

# TECHNICAL REVIEW

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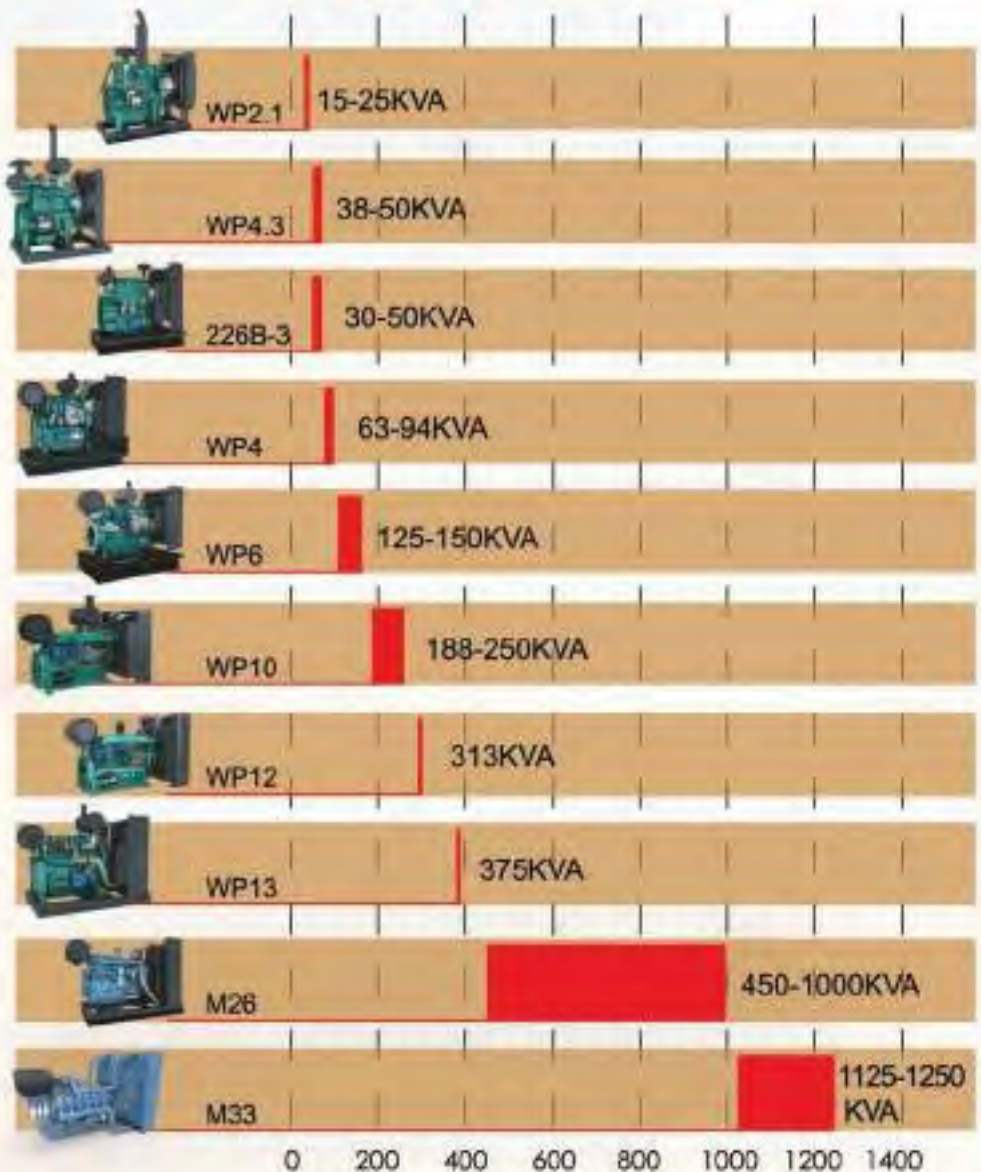
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## EDITOR'S NOTE

THE REGION-WIDE FOCUS on economic diversification has sharpened throughout the region in recent months, thanks primarily to the falling global oil price. To delve deeper into the related issues, this edition of *Technical Review* features a timely and comprehensive economic review on the adoption of industrial diversification throughout the GCC (p18). We also look at nuclear energy ambitions across the MENA region (p56) and the broader energy aspirations of Middle East countries as they look to ease their dependence on fossil fuels (p52). With Middle East Electricity returning to Dubai at the beginning of March, we bring you the latest exhibitor news and highlights (p60) ahead of the world's largest power sector trade show. This issue also considers growth in Kuwait's construction sector (p16) and safety and security at our ports (p50).

*At Technical Review we always welcome readers' comments to [trme@alaincharles.com](mailto:trme@alaincharles.com)*

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### الشرة التقنية - الشرق الأوسط

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## Briefly

### Work on Algerian steel complex set to start

CONSTRUCTION OF ALGERIA'S Bellara Steel Complex will be expected to begin in Q1 2015, with the project set to meet the country's immediate requirements for iron and steel.

Located in El Milia, Jijel, 359 km from the capital Algiers, the project will include the construction of a steel factory and three rolling mills, of which two mills will be dedicated to reinforcing steel rebars.

The Bellara Complex will target production of two million tonnes of steel annually during its first phase and four million tonnes during its second phase.

The steel complex was planned following the 2013 establishment of a joint venture, named Algerian Qatari Solb (AQS) between Algeria's Sider Co. & National Investment Fund, which will hold a 51 per cent stake and Qatar Steel and Qatar Mining, which will hold the remaining 49 per cent.

The project has been predicted to create close to 2,000 direct jobs.

### Omantel partners with UK's Inmarsat

OMANI TELECOM PROVIDER Omantel has entered into a partnership with UK-based satellite operator Inmarsat in order to provide its customers with a host of new communication solutions and satellite-oriented services.

Inmarsat, which owns and operates three global constellations of 12 satellites flying in geosynchronous orbit, will enhance Omantel's offering to its corporate customers to include seamless voice, broadband data and IP communication solutions.

Ali Bakhit Kashoob, senior manager of corporate product development at Omantel, commented, "This partnership comes as a response to our corporate customers' needs and will provide them with alternative connectivity solutions."

"Oman has diversified topography, which makes it challenging in some cases for companies operating in difficult terrains to communicate with their headquarters and clients located in different parts of the sultanate or the entire world."

## Project awards set to follow upward trend in Qatar's economy

GROWTH IN THE infrastructure projects pipeline in Qatar looks set to echo predicted growth in the country's economy, which Qatar's Ministry of Development Planning and Statistics has said will be 7.7 per cent in 2015.

More than US\$30bn worth of new projects will be expected in 2015, according to online projects tracker MEED Projects.

Infrastructure projections have been boosted by forecasted project awards on the Al-Karaana petrochemicals complex, which has been valued at more than US\$5bn, as well as the rolling stock and systems contract on the Doha Metro, valued at more than US\$2bn.

Other major awards look set to include a host of road, rail and real estate projects, while a major port project and five multi-billion dollar water reservoir packages have also helped fuel growth within Qatar's infrastructure sector.

Ed James, director of analysis at MEED Projects, remarked, "Despite falling oil prices, Qatar has the project pipeline, the political impetus and the financial reserves to continue project spending as it prepares to host the 2022 FIFA World Cup."

"With around US\$30bn worth of projects, 2014 witnessed a 25 per cent increase in project spending as compared to 2013, and there will continue to be an upward trend in project activity."

Speaking ahead of the MEED Qatar Projects Conference set to take place in Doha in March 2015, a spokesperson for the Qatari Ministry of



The infrastructure projects pipeline in Qatar looks set to continue growing according to the latest market data (Photo: Qatar Tourism Authority)

Development Planning and Statistics said, "Solid expansion in non-hydrocarbon activities will continue to drive overall economic momentum, propelled by investment spending, an expansionary fiscal stance and population growth."

"In calendar years 2014-2016, the overall fiscal balance is expected to stay in surplus."

Fuelled by vast hydrocarbon reserves, the country has begun in recent years to demonstrate how to utilise its funds to ensure the country's non-oil economy is able to function in times of lower oil prices.

Edmund O'Sullivan, chairman of MEED Events, remarked, "Qatar is going to lead the Gulf region and the world once more with further progress in the execution of its inspiring vision for the years to 2030."

"Lower oil prices can't be ignored, but it's clear that Qatar has the financial and human resources to overcome this challenge."

## Black & Veatch appointed as consultant for desalination project in Jeddah

ENGINEERING AND DESIGN firm Black & Veatch has been selected by the Saline Water Conversion Corporation (SWCC) as engineering and design consultant for the Jeddah 4 desalination project, which will help augment the water supply in the Saudi Arabian city.

The reverse osmosis plant will have a capacity of 400 Ml/day and will be classed among Saudi Arabia's largest desalination plants.

Black & Veatch, whose revenues in 2013 stood at US\$3.6bn, has been involved in projects on more than 40 desalination plants and in 2003 was selected by SWCC to carry out engineering studies and preparation of engineering, procurement and construction tender documents for six desalination plants.



Mazen Alami, managing director – Middle East at Black & Veatch

Black & Veatch Middle East managing director Mazen Alami said, "An augmented water supply is central to the prosperity and continued development of Jeddah."

"SWCC, through critical infrastructure projects such as Jeddah 4, has proved highly effective in addressing the kingdom's water requirements. Our experience with large-scale desalination projects around the world will help the corporation serve the needs of Jeddah's growing populace," he added.

Black & Veatch will be responsible for studies of the Jeddah 4 site and adjacent sea conditions, conceptual process and engineering design, and preparation of tender documents, with the project set to be tendered on an engineer, procure, construct (EPC) basis.

The company will also support SWCC during the tendering and award of the EPC contract.

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## Briefly

### Ma'aden signs EPC contract for residential project in Saudi Arabia

SAUDI ARABIAN MINING Company (Ma'aden) has signed an engineering, procurement and construction (EPC) contract with Al-Rashid Trading and Contracting Co. Ltd for the residential infrastructure at the King Abdullah Project for Wa'ad Al Shamal City Development.

Located in the north of Saudi Arabia, Wa'ad Al Shamal City will cover an area of 440 sq km. Out of the total planned area, 150 sq km will be allotted towards the construction of a US\$7.4bn phosphate facility with a production capacity of 16,000 tonnes, which will be developed by SABIC, Mosaic and Ma'aden.

Of the project, Ma'aden president and CEO Khalid Al Mudaifer, said, "Together with our partners, we are building a city that will elevate the living standards of people in the north and open up new economic opportunities for local Saudi youth and businesses."

### Sharjah's Air Arabia becomes MENA's first low-cost carrier to enter Chinese market

SHARJAH-BASED AIR Arabia became the Middle East and North Africa (MENA) region's first low-cost airline to enter the Chinese market when it began scheduled flights to Urumqi in February 2015.

The carrier will fly regular non-stop flights to the capital of Xinjiang Uygur Autonomous Region in northwest China.

Urumqi has a population of more than three million people and is considered a key gateway to Xinjiang, which has vast reserves of oil and gas.

Adel A Ali, group CEO of Air Arabia, said, "The Chinese aviation sector has witnessed tremendous growth in recent years and we are delighted to be the first low-cost carrier from the MENA region to play an important role in this story. We have had our eye on the Chinese market for some time and are now ready to begin regular services to one of the world's biggest economies."

## Himoinsa generator sets in water treatment plants in Egypt

SPANISH GENERATOR SET manufacturer Himoinsa has supplied five generator sets to water treatment and reverse osmosis desalination company Acciona Agua for operation at four water treatment plants in Egypt.



Members of Egypt's NOPWASD during a visit to Himoinsa's factory in Spain

The objective of the project was to achieve the purification of 150,000 m<sup>3</sup>/day of urban wastewater, equivalent to the same amount used by approximately 500,000 people, with the water to be reused for irrigation.

The four treatment plants, located in Abnoub-El Fath, Sodfa-El Ghanayem, El Ayat and Abu Simbel, will use the generator sets to activate water purification systems during a power cut, which Leopoldo Lainz, Asia-Pacific development manager for Acciona Agua, said "happens quite frequently in this area".

Two open generator sets – the HMW-1135 T5 and HTW-2030 T5 models – were installed at the largest of the plants in Abnoub-El Fath, which has

a flow of 82,000 m<sup>3</sup>/day, supplying a population of more than 300,000 people.

The sewage plants at Sodfa-El Ghanayem and El Ayat were equipped with HTW-920 T5 generator sets which have a Mitsubishi 1,000 kVA motor. Both emergency gensets will help maintain activity at each of the plants that supply more than 200,000 people in total.

The smallest of the plants in Abu Simbel was equipped with a 400 kVA generator set, the HMW-350 T5 model with a MTU engine, with the site having a flow of 6,000 m<sup>3</sup>/day and supplying 20,000 people.

Acciona, who had signed an agreement with Egypt's state-owned National Organization for Potable Water and Sanitary Drainage (NOPWASD) for the projects, chose Himoinsa ahead of eight other power generation companies to supply emergency power to the sites.

José Astigarraga Zabala, manager of Astigarraga Energy (Asener), the distributor for the northern zone of Himoinsa España, said the project required the incorporation of supply tanks with automatic fuel transfer pumps.

"All the generator sets are designed to work in emergencies and have a AS5CEA7 control unit installed that offers high protection, both for the genset and the equipment and devices it supplies," Zabala remarked.

Members of NOPWASD recently visited Himoinsa's factory in Spain, during which they attended technical performance testing of generator sets and witnessed additional quality checks at the site.

## Sobha expands sales reach ahead of Hartland ground breaking

GROUND BREAKING FOR Phase I of the US\$4bn Sobha Hartland community development in Dubai will get underway in Q2 2015 according to its developer Sobha Group.

Sobha LLC, the group's UAE-based entity, announced it would invest in expanding its regional and global footprint by opening five sales offices in London, Singapore, Riyadh, Doha and Kuwait City by July 2015, in order to increase interest in its UAE developments.

The Hartland development will see the inauguration of Sobha's first international curriculum school, Hartland International School, in September 2015, while the company also plans to break ground on villas and apartments on the development in Q2 2015. Infrastructure tenders for roads



Sobha LLC vice-chairman Ajay Rajendran

and utilities on the development have already been floated with a number of unnamed bids received by Sobha.

Ajay Rajendran, vice-chairman of Sobha LLC, said, "We strongly believe that the economic fundamentals for Dubai are stronger than ever and, therefore, the initiative to open overseas sales offices strengthens our commitment to Dubai's longer-term real estate growth."

Upon completion, the Hartland community will feature two international schools, a spa, hotels and cafés, with a delivery time scheduled in a number of phases beginning in Q1 2017.

Sobha LLC has been involved in all areas of the Sobha Hartland development including master planning, architecture, interior design, construction and landscaping.





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## Briefly

### EIAST set to expand scope to include meteorology satellites

THE UAE'S NATIONAL CENTRE of Meteorology and Seismology (NCMS) has expressed interest in collaborating with the Emirates Institution for Advanced Science and Technology (EIAST) on the development of satellite systems and technology specific to the field of meteorology.

Headed by NCMS executive director H.E. Dr. Abdullah Ahmed Mandoos, a NCMS delegation met with the EIAST's executives, including director general H.E. Yousef Al Shaibani, who said, "EIAST is always looking for ways to extend the technology we have developed and continue to develop, towards fields beyond space science. One of our aims for the institution is to benefit all industries in the UAE and help develop the nation further as a leading hub of both business and technology.

"EIAST has so far specialised in earth observation satellites; however, there are no meteorology satellites made specifically for the region, so institutions like the NCMS gather their weather, climate and environmental data from global sources. This could be an opportunity for EIAST to develop new systems and technology specific to their needs," he added.

### Oman to award rail network operations deal in first half of 2015

A CONTRACT FOR the operations and maintenance for Oman's new rail network is set to be awarded within the first half of 2015, according to Dr Ahmed bin Salim Al Futaisi, the country's minister of transport and communications.

Al Futaisi said the contracts to be awarded would include the first phase of the line's construction, stretching from Al Buraimi to Sohar, and the building of a new Railway Centre of Excellence. The minister added that a number of road projects would be opened this year on the Al Batinah Expressway and the A'Sharqiyah road, while a public transport plan for Muscat will also begin later this year.

## Empower installs energy-saving district cooling system at Dubai's Emirates Towers

DISTRICT COOLING SERVICES provider Empower has recently connected its services to Dubai's iconic Emirates Towers, which consist of the Emirates Office Tower and Jumeirah Emirates Towers Hotel.

The existing air cooled system of the two towers, which rise to 355 metres and 309 metres, respectively, and are connected by a two-storey retail complex, was converted to a district cooling



The conversion of the district cooling system at Emirates Towers will result in energy savings of approximately 80 per cent (Photo: Guilhem Vellut)

system with a total capacity of 6,000 refrigeration tonnes (RT). This should result in energy savings of approximately 80 per cent at the site, which is operated by Jumeirah Group.

Empower CEO H.E. Ahmad Bin Shafar said, "Building a green economy for sustainable development is a key pillar in the country's roadmap to development under Vision 2021 and we are fully committed to achieving this goal.

"Our partnership with the Jumeirah Group is a key milestone as it marks the convergence of the real estate, hospitality and utilities sectors in creating projects that are sustainable and environmentally responsible. The conversion from traditional cooling to district cooling for this capacity is the first of its kind in Dubai and has set the benchmark for other developments utilising traditional systems of cooling."

The new cooling system in the Emirates Towers will utilise 0.9kW of electricity for every tonne per hour, compared to the property's conventional cooling system, which required 1.7kW of energy every hour. Construction work for the district cooling infrastructure included connecting the property to Empower's district cooling plant serving Dubai International Financial Centre (DIFC), utilising advanced 'non-destructive road crossing' (NDRC) technology through micro-tunnelling, which ensured traffic disturbance was avoided.

The retrofit project was the first phase of a 30,000 RT project that includes the renovation of cooling systems of retail, residential and commercial Jumeirah Group properties such as the world-famous Burj Al Arab, Jumeirah Beach Hotel, Emirates Academy of Hospitality Management and Madinat Jumeirah.

## Atkins wins Mirfa IWPP engineering design contract

ATKINS HAS BEEN appointed by Hyundai Engineering and Construction Company (HDEC) to provide engineering design services for Abu Dhabi Water & Electricity Authority's (ADWEA) Mirfa Independent Water and Power Project (IWPP). A consortium of engineering, procurement and construction (EPC) contractors led by HDEC will undertake the construction of the plant, which is due to be commissioned in phases during 2016 and 2017.

Atkins' Power and Renewables business has been awarded a contract by the consortium to provide civil design review and assistance in building permitting from the Western Region Municipality of Abu Dhabi, along with assistance towards conformity to the Estidama sustainability framework and international environmental standards.

Phil Malem, managing director for Atkins' Power and Renewables business, said, "This contract is a significant win for the team and another major step towards growing Atkins' Energy business in the UAE."

Located 120 km from Abu Dhabi city, the Mirfa plant project is the emirate's 10th facility of its kind and will involve the development, design, engineering and construction of new power and water facilities. When finished, Mirfa IWPP will have a total power capacity of approximately 1,600MW.

The Estidama framework ensures sustainability is incorporated into the construction and operation of all new buildings in Abu Dhabi and forms a key aspect of the drive towards innovative green standards through Abu Dhabi's Vision 2030.

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## Dubai Airports' traffic surpasses Heathrow

AIRPORTS OPERATED BY Dubai Airports have surpassed London's Heathrow Airport in terms of international passenger traffic.

In 2014, Dubai Airports registered a total of 70.45mn passengers (up 6.1 per cent on year) while London's Heathrow Airport witnessed 68.09mn international travellers, said airport officials. Dubai Airports authorities are now projecting to add eight million passengers in 2015, resulting in a total of 79mn passengers by the end of the year.

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*In 2014, Dubai Airports registered 70.45mn passengers and authorities want to take the total to 79mn in 2015 (Photo: Shenghung Lin/Flickr)*

## Canadian firm to advise Oman on privatising electricity

CANADA-BASED CPCS TRANSCOM International Ltd. has been chosen by Oman's Electricity Holding Co (EHC) to lead a consortium of advisors on the possibility of privatising the sultanate's electricity distribution business.

According to EHC officials, the Canadian company was chosen based on the extensive experience it has in power business consultation. Privatisation of several of Oman's economic sectors is an option being seriously considered by the government, which is currently cash-strapped and has also been affected by the declining oil price. The sultanate is keen to privatise some of the 60-odd companies it owns.

[www.technicalreviewmiddleeast.com/power-a-water](http://www.technicalreviewmiddleeast.com/power-a-water)

## Ericsson and Landis+Gyr address smart grid projects in Middle East

GLOBAL PROVIDER OF energy management solutions Landis+Gyr and mobile giant Ericsson have entered into partnership to offer smart metering solutions aimed at providing smart grid environments to cities across the Middle East.

The deal will see Ericsson and Landis+Gyr offering support to utilities across the region, with solutions that provide essential data needed to develop active relationships with end-users. The companies aim to create smart energy networks that are able to collect large amounts of data, providing opportunities for efficient grid and energy consumption management.

[www.technicalreviewmiddleeast.com/power-a-water](http://www.technicalreviewmiddleeast.com/power-a-water)

## Orange Jordan to cover half of energy needs through solar

JORDAN'S MOBILE PHONE operator Orange Jordan has claimed that it would meet nearly 50 per cent of its energy demands through solar power. According to company officials, Orange Jordan has already floated a tender for the construction of a solar farm and will decide the company to run the project by the end of the month. The project is expected to generate 25-30mn kWh of power per year.

[www.technicalreviewmiddleeast.com/power-a-water](http://www.technicalreviewmiddleeast.com/power-a-water)



*Jordan has among the highest averages of solar irradiance and high wind speeds in the region (Photo: Mike Baker/Flickr)*

## PPE market to see CAGR of 7.3 per cent in five years

THE GLOBAL PERSONAL protective equipment (PPE) market has been predicted to reach US\$55,509.1mn by 2020, having hit US\$33,952.5mn in 2013, according to a recent study. The application segment includes sub-segments such as transportation, automotive, manufacturing, oil and gas, chemicals, food, mining, construction and pharmaceuticals.

In the report by Transparency Market Research, the PPE market is composed of head, eye and face protection, protective clothing, hearing protection, respiratory protection, fall protection, hand protection, professional or protective footwear, and others. In the terms of geography, it includes regions such as Africa, South America, North America, the Middle East, Europe and Asia Pacific.

[www.technicalreviewmiddleeast.com/hse](http://www.technicalreviewmiddleeast.com/hse)

## Grown diamonds gaining popularity, states Frost & Sullivan report

THE WIDESPREAD SHORTAGE of mined diamonds has led to the rise in popularity of grown diamonds, whose growth is being supplemented by technology and research, stated a report by Frost & Sullivan. Supply of mined diamonds has declined in the past decade, with key diamond mines having passed their peak production levels.

To solve the growing shortage, grown diamonds could be a potential solution. Technology has made possible production of rare quality colourless Ila quality diamonds by creating conditions conducive to their growth in semi-conductor grade facilities above the earth's surface.

The report said that grown diamonds will become a dominant player in high technology applications and can also be a significant source of the stone for the luxury sector.

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## MARCH 2015

1-3	<b>Saudi Plastics &amp; Petrochem/Saudi Print &amp; Pack</b>	JEDDAH	www.saudi-pppp.com
2-4	<b>Middle East Electricity</b>	DUBAI	www.middleeastelectricity.com
8-11	<b>The Big 5 Saudi</b>	JEDDAH	www.thebig5saudi.com
30-2 April	<b>Buildex</b>	DAMMAM	www.buildex-sa.com

## APRIL 2015

13-15	<b>USETEC</b>	KARLSRUHE	www.usetec-fair.com
20-25	<b>Intermat Paris</b>	PARIS	www.intermatconstruction.com
21-23	<b>WETEX</b>	DUBAI	www.wetex.ae

## MAY 2015

4-7	<b>Project Qatar</b>	DOHA	www.projectqatar.com
6-7	<b>Trans Middle East</b>	DOHA	www.transporevents.com
18-20	<b>FM Expo</b>	DUBAI	www.fm-expo.com

## JUNE 2015

8-11	<b>Project Iran</b>	TEHRAN	www.project-iran.com
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*Readers should verify dates and location with sponsoring organisations, as this information is sometimes subject to change.*

### WETEX 2015 to offer global platform for trade partnerships in Dubai and beyond

THE WATER, ENERGY, Technology and Environment Exhibition (WETEX) 2015 will aim to bring together companies and individuals in the water, energy, environment oil and gas sectors in Dubai this April. The show will provide a platform for participants to showcase their products and services, and to explore potential partnerships.

The annual event, which is set-up by Dubai Electricity and Water Authority (DEWA), will offer a number of services to exhibitors from the government, semi-government, and private sectors. "Under the directives of Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE, and Ruler of Dubai, to enhance the global position of Dubai in all fields, DEWA has developed WETEX into a major international platform for vital sectors of the economy," said Saeed Mohammed Al Tayer, MD and CEO of DEWA, and President and Founder of WETEX.

According to Al Tayer, over the last 16 years, the exhibition has contributed to key developments in water, environment, oil and gas, and conventional and renewable energy sectors, and has boosted the national economy through establishing agreements and partnerships that support economic, social and environmental projects in Dubai.

"WETEX saves time and effort for producers and consumers by bringing together exhibitors and consumers in a single location. The exhibition also supports production by displaying various products and services," stated Al Tayer.

### USETEC 2015 receives support from key partners in the used-tech market

THE WORLD TRADE Fair for Used Technology, USETEC, will take place in Karlsruhe, Germany. It will host live presentations of used machinery and equipment from more than 20 industry sectors.

Dr Nils Schmid, deputy minister-president and minister for finance and economic affairs in Baden-Württemberg will undertake the role of patron.

USETEC has received backing from all the leading associations in the used technology sector, including the FDM, Trade Association for Machine Tools and Tooling in Bonn. The company has played a key role in developing the USETEC concept.

"As well as specialist dealers, service providers and manufacturers play key roles at USETEC," said Florian Hess, managing director of Hess GmbH in Weingarten/Baden. "The mood in the market is currently good to very good across the board. Sales opportunities – despite perceived risks in some important export regions – continue to be seen as stable."



*USETEC 2015 will welcome visitors across 20 sectors*

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# Driving progress in Kuwait's construction sector

Architecture, engineering, design and planning practice firm, Pace, is supporting the Kuwaiti government's vision to expand the country's construction industry.

**P**ACE HAS SUCCESSFULLY joined forces with many key players in the global consultancy field such as SOM, Arup, Buro Happold, Gensler, HOK, Fentress Architects and TRO JB, as well as signature architects such as Zaha Hadid. This enabled the company to establish long-term partnerships and joint ventures, which have lasted more than 25 years. Many of these firms continue to grow, taking on new projects and landmarks ventures in Kuwait and the wider region. Set up in 1968 by Hamid Shuaib and his partners, Pace has recently adopted a new approach that will see the firm carry out more challenging projects, expanding its global presence and becoming a client-driven firm, rather than being a project-focussed firm.

"Our ability to evolve with new sustainable building technologies, in order to keep up with the fast growing pace of the construction sector in the region, is what distinguishes us from other firms," stated Tarek Shuaib, partner and CEO at Pace.

"The Middle East architecture and construction market has

witnessed a major boom," Shuaib said. "With a more solid presence for many construction and architectural firms, the development of key projects and a continuous increase in demand for innovative and sustainable building solutions; thus providing a platform for many firms in the architectural and construction sector to respond and cater to these growing needs and demands."

**"The Middle East architecture and construction market has witnessed a major boom"**

Across the Middle East, countries including Kuwait, the UAE, Qatar and Saudi Arabia have seen rapid transformation of a number of sectors such as commerce, tourism and construction. The region is projected for further growth, being host to some of the biggest upcoming international events including the FIFA World Cup 2022 in Qatar and the Expo 2020 in Dubai.

A recent report published by the Kuwait Finance House, showed that infrastructure spending in Kuwait has experienced strong growth at a rate of 5.9 per cent in 2014 and is projected to rapidly rise in the coming years. Most of the projects executed in 2014 were focused on governmental and commercial projects.

While huge international events are set to take place in the UAE and Qatar, the Kuwaiti government is pumping more money into construction projects, such as hotels and residential projects, to meet the demands of people travelling to the region. According to Shuaib, as a result of such developments, Pace has rolled out various architecture and engineering projects across Kuwait; including the Jamal Abdul Nasser Highway, the Jahra Road Development Project, the Avenues, the Central Bank of Kuwait, the Jahra and Farwaniya Court Buildings, Adan Hospital and the new Maternity Hospital.

Looking ahead to the future, Pace has entered into partnership with the Kuwait Fund for Economic Development (KFAED) to offer project management services for developments based in the Kingdom of Morocco, where the government of Kuwait will invest a total of US\$1.25bn in the venture. The firm is currently working on expanding and developing its architecture consultancy to grow its regional presence and position. Officials heading Kuwait's Vision 2030 development plan believe that an important factor in boosting Kuwait's construction is looking at the role the private sector has to play in boosting the economy; both to help with financing and also to facilitate knowledge transfer, Shuaib noted. ■



Tarek Shuaib, CEO and partner at Pace





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In 2014, the GCC had a combined GDP of US\$1.7 trillion in 2014, according to the IIF (Photo: fsg777)

# The push for economic diversification

The GCC's standing on the world stage has much to thank the hydrocarbons sector for, but building economies on non-finite resources will eventually require more of a long-term outlook. With a host of national 'development plans' in place, economist Moin Siddiqi explores the developments and processes behind economic diversification throughout the GCC.

**T**HE ENERGY-RICH countries of the Gulf Cooperation Council (GCC) had a combined gross domestic product (GDP) of US\$1.7 trillion in 2014, according to the Institute of International Finance (IIF), a Washington-based association of private banks, making it the world's 12th largest economy, slightly below that of Canada (US\$1.8 trillion), but exceeding both Australia (US\$1.4 trillion) and Spain (US\$1.3 trillion). While real GDP (inflation adjusted) grew at an annual average rate of 5.5 per cent during 2010-14, above the 3.8 per cent mean for the Middle East and North Africa (MENA) region, based on International Monetary Fund (IMF) figures. On current expansion, the GCC's aggregate GDP could reach US\$2 trillion over the medium term, driven by mega infrastructure investments, robust private sector growth and steady hydrocarbons production.

The GCC economies are much better positioned compared to the 1980s and

1990s to withstand exogenous shocks thanks to large official foreign assets and minimum debt (see Table 1), which, in turn, will mitigate the adverse impact of the oil-price slump on economic activity and allow continued robust public spending, particularly on infrastructure.

Gulf producers are now budgeting for an average oil price of US\$60 a barrel this year, with only Bahrain expected to record a fiscal deficit, according to the IMF. However, deficits could also arise in Saudi Arabia and Oman if crude remains below US\$50 into the second half of 2015.

**Table 1: The GCC\* Consolidated Macroeconomic Indicators**

	2011	2012	2013	Projections	
				2014	2015
Nominal Gross Domestic Product, US\$bn	1,450	1,600	1,649	1,719	1,772
Real GDP Growth (%) chg, avg	7.5	5.8	4.1	4.4	4.5
Non-hydrocarbons	5.8	5.7	6.0	6.1	5.9
Consumer Price Inflation (%) chg, avg	2.9	2.4	2.8	2.8	3.1
Fiscal Balance (%) of GDP	13.2	14.2	10.9	7.9	2.6
Total Population (mn)	47	49	51	52	54
GDP Per Capita (US\$) regional avg	30,851	32,653	32,333	33,057	32,815
Hydrocarbon Exports, US\$bn	680.1	743.3	727.6	705.6	660.4
Crude Oil Production (mn bpd)	16.2	17.2	17.3	17.4	17.4
Natural Gas Production (mboe/day) <sup>//</sup>	5.7	7.7	8.0	8.2	8.4
Current Account Balance, US\$bn	338.0	387.3	342.9	304.6	281.1
Net Foreign Assets* US\$bn	1,572	1,852	2,109	2,273	2,380

\* The six-member states: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE.

<sup>//</sup> Millions of barrels per day equivalent.

\* Official reserves + foreign assets of banks + sovereign wealth funds – foreign liabilities.

Sources: National authorities and projections from the International Monetary Fund (IMF) and the Institute of International Finance (IIF).



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### Broader-based structure

Over the past decade, the GCC countries have implemented many policies to spur economic diversification, including reforms to strengthen the business climate, develop 'First-World' infrastructure, liberalise trade and foreign direct investment (FDI), as well as improving the banking systems, which comply fully with international codes/standards of the Basel Committee and increasing funding, particularly for small and medium-sized enterprises (SMEs).

Policies drawing on international experience have focused on the following:

- Developing specific sectors and industries in which Gulf States enjoy competitive advantages (notably petrochemicals).
- Continued investment and upgrading of physical infrastructure, and promoting intra-regional trade and private investment (including through free trade zones).
- Encouragement of innovation and entrepreneurship through enhanced access to ICT, finance and government grants for research and development.
- Higher spending on education, including in science/technology and vocational – industrial training schemes to enable the growth of high 'value-added' sectors.

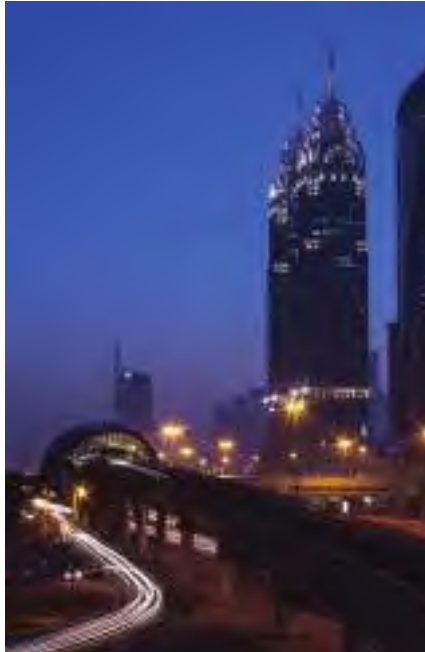
Strong macroeconomic fundamentals and good governance have underpinned these policies and initiatives. In the *Global Competitiveness Report 2014–15*, the UAE is ranked as the 12th most competitive economy out of 144 countries, followed by Qatar (16th) and Saudi Arabia (24th), with Bahrain, Kuwait, and Oman also ranking among the top 46 countries.

The IMF notes, "Wide-ranging reforms have streamlined the legal/regulatory environment in a number of areas, including start-up and licensing procedures for businesses, competition policies, investor and consumer rights, and bankruptcy and company laws.

"Financial market infrastructure has been enhanced to improve credit information and transparency. A number of policies geared toward the promotion of SMEs have been enacted (for example, through extending affordable bank sector loans, loan guarantees, feasibility studies, and establishment of a national fund for SME development in Kuwait)."

**Bahrain has invested in an offshore banking sector, while the UAE and Qatar have developed airlines and logistics**

**Gulf producers are now budgeting for an average oil price of US\$60 a barrel this year, with only Bahrain expected to record a fiscal deficit, according to the IMF**



*The continued investment and upgrading of physical infrastructure has played a large role in the diversification of the region's economy (Photo: fsg777)*

### Development plans

While some variation exists across each country, diversification strategies (for example, Saudi Arabia's long-term strategy 2025, Vision 2020 in Oman, Vision 2021 in the UAE, Vision 2030 in Bahrain and Qatar National Vision 2030) seek to achieve sustainable growth through greater diversification of output and to encourage the growth of sophisticated industries and services, which require highly-skilled labour.

With the GCC workforce projected to increase by some 1.2mn–1.6mn nationals by 2018, it will be difficult for governments in the region to continue absorbing new labour market entrants, and unless employment of nationals in the private sector rises, the jobless rate in member-countries will increase, especially among the youth.

In formulating national agendas, there is recognition among policymakers that GCC states – notably Qatar, Kuwait and the UAE – are high-income countries already, and are therefore unlikely to follow the development trajectory of middle-income countries that have diversified their economies by developing low-cost manufacturing sectors, such as the examples followed by Thailand and Vietnam.

The cost of planned projects in Saudi Arabia's Development Plan (2015-19) is estimated at US\$1.1 trillion. It includes schemes to develop new sectors such as automotives, which, in turn, encourage ancillary activity across related sectors. Qatar plans to invest US\$182bn (excluding the hydrocarbons sector) over 2014-18. Projects include roads, ports, rail, metro, real estate developments and a new central business district in Lusail, as well as the construction of eight large stadiums in preparation for the 2022 FIFA World Cup. Infrastructure also remains a key feature of Kuwait's new five-year Development Plan (costing US\$125bn) that will include expansion in air and seaport capacity, rail, power stations and hospitals.

### Industrial clusters

The region has successfully developed energy-related downstream industries, tourism, logistics, transportation, business and financial services. For example, Bahrain has invested in an offshore banking sector, while the UAE and Qatar have developed airlines and logistics, with the former (led by Dubai) becoming a major trade and services hub in the Middle East.

Saudi Arabia is developing giant economic cities to promote technology and industrial and service clusters around hydrocarbons and mining. Kuwait is also developing downstream oil industries and Qatar has established industrial cities to house a mix of energy-intensive industries to help integrate upstream and downstream hydrocarbon activities. Meanwhile, Oman has focused on the development of the SME sector, considered as one of the engines of job creation.

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In 2013, Martin Hvidt in *Economic Diversification in GCC Countries: Past Record and Future Trends* suggested that investments in chemicals and energy-intensive sectors like aluminium have helped diversify production and exports, but industries have fewer links to the rest of the economy. Local 'supply-chains' have yet to develop, and most of the advanced technology is still imported because investment in research and development is low. Concurrently, productivity gains and spillovers have been limited and the employment impact of these capital-intensive industries is relatively small.

Although the GCC-bloc has received sizeable FDI in recent years, inflows are mostly confined to hydrocarbon-related and real estate projects. Based on available sectoral FDI data, some 20 per cent of FDI inflows to Saudi Arabia (in 2010) went into chemicals and refined petroleum products activities, and another fifth targeted the building industry. In the UAE (2011) one-fifth of FDI inflows went to the construction sector, another 20 and 10 per cent, respectively, targeted wholesale and retail trade. While, in Qatar, a mere four per cent went to trade-related activity in 2011. FDI in these sectors has not led to technology transfers that could support increased export quality or sophistication in future years.

### Low productivity

To date, the region's diversification strategies have yielded mixed results. The GCC 'oil-funded' growth model has delivered tangible socioeconomic gains over the decades, reflected in increased public-sector employment and spending on basic infrastructure. This has helped raise standards of living on a level with advanced OECD economies and supported private sector activity, especially in sectors such as construction, trade and retail, transport and hospitality. With dwindling government revenues, however, this growth model may be unsustainable over longer-term.

Moreover, despite decent GDP growth, total factor productivity (TFP) growth (i.e. the quantity of goods and services produced using available machinery and other capital) for the non-oil economy has been negative.

Private economic activity – geared heavily towards meeting the consumption and investment needs of local markets – is largely concentrated in low-skilled non-tradables sectors. These trends contrast with other emerging market regions, where firms are engaged in both domestic and international trade.



*Kuwait has been developing its downstream oil industry, while Qatar has established a number of energy-focussed industrial cities*

**“Financial market infrastructure has been enhanced to improve credit information and transparency, and a number of policies geared toward the promotion of SMEs have been enacted”**

The region has made steady progress in diversification; the share of the GCC hydrocarbon sector to real GDP fell from two-fifths in 2000 to one-third currently, the IIF estimated. But hydrocarbons contribution to total budget receipts remained high at 84 per cent on average in the past three years, although down from 97 per cent in 1984.

The authorities have yet to broaden their domestic revenue base. Still, there is a high 'correlation' between oil-price and non-oil growth in the GCC countries, but progress with export diversification, a key ingredient to a vibrant economy, remains lacklustre across the region.

While most GCC countries have longer oil and gas production horizons (see Table 2), fossil fuels are exhaustible resources. With plunging oil prices, the need for diversification is once again highlighted. Reducing heavy reliance on the hydrocarbons sector would boost productivity growth, strengthen economic potential and combat periodic volatility of Gulf States' output. ■

***The next issue of Technical Review will discuss steps needed to foster a more dynamic 'export-oriented' production base in the Gulf region.***

**Table 2: Hydrocarbons Reserves of GCC Producers**

	End-2013			
	Proved Oil Reserves~ Bn barrels	R/P Ratio*	Proved Gas Reserves~ Trillion cf	R/P Ratio*
Kuwait	101.5	89.0	63.0	100+
Oman	5.5	16.0	33.5	30.7
Qatar	25.1	34.4	871.5	100+
Saudi Arabia	265.9	63.2	290.8	79.9
UAE	97.8	73.5	215.1	100+
GCC Total	495.8		1474	
World Total	1687.9	53.3	6557.8	55.1
GCC (%) of World	30.0		22.5	

~ Proven reserves refer to those quantities that geological and engineering data indicates with reasonable probability can be recovered in the future from known reservoirs under existing economic and operating conditions.

\* Reserves-to-production ratio - If the reserves remaining at the end of any year are divided by the production in that year, the result is the length of time that those remaining reserves would last if production were to continue at that rate.

Source: BP Statistics Review of World Energy June 2014.

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A large proportion of the waste generated throughout the GCC originates from construction and demolition activities (Photo: John Nyberg)

# Tackling the waste burden with WTE

In a bid to get to grips with their mounting waste challenges, GCC countries are seeking sustainable solutions to waste management, including waste-to-energy (WTE) schemes. But the pace of progress in the region as a whole is not matched by the increasing volumes of waste generated. Lynda Davies reports.

“Waste-to-energy is not only a potential solution to reduce the volume of waste going into landfill, but it can provide a supplemental energy source”

**S**OLID WASTE MANAGEMENT is one of the most serious challenges faced by all countries across the Middle East. The high rate of population growth, urbanisation and economic expansion is accelerating consumption rates and the generation of ever increasing volumes of a wide variety of waste.

Per capita waste generation in the GCC countries is one of the highest worldwide, with estimates putting the total volume of waste produced in the region as likely to have reached 130mn tonnes in 2014, according to a recent whitepaper<sup>1</sup> by Frost & Sullivan. Some sources suggest the volume may now surpass a total of 150mn tonnes a year.

A large proportion of this waste comes from construction and demolition activities, with municipal solid waste (MSW) the second-largest source.

## Municipal solid waste generation in the GCC region

TABLE 1

Country	Estimated million tonnes per year
Saudi Arabia	15
UAE	6
Qatar	2.5
Kuwait	2
Bahrain	1.2-1.5
Oman	n/a

Source: Various

Much of the region’s solid waste is disposed of in unregulated landfills, due in large part to ineffective waste management legislation and planning, as well as a lack of social awareness. In addition to taking up valuable space in countries where land availability is limited, such as in Kuwait, Bahrain and Qatar, landfills present a whole array of sanitation and environmental



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issues; not least of which is that conventional landfill sites are a significant source of greenhouse gases.

In a bid to get to grips with their mounting waste problems and increasingly mindful of the growing environmental issues surrounding landfill waste disposal, policy-makers and urban planners in the region with varying degrees of success have been seeking sustainable solutions to waste management, including waste-to-energy (WTE) schemes.

“Waste-to-energy is not only a potential solution to reduce the volume of waste going into landfill, but it can provide a supplemental energy source,” said one energy analyst.

Singapore’s Keppel Seghers, which designed, built and operates the region’s first domestic solid waste management centre in Qatar, believes the GCC region has the potential to become the leader in the WTE sector. However, the pace of progress in the region has not been matched by the increasing amount of waste generated. While Qatar, along with the UAE emirates of Sharjah and Abu Dhabi, are leading the way,

WTE initiatives and other solid waste management plans elsewhere in the GCC region are making slow progress.

According to Frost & Sullivan, the total energy produced from waste in GCC countries currently amounts to only between 0.25-0.3 terawatt-hours (TWh).

#### Expansion in Qatar

Qatar’s only domestic solid waste management centre (DSWMC) near Mesaieed was commissioned in June 2011 and includes three WTE incineration units. The WTE units have a combined capacity to process 1,500 tonnes of waste a day and generate 48.4MW of electricity. Some 15.4MW of the electricity is consumed on-site and the balance 33MW is supplied to Qatar General Electricity and Water Corporation (Kahramaa) for the national grid.

In addition to the WTE plant, the DSWMC includes waste sorting and recycling facilities, an engineered landfill and an anaerobic digestion composting plant. It can process a total of 2,300 tonnes of mixed domestic solid waste per day. The waste

management centre is helping Qatar achieve its goals to reduce waste sent to landfills from 92 per cent to 64 per cent, and raise solid waste recycling rates from eight per cent in 2012 to a target 20-25 per cent.

The country produces more than 2.5mn tonnes of municipal solid waste each year, while per capita waste generation is variously estimated at between 1.6 and 1.8 kg per day.

Waste generation is estimated to be growing at a rate of 10 per cent per year in Qatar and the country’s government is evaluating an expansion of Mesaieed DSWMC, with environmental technology firm Keppel Seghers submitting an expansion proposal to add an additional 3,000 tonnes per day of waste handling capacity.

#### Cleaning up in the UAE

The UAE is grappling with one of the highest per capita waste generation rates in the world, with waste generation running at approximately 2.5 kg per person a day, of which the majority ends up in landfills. But two emirates, Abu Dhabi and Sharjah, are turning to WTE plants to reduce the pressure on landfill sites and provide additional greener energy.

In Sharjah, site preparation work is underway at what will be the world’s largest municipal waste gasification plant. In May 2014, government-controlled environmental services and waste management company Bee’ah awarded a US\$455mn contract to UK firm Chinook

**The UAE is grappling with one of the highest per capita waste generation rates in the world, with waste generation running at approximately 2.5 kg per person a day**

Abu Dhabi has plans in place to build a 100MW WTE plant near the seaport of Mussafah (Photo: Norbert Nagel)



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Sciences, which designed the facility, to oversee the construction of the plant. Located at Bee'ah's existing Waste Management Centre in Sharjah Industrial City, the plant will utilise Chinook's commercially-proven ATT technology and have the capacity to treat 400,000 tonnes annually of a wide range of municipal solid waste and commercial and industrial wastes, generating up to 85MW of power. Under the terms of its contract, Chinook is co-ordinating the manufacture, shipping, installation, construction and commissioning of the plant, which is expected to be operational in approximately two years' time.

The WTE project forms part of Sharjah's 'zero-waste to landfill strategy', announced in 2011. Bee'ah is driving the initiative which aims to divert 100 per cent of the emirate's waste from landfill to recycling, energy production and other resources by mid-2015. To date, Bee'ah's recycling and material recovery programmes have diverted 55 per cent of Sharjah's waste from landfills.

In Abu Dhabi, per capita waste generation is some two kilogrammes per person per day. Around 33,000 tonnes per day of waste is produced daily across the emirate, according to a presentation last year by Abu Dhabi National Energy Company (TAQA)<sup>2</sup>, the majority of which is disposed of in non-engineered landfills.

More than one million tonnes of municipal solid waste alone is generated in Abu Dhabi every year and, according to the Abu Dhabi Environment Agency (EAD), this figure is expected to increase by approximately six per cent annually.

To help address its mounting waste problems, the emirate is developing a 100MW WTE plant planned to be built near the seaport of Mussafah. The facility will be designed to process approximately one million tonnes of municipal solid waste annually, utilising the mass burn, moving grate incineration technology.

TAQA has been tasked by the Abu Dhabi Centre of Waste Management (CWM) with the responsibility for designing, building, financing, and operating and maintaining the WTE plant. The company will recoup costs through charging CWM a waste disposal fee and selling electricity to ADWEC, according to the TAQA presentation.

In November 2014, TAQA and CWM started the qualification process for the engineering, procurement and construction (EPC) of the plant. When fully operational, the facility will save 1,637,000 tonnes of CO<sub>2</sub> emissions per year, according to TAQA.

Dubai Municipality, in partnership with Dubai-based Green Energy Solutions & Sustainability LLC, started up the GCC region's first landfill gas recovery system at one of the emirate's largest landfill sites, Al Qusais, in January 2013. The collected gas is being safely flared, with a small portion utilised for electricity generation (1MW) in the initial phase, which provides all the electrical needs of the landfill and Dubai Municipality site offices.

The facility has been named 'Station 2020' because it is aimed to eventually have a 20 MW capacity and run for 20 years. The Al Qusais landfill receives about 5,000 tonnes of waste daily, roughly half of the waste generated in Dubai.

### Progress in Kuwait

In Kuwait, the PPP procurement authority, Partnerships Technical Bureau (PTB), in collaboration with Kuwait Municipality, is currently evaluating requests for qualification for a 3,275 tonnes per day (approximately one million tonnes per year) municipal solid WTE project in the Kabd area, 25km away from Kuwait City. As with Qatar's DSWMC, the Kabd project is being undertaken as a design, build, finance, operate and transfer structure.

The PTB is aiming for a 2016 start-up of the facility, which will have the capability to generate 650GWh/year. The surplus electricity will be sold to the Ministry of Electricity and Water Municipality (MEW).

Kuwait generates an estimated two million tonnes a year of municipal solid waste, almost all of which currently is sent to landfill. In addition to the Kabd project, the country also is considering establishing two further WTE projects each with solid waste-handling capacity of 600,000 tonnes per year, to be located at Al Jahra and Mina Abdullah. The PTB currently aims for these latter two plants to be operational in 2020.

In July 2014, Bahrain's Municipalities and Urban Planning Affairs Ministry announced a WTE project, to be located near the country's only landfill site at Askar, was to be re-tendered. The ministry earlier terminated an agreement with French group CNIM, which dated back to 2008, for the development of a WTE plant on a 'Build-Operate-Transfer' basis under a 25-year contract.

The proposed facility was to have capacity to treat 390,000 tonnes per year of solid waste and generate 25MW of electricity. The ministry cited the French group's failure to address environmental concerns as the reason for cancelling the contracts while other sources reported that the ministry had failed to provide CNIM with an agreement licence. At the time of writing, there was no further news of a new tender being issued.

Saudi Arabia plans to include 3GW of WTE and 1GW of geothermal projects among its ambitious renewable energy targets by 2032. The country generates more than an estimated 15mn tonnes of municipal solid waste per year. Per capita waste generation is estimated at 1.5-1.8kg per person per day. Oman's initiatives to manage its waste include the development of 13 engineered landfills aimed at closing all of the country's 300-plus traditional landfills. At least three engineered landfills have been opened to date. ■



*Announced in 2011, Sharjah's 'zero-waste to landfill strategy' aims to divert 100 per cent of the emirate's waste from landfill to recycling, energy production and other resources by mid-2015 (Photo: John Nyberg)*



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Smart grid analytics market is expected to touch US\$5.5bn by 2019 with a CAGR of 25 per cent, stated Markets&Markets

# Stepping up efficiency in power solutions

A look into how the smart grid market is faring in the GCC, and why there is a need to increase investments in the sector.

Due to economic diversification and increase in renewable energy investment, there is optimism surrounding the smart grid solutions market in the Middle East

**T**HE RECENTLY-CONCLUDED World Future Energy Summit (WFES) at Abu Dhabi showcased the interest of MENA nations to develop energy projects and develop a sustainable future. With mega projects being lined up across the region, there is a strong need for reliable electricity systems such as smart grids to sustain and enable smooth performance of power projects.

Smart grids utilise the latest communication technologies to introduce the use of computer-based controls and automation to electricity systems used by utilities. They are being extensively used in electricity networks, power plants, wind farms, businesses and in homes. Smart grids made a foray into the Middle East only recently – power major Alstom launched the first smart grid centre in Dubai last year, which was considered a major step towards delivering sustainable electricity to the UAE. Grégoire Poux-Guillaume, president of

Alstom Grid, stated that as smart grid technologies are integrated into existing infrastructure, customers in the region would benefit from the centre's close links to Alstom's state-of-the-art smart grid centres in France and the USA, using tools and processes with the latest technologies, and ongoing support from Alstom experts worldwide in real time.

With time, technology has rapidly grown within the smart grid industry. Abu Dhabi Water and Electricity Authority's smart grid project is considered a landmark ICT project, and has highlighted the utility of systems such as Advanced Metering Infrastructure (AMI), Supervisory Control and Data Acquisition (SCADA) and smart metering. Recently, Landis+Gyr and Ericsson have collaborated to offer smart metering solutions for smart grid environments in Middle East cities. While one of the main challenges of smart grid monitoring is connectivity, transmission of data and

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Smart grid solutions are gaining relevance in the Middle East due to the rise in renewable energy projects

ensuring seamless operations, Siemens hopes to create smart energy networks to collect large amounts of data and allow effortless grid management.

#### Smart grid market to grow

Research firm Markets&Markets expects the smart grid analytics market to reach US\$5.5bn by 2019 at a CAGR of 25 per cent. Several companies such as Siemens, Ericsson and Schneider Electric have begun focussing

their research on improved smart grids for the Middle East. And the research firm Frost & Sullivan said that while GCC nations are still picking up on the technology, they are expecting an investment close to US\$73bn in the next five years on grid solutions, smart metering solutions and improved power transmission. Sitaram Chodimella, head of the smart grid division of Siemens LLC Middle East, said, "We see enormous potential for implementing smart grid

solutions in the GCC, especially as the region moves towards economic diversification and increased reliance on renewable energy."

#### Preparing for the change

Despite the vast number of opportunities cropping up in the region, industry experts have observed that technology majors in the Middle East are carefully evaluating smart grid requirements. To ensure each country invests in the right kind of technology, pilot projects are being undertaken before a mass roll-out. Enterprise software company C3 Energy has initiated smart grid technology workshops in Asia, the Middle East and South America, and has been involved in trade mission activities to educate and inform investors, and gain better insights into a country's smart grid requirements. ■

**Before investing in smart grid solutions, investors are carefully evaluating the various technologies and assessing what their requirements really are**

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# Branching out in green building solutions

A recent study published by Ventures Middle East has highlighted that the GCC countries are making significant progress in the field of green building projects. We look at how this is reflected in the region's construction industry and building infrastructure.

**C**OUNTRIES IN THE Gulf are making significant progress in the world of green buildings and embracing sustainable technologies, which is being driven by the increasing number of government policies and initiatives in the region, according to a recent study by consultancy company Ventures Middle East.

Released in February 2015 in the run up to The Big 5 Saudi, the report entitled *Focus on Sustainability in Construction* stated that, while it is true that the Gulf has not been as quick as other parts of the world in adopting green building initiatives, the slow take off comes down to three key reasons: "lack of legislation, absence of visible financial incentive and limited awareness of environmental issues".

The increasing adoption of green building policies is significant considering that the GCC region boasts such a strong construction and infrastructure sector. In fact, in 2014 alone the GCC saw US\$128.4bn worth of construction projects get underway.

Nicholas Webb, managing partner of Streamline Marketing Group, the organisers behind the Outdoor Design & Build Show,



KAUST in Saudi Arabia is said to be world's largest LEED NC-Platinum project (Photo: Karl-Joseph)

which is being held in Dubai from 13-15 April 2015, said, "GCC countries are increasingly embracing sustainable and green building development as they look for long-term economic growth and to improve social infrastructure."

In regards to the US construction coding system LEED, the UAE is leading the region, having accounted for 67 per cent of 1,236

LEED-rated projects in the region in 2013. This is followed by Qatar and Saudi Arabia that only accounted for 16 per cent and 13 per cent projects, respectively.

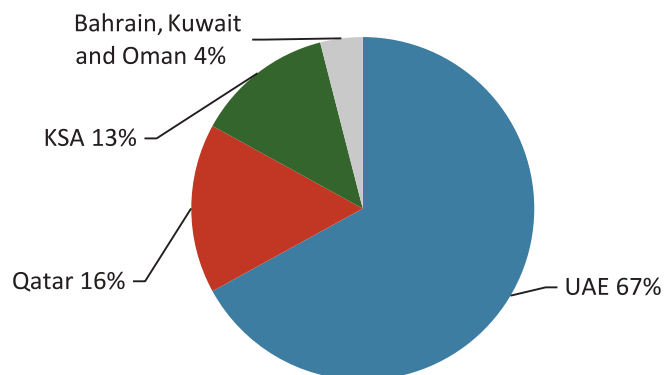
The UAE and Qatar are, reportedly, the only countries in the region to have formally introduced green building codes, while in Saudi Arabia the Saudi Green Building Council is currently working on its own regulating and ratings system similar to the LEED rating.

In line with the Dubai Supreme Council of Energy's plan to build energy-efficient buildings in the emirate, by 2030 approximately 30,000 of Dubai's 130,000 buildings are expected to adhere to efficiency improvement measures.

Moreover, under its 2015 strategic plan, Dubai has put in place new regulations that implement green building specifications and standards which, according to the report by Ventures, are likely to lead to considerable savings in terms of energy, water, cooling and heating.

While in Abu Dhabi, the Estidama initiative, a green building integrated programme, is said to be addressing

LEED Projects in the GCC Region (2013)



Source: Zawya

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sustainable development throughout the UAE's capital. It does this through combining guidelines and regulations for sustainable design, construction and operation of buildings and communities.

The role of Saudi Arabia in the green building market, however, should not be downplayed. Faisal Al-Fadl, the head of the Initiative of Custodian of the Two Holy Mosques for Green Building, has been reported saying that the kingdom accounts for 15 per cent of the green building projects in the Middle East this year.

Furthermore, more than 20mn sqm of land in the Saudi Arabia is allegedly occupied by green buildings, which is expected to double in 2015. Most of these developments are expected to be based in Riyadh, with investments of US\$53bn.

Robb Marinko, landscape architecture manager at Dar Al Riyadh – Architecture and Design Services, speaking ahead of the Outdoor Design & Build Show, said, “Sustainability is becoming more and more important to the Saudi market, we are seeing dramatic changes in how developers approach the market and how outdoor space is used.”

One example of the major green building projects underway in the kingdom includes the King Abdullah University of Science and Technology (KAUST), which is said to be the world's largest LEED NC-Platinum project ever built.

Incorporating modern technology, the campus' design was created with maximum sustainability and minimum energy use in mind. Those technological features include energy-generating photovoltaic (PV) panels that cover the roof and, with a nod to traditional Arabic architecture, large solar-powered wind towers, which harness energy from both the sun and the wind to create air flow in the pedestrian walkways.

According to the report, as the Gulf is relatively new to the world of green building concepts there is plenty of business opportunities for manufacturers and suppliers. Some of the key industries and technologies to see innovations in line with the green building policies include the HVAC industry – reportedly two-thirds of the electricity in a building is consumed by air-conditioning – fire protection mechanisms, faucets – electronic and metered faucets can save water by 40-77 per cent – and lighting.

Lighting is a particularly big market in the Gulf and is set to grow. In fact, the commercial lighting fixtures market is set to increase by eight to 10 per cent annually in



*Faucets are one piece of technology undergoing energy-efficient innovation (Image: Cayusa)*

the region and is expected to be worth US\$3.7bn by 2018.

Therefore, lighting is one industry that has seen a lot of innovation in terms of sustainable technologies and intelligent building solutions. One company that has recognised and invested in intelligent and integrated lighting solutions is Eaton, the global technology major in power management solutions.

On the topic of lighting controls, Ashique Panakkat, sales leader of the electrical sector for Eaton Middle East, said, “Networked lighting controls are one of the key components that go into creating an intelligent building.”

He added, “The lighting control systems in these types of extensive and complex multi-use buildings are built around completely distributed intelligence network topography, with multiple levels of user interface and modes of operation.”

One example the international power management company gave of the benefits of a network system was a daylight harvesting strategy, which can be deployed to save on unnecessary artificial lighting in areas close to windows, while detectors can be utilised in less frequently used spaces, such as corridors, to dim or switch lighting at low use times.

As a sustainable and affordable source of lighting, LED lighting, which has been proven to be up to 70 per cent more efficient than traditional sources, is also a fast-growing business in the Gulf.

In the UAE, new lighting standards has meant there is a ban on the sale of bulbs that do not reach certain energy-efficiency criteria, which is intended to ensure that those bulbs available are energy-efficient, longer-lasting, safe, and have limited hazardous chemicals.

One example of a building that have successfully benefitted from implementing LED lighting is Grosvenor House in Dubai. Working with GE Lighting the hotel adopted LED lighting throughout its two 45-storey

towers that house 749 rooms, suites and apartments, in line with its ‘green policy’ to promote energy-use efficiency.

Prior to the LED upgrade, more than 24,500 halogen lamps were identified in the lighting audit and, following the implementation, GE Lighting has claimed that the total energy savings per year through its LED lighting solutions is around 80 per cent.

Pam Whilby, general manager of the Grosvenor House, said, “We adopt and maintain world-class environmental standards and develop the required mechanisms for implementing them[...] adopting LED lighting solutions was therefore a natural fit to our sustainability goals. GE Lighting’s LED solutions deliver significant energy savings in addition to minimising carbon dioxide emissions.”

Looking beyond lighting and to more integrated solutions, Eaton offers customers its xComfort, a wireless home automation system which works on a domestic level to help home-owners control, co-ordinate and optimise multiple functions. This includes lighting controls, indoor HVAC control, safety functions and energy management.

One of the major advantages of utilising this system is that through the smart control of temperature, lighting and electrical equipment the operator is able to lower power consumption. xComfort also allows one to implement functions that reduce heating and energy consumption when they are not required, and it can monitor power which is produced by the solar PV.

The Gulf is not only a region full of construction and infrastructure investments but is also a region that, with the increasing adoption of government policies and initiatives, has an ever-growing enthusiasm for green building and intelligent building solutions. This, in turn, is driving further business opportunities and potential for companies working in the infrastructure and building utilities industries. ■

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# Building a new future in the Kingdom

The fifth edition of The Big 5 Saudi will be held from 9-12 March in Jeddah, Saudi Arabia, where industry leaders and experts will converge to discuss the myriad possibilities in the country's construction landscape.

**C**ONSTRUCTION WILL BE one of the leading sectors of the Saudi Arabian economy this year, making The Big 5 Saudi exhibition more relevant than ever. Under the patronage of Prince Mansour bin Mutaib bin Abdulaziz Al Saud, Minister of Municipal and Rural Affairs, the fifth edition of The Big 5 Saudi will be held in Jeddah, Saudi Arabia, from 9-12 March 2015 at the Jeddah Centre for Forums and Events.

The show has grown 90 per cent over the past four years – exhibitors have increased from 300 to more than 500, visitors from 9,000 to 15,000 and event space from 7,000 sqm to 20,000 sqm, said the organisers.

Nathan Waugh, event director of The Big 5 Saudi, said, "The Saudi construction sector is one of the most significant economic drivers in Saudi Arabia, and has played a major role in the country's development. We are proud to have seen The Big 5 Saudi go from strength to strength and celebrate its fifth anniversary this year."

**Major infrastructure projects such as railways, roads, buildings and ports have placed Saudi Arabia at the forefront of GCC development**



*An artistic representation of the Kingdom Tower in Jeddah, which has been described by architect Adrian Smith as a "new vision for Saudi Arabia"*

## Why Saudi Arabia for construction?

The GCC construction market value by the end of 2014 was projected to have grown 7.7 per cent, according to *Ventures Middle East*. Saudi Arabia and the UAE were leading the market in terms of project volume. It appears this trend has been carried forward

into 2015, with US\$200bn worth of contracts is likely to be awarded this year. A number of major infrastructure projects such as railways, roads, buildings, ports and the expansion of existing facilities have placed Saudi Arabia at the forefront of development in the GCC.



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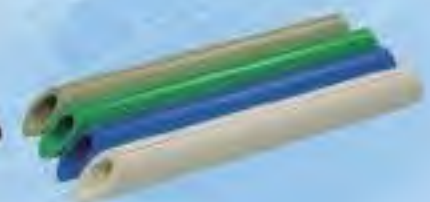
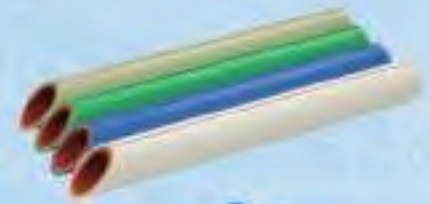
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With the fillip in mega projects, several sectors and industries such as aluminium, precast concrete and cement are also getting a boost. A Transparency Market Research report has stated that the cement market in Saudi Arabia will grow at a CAGR of 5.14 per cent from the period 2014 to 2019.

### Significant development projects in Saudi Arabia

One of the most important projects underway is the Kingdom Tower in Jeddah. Touted to be the tallest structure in the world at a height of 1,007 metres, the US\$1.2bn tower will be the commercial centre of the city. The building is expected to be completed by 2017, and will have more than 200 floors along with the world's highest observation deck on the 157th floor. Liebherr's cranes have been roped in to aid with the construction, German company Bauer will provide the foundation work, EC Harris and Mace will manage the project and Kone will provide the elevators for the tower.

In an earlier interview, Prince Al-Waleed bin Talal said, "The time is appropriate to build the Kingdom Tower now because the prices for construction materials are low. From cement to iron, everything is low. Secondly, it is being built in Jeddah, because this city needs a project of this kind, as it would attract more business here. Nothing of this size has happened in Jeddah for more than two decades."

In addition, the Saudi Arabian government is keen on providing a boost to the 'Economic Cities' programme. The



*King Abdullah Economic City's Labor Village housing complex, which will provide accommodation for 2,500 workers and supervisors*

late King Abdullah bin Abdulaziz was heralded a "game changer" for the Kingdom, as he patronised a host of welfare projects such as the Economic Cities programme. The King Abdullah Economic City (KAEC) located on the Red Sea, nearly 97 km north of Jeddah, is one of the five special economic zones expected to bring about diversity in the Saudi Arabian landscape. The project has four major developments – King Abdullah Port, Industrial Valley, The Coastal Communities and Hijaz Downtown. The intention behind developing this mega project is to slowly wean the Kingdom off its dependence on

oil, and focus on other sectors such as manufacturing, construction and industries such as minerals and plastics.

The budding construction landscape in the Kingdom makes it apt to host the fifth edition of The Big 5 Saudi. The earlier edition of the show set a precedent for the region – attendees included business development managers, marketing managers, directors, chief executives and presidents of companies, structural, civil, electrical and geotechnical engineers, facilities managers, project managers, quantity surveyors and purchasing managers. There was due representation from real estate developers, manufacturers, trade associations, building consultancies, architectural and design companies, concrete contractors, engineering firms and government representatives. Based on surveys taken at the show last year, participants highlighted the main reasons for attending as sourcing new products, networking, locating local distributors, and learning about regional products, trends and the latest innovations. Ninety-eight per cent of the attendees stated that they will return to this year's show.

This year, for the first time, there will be Continued Professional Development (CPD) certified education courses for attendees. The seminar series will give attendees free access to 12 sessions and panel discussions including five project showcases. All these educational features will help visitors further their construction careers, stated organisers. ■



*Saudi Arabia's cement market is expected to grow at a CAGR of 5.14 per cent until 2019, further establishing the country's construction sector*



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# ONIS VISA: 50 years of leading edge

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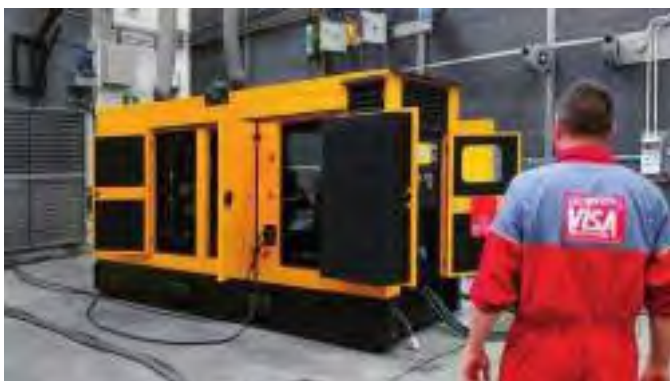
around the world and have been chosen by important telecommunications companies, precisely because of their special characteristics.

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reserved for the assembly of medium-large generating sets have more free space and all have access through the simultaneous use of multiple over-head cranes. The current set-up has led to a significant increase in product pieces and sales, also making it possible to fulfil custom requests.

*“We are a team and our success is essentially connected to the strong synergy that we have managed to establish between us over time. Between all of the company departments, all of the people, and believe me, it has been our greatest challenge.”* These are the words of Visa’s President Lorenzo Barro.



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# A glassy finish to earn more points

Glass specially produced for incorporation in sustainable buildings can be used to earn points under the LEED Green Building Rating System – a widely recognised set of standards for building design. Bob Adams investigates.

**A**DVANCED ARCHITECTURAL GLASS supplied as branded products by specialised manufacturers such as SunGuard and Pilkington (part of the NSG Group) can be used to earn building designers, constructors and operators coveted certification points from local administrators of the universally-acclaimed LEED certification system.

LEED certificates are awarded for newly-built project designers, constructors, operators and maintenance teams that enhance the indoor built environment and protect conditions outside too. Proper use of treated (usually coated) float glass can substantially enhance both the appearance and functionality (performance) of a structure and save a considerable amount of energy in its use by transmitting more daylight and reducing the requirement for air conditioning by low emissivity.

A separate system of “points” is awarded to qualified major renovators. There are six principal categories of performance that

lead to the award of designated numbers of points – these are regularly updated to reflect advances in glass coating technology and regional needs. The Gulf cities are a major international testbed for these “version” upgrades.

As paraphrased, the original six categories, still widely applied internationally and involving substantial overlapping, are:

- Energy and application
- Materials and resources
- Precise location of the structure
- Quality of indoor environment
- Innovation and design
- Regional priority

Of these, the first two are most significant locally in terms of the number of points that can be earned and used as a sales promotional tool in many different ways (including enhancement of rental income). These are particularly important in the MENA region where low emissivity is

a now key requirement for acceptable new-build performance.

Energy and application is a general category that is designed to exploit the optimisation of the energy consumption of the building under all conditions, including during the construction phase. This includes minimising its energy “sink” or “draw” effect on the local environment, i.e. reducing power demand through maximum use of natural daylight and minimising aircon use. Proper choice and application of materials can, it is claimed, reduce overall building energy demand by as much as 10 per cent in a new-build scenario (just half this for a renovation project).

Maximum incorporation of solar control float glass is the normal practice, and this usually enhances the quality of the indoor environment at the same time.

The other major glazing product that can be used to earn a substantial number of LEED points in this category is suitable choice and positioning of thin-film and other photovoltaic panels, such as are now being heavily promoted for retro-installation on domestic rooftops in Dubai particularly.

NSG’s wide TEC range of materials is a good example, although it must be stressed that points are normally awarded for the quality of the design and application, rather than the use of a specific brand of product. Such points can also be earned under the “regional priority” category.

Appropriate choice of materials and resources can enhance the “green credibility” of a newly-built structure considerably. Advanced glass manufacturers incorporate a considerable proportion of re-melted high-grade cullet from their own trimming operations – this is an obvious way of saving on both physical and energy resources. Extensive use of appropriate local sands is another way of earning points in this category. ■



*LEED is among the most widely accepted building rating systems in the Middle East*



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*Abu Dhabi Ports' container terminal at Khalifa Port handled more than one million TEU in 2014*

# Plain sailing for Gulf's port facilities

Investments in major infrastructure development projects have continued to flood into the Gulf just as populations have continued to expand. But how are the region's port facilities benefitting from all this growth?

**A**S EXCITING MAJOR construction projects continue to come on line and economies keep on growing, ports facilities in the Gulf are developing rapidly to keep pace with the region's ever-increasing business potential.

The GCC Railway project is one example that reflects the extent of construction taking place in the Gulf. Conservatively estimated to cost at least US\$19bn to construct, the 1,940 km-long railway is set to run from Kuwait, through Saudi Arabia, Bahrain, Qatar, the UAE to finally reach Oman. It is a massive infrastructure development and, intended for both

**“There are few, if any, ports recording this pace of year-on-year growth anywhere in the world”**

commercial and industrial purposes, is scheduled to be completed by 2018.

This completion date is before both the Expo 2020 in the UAE and the 2022 FIFA World Cup in Qatar, which are, incidentally, two events that have also been driving substantial infrastructure development in the GCC nations.

Looking at the UAE, Abu Dhabi Ports is reporting increasingly positive results and recently announced that it handled the most cargo ever in 2014. The semi-automated container terminal at Khalifa Port, managed and operated by Abu Dhabi Terminals (ADT), underwent a 26 per cent year-on-year increase compared to 2013, having handled a record-breaking 1,137,679 twenty-foot equivalent units (TEU) in the one year.

Moreover, Abu Dhabi Ports has experienced an increase of 37 per cent compared to 2013 in terms of the amount of bulk and general cargo it handled, which reached more than 12,800,000 freight metric tons (FT) in 2014.

Abu Dhabi Ports CEO Captain Mohamed Juma Al Shamisi said, “Khalifa Port has the space and capacity to allow the businesses

across the emirate to take advantage of growing global trade opportunities, by increasing their import and export trade while making use of Khalifa Port's excellent facilities and industry-leading productivity levels and turnaround times. There are few, if any, ports recording this pace of year-on-year growth anywhere in the world today.”

Inaugurated in 2012, Khalifa Port is able to handle 2.5mn containers, with plans to handle 15mn containers by 2030. Abu Dhabi Ports has claimed that the port is home to the region's most efficient terminal after it revealed in November 2014 that it had dropped its truck turnaround time to a record 12 minutes.

At the time, Gary Lemke, executive vice-president of ports at Abu Dhabi Ports, commented, “A quick turnaround time is very important for our customers as it affects their supply chain efficiency. Achieving a 12-minute turnaround time for trucks is a fantastic result which raises Khalifa Port's status as an international maritime hub, driving trade and economic prosperity across the emirate.”

Abu Dhabi Ports is also set to launch the new innovative ports community system



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Maqta Gateway, which is said to connect all of those involved in export and import trade businesses in Abu Dhabi's ports, providing a single point of contact and real time information at all times. Announced at the end of 2014, Maqta Gateway is intended to enhance processing times and communications procedures.

Elsewhere in the Gulf, Saudi Arabia's port facilities and shipping sector are experiencing considerable growth, as the value of its current and planned infrastructure projects within the government's five-year plan reach more than US\$30bn, according to data from the First Saudi Maritime Congress.

Examples of reported major port projects in the kingdom include the Jeddah Islamic Port. Home to the Red Sea Gateway Terminal that covers an area of approximately 500,000 sq m, Jeddah Islamic Port is said to be currently going through an expansion project to increase capacity.

Chris Hayman, chairman of Seatrade, who presented at the recent Saudi Maritime Congress that took place in November 2014, said, "The kingdom has four major ports plus a number of new state-of-the-art facilities under development or in the planning stage."

The kingdom's Emaar the Economic City (EEC), the consortium behind the development of King Abdullah Economic City, is also reported to be focussing on expanding its port in 2015. Currently boasting an annual capacity of 1.3mn TEU, the port will be expected to rise to 4mn TEU by 2016.

"As the largest economy in the region, Saudi Arabia's maritime sector has a vital role to play in facilitating trade movement," Hayman added.

Back in the UAE, Dubai-based marine

## "As the largest economy in the region, Saudi Arabia's maritime sector has a vital role to play in facilitating trade movement"

terminal operator DP World has reported an 8.9 per cent rise in gross container volumes across its global portfolio of container terminals in 2014, revealing that it handled 60mn TEU.

Despite having a portfolio of more than 65 marine terminals worldwide, the UAE stood out as one of the regions driving the 2014 growth as it recorded growth of 11.8 per cent for the year.

DP World chairman Sultan Ahmed Bin Sulayem explained, "Our flagship Jebel Ali Port continues to reach record highs with 15.2mn TEU handled in 2014. The opening of an additional two million TEU capacity in the third quarter of 2014 has alleviated constraints and will provide the capacity we need to achieve further volume growth at Jebel Ali.

"A further two million TEU is expected to come on line in the second half of this year, taking total Jebel Ali capacity to 19mn TEU."

Interestingly, in November 2014, DP World also announced that its Jebel Ali port had welcomed the largest-ever bulk carrier vessel. Measuring in at 229 metres long, the Saba Shipping's 'Mega Star' had come from Turkey and was carrying approximately 79,000 mt of reinforcing steel.

"The team at Jebel Ali rose to the challenge of handling the biggest ever vessel of its type to visit the port," Bin Sulayem said. "This sends a clear message that we are ready to meet future capacity demands in Dubai."

In Oman, considerable work continues on developing Sohar Port and Freezone which, it was announced in August 2014, is taking over cargo operations from the Muscat port and set to become the centre of the sultanate's shipping industry.

In August 2014, Jamal Aziz, CEO of Sohar Port and Freezone, said, "[This] is a significant step in making Oman's ports more competitive in the region and will allow Oman to take full advantage of its prime geographical location for international commercial shipping."

As well as the ongoing construction projects, the GCC countries are having to cope with ever-increasing populations – populations that need feeding – and Oman looks ready to take full advantage of the growing number of mouths to feed.

It has recently come to light that Sohar Port and Freezone is set to build the sultanate's first dedicated terminal for handling agricultural products, which will reportedly include grain storage facilities, a sugar refinery, a flour mill and two manufacturing plants.

Andre Toet, chief executive officer of Sohar Port, explained, "Growing populations and a 90 per cent dependence on food imports is a perfect recipe for growth. The value of regional food markets will hit US\$53bn in 2020. This offers great returns for the industry, but it is also increasing the region's food bill. Part of the challenge is operating costs in the big cities, and our aim is to harness our location, connectivity and rates to cut the cost of putting food on tables."

Thanks to both avoiding the costs of passing through the Strait of Hormuz and Oman's Free Trade Agreements with the US and Singapore, Toet says that costs are reduced, allowing Sohar Port and Freezone to become an important conduit through which food manufacturers can reach booming Middle East markets at significantly lower costs.

In a world mostly still recovering from the recession, the Gulf stands out as region that is home to many booming economies, in which it seems almost any industry can flourish. At least, this is most certainly true for the region's port facilities. ■



*Jebel Ali port successfully dealt with its largest-ever bulk carrier vessel in November 2014*



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# Securing the region's ports

Whether it is aviation, shipping, or rail, the Middle East is seeing considerable development in port facilities of all types. Paul Baker, managing director of Middle East operations at Smiths Detection, a global provider of threat detection and screening technologies, talks to *Technical Review* about the region's port security sector.

## What are the latest trends and innovations in the Middle East's port security sector?

With container traffic on the rise, local ports will have to invest heavily in upgrading their infrastructure, especially on the security front, to safeguard a country's borders against chemical, biological, radiological, nuclear and explosive (CBRNE) threats. The major challenges faced by container terminals include increasing strain on operations and potential regulation changes in International Ship and Port Facility Security Code.

The industry is being pushed to constantly increase the throughput of their scanners. The obvious solution is to inspect the whole vehicle and the driver; removing the need to stop the vehicle and, in turn, increasing throughput. Automation, collaboration, data and intelligence sharing will be significant in the future; to support effective cross-border monitoring and control.

## Which countries in the region hold the most potential and biggest business for security solution providers?

The Middle East region is fast being recognised as a major port hub between Southeast Asia and the African continent. The UAE, Qatar, Oman and Kuwait are determinedly working towards enhancing their individual port capacities as they look to leverage the growing trade opportunity.

Customers in the MENA region are astute, technology savvy and focussed on purchasing the best solutions. We see a trend towards solutions and integration rather than the traditional 'stand-alone' equipment sales.

Countries in the MENA region have a clear understanding of the threats which they currently face, legislation that they must adhere to and are driven to have equipment that can be updated during its life cycle, to detect new threats and incorporate technological advances.



Paul Baker, managing director of Middle East operations at Smiths Detection

## How do trends vary between the different port securities?

Aviation is the most evolved sector and we see trends being driven by legislation, e.g. Level 3 compliant equipment for hold baggage screening and for significant integration. The customer experience is a strong priority in this sector, pushing a need for the best security and detection solutions with low false alarm rates.

Port security is in the middle of its evolution in the region; the port sector is becoming more aware of threats, which is driving a purchasing strategy, incorporating high energy container scanning (such as our HCVP series); people screening (using our eqo solution); trace detection; and, finally, luggage x-ray screening.

The shipping sector is again driven by legislation and regional stability. With the current volatility in countries such as Somalia and Yemen, greater focus is being placed on security. Trends in this market are very basic in their requirements and its needs are geared towards standalone x-ray machines, (such as our HI-SCAN 6040i), plus trace detection for explosives and contraband and

a requirement for people-screening technologies. These requirements are, of course, in addition to the port security as previously mentioned.

The rail sector in the region is at the start of its journey with security. The region is seeing exponential growth in this key market, almost every country in the region has a major rail programme starting or being prepared. This growth has led to more interest in metal detection, x-ray, trace, chemical and biological detectors. These solutions will be more stand-alone than integrated into networks, but we believe the future lies in the ability to fully network all devices and incorporate them into a safety and security network.

## How can the use of big data improve the security of a port?

Real-time data is critical, as is remote screening and a broad spectrum of detection devices that communicate with each other and deposit data into a central point for analysis. These are the objectives that all port authorities are working towards.

Data sharing would have a major impact on port efficiency, along with the ability to centrally share data and decision-making across multiple sites and locations, which would result in increased efficiency and less pressure on operators.

The Data Management System (DMS) solution from Smiths Detection provides the user with the ability to access all relevant information securely and remotely from any location (via LAN or internet connection), along with the ability to analyse x-ray images, check-in cargo and manage or analyse statistics remotely. DMS connects all our HCV cargo inspection systems, and with any customs network via electronic data interchange, offering valuable support to local teams and, in some cases, removing the need for local operators altogether. ■



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*Both solar power and nuclear power are being implemented throughout the region as the most feasible options when addressing increasing energy demands (Photo: Michael Jay)*

# MENA power sector upgrades as gas power falters

The power sectors of the Middle East and North African (MENA) are going through a period of massive change with substantial sums of investment planned for power generation and the upgrade of electricity grids. Nnamdi Anyadike reviews the latest developments in the region's power sector.

**A** STUDY BY NORTHEAST Group, a Washington-based smart infrastructure market intelligence firm, forecasts that over the next decade countries throughout the MENA region will spend "billions of dollars" in the endeavour of upgrading their electricity grids.

Importantly, the upgrade will also include US\$9.8bn for smart grid infrastructure by 2024. The power vendors that are investing in MENA's smart grid include ABB, Alstom, Echelon, Elster, GE, Itron, Landis+Gyr, Petra Solar, SAP, Siemens, Silver Spring Networks and Suez.

Ben Gardner, president of Northeast Group, said, "MENA countries are taking a two-pronged approach to addressing their power sector challenges. The first approach is the installation of more than 26GW of solar capacity by 2024, led by Saudi Arabia. This will allow them to reduce their reliance on oil and gas power generation.

"The second approach is to deploy smart grid infrastructure that will help incorporate this solar power, enable better electricity demand management and improve reliability."

Throughout the region, smart grid activity is picking up as wealthy Gulf countries look to better manage their electricity demand. But other 'key drivers' include the avoidance of electricity theft and the management of the intermittency created by the increased use of solar power.

"Smart metering is the leading segment, but distribution automation will also be very important for these countries," Gardner added.

Meanwhile, the region is also being forced to come to terms with the realisation that relying on oil and gas fired generation to satisfy its electricity generation demands in the coming years is not the most sustainable policy. The International Energy

Agency (IEA) warns that by 2019 demand for natural gas in the Middle East, much of it targeted for power generation, will exceed its production by the Middle East countries.

Many Arab states already suffer from power cuts in the summer and winter. But with regional power consumption increasing by the IEA's estimated five to six per cent annually, compared with around two to four per cent in other countries, this problem is expected to get worse.

The Arab Petroleum Investments Corporation (APICORP) expects an increase in the annual demand rate for electricity in the region of about 8.4 per cent during the period from end-2014 to 2018. Ominously, it also says that most of the increase in electricity consumption will be the result of a rise in domestic consumption, rather than from a rise in GDP generated growth from industrial plants.

Solar energy, is widely seen as an



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alternative to oil and gas and supply in countries like Bahrain, is increasing. Most of the technology can be manufactured locally, which means that its adoption need not place such a strain on hard currency reserves.

But nuclear power is also coming to the fore and World Nuclear Association data points to a number of projects that are on the go in MENA, aside from Iran's well-publicised nuclear programme. By 2020, the UAE hopes to have four 1400MWe nuclear plants running and producing electricity at a quarter of the cost of that from gas. Dubai is also considering its own nuclear power possibilities, in addition to Abu Dhabi's Barakah plant.

In Saudi Arabia, the King Abdullah City for Nuclear and Renewable Energy (KA-CARE) is moving forward with plans announced to construct 16 nuclear power reactors over the next 20 years at a cost of more than US\$80bn. The first two are planned to be on line in 10 years and then two more per year to 2030. These will generate about 20 per cent of Saudi Arabia's electricity.

Qatar has also undertaken its own investigation in to the viability of nuclear power and has a nuclear cooperation agreement with Russia's Rosatom. Elsewhere, Oman, Kuwait, Jordan, Egypt, Algeria, Morocco and Yemen either have ongoing plans for nuclear power generation or have at some point actively considered launching nuclear programmes.

Oman signed a nuclear cooperation agreement with Russia. However, it later conceded that since most of its demand was peak load, nuclear did not seem appropriate. Similarly, in 2010 Kuwait considered launching its own nuclear programme that would have led to the construction of four 1,000MWe nuclear power reactors by 2022. But in mid-2011 it said that it would no longer be proceeding with its nuclear ambitions.

Jordan, however, has advanced plans to adopt nuclear power generation. It includes a strategy to provide 30 per cent of its electricity by 2030, and to provide



*Jordan's energy demands has led the country to commission the construction of a uranium mill  
(Photo: Marketa Skornickova)*

nuclear power for exports. It aims to have a 1,000MWe nuclear power unit in operation by 2021 and a second one in operation by 2025.

The country has significant uranium resources and a feasibility study on recovering uranium as a by-product of phosphate production is currently under way. Last May, the state-owned Jordan Uranium Mining Co (JUMCO) announced that it would build a 300-400 tonnes per year of uranium mill in the country's central region. The plant is expected to be operational before 2020.

Jordan's research and development efforts are also moving ahead. A consortium headed by the Korean Atomic Energy Research Institute (KAERI) with Daewoo is due to open a 5MW research and training reactor (JRTR) at the Jordan University for Science & Technology in Irbid in late 2015 at a cost of US\$173mn.

Meanwhile, Egypt's foreign exchange situation is precarious, leaving the country short of the necessary reserves to purchase oil and gas for its power stations. The country's nuclear ambitions, however, are longstanding, having been in place

since 1955 with the set up of its Atomic Energy Commission. The Cairo government announced that it would issue a nuclear power tender before 2015 to construct a plant at El-Dabaa, using WorleyParsons as consultants. Four units were planned to come on-line between 2020 and 2026. However, nothing came of it and in the current political climate it is unlikely that Egypt's plans to build new nuclear power plants will gain much traction.

Egypt currently has a 1961-vintage 2MW Russian research reactor at Inshas that is serviced by Russia. It also has a 22MW Argentinian research reactor (ETRR-2) that is partly supported by Russia and which started up operations in 1997.

Other national nuclear power generation schemes that are going nowhere at present include Libya's plan to build a nuclear power plant for electricity and desalination. In 2010, the Libyan Atomic Energy Institute announced the preparation of a nuclear law as part of the institutional infrastructure for setting up nuclear power plants.

Syria's plans announced by the country's Atomic Energy Commission for a nuclear power plant by 2020 also need not be considered feasible for the time being. Between 2001 and 2007 Syria did indeed succeed in building a gas-cooled reactor similar to the plutonium production unit at Yongbyong in North Korea. However, this was destroyed by an air strike in 2007.

More achievable projects include Tunisia's plans for a 600-1,000MWe nuclear plant. The government is reported to be evaluating the possible construction of a

**The region is blessed with unparalleled amounts of solar radiation and more solar powered electricity generation in the MENA countries would dampen demand for oil and gas**

US\$1.14bn at either a northern or a southern site. Importantly, the country also has reserves of phosphates, which the World Nuclear Organisation estimates contains 50,000 tonnes of uranium – sufficient to yield 265 tonnes per year of by-product uranium. The country currently has a nuclear power and desalination agreement with France.

Neighbouring Algeria's nuclear plans also appear achievable. It has in place nuclear energy cooperation agreements with Russia, Argentina, China, France and the USA. And it plans to build and operate its first nuclear power plant from about 2025 and build a further unit every five years thereafter. The country has operated two research reactors at Draria and Ain Ouessara. Close by, Morocco has plans for an initial nuclear power plant at Sidi Boulbra. Russia's Atomstroyexport is assisting with the feasibility studies.

With the Arab world facing what is widely described as a crisis in the form of increasing electricity demand, the options for power generation as opposed to energy savings appear to centre on nuclear power



ABB, Alstom, GE and Siemens are among the power vendors investing in MENA's smart grid (Photo: Ariel da Silva Parreira)

and renewables, especially solar power. But the 'politics' of opting for the nuclear power option in the Middle East for electricity generation are daunting. Even as Iran's determination to plump for nuclear power generation seems to be winning gradual – if grudging – acceptance by the west, it is sparking off a nuclear power race with GCC states, led primarily by Saudi Arabia. And it

is a race that the west is watching with growing alarm.

A more politically acceptable power generating solution, therefore, is solar power. The region is blessed with unparalleled amounts of solar radiation and more solar powered electricity generation in the MENA countries would dampen demand for oil and gas in the region.

But solar power despite its promise can still be expensive. The region will need to consider whether the current high and rapid increase of demand for electricity in the MENA countries is sustainable. APICORP points out that, although the Middle East's annual demand rate for electricity is more than 8.4 per cent, its annual economic growth rate is less than half of this – ranging between three to four per cent annually.

Ultimately, to save the soaring cost of building a growing number of expensive power plants, the region may have to bite the bullet and consider ending its price subsidies for power and put in place instead tough electricity demand management measures – as China recently managed to do to reduce its own soaring gas demand. ■



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*Emirates Nuclear Energy Corporation (ENEC) and site workers marking the start of safety concrete pouring on the reactor containment building for Unit 3 at Barakah in the UAE*

# Energy security: the nuclear option

The UAE is leading the way when it comes to implementing nuclear energy facilities, but a host of other states across the MENA region have also been looking closely at the issues involved in the adoption of nuclear power.

**T**HE INTERNATIONAL ENERGY Agency (IEA), in its World Energy Outlook (November 2014), says that nuclear power is a reliable source of base-load electricity that enhances the world's energy security. It concedes, however, that the image of the industry remains problematic.

Back in 2013, the world's 392GW of installed nuclear capacity accounted for 11 per cent of all forms of electricity generation – down from 18 per cent in 1996 due to closures. More than three quarters of this capacity is located in industrialised countries, where most of it is now more than 25 years old.

Therefore, one of the key issues faced by the industry worldwide is to “provide clarity on lifetime extensions,” the IEA remarks. “Public attitudes to nuclear power are critical to its future development.” In a few industrialised countries nuclear power is now being downgraded or phased out altogether.

As a result of all this, three quarters of the nuclear capacity under construction right now is in non-OECD countries, and located primarily in states where the risks involved in both construction and operation have been taken on by government-owned entities. Of this, the forthcoming multi-stream 1400MW

pressurised-water type facility at Barakah in Abu Dhabi is a prominent example.

In 2012, the UAE became the first “nuclear newcomer” to start construction of any such new plant in nearly three decades. The first reactor at the site has been scheduled to start operations as soon as 2017 and the Emirates Nuclear Energy Corporation (ENEC) plans to be generating up to one quarter of the UAE's national power needs via this brand-new means within a few years.

In the IEA's 'New Policies' forecasting scenario (which assumes realistic adaptation by governments to the process of climate change), global nuclear capacity



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*Despite the industry's negative publicity and setbacks of recent years, the introduction of nuclear power is being considered by 40 countries worldwide*

is expected to increase by nearly 60 per cent to 624GW by 2040. By that time, the number of countries operating reactors will have risen from 31 to 36, representing a total investment in the industry of US\$1.5 trillion. Uranium resources are said to be “more than sufficient” to support this, according to the Paris-based energy watchdog.

### Global interest

Around the world, nearly 40 countries are now considering the introduction of nuclear power. Within the MENA region these include the UAE and Jordan (where plans are most advanced) as well as, at a most advanced stage, Algeria, Egypt, Saudi Arabia, Libya, Morocco and Tunisia.

The IEA points out that there are many hurdles to be overcome before taking this enormous first step. These include setting up an adequate regulatory framework that is overseen by a competent and independent entity. A wide variety of conditions need to be in place, including security issues and the consideration that “to build a large-scale reactor adequate financial resources must be available and the grid must be large enough to accommodate it”.

With national GDPs in excess of US\$50bn and more than 10GW of transmission and distribution capacity in

place today Algeria, Egypt, Saudi Arabia and the UAE certainly meet at least one of these conditions already.

But getting the economics right is fundamental. Utilities have to assess the lifetime costs of generating electricity in this and any other way, taking account of all the business risks they face. For nuclear power the IEA summarises these as:

- Investment cost – very high
- Construction time – four to 10 years
- Operational cost – low
- Operational characteristics – base-load, limited flexibility
- CO2 emissions – negligible
- Key risks – regulatory (policy changes); public acceptance; market

These ratings for nuclear power are usefully compared in the World Energy Outlook report with similar ones for conventional thermal generation plant (coal/steam), gas CCGT and new-style renewable sources (onshore wind and solar PV, for example).

Nuclear power faces a special set of “external” costs, including accident damage not covered by the operating utilities themselves due to their limited liability, and a potential shortfall in funds for both decommissioning and the long-term management of radioactive waste.

These are balanced by indisputable external benefits such as the avoidance of carbon emissions and enhanced energy security. These are to the advantage of all.

Securing finance for a nuclear construction programme can be challenging anywhere; this is made more so when an alternative renewable programme is under implementation at the same time.

In terms of day-to-day operating costs, however, a nuclear station is usually cheaper to run after completion than a conventional plant based on fossil fuels.

Operating continuously in base-load mode is, however, required to recover the large upfront expenditure and to put funds aside for end-of-life expenditure. The lifespan quoted by the World Energy Outlook report is 40-60 years. Globally, fuel costs are generally lower than for thermal stations relying on fossil fuels, too – even here in the Gulf if “opportunity costs” are taken fully into account.

But eventual decommissioning costs are another matter.

“For a nuclear plant built today, the decommissioning cost is assumed in our analysis to be around 15 per cent of the investment cost for the plant, in real terms,” states the IEA. This is, therefore, an issue that will need to be examined in further depth. ■

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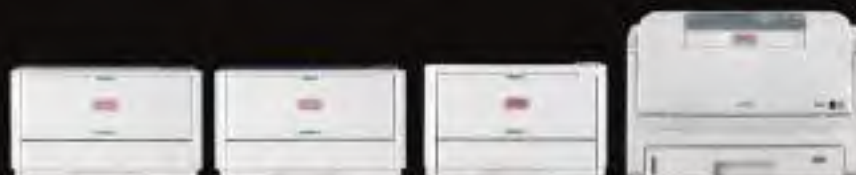


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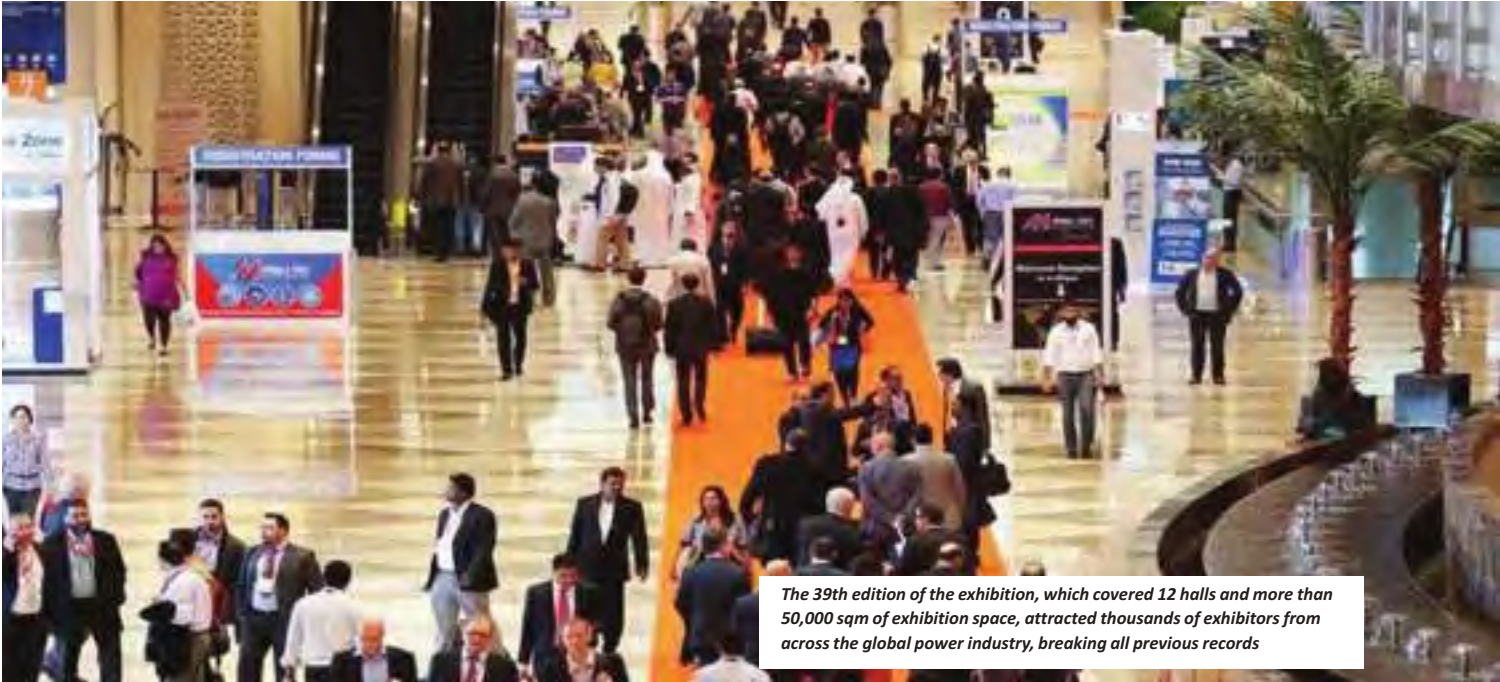
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*The 39th edition of the exhibition, which covered 12 halls and more than 50,000 sqm of exhibition space, attracted thousands of exhibitors from across the global power industry, breaking all previous records*

# MEE to address the region's power demands

Said to be the world's largest power event, Middle East Electricity 2015 will provide a platform for state-of-the-art energy-efficient solutions.

**G**LOBALLY, URBANISATION AND industrialisation have continued to fuel the increasing demand for energy. According to a recent Frost & Sullivan whitepaper, global energy consumption increased by 48 per cent from 1990 until 2010 and is further expected to increase by 33.5 per cent for the period 2010-2030.

Even though the rate of increase in energy demand appears to be slowing down compared with the 2010 figures, the major concern is that conventional sources of energy cannot keep pace with current growth. Depleting hydrocarbon reserves and energy security issues could eventually

exhaust conventional supply options, leading to a compelling need for conservation, as well as a shift into unconventional and alternate energy sources.

Countries across the globe have addressed the energy efficiency challenge in a variety of ways, ranging from education and outreach programmes, to regulatory policies and incentive schemes that encourage the use of energy-efficient measures.

Closer to home, the 40th edition of Middle East Electricity (MEE) will highlight the urgency and vision required to create sustainable energy solutions. A core focus of the show will be on combining traditional and alternative

energy sources, such as hybrid systems, to minimise the risks inherent with both and incorporating sustainable energy means.

Set to take place on 2-4 March 2015, the show has witnessed a 40 per cent increase in visitor attendance over the past two years and has acquired 21 per cent extra floor space to cater for the growing MENA power industry, which has been forecasted to expand by US\$70.7bn each year up to 2018.

Frost & Sullivan head of energy and power systems practice for the MENA region, Abhay Bhargava, said, "Some of the highest per capita energy-intensive countries are based in the MENA region. This drives growth in demand for power in the region, which is expected to increase by more than seven per cent annually until 2018.

"This is expected to create substantial opportunities for power generation projects across the region, based on not just conventional sources (hydrocarbons), but also alternate sources.

**An Economic Intelligence Unit report on electricity demand in the MENA region has predicted an increase of seven per cent per annum over the next 10 years**



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Statistics from the Organisation for Economic Co-operation and Development (OECD) suggest that MENA aggregate energy demand is expected to continue to expand well above the world average, at around three per cent per year between 2010 and 2030, with electricity demand growing at a rate of six per cent each year over the same period.

Mohammed Atif, area manager – energy advisory Middle East for DNV GL, added that the region will continue to grow further, albeit with an emphasis on sustainability and renewable energy to enable wide-scale deployment. Along with this, further pricing reforms, lower subsidies and more involvement from the private sector are also anticipated. Investments made by the six nations of the GCC accounted for more than a third of the total power project costs of about US\$316bn in the MENA region.

A study by the Saudi Arabia-based Arab Petroleum Investment Corporation (APICORP) estimated power investment at US\$92.1bn in the Mashreq region and put project costs at around US\$40bn in the Maghreb region, which includes Algeria, Tunisia, Morocco, Libya and Mauritania. An *Emirates 24|7* report, meanwhile, showed the GCC power investment needs consisted of US\$75.9bn in generation, US\$15.5bn in transmission and US\$29.6bn in distribution.

“Fast-growing electricity demand and lagging supply have led to chronic power shortages across MENA. In the context of lingering turmoil in parts of the region, bridging a widening demand-supply gap through large capacity additions is now perceived as politically and socially desirable,” said the *Emirates 24|7* report.

#### Launching a lighting platform

According to MEE organisers Informa Energy Group, lighting has been one of MEE’s fastest-growing sectors. To meet the continuing demand, the 2015 event will feature, for the

## A key success factor of MEE is its targeted approach to the industry’s focus areas such as power generation, transmission, distribution, lighting and renewables

first time, an area solely dedicated to the lighting industry, increasing the event’s total floor space by 13 per cent.

In addition to exhibitor demand, the need for a dedicated lighting platform at MEE has been fuelled by strong growth within the lighting industry. The recent revival in the region’s construction sector is expected to increase the Gulf’s lighting fixtures market by 10 per cent per annum to reach a value of US\$3.75bn within five years.

The UAE and Saudi Arabia are leading the way in the burgeoning GCC lighting sector and, collectively, accounted for around 70 per cent of the regional market last year.

MEE 2015 will also offer an extended educational programme with three informative conferences, supported by strategic government partner Dubai Municipality. The show will see the return of the Green Energy and Solar Middle East Conferences, and will introduce a conference dedicated to the lighting sector to coincide with the expanded show vertical.

Hussain Nasser Lootah, director general of Dubai Municipality, noted, “The 40th anniversary of MEE is a true testament to both the resilience and growth the regional power industry has witnessed over the last four decades.

“We fully support the efforts to grow this exhibition even further, and are excited to see what new developments and initiatives come from the Green Energy Conference.”

The Solar Middle East Conference, which will take place on Day Two of the show, will provide a holistic view of the regional solar

industry with country focusses on Saudi Arabia, Kuwait and Jordan.

Day Three will feature the first-ever conference agenda on commercial lighting at MEE. The conference will discuss major issues such as transitioning to and supporting the LED market in the Middle East, as well as a session on how new sustainability guidelines are the backbone of both Abu Dhabi’s and Dubai’s ambitious goals to become smart, sustainable cities.

Among the companies that will be in attendance at this year’s exhibition will be some of the biggest players in the region’s power industry and will include the likes of Perkins, MTU, Volvo, Doosan, MarelliMotori, SDMO, AlFanar, Cummins and Ducab.

According to Informa Energy Group, one of the key success factors of MEE over the years has been its targeted approach to the key focus areas of the industry including generation, transmission, distribution, lighting and renewable energy.

Anita Mathews, director of Informa Energy Group, remarked, “In the events industry 40 years is no mean feat and we are one of the longest-standing exhibitions in the history of the UAE’s event calendar.

“I don’t use the term lightly when I say ‘stakeholders are key’ and one of the main drivers of the event’s success has been maintaining our focus regarding the expectations of our stakeholders.

“For many of our exhibitors, we have grown right alongside them, building the trust that is required to ensure the longevity of our event,” she added. ■



According to organisers Informa, lighting has been one of MEE’s fastest growing sectors in recent years



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# Solar Middle East ready to dazzle

A significant step-up in solar technology projects in the MENA region this year bodes well for the upcoming Solar ME.



*Middle Eastern energy producers have access to an abundance of sunlight and, hence, solar power.*

**S**OLAR PROJECTS WORTH US\$2.7bn are set to be unveiled in the MENA region in 2015, according to the Middle East Solar Industry Association (MESIA). The MENA Solar Outlook 2015 study released in January shows that 1,800MW worth of solar projects will be tendered or awarded during the next 12 months. This represents a six-fold increase from 2014 when less than 300MW of solar projects were awarded. To put it in perspective, a 100MW solar PV power plant is capable of powering roughly 200,000 homes.

Showcasing the latest developments in

solar generation, the third edition of Solar Middle East will be held alongside Middle East Electricity 2-4 March 2015 in Dubai. The event will take place at the Dubai World Trade Centre and should see the biggest names in the global solar energy industry, including manufacturers, suppliers and developers converge to discuss ideas and technologies. Dedicated conferences will highlight the growth in solar energy and new technologies for sustainable energy.

According to MESIA, there are two factors behind the sharp rise in solar projects in the MENA region: the price of solar systems has dropped dramatically

over the past few years, while, at the same time, the cost of generating electricity from natural gas is rising. MESIA sees three solar trends emerging this year:

**Solar will become more pan-regional:** In the past the solar debate has been focused on only one or two countries. This year, the industry will see solar projects take off in 11 different countries across MENA, from Morocco to Saudi Arabia.

**Size matters:** In 2013, there were only three projects awarded larger than 10MW. This year, that number is expected to reach 40MW. Each of these projects will be worth at least US\$60mn and several will exceed US\$100mn.

**Micro-solar markets:** As the solar market grows, the region will see niche segments emerging. One example is the rooftop sector. With Dubai having recently launched a landmark solar rooftop programme, the MENA region will see for the first time an entire industry emerge focused on building solar PV systems on rooftops. ■

**In the past, most of the solar projects were focused on the UAE. In 2015, there will be large-scale solar tenders in at least 10 different markets in the Middle East**



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## Inmesol demonstrates commitment to emissions reduction through efficient design

SPANISH GENERATOR SET manufacturer Inmesol has been attempting to find new ways in which to reduce the emissions generated from its machines. The company says its green-painted products have “always been environmentally friendly” and that it works continually to ensure each of its new models is even more eco-friendly than the previous models.

“At Inmesol it has always been a priority for our generator sets not to have an undue impact on the environment and we work continuously to reduce emissions during the manufacture, transportation and operational processes,” said the company, which will be exhibiting its products at Middle East Electricity 2015.

To minimise gas emissions generated during operation, Inmesol offers a range of generator sets with the latest low-emission motors, also assembling alternators in an efficient way in order to reduce emissions further. Other components that the company has focussed its emission-reduction strategy on include the chassis and canopies of its



*Spanish manufacturer Inmesol will be exhibiting its range of generator sets at the 2015 edition of Middle East Electricity*

generator sets, manufacturing these pieces with pickled sheets.

During the design process, the company endeavours to work with pre-cut metal sheets to reduce emissions created from transportation to and from the factory, and the amount of waste that needs to be recycled. The Inmesol painting plant has also been designed to be highly energy efficient.

“We scrupulously monitor the gas emissions and the loss of heat during the

cleaning and paint application process, using a powder coverage system that reduces the environmental impact while dilutions and liquids are drying,” the company stated. “This system is very effective, but must be carefully controlled to prevent large amounts of energy being consumed, which would produce emissions.”

The company is also studying how to recycle electricity produced during the loading test process and is considering possible co-generation systems as a solution to the emissions created when generator sets have been switched on for operability testing.

Inmesol exports generator sets worldwide and its commitment to the environment is reflected in the way each machine has been designed and optimised to make the most efficient use of container space. In this regard, improvements have not only reduced transport costs, but, according to research by SCANIA, have also reduced fuel emissions by up to 25 per cent.

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## MEE organiser teams up with energy event firm in Egypt

INFORMA EXHIBITIONS, ORGANISERS of Middle East Electricity, has entered into a partnership with Egytec to co-organise Egyptian energy and power exhibition Electricx and associated events in Cairo, Egypt. Electricx covers a number of key sectors within the energy industry, including power generation, transmission and distribution, lighting, renewable energy, safety and security solutions.

Anita Mathews, director of Informa Energy Group, said, “With the recent political and economic developments in Egypt, the country is emerging as a key investment destination. The move to expand our portfolio into Egypt is bolstered by the recent spur of investment into the country’s energy sector.”

Mathews pointed towards the growing amount of installed power generation capacity planned for the MENA region, with the current rate of demand standing at more than 300,000MW of installed capacity by 2020 – an increase of 61 per cent, according to a recent *MENA Power Report* by ReportsnReports.com – as proof that the move was a sensible one to make for the events firm.

“According to a report by the Egyptian Electricity Holding Company, its five-year plan leading up to 2017 includes the implementation of power projects with a capacity of 12,400MW, and total investments expected to reach US\$143bn,” Mathews noted.

“It is events like Middle East Electricity and Electricx that create a platform allowing the industry to meet and discuss how to best tackle such exceptional growth,” she added.

The latest edition of Electricx took place at Cairo International Convention Centre in December 2014.

## BAUR to exhibit its latest cable fault location and diagnostics technology at Middle East Electricity 2015

BAUR'S PRODUCTS HAVE been making a significant contribution to efficient and problem-free power supply around the world for 70 years, and the company is now planning on using its platform at Middle East Electricity to presents its latest devices.

Among its newest products on display will be the portable partial discharge and tan delta diagnostics system, PD-TaD 60. This lightweight and compact device is used for precise offline VLF diagnosis of partial discharges in MV cables, enabling partial discharge and tan delta measurement in a device for an efficient diagnosis, and providing valuable additional information.

The new generation of high-performance cable test van, titron, has been based on state-of-the-art technology and provides efficient, safe and reliable cable fault location and cable testing. The van features the latest intuitive operational concept and a central, automatic system control. It is highly flexible in terms of technology and equipment, according to BAUR.

Another product on display at the Dubai power exhibition will be liona, an online partial discharge spot tester, which measures and locates partial discharges in cables and switchgear during normal mains operation.

Finally, the company will be introducing to the Middle East market, its oil breakdown voltage tester, DTL C. The voltage

test offers what the firm called "the latest and most precise information for efficient oil management in plants in the electricity and other industries".

**Stand no: S1B19**



*The new automatic BAUR cable test van titron (Photo: BAUR)*




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## Powertech Switchgear experiences growing demand for products in UAE

POWERTECH SWITCHGEAR INDUSTRIES FZE, a partner of ABB for the Artu K series of distribution panels in the UAE, has witnessed growing demand in the region for its LV switchgear systems and products. Set to participate in the 40th edition of MEE, Arthi Srinivasan, marketing manager at Powertech, told *Technical Review*, "We are confident about the products and systems that we represent in the UAE. Among our partners, Enerlux from Italy manufactures power factor correction equipment and is trusted in the market for its quality and reliability. We are keen on expanding our presence in the market for distribution of LV and MV control products and accessories."



*Powertech Switchgear is a partner of ABB for the Artu K series of distribution panels in the UAE*

Another brand that will be on display on the Powertech stand at MEE will be Trafox. In Finland, Trafox manufactures single- and three-phase LV transformers and reactors, as well as Superintend® residual current monitoring (RCM) system. It also manufactures LIM line isolation monitoring relays for critical electrical systems in hospitals and the process industry. Noted for its long-standing association with the energy industry in Europe, Trafox has become well accepted in both local and regional markets, said the company. As an authorised value provider of ABB for Variable Frequency Drives (VFD), Powertech has installed and commissioned VFDs for numerous projects in UAE. This, combined with an after-sales service programme, has guaranteed customers an end-to-end solution.

A category of growing interest for Powertech Switchgear is the measurement segment. ENTES, who will be displaying its range of digital meters, relays and other PF components with Powertech at MEE 2015, is recognised for its range of power quality and energy measurement devices, remote monitoring software and protection and control devices.

Stand no: 4C38

## 'Green' agenda set to dominate discussions during third edition of MEE energy conference

THE THIRD ANNUAL Green Energy Conference will return to Middle East Electricity this year and is set to attract a crowd of energy professionals looking to understand Dubai's sustainability initiatives, and discover how leading energy companies have been bringing clean energy to the Middle East.

Scheduled to take place on the first day of the exhibition (2 March 2015) and held in partnership with Dubai Municipality, the event will look to highlight how local energy requirements have been increasingly meeting the needs of the region's fast-growing population, and how hybrid systems and grids could be better managed and store energy more efficiently.

Following opening remarks from chairwoman Eithne Treanor, special correspondent for CNBC Arabia and founder and managing director of E Treanor Media, the day will commence with a presentation entitled 'Meeting immediate goals and planning for Dubai's future energy requirements' by Dubai Municipality assistant director general H.E. Eng Abdulla Mohammed Rafia.

Other sessions during the conference will include a panel discussion featuring representatives from ComAp, Planetary Power, Hybrid Energy Solutions and Caterpillar, named 'Combining traditional and alternative energy sources to minimise the risks inherent with both, and incorporate sustainable energy means'.

In the afternoon, Rob D. Schueffner, commercial manager for the electric power division for the microgrid team at Caterpillar, will host a presentation called 'The promise of microgrids and the bridge this could establish to get green going', before hosting a panel session on the subject.

The day will finish with a panel discussion on 'retail, hospitality, infrastructure and Expo 2020 building', focussing on each sector's energy demands and how they can become more energy efficient. The session will feature SkyPower Services executive director of development for the Middle East, Hadi Tahboub; Fedde Pronk, CEO of Global Solar Investment; and Greenwich Investment CEO Farid Metwaly.



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## Solar energy experts to lead debate during second day of MEE



The solar energy sector will be the focus during the conference on the second day of Middle East Electricity and Solar Middle East (Photo: Parabel GmbH)

THE THIRD ANNUAL Solar Middle East Conference will take place alongside the Solar Middle East exhibition, which is co-located with Middle East Electricity.

The conference has been billed as a 'must attend' event for anyone working in the Middle East's solar energy industry, with seminars set to focus on rooftop programmes, reverse auctions, investor platforms and country-specific requirements.

Following the opening remarks from chairman Oliver Stelling, chief strategy officer at ASDA'A Burson-Marsteller, the day's sessions will begin with a panel discussion on solar power as a viable energy source and healthy business in the Middle East. The session, which will feature panellists from Chadbourne & Parke LLC, Building Energy Gulf DMCC, New Port Project, DuBiotech and EnPark, will look at industry

regulations and investor platforms, as well as operational and maintenance systems.

A session on rooftop programme challenges and business opportunities will take place shortly after, with Abu Dhabi and Dubai set to launch roof-top programmes, while the afternoon will feature sessions on solar projects and technology adoption in Jordan and Saudi Arabia.

The day will finish with a session entitled 'Technology: Solar-powered technological solutions besides large-scale PV projects', featuring Jean-François Girard, smart city sales and marketing director for Sunpartner Technologies, and Joerg Delbos, director global sales hybrid - business development at SMA Solar Technology AG. The session will look at the development of transparent PV cells, diesel hybrid PVs, building applications and other niche opportunities for the solar sector.



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## Weichai set to host launching ceremony on exhibition stand

WEICHAH HAS ANNOUNCED it will host its global launching ceremony of the Weichai Baudouin Full Series G-Drive Engines on its stand during the first day of Middle East Electricity 2015.

Taking part in the exhibition for the third consecutive year, Weichai will display its full series of G-Drive engines at the show to visitors at the show.

The Chinese automobile and equipment manufacturer has four major business segments – engine and vehicle, power train, luxury yacht and automotive parts.

The company has subsidiaries located throughout China, Europe, North America, Southeast Asia and other regions of the world. It employs 50,000 people worldwide and, in 2014, it achieved sales revenues of US\$17bn.

The Baudouin M Series G-Drive Engines were jointly developed by the Weichai Group and Moteurs Baudouin, with the latter an acquisition of Weichai in 2009. The French company specialises in marine power and complete propulsion systems. The company also offers a full series of G-Drive engines, which have been characterised by their reliability, economic consumption and easy maintenance.

With a power range of, respectively, 450-1000KVA and 575-1250KVA, the M26 and M33 Series comprise the new G-drive engines – the 6M26 and the 12M33.

Weichai is involved in the manufacture and sale of heavy-duty vehicles, axles for heavy-duty vehicles, gear boxes and other automobile components. It distributes its products throughout China and to overseas markets.

Stand no: S3B60

## Czech firms prepare to exhibit products and services at MEE 2015

A NUMBER OF companies from the Czech Republic will be in town during Middle East Electricity as they try to make the most of the region's potential for business. Supported by the Czech Ministry of Industry and Trade, the Czech and Moravian Electrical and Electronic Association and seven other companies will be present on the 72 sqm Czech Pavilion at the exhibition.

Jan Prokeš from the Czech and Moravian Electrical and Electronic Association said, "Participation in the exhibition is an absolutely logical outcome of Czech electrical engineers' efforts of looking for new export opportunities as we see Dubai as the gateway to the Middle East.

"Of course, gaining the trust of local companies and establishing good business relationships with them is not a question of participation in one exhibition, and we will be returning here regularly," he added.

Marek Šin from Czech exhibitors Orbit Merret, remarked, "The Ministry of Industry and Trade supporting the exhibition makes it a prestigious event and we are pleased to be participating under the auspices of the ministry."

Among the Czech companies set to exhibit on the country pavilion will be Bohemia Müller, a designer of technological units and power equipment; ELCOM, a manufacturer of special power sources based on power electronics and devices for analysis, monitoring and the improvement of quality of electricity; and OEZ, a traditional manufacturer of low-voltage circuit breakers and switchgears.

Ahead of the show, Jiří Holoubek from ELCOM, said, "The core of our work in the Middle East market are projects in the areas of virtual instrumentation and power quality, and recently in the cooperation of inspection activities on electrical equipment in the petrochemical industry.

"At MEE we would like to present the entire portfolio of activities of ELCOM, with a focus on areas where the synergy of close cooperation with local companies, engineering or assembly firms, can be used."

Stand no: RJ30

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Contact: Greg Kemp

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Contact: Kavita Mistry

## BEAMA 2E14

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Contact: Vera A-Akomea

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Contact: Tony Conroy

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## Bahra Cables to promote its 'best-in-class' products

BAHRA CABLES, THE first cable manufacturer in Saudi Arabia to receive ISO 14001:2004, and OHSAS 18001:2007, will be on hand to demonstrate its cable manufacturing prowess during MEE 2015. Bahra Cables' total investment has been predicted to reach SAR1bn (US\$266.5mn) following the completion of various ongoing projects and the company currently employs approximately 1,300 people at its Saudi Arabian facilities.

Bahra Cables' plant for electrical cables occupies an area of 500,000 sqm, covering the manufacturing, designing and storage facilities. The company specialises in the production and distribution of electrical cables, and has aimed to become the main developer for low-, medium-, and high-voltage cables in Saudi Arabia. Its cables are fire resistant and do not emit smoke or toxic and suffocating gases in case of electric circuit shortage.

"We started cable production in 2009 with 20,000 tons in copper," said Talal Idriss, CEO of Bahra Cables. "Today, our capacity is about six times more – 110,000 tons in copper and



*Bahra Cables is currently building the largest testing facility in the Middle East*

about 30,000 tons in aluminium – which puts Bahra Cables in the top 100 companies worldwide in cable manufacturing."

The company, headquartered 25 km from Jeddah at CPC Industrial Park, has embarked on building the largest cable testing facility in Middle East – a 7,000 sqm modern testing facility, which begins operation early next year. "We have discovered that Bahra enjoys an excellent location for industrial activities," said Idriss. "It is close to major highways, and has enough power sources to help industries and a clean environment compared to other industrial sites."

The company has previously won a contract

to produce medium-voltage cables for the Holy Mosque in Makkah, continues to supply most of the cables for the Holy Haram and is active in the extension of projects to cover Madinah's needs.

Bahra Cables produces and exports cables for a number of markets, including many across the MENA region, including four major contracts in Iraq, as well as for some African countries such as Nigeria.

"Even though cable manufacturing is a difficult business to Saudize, as it requires 24-hour operation, we have managed to hire Saudis who are entrusted with complete production responsibilities," Idriss remarked. "This is an ongoing project and we plan to increase Saudization by keeping an eye on future requirements."

With women's employment foremost in the company's mind, Bahra Cables has also nurtured the idea of opening women-only factories in the future to handle low-voltage switchgear assembly, which can be operated exclusively by Saudi Arabian women.

**Stand no: 8C10**

## Soft starters: the modern solution for every girth gear drive

SOFT STARTERS REPLACE your old mechanical solutions, such as star-delta or autotransformers, and are gaining market share in the electrical drive field previously dominated by variable frequency drives. The latest developments in this area will be presented at Middle East Electricity.

Today's soft starters have very little in common with the oversized units from the 1980s. A modern medium-voltage soft starter fits into a conventional control panel. This means capacities of up to 4MW fit into the smallest of spaces or even directly on the application, depending on the requirements. The capacity range is between 200W and 30MW. The voltage range is from 220V up to 15,000V. With this power range, soft starter technology covers 99 per cent of the drive assemblies needed on the market. But the development of modern drive assemblies nowadays is subjected to far more stringent demands than the mere capacity range.

A holistic view of the installed components and their effects on each other as well as on other system components needs to be taken, particularly in relation to industry norms and standards. The fact that the soft starter has no negative impact on other plant components and, therefore, requires no additional filters and shielded cables facilitates development immensely.

Moreover, its small footprint and minimal heat-loss assist in the switch cabinet design.

### Start function for pump applications

The latest units have a number of features that provide additional benefits in certain applications. By far the most common feature is the integrated current limiter, which allows starting the motor with a defined maximum current. This limited power requirement allows a more precise definition of the network load, whereby upstream components such as transformers or generators can be calculated more accurately. Equally widespread is the start function for pump applications, which is due to the fact that it eliminates crucial problems in pumping solutions. Due to the complexity of the respective pipe system, effective solutions cannot be achieved by predetermined ramps, but only by an intelligent control system. As a result, the service life of swing check valves is extended and, on the other hand, additional components such as automatic valves are saved on.

Many users are under a dangerous illusion in believing that every soft starter can reduce the load of a diesel generator. This usually works only up to a certain load of the generator. This quickly leads to unstable processes in the generator, which becomes noticeable through fluctuating voltages and



*IGEL Electric will present the world's first soft starter with a power level completely galvanically isolated from the control level at Middle East Electricity (Photo: IGEL Electric)*

frequencies and can cause the drive assembly to fail. Top soft starters have automatic frequency adjustment that responds to the changed situation of the generator.

IGEL Electric will present and demonstrate the latest developments in soft starter

technology at Middle East Electricity. At this event, having the largest range of soft starters worldwide, IGEL Electric will present the ISA SL, the first soft starter with a power level that is completely galvanically isolated from the control level.

In combination with inductive transmission technology, IGEL increases the immunity and allows the cost-effective use of the soft starter. Because of such technological advancements, modern soft starters have long since fought for and won their place in electrical drive technology.

**Stand no: S1A10**



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## Mosdorfer energises the Middle East



*Mosdorfer produces fittings and damping systems for overhead transmission lines worldwide up to 1,200kV*

FOR MORE THAN 65 years, Austria-based company Mosdorfer has been developing and supplying power network fittings and damping systems for high-voltage overhead transmission lines and substations, and is a strategic partner of the worldwide power supply industry. In the Middle East, the company already has more than 100 reference projects.

According to the firm, over the last 10 years Mosdorfer has supplied customers in the UAE, Oman, Kuwait and Saudi Arabia with hardware fittings from 110kV to 400kV for all types of insulators and various types of conductors. In the product segment of damping systems, Mosdorfer has been present under its brand name Damp for more than 35 years, with approximately one million Damp spacer dampers of various types having been installed in GCC countries.

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

"In every project the company takes an active role, providing its expertise and focussing on the customers' requirements. Depending on the project, Mosdorfer offers complete turnkey systems as well as customised components, which can be adapted to local conditions."

With products and solutions designed, developed and produced for more than 1,000 projects, Mosdorfer has proven its competence as a global partner, the official added.

**Stand no: S1B10**

## The power behind the lights at the Singapore F1 Grand Prix

CZECH REPUBLIC-BASED genset manufacture and Middle East Electricity exhibitor ComAp has been a supplier of power equipment for the Singapore Formula 1 Grand Prix for the past three years.

A company official said, "When you are entrusted to power and light the prestigious night race at the Singapore Formula 1 Grand Prix, control and reliability are paramount. Genpower Generators were commissioned by the Grand Prix organisers to provide

lighting solutions for the race and armed with ComAp control systems they were shining a spotlight on the world's top drivers through three nights of practice, qualifying and racing."

The 60-lap race takes place in September of each year. "To win on one of the toughest, hottest and longest F1 Grand Prix courses you need power, control and reliability and to successfully manage the power logistics of a high-speed street race. It is critical to

choose suppliers that will deliver the same," added the official.

According to the company, ComAp's every component and product undergoes a quality check during manufacture, with each stage being undertaken in accordance with international ISO 9001 certification.

"ComAp's expertise extends beyond innovative controllers to include a range of subsidiary businesses specialising in a range of services, which include bi-fuel conversions, power energy systems solutions or electronic components distribution. These subsidiaries are located in key strategic regions around the world ensuring our customers benefit from local capability coupled with global reach," said the company.

ComAp provides a range of genset, generator and engine controllers. The portfolio of products, software and accessories is designed to support emergency power, standby power generation and engine-driven applications all over the world.

**Stand no: S3A50**







*ComAp genset controllers feature one piece of software, which makes them compatible with many other manufacturers of electronic engines*



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## Rittal to focus on efficient technologies at 2015 edition of Middle East Electricity

INDUSTRIAL SYSTEM SUPPLIER Rittal Middle East has announced that it will focus on efficiency and optimisation on enclosures, power and cooling technologies at Middle East Electricity 2015.

According to the company, it will also showcase a number of products at the event including its AE enclosures, CM enclosures, TS-8 enclosures, stainless steel product, EX enclosures, SE enclosures and cooling units with 'Blue-e' technology.

Joseph Najjar, managing director of Rittal Middle East, said, "MEE has proven to be and still is the ideal platform for launching our

**MEE has proven  
to be the ideal  
industry platform  
for launching  
our products**

innovation products and solutions for the industry. Rittal Middle East considers the MEE platform as a very important event for our growth and development in the region.



*Joseph Najjar, managing director of Rittal Middle East*

"Embracing latest standards, empowering our channel and customers and addressing the markets all over the Middle East region will be our focus."

MEE in Dubai is a trade fair for the energy industry, which covers all sectors of the power industry including generation, transmission and distribution, nuclear, renewable and lighting.

The event also organises conferences on recent technologies and boast the presence of leading exhibitors. The event expects more than 1,250 international companies to participate at the show this year.

Rittal Middle East is a subsidiary of Germany-based Rittal GmbH. The company is a system supplier for industrial enclosures, power distribution, climate control, IT infrastructure and software and services.

Founded in 1961, today Rittal distributes its products worldwide and has 11 production sites, 64 subsidiaries and 40 distribution agencies.


**Stand no: 5D10**

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## Demand for lighting to illuminate new conference at MEE

MIDDLE EAST ELECTRICITY will this year see the launch of Lighting Middle East. The conference will bring together lighting consultants, manufacturers and designers to discuss how the region's economic growth is changing end-user lighting requirements.

The conference, which will take place on the third and final day of the exhibition, will shine a light on the latest technologies available in both the public and private sectors, as well as offer an insight into



*Lighting regulations and opportunities in the sector will be among the highlights at the inaugural Lighting Middle East conference (Photo: yehoon)*

the future of regional manufacturing of lighting products.

Following opening remarks and a market overview from conference chairman and Glasgow Consulting Group director, Vishal Pandey, the morning's festivities will kick off with a regulatory outlook by Gerald Strickland, managing director of the Middle East Lighting Association. Strickland will look at lighting markets in the UAE, Jordan, Bahrain and Saudi Arabia, and analyse how they have been establishing tools that will enable the lighting industry to grow. He will also look at the impact lighting regulations have on the sector and how they differ from regulations elsewhere.

Following this session, Khalid Mohammed Al Ali, chief engineer for the Road Agency at Dubai's Roads and Transport Authority and Martin Valentine, lighting expert for the Municipality of Abu Dhabi, will reflect on public lighting requirements in Dubai and Abu Dhabi.

After lunch, the spotlight will shift towards the retail and hospitality sectors with sessions entitled 'Hospitality, retail and market growth trends in the Middle East' and 'Trends in illuminating shopper, tourists and diners' set to take place.

The Future Generation Awards will also be held during the conference (find out more below), before the day ends with a session entitled 'Achieving sustainability with the right lighting system', presented by Michel Francis, chief architect at Design & Construction Engineering.

## Future Generation student competition to honour the UAE's next 'Green Leaders'

STUDENTS WILL COMPETE to win a Middle East Electricity award by presenting the most innovative energy conservation solution at this year's exhibition.

The Future Generation competition, which was launched at last year's event, will look to highlight the potential of undergraduate engineering students studying in the UAE.

Commenting on the success of the first competition, Anita Mathews, director of Informa Energy Group, said, "The launch of Future Generation, a student competition designed to encourage young minds, was a great success. The projects on display last

year were extremely creative and it was really encouraging to see so many innovative ideas coming out of the UAE's higher education sector.

"We believe that young minds are our future leaders and nurturing these exceptional minds is our gift for tomorrow. This is certainly something we have built on for the 2015 edition of the event."

Each participant has been challenged to design and develop an innovative solution for energy efficiency, energy conservation or alternative energy, and will present their ideas during the MEE 2015 and Solar Middle East.

For the inaugural edition of the competition, visitors voted for the project they thought was the most innovative and viable, and this year will see two awards on offer – a people's choice award that will follow the same system as last year, and a new judge's award decided by a panel of three industry experts. Last year's award went to Zulfa A Rasheed, Amna Abdulla and Muna Dahir Ali from Ajman University of Science and Technology – Fujairah Campus for their 'Wind Powered Water Lifting System' project, a renewable energy conversion system that transforms wind energy to mechanical energy.

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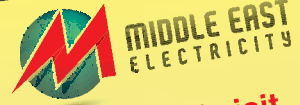


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## Megger highlights new test equipment and measuring instruments equipment

MEGGER IS SET to launch a number of new products at the 2015 edition of Middle East Electricity, which will be held in Dubai this March, including its new SMRT36D smart protective relay test set.

The global provider of electric test equipment and measuring instruments plans to unveil the fifth member of its SMRT family in what will be its worldwide launch.

The SMRT36D is reported to be small, lightweight and have a higher power output than any other comparable three-phase instrument on the market.

Nick Parton, sales manager at Megger, said, "The events industry in the region is awash with conferences, summits and exhibitions,

but MEE stands out as an event that you can always rely on to attract both quantity and quality of visitor."

The trade show will also be used as a platform to showcase its TDS NT combined cable test and diagnosis system. Utilising the 50Hz Slope Technology, from the company's SebaKMT division, TDS NT can immediately locate faults in underground cables during the actual PD measurement. By combining VLF cosine-rectangular voltage (VLF CR) and PD diagnosis with damped alternating voltage (DAC) in one unit, Megger says the new system provides an efficient and integrated solution for precise condition assessment of the network.

Parton, however, added, "Our main focus on the stand will be the



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*The TDS NT combined cable test and diagnosis system*

launch of the TRAX product, a multifunction substation and transformer test system, which customers will clearly identify as being at least one generation ahead of comparative products."

More than 100 years after first registering its trademark, Megger is now present across the globe and business is going well in the Middle East and North Africa (MENA) region.

"Despite the political and financial uncertainties the business is holding up well and we see plenty of opportunity for continued growth, particularly in the larger markets of Saudi Arabia, the UAE, Iraq, Iran and Egypt," commented Parton.

He explained that while the company has some business in small handheld test instruments for building wiring testing in the region, the majority of its work is in helping to maintain efficient and reliable networks to the power utilities, contractors and primary industries.

"The level of infrastructure growth here is phenomenal and that generates great demand for our products that are required for commissioning and maintenance activities," he added.

Stand no: 4A01



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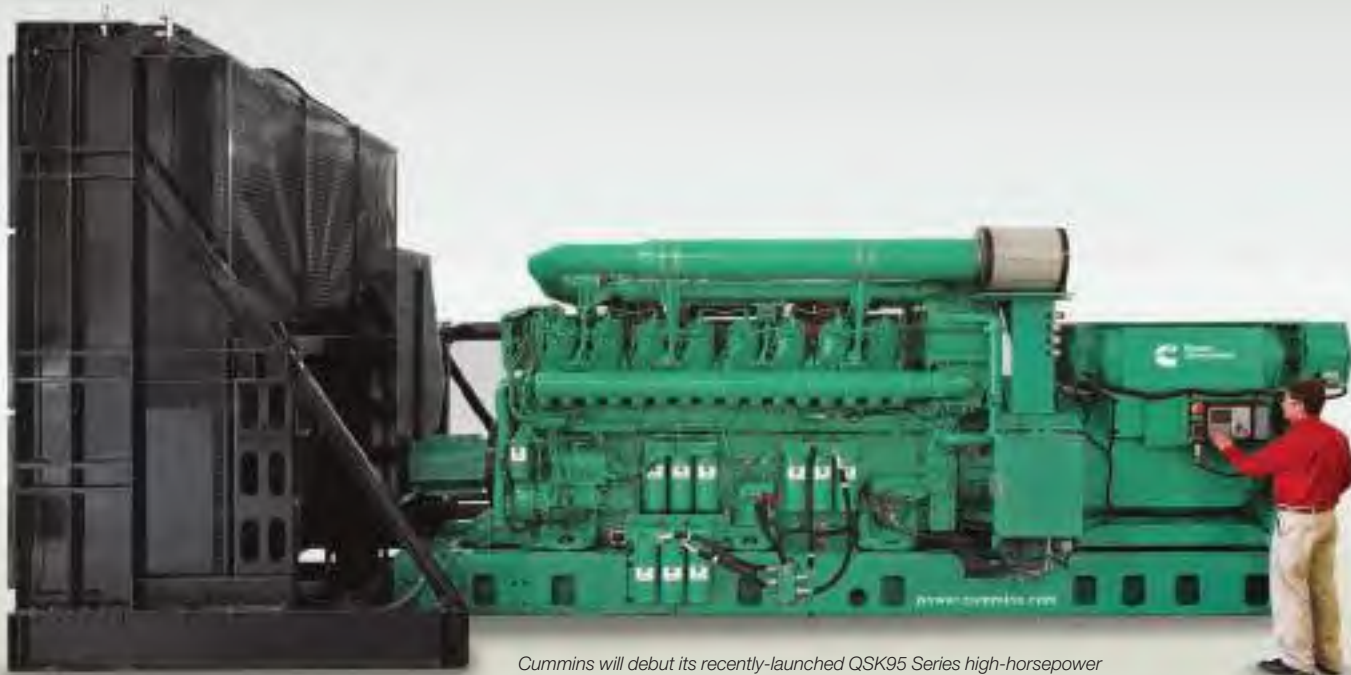
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# Cummins to highlight 'The Power of More' at MEE 2015



*Cummins will debut its recently-launched QSK95 Series high-horsepower generator set at Middle East Electricity this year*

**C**UMMINS WILL BE bringing The Power of More™ to the 40th edition of MEE at the Dubai World Trade Centre in March.

The company will offer visitors the opportunity to explore how Cummins, a key player in the industry, delivers more: More Performance, More Reliability, More Support and More Innovation.

Located in Saeed Hall, Cummins will debut its recently-launched and game-changing QSK95 Series high-horsepower generator set. Rated at up to 3.5MW, it is Cummins most powerful diesel generator set to date.

Also on the Cummins Power Generation stand during the exhibition will be a power systems simulator that will demonstrate the company's complete range of power systems, including transfer switches, PowerCommand® paralleling

systems, generator sets and remote monitoring solutions.

A further display will be the new Gas Power Module from Cummins Power Generation Energy Solutions Business.

Thanks to a digital interactive model, stand visitors will see the product and its key features brought to life through augmented reality (AR). The module functions as a container with the capabilities to meet a wide range of customer requirements.

Equally adaptable to high or extreme-low temperatures, the module has been designed to be especially well suited for prime and standby applications, mining industries, remote island locations, and anywhere a rugged and robust power solution is needed.

Cummins Generator Technologies is co-exhibiting on the stand and has been

providing long-term value to its customers for more than 100 years. Showcased on the stand will be the STAMFORD® P80 range of industrial alternators. The range embodies the features that the company says STAMFORD® | AvK® alternators are renowned for — superior build quality, longevity and electrical safety. Also on display is the AvK® DSG 86 alternator, specifically designed to meet the challenges of the most arduous applications and environments.

Rounding out the exhibition will be the Cummins Diesel G-Drive engine with CoolPac, C1500 D2R PowerBox powered by the QSK50G9 dual-frequency engine, exclusive to Cummins, as well as the C275 D5 residential generator and C17 D5T telecom generator. ■

**Stand no: S3D30**

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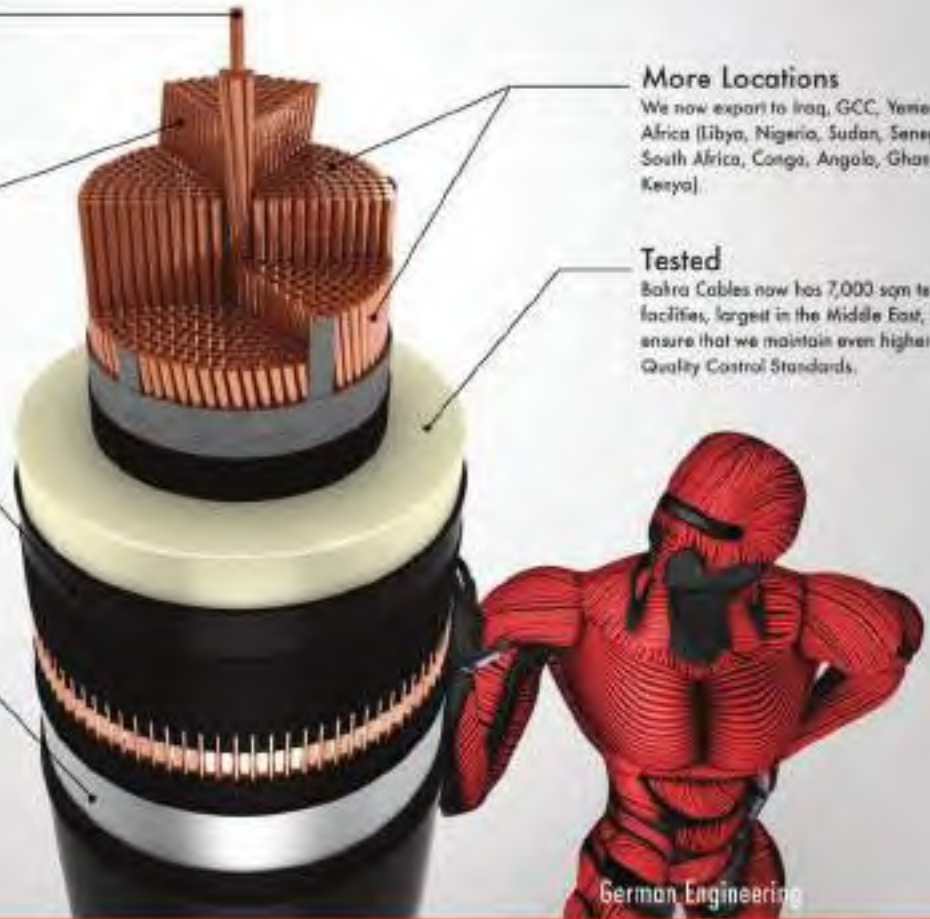
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# Mecc Alte launches Power Products Division

**M**ECC ALTE, THE largest independent producer of alternators in the world, recently launched its Power Products Division, widening its range up to 5,000kVA.

For almost 70 years, the company has manufactured through 'made for manufacturing' product designs, traditionally ranging from 1kVA through to 3,000kVA.

The new department operates in the electromechanical sector and produces a number of different types of special rotating machines that cover a highly diverse range of applications.

The new range produced by Mecc Alte Power Products will be available at the end of this year and includes medium- and high-voltage alternators, and high-power machines as large as 5,000kVA.

The new division has complete control over sales and distribution, and absolute control over every single component it uses. Its products will be available in a highly versatile range from 1-5,000kVA, from portable alternators to machines for industrial use.

Committed to offering the highest levels of global support, Mecc Alte offers solutions for simple low-power needs, through to the most demanding power requirements.

The company's new Power Products Division was formed in response to market requests. Its state-of-the-art, purpose-built factory occupies a prime location close to its Italian headquarters.

Using the latest technologies and materials, its product designs were born from market requirements, and working from a blank sheet the new division utilised its experience and that of specialists in the field to make a tailor-made range built around customer needs.

With a reinforced mechanical structure giving superior mechanical resistance, oversized terminal boxes and market-matched power nodes, it uses new innovations, new materials and a fresh commercial approach in a market very traditional by its nature.

Today, Middle East Electricity exhibitor



*Mecc Alte has a network of factories in Italy, the UK, China and India*

Mecc Alte builds more than 1,400 alternators a day and can boast of a wide range of low-voltage, 2-pole and 4-pole alternators.

Mario Carraro launched a repair workshop for electronic motors in 1947 and eventually progressed to the production of small electric motors. Over the next decade the company moved on to producing alternators. Mecc Alte decided to concentrate on a single type of product leading to a progressive expansion of the product range and a growing share of the Italian market.

In the 1980s the company opened its first branches for sales and assistance in France, Germany, the UK, the USA and Singapore, paving the way for its growth in international markets. It was during the 1990s, however, that a rapid and



*The group has an in-house research division that is continually looking to develop new technologies*

consistent rise in sales allowed the current production levels of 1,400 alternators a day to be achieved.

Today, Mecc Alte has factories or distribution centres in every continent in the world and is a worldwide group with seven factories occupying a total area of more than 51,000 square metres. Each facility is totally concentrated on the production of world-class alternators. The network of factories in Italy, the UK, China and India is supported by wholly owned subsidiaries based in Australia, France, Germany, Singapore, Spain and the USA, which specialise locally in sales, distribution and after sales for all Mecc Alte products.

The group has its own in-house research division that constantly seeks to develop new technologies. The company operates at the cutting edge of design and develops its mechanical components using solid design and utilising dedicated design software for electronic parts. Every single alternator model is designed using simulations of finite element analyses.

The company also has its own test laboratory and is a co-founder of the Crei-Ven Electronics Industry Research Consortium – an industry body that promotes scientific activities and international collaborations. ■

**Stand no: S1E50**

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## Rolls-Royce Power Systems sets up new regional subsidiary

ROLLS-ROYCE HAS SET up MTU Middle East, its new regional sales and service subsidiary, which will be based in Dubai.

MTU Middle East will support distributors and business partners of MTU, MTU Onsite Energy and Bergen Engines in 21 countries throughout the Middle East and North Africa (MENA) region.

MTU Onsite Energy, who will be exhibiting at Middle East Electricity, along with Bergen Engines, is part of Rolls-Royce Power Systems within the Land and Sea division of Rolls-Royce.

“With our new sales and service centre in Dubai, we are seeking to leverage the huge potential that markets in the MENA region carry, and to drive forward our business there in a targeted way,” said Dr Michael Haidinger, chief sales officer at Rolls-Royce Power Systems. The new subsidiary will have its own MTU service technicians in place and a warehouse with a spare parts store.

MTU Onsite Energy, one of the core brands of Rolls-Royce Power Systems AG, is a leading provider of high- and medium-speed diesel and gas engines, complete drive systems, distributed energy systems and fuel injection systems for demanding requirements.

The company offers complete power system solutions, ranging from mission-critical and standby power to continuous power, heating and cooling.



*MTU Onsite Energy, a provider of diesel and gas engines, is among the core brands of Rolls-Royce Power Systems AG (Photo: Rolls-Royce Power Systems AG)*

Its target market covers a variety of sectors with customers in healthcare, data centres, airports, agriculture and independent power stations, while its product portfolio covers diesel generator

sets up to 3,250kW, gas-powered cogeneration systems up to 2,500kW and gas turbines up to 50,000kW.

**Stand no: S1F30**

## Brady to promote successful safety investment at Middle East Electricity 2015

BRADY CORPORATION, AN international manufacturer and marketer of complete solutions that identify and protect people, products and places, will be on hand at Middle East Electricity to showcase its Lockout/Tagout solutions.

The company's products have, said the firm, proven “very



*Brady is offering a one-month free trial of its LINK360 Safety Software*

successful”, preventing injuries connected with maintenance such as fractures, lacerations, amputations, burns and shocks in industries all over the world.

The procedure behind its products involves the isolation and inoperability of an energy supply to industrial machinery during maintenance operations.

Brady is offering a one-month free trial of its award-winning LINK360 Safety Software, for which interested parties can find out more at [www.bradyeurope.com/lotoservices](http://www.bradyeurope.com/lotoservices).

Founded in 1914, the company has a diverse customer base in the fields of electronics, telecommunications, manufacturing, electrical, construction, education, medical, aerospace and a variety of other industry sectors.

Brady's products help customers increase safety, security, productivity and performance and include high-performance labels, signs, safety devices, printing systems and software.

Headquartered in Milwaukee in the US state of Wisconsin, the company employs approximately 6,400 people throughout its worldwide businesses. Trading on the New York Stock Exchange under the symbol BRC, Brady's fiscal 2014 sales stood at approximately US\$1.23bn.

**Stand no: 3F29**





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## Yamuna's cable jointing accessories manufacturing facility proves a success



*Yamuna's new facility in Ras Al Khaimah has been producing 750 power cable jointing kits per day*

LAST YEAR, YAMUNA Cable Accessories increased its manufacturing capacity in the Middle East by opening a new production facility in the UAE emirate of Ras Al Khaimah.

At the time of the facility's launch, Ravi Sardana, CEO of parent company Yamuna Densons, said the new plant would aid the company's ambitious expansion plans for the MENA region, with the facility enabling the cable jointing accessories supplier to work much more closely with its growing regional customer base.

Having been open for more than 12 months, the production plant now assembles 750 power cable jointing kits a day, and its effectiveness has since been proven with the company's reach and delivery time to its customers reducing by half in that time.

Located in Ras Al Khaimah Free Trade Zone (RAKFTZ), the 2,500 sqm plant has the capacity to produce jointing kits for all types of power cables up to 33 kV.

"Opening a new facility in the UAE is a step in the direction of

growth in a region that Yamuna has been serving for more than 20 years," said Sardana. "As we sell to most of the utility providers and contractors within the region, there can be no better way of expanding our business than by being closer to our customers."

Speaking about the company's ambitious plans for expansion, Sardana remarked, "We plan to expand by targeting new domestic market segments, such as national oil companies, petrochemical companies, and other industrial and commercial sectors. We also plan to introduce new products to the region in the form of cable accessories and silicone insulators."

Through the new facility, the company has also been able to offer installation and certification training to its distributors and end users across the region, as well as provide them with regular updates on its latest products and solutions.

**Stand no: 2D01**

## HellermannTyton to exhibit at Dubai power show for fourth consecutive year

HELLERMANN TYTON, A LEADING manufacturer and provider of high-performance and innovative cable management solutions to industrial customers around the world, will be attending its fourth consecutive Middle East Electricity exhibition this year. With more than 60,000 products in its portfolio, the company offers specialised industry solutions for fastening, fixing, identifying and protecting cables and their connecting components.

HellermannTyton, said that the key to its success was its commitment to providing its customers with quality products, local service and specialised know how on how to help them grow their businesses.

In 2014, the company opened an office in the UAE due to steadily rising demand for its expert support in the fields of power generation, infrastructure and building projects around the Gulf region.

From this local base, the company can provide individual services to customers throughout the GCC in Bahrain, Kuwait, Oman, Qatar and Saudi Arabia who require a development partner for their electrical engineering challenges.

Highlights on the company's stand at this year's exhibition will include metal system solutions such as the brand new M-BOSS Compact stainless steel marker printer for permanent marking in hazardous environments and the MST series of metal cable with a punch-lock

mechanism that delivers high resistance to vibrations.

With a focus on the region's fast developing solar energy sector, HellermannTyton will also present its range of specialised UV-stabilised fastening and fixing products.

Operations requiring high volumes of cable tie bundling will have the opportunity to try out the company's fully automated cable tie system Autotool 2000 at the exhibition, along with the EVO7 manual cable tie application tool, which has been engineered for maximum precision, worker comfort and productivity.

**Stand no: S2B18**

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## Briefly

### Case to showcase 360-degree solutions

#### CASE CONSTRUCTION

EQUIPMENT will be showcasing its extensive line of equipment and services on its 4,150 sqm stand during Intermat 2015.

Among the highlights on the firm's stand will be its offering for urban construction, road building, aggregates and recycling applications, complemented by Iveco's vehicles for the construction industry. The Service and Parts teams and CNH Industrial Capital will be on the stand, to explain the ways in which the brand can support customers in partnership with its dealers, providing what it calls "360-degree business solutions", while the Case team will be on hand to illustrate how the SiteWatch™ telematics system could help fleet managers optimise the deployment and performance of their equipment.

Case will introduce five new models that will extend and upgrade its skid steer and compact track loader line-up, while visitors from African and Middle Eastern countries will have the chance to see the new 570T backhoe loader.

New generation Tier 4 Final crawler excavators and new generation D Series crawler excavators will also be at the show, along with a host of other equipment.

## Construction sector gears up for Intermat 2015

LEADING FRENCH CONSTRUCTION materials, machinery and equipment show, Intermat Paris, returns to Parc des Expositions de Paris-Nord Villepinte for another five-day run in April 2015.

Bringing together 1,300 exhibitors, including 70 per cent from outside France, the huge trade show will expect to attract 200,000 visitors looking to find the latest in construction machinery and processes.

With 38 of the 50 top global construction companies confirmed to attend, the show will look to highlight the vitality and energy of industry members within the fields of innovation, with the development of new solutions brought to the forefront at the event.

Key components of the international exhibition this year will include Paris Demo, an outside demonstration zone featuring live demonstrations of construction equipment in action. Spanning some 30,000 sqm, visitors will be given the opportunity to discover first hand the know-how of manufacturers and the developments in the performances of machinery and equipment in real-life operating conditions.

Organised for the first time in Europe during Intermat, World of Concrete Europe (WOC Europe) will feature displays from the concrete industry, from the earliest stages of the concrete cycle, such as materials, products and additives, to final use in decorative concrete, coatings and cements, engineering and services.

WOC Europe will also feature workshops that will provide visitors with the opportunity to discover the latest in concrete product applications and placing methods, while



Intermat Paris 2015 will be expected to attract 200,000 visitors

witnessing demonstrations of tools and equipment by concrete industry specialists.

Pre-Intermat, a two-day forum event which took place in January, featured more than 90 companies and a host of journalists, who found out what will be in store at the exhibition in April.

Alongside the preview event was the Intermat Innovation Awards, which saw 78 entries shortlisted for consideration by a judging panel consisting of European specialists and chaired by the Fédération nationale des travaux publics (FNTP).

Among the many winners were Wacker Neuson Group, who was awarded a Gold Award in the Construction Equipment category for its mini excavator 803 dual power and Liebherr France SAS who was awarded a Gold Award for its lift crane operations in the Equipment and Components category.

Intermat Paris will take place in the French capital from 20-25 April 2015.

## Volvo CE to unveil new models to construction sector at Paris construction expo

VOLVO CONSTRUCTION EQUIPMENT (CE) will launch nine new models during Intermat Paris 2015.

Located in hall 6 at Parc des Expositions de Paris-Nord Villepinte, the firm's 2,916 sqm stand will showcase the latest additions to the company's excavator, wheel loader and compact equipment ranges.

New models will include the EC220E, EW160E and L90H, with the new models set to be in action on the firm's 2,025 sqm outdoor booth.

The company's outdoor booth will also feature a networking platform in its operator's lounge, which will be run by the Volvo Operators Club, while the company will have experienced staff on hand to explain how Volvo dealers have been supporting customers to maximise machine uptime and reduce risk.

Volvo's stand will also play host to the futuristic GaiaX in its first European outing. The concept compact excavator, which has been imagined for use in 2030, has been envisaged as a fully electric machine, capable of semi-automated remote operation using an augmented-reality tablet device.

Volvo CE will be joined at the show by Volvo Penta and Volvo



Volvo CE's 2,025 sqm outdoor booth at Intermat Paris will showcase the company's latest additions to its excavator, wheel loader and compact equipment ranges

Trucks, with the latter demonstrating its advanced engine solutions to meet the requirements of EU emissions legislation, and the former highlighting its interactions between various Volvo FMX applications and Volvo construction equipment.



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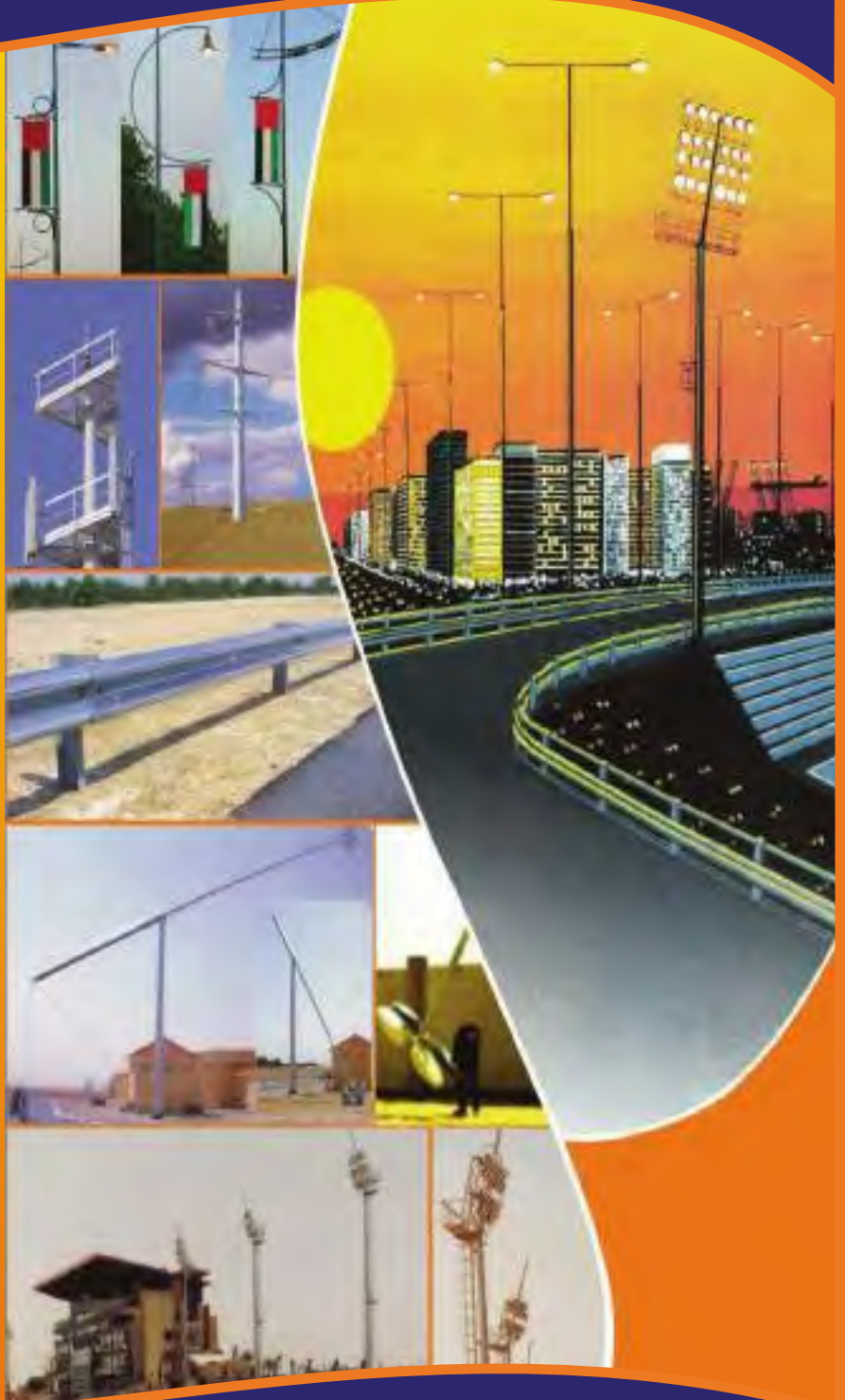


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## Bobcat and Doosan to showcase new models at Interemat

BOBCAT'S STAND AT Intermat 2015 will look to provide the stage for the global launch of several new telescopic handler models from the company, including the new TL358 six-metre lift height compact telehandler, and the new 13 metre and 14 metre lift height T35130S and T35140S telehandlers aimed at the rental industry and offering a 3.5 tonne maximum lift capacity.

The TL358 features a compact format, with a restricted 2.10 metre width and height dimensions, which allows easy access to congested areas and small buildings. Meanwhile, the new T35130S and T35140S models follow on from the launch of Bobcat's 10, 12, 14 and 18 metre lift height telescopic handlers over the past 12 to 13 months. Their simpler design intends to meet the needs of the rental business, with particular attention paid to aspects such as the protection of sensitive parts and the safe operating needs of rental users.

Joining Bobcat at Interemat will be Doosan Portable Power, who will be showcasing a host of new products that will be launched during the show, among which will be the redesigned and Stage IIIA compliant G40-IIIA and G60-IIIA generators, along with several new portable compressors, including the Stage IIIA compliant 7/53, Stage IV compliant 12/154 and 12/254 and 7/125-

10/110 Stage IIIB Dual Mode models. Providing 40 kVA and 60 kVA prime power respectively, the G40-IIIA and G60-IIIA models form part of a new platform of generators from Doosan, sharing a common design with the G80-IIIA to G200-IIIA models launched over the last two years.



The T35130S, which will be launched at Interemat Paris 2015

The Yanmar-powered G40-IIIA and John Deere-powered G60-IIIA generators will both be available with electronic speed regulation (optional on the G60-IIIA model) providing, in addition to stability and better load take-over capabilities, a flexible dual frequency 50/60Hz working mode (optional for both models). The new 7/53 portable compressor is a 36 kW Stage IIIA compliant replacement

for the 7/51 model and has been redesigned to allow Doosan to keep this model in the Stage IIIA category, avoiding the need to transition to meet Stage IIIB regulations. The new features on the 7/53 portable compressor include forklift slots and a new bundled base option.

The largest single axle model from Doosan, the new 12/154 compressor is the Stage IV successor to the previous 12/150 model and is powered by the Cummins QSB6.7 6-cylinder diesel engine and meets Stage IV regulations without the need for a diesel particulate filter (DPF). The compact 12/154 offers excellent towing stability and is intended for applications in plant hire, construction, quarrying and general industry.

The 7/125-10/110 Stage IIIB model has a new 'Dual Mode' feature as standard, with a choice of two pressure and flow ratings on the same machine. By pushing a button on the keypad, the operator can switch between low-pressure and high-pressure mode. The portable compressor is powered by the Stage IIIB Cummins QSB 4.5 water-cooled diesel engine providing 97kW of power and meeting emission regulations through the use of cooled exhaust gas recirculation (EGR) and diesel oxidation catalyst (DOC) after-treatment technologies, without the need for a DPF.

## SDMO to demonstrate Rental Compact product range on Paris expo platform

FRENCH MARKET LEADING generator set manufacturer SDMO will present its range of products designed for the rental market, including its Rental Compact line, on its stand during Interemat.

SDMO's rental range combines all of the French manufacturer's expertise and features products tailored to meet a host of requirements, including Portable Power and Lighting. Its Portable Power range features 3-7.5kVA generator sets that include a reinforced chassis ensuring ease-of-use, robustness and safety, while its Lighting range includes lighting towers for use on building sites or on the road that provide a source of light even in isolated locations.

Its Event range features generator sets (250 and 318kVA) that integrate high-performance, noise-reduction technology that meets requirements for events and urban environments, and its Rental Compact ranges includes Stage III (15-550kVA) generator sets that offer compactness and high levels of performance.

Its Rental Power range includes mobile generator sets (20-700 kVA) available in a variety of outputs and fitted with a host of tailored options, and its Contenergy range features high-output generator sets (715-2,500kVA) enclosed in containers that provide sound insulation and designed for large-scale construction sites.

In June 2014, the European Rental Association (ERA) and its 14 associations, representing 4,300 European rental companies, presented SDMO with an award for its Rental Compact range during the International Rental Exhibition in Amsterdam. The honour recognises the best companies and products in the industry, highlighting the shock resistance qualities of SDMO's Rental Compact generator sets, which have been recommended for construction sites in extremely difficult conditions. Its Rental Compact products also ensure a high level of safety for users, especially during handling, connection and operation.

During Interemat SDMO will focus on two products from its range at its stand – the R1400C and the TECHNIC 15000TE.

The R1400C, a 1,400kVA generator set integrated into a CIR20 Dry container with sound emissions of just 80 dB(A) at one metre, can be used for various applications thanks to its dual frequency and is fitted with a Mitsubishi S12R PTA engine, which combines robustness and reliability. The TECHNIC 15000TE is a three-phase generator set with 14.40kVA output, fitted with a Kohler twin-cylinder, air-cooled petrol engine and designed for intensive use.



SDMO's rental range includes lighting products

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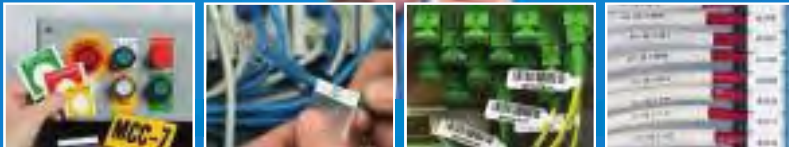
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## Vögele's new SprayJet on display at Paris construction show

GERMANY'S VÖGELE WILL be showcasing its products at Intermat 2015. The simple-to-service, easy-to-use Super 1800-3i SprayJet by Vögele has several features, including the spray module, which has been integrated into the ErgoPlus 3 operating concept and designed as a self-contained functional unit. This modular design allows the Super 1800-3i SprayJet to be used as a spray paver as well as a conventional asphalt paver.

Rehabilitating roads by replacing the surface course is a highly cost-effective and eco-friendly process. Vögele said its cutting-edge concept is not only ideal for paving thin layers hot on spray seal or tack coat, but also for many non-specialised road building companies. The Vögele SprayJet module, the company stated, is an economical and clean alternative wherever emulsion is sprayed before paving with asphalt.



All the settings required for replenishing, circulating and heating the emulsion can be entered and monitored directly via the touchscreen

The insulated emulsion tank has a capacity of 2,100 litres and the integrated electric heating (2x7kW) ensures that the emulsion is reliably maintained at the ideal temperature for spraying. The Super 1800-3i SprayJet is equipped with five spray bars, which allows full coverage of the existing surface with emulsion, even when pave width varies.

## LiuGong set to penetrate EU via presence at Intermat 2015

CHINA'S LARGEST EQUIPMENT manufacturer LiuGong Machinery Corporation is all set to take part in Intermat 2015 in Paris on 20-25 April 2015.

LiuGong's new 856H wheel loader has been tailored for the European market, combining half a century of LiuGong technology and innovation with full EU Stage IV regulation compliance.

According to LiuGong, the European market is difficult for construction machinery manufacturers to enter due to the region's strict emission standards. But the Chinese manufacturer said that it has adapted itself to such conditions.

The 856H is equipped with a Cummins QSB6.7 engine in compliance with EU Stage IV regulation, which is extremely quiet. It has adopted mature variable geometry turbocharger technology to provide superior torque. The high-pressure common rail fuel injection system improves injection pressure and optimises fuel consumption. With this powerful engine, the 856H can work in extreme conditions in Europe and worldwide. The 856H also features a ZF AP3000 wet axle with strong carrying capacity. The axle housing and main transmission system are reinforced to improve strength and anti-load capacity, with carrying capacity being increased by 40 per cent from the previous model.

The 856H's new cab design allows for improved visibility to the work tool and improves all-around visibility for safety. Frequently-used controls are placed within easy reach of the operator and curved glass in the cab decreases sound levels. The 360° access around the cab allows for easy removal of snow and frost, and a constant temperature function can adjust the temperature



The 856H's new cab design allows for improved visibility to the work tool and improves all-around visibility for safety

automatically. The cab features ROPS (Roll Over Protective Structure) and FOPS (Falling Object Protective Structures) in compliance with ISO3471 and ISO3449 safety standards, which ensure that operator safety is at a maximum.

At the end of 2014, LiuGong's new E-Series excavators achieved more than 100 unit sales in less than eight months, after the official launch into the European market in May 2014. The LiuGong E-Series excavators — including the 922E, 925E and 930E models — are fully compliant with Stage 3B of the European emissions regulations.

The smaller 922E has an operating weight of 22,000 kg and a maximum digging depth of 6,595 mm; the 925E has an operating weight of 25,500 kg and a maximum digging depth of 6,925 mm; and the 930E has an operating weight of 31,300 kg and a maximum digging depth of 7,300 mm.

Each E-Series model is equipped with a Cummins 6.7 litre engine in compliance with EU Stage 3B regulations, with net power of 117kw@2000rpm for the 922E; 129kw@2000rpm for the 925E; and 147kw@1900rpm for the 930E.

## Upgrade carried out on Topcon's 3D positioning system

TOPCON POSITIONING GROUP will be showcasing its latest technologies at Intermat Paris in April. The LN-100W is an update to the first line of 3-D positioning systems that has been designed for a one-operator layout. The latest model includes Bluetooth functionality.

The LN-100W is the newest of BIM (building information modelling) solutions from Topcon. Ian Stilgoe, director of geomatics for Topcon,



The LN-100W offers the popular self-levelling, one-operator 3D layout features of the original model

said, "LN-100W offers an enhanced level of connectivity with the addition of Bluetooth functionality. Now, operators have an additional wireless communication option that will provide greater versatility with devices such as tablets that might not be WLAN-ready.

"The update exemplifies our focus on making the LN-100 as simple-to-use as possible. The LN-100W offers the self-levelling, one-operator 3D layout features of the original model, and takes ease-of-use a step further."

Topcon Positioning Group also announced the release of a new app MAGNET Construct, designed to drive the LN-100 Layout Navigator system. The app, available on Android, is built to deliver productivity with LN-100W hardware, and intuitive options to drive an LN-100W for fast as-built measurements and graphical guidance to design data. When combined with the LN-100W, the app provides an entry-level precise measurement solution for 3D layout applications.



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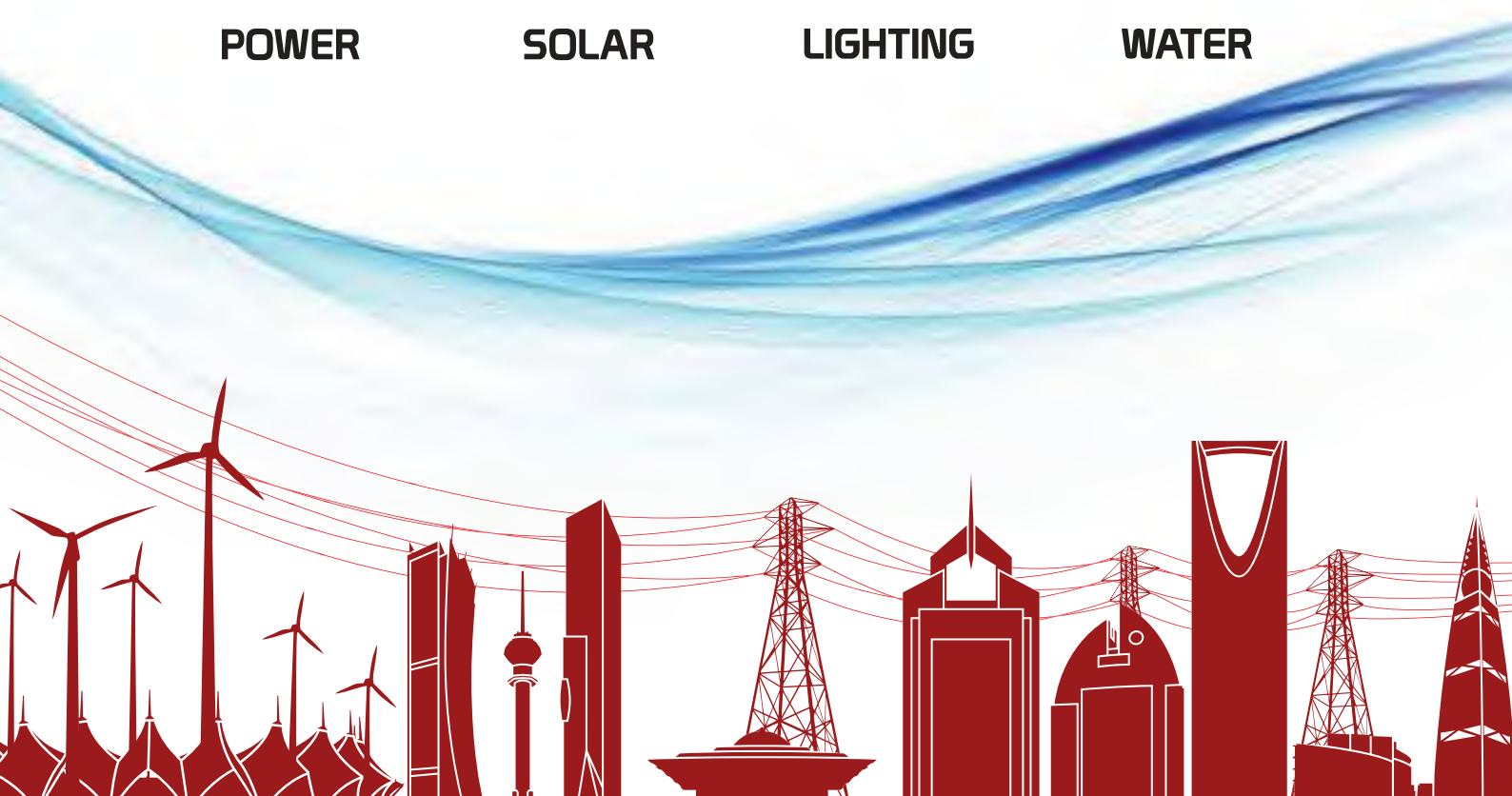
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## Middle East e-commerce market to grow by 40 per cent by 2020, states report

THE E-COMMERCE MARKET in the Middle East is set to grow by 40 per cent by 2020, according to Sarwant Singh, senior partner and practice director at Frost & Sullivan.

The upcoming boom is due to high potential in e-commerce in the Gulf, as sales is expected to touch US\$41.5bn – one of the highest growth numbers in the industry worldwide. E-commerce is the top 'mega trend' to affect future business in the GCC and the Middle East as a whole.

Mega trends are transformative, global forces that define the future world with their impact on business, societies, economies, cultures and personal lives, commented Aroop Zutshi, global president



*Convergence and connectivity is likely to change the way in which business will be conducted in the Middle East*

and managing partner of Frost & Sullivan.

E-commerce is expected to double in value by 2020 in MENA contributing to nearly five per cent of the GDP. Currently, it represents only two per cent of the country's GDP. The UAE is expected to be a key e-commerce market with a 53 per cent share, followed by Saudi Arabia with a 14 per cent share. Oman and Qatar

are expected to have a 12 per cent and 10 per cent share, respectively, added Singh.

Owing to a high level of computer ownership and Internet penetration in the Middle East, the UAE leads the category. The country has the highest per capita online retail spending, at par with the USA and EU.

From US\$90bn in 2013, e-commerce has been predicted to grow to US\$200bn in 2020. Of this, business-to-customer (B2C) will represent 30 per cent of the total value followed by government-to-business or customer (G2B/C) at 25 per cent and business-to-business (B2B) e-commerce at 20 per cent.

Globally, online retail sales are expected to reach US\$4.3 trillion by 2025, which will account for 19 per cent of overall retail sales.

The key reason behind the projected growth is the level of connectivity and convergence, which will restructure the manner of conducting business by 2020. By that time, there will be 80bn connected devices and five billion Internet users globally, Sarwant added.

The MENA region alone would be linked through 545mn connected devices and 390mn Internet users by 2020.

Archana Amarnath, global research manager of Visionary Innovation Group at Frost & Sullivan, remarked, "Having such a level of connectivity will definitely lead to a different living ecosystem in the future."

## Briefly

### Zain Jordan launches 4G LTE services

TELECOM OPERATOR ZAIN Group has launched 4G LTE services in Jordan, becoming the first company to do so in the country. For Zain Group, Jordan is the fifth nation where it has initiated the 4G LTE service.

Scott Gegenheimer, CEO of Zain Group, said, "As the leading operator in Jordan, we are committed to offering life-enriching mobile services and playing a key role in the economic and social development of the country."

The newly-launched network covers all governorates in Jordan, with nearly 1,000 sites being connected. Zain Group has made use of the same geographical scheme undertaken four years ago, when the company launched HSPA+ services.

The 4G LTE network features high-speed Internet that reaches speeds of 150 Mbps. Customers can make video calls, communicate through social media, download high-quality multimedia and use business applications, in addition to high-quality integrated services that cater to the evolving needs of customers. The telecom operator intends to add features to its current list of services, including IPTV, Machine to Machine (M2M), IP-based television and cloud computing.

The company also plans to introduce 4G LTE bundles and products including an array of dongles, smartphones and customer premise units. Zain MiFi devices – the smallest portal WiFi devices available that can be carried anywhere – will also be made available. The device is compatible with 10 mobile data connections.

Zain Jordan's investment in 4G LTE technology in 2014 amounted to US\$282mn, and the company will dedicate US\$141mn more until 2017.

Ahmad Hanandeh, CEO of Zain Jordan, said, "We announced our 4G LTE plans in 2013, holding a trial of the technology at the Dead Sea during the MENA ICT Forum. Following the trial, we acquired frequencies in April 2014."

Jordan's King Abdullah II launched the first phase of the network rollout in November 2014.



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## Briefly

### Optimus Technology and Telecom and Huawei seek to expand partner network in UAE

OPTIMUS TECHNOLOGY AND Telecom have teamed up with China's telecom provider Huawei to host a partner recruitment meet, with the objective of hiring strategic channel partners who can influence business and increase revenue in 2015.

Optimus is a channel development and distribution company, headquartered in Dubai, that helps leading technology and telecom vendors develop and create business revenue streams in the Middle East, North Africa and South Asia (MENASA). The firm has a leading presence in Egypt, Qatar, Saudi Arabia and Kuwait.

The event was held at the Huawei's Middle East headquarters, and was attended by telecom system integrators and resellers. The aim of the event was to educate partners on Huawei's latest product and service offerings, and to discuss technological innovations the company has to offer. In addition, teams from Optimus and Huawei also spoke about new channel programme and partner promotions that will be offered later this year. The aim was to offer maximum value to clients and customers.

Meera Kaul, managing director of Optimus Technology and Telecom, said, "It is with our partners that we can define our success. We are very fortunate to have partners who have been working with us for years and today we are here to expand our family. Huawei has some of the latest products and solutions in telecommunications, which are advanced, and offer enhanced features and great value to our partners' clients. We would like the new partners to experience the same success."

Nehul Goradia, vice-president of channel and alliances sales at Optimus Technology and Telecom, added, "Our channel partners event last year for Huawei was a huge success. We look forward to strengthen the brand's global sales positioning and unveil enticing opportunities to the associating partners of the brand."

## Sharpest scientific minds to exchange ideas for Khalifa University's robotics challenge

THE MOHAMMED BIN Zayed International Robotics Challenge (MBZIRC) will aim to attract the highest level of talent in the field of robotics across the world. MBZIRC was announced at Abu Dhabi's Khalifa University, where a robot facilitated the event.

The competition will be organised by Khalifa University every two years, and will provide competitors the opportunity to win prizes worth in the region of US\$5mn.

The first MBZIRC will require competitors to develop aerial and ground vehicles that are capable of executing tasks in complex and dynamic environments. The challenge will be to create a vehicle that can complete tasks in a simulated disaster response scenario. It would involve the collaboration of a group of unmanned aerial vehicles (UAVs) and unmanned ground vehicles (UGVs) in a changing environment that requires the robots to carry out a series of tasks using autonomous navigation and environmental interactions. The challenge will be judged by an independent panel made up of international robotics experts.

Tod Laursen, president of Khalifa University, said, "The event will attract some of the best robotics minds in the world, and bring international attention to the growing robotics industry in the UAE. Throughout history, challenges issued by governments, scientific communities, and international entities have often played a central role in advancing knowledge."

The 'space race' between the USA and the USSR in the 1960s inspired the idea, and the UAE has begun working on the theme recently with its aspirations for a Mars mission.



A robot that has been designed by students during operation (Photo: MBZIRC)

MBZIRC will aim to spur the development of worldwide robotic technology by tapping into the invention and real-life application presented by the winners. Challenges issued during the event will aim to stretch participants, in order to pave the way for new developments and discoveries.

"We believe that a bit of audacity in challenge specification is key to the innovation process," said Laursen.

Teams interested in entering the challenge can find more information at [www.mbzirc.com](http://www.mbzirc.com). Proposals must be submitted by June 2015, and participants will be selected in October 2015. Individuals can also look for more information about the challenge on Twitter and Facebook.

## EMC's VSPEX BLUE offers 'simple and agile' IT solutions

EMC CORPORATION HAS announced the availability of the VSPEX BLUE hyper-converged infrastructure appliance. It delivers storage and networking, with management powered by VMware EVO:RAIL and EMC software, stated EMC officials.

The appliance enables customers to go from "power-on" to provisioning virtual machines in under 15 minutes, offering competent time to



EMC's VSPEX BLUE helps cope with the changing IT environment.

value compared to other hyper-converged infrastructure offerings.

Gil Shneorson, vice-president and general manager VSPEX at EMC Corporation, said, "EMC's VSPEX BLUE appliance is delivered exclusively by our partners, and offers customers IT simplicity and agility backed by EMC's award-winning global support organisation, with built-in differentiation such as the VSPEX BLUE Manager, Market and EMC Secure Remote Support that will dramatically simplify how IT is deployed and managed."

Comprised of common modular building blocks, VSPEX BLUE hyper-converged infrastructure appliance provides seamless linear scalability from one to four 2U/4-nodes and is ideal for infrastructure consolidations, virtual desktops in large remote or branch offices and managed service providers.



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# Why power quality is vital

Nancy Dib, technical marketing manager at National Instruments, speaks to *Technical Review* about the necessity of power quality.

**S**TANDARDS FOR POWER are critical for end users to realise scalability and efficiency, said Nancy Dib, technical marketing manager at National Instruments (NI).

“As an example, it is more manageable for a company designing powered devices to design with a few global standards in mind, rather than an array of disparate power grids. For government entities and utility companies, standards help grow the system in a way that preserves quality,” commented Dib.

According to the UN Environment Programme, there are various renewable energy investments, particularly in solar energy, being established in the Middle East. These projects include Abu Dhabi’s carbon-neutral Masdar City, Saudi Arabia’s huge solar heating plant in Riyadh, Dubai’s plan to construct a solar park and Qatar’s Solar Schools project.

“The infrastructure to implement these projects, and to generate and move energy is immense and without standards these separate, yet in many ways interconnected grids, would be more expensive to operate,” said Dib. “It makes no difference whether it is wind, solar, LNG, coal or pumped-hydro that generates energy as long as when it mates with the grid it meets the standard. In this sense, standards can facilitate innovation by establishing a common goal and leaving the specific method up to scientists and engineers around the world. Advanced energy customers are interested in running a manufacturing plant or fabricating the latest silicon wafer.”

## The importance of power quality

According to Dib, most people think of power quality in two states – power is on and everything is fine or there is a black out. “This is an incomplete view of power quality, as there are a multitude of

*The FPGA and Real Time processor built into the NI CompactRIO controller helps engineers keep up pace with the evolving needs of the grid*



measurements that can be made on an electrical network to determine overall quality. As a simple example, almost any device plugged into the wall includes a label indicating the power level and frequency for which it was designed. An abnormal operation typically occurs well before black out conditions, especially with computers. Power quality standards are a balancing act – too stringent and they are unattainable and too lenient and they serve no purpose” remarked Dib.

## Got an issue? Measure it and fix it

The quality of the instrument measuring power can help determine overall quality, while the quantity and location of the measurements can help determine the root cause of an issue.

Dib said, “Many power quality problems are caused by consumers or distributed generation facilities that are spread out over the grid. A steel mill, manufacturing plant or solar farm a few miles away can cause power quality problems based on the types of loads they put on the grid.

“Aside from being good agents of power, these entities may choose to clean up their energy usage to avoid monetary fines. Utility companies will fine large power consumers if their usage negatively impacts the grid. To fix this, these entities can monitor power and take corrective actions to prevent power quality issues and fines.”

## Flexibility is key with changing standards

The update of worldwide power grids is a massive feat of engineering that will take place over the next few decades. Advanced technology impacts standards that evolve over time, as best practices are determined or as new capabilities are unlocked with the latest technology, said Dib.

NI provides the technology that allows engineers to develop a system that provides full visibility and management of the power distribution grid at the facilities, through an integrated platform of modular hardware and intuitive graphical software. For instance, NI partner Bitlis-MEN developed a system that provides full visibility and management of the power distribution grid at the Royal Commission of Jubail & Yanbu. This system consists of modular hardware, NI CompactRIO and the NI graphical system design software LabVIEW. It enhances the quality of service of the daily grid operations and maintenance tasks, reduces downtime by providing smart dispatch alerts, and provides statistical and historical data that helps in evaluating operational performance and technical strategic planning, testified Dib.

Accuracy, safety and efficiency are critical characteristics of the power industry, making it crucial to monitor and control power quality, Dib concluded. ■



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## Xpelair Middle East unveils new range of appliances

XPELAIR MIDDLE EAST, a joint venture between UAE-based Kingston Holdings and Ireland's Glen Dimplex, has launched a new range of its household, catering and medical refrigeration appliances in the Middle East.

According to the company, the brands that will be sold in the region will be Morphy Richards, Belling, Stoves, LEC, New World, Burco, Nobo and Creda.

The entire range of products will be distributed through Xpelair Middle East and will be manufactured mostly in UK and Ireland by Glen Dimplex.

Gerald Nash, an Irish minister of state, said, "The launch will allow Glen Dimplex to reach more customers and make their everyday life more convenient, efficient and comfortable. The significant expansion in the range of product range has been rolled out to include catering equipments and medical refrigeration, tailored to commercial and industrial sectors.

"Glen Dimplex has been the market leader in medical refrigeration, delivering a range of purpose built products for use in areas such as pharmacies, medical laboratories and wards," he added.



*Irish minister of state Gerald Nash (left) and Lalu Samuel, chairman of Kingston Holdings*

The product range includes kettles, toasters, slow cookers, coffee makers, irons, steam generators, vacuum cleaners and food processors.

Lalu Samuel, chairman of Kingston Holdings, remarked, "We are proud to be associated with Glen Dimplex. With an experience spanning more than a century, the company has been the pioneer in serving the commercial catering market with energy efficient range of products such as fridges, freezers and bottle coolers."

Xpelair Middle East was launched in the UAE in 2014, from where it covers markets throughout the Middle East, the Indian subcontinent, Africa and Central Asia.

Xpelair Middle East's product range spans domestic, commercial and industrial ventilation solutions, system ventilation, heat recovery and cooling solutions.



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# GENAVCO brings German technology to the UAE

Amid the anticipation of increased infrastructure spending in the emirates, the global firm steps up to fill the technology gap that existed in its product portfolio.

**I**NDUSTRIAL EQUIPMENT SUPPLIER GENAVCO has signed a distribution deal with Germany-based construction machinery manufacturer Weber MT to sell its range of compaction equipment in the UAE.

According to GENAVCO, the product range will include walk-behind rollers, plate compactors, vibratory tampers, pavement saws and concrete compaction tools to the equipment supplier's portfolio.

Isam Abu Nabah, president of GENAVCO, said, "The UAE government is investing heavily in developing and expanding the road network in the country as the region is one of the fastest-developing economies in

the world. GENAVCO, being the road construction equipment supplier in the UAE, teamed up with Weber MT to compliment its product range that will fill the gap of light compaction equipment in the region."

Asif Sayeed Khan, general manager of GENAVCO's equipment business unit, added that the equipment supplier is planning to introduce Weber MT's COMPATROL technology in the UAE market.

"COMPATROL technology is the first compaction control system for reversible soil compactors. The system developed by Weber MT provides uniform compaction of the soil and cuts the number of unnecessary, redundant compacting passes

by up to 25 per cent. This boost in efficiency helps construction companies to save time and money," he added.

The UAE market size for light compaction equipment is significant for GENAVCO, noted Khan.

"With our customer base in road construction industry and construction industry in general, we are quite optimistic to secure a decent market share with the top quality Weber MT products", he added.

GENAVCO's business is divided into several business units. One of these is the GENAVCO equipment business unit, which is forming a partnership with Weber MT, revealed Nabah. ■



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# Dealer forum displays Doosan's strength

The Doosan Dealer Forum 2015 was attended by representatives from 31 countries across Europe

The forum was a congregation of European dealers for the company's Doosan Heavy range of excavators, wheel loaders and articulated dump trucks.

**D**OOSAN INFRACORE CONSTRUCTION Equipment's (DICE) Dealer Forum for the company's Doosan heavy range of excavators, wheel loaders and articulated dump trucks was held in February 2015 at Eindhoven in the Netherlands.

The two-day Doosan Dealer Forum 2015 was attended by management representatives from more than 70 dealerships in 31 countries across Europe.

Speakers at the first session of the forum included Scott Park, president and CEO of DICE; Martin Knoetgen, president of DICE in Europe, Middle East and Africa (EMEA); and Guiliano Parodi, vice-president, sales, marketing and dealer network development for DICE in EMEA.

The Dealer Forum highlighted Doosan's long-term partnership with dealers and customers, and also presented a platform for the company's future business strategy as a global solution provider.

Speakers at the event discussed Doosan's achievements in terms of increasing its market share and brand loyalty in Europe, as well as the importance of product performance and quality. The event also focussed on the role of professional service in expanding the company's customer base, ensuring continued sustainable and profitable growth for Doosan, its dealers and its customers.

At the forum, Doosan showcased many new initiatives that the company has put in place to continue and increase its growth by

moving to the next level of customer service as a Tier 1 manufacturer, and an increased focus on markets throughout Europe and North America.

According to Doosan, the event formed part of the company's long-term commitment to the global construction equipment market, and its aims of simplifying procedures and processes throughout to ensure it is easier to conduct business with Doosan worldwide.

At an awards dinner that followed the first session of the Dealer Forum, several dealers from the UK, France, Germany, Poland, Italy and the Netherlands were honoured for their successes in their domestic markets.

Staad BV, an authorised Doosan dealer and importer for the south of the Netherlands, played host on the second day of the forum with a series of workshops at the company's headquarters in Veghel. This was followed by team activities at the nearby Koekbouw building in Veghel, which was previously a compound feed factory.

The 2015 Dealer Forum concluded with a gala dinner at the Muziekgebouw Frits Philips venue in Eindhoven. ■

**The Doosan Dealer Forum 2015 was the stage for the launch of the next generation of '5' products that meet Stage IV emission regulations**

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## Briefly

### Harsco Infrastructure reverts to SGB brand

EGYPTIAN FORMWORK AND scaffolding firm Harsco Infrastructure has announced its decision to return to its former brand name of SGB, following a change in ownership at the company back in 2013.

Previously known as Harsco Egypt for Scaffolding and Formwork S.A.E., the company will now be known as SGB Egypt for Scaffolding and Formwork S.A.E.

Ken Norris, general manager of SGB Egypt, said, "With this step, the business returns to its longstanding SGB tradition dating back to 1919.

"SGB has accrued more than 35 years of brand recognition in the region as a trusted and well-respected name synonymous with industrial services and access solutions. The change back to SGB has received a tremendous amount of positive feedback from the industry and customers," added Norris.

The change in ownership of the company occurred in November 2013, when SGB became a subsidiary of US-based Brand Energy and Infrastructure Services (BEIS). BEIS is a provider of specialty services for the global energy, industrial and infrastructure markets, including scaffolding and access equipment, corrosion protection, coating and painting, insulation, fireproofing, refractory, mechanical services, engineering, formwork and shoring systems.

## Formwork company undertakes university project in Kuwait



*Sabah Al Salam University City in Kuwait is being built on a six million sqm area (Photo: Doka)*

WITH DEMAND FOR educational opportunities on the rise in Kuwait, formwork manufacturing and distribution firm Doka has found itself involved in the construction of a large campus at the country's Sabah Al Salam University City. Comprising more than six million sqm in total, the campus is under construction, with 1.7mn sqm currently underway.

Led by contractor Sinohydro Corporation Ltd., construction on the campus began in March 2013, with the project scheduled for completion in 2015.

Doka Kuwait secured around 70 per cent of all formwork contracts with the construction site's various contractors and from the beginning of the project, subcontractors and foremen working on the site have been made fully aware of the technology and assembling processes related to Doka's formwork systems. Doka held a number of training sessions prior to the start of construction, in order to ensure the smooth set-up and operation of formwork systems on the project.

Sinohydro engaged Doka to supply a formwork solution for the building design, which comprises five levels.

According to Doka, its solution helped accelerate progress on the project, with some of the challenges it faced including inclined columns, high-round columns and ceiling heights of up to eight metres.

Core walls were erected using 20 sets of the large-area formwork Top 50 and climbing formwork 150F. A support wall of 2,300 metres in length and varying heights was erected using the Top 50 system, while 55 sets of the column formwork were used to pour the columns.

Engineers recommended a combination of load-bearing tower Staxo 40 and Dokaflex 1-2-4 for building the floor formwork.

Due to the small number and light weight of its individual parts, Staxo 40 was assembled quickly and predestined for the high ceiling heights.

The solution was used to pour around 12,000 sqm of floor slab, while an additional 9,500 sqm floor slab area was built using Dokaflex 1-2-4. This formwork system was set up quickly and could be adjusted to the heterogeneous building ground plans.

## The Circular formwork



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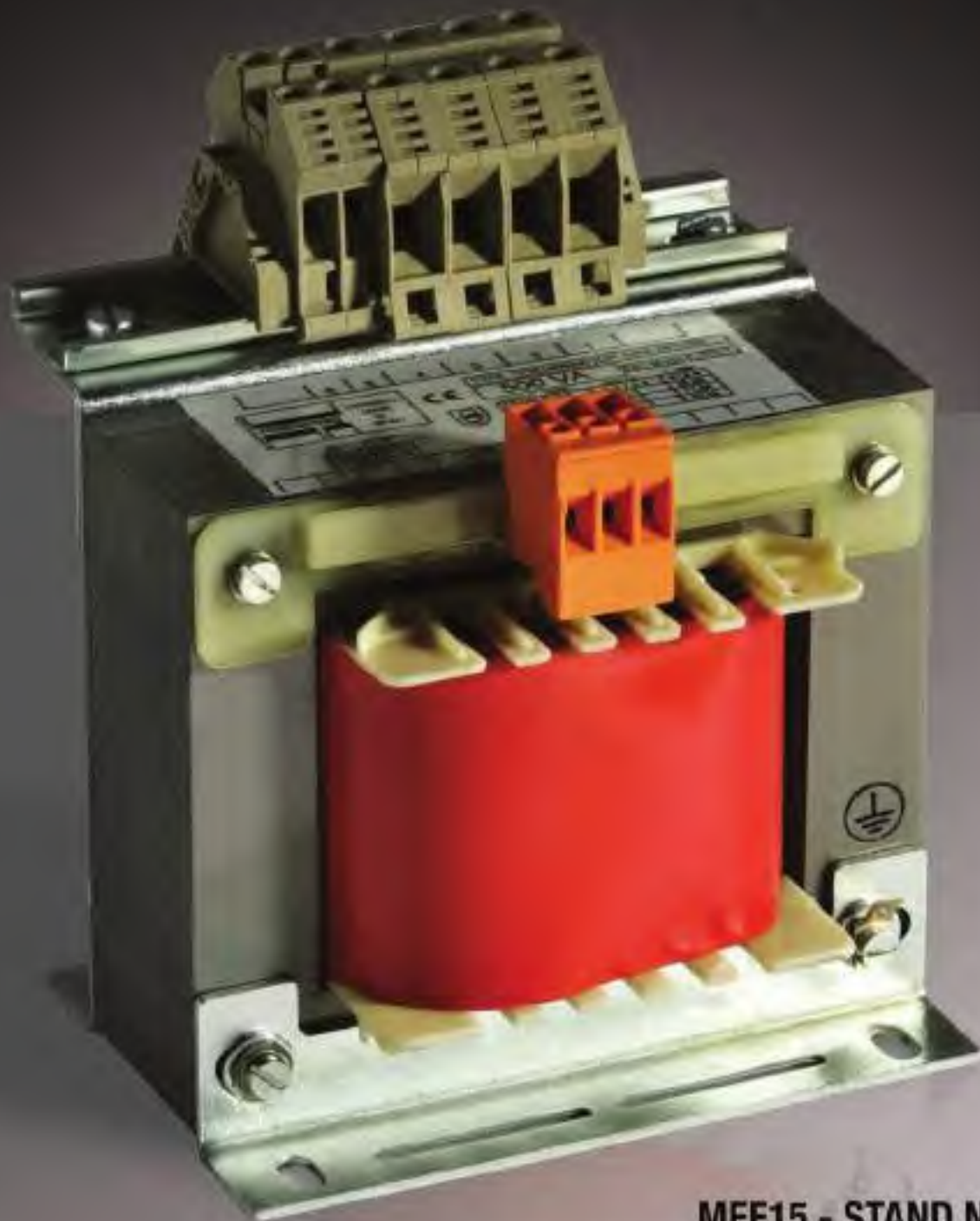
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## Kalmar's new forklift truck to lift performance standards with new model launch

FINLAND-BASED EQUIPMENT manufacturer Kalmar has announced the launch of its new heavy forklift truck Kalmar DCG180-330, which is designed for heavy cargo handling in industrial applications.

Thomas Malmborg, vice-president of Forklift Trucks, said, "Kalmar continues to set the standard for forklift productivity, safety and low ownership costs. The Kalmar DCG180-330 features an EGO cabin, which provides the operator with good visibility, low noise levels and intelligent ergonomics.

"The operator console is easy to understand, use and adjust. Providing maximum flexibility, the console puts controls, switches and indicators within easy reach, ensuring that an efficient forklift operation is possible," Malmborg added.

The operator can also select three different drive modes using the control panel in the new heavy forklift truck. "Each optimised to meet operational requirements — the operator simply shifts between modes to adapt the forklift to every type of application. The Power setting maximises performance by



*The Kalmar DCG180-330 has been designed for heavy cargo handling in industrial applications such as in the steel and manufacturing industry, as well as for ports and terminals*

increasing the number of tonnes moved per hour. If total cost of operations outweighs the need for performance, then the Economy mode is preferred," he noted.

Compared to the previous model, the new DCG180-330 consumes up to 15 per cent less fuel in standard configuration, revealed Malmborg. "Lifting cycles are now up to 40 per cent faster compared to the previous

model, preparing the machine faster for the next lift," he added.

The Kalmar DCG180-330 also features Cummins and Volvo engines, which provide optimum power and contribute to a significant overall reduction in fuel consumption, while ensuring compliance with the latest EPA Stage IV/EU Tier 4 Final emission standards, said Malmborg.

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## Briefly

### Kyocera launches cutter for cast iron

JAPAN'S KYOCERA CORPORATION has launched the new MFK indexable milling cutter for cast iron – a milling system that allows machinists to reduce costs and improve milling operations through the use of double-sided, 10-edge negative inserts.

Kyocera's new MFK cast iron milling cutter utilises a newly-developed, double-sided insert with 10 cutting edges. Although negative inserts offer cost benefits as cutting edges can be formed on both sides of the insert, they tend to increase cutting resistance, causing a decrease in sharpness or an increase in chattering. To address this challenge, Kyocera has developed uniquely-shaped inserts using its proprietary molding technology, which reduces both cutting resistance and chattering.

The inserts also improve machining quality through a double-edge structure in which two cutting edges are provided for the insert corners.

In addition, Kyocera has added the new CA420M CVD material for cast-iron milling to its insert grade lineup. CA420M is comprised of a newly-developed, high-toughness base substrate with a new CVD coating developed using proprietary crystal-control and film-formation technologies. Improved abrasion resistance, essential in machining cast iron, will allow CA420M to deliver better cost performance, longer tool life and a more stable machining process.

Automotive engines, construction equipment and machine tools require metal components in complex shapes that are commonly created by casting molten metal in specialised molds. Castings taken from these molds require difficult finish machining and several workpieces are challenging to hold securely during the machining process. Insufficient clamping rigidity causes vibration and chattering due to the cutting forces of the machining process. In addition, cast iron workpieces are susceptible to a phenomenon known as 'breakout', in which the edge of the workpiece chips away rather than being cut cleanly.

Therefore, Kyocera has said that cutting tools that prevent chipping are currently in "great demand".

## Hörmann keen to strengthen Middle East project portfolio in 2015

INDUSTRIAL AND COMMERCIAL door manufacturer Hörmann Middle East began 2014 with the launch of new products, expansion of business in Qatar, and entry into new markets such as East Africa and South Africa. Hörmann introduced market centric technologies such as the new ALR 67 Thermal doors with improved insulation levels that provide protection from scorching temperatures during summer. The company is now looking to complete new projects in the UAE and Qatar in 2015.

Darius Khanloo, managing director of Hörmann Middle East, said, "The regional market has been very active especially in Qatar, and we are currently looking at two new projects in the UAE as well. 2014 was a very busy year for us, we completed several prestigious projects in the region and expanded our business to East and South Africa using Middle East as our base because of the proximity. With our flagship showroom in Jebel Ali, we can ensure quick and convenient deliveries."

The company has installed sliding gates, rolling shutters and sectional doors for Qatar Petroleum. Qatar Faculty of Islamic Sciences now has the Hörmann Rolling Grille and Rolling Shutters that



*Darius Khanloo, managing director of Hörmann Middle East at Big 5 Dubai, held in November 2014*

the company completed for Qatar Foundation. Qatar International Cables Company has newly-installed rolling shutters from the German company, while the door manufacturer has installed industrial sectional doors for Qatar Petroleum's office building in Ras Laffan.

Hörmann recently launched two new innovative, economical and high-quality products – the Rollmatic Rolling Grille and ThermoPro entrance doors, and has introduced its latest intelligent docking system, which can play a significant role in energy efficiency in commercial buildings.

Headquartered in Steinhagen, Germany, Hörmann is a leader in provision of doors and gates with more than 15mn produced since it was founded in 1935. In more than 27 specialised factories located across Europe, North America and Asia, Hörmann develops and produces quality gates, garage doors, industrial doors, hinged doors, fire resistant doors, loading equipment, frames, operators for residential, commercial and industrial purposes.

In 2009, Hörmann set up its fully-owned subsidiary in Dubai's Jebel Ali Free Zone (JAFZA), which is responsible for operations throughout the Middle East.

## BASF unveils Master Builders Solutions at Kuwait event

**BASF, THE CONSTRUCTION chemicals manufacturer, launched its Master Builders Solutions brand at the Holiday Inn Hotel in Salmiya, Kuwait. The event, held in December 2014, was attended by more than 300 customers and distributors including Basil Al Maousherji, executive director of Arabi Company – the official distributor of BASF in Kuwait.**

**Under the Master Builders Solutions brand, BASF bundles its advanced chemical solutions for new construction, maintenance, repair and**



*Visitors at the BASF event held in Holiday Inn, Kuwait*

**renovation of structures. Master Builders Solutions is built on the experience gained from more than 100 years in the construction industry. The comprehensive portfolio under the brand encompasses concrete admixtures, cement additives, chemical solutions for underground construction, waterproofing solutions, sealants, repair and protection solutions, performance grouts and performance flooring solutions.**

Julian Pritchard, general manager of BASF Construction Chemicals UAE LLC, highlighted the brand values and benefits of Master Builders Solutions. BASF also presented tiling and screeds solutions, along with other technologies such as admixture systems, construction systems, and waterproofing and flooring solutions.

In an attempt to showcase its progress in the Middle East, BASF showed a video with its most recent projects under construction, including the Amiri Airport, Boubyan Sea Port Bridge and Sabah Al Ahmad Sea City.

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# Saudi Power to bring energy industry leaders together

With the continued patronage of Saudi Arabia's Ministry of Water and Electricity, Saudi Power is the country's leading energy event attracting hundreds of local and international companies.

**S**AUDI ARABIA HAS long been recognised as a powerhouse of the Middle East and is now engaged in a multi-faceted reform strategy to become one of the most competitive economies by diversifying its energy sources.

The Kingdom's economy is petroleum-based and accounts for 90 per cent of the country's exports, as well as nearly 75 per cent of government revenues. The country has one of the largest reserves of natural gas with proven reserves standing at more than seven trillion cubic metres. The country also has great potential of becoming the largest producer of solar energy in the world with the country's government planning to invest US\$109bn to produce 41GW of solar energy by 2032.

Observing such opportunities in the country, Saudi Power is held under the patronage of the Ministry of Water and Electricity every year. The annual trade exhibition for the power, solar, water and lighting sectors Saudi Power will be held from 11-13 May 2015 at the Riyadh International Convention and Exhibition Centre in UAE, and will showcase products, services and technologies to an audience from Saudi Arabia and the wider Middle East region.

Fahad Al Athel, deputy general manager of Riyadh Exhibitions Company, said, "Saudi Arabia is witnessing a major development in the area of alternative energy, with strategic plans being implemented and key projects being undertaken to meet the increasing demand for energy. Saudi Power 2014 made a definite contribution towards this transformation by offering a gateway for international experts to network with local players to discuss the latest industry trends, explore business prospects and opportunities of mutual cooperation."

The year, the event will showcase the latest energy products, services and technologies to a large group of professional visitors from Saudi Arabia and the region.



*Saudi Power provides a platform to view the latest equipment and services from the energy sector, develop international relationships and generate new business opportunities*

The event will also offer a chance to gain first-hand experience of fresh technologies and new equipment for attendees to stay abreast with the industry and market developments in the Middle East.

#### Electricity network

Saudi Arabia's electricity distribution network extends to cities, towns and villages across the country. Its network consists of 14,081km of transmission lines, 83,685km of distribution lines and more than 85,295km of service connections.

Saudi Arabia has also begun working with GCC countries on a project to link their national power grids. Ultimately, plans will include linking the GCC grid with the rest of the Arab world and Europe.

#### Alternative energy

In January 2015, Saudi Arabia-based Advanced Water Technology announced its plan to build the world's first large-scale US\$130mn solar powered water desalination plant. Company officials revealed that the plant would supply 60,000 cubic metres of water a day to Al Khafji City

in the north-east of the country. According to Bloomberg, the Kingdom is expanding water works to supply the energy industry and a population that has quadrupled in 40 years to 30mn people. "The desert country is the largest producer of desalinated water, attracting foreign investors including Veolia Environnement and Suez Environnement," the report added.

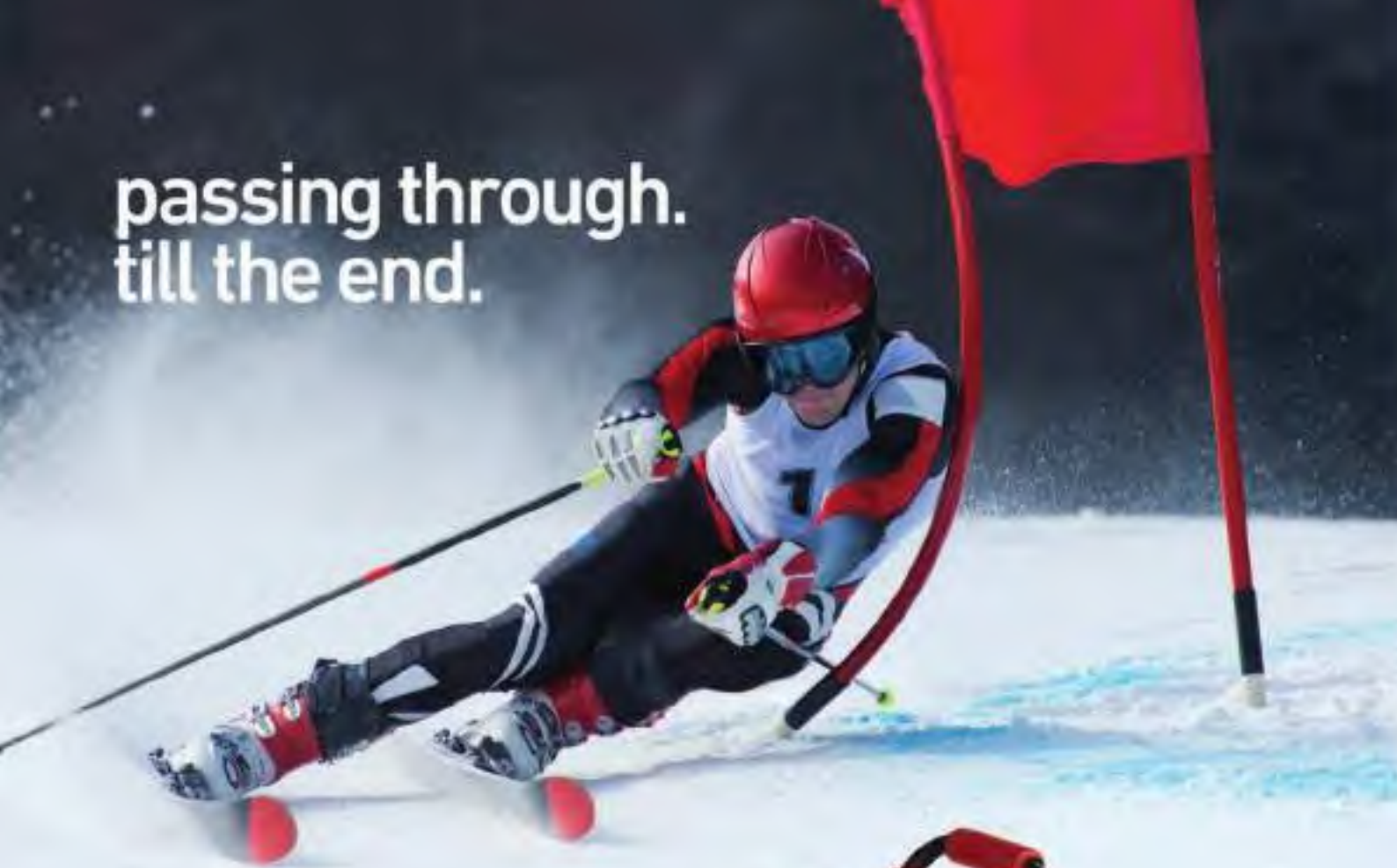
#### Oil resources

With the world's largest oil reserves and largest oil exportations, Saudi Arabia has succeeded in creating a dynamic economy and establishing itself as one of the most enterprising nations in the region.

In January 2015, Saudi Arabia's state-run oil company, Saudi Aramco, pumped US\$7bn into a fund to explore hydraulic fracturing — more than double what it had originally planned to spend on fracking, reported *Business Insider*.

Bloomberg estimated that Saudi Arabia could hold the world's fifth-largest deposits of shale gas, providing another huge opportunity for the Kingdom's power and energy sectors.

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بدأ التفكير في استخدام الطاقة الشمسية في تشغيل محطات تحلية المياه

شهرًا، سوف توفر المحطات التجريبية ١٥٠٠ متر مكعب من مياه الشرب يوميا لاحتياجات البنية التحتية من المياه في إمارة أبوظبي.

وعلى سبيل المثال، سوف تقوم شركة فيوليا باستخدام تقنياتها المسجلة باسمها؛ مثل مرحلة ما قبل معالجة مياه البحر ذات الكفاءة العالية التي تمزج ما بين التعويم بالهواء والترشيح، إلى جانب نظام تغذية جديد بأغشية الضغط الأسموزي التي تسمح بتدفقات معالجة عالية. وحسبما تزعم الشركة، فإن الجمع ما بين تقنيات تحلية المياه الحديثة ذات الكفاءة في ترشيد استخدام الطاقة، ومصادر الطاقة المتجددة، يسمح باستعادة كمية من الطاقة تصل إلى ٩٨ في المائة.

هذا في حين تستخدم شركة أبينجوا نظاماً هجيناً يمزج ما بين الضغط الأسموزي العكسي، ونظام مبتكر للتقطير الغشائي، وذلك بهدف تطوير إمكانية استعادة محطات تحلية مياه البحر، التي تعمل بتقنية الضغط الأسموزي العكسي، وزيادة إنتاجيتها مع خفض كمية تصريف المياه شديدة الملوحة.

وبينما تبقى بعض المسائل التي تحتاج إلى حل، فيما يتعلق بالزيادة التدريجية لتقنيات التحلية الجديدة والمبتكرة ووضعها في شكل تجاري، فإنه من الواضح أن المزج ما بين تلك التقنيات وموارد الطاقة الشمسية الوفيرة في المنطقة، يمكن أن يكون وسيلة متطورة للحد من مشكلات الأمن المائي في المنطقة. وفي حين تستمر تكاليف الطاقة الشمسية في الانخفاض والتراجع، فإن تحلية المياه يمكن أن تكون خياراً متاحاً للدول الأشد فقراً في المنطقة أيضاً.

عبدالله للعلوم والتقنية بالملكة العربية السعودية، في مقالته التي نشرت في مجلة نيتشر ميدل إيست Nature Middle East، أنه: «مع تنامي الطلب المستمر على المياه العذبة في الشرق الأوسط، يعتمد مستقبل تحلية المياه على الخلط بين التقنيات القائمة والجديدة. وينبغي على الباحثين التركيز على المزج بين تقنيات الضغط الأسموزي الأمامي، والتقطير الغشائي، والتحلية بالامتزاز، مع أو بدون تقنيات التحلية التقليدية مثل التحلية الحرارية، أو الضغط الأسموزي العكسي». ويضيف والي أن هذا المزج سوف يسهم في تطوير تقنيات التحلية التي تعمل بالطاقة المتجددة، كما سيسهم في ترشيد استهلاك الطاقة.

وهناك عددٌ من المشروعات الرائدة تحت التنفيذ حالياً في المنطقة. ففي عام ٢٠١٣ دشنت شركة مصدر بدولة الإمارات العربية المتحدة برنامجاً رائداً لاختبار وتطوير أنظمة جديدة ومتقدمة لتحلية المياه تتميز بترشيد استهلاك الطاقة، ويمكن تشغيلها عن طريق مصادر الطاقة المتجددة، مما يضع حجر الأساس لتطوير محطات التحلية من الحجم الكبير ذات جدوى تجارية، ويمكن تشغيلها بواسطة الطاقة المتجددة بحلول عام ٢٠٢٠.

وفي منتصف عام ٢٠١٤ حصلت أربع شركات على عقود في هذا الإطار؛ هي أبينجوا الإسبانية، وفيوليا وديجيريمون الفرنسيتان، وتريفي سيستمز الأمريكية، وذلك من أجل تطوير محطات تجريبية من الحجم الصغير في غنتوت التي تقع على بعد ٩٠ كيلو متراً غرب أبوظبي. وعلى مدار سير المشروع، المقرر أن يستغرق ١٨

الغشائي. وتقوم المنطقة بدور رئيسي في بحث واستكشاف وزيادة تقنيات الطاقة الجديدة ذات الكفاءة، بدءاً من تقنية التقطير الغشائي المتقدمة وتقنية التقطير بالحرارة المنخفضة والترشيح النانوي، وانتهاً بالضغط الخلوي المتأخر والضغط الأسموزي الأمامي الذي يقوم بسحب السوائل من خلال الأغشية بدون استخدام مضخات.

وتمثل سلطنة عمان مهدياً لأول محطة تجارية في العالم تعمل بتقنية الضغط الأسموزي الأمامي في منطقة النجدة. ووفقاً لشركة مودرن ووتر البريطانية، التي تقوم بتطوير المحطة، فإن هذه التقنية يمكنها خفض كمية الطاقة المستخدمة بنسبة تصل إلى ٣٠ في المائة، إلى جانب تقديم فوائد إضافية تتمثل في تقليل حجم النفايات على أسطح الأغشية، وإطالة عمر الأغشية، وكذلك خفض معدلات استهلاك المواد الكيميائية، وتقليل مستوى الملوثات في المياه المنتجة. كذلك تقوم المنطقة باستكشاف الإمكانيات المتاحة لتنفيذ عملية تحلية المياه عن طريق مصادر الطاقة المتجددة، وبالتحديد الطاقة الشمسية.

وبحسب تصريح الوكالة الدولية للطاقة المتجددة «تعد الطاقة الشمسية، والتي تتضمن تحديداً الحرارة الناتجة عن الطاقة الشمسية المركزة لأجل التحلية الحرارية والطاقة الكهربائية الصادرة من الخلايا الفولتوضوئية الشمسية والطاقة الشمسية المركزة لأجل التحلية الغشائية، من الحلول الرئيسية في المناطق القاحلة».

وهناك تطورٌ مشجعٌ تمثل في الإعلان، خلال شهر يناير/كانون الثاني ٢٠١٥، عن أنه قد تم اختيار شركة أبينجوا الإسبانية من جانب شركة إيه دبليو تي AWT، المتخصصة في توفير حلول المياه، والتي تعد الذراع التجارية لمدينة الملك عبد العزيز للعلوم والتقنية، من أجل المشاركة في تطوير أول محطة من الحجم الكبير لتحلية المياه في العالم تعمل بتكنولوجيا الطاقة الشمسية الفولتوضوئية (PV) في مدينة الخفجي الواقعة شمال شرق المملكة العربية السعودية. ووفقاً لشركة أبينجوا سوف تُستخدم المحطة، التي من المقرر أن تنتج ٦٠ ألف متر مكعب من المياه يوميا، لتوفير إمدادات المياه لمدينة الخفجي، بنظام يسعى إلى تحقيق الاستخدام الأمثل لاستهلاك الطاقة، ومرحلة لما قبل المعالجة لخفض المستوى العالي من الملوحة والزيوت والشحوم الموجودة في مياه البحر بالمنطقة.

### المزج ما بين التقنيات

يرى فيصل والي، مدير العمليات المركزية بمركز تحلية وإعادة استخدام المياه في جامعة الملك



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## معتمدة ومطابق عليها

منتجات معتمدة من مختبرات  
عالمية معروفة.

## تواجد أكثر

نقوم اليوم بالتصدير إلى العراق، دول الخليج،  
البحرين، أفريقيا (ليبيا، توجيريا، السودان، السنغال،  
جنوب أفريقيا، أنغولا، غانا، كينيا)

## مختبرة

لتملك شبكة بحرة اليوم مساحة 700 متر  
مربع من مراكز الاختبارات، وهي الأكبر في  
الشرق الأوسط، لضمان المحافظة على أعلى  
جودة بأعلى معايير الرفاهة.

## تقنية ألمانية

خبرة سعودية

**بحرة** **كابلات**  
**BAHRA** **CABLES**

شركة بحرة للكابلات تزودكم بأجود الكابلات والأسلاك الكهربائية  
المصنعة بأحدث التقنيات الألمانية.

• متوفرة في أكثر من 50 منفذ توزيع في المملكة ودول العالم.

• شهادات جودة عالمية.

• إمكانية تزويد المشاريع بكل ما تحتاجه من الكابلات والأسلاك الكهربائية.



إحدى شركات "حلول متكاملة... لبناء متكامل"

شريكك الذي يوصلك بالطاقة.



ينتقل التركيز حالياً، في المنطقة، إلى نظام الضغط الأسموزي العكسي الأقل استهلاكاً للطاقة

## تعزير صناعة مستدامة لتحلية المياه

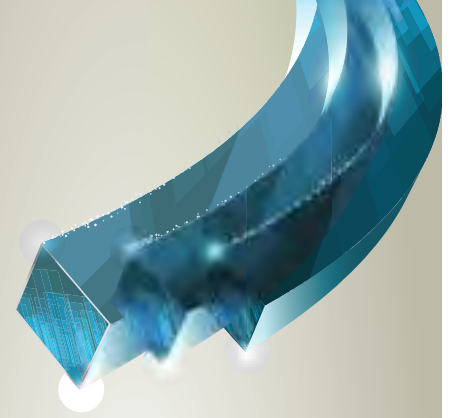
تضم منطقة الشرق الأوسط وشمال أفريقيا ١٤ دولة من بين الدول العشرين الأكثر تضرراً من نقص موارد المياه في العالم، ولذا تواجه المنطقة أزمة حقيقية في المياه. فعدد سكانها المتزايد، الذي من المتوقع أن يتضاعف بحلول عام ٢٠٥٠، إضافة إلى حركة الامتداد العمراني والتصنيع، كلها أمور تمارس ضغطاً على موارد المياه الشحيحة. والنتيجة أن هناك توقعات بأن تتضاعف الفجوة المائية بمعدل خمس مرات بحلول عام ٢٠٥٠، من ٤٢ كيلومتراً مربعاً سنوياً، إلى ٢٠٠ كيلو متر مربع سنوياً، وذلك وفقاً للبنك الدولي.

تستخدم حالياً ما يقرب من ٣٠٠ ألف برميل من مكافئ النفط الخام يومياً لتشغيل محطات تحلية المياه لديها والتي يزيد عددها على ٣٠ محطة. وفي تعليقه قال البنك الدولي: «إن الوضع الراهن غير مستدام. وقد أصبح خفض تكلفة التحلية، والحد من اعتمادها على الوقود الأحفوري، وتخفيف آثارها البيئية، من الأمور بالغة الأهمية».

### نمو التركيز على الاستدامة

مع نمو التركيز على الاستدامة البيئية في منطقة الشرق الأوسط ينتقل التركيز حالياً من التحلية الحرارية كثيفة الاستخدام للطاقة إلى نظام الضغط الأسموزي العكسي أو ما يعرف بالتناضح العكسي الأقل استهلاكاً للطاقة والذي يستخدم عملية الفصل

وقد قامت عملية تحلية المياه، وستظل تقوم، بدور كبير في تلبية الاحتياجات المائية الملحة للمنطقة. وبالمثل تحتوي المنطقة على ما يقرب من ٥٠ في المائة من طاقة التحلية المستخدمة في العالم أجمع. ووفقاً لأحدث التقارير الخاصة بتتبع محطات تحلية المياه الصادر عن مؤسسة استعلامات المياه العالمية (Global Water Intelligence)، فإن ٩٧ مشروعاً من مشروعات التحلية قد وصلت في الوقت الراهن إلى مراحل مختلفة من التطور عبر شتى أنحاء منطقة الشرق الأوسط وشمال أفريقيا. ورغم ذلك فإن عمليات التحلية التقليدية تُعرف بأنها كثيفة الاستخدام للطاقة بدرجة عالية ومكلفة أيضاً، كما أن المخلفات الناتجة عنها يمكن أن تكون مدمرة للبيئة. فعلى سبيل المثال، تبين التقارير أن المملكة العربية السعودية



## مفكرة رجال الأعمال



مارس/آذار

٣ - ١ المعرض السعودي للطباعة والتغليف والبلاستيك والبتروكيماويات. Saudi PPPP. جدة

٤ - ٢ معرض كهرباء الشرق الأوسط. دبي

٤ - ٢ معرض الشرق الأوسط للطاقة الشمسية. دبي

١٢ - ٩ معرض بيج فايف السعودي. جدة

٣٠ - ٤/٢ المعرض السعودي الدولي للبناء - بيلدكس ٢٠١٥. الدمام

أبريل/نيسان

١٣ - ١٥ المعرض الدولي للتكنولوجيا المستعملة (USETEC). كارلسروه

٢٠ - ٢٥ معرض باريس للإنترنت. باريس

٢١ - ٢٣ معرض المياه والطاقة والبيئة. وتكس ٢٠١٥. دبي

مايو/أيار

٤ - ٧ معرض مشروع قطر. الدوحة

١١ - ١٣ معرض الطاقة السعودي. الرياض

١٤ - ١٧ معرض إربيل للبناء. إربيل

١٨ - ٢٠ معرض إدارة المرافق. FM Expo. دبي



## رافعة جديدة تصل إلى محطة الشحن بميناء صحار



جوتوالد HMK 6407 تم تسليمه من قبل شركة إس إيه إل لرفع الأحمال الثقيلة إلى الشركة المشغلة للمحطة سي ستاينويغ عمان

مع وصول رافعة جديدة بقدرة رفع تبلغ ١٠٠ طن متري، زادت قدرة المناولة على الأرض في ميناء صحار والمنطقة الحرة في سلطنة عمان. وقد تم تسليم الرافعة جوتوالد HMK 6407 من قبل شركة إس إيه إل لرفع الأحمال الثقيلة إلى الشركة المشغلة للمحطة سي ستاينويغ عمان التي تمتلك الآن ثلاث رافعات متنقلة في محطة الشحن متعددة الأغراض، مما يزيد من قدرة الرفع القصوى للرافعة الواحدة من ٨٠ طنا متريا إلى ١٠٠ طن متري.

وقال إدوين لامرز، المدير التجاري التنفيذي لشركة ميناء صحار: «تعد الرافعة الجديدة استثمارا مهما للغاية، حيث ستشكل دعما للنمو الحالي في صحار، في الوقت الذي يستمر فيه عدد السفن وحجم البضائع، التي تتم مناولتها في المحطة، في النمو والزيادة. كذلك من المتوقع أن يزداد الطلب على المشروع وتزداد البضائع السائبة تماشيا مع الاستثمارات في مشروعات الطرق والسكك الحديدية الرئيسية في السلطنة. وسوف تكون الطاقة الإضافية خطوة هائلة نحو الأمام».

وقد ساعد العدد المتزايد، لمشروعات البنية التحتية في المنطقة، في تعزيز ودفع حركة النمو في ميناء صحار نتيجة لزيادة المواد الإنشائية المستوردة، في حين أن العام الماضي قد شهد تصدير شركة لارسن وتويرو للهندسة الثقيلة لأكبر خزان تسخين لمحطات الغاز في العالم من الميناء.

وأضاف لامرز: «لقد وفرت أرضية الشحن المدخل للمشروع ولمواد البناء اللازمة لبناء الميناء. ونحن سعداء بأنها قد زادت من قدرة الميناء على خدمة القطاع الصناعي داخل السلطنة وعبر دول مجلس التعاون الخليجي. وهذا من شأنه زيادة مساهمتنا في

الاقتصاد المحلي، وخلق فرص عمل في قطاع الصناعات اللوجيستية التي سوف تنقل البضائع من وإلى صحار». ومن المتوقع أن يصل النمو طويل المدى، في صناعة البناء والتشييد في عمان، إلى ٦,٣ في المائة، وفقا لشركة سي ستاينويغ عمان، في حين أن خطة الإنفاق الخمسية للحكومة العمانية على استثمارات البنية التحتية التي تبلغ ٧٨ مليار دولار أمريكي، سوف تؤدي إلى الأرحح إلى مزيد من فرص النمو الإضافية لهذا الميناء الواقع على المحيط الهندي.

## نمو سريع للطلب العالمي على أدوات الطاقة

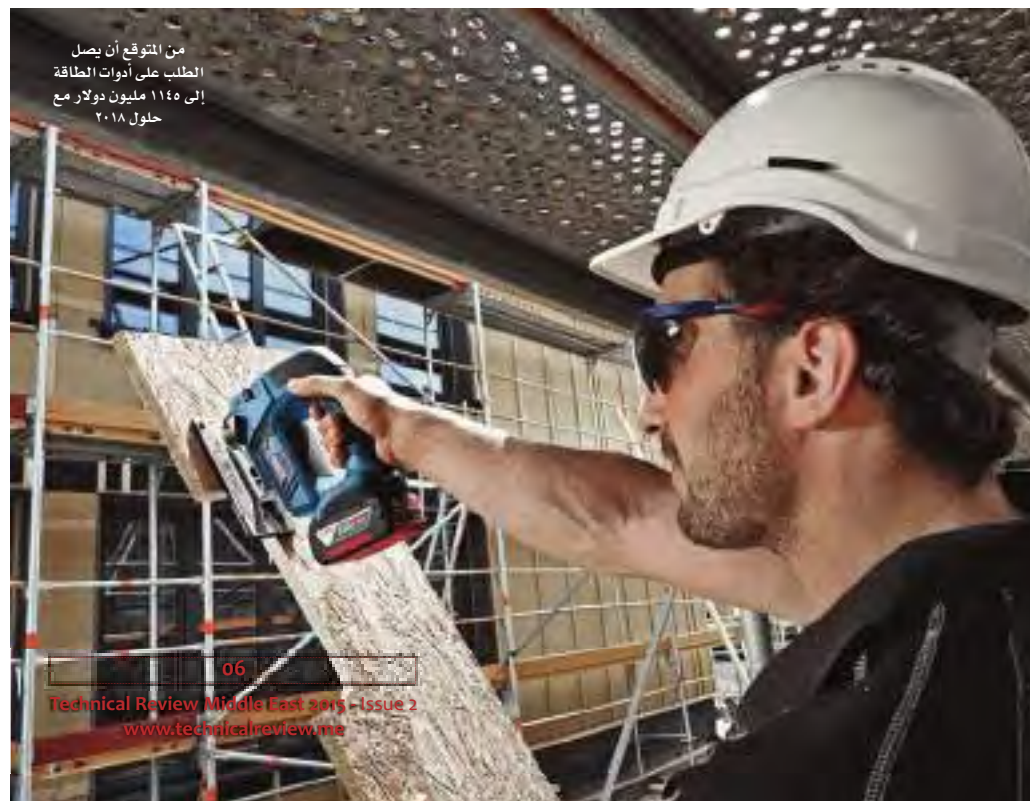
الطاقة العالمية، عن أن التطورات التي يشهدها القطاع سوف تكون في أسرع معدلاتها في الأسواق النامية التي تشهد مستويات متزايدة من الإنفاق على قطاع البناء والتشييد، مع توقع حدوث نمو خاص تحديدا في الصين والهند اللتين تقومان بتحديث أصولهما السكنية. وفي عام ٢٠١٣ تم تصنيف الولايات المتحدة على أنها أكثر دول العالم استهلاكاً لأدوات الطاقة وثاني أكبر دول العالم إنتاجاً لتلك الأدوات، حيث تسهم بنسبة ٢٤ في المائة من المبيعات و١٢ في المائة من الإنتاج.

وفي سوق منطقة الشرق الأوسط وأفريقيا، استقر معدل النمو السنوي في قطاع أدوات الطاقة، في الفترة ما بين عامي ٢٠٠٨ و٢٠١٣، على نسبة ٣,٨ في المائة، مع التنبؤ بحدوث نمو بنسبة ٧,٤ في المائة في الفترة ما بين ٢٠١٣ و٢٠١٨ وهو المعدل الأعلى من بين جميع المناطق التي شملتها الدراسة.

وفي عام ٢٠١٣ تم تقييم الطلب على أدوات الطاقة في منطقة الشرق الأوسط وأفريقيا بواسطة مجموعة فريديونيا بنحو ٨٠٠ مليون دولار أمريكي، ومن المتوقع زيادته إلى ١١٤٥ مليون دولار أمريكي بحلول عام ٢٠١٨.

جديدة قامت بها مجموعة فريديونيا، التي تعد من كبرى شركات بحوث السوق الصناعية في الولايات المتحدة. وقد كشفت الدراسة، التي تحمل عنوان «أدوات

من المتوقع أن يشهد الطلب العالمي على أدوات الطاقة نموا بنسبة ٤,٨ في المائة سنويا وحتى عام ٢٠١٨ ليصل إلى ٢٢,٩ مليار دولار أمريكي، وذلك وفقا لدراسة



من المتوقع أن يصل الطلب على أدوات الطاقة إلى ١١٤٥ مليون دولار مع حلول ٢٠١٨

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## جنرال إلكتريك توفر تقنية جديدة لمحطة ينبع ٣



محركات MV700، الكهربائية متغيرة السرعة تستعمل على تشغيل محطة «ينبع ٣» للطاقة وتحلية المياه في السعودية

العمرى لمعدات توليد الطاقة الخاصة بالمحطة من خلال التحكم في سرعة المحركات وعزمها وقوتها، إلى جانب توفير أكثر من ٩٥ في المائة من الكفاءة على مدار دورة التشغيل الخاصة بالمحطة. وتستجيب المحركات الكهربائية متغيرة السرعة من طراز MV7000 بشكل سريع للتغيرات في متطلبات الأحمال والسرعة والعزم، كما أنها لا تحتاج سوى صيانة بسيطة ومحدودة. وأكد مسؤولو جنرال إلكتريك أنهم سيقومون بتوريد معدات المحركات الكهربائية ومحركات MV7000 متغيرة السرعة لشركة كيه إس بي المصنعة للمضخات وعميلها شركة الطوخي المتخصصة في أعمال الهندسة والمشتريات والإنشاءات. وسيتم استخدام هذه المعدات لتشغيل مضخات تغذية المراحل في محطة ينبع ٣ الجديدة.

إلكتريك، لمشغلي المحطات أربع مزايا مهمة تتفوق بها على المعدات التقليدية، وهي تشمل ترشيد الطاقة المستخدمة، وإتاحة مرونة أكبر لعمليات التشغيل، فضلا عن تعزيز مستويات الموثوقية وخفض تكاليف الصيانة. وقد أظهرت أبحاثنا أن تعزيز كفاءة الطاقة بنسبة ٨ في المائة من شأنه أن يحقق توفيرات للمنطقة بقيمة ١٣,٢ مليار دولار أمريكي على مدى ١٠ سنوات. ونحن بدورنا ملتزمون بالتعاون مع المملكة العربية السعودية لتحقيق هذه التوفيرات». ووفقا لتصريح المهندس عبدالهادي الشيخ، نائب المحافظ ومدير المشروع من طرف الشركة العامة لتحلية المياه المالحة، فإن تزايد عدد السكان، إضافة إلى النمو القوي للقطاع الصناعي، يجعلان من تلبية احتياجات المنطقة من الطاقة والمياه واحدا من أهم التحديات التي تواجهنا. وسوف تساهم المحركات الكهربائية متغيرة السرعة من طراز MV7000، بوصفها حلا متكاملًا، في زيادة المدى

وافقت شركة جنرال إلكتريك على توفير تقنية المحركات الكهربائية متغيرة السرعة، بما فيها المحركات العادية ومحركات MV700. وذلك للمساعدة في تشغيل محطة «ينبع ٣» للطاقة وتحلية المياه في المملكة العربية السعودية. وبحسب تصريحات مسؤولي جنرال إلكتريك، تتضمن المعدات، التي يتم توريدها، ١٥ محركاً محفزاً بقدرة ١,١٧ ميغاواط لكل محرك، إضافة إلى ١٥ محركاً محولاً للجهود بطاقة ٢٣ ميغاواط أمبير، و١٥ محركاً متغير التردد بجهد متوسط بقدرة ١٨ ميغاواط لكل منها. وهذه المحركات متغيرة السرعة توفر لمشغلي المحطات العديد من المزايا المهمة التي تتفوق على المعدات التقليدية، بما يشمل ترشيد الطاقة المستخدمة، وإتاحة مرونة أكبر للعمليات، فضلا عن تعزيز مستويات الموثوقية وخفض تكاليف الصيانة. وتتولى الشركة العامة لتحلية المياه المالحة في الوقت الحالي تطوير المحطة الخاصة بتوليد الطاقة ومعالجة المياه، والتي تقع على بعد حوالي ٢٠٠ كيلومتر شمالي مدينة جدة على ساحل البحر الأحمر. ومن المتوقع أن تسهم المحطة في توليد ٢٧٠٠ ميغاواط، وتوفير حوالي ٥٥٠ ألف متر مكعب من المياه العذبة يوميا لحوالي ٨ ملايين مقيم وشركة في تلك المنطقة. وستسهم النظم التي توفرها جنرال إلكتريك في تعزيز كفاءة محطة التحلية، وخفض استخدام فائض الطاقة اللازمة لإدارة المحطة، وتخفيف التكاليف الإجمالية. وقال ساندرو مالكوري، مدير عام وحدة شركة جنرال إلكتريك لتحويل الطاقة لمنطقة الشرق الأوسط وشمال أفريقيا وتركيا: «تتيح المحركات متغيرة السرعة، التي توفرها جنرال



رسلان ديرانية

## أورنج الأردن تستخدم الطاقة الشمسية

من الطاقة، وتصل فاتورة استهلاكها للطاقة إلى ٢٢,٥ مليون دولار أمريكي. وفي محاولة لمواصلة قوة الدفع الناتجة عن مبادرات الطاقة التي تم تدشينها مؤخرا، أعلنت وزارة الطاقة الأردنية أن هناك العديد من مشروعات الطاقة التي سوف تدخل حيز التشغيل في عام ٢٠١٥ بطاقة إجمالية تصل إلى ٥٠٠ ميغاواط. وسوف تشمل هذه المشروعات، بصفة رئيسية، مشروعات للطاقة الشمسية وطاقة الرياح، وستساهم جميعها بشكل إجمالي في توليد ٢٥٠٠ جيجاواط/ساعة. علما بأن البلاد تحظى بأحد أعلى المتوسطات السنوية للأشعة الشمسية؛ بما يقدر بنحو ٣٣٠ يوما من سطوع الشمس كل عام. وتتراوح سرعة الرياح ما بين ٧,٥ و ١١ متر في الثانية في المناطق الجبلية من البلاد.

قالت شركة أورنج الأردن، مشغل الهاتف المحمول في المملكة، إنها سوف تحصل على ما يقرب من ٥٠ في المائة من متطلباتها من الطاقة من خلال الطاقة الشمسية. ووفقا لمسؤولي الشركة، فإن أورنج الأردن قامت بالفعل بطرح عطاء لإنشاء مزرعة للطاقة الشمسية، وسوف تقرر قريبا إسم الشركة التي ستقوم بإدارة المشروع. ومن المتوقع أن يقوم المشروع بتوليد من ٢٥ إلى ٣٠ مليون كيلواط من الكهرباء سنويا. وصرح رسلان ديرانية، نائب الرئيس التنفيذي لأورنج الأردن، بأن المشروع سوف يخفض من تكاليف الطاقة ويساعد البلاد على تحقيق توفيرات في الطاقة بقيمة تقرب من ٢,٤ مليون دولار أمريكي. أما في الوقت الراهن فإن الأردن تستورد ٩٧ في المائة من احتياجاتها

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