6 C17	UAE	Universal Group	6 C47	Egypt
MEPCO	6 D56	Kuwait	Uracking	6 G37	China
zMERIDIAN EXPORTS PVT. LTD.	6 G48	India	Vaillant Group	6 B50	Germany
Metalex General Trading & Contracting Co.	6 E70	Kuwait	Ventures Onsite	6 H27	UAE
Middle East Specialized Cables Co. (MESC)	6 E21	UAE	Viglacera Halong	6 Co5	Vietnam
MPC for Paint production and trading	6 B50	Kuwait	VIVATURF	6 E31	China
Mtc Metal Dis Tic. Ltd. Sti.	6 B21	Turkey	WDD	6 F30	China
Nabil Aba Hussain Trading Co.	6 F51	Kuwait	WFIEC	6 H16	China
National Paints	6 A11	UAE	WINTOUCH CERAMIC	6 D47	India
Newsinwon	6 F19	China	X.Z.X STONE	6 G30	China
NINGBO MINDE BUILDING MATERIALS CO.,LTD	6 D31	China	XCMG	OS 100	Kuwait
Oscam	6 B36	Italy	YANGLI Group	6 E36	China
Ozbekoglu lth. Ihr. Taah. Ve Muh. Ltd. Sti.	6 C21	Turkey	YONGHONG ALUMINUM	6 G34	CHINA
P3 Ductal	6 B50	Italy	Youbang wood	6 E35	China
Palestine Trade Center – Paltrade	6 D17	Kuwait	Yuexing Hardware	6 E30	China
PIRAZIZ DIS TIC. A.S.	6 C27	Turkey	ZHEJIANG KAIMENHONG MENYE DOORS CO.,LTD	6 H34	China
POELSAN PLASTIK SAN. VE TIC. A.S.	6 B27	Turkey	Zhongyuan aluminum Co.Ltd	6 E33	China
			ZJSMBM	6 H17	China

The Saudi Arabian construction market has been estimated to be worth more than US\$1 trillion.



Building confidence in Saudi construction

The 27th edition of Saudi Build will take place in November 2015, amid growing confidence in Saudi Arabia's construction sector.

THE MIDDLE EAST's construction landscape has witnessed a series of ebbs and flows in recent times, thanks in part to the decline in oil price, as well as the after-effects of tactics designed to encourage economic recovery. Saudi Arabia, however, has retained its position in the market in a formidable manner. Official figures and statistics point to one conclusion: the economy is stable and construction activity is at its peak in the Kingdom.

The evidence of a strong economy has certainly pleased investors, builders and contractors across the country, who are keen to expand their presence even further. In order to cater to this growing demand, Saudi Build returns for its 27th year in November 2015. Scheduled to be held at the Riyadh International Convention and Exhibition Center from 26-29 October, Saudi Build 2015 will host companies from across the globe who will present their latest construction solutions and services.

Riyadh mayor Abdulaziz Bin Mohammed Bin Ayyaf Al Mogren remarked, "The continuous success of Saudi Build, with its strong international participation, indicates the strength of the Saudi Arabian market. Large scale on-going construction projects strongly indicate the constant booming of the Saudi Arabian construction market."

At Saudi Build 2015, the latest in building materials and equipment, architectural finishing products, stone, marble and granite products, construction tools and technology, engineering services, infrastructure materials, and security and safety systems will be on display. With a construction market estimated at more than US\$1 trillion, Saudi Arabian construction majors can expect to find a host of solutions at the show that could help take the sector forward. Specifically, real estate, power and infrastructure projects appear to be on the rise, valued at roughly US\$600bn, US\$500bn and US\$400bn respectively.

Given the recent volatility in oil prices, there has been uncertainty over the completion of projects, but Saudi Build's organisers have stated that 82.4 per cent projects sanctioned are ongoing, while only 16 per cent are on hold. Only 1.5 per cent of projects approved have been cancelled. Since June 2014, oil prices have steadily dropped. OPEC's leading producer Saudi Arabia, which could have faced major losses, has found one way forward through its construction industry activities. With a 39 per cent share of all construction projects in GCC last year, Saudi Arabia has continued its dominance in the sector this year, according to Saudi Build organiser Riyadh Exhibitions Company. ■

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Tapping into the regional electricity market

THE 13TH EDITION of the POWER-GEN Middle East Conference and Exhibition (POWER-GEN) will be held under the patronage of UAE Minister of Energy, HE Suhail Mohamed Al Mazrouei, from 4-6 October 2015 at Abu Dhabi National Exhibition Centre (ADNEC).

POWER-GEN Middle East focusses on practical and technical solutions, presided by more than 60 leading industry experts on POWER-GEN Middle East's Advisory Board.

The event will bring together regional and international power sector leaders from the Middle East and North Africa (MENA) region, as well as other countries around the globe, to design and implement the course of power and electricity for 2015 and beyond.

Meanwhile, the eighth Exhibition of Electrical Industries in the Arab World (EEIAW), held under the theme 'Minimise Energy, Maximise Energy Efficiency', will take place for the first time in the UAE alongside POWER-GEN Middle East.

Nigel Blackaby, director of conferences, PennWell International, said, "We are delighted to be working closely with the Ministry of Energy to produce the eighth edition of EEIAW. Together with POWER-GEN Middle East, this co-located event will bring to Abu Dhabi a significant regional gathering of power industry professionals, engaged in developing and improving electricity infrastructure in this region of the world.

"Under the theme 'Sharing Technology Innovation', POWER-GEN Middle East will address key issues affecting the region's electricity market and provide pioneering and practical solutions to expand energy efficiency, technological excellence and implementation of smart solutions tailored to the Middle East's power industry."

In the GCC, according to PennWell International's event director Feraye Gurel, power generating capacity will need to rise by an estimated 64 GW to 176.5 GW by 2020, requiring an investment of between US\$40bn to US\$45bn. So far, 75 GW of renewable energy projects worth US\$200bn are already in the pipeline, making the region a global power player in the sector.



Feraye Gurel, event director at PennWell, said that EEIAW, together with PGME, will bring to Abu Dhabi a significant regional gathering of power industry professionals, engaged in developing and improving electricity infrastructure throughout the Middle East.

Keynote speakers for the POWER-GEN Middle East 2015 Conference consist of representatives from the industry's leading utilities and companies including Abu Dhabi Water & Electricity Authority, Bahrain Electricity & Water Authority, Masdar, Mitsubishi Hitachi Power Systems and Saudi Electricity Company.

Four guest speakers participating in the opening session of EEIAW, led by HE Al Mazrouei, will be Matar Hamed Al Neyadi, undersecretary at UAE's Ministry of Energy;

"The UAE is a regional pioneer in addressing the challenges of energy, water and food security."

Jamila Youssef Matar, director of Energy Management, League of Arab States in Egypt; and Glenn Ensor, managing director at PennWell International Power Group, UK.

This year, attendees will have the choice of 19 strategic and technical conference sessions as well as two new components on the exhibition floor — a dedicated Exhibitor Presentation Theatre, which will feature live exhibitor demonstrations, and a new business matchmaking service.

The event will offer a unique platform to meet more than 3,000 industry professionals from more than 70 different countries.

Last year saw 3,200 attendees from 79 countries in attendance, of which 66 per cent represented the MENA region.

"We are honoured to be partnering with PennWell and are very much looking forward to hosting EEIAW in the UAE for the first time, alongside PGME," said Fatima Mohammed Al Foori Al Shamsi, assistant undersecretary for Electricity, Clean Energy and Desalinated Water Affairs at the Ministry of Energy.

"As the UAE consistently proves to be a regional pioneer in sustainable development and in addressing the challenges of ensuring energy, water and food security, leading events such as EEIAW and PGME serve as a testament to its commitment to the generation of renewables and clean energy from solar energy, and the crucial role it plays as a global platform for cooperation and strategic partnerships," she added.

The conference series at EEIAW 2015, which will be held over the first two days on 4-5 October, from 1330 hours to 1700 hours and 0900 hours to 1730 hours respectively, is themed 'Renewables and Energy Efficiency in the Future Arab Energy Mix' in order to reflect the Arab region's electrical energy consumption, the highest worldwide, which is currently growing at an annual rate of seven per cent.

EEIAW will also introduce a new market for the development of appropriate electrical and power transmission equipment that can meet the various requirements of Arab countries, according to the organisers. ■



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Gensets Buyers' Guide 2015

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 90

Section One: Suppliers of Equipment and Services

ABZ Aggregate-Bau GmbH & Co. KG



Gutenbergstr. 11
Henstedt-Ulzburg
24558, Germany
Tel: +49 4193 903635
Fax: +49 4193 93473
Web: www.abz-power.com
E-mail: info@abz-power.com

ABZ manufactures, installs and services custom-built diesel gensets of 50 kVA to 5000 kVA capacity for continuous, stand by or peak load operation for all possible applications as stationary, mobile, containerized or canopied units. A wide range of control systems and switchboards for all kinds of operations is available.

Aggreko Middle East Ltd.



PO Box 16875
Jebel Ali
Dubai
United Arab Emirates
Tel: +971 4 8086100
Fax: +971 4 8831827
Web: www.me.aggreko.com
E-mail: rentals@aggreko.ae

Aggreko has grown to become the world's leading provider of rental power and temperature control solutions and offers round-the-clock service, support and equipment availability in the Middle East through a network of twelve locations. Aggreko serves a diverse market from construction sites to quarrying, oil & gas to refineries and events.

Aksa Power Generation FZE



PO Box 18167
Jebel Ali Free Zone
Dubai, United Arab Emirates
Tel: +971 4 8809140
Fax: +971 4 8809141
Web: www.aksa.ae
E-mail: sales@aksauae.ae

For 30 years, Aksa Power Generation has manufactured generating sets from 1 kVA upto 2500 kVA, supplies comprehensive spare parts, rental solutions and a customer-focused after sales service all around the world.

alfanar trading

PO Box 16396
Istanbul Street, Near Exit - 18
Sulai District
Riyadh, 11464, Saudi Arabia
Tel: +966 920006111 ext 1761
Fax: +966 11 4945489
Web: www.alfanar.com
E-mail: hossam.fashtaki@alfanar.com

Headquartered in Riyadh, alfanar operates a group of companies within a wide spectrum of industries covering electrical, electromechanical and civil engineering construction in addition to manufacturing and marketing electrical construction products and allied engineering services. Numerous design and development centers integrate with a distinguished host of facilities in the Kingdom, the Middle East and other countries.

Agents:
United Arab Emirates - Alfanar Electric LLC

Alkhorayef Commercial Co.

PO Box 281808, Riyadh
11392, Saudi Arabia
Tel: +966 1 4955452
Fax: +966 1 2134716
Web: www.alkhorayef.com
E-mail: msd@alkhorayef.com

Alkhorayef Commercial Company is an authorized dealer of Volvo and John-Deer

Engines & Broadcrown Diesel Gensets in KSA. We Produce "Gulfpower" Diesel-Gensets.

- Our diesel-gensets comprise of Volov & John-Deere Engines with Stamford Alternator. Range 32 kVA 750 kVA
- Broadcrown comprise of Cummins Engines with Stamford Alternators. Range 750 kVA 4000kVA

Altaaqa Global CAT Rental Power

PO Box 262989
Dubai
United Arab Emirates
Tel: +971 4 8808006
Fax: +971 4 8808007
Web: www.altaaqaqglobal.com
E-mail: rbagatsing@altaaqaqglobal.com

Altaaqa Global, subsidiary of Zahid Group, has been selected by Caterpillar Inc. to deliver multi-megawatt turnkey temporary power solutions. The company owns, mobilizes, installs, and operates temporary independent power plants at customer sites, focusing on markets in Sub-Sahara Africa, Central Asia, Indian Subcontinent, Latin America, South East Asia and MENA.

Anhui EvoTec Power Generation Co. Ltd.

No. 9, Suhe Road
Lujiang Economic Development Zone
Hefei, Anhui Province
231500
China
Tel: +86 551 87717188
Fax: +86 551 87868333
Web: www.evotecpower.com
E-mail: jameslai@evotecpower.net
gm@evotecpower.com

EvoTec Power is a reputable manufacturer of 3 Phase AC Synchronous Generators, with both single and double bearing configuration, power output up to 4000kVA, 50-60Hz of low, medium and high voltage (up to 11kV). EvoTec Power alternators are well-proven for its superior performance, high quality, long operational life-span, compact design, superb outlook finishing and has successfully registered 8 technology design patents in China.

Ansaldo Energia



Via Nicola Lorenzi
8, Genova
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Fax: +39 010 6553411
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E-mail: ansaldoenergia@aen.ansaldo.it

Ansaldo Energia is Italy's largest supplier, installer and service provider for power generation plants and components and one of the world's leading players in the sector. It's a full-cycle, integrated operator, with the capabilities to build turnkey power plants on green field sites using its own technology and its own independent design, production, construction, commissioning and service resources.

Ascot Industrial S.r.l.

Zona Industriale
Terza Strada, Italy
Tel: +39 093 3901192
Fax: +39 093 3917682
E-mail: sales@ascotinternational.it

Ascot is an Italian company providing diesel generating sets in the range 20-2000kVA; hybrid power plant (PV+diesel) 10 MW onwards for off or unstable grid application; hybrid diesel generator for telecom and defense application, range 1-20kW. More than 38,000 Power Solutions are installed worldwide. The Ascot mission is "ENERGY EVERYWHERE"

Atlas Copco

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Office 2119-26
Building 2
Gold & Diamond Park
Al Quoz
Dubai
United Arab Emirates
Tel: +971 4 3738111
Fax: +971 4 3233961
Web: www.atlascopco.com
E-mail: info.acsme@bh.atlascopco.com

Atlas Copco is a leading manufacturer of road construction equipment, portable compressors, generators, tools and attachments used in the construction and demolition industries. We are constantly seeking ways to improve ourselves and to accommodate the specific demands, of our customers by providing them with one total construction solution.

Beijing Kadara Science & Technology Development Co. Ltd.

No. 509 Shining Tower
35 Xueyuan Road Haidian District
Beijing, 100191, China
Tel: +86 10 82318499
Fax: +86 10 82318490
Web: www.kadara.cc
E-mail: czf@kdl.com.cn

Kadara engages in professional design and supply various power equipment such as gasoline generator, diesel generator, welding generator and ATS. The generator brand is BINSON from 0.5kVA to 1000kVA.

Brady Middle East FZE

PO Box 18015, Jebel Ali, Dubai
United Arab Emirates
Tel: +971 4 8812524
Fax: +971 4 8813183
Web: www.bradyeuropa.com
E-mail: emea_request@bradycorp.com

Brady identifies and protects products, people, and premises with high

performance labels, industrial label printers, software, safety & facility identification, spill control, lockout/tagout solutions and more. We help you create and maintain safer work environments and comply with regulatory standards. Our high-performance materials clearly identify products, components and other assets, even in the most extreme conditions.

Broadcrown Ltd.

Airfield Industrial Estate
Hixon, Stafford
Staffordshire, ST18 0PF
United Kingdom
Tel: +44 1889 272200
Fax: +44 1889 272220
Web: www.broadcrown.com
E-mail: info@broadcrown.co.uk

Broadcrown is a leading independent manufacturer of standard generator sets and bespoke power generation systems from 6kVA to +30mVA. All generators systems are manufactured in our UK factories and carry world wide warranties. Broadcrown designs, delivers and supports highly specified power generation systems, including renewable energy power plants.

Agents:
Saudi Arabia - AlKhorayef

Caterpillar Electric Power

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Illinois
61552-0610
USA
Tel: +1 309 5786298
Fax: +1 309 5782599
Web: www.cat.com/powergeneration
E-mail: cat_power@cat.com

Caterpillar offers integrated power solutions pre-configured for optimum performance and supported by the worldwide Cat® dealer network. Caterpillar delivers microgrid systems that address the growing need for remote and semi-remote power, featuring customized solutions that reduce the overall cost of energy and improve power reliability. For Cat deal network, please visit - http://www.cat.com/en_ZA/support/dealer-locator.html



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CG

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United Arab Emirates
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Fax: +971 4 3724677
Web: www.cgglobal.com
E-mail: middleeast@cgglobal.com

With over 75 years of experience in the energy sector, CG is an established manufacturer of three-phase distribution and power transformers and a strong competitor in the market of substations, integrated solutions, automation systems and services. At CG we continually focus on providing smart solutions to our customers challenges.

Claude Lyons Ltd.

Brook Road, Waltham Cross
Herts, EN8 7LR
United Kingdom
Tel: +44 1992 768888
Fax: +44 1992 788000
Web: www.claudelyons.co.uk

COELMO spa

Agglomerato Industriale ASI
Acerra (NA), 80011, Italy
Tel: +39 081 8039731
Fax: +39 081 8039724
Web: www.coelmo.it
E-mail: sales@coelmo.it

COELMO is one of the oldest European manufactures of industrial and marine generators from 3kVA up to 3000kVA. Based in Italy, with a large stock of generating sets available to be shipped overnight to any destination in the world. Company profile, products and models are available online at www.coelmo.it

Agents:
United Arab Emirates - COELMO (DMCC branch)

ComAp

Kundratka 2359/17, Prague 8
18000, Czech Republic
Tel: +420 2 46012111
Fax: +420 2 66316647
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E-mail: info@comap.cz

ComAp is a dynamic international company with reputation for delivering innovative electronic solutions to the on-site power generation and industrial engine markets. A demanding global customer base ensures quality and flexible design in all ComAp products. Our portfolio covers power generation and engine-driven applications all over the world.

Agents:
United Arab Emirates - ComAp a.s. (JLT branch)

CRE Technology

Allée Victor Naudin
Zone des Templiers
Sophia-Antipolis
Biot, 06410, France
Tel: +33 492 388682
Fax: +33 492 388683
Web: www.cretechnology.com
E-mail: info@cretechnology.com

Genset control and paralleling unit (all-in-one), man/auto synchronizer and load sharer, marine paralleling, compact genset control unit, marine range, battery chargers, power metering.

Cummins Generator Technologies

Harrowdene Office Park
Block 8, First Floor
Western Service Road
Woodmead
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South Africa
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Fax: +27 11 5898468
Web: www.stamford-avk.com
E-mail: info@cumminsgeneratortechnologies.com

Cummins Generator Technologies manufactures class leading alternators under the renowned STAMFORD and AvK brands, from 2 kVA to 11,000 kVA. With over 100 years of experience, our alternators are designed for optimum performance, safety and durability, and are manufactured to achieve the highest possible industry accreditations for quality and consistency.

Agents:
United Arab Emirates - Cummins Middle East FZE

Cummins Middle East FZE

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

Cummins Middle East FZE, the first wholly-owned Cummins Inc. distributor in the region, was established in 2000. In early 2014, CME transitioned to an area business organization structure to allow the company to invest and grow in the region by bringing all Cummins business units closer to the market, and covers UAE, Bahrain, Qatar, Yemen, Oman, Saudi Arabia, Kuwait, Jordan, Iraq, Lebanon, Afghanistan, and Pakistan. CPG (Cummins Power Generation) offers one of the widest ranges in diesel power generators, starting from 17kVA till 4375kVA.

Datakom Elektronik Muhendislik San Ve Tic Ltd. Sti

Serifali Mah
Kutup Sok No 26 34775
Umraniye – Istanbul
Turkey
Tel: +90 216 4668460
Fax: +90 216 3646565
Web: www.datakom.com.tr
E-mail: datakom@datakom.com.tr
denizh@datakom.com.tr

Datakom offers hightech, web based, cost effective genset controllers D200-D300-D500 and D700 which is the first auto learning synchronization controller (TFT screen available). Energy quality products includes power factor controllers, network analysers, panel measurement units, protection relays. Products have multi-communication ports (GPRS, ethernet, etc) Internationally represents in 80 countries.

Deep Sea Electronics PLC

Highfield House
Hunmanby Industrial Estate
Hunmanby, North Yorkshire
England
YO14 0PH
United Kingdom
Tel: +44 1723 890099
Fax: +44 1723 893303
Web: www.deepseapl.com
E-mail: sales@deepseapl.com

DSE is a UK manufacturer of genset and ATS controls, battery chargers & power supplies. With an outstanding worldwide reputation for a range of expertly engineered products that offer user-friendly operation and with 24hr global support there's no surprise DSE is the world's Number 1.

Agents:
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Dresser-Rand

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E-mail: guascor@dresser-rand.com

Dresser-Rand is among the largest suppliers of rotating equipment solutions worldwide. The company offers some of the most efficient and environmentally friendly technologies, products and services in distributed power generation for oil and gas, industrial and commercial clients and rural electrification programs. Our solutions include CHP systems, biogas and syngas-fueled gen-sets.

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Zuhuratbaba Mah
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Bakirkoy
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Turkey
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Fax: +90 212 5831285
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Eksen specializing in technical foams delivers the best combination of functions in acoustic comfort with fire-safe products. Procell® Flame proof acoustical foam, PE, EPDM and rubber tapes, seals and auxiliary items are customized for clients requirements for gen-set enclosures, engine housing linings, lagging in air-ducting & hvac applications.

FAMCO (Al-Futtaim Auto & Machinery Co. LLC)

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United Arab Emirates
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Fax: +971 4 2135400
Web: www.famcouae.com
E-mail: famco@alfuttaim.ae

FAMCO is a market leading supplier of products and services to a diverse range of industries and commercial undertakings covering the transportation, construction, manufacturing, warehousing, oil & gas and marine sectors. FAMCO serves these industries with world-class brands like Yanmar generators & Himoinsa generators & lighting towers, Volvo, Merlo, Ingersoll Rand, Linde, Dexion, Hart, Nassau, Steril & Stanley Proto. FAMCO's operations cover the entire UAE, with bases in Dubai, Abu Dhabi, Al Ain and Ras Al Khaimah, plus branches across Saudi Arabia, Oman, Qatar, Bahrain, Lebanon & Egypt. The company's development and success has been based on an in-depth understanding of customer needs and the dedication of its skilled staff.

FG Wilson

1 Millennium Way
Springvale Business Park
Springfield Road, Belfast
County Antrim, Northern Ireland
BT12 7AL
United Kingdom
Web: www.FGWilson.com

FG Wilson provides reliable, fuel-efficient diesel and gas generator sets from 6.8 - 2,500kVA, that are designed and manufactured to the highest UK standards. Coupled with our global product availability via our product distribution centres and expert local support through our worldwide dealer network, we have the power to deliver.



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SDMO can supply electrical energy to meet your every need. SDMO's forty years of experience in the generating set industry have been dedicated to safety and reliability through innovation. From standard offers in our 1 to 3 000 kVA ranges, to specific products and installations, SDMO provide versatile, high-tech energy solutions which can be tailored to all situations: offshore platforms, telecommunications, construction and engineering, industry, hospitals, etc. Powerful energy solutions, available in over 150 countries. SDMO, the source of energy for your comfort and safety. SDMO, providing the energy which connects people.




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Firefly Hybrid Power Generators

Unit 20, Cliffe Industrial Estate
South Street, Lewes, BN8 6JL
United Kingdom
Tel: +44 1273 409595
Web: www.fireflycleanenergy.co.uk
E-mail: info@fireflycleanenergy.co.uk

Firefly's Cygnus® Hybrid Power Generator is a clean energy storage solution that integrates a range of power sources for base load management, off grid and UPS. Cygnus® can be linked to any diesel generator and solar to optimise energy efficiency, saving up to 50% in diesel fuel consumption, CO2 and runtime.

First Forever Co. Ltd.

No. 151, Sec 1
Pei-Shen Road, Shen-Keng District
New Taipei City, 22246, Taiwan
Tel: +886 2 26627367
Fax: +886 2 26627882/3
Web: www.kudostools.com
E-mail: sales@kudostools.com

Kudos is a leading tool maker offers a wide range of hand tools for electrical and telecom applications, as well as professional grade hydraulic products for utility market.

Forest City Export Services Ltd.

Bowden Hall, Bowden Lane
Marple, Cheshire, England, SK6 6NE
United Kingdom
Tel: +44 161 4490660/0770
Fax: +44 161 4490880
Web: www.forestcitygenerators.com
E-mail: forestcity@compuserve.com

Supplier of diesel generator sets from 7.5 – 3045kVA, powered by Perkins, Volvo, MTU and Deutz engines coupled to Stamford or Mecc-Alte alternators. Various control systems. Sound attenuated enclosures. All associated original manufacturers spare parts.

FPT Industrial S.p.A.

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Web: www.fptindustrial.com
E-mail: marketing1@fptindustrial.com

FPT Industrial is a brand of CNH Industrial, dedicated to the design, production and sale of powertrains for on and off-road vehicles, marine and power generation applications. The company employs approximately 8,200 people worldwide, in ten manufacturing plants and six R&D centers. The FPT Industrial sales network consists of 90 dealers and over 1000 service centres in almost 100 countries. A wide product offering, including six engine ranges from 31 kW up to 740 kW and transmissions with maximum torque of 200 Nm up to 500 Nm, and a close focus on R&D activities make FPT Industrial a world leader in industrial powertrains.

Agents:

Egypt - Abou Youssef
Jordan - Universal Equipment Ltd.
Kuwait - Instant Access
Lebanon - Arison SARL
Qatar - Abdullah Al Khoory Trading & Contracting Co.
Saudi Arabia - Aljomaih Holding Co.
United Arab Emirates - Adpower FZCO
United Arab Emirates - Aikah Establishment
United Arab Emirates - Electrogen Electric Generators

G&J Technical Services Limited

PO Box KA 30249, Energy House 2
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Fax: +233 302 689177
Web: www.gjtechghana.com
E-mail: sales@gjtechghana.com
customer.service@gjtechghana.com

We are a company solely involved in the sale, installation and maintenance of diesel engine driven generating sets. Since 1994, we have supported various sectors of the Ghanaian economy through back-up power supply to a total of over 250 megawatts. Our operations are backed by first class aftersales support.

Gencoec Ltd.

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Generac Mobile Products

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Fax: +39 0382 400247
Web: www.generacmobileproducts.com
E-mail: gmp.srl@generac.com

Generac Mobile Products S.r.l. is an Italian manufacturer of mobile lighting towers with integrated power generators. More than 40 different models available worldwide.

Genmac Generators

Via Don Minzoni, 13
Gualtieri (RE)
42044, Italy
Tel: +39 0522 222311
Fax: +39 0522 222330
Web: www.genmac.it
E-mail: info@genmac.it

Generators manufactured since 1983. Made in Italy. Power range 2kVA - 2000kVA. Gas version available full range of accessories. References for: Telecom, oil & gas, hospitals, government projects, arms rental & construction.

Ghaddar Machinery Co.

PO Box 110, Ghazieh
Sidon, Lebanon
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Fax: +961 7 221754
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Green Power Systems S.r.l.

Localita' Maiano
Caprazzino Di Sassocorvaro
61028
Italy
Tel: +39 0722 726411
Fax: +39 0722 720092
Web: www.greenpowergen.com
E-mail: giovanni@greenpowergen.com

Manufacturer of generating sets up to 2200 kVA

- Different engine types: Perkins - Cummins - Deutz - Volvo - John Deere - Iveco - Lombardini - Yanmar - Mitsubishi - Honda
- Telecommunication power solutions
- Customized generators
- Natural gas and LPG gensets
- Lighting towers
- Welding machines
- ISO 9001/2000 - ISO 14001/2004

Grupos Electr6genos Europa SA

Poligono Pitarco II
Parcela 20
Muel (Zaragoza)
50450
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Tel: +34 97 6145432
Web: www.gesan.com
E-mail: export@gesan.com
info@gesan.com

Founded in 1986, Gesan is today an energy solutions integrator engaged in the manufacture of water and air-cooled diesel generators, welders, petrol units and lighting towers. Offering a complete range of products up to 3,100 kVA, we are able to supply over 778,000 kVA per annum in 90 countries around the world.

HAEFELY HIPOTRONICS

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HIMOINSA

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Tel: +34 968 191128
Fax: +34 968 191217
Web: www.himoinsa.com
E-mail: info@himoinsa.com

HIMOINSA is a multinational specialising in the manufacture of gensets and lighting towers. One of HIMOINSA's main strengths is that it is a vertical manufacturer. We can guarantee the reliability and excellent performance of our products because we manufacture all of the components in the genset, and only use engines from leading manufacturers. As a result HIMOINSA is able to react more swiftly and flexibly to market demand. HIMOINSA is currently the largest manufacturer of gensets in Spain, the third-ranked in Europe and one of the top five in the world.

Agents:

United Arab Emirates - HIMOINSA Middle East FZE

ICAR S.p.A.

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Italy
Tel: +39 039 83951
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Web: www.icar.com
E-mail: icar@icar.com

ICAR is one of Europe's leading capacitor specialists and bases its reputation on 70 years of experience in the design, development and production of capacitors and automatic systems for power factor correction, capacitors for motors and lighting, DC and AC capacitors for power electronics use, voltage stabilizers and active filters.

Inmesol, S.L.

Ctra. Fuente Alamo 2, Corvera (Murcia)
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Web: www.inmesol.com
E-mail: asiapacific@inmesol.com

Inmesol is an important manufacturer of generator sets; it is present in a large number of markets and continues to multiply its production capacity. Inmesol is present across 5 continents with equipment installed in a wide variety of industries, residential areas, sports complexes, public works, hospitals, hotels, data centres and telecom, among others.

IREM S.p.A.



Via Abegg 75
Borgone (Torino)
10050
Italy
Tel: +39 011 9648211
Fax: +39 011 9648222
Web: www.irem.it
E-mail: svm@irem.it

IREM S.p.A. specialises in design and manufacture of 1PH and 3PH electro-dynamic voltage regulators and line conditioners - in standard and customized versions - with power ratings from 1 to 4750kVA for indoor and outdoor installation. In business since 1947, IREM is a medium size company (staff 110 people) exporting all over the world. Company according to ISO9001 (since 1983), ISO 14001 (since year 2000), BS OSAS 18001 (since 2014) standards. Typical application fields: Broadcast, Telecommunication, industrial applications, electro-medical appliances, machine tools, manufacturing plants, banks and insurance companies, construction, oil and gas, mining, a.s.o.

JCB Power Products



Lakeside Works
Rocester, Staffordshire
ST14 5JP
United Kingdom
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JCB Power Products offer a comprehensive range of over 170 generators and lighting towers ranging from 8-3300kVA. Open or canopied, single or 3-phase, 50 or 60Hz frequency, plus various voltage options; the JCB range of generators gives you a lot of options to meet your exact power requirements.

Agents:
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Egypt - IPC
Iraq - Al Ghodwa
Iraq - KM Machinery
Kuwait - Equipment Co.
Kuwait - Riham
Lebanon - Fares Baladi
Libya - Al Noras
Oman - MOS
Qatar - Mannai
Saudi Arabia - Abahsain
United Arab Emirates - Galadari

Jeremias Middle East



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Tiffany Tower
Dubai
United Arab Emirates
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Fax: +971 4 4470152
Web: www.jeremias-me.com
E-mail: info@jeremias-me.com

German manufacturer of multipurpose high quality stainless steel prefabricated flue and chimney systems for the exhaust of gases and ventilation.

The Jeremias Group has more than 40 years' experience in the flue and chimney production. The headquarters are situated in Germany with 7 production sites Germany 2 sites, 1 site Poland, Spain, Russia, Czech Republic and USA. Jeremias is one of the world's leading manufacturers of high pressure high temperature stainless steel flue and chimney systems for the exhaust of gases and ventilation. Jeremias product range includes 60 different CE and UL certified

systems covering all kind of domestic, commercial and industrial applications complemented by freestanding industrial steel chimneys up to 3 meter diameter.

JMG Ltd.

15A Redemption Crescent
Gbagada
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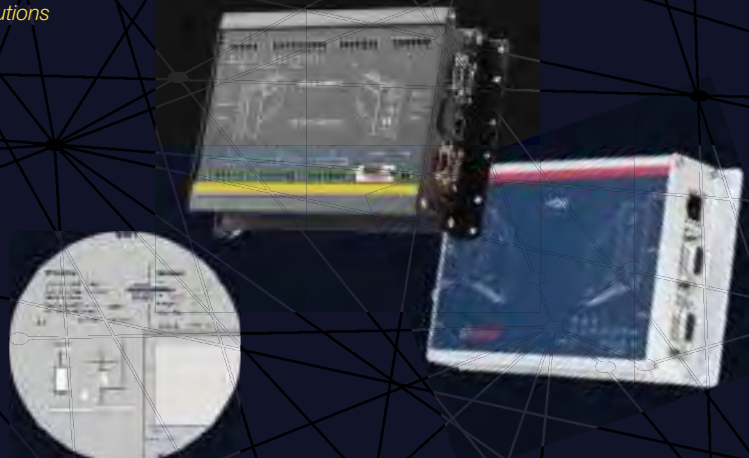
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مطلة حمام السباحة في مقر
جيش الحدود - ميناء الدمام

أي وقت وأي مكان، وفي شكل ذي صلة بمهمتهم، حتى يتمكنون من التعاون الفوري مع المساهمين في المشروع. والحوسبة السحابية من أوتوديسك وتقنيات الجوال، لا تعالج هذه التحديات فحسب، بل تبزها في بعض الحالات.

وتسعى أوتوديسك إلى تحقيق التوازن بين نموذج نفقات المشروع في المكتب في مقابل النفقات في الموقع، في حين تسمح بالوصول إلى تقنيات الموقع باستخدام الحوسبة السحابية والهاتف الجوال. وقد طورت الشركة مؤخراً برنامج BIM360 للتشييد والإدارة الميدانية.

وهو يجمع بين تقنيات الهاتف الجوال، لاستخدامها في الموقع، إلى جانب التعاون مع الحوسبة السحابية وتقديم التقارير.

ويهدف هذا الحل إلى تحقيق استفادة المتخصصين في مجال البناء من الطرق الجديدة لإدارة العمليات الميدانية؛ مثل الجودة والسلامة وقوائم مراجعة التكاليف وتوزيع الخطط والرسومات والوصول إلى وثائق البناء، وذلك باستخدام BIM و 3D. ويقود ظهور الحوسبة السحابية وتقنيات الهاتف الجوال، إلى طريقة جديدة للعمل وإدارة المشروعات. وتمكن برامج أوتوديسك؛ مثل ريفيت (Revit)، مالكي ومشغلي مشروعات التشييد من وضع تصور للمشروعات وتخطيطها وتنفيذها باستخدام BIM.

وبالاستفادة من هذه التقنيات، أصبحت عملية البناء والتشييد بأكملها حقيقية ومتنقلة.

المنطقة من اقتصاد قائم على الموارد إلى اقتصاد قائم على المعرفة، يساعد في تنشيط فكرة المدن الذكية. علماً بأن المدن في المنطقة تواجه تحدياً فريداً من نوعه في مجال المياه والطاقة والأمن والمواصلات والانتقالات والتطوير المستدام وإشراك المواطنين، وتسعى الحكومات الآن إلى إيجاد طرق جديدة لإدارة هذه التعقيدات مع تزايد ضغوط التحضر.

وستتيح استضافة معرض إكسبو العالمي ٢٠٢٠ لدبي وضع نفسها ضمن أفضل ١٠ مدن مستدامة في العالم، تقدم لكل من المقيمين والزائرين بيئة تكنولوجية مركزية مرتبطة إلى حد كبير، ومنوط بها الاستغلال الأمثل للموارد. وفي هذا الإطار، أطلق الشيخ محمد بن راشد آل مكتوم، نائب الرئيس ورئيس مجلس وزراء دولة الإمارات العربية المتحدة وحاكم دبي، استراتيجية لتحويل دبي إلى مدينة ذكية، وتضم هذه الاستراتيجية ١٠٠ مبادرة رئيسية في كافة مجالات الحياة والمجتمع والتنقل والاقتصاد والإدارة والبيئة.

الحوسبة السحابية

يتوقع المستخدمون اليوم الوصول إلى المعلومات في

مؤتمر العام الماضي «أكبر فعالية لبرامج التصميم بمساعدة الكمبيوتر في الشرق الأوسط». فقد حضره أكثر من ٧٠٠ مُتخصص في التصميم والهندسة إلى جانب عدد كبير من الطلاب، هذا فضلاً عن هواة الإبداع والتصميم المتحمسين من مختلف المجالات. وكان هذا الحدث بمثابة منصة استراتيجية وفريدة من نوعها للمشاركين من أجل «التعلم والاتصال والاستكشاف»، وذلك من خلال الأنشطة التي شملت ورش عمل تفاعلية، وعروضاً عملية، ودورات للمعرفة، علاوة على أنها شملت أيضاً معرضاً.

الحلول المستدامة

تقدم أوتوديسك خيارات الاستدامة، التي توفر الأدوات الأساسية لتصميم المباني المستدامة، والتصنيع، ونمذجة الطاقة، ومشروعات البنية التحتية المستدامة. ويأتي الشرق الأوسط في طليعة مجال تطوير حلول المدن الذكية، وتلبية الطلب المتزايد على الطاقة والموارد من سكان المدن الكبيرة والمتنامية. ولاشك أن تحول

يقول ناجي عطا الله إنه من الضروري تبني تقنية الجيل التالي في أعمال البناء الحديثة



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ناجي عطا الله رئيس شركة الإلكترونيات المتقدمة في أوتوديسك الشرق الأوسط

تشكل تكنولوجيا التصميم عنصراً أساسياً لإنشاء وتشيد المباني الجديدة، وتساعد العمليات مثل BIM (نمذجة معلومات المباني) قطاع البناء على خفض التكاليف وتوفير الوقت من خلال تنفيذ مجموعة واسعة من المشروعات. وفي هذا المقال، يناقش ناجي عطا الله، رئيس شركة الإلكترونيات المتقدمة وتكنولوجيا التصنيع في شركة أوتوديسك ميديا أند إنترتينمنت، هذه التكنولوجيا ودورها دائم التطور.

وتوصيل أفكارهم إلى الآخرين.

من المتوقع أن تلعب تكنولوجيا الجيل التالي دوراً أساسياً في طريقة تخطيطنا للبنية التحتية وتصميمها وبنائها وتشغيلها.

لمحة تاريخية

في عام ١٩٨٢، استطاعت أوتوديسك، مع إطلاق برنامج أوتوكاد (AutoCAD)، أن تقفز قفزة كبيرة إلى الأمام منذ خروج أجهزة الكمبيوتر الشخصية وأجهزة الكمبيوتر IBM إلى حيز

الوجود. ولأنها الشركة الرائدة في مجال التكنولوجيا في ذلك الوقت، فقد أُطلق عليها مُحطمة عصر التوثيق. وقد تمثل التحدي، الذي واجهته شركة أوتوديسك، في نقل الرسومات ثنائية الأبعاد إلى الكمبيوتر، واحتلت الشركة مركز الريادة في هذا المجال بعد إطلاقها برنامج أوتوكاد. كما أنها خطت خطوة جريئة أخرى إلى الأمام في عصر التحسين، وذلك من خلال إنشاء نماذج ثلاثية الأبعاد، واستخدامها لتصوّر التصميم وتحسينه قبل حتى إنشاء نموذج أولي.

وقد أشار المحللون في مجال الصناعة اليوم إلى أننا ندخل عصراً جديداً؛ ألا وهو عصر الاتصال. فهذا العصر الجديد يُلقي الضوء على تطبيقات البناء وحلوله التي لا تربط المجتمع بنموذج ثلاثي الأبعاد فحسب، بل تربطه أيضاً بوسائل الإنتاج والاستهلاك الجديدة، وتدعم التعريف الجديد لمعنى المنتج. وقد أصبح عصر الاتصال هذا ممكناً بفضل ظهور الحوسبة السحابية في المقام الأول، وهي عبارة عن مركز طبيعي للتعاون يجلب معه سرعة الانتقال المذهلة.

برامج التدريب

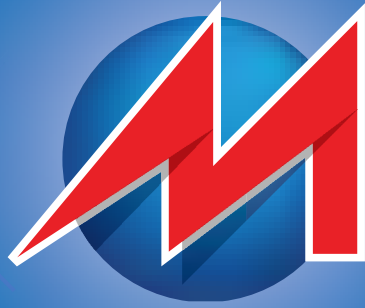
بالرغم من أن موارد BIM (نمذجة معلومات

المباني) الأجنبية ستواصل لعب دور رئيسي في جميع أنحاء الشرق الأوسط، فإن نقص موارد BIM المحلية لن تكون قضية رئيسية تحتاج إلى معالجة. فالشركات يمكنها الآن تدريب موظفيها وتمكينهم من خلال توفير برامج تدريب قصيرة الأجل تُصممها أوتوديسك لمقدمي خدمات التدريب المعتمدين. هذه هي برامج التدريب الفعّالة السريعة. وبالإضافة إلى تدريب الموظفين، نحن أيضاً بحاجة إلى النظر في مراجعة العمليات وتعزيزها لدعم التحول إلى BIM.

غير أنه وسط تزايد معدل الاعتماد على BIM في منطقة الشرق الأوسط، ما تزال هناك بعض القطاعات لا تدرك مزاي BIM.

سوف تصبح BIM القاعدة لتصميم المباني وصيانتها، ويُعتبر انتشار استخدامها أمراً أساسياً لتنفيذ استراتيجية التشييد الخاصة بحكومة دولة الإمارات العربية المتحدة.

وقد تم عقد مؤتمر «جامعة أوتوديسك» في الشرق الأوسط في عام ٢٠١٢، وسيكون عام ٢٠١٥ هو عامه الرابع على التوالي. وقد أُطلق على



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دي بي وورلد تخوض مباحثات حول تشغيل موانئ في إيران



أعلنت - مؤخرًا - شركة دي بي وورلد لتشغيل الموانئ، أنها تدرس حالياً تشغيل عدد من الموانئ في إيران. مع العلم أن الشركة مهتمة بتشغيل الموانئ الإيرانية المطلّة على كل من بحر قزوين، وخليج عمان، والخليج الفارسي. وكان أحمد بن سُلَيْم، رئيس مجلس إدارة الشركة التي مقرها في دبي، قد زار إيران في أوائل شهر يوليو/تموز، قبل عقدها للصفقة النووية مع الدول الكبرى. وقال، في تصريح له، إن «إيران لديها جسرٌ بريٌّ عظيم من السكة الحديد سيربط بين طريق الحرير في الصين والقارة الأوروبية. ومع تواجد موانئنا في الخليج، نحتاج إلى الذهاب إلى إيران».

وأضاف قائلاً إن الخطط متوقفة على الطلب من العملاء، ولا توجد بعد أية قيمة دولارية على استثمار الشركة المحتمل في تطوير مرافق الموانئ الإيرانية الواقعة على ساحل بحر قزوين. يجدر بالذكر أن ميناء جابهار الإيراني، الواقع على خليج عمان، من الممكن أن يكون مربحاً. فهذا الميناء، الذي شاركت الهند - جزئياً - في إنشائه منذ نحو عشرين عاماً، يجري حالياً بذل جهود، من جانب كل من الهند وإيران، إلى تحويله إلى ميناء عميق المياه. هذا - بطبيعة الحال - سوف يقلل من

ميناء جابهار الإيراني له أهمية استراتيجية للهند، وتُبذل جهود لتحويله إلى ميناء عميق المياه

مسافة الطريق التجاري الذي تقطعه الهند للوصول إلى آسيا الوسطى وروسيا وأوروبا، بنسبة ٤٠ في المائة، بالمقارنة بالطريق الحالي من خلال قناة السويس، كما أنه سيسمح أيضاً للسفن الهندية بتحاشي باكستان من أجل الوصول إلى المناطق المحاطة باليابسة في آسيا الوسطى، هذا علاوة على تحسين قدرتها على المنافسة مع الصين. وكان البلدان قد وقعا اتفاقاً في عام ٢٠٠٢ للعمل سويًا على تطوير الميناء.

مفكرة رجال الأعمال

سبتمبر/أيلول

اسطنبول	٥.٣	معرض اسطنبول للمياه
الكويت	١٦.١٤	معرض بيچ فايف الكويت
مسقط	١٦.١٤	معرض عُمان للمكاتب

أكتوبر/تشرين الأول

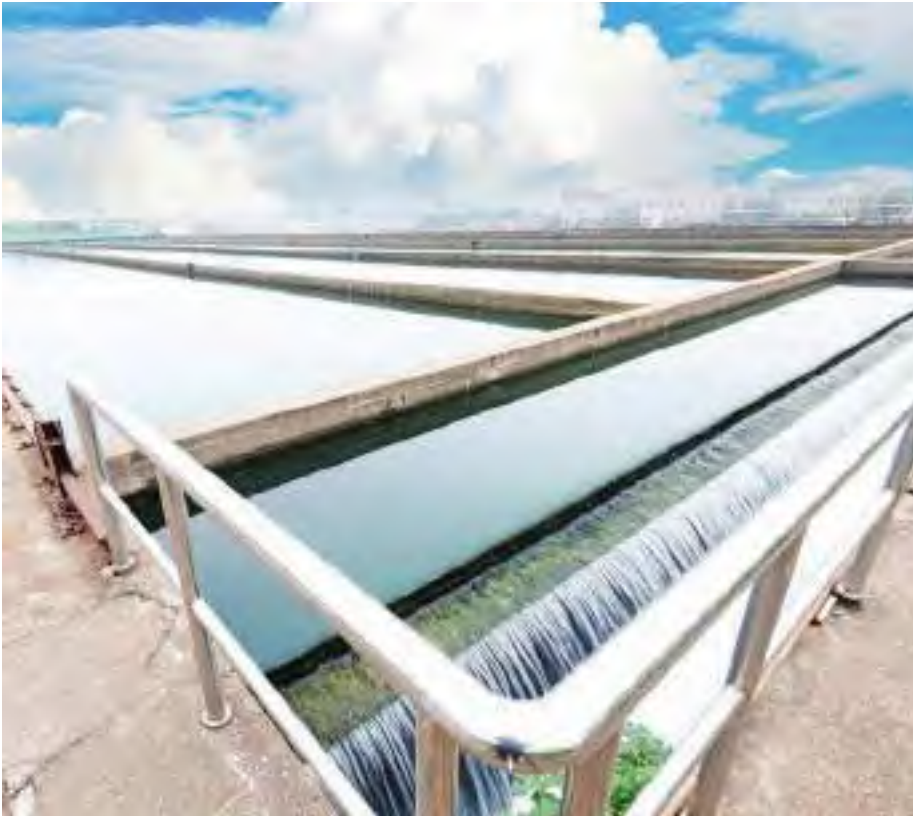
أبوظبي	٦.٤	معرض الشرق الأوسط للمولدات الكهربائية
دبي	٧.٦	معرض الشرق الأوسط وشمال أفريقيا للتعيين
إربيل	٢٢.١٩	معرض مشروع العراق
دبي	٢٧.٢٥	ملتقى الموارد البشرية: النفط والغاز
الدوحة	٢٧.٢٦	القمة القطرية للطاقة
الرياض	٢٩.٢٧	المعرض السعودي للتعيين والمعادن

لهيئة كهرباء ومياه دبي قائلاً: «لقد أطلقنا مبادرة (سرب) لدعم استراتيجية الابتكار الوطنية التي أطلقها صاحب السمو الشيخ محمد بن راشد آل مكتوم نائب الرئيس ورئيس مجلس وزراء دولة الإمارات العربية المتحدة وحاكم دبي، بهدف جعل الإمارات العربية المتحدة واحدة من الدول الأكثر ابتكاراً في العالم في غضون سبع سنوات. حيث سيساهم ذلك في تقديم خدمات أسهل وأكثر ألفة للمستخدم وفقاً لأعلى المعايير الدولية من أجل تحقيق سعادة المجتمع بأسره».

لصيانة الأجهزة. كذلك تستخدم الهيئة هذه الطائرات في استعراض مشروعاتها بانتظام، والحصول على تقارير سير العمل عن طريق التقاط صور بانورامية. وقد أطلقت الهيئة مبادرة (سرب) التي تهدف إلى استخدام تكنولوجيا الطائرات بدون طيار في الخدمات الداخلية ولدعم البنية التحتية في دبي، وأيضاً الاستفادة من التقنيات الذكية في خدمة سكان دبي. وصرح سعيد محمد الطاير، الرئيس التنفيذي

كهروضوئية تنتج ٦٠٠ كيلوواط من الكهرباء. كما تستخدم الهيئة هذه الطائرات لمراقبة أنشطة التنظيف التي يباشرها المقاولون، والتي تعد أساسية لكي تعمل هذه الألواح بشكل صحيح في البيئة الصحراوية؛ ذلك لأن الغبار والتلوث يحجبان ضوء الشمس، مما يقلل من كفاءة الألواح. لذا فمن الضروري تنظيفها بانتظام وتستخدم الطائرات بدون طيار أيضاً لتفقد عملية تبريد المياه في المبخرات، ما يمكن هيئة كهرباء ومياه دبي من العمل دون الإغلاق الكامل

إف سي سي أكواليا تفوز بعقد معالجة مياه في مصر



وفقاً لما ذكرته الشركة، يعتبر هذا العقد هو الأضخم في تاريخ إدارة المياه ومعالجتها

يصل مجموع إيراده، خلال مدة الامتياز، إلى ٢,٧ مليار دولار أمريكي. علماً بأنه يتلقى دعماً تمويليًا من كل من البنك الأوروبي للإنشاء والتطوير، والبنك الدولي، علاوة على البنك المصري.

الإنشائية» و«فيوليا» و«أي سي إيه تي». وهذا المشروع قائم على نظام الإنشاء والتشغيل ثم التسليم (B. O. T)، مع استثمار ما يزيد على ٥٦١,٥ مليون دولار أمريكي، ومن المنتظر أن

فاز التحالف، الذي تقوده إف سي سي أكواليا، بمناقصة قيمتها ٢,٧ مليار دولار أمريكي من أجل تصميم وإنشاء وتشغيل محطة أبو رواش لمعالجة المياه، الواقعة في العاصمة المصرية، القاهرة. ويشمل نطاق العمل توسيع مرافق المعالجة الحيوية في المحطة الحالية، مع سعة ١,٢ مليون متر مكعب، وزيادة كمية المياه المعالجة إلى ١,٦ مليون متر مكعب يوميًا. هذا مع العلم أن عقد محطة أبو رواش يعتبر من بين أهداف خطة العمل الطموح المتعلقة بالمياه والصحة العامة في مصر. ووفقاً لما ذكرته الشركة، هذا هو ثاني أكبر مشروع تقوم به إف سي سي أكواليا في دولة شمال أفريقية، فقد تم منحها، عام ٢٠١٠، عقداً بتصميم وإنشاء وتشغيل محطة لمعالجة مياه الصرف في مصر، ولمدة عشرين عاماً، كما أنه أول عقد يتم منحه في البلاد لشراكة تعاونية بين القطاعين العام والخاص. وبمجرد أن تكون المحطة جاهزة للتشغيل بكامل طاقتها، ستوفر خدماتها لـ ٥,٥ مليون من السكان، مما يجعلها واحدة من أكبر محطات المعالجة في العالم. وقد قامت وزارة التخطيط المصرية بمنح العقد للتحالف الذي تقوده إف سي سي أكواليا من خلال فرعها «أكواليا أوروبا الجديدة» المملوك جزئياً للبنك الأوروبي للإنشاء والتطوير. أما التحالف الفائز فيتكون من «أوراسكوم للصناعات

كوني للأوناش تدمج مع تيريكس الأمريكية لتكوين شركة جديدة



الشركة الجديدة تستهدف زيادة حصتها في قطاعي تناول المواد وخدمات الرفع العالميين

اندمجت شركة كوني للأوناش، المُصنَّعة للمعدات والتي يقع مقرها في فنلندا، مع شركة تيريكس الأمريكية لتكوّنان معا شركة عالمية لتقديم حلول الرفع ومناولة المواد، تُدعى شركة كوني كرينز تيريكس.

ومن المتوقع أن يجمع هذا الاندماج بين الشركتين اللتين يتمتعان بحضور عالمي في مجال مناولة المواد وخدمات الرفع وحلول خدمة المعدات. كما من المتوقع أن تزيد الشركة، المُشكلة حديثا، من نطاق العمليات العالمي، ولا سيما في المنافسة في السوق الناشئة منخفضة التكلفة. وأضافت شركة كوني للأوناش أنه سيكون هناك أيضا حضورًا معزّزًا في قطاعات مثل الرفع الصناعية والموانئ. وقال رون ديفو، الرئيس التنفيذي لشركة تيريكس: «هذا الاندماج يجمع بين شركتين معا، ومن خلال هذا التضافر يقدم رافعة أخرى تقع في نطاق تحكمنا لتقديم قيمة لكل من المساهمين في شركة تيريكس وشركة كوني للأوناش. كما أننا نكن احترامًا عميقًا لشركة كوني للأوناش ونتطلع إلى تضافر الجهود معها لبناء شركة أقوى وأكثر تنوعًا تحظى بوضع متميز يمكنها من تحقيق النجاح في صناعة عالمية ديناميكية تنافسية للغاية». ووفقًا لشركة كوني

للأوناش، من المتوقع أن تكون الشركة المندمجة قد جمعت عائدات ٢٠١٤ وأرباحها قبل الفوائد والضريبة والاستهلاك وإيفاء الدين (EBITDA) تبلغ ١٠ مليارات و٨٤٥ مليون دولار أمريكي. وبمجرد الانتهاء من الصفقة، سيتم تشكيل مجلس إدارة لشركة كوني كرينز تيريكس من تسعة أعضاء؛ أربعة معيّنون من شركة كوني للأوناش وباقي الأعضاء من شركة تيريكس. وستضم الشركة المشكلة حديثًا حوالي ٣٢ ألف موظف. وقد صرحت شركة كوني للأوناش أن الصفقة تخضع لموافقة المساهمين في كلتا الشركتين والموافقات التنظيمية وشروط الإغلاق الأخرى. ويتوقع أن يتم الانتهاء من هذه الصفقة خلال النصف الأول من عام ٢٠١٦.

للأوناش، من المتوقع أن تكون الشركة المندمجة قد جمعت عائدات ٢٠١٤ وأرباحها قبل الفوائد والضريبة والاستهلاك وإيفاء الدين (EBITDA) تبلغ ١٠ مليارات و٨٤٥ مليون دولار أمريكي. وبمجرد الانتهاء من الصفقة، سيتم تشكيل مجلس إدارة لشركة كوني كرينز تيريكس من تسعة أعضاء؛ أربعة معيّنون من شركة كوني

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مؤسسة التمويل الدولية تدعم قطاع الطاقة المتجددة في شمال أفريقيا

قامت مؤسسة التمويل الدولية - أحد أعضاء مجموعة البنك الدولي - بزيادة استثماراتها في مشروعات البنية التحتية واسعة النطاق في شمال أفريقيا، وعبر باقي دول الشرق الأوسط. وقد توصلت المؤسسة إلى اتفاق بشأن حزمة من القروض تبلغ ٢٠٨ ملايين دولار أمريكي لتمويل عملية تشييد سبع محطات للطاقة الشمسية الكهروضوئية في الأردن. وسيكون هذا المشروع أحد أكبر مشروعات الطاقة الشمسية التي يقودها القطاع الخاص في منطقة الشرق الأوسط، باعتباره الحائز على جائزة العام المرموقة Middle East Renewable Deal (صفقات الطاقة المتجددة في الشرق الأوسط) من Infrastructure Journal.

وقد صرح وبيكي شلومير، رئيس قطاع صناعات البنية التحتية الإقليمي بمؤسسة التمويل الدولية في أوروبا والشرق الأوسط وشمال أفريقيا قائلاً: «مع الزيادة السريعة في الطلب على البنية التحتية كل عام في المنطقة، وخاصة مشروعات الطاقة، تُبرز هذه المشروعات أهمية القطاع الخاص في زيادة القدرة وتعزيز عملية توليد الطاقة المتجددة». وأضاف قائلاً، «لقد أنعم الله على المنطقة بوفرة في الموارد الطبيعية، وبالتالي فإن فرص هذا القطاع هائلة». كما استثمرت مؤسسة التمويل الدولية مبلغ ٢٥ مليون دولار أمريكي في شركة الكازار إنيرجي (Alcazar Energy) الرائدة في مجال الطاقة، وذلك للمساعدة في بدء سلسلة من مشروعات الطاقة المتجددة في الشرق الأوسط وتركيا وأفريقيا لتطوير محطات الطاقة الشمسية وطاقة الرياح.



الكازار إنيرجي تركز على تطوير مصادر الطاقة المتجددة

الكويت توافق على بعض المشروعات قبل بدء الفعالية الصناعية



الكويت تأمل في استقطاب المزيد من الاستثمار الأجنبي إلى قطاعها الخاص بالتشييد والبناء

صرحت وزارة المالية أن الحكومة الكويتية قد وافقت على إقامة سلسلة من محطات توليد الطاقة ومرافق تحلية المياه ومشروعات البنية التحتية الأخرى بقيمة إجمالية تبلغ حوالي ١٠ مليارات دولار أمريكي تقريباً. ويأتي معرض «بيج فايف الكويت»، الذي سيعقد في الفترة من ١٤ - ١٦ سبتمبر/أيلول ٢٠١٥، في الوقت الذي يقود فيه قطاع الطاقة سوق البناء والتشييد المتنامي في الكويت. ووفقاً لصندوق النقد الدولي، شكلت مشروعات الطاقة نسبة ٤٠ في المائة من إجمالي مشروعات البناء والتشييد في الكويت في مايو/أيار ٢٠١٥. ومن المتوقع أن يصل إجمالي الإنفاق على تشييد مشروعات قطاع الطاقة في الكويت إلى ١٠ مليار دولار أمريكي على مدار السنوات الخمس المقبلة، حيث يبدأ تنفيذ استراتيجيتها الشاملة لعام ٢٠٣٠، حسب ما ورد في البحث الذي قامت به فينشرز. ووفقاً لمصادر الصناعة، تكافح الكويت من أجل تلبية الطلب المتزايد على الكهرباء، حيث ستضيف المشروعات المخطط لها قدرة تبلغ حوالي ٣٥٨٠ ميجاواط، فضلاً عن معالجة النفايات والتطورات لصالح وزارة التربية والتعليم. لم تضع وزارة المالية جدولاً زمنياً لمعظم المبادرات، باستثناء محطة الصرف الصحي، والتي سوف تبدأ بحلول عام ٢٠٢٠. كما أنها لم تصرح عن كيفية تمويلها مكتفية بالقول إنه سيتم توفير نسبة ٥٠ في المائة من التمويل من خلال عروض سوق الأسهم. ومن بين هذه المشروعات، خططت الكويت مرحلة ثانية من مشروع محطة الزور الشمالية لإنتاج الطاقة وتحلية المياه التي تعمل بالغاز وتبلغ طاقتها الأولية ١٨٠٠ ميجاواط. كما أنها ستبني المرحلة الأولى من محطة الخيار لتوليد الكهرباء بقدرة تبلغ ١٥٠٠ ميجاواط، والتي ستستخدم أنواعاً مختلفة من الوقود، ومحطة توليد الكهرباء في العبدلية بقدرة ٢٨٠ ميجاواط، سيتم توليد ٦٠ ميجاواط منها من الطاقة الشمسية، بينما يجري توليد باقي الطاقة من الغاز. وقد صرح على صالح العُمير، وزير النفط الكويتي، في يونيو/حزيران من هذا العام بأن بلاده تسعى أيضاً إلى توليد نسبة ١٥ في المائة من احتياجاتها من الطاقة من مصادر متجددة بحلول عام ٢٠٣٠، وذلك من خلال تشغيل ما يصل إلى ١٠٠ محطة تعمل بالطاقة الشمسية بحلول عام ٢٠١٧ كخطوة أولى. ومن المتوقع أن يكتمل، بحلول العام المقبل، مشروع تجريبي بقدرة ٧٠ ميجاواط في منطقة شجاية الصحراوية التي تقع غرب مدينة الكويت.

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

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