

# TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

MIDDLE EAST

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Vol 32/Issue Six 2016

## ON THE RIGHT TRACK

ONGOING CONSTRUCTION PROJECTS  
MAKE WAY FOR A BIGGER GCC  
TRANSPORT AND LOGISTICS SECTOR

### Eyes on Egypt

Funding from international sources accelerates reform activities in the North African country

### Staying in power

Cost-efficient technologies drive renewable projects in MENA

## INSIDE

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## EDITOR'S NOTE

AS WE COME to the close of 2016, the last edition of the year looks ahead to 2017. According to the World Energy Council, the GCC will require 100 GW of additional power and US\$50bn of investment in new power-generating capacity and US\$20bn in desalination over the next 10 years to meet the demand. In view of this, World Future Energy Summit (p30) in January and Middle East Electricity (p32) in February are set to bring together the biggest utilities' players from across the globe to the UAE. The previews of these shows give insights on new technologies and projects in the region. Renewables continue to play a big role in region (p19) and so does HVACR (p24), as reiterated by Josine Heijmans, event director of The Big 5 (p35). Meanwhile, the GCC transport industry is moving ahead with renewed vigour. An analysis (p10) will give you all the inside information.

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

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## TECHNICAL REVIEW

المنشور التقني - الشرق الأوسط

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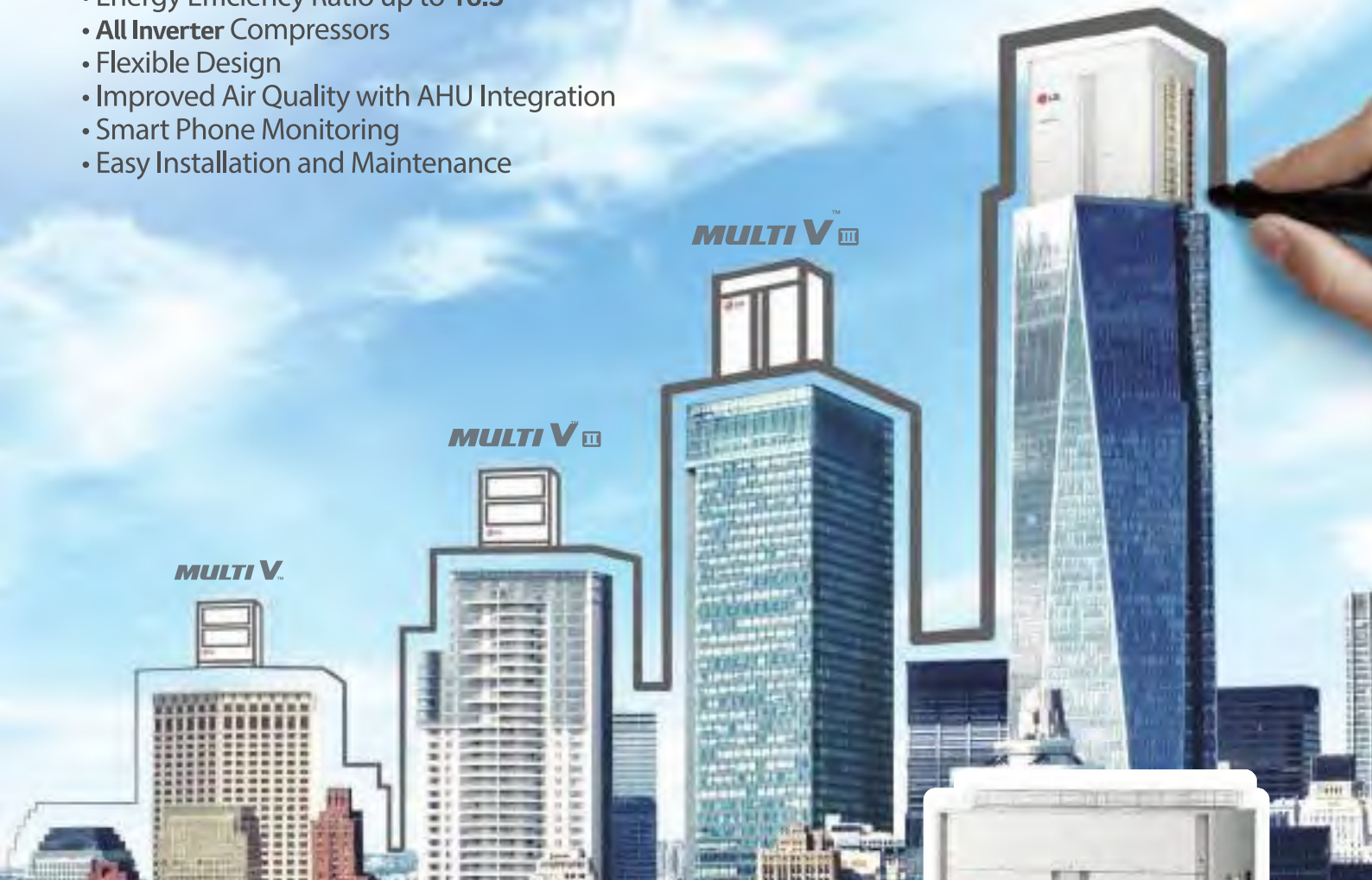
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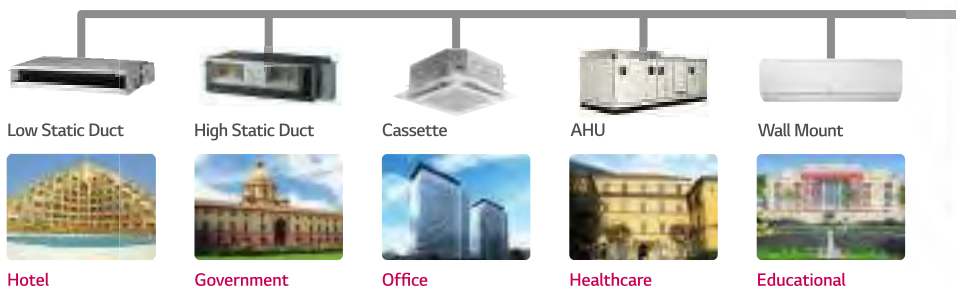
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## Briefly

### Kuwait's first US\$1.7bn IWPP begins operations end of November

THE FIRST INDEPENDENT water and power plant (IWPP) in Kuwait – Azzour North One – has commenced commercial operations. Azzour North One will generate 10 per cent of Kuwait's power requirements, approximately 1,539MW, and 20 per cent of water needs, which is 107mn gallons per day.

The US\$1.7bn project started construction in December 2013.

Azzour North One will be fuelled by a blend of local gas and imported LNG. In 2015, Kuwait imported 3.1mn metric tonnes of LNG and awarded a consortium to build a US\$2.9bn LNG import and regasification terminal at Azzour.

Falling under the first phase of the IWPP, Azzour North One is owned and operated by Shamal Azzour Al-Oula KSC, which is 40 per cent owned by a private consortium comprising ENGIE, Sumitomo Corporation, and Kuwait-based AH Al Sagar & Brothers.

The remaining 60 per cent is owned by the Kuwaiti government.

### Saudi Aramco selects Veolia for wastewater treatment plant

VEOLIA WILL DESIGN and deliver a wastewater treatment plant for the Jazan Refinery and terminal, owned and operated by Saudi Aramco.

Located in the southwest of the kingdom, the Jazan complex will be capable of handling 400,000 barrels per day of heavy and medium crude oil as soon as it is commissioned in 2017. The wastewater treatment plant will provide biological treatment 1,000 cu/m per hour, water treatment, and metal removal (550 cu/m per hour) for the complex power plant, with a capacity of 4,000MW.

The group said that it will use several of its advanced patented technologies in these treatments.

Vincent Caillaud, CEO of Veolia Water Technologies Oil & Gas, said, "We are very happy to have been chosen by and to collaborate with Tecnicas Reunidas on this major project, which will help meet the kingdom's energy demand and also export high-value fuels to international markets."

## 'UAE economy continues to grow despite regional and global economic challenges'

THE UAE WITNESSED significant economic progress in 2016, with many of its vital sectors accelerating at a substantial rate, according to a release by Ministry of Economy recently. The country also made major strides in achieving important socio-economic developments in line with the directives of HH Sheikh Khalifa bin Zayed Al Nahyan, UAE President; HH Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice-President and Prime Minister and Ruler of Dubai; and HH Sheikh Mohammed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the Armed Forces.

These accomplishments are in line with UAE Vision 2021 designed to build a sustainable, diverse and globally competitive economy driven by UAE nationals equipped with world-class knowledge and innovative skills, stated the release.

Sultan bin Saeed Al Mansouri, UAE minister of economy, said, "The UAE has remained advanced, thanks to its capability to reduce the effects of many economic variables such as the relatively low prices of crude oil, particularly in the Middle East, where oil export remains the backbone of several economies. The UAE has also shown resilience despite a major global economic slowdown, decline in the number of emerging economies, and trade and investment instability in some parts of the region. Statistics and collected data as well as



Sultan bin Saeed Al Mansouri is the UAE minister of economy. (Photo: Ministry of Economy)

national and international economic indicators have proven the country's advancement, showing once again the soundness of our economic approach and the strong performance of our vital sectors," the minister added.

Additionally, the minister noted that the government's economic diversification policy is one of the core pillars of the UAE's economic resilience, resulting in its increased capability to address economic difficulties and challenges. The country's solid approach and diversification plans, he said, have led to the non-oil sector's

contributions to the gross domestic product (GDP) in 2015 rising at about 77 per cent at current prices and 70 per cent at constant prices. He revealed that the manufacturing, construction, retail, real estate, storage, transportation, telecommunications, and tourism industries, among others, recorded substantial GDP contributions, demonstrating the country's steady and balanced steps towards a post-oil era coupled with well-informed policies and programmes to guarantee sustainable development.

According to Al Mansouri, the UAE's GDP tripled in the past 10 years, climbing from almost US\$139.13bn in 2006 to US\$430bn in 2015. The figure is expected to reach US\$490bn by the end of 2016. The growth rate at constant prices reached 3.8 per cent last year compared to 3.1 per cent in 2014.

## Egypt signs US\$296mn funding for a new windfarm

Egypt has signed an agreement with European Development Partners (EDP) for US\$296mn funding for the development of a new large-scale windfarm in the Gulf of Suez.

With a capacity of 200MW of renewable electricity generation, the project is an integral part of the Egyptian long-term energy strategy to utilise the country's enormous renewable energy potential, said a spokesman for European Development Partners.

The European Development Partners include the European Union (EU), KfW for German Development Cooperation, the European Investment Bank (EIB) and Agence Française de Développement (AFD).

On completion, the Gulf of Suez windfarm will generate 650 GWh of emissions-free electricity per year. It is scheduled to be operational in 2020.



The project will also help prevent CO2 emissions of around 288,000 tonnes annually and assist the Egyptian government's objective to produce at least 20 per cent of energy out of renewable sources by the year 2022. (Photo: Kim Hansen/Flickr)

As per the deal, the EU will provide a grant of US\$32mn, while the Egyptian government will pump in US\$83.19mn for the project, added the spokesman.

# ON THE WEB

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

## DP World and CDPQ sign investment platform deal

DP WORLD HAS announced the creation of an investment vehicle in partnership with Caisse de dépôt et placement du Québec (CDPQ), one of North America's largest pension fund managers.

The investment platform totals US\$3.7bn, with DP World holding a 55 per cent share and CDPQ the remaining 45 per cent.

[www.technicalreview.me/logistics](http://www.technicalreview.me/logistics)



*Through this platform, DP World will share new investment opportunities and CDPQ will have the option of co-investing alongside DP World. (Photo: DP World)*

## Xylem Inc. buys water analytics company Visenti

XYLEM INC., A global water technology provider, has acquired Visenti Pte Ltd, a Singapore-based smart water analytics company that provides a suite of advanced products and services to enable smart management of water networks. Visenti was created out of the SMART research programme at the Massachusetts Institute of Technology (MIT). According to the World Bank, the global estimate of physical water loss is 32bn cu/m annually, half of which takes place in developing countries. Throughout the Middle East, where water is scarce, the need to manage non-water revenue and protect the limited resources available is important. Addressing non-revenue water will help regional utilities improve service, reduce energy consumption and increase their resiliency to climate change. More importantly, water saved could be used to help increase the economic competitiveness of water-restrained countries.

[www.technicalreview.me/power-a-water](http://www.technicalreview.me/power-a-water)

## Volvo CE launches new global website

VOLVO CONSTRUCTION EQUIPMENT (Volvo CE) has unveiled its new global website following the recent roll-out of over 120 dealer and market websites around the world. The launch of Volvo CE's global website is the culmination of a project

that enables the company's online presence to be more valuable to customers, the media, jobseekers and other interested stakeholders, according to the Swedish company.

[www.technicalreview.me/it](http://www.technicalreview.me/it)



*There is a heightened focus on video and images across the website. (Photo: Volvo CE)*

## 'Middle East to require additional 267 GW by 2030'

SIEMENS HAS ANNOUNCED its outlook for the energy landscape in the Middle East until 2030. Siemens revealed that today's power generation challenges to be affordability, sustainability, efficiency and energy security. To overcome these, power generation needs to allow for fuel diversity, and to become more affordable, reliable, highly efficient with lower emissions, and flexible enough to complement renewables. To this end, the Middle East will require additional power capacity of 267 GW by 2030. This will take the region's capacity to 509 GW, from 307 GW today. By 2030, highly efficient combined-cycle power plants will dominate the market.

[www.technicalreview.me/power-a-water](http://www.technicalreview.me/power-a-water)

## EGA's refinery achieves construction milestone

EMIRATES GLOBAL ALUMINIUM'S (EGA) Al Taweelah alumina refinery, US\$3bn new plant set to be a critical part of the UAE's growing aluminium industry, reached a significant construction milestone in November.

Construction of the Al Taweelah alumina refinery is expected to be complete in Q1 2018. The refinery will be capable of producing two million tonnes per year of alumina. The overall completion of the project is currently at 37 per cent.

[www.technicalreview.me/manufacturing](http://www.technicalreview.me/manufacturing)



*The company's two operating sites in Abu Dhabi and Dubai currently produce 2.4 MTPA of primary aluminium. (Photo: EGA)*

## Schneider Electric introduces world's first ePAC for IIoT in GCC

SCHNEIDER ELECTRIC, SPECIALIST in energy management and automation, has introduced its new high-end Modicon M580 Ethernet programmable automation controller (ePAC) to the GCC region. The flagship product of the Modicon range of controllers features hot standby functionality (HSBY), native Ethernet, and cybersecurity embedded in its core. According to the company, Modicon M580 provides total flexibility for operational efficiency for medium or large process applications in water and wastewater plants, mining, hydropower, oil and gas and transportation.

[www.technicalreview.me/it](http://www.technicalreview.me/it)

# EXECUTIVES' CALENDAR 2017

## JANUARY 2017

15-17	<b>HVACR Expo Saudi</b>	JEDDAH	<a href="http://www.hvacrexpousaudi.com">www.hvacrexpousaudi.com</a>
15-17	<b>FM Expo Saudi Arabia</b>	JEDDAH	<a href="http://www.fmexpo-saudi.com">www.fmexpo-saudi.com</a>
16-18	<b>Oman Minerals &amp; Mining</b>	MUSCAT	<a href="http://www.omanminingexpo.com">www.omanminingexpo.com</a>
16-19	<b>World Future Energy Summit</b>	ABU DHABI	<a href="http://www.worldfutureenergysummit.com">www.worldfutureenergysummit.com</a>
16-19	<b>International Water Summit</b>	ABU DHABI	<a href="http://www.internationalwatersummit.com">www.internationalwatersummit.com</a>
16-21	<b>BAU</b>	MUNICH	<a href="http://www.bau-muenchen.com">www.bau-muenchen.com</a>
22-24	<b>Intersec</b>	DUBAI	<a href="http://www.intersecexpo.com">www.intersecexpo.com</a>

## FEBRUARY 2017

6-7	<b>Solar &amp; Wind Projects Jordan</b>	AMMAN	<a href="http://www.solarandwindprojectsjordan.com">www.solarandwindprojectsjordan.com</a>
14-16	<b>Middle East Electricity</b>	DUBAI	<a href="http://www.middleeastelectricity.com">www.middleeastelectricity.com</a>
14-16	<b>Solar Middle East</b>	DUBAI	<a href="http://www.solarmiddleeast.ae">www.solarmiddleeast.ae</a>

## MARCH 2017

6-8	<b>Kuwait Build Exhibition &amp; Conference</b>	KUWAIT CITY	<a href="http://www.kuwaitbuild.com">www.kuwaitbuild.com</a>
7-8	<b>Middle East Rail</b>	DUBAI	<a href="http://www.terrapinn.com/exhibition/middle-east-rail">www.terrapinn.com/exhibition/middle-east-rail</a>
7-11	<b>CONEXPO-CON/AGG</b>	LAS VEGAS	<a href="http://www.conexpoconagg.com">www.conexpoconagg.com</a>

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

## New technologies take centre stage at 13th edition of Gulf Traffic

THE GULF TRAFFIC Exhibition and Conference, which took place from 13-15 November at Dubai World Trade Centre, saw a number of smart transport companies showcase their latest innovations to the Middle East's road, transport and infrastructure industry.

A newcomer to the Middle East was NeRve – Next Road Vehicle, who sponsored this year's Smart Mobility Summit. NeRve is a spin-off from the 01 Advanced Innovation Corporation. The team has been developing electric, intelligent and autonomous vehicles since 2003.

Founder and CEO of NeRve, Soeren Ekelund, spoke about the future of vehicles and how the NeRve system could be used in Dubai. "We are excited to be showcasing some of our flagship NeRve creations at this year's Gulf Traffic. Our Public Cruiser, for example, is featured in our booth – an intelligent solar-powered city bus with flawless suspension and robot technology. Our renowned Autonomous Street Racer is also here – a world record holding electric motorcycle that is going to play an important role in the future of traffic management, police mobility and even emergency response infrastructure," said Ekelund.



*To ease traffic and minimise congestion, the UAE government has already implemented advanced travel information systems that complement traffic management. (Photo: Allan Watt/Flickr)*

Another company showcasing its 'world first' technologies was Ekin, a Turkey-based smart city solutions provider. It introduced the Middle East market to the new smart application – the Ekin Patrol – for law enforcement vehicles like bikes, cars and jeeps that has a police cruiser equipped with a number of sensors enabling speed, license plate, and even face recognition. The detection occurs in real-time, and together with its license plate recognition, its speed sensors can be used to automatically issue fines for speeding or to record the relevant details for manual investigation. Biometric capability allows for dynamic facial recognition of any individuals around the car, enabling match against criminal databases.

Day 3 of the exhibition hosted the Middle East Parking Summit. This year's conference looked at 'The future of parking', 'Improving quality of life with smart parking management' and 'International smart parking deployments: differences, benefits and best practices from around the world'.

The exhibition and conference was held in partnership with the Ministry of Infrastructure Development.



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*Transportation and logistics providers are raising capacity and updating their models to meet market demand.  
(Photo: Travel mania/Shutterstock)*

# Moving with **the times**

Transport and logistics companies from all over the world are set to play a vital role in the ever-growing Gulf construction market as new projects roll in, Martin Clark writes.

**The GCC's US\$2 trillion spending plans on construction place a huge responsibility on the shoulders of the major logistics companies and transport firms.**

**A Deloitte report**

**B**EHIND THE GULF'S hyperactive construction market – where projects and opportunities worth in excess of US\$2 trillion are either underway or on the drawing board, according to estimates – there is a huge throng of service providers queuing up to do business.

Construction, transport and power projects dominate the region's spending plans, including flagship developments such as new railways and airport expansions, plus all of the associated infrastructure for high profile events like 2022 FIFA World Cup Qatar and Expo 2020 Dubai.

It is great news for the region's builders, of course, but similarly for other key logistics players, including materials suppliers and the major transportation and logistic companies.

Indeed, there are some that question the

region's ability to deliver such a vast swathe of projects in such a short span of time, citing constraints on skills, resources and other capacity squeezes.

Consultancy firm Deloitte flagged up the Gulf Corporation Council (GCC) US\$2 trillion spending plans in a 2016 report, in which it also highlighted some of the potential risks.

It places a heavy responsibility on the shoulders of the major logistics companies and transport firms – the likes of big names such as Ford, MAN, Hitachi, among others – that will deliver the Gulf its grand plans and designs in the years ahead.

## **Gearing up**

The result is that transportation and logistics providers are raising capacity and refining their models and, with increased calls for more local content, it is a time when

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key players are aligning their businesses locally to satisfy this surge in demand more effectively.

At a business briefing timed to coincide with The Big 5 Dubai in November, Omar Khan, director, international offices, at the Dubai Chamber of Commerce and Industry, acknowledged that the emirate is experiencing a construction boom right now. "Infrastructure spend on Expo 2020 Dubai alone is expected to reach US\$9bn, and 71,000 new hotels are currently in the pipeline in the emirate as it is undergoing rapid expansion," he said.

He also highlighted the ambitious diversification strategy under the Dubai Plan 2021, which places a focus on boosting investment in core growth sectors such as transport, logistics, aviation, real estate, finance, retail and hospitality.

### Free zone growth

And the evidence is there to be seen all around, such as in the buoyant growth of the building and construction segment in Dubai's Jebel Ali Free Zone (Jafza), which recorded a 14 per cent rise in the number of registered companies from June 2015 to June 2016.

A DP World company and the UAE's flagship trade and logistics hub, it puts the growth down to the continued focus of GCC countries on developing infrastructure and by the economic stimulus generated by Expo 2020 Dubai and other big projects.

"Infrastructure development in the Middle East and North Africa (MENA) is undergoing tremendous change with governments allocating significant budgets towards upgrading their facilities," said Jafza deputy chief executive Ibrahim Mohamed Aljanahi, adding that Jafza provides a "world-class business platform for construction conglomerates looking to expand in the region".

Figures vary, of course, but certainly the high level of project activity now underway spells good things for the GCC's construction sector overall.

The Dubai Airport Free Zone Authority (DAFZA) has also confirmed that it intends to explore new opportunities for enhancing economic, commercial and investment ties with German investors. This falls under an ambitious marketing plan aimed at introducing the competitive advantages of the free zone to the global business community and attracting direct foreign investments to further push national economic development forward and support Dubai Plan 2021, which seeks to



make Dubai a major centre within the global economy.

### Transport showcase

In fact, the Dubai free zone is something of a barometer for the wider region, with a further 314 logistics companies – plus many others from other industries – from across the Middle East and the rest of the world.

Many have set up their regional headquarters in Jafza to serve the entire region.

**“Infrastructure development in the MENA region is undergoing tremendous change with governments allocating significant budgets towards upgrading their facilities.”**

**Jafza deputy chief executive Ibrahim Mohamed Aljanahi**

And sure enough, transport and logistics firms put on a similar show of strength at The Big 5 exhibition as well.

Among them was Ford Trucks with its official importer dealer in the UAE, Al Tayer Motors which showcased its 2017 line-up of the powerful new Construction Series including the 4143M and 3543M mixers alongside the 1843T tractor.

Powered by the new Ford Ecotorq engine family, the 2017 vehicles now come with greater power and more efficiency to ensure customers can continue with the daunting tasks posed by the region's huge new-build programmes.

Ercan Emrah Duman, Ford Trucks' international markets director, said the company has an ambitious growth strategy for the GCC, highlighting plans for establishing a new office in Riyadh, Saudi Arabia, to further strengthen its presence in the region.

Currently, the headquarters for Ford Trucks for the Middle East region is in Dubai.

"As a first step to expand our network with focus on retaining facility investments, we are thrilled about our upcoming office in Riyadh, which will help us in further improving our service, and reduce response time to our customers," Duman said.

### Pulling power

As well as increasing its geographic footprint, Ford Trucks is investing in its new range to meet the specific requirements of the Middle East market.



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Its new construction series delivers a whopping 430 PS and 2.150 Nm of torque with the new Ecotorq engine, a heavy improvement on the previous generation, which delivered 350 PS and 1.400 Nm of torque.

The new 400kW engine brake provides the driver with firm control while climbing steep slopes in earth-moving and cutting sites. The optional 600kW Intarder option – offered for even tougher conditions – brings total braking capacity to 1,000kW, ensuring that the heaviest loads can be safely carried on even the steepest slopes and hills.

“Offering a balanced blend of features, Ford Trucks Construction Series lands on construction sites with a single purpose – to make your project more durable and efficient,” Duman stated.

A 22 per cent improvement in turning radius over the previous generation also significantly reduces the number of manoeuvres in tight site conditions, turning narrow spaces into a playing field for drivers.

It is these improvements and enhancements that will become commonplace as all major providers compete for a greater slice of this booming construction market.

### **Business is booming**

Daimler Commercial Vehicles MENA FZE and Mercedes-Benz Trucks last year reached a new sales milestone with the delivery of the 100,000th Mercedes-Benz Actros in the MENA market.



*Franz von Redwitz is MAN Truck & Bus Middle East's managing director.*

The milestone was marked at the regional centre of Daimler Commercial Vehicles MENA in Dubai, where the vehicle was ceremonially handed over to the customer, Messrs. Al Khaldi from Dammam, Saudi Arabia. Dr Wolfgang Bernhard, a member of the Daimler AG management board, said that around one in 10 of every heavy duty Actros truck in the world had been sold in MENA. “This underlines the importance of this region for Mercedes-Benz Trucks.”

“With our regional centre, established one year ago, we’re even closer to our customers. We can react faster to their demands. This will further improve our market share in this region,” he added.

While Dubai may be buzzing with

construction activity, Saudi Arabia has been the core market for Mercedes-Benz Trucks, with nearly 44,000 Actros units – almost half the regional total – delivered there since 1997.

Bernhard says this is closely linked to its long lasting business relationship with its general distributor in the kingdom, Juffali Industrial Products Company (JIPCO).

### **Safety, efficiency go hand-in-hand**

Competitiveness and safety are becoming increasingly important in the everyday working environment of fleet operators, fleet managers and drivers. Business owners are no longer just relying on technical vehicle innovations.

At The Big 5 2016, Franz von Redwitz, managing director for MAN Truck & Bus Middle East, discussed the company’s increasing focus to reduce total cost of ownership (TCO). And through MAN ProfiDrive – a training course by MAN to provide advice and information – the company has achieved tremendous success.

“The impact of driver education and training on fleet performance is often underestimated. We have to understand that the driver is still the ‘brain’ in the truck.” Launched in 2014, MAN ProfiDrive has continuously improved and expanded in terms of its daily dealings with customers as well as the available training portfolio. He added that customer-specific training solutions are as much part of the MAN ProfiDrive training range as professional driver training in accordance with the law governing a country/region.

Talking about 2017, the managing director added that as MAN is seeing global markets becoming increasingly competitive, MAN has launched RIO – open cloud-based operating system for the transportation industry. Showcased at IAA, Hanover, in September 2016, RIO combines different sources of data and then analyses them. Based on the combined information from tractors, trailers, bodies, drivers and orders as well as combining this information with traffic, weather, or navigation data, RIO will provide its users with concrete recommendations for action in real-time. This will significantly improve the transportation and reloading process. It will also significantly increase efficiency and transparency in the transportation ecosystem.

As in all other strategic industries, local relationships are central in the Gulf, and this will become even more significant as global brands seek to exploit the region’s future growth and potential. ■



*Dubai's expanding construction market is setting the ground for a boom in the logistics and transport sectors in the region. (Photo: Dmitry Birin/Shutterstock)*

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# Setting the stage for reinvigorated growth

Economist Moin Siddiqi assesses Egypt's economic opportunities and the increased focus of international companies wanting a piece of that pie.

**E**GYPT, STRATEGICALLY SITUATED at the heart of Middle East and North Africa (MENA), is paramount to regional trade, investment and security. The government – led by President Abdel Fattah El-Sisi (since May 2014) – has embarked upon comprehensive reforms to boost confidence and growth in the region's most populous nation, thus repositioning Egypt as a favourable investment destination. The main challenges are improving infrastructure and job creation.

Global investment firm Franklin Templeton remains bullish on Egypt's long-term fundamentals, noting, "Egypt has a very large and young population and very low penetration of goods and services. Add to that, trade agreements with Europe, the USA and Africa, along with proximity to European markets and there is a very appealing case for Egypt as a regional or even global manufacturing hub". The country's participation in free trade agreements (FTAs) provides access to 1.6bn consumers across the globe. It is also integrated into global supply chains, thanks to well-resourced manufacturing industries in areas of textiles and apparel, furniture, cement, glass, petrochemicals, food and beverage and pharmaceuticals.

A degree of investor confidence appears to have returned to Egypt. This is evident in increased merger and acquisition activities during 2015 worth over US\$1.23bn, a larger influx of official and private funding after the Egypt Economic Development Conference (March 2015), which generated US\$72.5bn in pledged investment, facilities and loans from international banks, combined with sovereign ratings upgrades. The authorities are targeting six per cent GDP growth next year, fuelled by gas exploitation, manufacturing and construction, alongside a surge in foreign direct investment (FDI) – targeted at US\$10bn.

Last year, FDI inflows surged by 50 per cent to US\$6.9bn, compared to US\$1.2bn in 2010-11, driven mainly by expansion of foreign affiliates in the financial sector (CIB Bank and Citadel Capital) and pharmaceuticals (Pfizer), as well as from investments in telecoms, chiefly the purchase of Mobile Towers Services by UK's Eaton Towers and the energy sector by Eni, BP and Dana Gas (UAE).

## Structural reform agenda

On 11 November 2016, the International Monetary Fund (IMF)

approved a three-year, US\$12bn loan under the 'Extended Fund Facility' to support Egypt's economic reform plan. The key features of structural reforms include fiscal consolidation, cutting fuel subsidies, a flexible exchange rate regime, increasing public investments and improving the business climate by streamlining industrial licensing for all sectors and enacting a new insolvency law as well as promoting job-rich growth through strengthening labour markets. Egypt will receive US\$2.75bn immediately, with the rest subject to economic performance.

The main priorities are expanding private sector activity and significantly improving ratings in 'Doing Business and Global Competitiveness' – where Egypt lags behind peer middle-income economies – ranking 122 out of 190 countries in the World Bank's 'Doing Business' 2017 report.

The IMF programme could open up access to a further US\$9bn of funding from diverse sources, including Eurobond placements and soft loans from both the World Bank and the African Development Bank. Egypt issued successfully a US\$1.5bn Eurobond (three-times oversubscribed) in June 2015.

The IMF stated, "Egypt is a country with immense potential. It has a dynamic and young population, a large market size, a favourable geographic location, and access to important foreign markets. The opening of the parallel Suez Canal, large investments in the energy sector and the discovery of a major gas field also bode well for Egypt's growth potential. But it has some problems that need to be fixed urgently. With sound implementation of the programme, growth could rebound to six per cent by 2021 – similar to the levels in 2005-2010."

## Closer Gulf ties

Colossal bilateral support of US\$23bn from the Gulf Co-operation Council (GCC) countries in recent years, on top of another US\$12.5bn pledged by Kuwait, Saudi Arabia and the UAE in March 2015, helped in macro-economic stabilisation, whilst alleviating pressure on public finances. Besides official aid, Egypt is also a major recipient of private Gulf capital. HSBC Bank estimates GCC-related investments, including private sector entities, could total US\$150bn between 2015 and 2020.

Emirati firms are reportedly undertaking some mega-projects. These include the Al-Swidan Group, which plans investing US\$6bn in





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a grain logistic hub in Damietta; Khalifa bin Butti bin Omeir Group's US\$2bn investments in health, renewable energy and waste management; and Majid Al-Futtaim (mall operator) plans to invest US\$681.5mn in eight projects over the medium-term.

Egypt retained its position in the Middle East Africa (MEA) region as the number one destination by capital expenditure (Capex) with US\$14.5bn recorded in 2015, according to fDi 2016 Report by the Financial Times Group. An agreement worth US\$8.9bn was signed with Siemens (Germany) for building three combined-cycle power plants, which once fully online by mid-2018 should further boost electricity-generating capacity. Eni (Italy) plans to develop the newly discovered Zohr gas field (recoverable reserves of 623bn cu/m). The giant field requires Capex of US\$7bn to US\$10bn, with peak 2016 production forecast at 85mn cu/m per day, thereby boosting the country's GDP and government revenues.

Infrastructure finance is also being provided by multilaterals, e.g. the International Finance Corporation, which is investing US\$2bn in port and logistics projects over four years, while the European Bank for Reconstruction and Development has agreed to channel US\$365mn for roads and irrigation projects in Egypt. The construction and rehabilitation of 3,600km of new roads is a major priority.

**Key macro-economic indicators on Egypt**

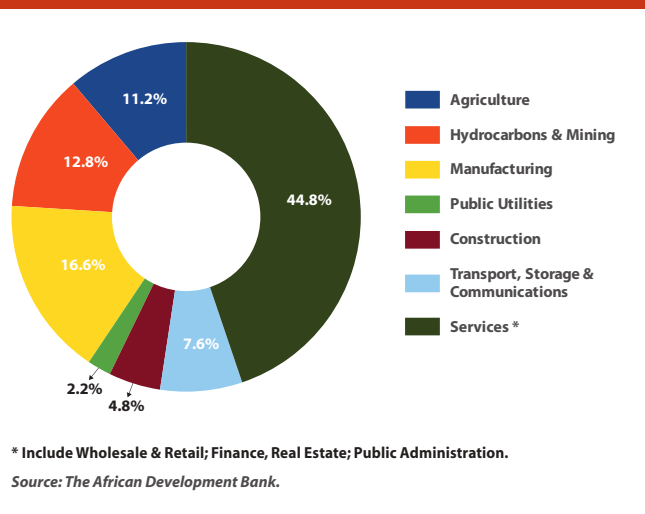
	Projections			
	2013-14*	2014-15*	2015-16*	2016-17*
Gross Domestic Product (GDP) current prices (EGP bn)	2101.9	2429.8	2777.8	3434.1
Real GDP growth (% chg.)	2.2	4.2	3.8	4.0
Consumer Price Index, inflation (end-period)	10.1	11.0	10.2	18.2
Total Domestic Investment (% of GDP)	16.2	16.7	17.3	17.9
Government Gross Debt (EGP bn)	1814.0	2162.5	2627.8	3221.2
Budget Balance (% of GDP)	-12.9	-11.5	-12.0	-10.0
Foreign Direct Investment (US\$ mn)	3,800	6,100	6,700	9,400
Current Account Balance (% of GDP)	-0.8	-3.7	-5.5	-5.2
External Debt Stock (US\$ bn)	15.3	14.3	14.0	22.9
Gross International Reserves (US\$ bn)	16.3	19.5	17.1	22.0

\* Egypt's fiscal year ends June 30  
Sources: Egyptian authorities and IMF projections

**FACT FILE**

Population: 90.2mn (2016); GDP: US\$330.8bn (2015); GDP per capita: US\$3,710 (2015); FDI Inward Stock: US\$94.27bn (2015), the highest in North Africa; National currency: Egyptian Pound (EGP); Sovereign Ratings: Moody's (B3); Standard & Poor's (B-); Fitch (B); Proven oil and natural gas reserves (2015): 3.5bn barrels and 1.84bn cu/m respectively. Mobile penetration (% of population with mobile access): 101.8 per cent.

**GDP by Sector (percentage of GDP, 2014/15)**



**New industrial policy**

Cairo is expected to unveil a new industrial development strategy based on the integration and development of key sectors such as engineering industries, automotive and construction materials, as well as small- and medium-sized enterprises (SME). The government has also pledged to provide technical support and programmes to the aforementioned sectors. Tarek Kabil, Egypt's minister of trade and industry said, "The ministry is planning the establishment of 10 industrial complexes to be developed with the latest technological systems and standards. The ministry has been able to complete the first phase of Al Robeiki Leather City Project in Badr City after it was delayed for 13 years."

In sum, Franklin Templeton put it, "There have been years of under-investment, which means that once investment resumes Egypt has the ability to decouple from and outperform the global economy. We believe there is a lot of unlocked value in Egypt and a lot of growth that is just waiting to materialise."

The country needs US\$300bn of new investments over next 10 years to rehabilitate basic infrastructure to the level required for rebuilding a vibrant economy and achieving the 2030 Sustainable Development Strategy. Private investments, both domestic and foreign, are crucial for Egypt's future prosperity and stability. ■

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# Renewable ambitions

The MENA region continues to pursue promising sustainable energy projects, a key driver being falling technology costs.

**2015 MARKED A** 'turning point' for renewables, according to the IEA's recently issued *Medium Term Renewable Market Report*. Over the next five years renewables will be the fastest-growing source of electricity generation, with their share growing to 28 per cent in 2021 from 23 per cent in 2015, thanks to strong policy support, technology developments and sharp cost reductions. Over this period, costs are expected to drop by a quarter in solar PV and 15 per cent for offshore wind. Further ahead, the IEA forecasts that renewables are set to account for 60 per cent of all new power generation capacity to 2040.

## Positive picture

Developments in the MENA region reflect this positive picture. The GCC countries alone are expected to invest more than US\$300bn into some 20 renewable energy projects by 2020, according to Gulf Organisation for Industrial Consulting, with 75GW of renewable energy projects worth US\$299bn already in the pipeline.

High levels of solar irradiance, and the falling cost of solar technologies, particularly PV modules, are spurring the development of solar PV in particular. Other factors driving the growth of renewable energy are the growing demand for power, the drive to diversify the energy mix, and the need to promote local industrial development and create employment, as well as meet emissions targets.

The gradual reduction of subsidies for fossil fuels in the GCC countries is also contributing to an enabling environment for the development of renewables.

Many countries in the region now have ambitious clean energy action plans and renewable energy targets.

"The GCC region can cut its annual water use by 16 per cent, save 400 million barrels of oil, create close to 210,000 jobs and reduce its per capita carbon footprint by eight per cent in 2030 – all by achieving the renewable energy targets that national and sub-national governments have already put in place," comments the International Renewable Energy Agency (IRENA).

The UAE, which plans to generate 30 per



*Renewables will be the fastest-growing source of electricity over the next five years, according to the IEA. (Photo: JNT Visual/Shutterstock)*

cent of power from clean energy by 2030 and create 70,000 jobs in the renewable energy sector by 2020, continues to play a leading role in the region. Record low solar tariff levels of under three cents per kilowatt hour have been achieved in recent tenders, reflecting the drop in price in solar PV technology and reduced costs for borrowing.

The role of Abu Dhabi's Masdar in advancing the development of clean energy in the Middle East and internationally, and promoting technology innovation is well-known; examples of recent innovations include a low-cost solar device that can convert sunlight to steam, developed by the Masdar Institute of Science and Technology in collaboration with the Massachusetts Institute of Technology.

**The GCC countries alone are investing more than US\$300bn in renewable energy projects up to 2020.**

Not to be outdone, Dubai is progressing a number of initiatives as part of its Dubai Clean Energy Strategy 2050 to transform the emirate into a global hub for clean energy and green economy, with the aim of providing 75 per cent of Dubai's energy through clean sources by 2050. The Dubai Electricity and Water Authority (DEWA) is progressing the 800MW third phase of its Mohammed bin Rashid Al Maktoum solar park, to be constructed by a Masdar-led consortium on the independent power producer (IPP) model, which will have a capacity of 5,000MW by 2030. And Shams Dubai, DEWA's initiative to encourage domestic and industrial users to install solar PV panels to generate power, has met with considerable success.

Saudi Arabia plans to generate 9.5 GW/hour of electricity from renewable energy by 2030, and the creation of 7,700 jobs in this sector by 2020, while Oman is now looking at large-scale solar plants on the IPP model with a focus on in-country value and building local capabilities.

## Pressing need

For countries lacking fossil fuels, the need to develop renewable energy resources is particularly compelling. In October 2016, Masdar signed a power purchase agreement (PPA) with Jordan's National Electric Power Company (NEPCO) for a

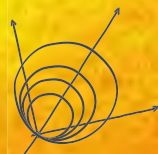


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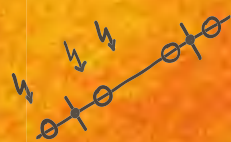
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Dubai is looking to become a global hub for clean energy. (Photo: Philip Lange/Shutterstock)

200MW solar plant, which will be the largest solar installation in Jordan once complete. "The solar power plant will raise the international profile of Jordan as a key destination for utility-scale renewable energy projects, stimulate local job creation and knowledge transfer, and further incentivise the option of commercial clean energy in the MENA region," Jordan's Minister of Energy and Mineral Resources Dr Ibrahim Saif said at the signing ceremony.

This follows the inauguration of the 117MW Tafila wind farm in December 2015, the first utility-scale wind project in the MENA region, developed by the Jordan Wind Company, a partnership between InfraMed, Masdar and EP Global Energy. Jordan has seen steady growth in its solar industry, with various utility-scale developments underway, and is currently evaluating tenders for its Green Corridor project, funded by the European Investment Bank. This should boost renewable energy development by allowing solar and wind generated in the southern regions to be transmitted to other parts of the country.

## For countries lacking fossil fuels, the need to develop renewable energy resources is particularly compelling.

While Morocco, which imports over 90 per cent of its energy requirements, is targeting the generation of 42 per cent of the energy mix from renewables by 2020 and has a relatively mature market in terms of the regulatory and institutional framework. The Moroccan Agency for Solar Energy (MASEN) plays a key role in attracting private investment, mobilising finance and bringing together government and industry stakeholders.

Noor 1, the first phase of the US\$3.9bn Noor CSP solar power plant at Ouarzazate, commenced operations earlier this year, with a capacity of 160MW. Once completed in 2018, the complex, which is being developed on a build, own, operate and transfer (BOOT) basis by ACWA Power Ouarzazate, a consortium of ACWA Power, MASEN, Aries and TSK, will be the largest CSP power plant in the world, with a capacity of over 500MW, producing enough energy to power over one million homes.

Despite these positive developments, the share of renewables in electricity generation in the MENA region remains relatively low compared with other regions of the world. Further measures to improve regulatory frameworks, strengthen institutional capacity, incentivise private investment, promote R&D and encourage local industry will help MENA to fully capitalise on its renewable energy potential. Increasingly this makes sound commercial, as well as environmental, sense. ■

## Masen secures financing and development contracts for solar power plants

MOROCCAN AGENCY FOR Solar Energy (Masen) has selected of Acwa Power and Chint to design, finance, construct, operate and maintain the NOOR PV I programme.

According to the state-owned company, the combined rate per kilowatt hour for the NOOR PV I programme comes to US\$4.53, one of the most competitive tariffs on a the global scale.

Noor PV 1 is the first programme of the NOOR Solar Plan and is composed of three projects –

- NOOR Ouarzazate IV, with a maximum capacity of 70MW, located in the Masen complex
- NOOR Laayoune with a maximum capacity of 80MW
- NOOR Boujdour with a maximum capacity of 20MW

Masen president Mustapha Bakkoury stated, “With these three solar plants, Masen continues to expand its portfolio of multi-technology projects, always with the goal of responding in the best way possible to the needs of our client and partner the National Agency for Electricity and Drinking Water (ONEE).

“This is also the consolidation of long-standing partnerships, both with the KfW, which is financing the fourth and last phase of the Ouarzazate complex, and with Acwa Power, and both assure us that we will develop projects meeting international standards at Ouarzazate, Laayoune and Boujdour.”

The three projects are developed by Masen in the framework of a three-part independent power production (IPP) plan with ONEE and that the consortium was selected through an international call for proposals.



*The first photovoltaic phase of the Noor solar plan (NOOR PV I program). (Photo: Masen)*

The innovative institutional development adopted by Masen allows for optimal risk alignment and for reduced production costs.

This financing is part of the ongoing support provided by the KfW, one of Masen’s strategic partners, and the German authorities, expressing their confidence in the projects developed by Masen.

All the three solar projects will be financed by the first green bonds in Morocco, issued by Masen.

## Abu Dhabi to regulate small-scale solar PV systems

ABU DHABI’S REGULATION and supervision bureau, the independent regulatory body for water, wastewater and electricity sector in the emirate, is planning to issue regulations for small-scale solar photovoltaic (PV) energy netting soon, according to its website.

“It is anticipated that the regulations will be issued in December 2016 together with a guidance document for the installation of small-scale solar PV systems,” it added.

The existing regulatory framework in the emirate allows for the grid-connection of solar PV systems but does not compensate for surplus electricity transmitted to the grid.

The new regulations aim to establish a framework for energy-netting of surplus electricity from solar PV systems ‘not exceeding an aggregate capacity of 5MW in one premise’. The producers will be compensated not monetarily but by offsetting the surplus electricity exported against future consumption.

In 2014, Dubai had issued a resolution regulating linkage of solar power generating units to the emirate’s power grid. Utility service provider Dubai Electricity and Water Authority (DEWA) is responsible for concluding linkage agreements with producers and determining how to dispose of surplus energy.

DEWA’s Shams Dubai initiative allows customers to install solar PV systems on their rooftops to generate electricity and export the surplus to the DEWA grid. The customer account is settled on the offset between exported and consumed electricity. As of October 2016, an aggregate rooftop solar capacity of 6MW has been installed at 222 residential and commercial buildings in the emirate.

## ‘Solar energy cheapest and cleanest alternative to fossil fuels’

THE POSITIVE EFFECT of solar energy as a sustainable energy source offsets the negative impact of the production of solar panels. This applies to energy consumption as well as greenhouse gas emissions during the production process, according to a study by Atse Louwen and Wilfried van Sark from Utrecht University and colleagues from University of Groningen and Eindhoven University of Technology, the Netherlands.

“In our study we carefully examined important sustainability aspects of the production and yield of solar panels over the last 40 years. This revealed that solar energy is currently both the cheapest and the cleanest alternative to fossil fuels,” explains van Sark.

**Economies of scale and efficiency:** Since the introduction of solar energy in the 1970s, the cost has fallen from roughly US\$80.38 to less than US\$1.07 per watt of installed capacity. This is partly due to the economies of scale achieved in the industry, as well as to innovations in technology and production.

**Greenhouse gas emissions:** Louwen states, “Our research indicates that, despite the strong growth in the number of solar panels, greenhouse gas emissions during production are more than offset by the clean electricity these panels produce.”

**More benefits to come:** The net benefit between environmental gains and environmental costs will also continue to grow because solar panel production and technology are still constantly evolving, Louwen adds, “The silicon wafers, which is the base material used for solar panels, are becoming thinner and thinner, and the cutting process causes less and less material loss. Scientific research is also continuously providing new possibilities for more efficient conversion of sunlight into electricity.”



# Reflecting growth

The construction sector in the Middle East is creating opportunities for production and innovation in the glass industry.

*LiSEC's new TPA line on display at the glasstec Trade fair held in Düsseldorf, Germany, this year. (Photo: LiSEC)*

**G**LASS IS GROWING as a popular choice of alternative to other building materials such as brick, polycarbonate and wood. Apart from providing influx of natural light in the building, other key factors such as security, safety, and environmental sustainability are expected to drive the market for glass in the construction industry.

Rising investment in construction accompanied by government initiatives in the Middle East are the key trending factors quoted to be fuelling the flat glass industry. According to a report by Global Market Insights, the Middle East flat glass market, which is dominated by Qatar and Saudi Arabia construction spending, is projected to grow at over 7.3 per cent CAGR by 2023.

### Innovation in glass processing

To meet the growing demands of the glass industry, Lisec, a market leader for plants and software for the processing of flat glass, has launched a new concept for the processing of thermoplastic spacers. LiSEC's new TPA line with the Fast Lane concept (vertical lift-over system) reimagines the process.

In this new line, sheets that do not require a TPA application are led past the applicator head and only those sheets which

actually need a spacer enter the TPA applicator. This allows for cycle times of 35 seconds in the case of standard triple insulating glass elements and 24 seconds for a double insulating glass element, which corresponds to a capacity of approximately 100 elements per hour. This allows manufacturers to save time and the investment costs for the second applicator.

**“LiSEC’s new TPA line reduces cost of production by 10 – 15 per cent as a result of faster cycle time and the minimal need for operators.”**

The line runs fully-automatically from the cutting (to size) to the stacking of the finished insulating glass units and is monitored and controlled by a control

station. According to LiSEC, this method ensures consistency while making sure that the sheets do not have to be handled manually during the process. That allows for fewer occupational accidents and defective sheets due to contamination.

Another advantage of the new LiSEC TPA line is that it requires only one operator to control the entire insulating glass line. The operator's only responsibility is to monitor that the plants are running and to intervene in case of interruptions. Compared to conventional TPA plants, the new TPA line reduces cost of production by 10-15 per cent as a result of faster cycle time and the minimal need for operators.

In the first step of this process, harp racks are unloaded sequentially by the automatic unloading station. The sheets are then run through the washing and drying plants and the quality scanner, which checks them for their quality prior to the assembly. The vertical lift-over system, a second transport route above the TPA plant, automatically carries out the sorting of the sheets for the paired operation of the press. This allows the sheets that do not need any TPA application are able to pass other ones. The elements are assembled and filled with gas in the press and after that they are finished in the sealing plant. ■

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# Good air filter, better power output

Sound gas turbine performance helps maintain the designed electricity output, thereby reducing fuel consumption, emission and number of outages.

**G**AS TURBINES ARE used extensively in power generation where high availability and reliability are increasingly in demand. The success of gas turbine engines in power generation has placed more emphasis on enhancing their performance while complying with environmental regulations.

The continuous demand has highlighted the critical role of air filter performance in providing enhanced air quality. In addition to being challenged with different environments (tropical, coastal, hot), gas turbines confront a wide array of atmospheric contaminants with various concentrations and particle size distributions that could lead to performance degradation and

component deterioration. Therefore, the role of compressor washing filtration techniques are of a paramount importance as a fouled compressor can reduce power output of the gas turbine to over 70 per cent.

Air filtration emerges as a critical (separation and retention) process to the gas turbine operation. Different filtration techniques are employed to protect the compressor assembly from suspended contaminants in the air stream so that large masses of clean air reach the compressor. Therefore, accurate filter performance prediction facilitates their appropriate selection in order to minimise the economic impact of outages. Further research and development are required to assess the filter performance in different environments around the globe to engineer filter design for optimum operational results.

Compressor washing is another maintenance measure where an engineered injection of demineralised water droplets and cleaning fluids is delivered to the compressor assembly. Compressor washing is widely used to bring compressor blades to their design point and allow the compressor assembly to its fullest potential. Compressor washing is location-sensitive and can be online, offline and/or hand-wash. A balanced approach between filtration and compressor washing processes is usually implemented to reach best results.

## Gas turbine performance degradation

Gas turbines confront a wide array of atmospheric contaminants with various concentrations that can lead to performance degradation and component deterioration. A standing challenge of gas turbine engines is compressor fouling, erosion, corrosion, abrasion and foreign object damage. Fine airborne particles, smoke, oil vapour, carbon, sand and sea salt could cause fouling, which can lead to degradation of gas turbine performance. It is regarded as the adherence process of airborne contaminants such as dust particles, unburned hydrocarbon, fine sand, in the air intake and their deposition on the airfoils and annulus surfaces at the inlet of the gas turbine, particularly the compressor section.

Erosion occurs as a result of impaction of particles of around 10-20µm in diameter or greater. A key factor affecting the erosion rate is the impact velocity of particles, in addition to the shape, size distribution, density and/or material. Erosion can inflict multiple challenges starting with altering surface roughness and reducing the throat area between consecutive blades, thus leading to aerodynamic performance fluctuation. In addition, it can also change the airfoil shape, the incidence angle of the following airfoils in the compressor and reduce the efficiency and the mechanical strength of the blades. Other effects include blade tip clearances, which may jeopardise air mass and foster rotational unbalanced

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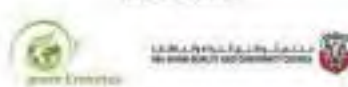
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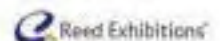


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An example of fouling on compressor assembly.

forces due to the change of natural frequencies of the blades.

Reduced inlet mass flow leads to reduction in efficiency, pressure ratio and surge margin of the compressor, resulting in reduced power at a fixed firing temperature. Additionally, material losses lead to complex vibrational issues, contributing further to the overall gas turbine performance degradation.

Abrasion is another challenge faced by the compressor blades. It occurs when material losses are experienced due to the rubbing as a result of moving or a particularly rotating element and stationary surface. Further, objects damage, which can be foreign and/or domestic, invade the engine entrance and confront the flow path components.

### Corrosion

Corrosion is a non-reversible degradation mechanism that commonly caused by salts (sodium and potassium-based) as well as

lead and vanadium. Corrosion also intrudes into cracks or other material defects and accelerates crack propagation. Further, corrosion rate can be accelerated due to the contaminants and impurities in the air. Therefore, physical and chemical characterisation of atmospheric air is essential for a scientific approach to appropriate filter selection and compressor washing techniques. It is also important to highlight that atmospheric air quality is location sensitive as it differs relative to gas turbine geographic location and can have a pronounced influence on the filter selection and the number of stages needed to clean the air.

Hot corrosion on the other hand, represents material losses due to chemical reaction between the components and airborne contaminants. Such contaminants may include aggressive gases, mineral acids, salts, mineral acids or reactive acids. Furthermore, corrosion can be the result of both inlet air contaminant and the contaminants from fuel combustion. The chemical composition of the deposited agglomerate can be corrosive, not to mention their fouling capability. Corroded components require replacement in order to regain the performance losses and achieve optimal operation.

### Improving efficiency

An efficiency gain as low as one per cent is significant to gas turbine operators. Sustained gas turbine performance translates into maintaining the designed power output, reducing fuel consumption, emission and number of outages. Therefore, effective maintenance measures such filtration and compressor washing techniques are in demand. Filtration techniques are employed in gas turbine assembly to keep the compressor clean. Operational implications must also be considered in comprehending the underlying issues caused by the inability of air filters to remove all suspended contaminants with



various phases, concentrations, size distribution and/or chemical composition. Clearly, compressor washing techniques are credible candidates in bringing the compressor assembly back to its design point. However, as mentioned earlier, this requires a balanced approach with air filtration performance. ■

## FM EXPO Saudi and Saudi Clean Expo set to debut next year

BEING THE LARGEST facilities management market in the GCC, Saudi Arabia's sector is rising from being worth an estimated US\$20.3bn in 2014 to a forecasted US\$29bn by 2017. This increase in value could in part be fuelled by Saudi Arabia's Vision 2030, which sets out enhancing the liveability of Saudi Arabian cities as one of its broad objectives, while the country's National Transformation Plan, includes improving facilities management across its healthcare infrastructure among its more specific targets.

It is into this promising market that FM Expo Saudi 2017 and Saudi Clean Expo will launch, at the Jeddah Centre for Forum & Events, in 15-17 January. Organised by dmg events Middle East, Asia & Africa, the exhibitions and the accompanying Facilities

Management Leaders' Conference replicate some of the company's most successful international events.

"As the industry leaders, FM Expo Saudi 2017 and Saudi Clean Expo provide platforms for our speakers, exhibitors and visitors to learn from experts, delve into key industry influencing trends and discover new and innovative technologies," said Alexis Wheatley, event director for dmg events.

"As Saudi Arabia sets out to protect and preserve the built assets it has invested in so heavily, the facilities management industry has a great opportunity to grow alongside this emerging demand."

Currently valued at US\$3.2bn, Saudi Arabia's HVACR market is expected to grow steadily in the next five years. According to the Saudi Arabia HVACR Market Outlook

2021 by TechSci Research, commissioned by HVACR Expo Saudi, the country features amongst the leading markets for air conditioners across the globe.

Between 2011 and 2015, Saudi Arabia's HVACR market grew at a CAGR of more than 13 per cent, the report shows. The long duration of summers and the high temperature throughout the year are not the only factors boosting HVACR systems' sales in the country. Indeed, a rapidly growing population, increasing urbanisation and religious tourism are considered key drivers of this trend, which are expected to strongly contribute to the expansion of the Saudi Arabia's HVACR market in the next five years.

FM Expo Saudi, Saudi Clean Expo and HVAC R Expo Saudi, as well as the conference and CPD workshops are all free-to-attend. ■

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*Construction sector in MENA is predicted to see growth in the next 10 years. (Photo: Thomas Siegmund/Shutterstock)*

# Expanding boundaries

Bolstered by ongoing infrastructure development in the MENA region, free zones in Dubai are taking that extra step towards excellence and innovation.

**J**EBEL ALI FREE Zone (Jafza), part of DP World and the UAE's flagship trade and logistics hub, recently announced that its building and construction sectors had recorded 14 per cent growth from June 2015 to June 2016.

According to the authority, the growth was largely driven by the continued focus on developing infrastructure by Gulf Corporation Council (GCC) countries and the economic stimulus generated by Expo 2020 Dubai projects. A recent industry report by BMI Research showed that the construction sector in the MENA region is expected to grow steadily over the next 10 years, propelling regional industry from an estimated US\$215bn in 2016 to US\$313bn by 2020 and US\$467bn by 2025.

Jafza deputy CEO Ibrahim Mohamed Aljanahi said, "Infrastructure development in the MENA region is undergoing tremendous change with governments

allocating significant budgets towards upgrading their facilities. Jafza provides a world-class business platform for construction conglomerates looking to expand in the MENA region."

Aljanahi added that Jafza's evolution as a global business hub is linked to its commitment to excellence in terms of products, services and overall business ecosystem and the aim of positioning the emirate as the world's top business centre and the most favoured investment destination. The construction and building material sector in Jafza is among the country's leading employment generators with a workforce of over 18,800 occupying an area of 3.56mn sq m of combined facilities.

Jafza is currently home to over 961 of the world's leading steel, building material and construction sector companies, including ArcelorMittal, Tianjin Pipes, Tata Steel, Conares, China National Building Group,

Danube, Saint-Gobain Gyproc, Petrogas Piping, Van Oord, Hitachi Construction Machinery, Hyundai Engineering and Construction Company. The majority of these companies have their regional headquarters in Jafza and cater to the entire region using the free zone's facilities to boost efficiencies and global trade.

## Asset investment

In its bid to become one of the world's most innovative free zones, the Dubai Airport Free zone Authority (DAFZA) has partnered with leading strategy management consulting firm ShiftIN Partners to identify innovation champions within DAFZA and is designed in line with the free zone's comprehensive Innovation Strategy. Under the partnership, 20 innovation champions will be chosen from DAFZA's employees. The winners will be selected during the course of organisational assessment procedures. Additionally, innovation awareness sessions will be held and a variety of communication tools will be utilised to build up the momentum for change, inspire employees and keep the staff motivated.

Amna Rashed Lootah, assistant director general of finance and commercial, DAFZA, said, "This development is a first for the free zone sector and forms an important pillar for investing optimally in human capital at DAFZA." ■

**Jafza's evolution as a global business hub is linked to its commitment to excellence in terms of products, services and overall business ecosystem.**

– Jafza deputy CEO Ibrahim Mohamed Aljanahi



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# Sustainable efforts: WFES completes a decade

Part of Abu Dhabi Sustainability Week, Abu Dhabi will also host the fifth edition of IWS in January 2017.

**T**AKING PLACE FROM 16-19 January, the World Future Energy Summit (WFES), part of Abu Dhabi Sustainability Week, will celebrate its 10-year anniversary in 2017. An event dedicated to advancing the use of renewable energy, energy efficiency and clean technology, exciting changes are being made to the exhibition and conference that will make it the most interactive and inspirational to date, according to organiser Reed Exhibitions.

Within the exhibition, dedicated country pavilions will enable attendees to meet with influential industry and government figures. In 2016, the WFES brought together 600 companies from 32 countries and more than 30,000 attendees from 150 countries, making it an essential place to network and seek new business opportunities.

Next year, the WFES conference will focus on trends in financing renewable energy projects, the importance of energy efficiency in both existing and future buildings, smart infrastructure and innovation. It will include two in-depth country focuses, discussing solar, wind and nuclear energy opportunities and trends in Saudi Arabia and India, two of the world's most exciting countries for future clean energy projects.

Meanwhile, investment in GCC water projects is estimated at US\$300bn between 2012 and 2022. Co-located with WFES, the International Water Summit (IWS) will give access to key decision-makers in the MENA region. The GCC's successful record of overcoming extreme water scarcity in one of the driest parts of the world will be a cornerstone of the fifth IWS.

As demand for domestic, agricultural and industrial uses continues to grow, the UAE and other GCC states continue to offer a prime market for innovations that can increase supply and reduce waste, while also considering broader sustainability issues. These include more efficient



*Scheduled to follow the 2016 COP 22 meeting in Morocco and annual sessions of the United Nations General Assembly, WFES 2017 will bring together the world's leading renewable energy professionals, policy makers, innovators and investors. (Photo: WFES)*

desalination of seawater such as using solar energy to power desalination plants, reducing losses in the distribution network, improved irrigation methods for agriculture, and better treatment and use of recycled waste water.

IWS will support MENA water sustainability and business deals, running under the theme of "Promoting Sustainable Water in Arid Regions", as a signature event of Abu Dhabi Sustainability Week 2017. IWS is hosted by Masdar in strategic partnership with the Abu Dhabi Water and Electricity Authority.

Also, the Abu Dhabi Sustainability Week (ADSW), from 12-21 January 2017, will host industry experts to advise on the global mandate for renewable energy and clean technologies that can be translated into concerted policy and business action.

The first ADSW Advisory Council will also be hosted at the event on 17 January 2016. The council's membership comprises both international and Middle East-based opinion leaders, supporters and speakers at ADSW.

Mohamed Jameel Al Ramahi, CEO of Masdar, Abu Dhabi's renewable energy company and the host of ADSW, said, "As a

global platform for addressing the interconnected challenges of clean energy, water and sustainable development, Abu Dhabi Sustainability Week has developed lasting partnerships with many of the world's most admired experts and opinion formers on sustainability issues.

"The guidance of the ADSW Advisory Council, representing the broadest cross-section of the sustainability domain, will ensure that ADSW continues to set the action-agenda from both a policy and business perspective – this is particularly important now that the clean energy sector has moved from the margins into the mainstream as a dynamic, commercially viable growth market."

ADSW 2017 takes place on the theme 'Practical Steps Towards a Sustainable Future'. The opening ceremony will initiate four days of presentations, discussions and workshops on a range of pressing topics across energy, water and waste. These include strategies to drive investment, implementation of the Paris Agreement, and the challenges of adapting existing infrastructure to the new market reality of small-scale, distributed power. ■

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# MEE to lead the way for 'Smart Cities'

The annual power event will bring together sustainable solutions providers and research communities to debate on better management of energy, along with the showcase of innovative products.



(Second from left) Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, at last year's MEE. (Photo: Informa)

**M**IDDLE EAST ELECTRICITY, taking place from 14-16 February, has announced its theme for the 2017 edition – Smart Cities. Alongside Dubai Municipality and the Environmental Council for Arab Towns, who are strategic partners for the event, the organisers will be creating a series of new features, conferences and activities, all focusing on the future of Smart Cities and the innovations, which are set to lead the way both locally and internationally in the coming decade.

“We believe that putting an increased onus on Smart Cities will transcend all our new features and content offerings. As the region’s leading platform for deliberation and growth for the international power community, our goal is to assist the Dubai Municipality in reaching their objectives set by the government on making Dubai a fully integrated ‘Smart City,’” said Anita Mathews, Group Director – Informa Industrial Group.

The inaugural half day ‘Energising the Smart City Conference’ on Day 2 will feature sessions on how best to innovate urban energy solutions. Municipal leaders, electricity solution providers and research communities have all been invited to take part to discuss how best to reach a sustainable energy mix that adequately supports rising energy demands.

The ‘Energising the Smart City Conference’ will explore –

#### How to better manage the energy cities have:

- Making disparate electricity systems interoperable
- Installing energy management systems strategically throughout a city
- Investing in smart meters and grids, and then assuring an operational plan exists

#### How to improve the energy products cities use:

- Why energy storage is getting so much attention, but little commercial action locally
- The difference alternative materials and manufacturing processes could make for users
- What visionary (impractical) projects such as Solar Impulse can teach energy investors

#### How to make cities 100 per cent renewable:

- Why cities worldwide are defining this goal statement?
- Is regulation the answer, or will market forces provide longer term solutions?
- After roofs are covered in solar and grids are smart, what next?

To further streamline visitor experience, another new feature will be the ‘Smart Cities Zone’. Located in Zabeel Hall 3, this dedicated area will feature ‘smart’, innovative products and solutions from leading suppliers that have specific applications in a ‘Smart City’, including automation and energy efficiency.

Also taking place, for the fourth year running, will be the Future Generation Competition. Supported by Masdar Institute, students from universities across the UAE will be given a platform to showcase their projects/technologies under the theme of ‘Smart Cities’. The shortlisted entries will have the opportunity to present their projects to the public, as well as a panel of judges including an expert from Masdar Institute, with two separate awards up for grabs. The ‘Judges Award’ will be handed out during the official MEE Awards night on day two of the event, and the ‘People’s Choice Award’ will be presented towards the end of Day Three. ■





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# The future is bright for solar power

Co-located with MEE, Solar Middle East is witnessing increasing footfall with every passing year. Anita Mathews, group director – Industrial Group, gives more insight into the burgeoning sector in the region.

## What prompted the concept of Solar Middle East?

**AM:** Various factors contributed to this decision, the most important being the emergence of renewables and specifically solar in the energy mix across the region and the wider world. Solar has always been an integral part of Middle East Electricity (MEE) and we decided to create a dedicated platform for this sector to ensure that visitors and attendees to the event are able to easily source these products within the show. This move has been a great success since this sector has been steadily growing since its inception, both in terms of exhibition space and also visitors.

## Could you describe the experiences and learnings from the first event?

**AM:** When we first launched Solar Middle East, the region was still exploring the various options surrounding solar power. The Middle East, though blessed with sunshine, has been traditionally slow to consider renewables as an energy source due to the abundance of oil reserves. While the market was excited with the concept of solar power and its benefits, the challenge was to get more clarity on the regulations and standards for the sector.

## What strategies have been employed to increase international visibility for the show and ensure increasing footfalls?

**AM:** One of our greatest strengths at Informa is our global reach – I like to say that the world comes to Dubai during our events. We invest in building our regional and international databases and ensure that we reach out to them to promote our events either directly or through our partners and industry associations. Solar Middle East also benefits from a captive audience from its co-located power event, Middle East Electricity, where we traditionally see that around 40 per cent of our visitors are interested in renewables.

## What is the importance of Solar Middle East in today's energy scenario in the Middle East and neighbouring regions?

**AM:** The Middle East and North Africa (MENA) region shows high potential for growth. The cost of solar systems in MENA has dropped dramatically, compared to the steady increase in the price of producing energy from oil and gas. We have seen a rapid increase in the average number and size of solar projects awarded year-on-year. 2015 alone saw tenders with a combined worth of up to 1,500MW. There is a huge drive in many Middle East countries to increase the share of renewables in their energy mix. The UAE plans to exceed its target of 24 per cent renewable energy by 2021 and Jordan could see 1,000MW of solar power connected to the grid by 2020. Solar Middle East provides direct, established access to this rapidly-expanding market and 86 per cent of our exhibitors consider the event essential or important to their business.



*The Solar Middle East is touted to be the largest gathering of industry professionals in the region. (Photo: Informa)*

## What is your vision for the forthcoming shows? What are the new elements that you plan to add to the show?

**AM:** Today, the landscape for solar events in the region is very fragmented with many conferences and events taking place. My dream is to ensure that we build one strong and successful B2B event that caters to the industry. Our vision is to invest in the knowledge and content platforms that can help us grow the event and in our own way give back to the industry.

## What is your opinion about the future of renewable energy and, in particular, solar power across the world?

**AM:** I feel the future is bright for solar power. The decreasing cost of solar power generation and technological advances are making this sector a very attractive option for utilities. Aside from the affordable technology, the operational costs seem also to be marginal compared to conventional power generation through hydrocarbons, making solar power a preferred choice. Even though solar power may not fully replace hydrocarbons as a primary energy source, many governments in the region are relying on it to diversify the power mix.

## What kind of response and footfall do you expect from this year's show?

**AM:** We have already had a tremendous response from our exhibitor stakeholders and this year's show has to date posted a growth of 14 per cent compared to the 2016 edition, with over two months left until the event. We expect around 7,000 attendees in 2017. ■

# 'Layout change in favour of The Big 5'

The Big 5 2016 hosted more than 3,100 exhibitors showcasing their products and services targeting the region that boasts a vibrant construction pipeline of around US\$2 trillion worth of projects.

Josine Heijmans, The Big 5 event director at dmg events, speaks with *Technical Review Middle East* how the new and dedicated floorplan has worked well for both exhibitors and visitors.

**T**HE 37TH EDITION of The Big 5 welcomed over 75,000 participants\*, breaking last year's record, according to organiser dmg events Middle East, Asia & Africa.

The largest construction exhibition in the Middle East will return at the Dubai World Trade Centre from 26-29 November 2017, while the co-located Middle East Concrete (MEC) and PMV Live shows will run in from 26-28 March 2018 as standalone events.

Following this year's success, the next edition of The Big 5 will further focus on the theme of 'Technology in Construction'. Event director, Josine Heijmans, said that HVACR exhibitors will be clustered in a dedicated product sector in light of the industry's strong development in the region.

"Moreover, The Big 5 2017 will go smart. Thanks to the introduction of the new Konduko smart technology, exhibitors will be able to send digital content to visitors, while capturing and qualifying leads from



With new sectors like MEP and HVACR creating more business in the Middle East, Josine Heijmans is quite optimistic about The Big 5 2017.

their smart phones. All visitors will be equipped with a smart badge that will interact with the exhibitors' smart readers."

**Technical Review Middle East (TRME): How do you look at The Big 5 2016?**

**Josine Heijmans (JH):** We started with around 3,100 exhibitors from 60 countries this year, compared to 3,000 last year. The number of visitors also increased from 73,000 in 2015. Our success depends on the exhibitors' feedback, which has been very good. From where I sit, it looks great.

**TRME: What would you pinpoint as success at this year's edition?**

**JH:** The Big 5 2016 introduced five product sectors. Traditionally, the show has been organised by country pavilions. With the new floorplan, it became easier for visitors to look for sectors they are interested in. We decided to segregate the show floor into dedicated areas like Building Interiors & Finishes, MEP Services, Building Envelop & Special Construction, Construction Tools & Building Materials and Smart Building & Design technologies. First of all, we had to position the exhibitors into the right sectors and I think we have very well succeeded in that. The next job was to see onsite how the visitors accommodate and accept this new experience and layout of The Big 5. We understand this is bit challenging sometimes because people are used to going to certain areas to find customers but the feedback from exhibitors now is that they are attracting quality visitors. When our exhibitors and visitors are happy, I believe this is The Big 5 success.

Also our high-end summits and

conferences at the show gave a lot of insights into today's market and what to expect of it.

**TRME: MEC/PMV Live will be standalone events 2018 onwards. Don't you feel this may affect The Big 5 footfall?**

**JH:** We do have some overlap in visitors profile for MEC/PMV Live and The Big 5. However, they are more on the machinery and infrastructure side. Moreover, it's also a request from related exhibitors and visitors' end to separate both events. The Big 5 has now grown to a size where we are venue-bound. With new developments in the market like the MEP, building envelope and construction technology, it is becoming more important to accommodate the presence of these sectors and we see the separation as an opportunity. I think those who have interest in both events would not mind coming for The Big 5 in November 2017 and MEC/PMV Live in March 2018.

**TRME: What's new for 2017?**

**JH:** For 2017, we are sticking to the sectors that we introduced this year. We will also make slight changes in the layout. For one, the HVACR section will move to the halls currently designated for MEC/PMV Live as it is a very strong sector of The Big 5 and we want to give it more dedicated space. Alongside that area, we will further integrate and build the technology sector. The same area will also run high-end conference on construct technologies, architecture and MEP services. ■

\* Figures refer to The Big 5 2016 only (without the co-located MEC/PMV Live). Official figures are currently being audited by BPA.

## Tekla brings best BIM practices to the Middle East

BOTH ONGOING AND planned construction projects in the GCC's construction pipeline totals US\$2.8 trillion, especially in mixed-use mega-developments, airports and seaports, and transportation infrastructure, according to the recent report GCC Powers of Construction 2015 by Deloitte.

In anticipation of this growth, architects, engineers, contractors, and real estate companies are posting strong demand for building information modeling (BIM) software to create 3D models that can enhance collaboration, visibility, and efficiency across the design, build, and operate stages of projects.

On this note, Tekla is further integrating with Trimble to deliver global best practices in construction technology to the Middle East.

"The Middle East is seeing nationwide transformation in construction innovation, with projects for mega-events such as Expo 2020 Dubai and 2022 FIFA World Cup Qatar stretching design boundaries. Advancing government BIM mandates further demonstrate the Middle East's desire to be on par with global innovators in the construction field," said Paul Wallett, area business director at Tekla Middle East.

One of the best examples of how BIM can deliver complex designs is the Sheikh Khalifa Bin Zayed Al Nahyan Masjed, which will be one of the UAE's largest mosques by 2016, holding up to 20,000 worshippers. The 86-metre diameter dome, which will be the UAE's largest dome in a mosque, features an exterior steel Arabic calligraphy design, installed by engineering firm Eversendai.



Advanced construction software is used to design innovative buildings such as the Sheikh Khalifa Bin Zayed Al Nahyan Masjed. (Photo: Tekla)

"BIM used on the Sheikh Khalifa Bin Zayed Al Nahyan Masjed, allowed us to accurately model complex rib trusses and tension ring trusses, simplify complex design, and resolve clashes with HVAC. We are committed to supporting further BIM construction innovation in the UAE and region. Thanks to Tekla software, we were able to win marquee projects using the innovation angle," said Sreenivasa Rao Vipparla, head of design and engineering, Eversendai Engineering.

## Hisense expands its B2B footprint in the Middle East

HISENSE HIGHLIGHTED ITS successful expansion into the B2B sector, focusing on commercial ACs, during its participation at The Big 5 2016 in Dubai from 21-24 November.

Hisense showcased its entire range of commercial air conditioners where it also announced the launch of the Intelligent WiFi Room AC, which conveniently controls the AC unit anywhere in the house through smart phones with WiFi capability.

Moan Abraham, V-P and general manager for air conditioning at Hisense Middle East, said, "In the Middle East region, Hisense has already embarked major success with year-on-year growth of over 50 per cent with ambitious plans to achieve double digit growth in the region. We are confident that our next generation products will not only bring much desired convenience to consumers but will revolutionise the AC industry in the Middle East," he added.

Looking forward, Hisense aims to use its technology to link all communities through communication and smart home products and eventually provide services to entire cities. Hisense's B2B business will also seek to develop overseas markets together with Hisense's existing global TV, fridge and air conditioner businesses.



Moan Abraham, V-P and general manager for air conditioning at Hisense Middle East. (Photo: Hisense)

## Sustainable water heater by Atlantic for Middle East

ATLANTIC, FRENCH INDOOR comfort solutions provider in Europe, strengthened its leading position at The Big 5 Dubai with a display of global multi-energy solutions. It launched two energy saving and environmentally friendly water heaters in response to the specific needs of Europe, Middle East and Africa (EMEA) region.

At this year's edition, Atlantic launched a new heat pump water heater – Explorer – fitted with smart functions and compatible with solar and photovoltaic systems that can achieve up to 75 per cent energy savings. It is also launching a new flat electric water heater Vertigo Steatite, which is the world first flat water heater equipped with double steatite heating element. The Steatite technology fitted in both products is resistant to corrosion and scale, ensuring high products performance in any environment and with any type of water. These long-lasting and energy saving solutions are an optimal choice for water heating in the Middle East, according to the company.

Aside from the new launches, the French company also displayed a wide portfolio at the show that has been adapted to address the specific needs of the region both in terms of capacity and energy source. Strengthening further its commercial success in the Middle East, Atlantic opened a new representative branch in the UAE to reinforce its presence in this part of the world and get even closer to local customers.

To sustain its commercial development in the region, the branch is supported by ISO 9001-approved 20,000 sqm factory, which is the largest industrial site dedicated to water heaters in the Middle East.

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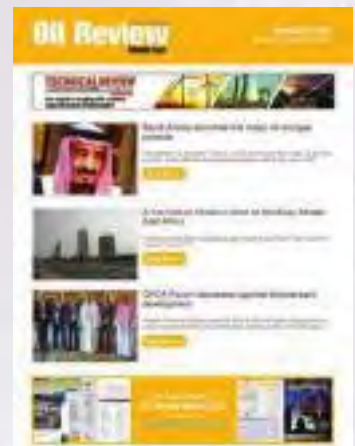
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## SEMIX brings out a whole new range of construction machinery at The Big 5

AT THE BIG 5 2016 held at Dubai World Trade Centre, SEMIX Concrete Batching Plant, a trademark of SEDA GROUP COMPANY that was established in 1987, provided visitors with a complete range of construction machineries for the concrete industry that includes –

- Concrete Mixing Plants (Stationary, Mobile, Compact Types)
- Singleshaft & Twinshaft Mixers, Planetary Mixers
- Truck Mixers
- Trailer Mixers
- Concrete Recycling Units

According to SEMIX CEO Sefa Daniş, by utilising rigorous and innovative design methods, distinguished products are presented to SEMIX end users. “Most of components such as pneumatic equipment, bearings, gearboxes, engines, programme logic controller (PLC) and wear parts reduce operating costs over the lifetime of the machine and increase productivity of the machine. Working with professional suppliers such as FESTO, SKF, SCHNEIDER, LINCOLN, WAM, OZB, ESIT, BONFIGLIOLI, COBRA, ZF has also helped us bring to clients high quality and effective performance. With more than 10 patented products, we are becoming the leader of innovative market.”

More than 600 units of concrete mixing plants have been installed in all over the world and with nine dealers across England, France, Saudi Arabia, Egypt, Turkmenistan, Algeria, Ethiopia, Kenya, South Africa, SEMIX is currently exporting its products to more than 40 countries.



The mobile mixing plant by SEMIX.

### New systems

- Mobile mixing plants: Up to 160 cu/m/hr capacity, mobile plants can be installed in every site with inline and square type aggregate bunkers.
- Twin shaft mixer: 9,000/6,000 lt twin shaft mixer is also available for major project investments.
- Recycling units: Concrete recycling is increasing in response to improved environmental awareness, legislation, and economic considerations. To minimise these impacts, recycling is an increasingly common method of disposing of concrete structures. Special trough system and screen type recycling units are available in different capacities with new designs.
- Trailer mixer: Designed by new technology and used high quality manufacturing method to create the world's most strength and light patented model.
- Cement feeding system: Transferring cement is getting a significant issue for the end users. With SEMIX special system, big bags are transferring to cement silo efficiently and adequately.
- Powder paint and bentonite and fly ash storage system: According to the fluidity of pigments and materials, SEMIX can design mixer and storage unit.

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Sefa Daniş is the CEO at SEMIX.

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# India's construction equipment market on the rise

With plenty of activity going on in the South Asian country, the fourth edition of BAUMA CONEXPO INDIA will give a boost to both buyers and sellers.

**I**NDIA IS CURRENTLY the only national market in Asia experiencing growing construction machinery sales. And growth is forecast for the next few years too. This is a good lead for BAUMA CONEXPO INDIA, which will be held from 12-15 December 2016 at the HUDA Ground in the capital New Delhi.

According to the Construction Equipment and Building Material Machinery Association within the Verband Deutscher Maschinen- und Anlagenbau (VDMA – German Engineering Federation), India is currently the only Asian country able to point to a growing construction machinery market. Infrastructure development is commonly held to be the driving force behind this development.

The Indian government and international development banks are making billions available for new roads, bridges, sea and airports, railway and energy projects. The German foreign trade and inward investment agency, Germany Trade & Invest (GTAI), has observed the government of this south Asian country with its billion-strong population pointedly dismantling barriers to infrastructure projects – lending further

impetus to civil engineering. According to GTAI data, for example, expressway construction in India in 2016/17 is to be expanded to 15,000km compared with 6,000km the year before.

The positive trend is also reflected in the registration situation with important key players such as ACE, Astec, BAUER, BKT, Herrenknecht, Kobelco, Liebherr, Linnhoff, Liugong, MAN, Peri, Puzzolana, Sany, Schwing Stetter, Soilmec, Wacker Neuson, Volvo and Wirtgen confirming participation in the first half of this year.

This year again participants can look forward to a diverse programme of supporting events. The Builders' Association of India (BAI), the Indian Construction Equipment Manufacturers' Association (iCEMA), International Powered Access Federation (IPAF), Construction Times and Construction Opportunities are organising three days of conferences, lectures and trade events.

Day 1 will see the BAI holding the Managing Committee Meeting followed by the participants given a guided tour of BAUMA CONEXPO INDIA.

IPAF, too, is taking the opportunity to hold

an all-day members' meeting on the first day of the show at the HUDA Ground. On 13 December, iCEMA is holding a conference on the subject of "Infra redux – New and sustainable horizons". The event is intended as a platform for presenting the emerging growth trends in Indian infrastructure.

Specifically the topics addressed include "Reviving infrastructure – New paradigms", "Rural Infra – Bringing Bharat closer to India", and "Holistic equipment solutions – Current need of the hour for Infra growth". The event is directed, for example, at construction firms, government authorities and departments, technical experts and also manufacturers of equipment. On 14 December, the first "Conference on Maximizing CE Sector Opportunities" will be taking place.

The event aims to be a networking platform that also provides answers to the challenges currently faced by the sector.

The target group for this event includes OEMs, suppliers of components, financial services providers, rental and leasing companies, infrastructure companies, engineers and public and private decision-makers. ■



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# Urban evolution is here



The Windows and Façades Technical Conference in Doha was a resounding success, providing a forum to explore the latest industry developments and innovations.

*The event attracted 160 delegates from the fields of architecture, interior design, engineering, consultancy and government.*

**T**HE WINDOWS AND Façades Technical Conference, held on 26 October in Doha, was a resounding success. The event was a collaborative forum co-organised by founding partners tremco illbruck, Reynaers, Guardian Glass and ALPOLIC, in co-operation with WSP Parsons Brinckerhoff, Dorsch Gruppe, Priedemann, Hilson Moran and Meinhardt. The event was organised by *Technical Review Middle East* magazine.

Designed to respond to common questions and challenges presented by the design and installation of windows and façades in the Middle East, the conference focused on the latest innovative technologies and sustainable designs for windows and façades. It featured presentations from international experts and industry leaders on the hottest industry topics including guidance on best practice and building regulations, environmental technology, current fire safety codes and lessons learnt from case studies from around the region.

Around 160 delegates attended the conference, including high level representatives from the fields of architecture, interior design, government, fire consultants and structural engineers, who benefited from the opportunity to make new contacts and exchange ideas with industry peers.

Speakers and delegates alike were fulsome in their praise for the event.

“It was a very good conference with a wide diversity of attendees and presenters representing a wide cross section of the façade industry. I thoroughly enjoyed it,” commented Benjamin Beer, technical director, Meinhardt Façade Technology.

“It is a great platform to share state of the art knowledge and technology evolutions in various disciplines that can catalyse the realisation of the greatest real estate dreams,” said Sara de Herdt, product manager Safety & Security Systems, Reynaers Aluminium NV, Belgium.

Ahmed Hatem, architect team leader, EHAF Consulting Engineers, Qatar commented that it was a great opportunity to catch up with the latest innovations and solutions, while Fadi Ghawi, general manager Green Wave Qatar, commented that it would help his company in the selection of new windows and façades in its projects. ■



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## Hitachi Construction Machinery Middle East appoints new UAE dealer

HITACHI CONSTRUCTION MACHINERY Middle East (HMEC) has appointed Middle East Crane Equipment Trading (MECET) for the sales and after sales services of Hitachi Construction Machinery and Hitachi Sumitomo Crawler cranes in the UAE.

An agreement to this effect was signed by HMEC president Hidefumi Sameshima and MECET director Jos Luyckx, in the presence of HMEC general manager Piet van Bakergem and MECET general manager Wim Aernouts, during Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC) 2016.

According to HMEC, the knowledge, experience and skills that MECET has acquired over 60 years has made it the market leader in its home market of Belgium.

“MECET is well-known for its outstanding after sales support and has an impressive stock of spare parts that will be available across the UAE to serve their customers around the clock. The company is scheduled to open its new one-stop 10,000 sq m facility in the Dubai Investment Center near Al Maktoum International Airport for sales,



MECET's new one-stop 10,000 sq m facility in the Dubai Investment Center near Al Maktoum International Airport. (Photo: Hitachi Construction Machinery)

service and spare parts by the end of 2017.

“We are confident that this union with MECET will reinforce our joint position in the construction machinery and crawler crane market in the UAE,” Bakergem noted.

MECET, a 100 per cent subsidiary of the Luyckx Group, was established in 1952 in

Brecht, Belgium.

Earlier in January 2016, Hitachi Construction Machinery Middle East Corporation also hosted an exclusive dealership signing ceremony with Savanna Group of Companies for Iraq, including Kurdistan Region of Iraq.

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## Hypertherm's new plasma cutting tool launched

THE INTRODUCTION OF the Powermax45 XP by Hypertherm at EuroBLECH 2016 in Hanover, Germany, was a success.

A portable plasma system, Powermax45 XP delivers increased cut capacity – up to 16mm metal – and faster cut speeds and automatic gas adjustment for quick setup and operation.

At the stand, visitors witnessed cutting demonstrations with the new generation of Powermax plasma cutters – the Powermax45 XP. The system capabilities were shown by creating steel paintings, spheres and other metal art. Powermax45 XP can be used for industries including, but not limited to, construction, scrapping, automotive, mining, pipelines, metal fabricators and structural steel.

Advanced HyPerformance plasma technologies including industry-leading SureCut applications like True Hole and True Bevel as well as HyPrecision Waterjet cutting were also demonstrated by making use of advanced connectivity options that support Industry 4.0 applications. Live demonstrations were conducted by Hypertherm's European Cutting Technology Center at its headquarters in The Netherlands via webcam.

“EuroBLECH 2016 was an innovative and successful event for us” said Theo Cornelije, regional director for the EMEA region. “We integrated our new company vision ‘Shaping Possibility’ into our new state-of-the-art stand including; advanced live and online connectivity with our regional headquarters,” explained Cornelije, adding, “These innovative technologies make it possible to explain our technologies in depth, show the systems capabilities and guide visitors to the solution that fits their cutting needs by using the principles of industry 4.0.”

## Fire-resistant cables by MESC minimise damage to life and property

THE SAFETY OF residents and visitors is of utmost importance within a building. It is, therefore, imperative that an effective and robust fire safety system be put in place to ensure that in the unlikely event of a fire, these must ensure the safety of all and minimise damage to the property.

In wake of the recent fire incidents in the emirates, Middle East Specialized Cables (MESC), largest special and construction cable manufacturing company in the Middle East, has introduced fire-resistant cables. These cables generate low smoke levels and are halogen-free that keep essential systems working, thus helping to save human life and protect the sensitive equipment.

“Our fire-resistant cables are equipped to improve safety. It is less toxic, non-corrosive and non-thermoplastic. Its superior cut-through features makes it fluid-resistant leading to low friction. We strongly believe that fire safety is a collective responsibility and it is our primary concern to ensure our products’ adherence to the most stringent local and global standards. Through the



The fire-resistant cables factory at Ras Al Khaimah. (Photo: MESC)

introduction of our fire-resistant cables, we believe that we are also driving the market towards a future where damage to life and property is minimised. These cables are an effort to continually support the community and make it a safe place to live in,” said K.V Ramaseshan, regional sales and export manager at MESC.

The fire-resistant cable series from MESC are designed to survive and function for up to three hours in the event of a fire, making them well-suited for large public spaces, areas with high circuit integrity, where evacuations can be carried out in an organised manner in case of a fire-related emergency.

## Quick and easy three-phase power transformers testing by OMICRON

WITH TESTRANO 600, OMICRON has developed the world’s first portable, three-phase test system, which supports all electrical tests on power transformers. Weighing just 20kg, it is ideal for routine and diagnostic testing on-site and during factory acceptance tests (FAT). Its innovative design significantly reduces wiring efforts, cutting down testing time to one-third compared to conventional single-phase testing.

One system, multiple tests: With TESTRANO 600, operators need just one common setup to perform multiple tests, such as transformer turns ratio, exciting



The integrated three sources and the simple wiring concept speed up and simplify power transformer testing.

current, DC winding resistance, dynamic resistance, short-circuit impedance or leakage reactance as well as frequency response of stray losses (FRSL). By combining it with the accessory CP TD1, it can also test power/dissipation factor and capacitance up to 12 kV.

Three’s no crowd: In order to work with TESTRANO 600, just three cables have to be connected – one to the high-voltage side, one to the low-voltage side and one to the tap changer. Three integrated sources ensure measurements with high accuracy and make TESTRANO 600 a powerful test system (3x 33 A DC and 400 V AC). Compared to conventional single-phase test sets, a true three-phase test system offers several advantages such as shorter testing times when energising all three phases at once, and a fully automated control of the tap changer during testing.

Flexible and smart operation: In order to fulfil individual customer requirements, TESTRANO 600 offers a flexible operating design. It can be operated via the smart TESTRANO TouchControl on the integrated touch display or by using the established Primary Test Manager™ software on the laptop.

Active discharge and quick demagnetisation: The controlled discharging function (patent pending) of TESTRANO 600 automatically discharges the winding within seconds, for example, after resistance tests have been performed. This increases efficiency and safety during testing. Operators can also demagnetise the power transformer’s core before and after testing using TESTRANO 600. Demagnetisation is recommended after DC has been applied on a power transformer. A demagnetised core reduces the risk of high inrush currents and avoids the influence of a magnetized core on subsequent tests, such as excitation current tests or sweep frequency response analysis.

Safety first: TESTRANO 600 is equipped with an emergency stop button as well as safety and warning lights. The connector plugs and the wiring with labelled connection leads leave a narrow margin for wiring errors.

Compact and rugged for on-site testing: TESTRANO 600, with all its accessories, comes in a portable case and is easy to transport. Its rugged design makes it ideal for on-site testing even in rough operating conditions.



• المشروعات التخيلية (غير الممكنة على أرض الواقع) مثل الطائرة  
سولار إيمبلن والتي يمكن أن تلهم المستثمرين في مجال الطاقة.

- كيفية جعل المدن متجددة بنسبة 100 في المائة؛
- لماذا تتجه المدن في جميع أنحاء العالم إلى تحديد بيان الأهداف  
هذا؟
- هل يكمن الحل في التنظيم، أم ستوفر هوى السوق حلولاً على المدى  
البعيد؟
- ماذا بعد تغطية الأسطح بألواح الطاقة الشمسية والتحول إلى  
استخدام الشبكات الذكية؟

لتبسيط تجربة الزائر بشكل إضافي، سيتم تطبيق ميزة جديدة أخرى وهي  
«منطقة المدن الذكية». وتوجد هذه المنطقة المخصصة في قاعة زعبيل  
3، وسوف تتضمن منتجات وحلولاً «ذكية» ومبتكرة يقدمها مزودون بارزون  
لهم تطبيقات محددة في إحدى «المدن الذكية»، وهي تشمل الأتمتة وكفاءة  
استهلاك الطاقة.

كما ستقام أيضاً مسابقة جيل المستقبل للعام الرابع على التوالي. وسيحصل  
طلاب الجامعات، من مختلف أنحاء الإمارات العربية المتحدة، على منصة  
لعرض مشروعاتهم/تقنياتهم في إطار «المدن الذكية» بدعم من معهد مصدر.  
وسوف تناح الفرصة لمن يقع عليهم الاختيار لعرض مشروعاتهم للجمهور،  
إلى جانب لجنة حكام تضم خبيراً من معهد مصدر، وستقدم جائزتان لائتين  
من الفائزين، حيث يتم تسليم «جائزة الحكام» خلال أسبوع جوائز معرض  
كهرباء الشرق الأوسط الرسمية في اليوم الثاني للحدث، كما ستقدم «جائزة  
اختيار الجمهور» في نهاية اليوم الثالث تقريباً.

نعتقد أن الاعتماد بدرجة أكبر على المدن الذكية، من شأنه الارتقاء بجمع  
الميزات وغروض المحتوى الجديدة التي نوفرها. وبوصفنا منصة بارزة  
في المنطقة تسعى لعقد المناقشات وتحقيق النمو للمجتمع الدولي للكهرباء  
والطاقة، فإننا نهدف لمساعدة بلدية دبي على بلوغ أهدافها التي حددتها  
الحكومة بشأن تحويل دبي إلى «مدينة ذكية، متكاملة».

أما المؤتمر الافتتاحي، الذي سيمقد في اليوم الثاني تحت عنوان «مؤتمر  
تشغيل المدن الذكية، ويستغرق نصف يوم، وسوف يشمل جلسات حول ابتكار  
أفضل الحلول التي تعول على تعزيز الطاقة الحضرية. وقد تمت دعوة رؤساء  
المجالس البلدية، وموفري حلول الكهرباء والشبكات البحثية جميعاً للمشاركة  
في مناقشة كيفية الوصول إلى مزيج مستدام من الطاقة يدعم احتياجات  
الطاقة المتزايدة بشكل كافٍ.

وسوف يناقش مؤتمر تشغيل المدن الذكية كيفية إدارة مدن الطاقة بشكل  
أفضل من خلال النقاط التالية:

- إمكانية التشغيل المتبادل بين أنظمة الكهرباء المختلفة.
- إقامة أنظمة إدارة الطاقة بشكل إستراتيجي عبر أنحاء المدينة.
- وضع الاستثمارات في العدادات والشبكات الذكية، ثم التأكد من  
وضع خطة تشغيلية.

كيفية تحسين منتجات الطاقة التي تستخدمها المدن؛

- السبب في استحواد مسألة تخزين الطاقة على الكثير من الاهتمام،  
ومع ذلك اتخاذ إجراءات تجارية محدودة معها.
- الفارق الذي من الممكن أن تحدثه عمليات التصنيع والمواد الجديدة  
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## معرض كهرباء الشرق الأوسط يشجع التوجه نحو «المدن الذكية»

سوف يجمع الحدث السنوي في مجال الكهرباء والطاقة موفري الحلول المستدامة والمجتمعات البحثية لعقد مناقشات حول توفير إدارة أفضل للطاقة، علاوة على عرض المنتجات المتكبرة.



دورة ٢٠١٧ معرض كهرباء الشرق  
الأوسط، ستعقد أكثر من ١٥٠٠٠  
تقريباً مشاركة من ٦٢ دولة

الجديدة التي تلقي جميعها الضوء على مستقبل المدن الجديدة والإبداعات، والتي من المقرر أن تقود الطريق على المستويين المحلي والدولي خلال العقد المقبل.

من جانبها، قالت أنيتا ماثيوز، مديرة الطاقة بمجموعة إنفورما الصناعية،

أعلن معرض كهرباء الشرق الأوسط، الذي سيقام في الفترة ما بين ١٤-١٦ فبراير/شباط، عن موضوعه لدورة عام ٢٠١٧، وهو المدن الذكية. وسوف يقدم المنظمون بالتعاون مع بلدية دبي ومركز البيئة للمدن العربية، وهما شريكان إستراتيجيان للحدث، سلسلة من الميزات والمؤتمرات والأنشطة

بنسبة ٤.٢ في المائة سنوياً حتى عام ٢٠٢٠. وتوقعت ائشركة أيضاً أن تسهم محطات الكهرباء العاملة بنظام الدورة المركبة في ارتفاع كفاءة استهلاك الوقود في محطات توليد الكهرباء بنحو ٥٠ في المائة. وإلى جانب إنشاء محطات جديدة لتوليد الكهرباء، يمكن للمنطقة إنتاج ٣٥ جيجاواط إضافية من خلال تحسين الكفاءة عبر تحديث المنشآت التي يتجاوز عمرها ٢٠ عاماً.

المقبلة سوف تشهد أيضاً توقف إنتاج ٦٦ جيجاواط من الطاقة الإنتاجية. هذا وبحلول ٢٠٢٠، ستُهيم محطات الكهرباء العاملة بنظام الدورة المركبة (CCPP) على السوق، حيث تصل حصتها السوقية من توليد الطاقة الحرارية إلى ٦٥ في المائة. وسوف ينمو هذا التوجه مع زيادة أهمية الغاز الطبيعي بوصفه المصدر الأول للوقود المستخدم في توليد الكهرباء. ومن المنتظر أن يرتفع الطلب على الغاز

وتحليها بالمرونة الكافية لكي تصبح أكثر تكاملاً مع مصادر الطاقة المتجددة. وتحتقيق هذه الأهداف، سوف تحتاج منطقة الشرق الأوسط إلى رفع قدرتها الإنتاجية لتوليد الطاقة بمقدار ٢٦٧ جيجاواط إضافية بحلول ٢٠٢٠. لتتضح بذلك القدرة الإجمالية للمنطقة من ٢٠٧ جيجاواط في اليوم إلى ٥٠٩ جيجاواط، بزيادة نسبتها ٦٦ في المائة. وأضافت الشركة أن الخمسة عشر عاماً

كانت محدودة عندما كان يقام في إطار معرض ابيج فايف، ولاشك أن الكثير من الشركات الدولية يترقب في إقامة معرض مخصص للإنشاءات، وكان ذلك هو الحافز الرئيسي لإقامة حدث منفصل. في عام ٢٠١٨، يتطلع معرض إسمنت الشرق الأوسط/العربات والآلات الثقيلة إلى التركيز على التعدين وأعمال الطرق الثقيلة، والخرسانة، كقطاعات داخل الحدث.

## أسمنت الشرق الأوسط/العربات والآلات الثقيلة يتطلع للانفصال عن البيج فايف

بها في المنطقة، ونحن ندرك في dmg events أن الحدث كبيرٌ وهويّ بما يكفي لكي يصبح مستقلاً وقائماً بذاته، ومن المهم للغاية أن يتخذ الحدث هوية مميزة، لأنه حتى هذه اللحظة يعتقد الجمهور أن معرض إسمنت الشرق الأوسط/العربات والآلات الثقيلة لا يزال تابعاً لمعرض البيج فايف. وقد فعلنا نفس الشيء مع معرض النواهد والأبواب والواجهات هذا العام، والذي كان أيضاً جزءاً من معرض البيج فايف حتى العام الماضي، وحقق ذلك نجاحاً كبيراً، ونحن نخطط لمحاكاة ذلك مع معرض إسمنت الشرق الأوسط/العربات والآلات الثقيلة.

وأضاف ميلنس قائلاً: «احتمالات نمو معرض إسمنت الشرق الأوسط/العربات والآلات الثقيلة

يتطلع معرض أسمنت الشرق الأوسط/العربات والآلات الثقيلة إلى الظهور كحدث مستقل بداية من العام ٢٠١٨ بعدما كان يقام في إطار معرض البيج فايف خلال السنوات الست الأخيرة، ومن المقرر أن يستضيف مركز دبي التجاري العالمي المعرض في الفترة بين ٢٦-٢٨ مارس/أذار من ذلك العام وقد شهد هذا الحدث نمواً بنسبة ١٠٦ في المائة، ولهذا نقرر التركيز على المشاركين والزائرين ذوي الصلة في الأعوام المقبلة.

وفي معرض حديثه عن الانفصال عن معرض البيج فايف، قال جيمس ميلنس، مدير الحدث في معرض إسمنت الشرق الأوسط/العربات والآلات الثقيلة: «على الرغم من وجود تحديات قائمة في بيئة العمل، لا تزال هناك أعمال يمكن القيام

### مشكرة إجمال الأعمال

يناير/ كانون الثاني ٢٠١٧

- ١٥ - ١٧ المعرض السعودي للتدفئة والتهوية وتكييف الهواء والتبريد - HVAC R Expo Saudi - جدة  
١٦ - ١٨ المعرض والمؤتمر العماني للمعادن والتعدين - مسقط

### فبراير/ شباط

- ٦ - ٧ مؤتمر مشروعات الطاقة الشمسية وطاقة الرياح - عمان  
١٤ - ١٦ معرض الشرق الأوسط للكهرباء - أبوظبي  
١٤ - ١٦ معرض الشرق الأوسط للطاقة الشمسية - دبي



إسمنت الشرق الأوسط/العربات والآلات الثقيلة ٢٠١٨ سوف يركز على قطاعات التعدين وأعمال الطرق الثقيلة والخرسانة

## هيئة كهرباء ومياه دبي تضيف خطة تطوير «حنا» لمشروعاتها المستدامة



(على اليمين) يتولى سعيد محمد الطاير شرح المشروع للشيخ محمد بن راشد آل مكتوم

على استغلال المياه المخزنة في سد «حنا» الذي تبلغ سعته التخزينية 1717 مليون جالون. هذا إلى جانب خزان آخر علوي سيتم إنشاؤه في المنطقة الجبلية بسعة تخزينية تصل إلى 88 مليون جالون. وسوف يرتفع الخزان العلوي 300 متر عن مستوى السد.

لمنطقة «حنا». إلى إشراك مواطني المنطقة في المشروعات، وتوفير فرص عمل رائدة ومبتكرة. إذ أن هذه المشروعات ستوفر نحو 200 وظيفة دائمة في المجالات الفنية والإدارية والتشغيلية. كما أشار الطاير إلى أن المحطة الكهرومائية، التي ستغذيها الهيئة، ستعتمد في إنتاج الكهرباء

اعتمدت هيئة كهرباء ومياه دبي (ديوا) عددا من المشروعات الرائدة المزمع تنفيذها في منطقة «حنا». هذه المشروعات تشمل محطة كهرومائية لتوليد الكهرباء بالاستفادة من المياه المخزنة في سد «حنا». ويعد هذا المشروع الأول من نوعه في منطقة الخليج العربي، وبقدرة إنتاجية تصل إلى 250 ميجاواط. وقد أمر الشيخ محمد بن راشد آل مكتوم، نائب رئيس الدولة ورئيس مجلس الوزراء وحاكم دبي، بوضع خطة لتعزيز القدرات الاجتماعية والاقتصادية للمنطقة، وتعزيز جاذبيتها كوجهة سياحية من الطراز الأول.

من جانبه، قال سعيد محمد الطاير، الرئيس التنفيذي لهيئة كهرباء ومياه دبي، «ستساهم المحطة الكهرومائية في زيادة الاعتماد على مصادر الطاقة النظيفة، ودعم التنمية المستدامة للمنطقة، وتعزيز موقع «حنا» كأحد أبرز مناطق الجذب السياحي في الإمارة. وبدعم ذلك تنفيذ خطة دبي 2021، التي تهدف إلى أن تكون دبي الوجهة المفضلة للعيش والعمل والمقصد المفضل للزائرين». وأضاف الطاير: «تهدف المبادرات، التي اعتمدها الهيئة في إطار الخطة التنموية

## الشرق الأوسط يحتاج إلى طاقة إضافية بمقدار 267 جيجاواط بحلول 2030

أعلنت شركة سيمنز عن نظرتها المستقبلية المتوقعة لتطاع الطاقة والكهرباء في منطقة الشرق الأوسط حتى عام 2020. وقدمت الشركة نموذجاً لتسنياريو توليد الطاقة الحالي في المنطقة، والتحديات المرتقبة، وتخصيص مصادر الطاقة، إلى جانب الدور الذي سيلعبه التحول الرقمي بمجموعة مصادر الطاقة في المستقبل، وكشفت سيمنز الشباب عن التحديات الراهنة التي تواجه توليد الكهرباء، وهي تتمثل في التدرج على تحمل التكاليف والاستدامة والكفاءة وأمن الطاقة. وللتغلب على هذه العوائق لابد من السماح بتبويب مصادر الوقود، وتوفير الكهرباء بأسعار ملائمة وجعلها أكثر كفاءة، مع خفض انبعاثات الطاقة،



بحلول 2030 ستحتاج الشرق الأوسط محطات الكهرباء المعانة بنظام الدورة المركبة



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## ملخص محتويات القسم الإنجليزي

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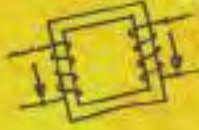
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في خدمة شركات المنطقة منذ 1984

الشرق الأوسط

## التوجه نحو «المدن الذكية»

سوف يشترك موفرو  
الحلول المستدامة  
والمجتمعات البحثية  
في معرض كهرباء  
الشرق الأوسط ٢٠١٧،  
لحقد مناقشات حول  
أفضل الطرق للوصول  
إلى خليط مستدام  
من الطاقة يستطيع  
بمخافة سد  
احتياجات المنطقة  
المتزايدة إلى الطاقة.