

# TECHNICAL REVIEW

## النشرة التقنية - الشرق الأوسط

## MIDDLE EAST

USA: \$16.50, United Kingdom: £10

Vol 34/Issue Four 2018

I AM THE POWER

### Jordan Calling

New reform agenda and GCC funding set to boost its economy

### The Powerhouse

The UAE ready to host World Energy Congress in 2019

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FUELLING DIESEL GENSET SALES IN  
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SAUDI ARABIA

## INSIDE

Facilities Management  
Nuclear Energy  
Materials Handling  
WETEX

INCLUDES GENSETS BUYERS' GUIDE 2018

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## EDITOR'S NOTE

POWER SHORTAGES CAN hamper the socio-economic development of any nation, and the GCC is no different. The biggest country in the region – Saudi Arabia – is blessed with abundant hydrocarbon reserves as well as sunlight and both play an important role in power generation. However, while there is still a need for a better grid system, gensets are currently the only reliable backup option. Suppliers and manufacturers predict that the market will continue to grow going forward (p22). To cater to this power-hungry market, Informa is launching its flagship exhibition Middle East Electricity Saudi in Riyadh (p42) and **Technical Review Middle East** is the Official Publication Partner of the event. Meanwhile, situated west of Saudi Arabia, Jordan begins reform plans to strengthen its economy. Our lead story explains why you should look beyond the Dead Sea and Petra. Also do not miss event previews of Dubai HSE Forum, WETEX and Saudi Build as well as the updated Annual Genset Buyers' Guide on p60.

*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

## MIDDLE EAST

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## Briefly

### Saudi Arabia pushes for peaceful nuclear technology in Middle East

SAUDI ARABIA'S ATOMIC energy programme is fundamental for developing a sustainable energy sector, energy minister Khalid Al-Falih told the International Atomic Energy Agency (IAEA) in Vienna.

The kingdom plans to start building its first two nuclear power reactors this year and as many as 16 over the next 25 years at a cost of more than US\$80bn. The plan is to provide 15 per cent of Saudi Arabia's power from nuclear by 2032, *Arab News* reported.

Al-Falih said that the atomic reactor projects were a part of the kingdom's Vision 2030 to diversify its energy sources to nuclear and renewable energy.

The programme "abides by all international treaties and conventions and best practices, adhering to the highest standards of safety, security and transparency", Al Falih added.

"Saudi Arabia was committed to the Treaty on the Non-Proliferation of Nuclear Weapons, which calls for nuclear disarmament and stresses the commitment of nuclear power states to share their peaceful technologies with abiding member states," he stressed.

### UAE runs first intermodal transport under TIR between GCC and EU

FIRST EVER INTERMODAL TIR operation between the Gulf Cooperation Council (GCC) and the EU was launched in September, with a container leaving the UAE bound for Europe under a single customs transit document and a single guarantee. Leaving from the SAIF Zone in Sharjah, the container was bound for Olomouc in Czech Republic via Jebel Ali Port and the Port of Hamburg, Germany. The goods are travelling by land and sea. TIR offers huge potential for improving transit connectivity between ports and borders with free zones and integrating them into the global logistics chain.

The UAE's strongest trading partners are India and China – both part of the TIR network – reinforcing the potential for the transit tool to transform trade along these corridors.

## UAE's FANR and Khalifa University sign collaborative research deal

THE FEDERAL AUTHORITY for Nuclear Regulation (FANR) and Khalifa University of Science and Technology (KU), have signed a collaborative research agreement focused on advancing nuclear safety research and educating the UAE's next generation of peaceful nuclear energy professionals.

The agreement was signed during a ceremony held at FANR's headquarters by Christer Viktorsson, director general of the FANR, and Dr Arif Sultan Al Hammadi, executive vice-president of Khalifa University.

According to the new agreement, FANR and KU will continue their joint work on the Advanced Thermal-hydraulic Test Loop for Accident Simulation Project Phase 2 (ATLAS-2), an international project jointly organised by the Organization for Economic Co-operation and Development (OECD) and the Nuclear Energy Agency (NEA).

The ATLAS-2 Project focuses on addressing thermal-hydraulic safety and accident management issues relevant for APR1400 reactor types. APR 1400 is a Generation III pressurised water type developed by the South Koreans. A variant of the APR1400 reactor is employed at the UAE's Barakah Nuclear Energy Plant and this collaborative agreement is designed to familiarise UAE students and researchers with the reactor and build local human capacities in nuclear safety through intensive research activities.

Viktorsson said, "Through this research



Photo Credit: FANR

Following the signing ceremony, FANR and Khalifa University will prepare to present their collective research findings at the upcoming ATLAS-2 Project Review Meeting in October 2018, which will take place in South Korea.

agreement, Emirati students and researchers will learn about the critical safety features of nuclear systems utilising various coding systems, including how to generate and modify plant inputs and study test results. Likewise, the training material produced by our work on the ATLAS-2 Project will serve as a valuable resource to post-graduate students and researchers for years to come."

Dr Al Hammadi added that the sponsored research and collaboration agreement with FANR will enable both the organisations to undertake research into thermal hydraulic studies as part of the ATLAS-2 project. This collaboration is in line with Abu Dhabi Economic Vision 2030, which emphasises the importance of sustainability of energy and water. It also concurs with Khalifa University's mandate which includes education, research and advancement of knowledge.

## Tadweer opens new waste recycling facility in Abu Dhabi

AS PART OF its efforts to support Abu Dhabi's mandate of diverting 75 per cent of waste from landfills, Abu Dhabi Waste Management Center (Tadweer) has opened a new facility to recycle construction and demolition waste in Ghayathi in Al Dhafra region of Abu Dhabi.

Located near the Ruwais oilfields and the UAE-Saudi Arabia border, the new facility will help ease the pressure on Al Dhafra landfill, which is anticipated to receive incoming construction and demolition waste in the range of 60,000 to 70,000 tonnes per month with an average daily inflow of 1,500 to 2,000 tonnes.

With a minimum production capacity of 31,000 tonnes per month and 150 to 200 tonnes per hour, the new facility recycles construction and demolition waste and provides recycled aggregate for the construction of roads and other infrastructure projects. In addition, a mobile crusher has been set up at the facility to accommodate the existing stockpiles as well as the incoming waste intended for recycling.

Dr Salem Al Kaabi, acting general manager of Tadweer, said, "The opening of the Ghayathi

recycling facility is aligned with our strategic plan to implement a world-class waste management system in Abu Dhabi and position the UAE at the forefront of innovative recycling. Given the construction boom witnessed by Abu Dhabi over the past several years, it is important to continue our efforts to divert waste from landfill and encourage recycling. This becomes even more imperative with construction and demolition waste accounting for a large proportion of solid waste in the emirate. In addition to complying with the latest global practices in waste treatment, the new facility is fitted with state-of-the-art systems and technologies that allow Tadweer to recycle larger volumes of construction and demolition waste in future."

The new facility seeks to support the Abu Dhabi Executive Council's resolution of utilising a minimum quantity of 40 per cent recycled material, if available, in road and construction projects. Recycling of construction and demolition waste also helps conserve natural resources, which in turn cuts transportation cost and avoids CO<sub>2</sub> emissions.





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## Briefly

### Haya Water starts operation at Omani Wilayat

AS PART OF its strategic plan, Oman's Haya Water recently started the operation of the sewage treatment plant (STP) at Misfat Al Abryeen in the Wilayat of Al Hamra with a capacity of 200 cu/m per day.

Eng. Saud bin Nasser al Shidhani, senior area manager for regional governorates, stated that this project comes as a result of the company's efforts to provide wastewater services around at the various governorates.

He added that the company, by establishing these projects, aims to protect the health and preserve the environment from pollution caused by the traditional sewage tanks.

"The project design is executed according to the wastewater international specifications and standards to enable the company benefit from the treatment water which is produced according to the Omani specifications category (A) under the Ministry of Environment and Climate Affairs."

The treated water would be used for expanding the afforestation in the Wilayat.

### Saudi-Bahrain King Hamad Causeway project tender dates set

THE AUTHORITY SUPERVISING a bridge project connecting Saudi Arabia and Bahrain will launch a tender for the project in six months.

The bridge project includes a rail line for the Gulf Cooperation Council (GCC) network, as well as vehicle lanes and cargo trains.

Saudi Arabia's ambassador to Bahrain, Abdullah Al-Sheikh, was quoted by *Al-Arabiya* as saying, "The tender for the King Hamad Causeway will be launched after six months, and it is expected that the project will be completed in three years."

Al-Sheikh estimated that the cost of the project ranges between US\$3bn and US\$4bn, adding that it will act as a new link between the two countries and will contribute to boosting trade in all fields. The current 25km Saudi-Bahraini causeway was built in 1986. The average daily traffic was 31,000 passengers in 2016 while the figure is expected to double by 2030.

## Eighty five local firms implement solar energy projects in Egypt's Benban

EIGHTY FIVE LOCAL companies in Egypt aim to implement the services of the solar energy feed-in tariff projects in Benban, Aswan, after the registration of their data and getting approvals to work in the projects by Hassan Allam company, which is responsible for managing services at the projects' location.

Hossam Allam, the CEO of Hassan Allam services, said that a tender was launched to implement the external fence of the projects in Benban on an area of 25 sq m, which will be completed within three weeks. The tender was won by companies owned by people from Benban.

He added that 33 companies, among 85 registered to implement the services in Hassan Allam, are owned by the people of Benban.

The companies registered in Hassan Allam handles offering services in the projects' location, including building fences, levelling grounds, providing labourers, and water, and removing and recycling dangerous waste.

Hassan Allam won the tender to manage the services and facilities of the solar energy projects in Benban after a competition with several local and international companies.

The number of the companies taking part in the feed-in tariff projects with their first and second phases is 32, aiming to implement solar energy production projects of a capacity of 1500MW through solar energy plants with capacities ranging 20 to 50MW.

Mohamed Shaker, Egypt's minister of electricity



Photo Credit: Pixabay

*Bloomberg's Climatescope 2017 annual report stated that Egypt's ranking jumped by 23 places, reaching number 19 out of 71 countries assessed for the progress they have made towards clean energy.*

and renewable energy, told Daily News Egypt that implementing the plants will be completed in accordance with the feed-in tariff system during the first half of 2019. The investments to implement the project are estimated at US\$2bn.

According to GTM Research, solar PV in the Middle East and Africa (MEA) will take off in 2019-2020, as big projects come online and Africa heats up.

Demand is expected to grow 170 per cent in 2018, led by Egypt, the UAE and Morocco. Post-2020, the region will mostly see slower, more measured growth to 2023 as tender schemes enter multiple rounds and industry learning and regulatory adaptation catch up.

## Dubai completes 47 residential projects in 2018

THE DUBAI LAND Department (DLD) said 1,000 investors received their properties through 900 transactions worth more than US\$3.27bn during the first eight months of this year, demonstrating Dubai's distinctive position as a preferred international investment destination.

DLD director-general Sultan Butti bin Mejren said 47 projects were introduced into the market after they were completed based on their set timelines.

These added 14,000 different properties to the market: 10,000 apartments, 364 residential complexes, 2,258 townhouses and 1,575 villas.

"The success of delivery of the 47 completed projects reflects the interest and commitment of developers who are working with the highest levels of integrity and transparency with investors. We seek to consolidate these values in our real estate market, and observe that these projects are characterised by their diversity that help meet the demand for

different types of units and avoid excess supply in any category," bin Mejren added.

In the DLD's latest report covering the period from the beginning of 2018 to August 31, it said.

Bin Mejren believes that Dubai can maintain this positive momentum which showcases its features, especially with the availability of promising investment opportunities, leading up to Expo 2020 Dubai and the years that follow. The event is a unique opportunity to reveal the strengths of the local economy and the benefits the real estate sector provides investors with.

"Investors agree on a number of different interests and trends related to the Dubai real estate sector. The attractiveness of the market is based on a number of unique factors, especially the high guaranteed returns, the continuous rise in property values year after year, and the emirate's ideal environment for living, working, and visiting, making it a high-level investment option," Bin Mejren added.



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# ON THE WEB

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

## Masdar to deliver battery-storage PV plant in Seychelles

ABU DHABI FUTURE Energy Company (Masdar) is set to help the public utilities corporation (PUC) in building a 5MW solar photovoltaic (PV) power plant with battery storage in Seychelles. The project is being financed by a US\$8.44mn loan from Abu Dhabi Fund for Development (ADFD) and from PUC's own equity. The project's EPC contract scope includes subsea cabling, switchgear extensions and an underground water piping system for module cleaning.

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



The new solar PV project will be integrated with existing Port Victoria Wind Farm and PUC's existing power station.

Photo Credit: Jonathan Potts/Flickr

## Arabsat, Newtec to launch satellite services in MEA

BELGIUM-BASED NEWTEC has signed a contract with Arab Satellite Communications (Arabsat), a move that aims to see the launch of a new high throughput satellite (HTS) services in the Middle East and Africa. Expanding their long-term partnership, the deal also focuses on introducing enterprise and VNO services, IP Trunking and mobile backhaul for 3G and 4G services in Middle East and Africa. Under the terms of the partnership, Arabsat will deploy a Newtec Dialog platform with a variety of Newtec's DVB-S2X Wideband modems. The specific modem used for each customer is set to depend on the market being served, with Newtec's portfolio providing vertical-specific solutions to deliver the best connectivity experience for any satellite application.

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

## HyperloopTT moves forward with regulatory framework

HYPERLOOP TRANSPORTATION TECHNOLOGIES has announced the creation of the first set of Hyperloop core safety requirements and certification guidelines along with the first insurance framework for HyperloopTT worldwide systems.

The announcement came in partnership with the global testing, certification and inspection company TÜV SÜD and Munich Re, one of the world's leading providers of reinsurance, primary insurance and insurance-related risk solutions. As construction moves forward at different locations around the world, HyperloopTT has reached major milestones on two of the biggest hurdles remaining for the new transportation system such as regulation and insurance.

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

## Alstom wins O&M contract for Riyadh Metro lines

ALSTOM HAS RECEIVED a Letter of Award (LoA) from Arriyadh Development Authority (ADA) to operate and maintain services for Lines 3, 4, 5 and 6 of the Riyadh Metro over a period of 12 years, including the mobilisation period.

The total value for the consortium comes to around US\$2.9bn, with the rolling stock and systems infrastructure maintenance representing more than US\$854mn.

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



The contract, as set by ADA, carries a minimum Saudisation target of 45 per cent.

Photo Credit: Alstom

## DEWA CEO inspects R&D Centre at Dubai solar park

SAEED MOHAMMED AL TAYER, managing director and CEO of Dubai Electricity and Water Authority (DEWA), visited the R&D Centre at the Mohammed bin Rashid Al Maktoum Solar Park last month to evaluate the progress of projects undertaken by DEWA. Al Tayer inspected the R&D Centre's infrastructure facilities that include projects and programmes consisting of internal labs to study and test system reliability and external field testing of new technologies and equipment.

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



The R&D Centre includes DEWA's lab which was built using 3D printing technology.

Photo Credit: DEWA

## EGA receives caustic soda shipment for Al Taweelah alumina refinery

EMIRATES GLOBAL ALUMINIUM (EGA), one of the leading industrial companies in the UAE, has received the first shipment of caustic soda for its under-construction Al Taweelah alumina refinery.

As caustic soda and bauxite are the two most important raw materials in alumina refining, stocks of these materials are initially required for the carefully-planned sequential commissioning of Al Taweelah alumina refinery. EGA began importing bauxite in June this year. The company has also begun stockpiling hydrate, another raw material required to commission Al Taweelah alumina refinery. Once full ramp-up is achieved, the refinery is set to produce about two million tonnes of alumina per year, meeting 40 per cent of EGA's alumina requirements. This will require an amount of five million tonnes of bauxite each year, which will be imported from the Republic of Guinea in West Africa.

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





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# EXECUTIVES' CALENDAR 2018

## OCTOBER 2018

8-10	<b>The Mining Show 2018</b>	DUBAI	<a href="http://www.terrapinn.com/exhibition/mining-show">www.terrapinn.com/exhibition/mining-show</a>
15-17	<b>MEE Saudi</b>	RIYADH	<a href="http://www.middleeastelectricitysaudi.com">www.middleeastelectricitysaudi.com</a>
22-25	<b>Saudi Build</b>	RIYADH	<a href="http://www.saudibuild-expo.com/default">www.saudibuild-expo.com/default</a>
23-25	<b>WETEX</b>	DUBAI	<a href="http://www.wetex.ae">www.wetex.ae</a>

## NOVEMBER 2018

6-8	<b>Gulfood Manufacturing</b>	DUBAI	<a href="http://www.gulfoodmanufacturing.com">www.gulfoodmanufacturing.com</a>
17-19	<b>Electricx</b>	CAIRO	<a href="http://www.electricxegypt.com">www.electricxegypt.com</a>
26-29	<b>The Big 5</b>	DUBAI	<a href="http://www.thebig5.ae">www.thebig5.ae</a>
26-29	<b>The Big 5 Heavy</b>	DUBAI	<a href="http://www.thebig5heavy.com">www.thebig5heavy.com</a>
26-29	<b>Middle East Concrete</b>	DUBAI	<a href="http://www.middleeastconcrete.com">www.middleeastconcrete.com</a>
27-28	<b>4th Annual HSE Forum</b>	DUBAI	<a href="http://www.hse-forum.com/dubai/home">www.hse-forum.com/dubai/home</a>

## DECEMBER 2018

4-6	<b>Saudi Transtec</b>	DAMMAN	<a href="http://www.sauditranstec.com">www.sauditranstec.com</a>
11-13	<b>Saudi Arabia Smart Grid Conference</b>	JEDDAH	<a href="http://www.saudi-sg.com">www.saudi-sg.com</a>

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

## Unearthing the potential of the Middle East's mining industry

AS MINING SECTOR is economically important for any nation, creating a trained workforce, developing small businesses and fostering a number of associated activities, it is accounted for a significant portion of gross domestic product.

The mining industry in the Middle East is at the juncture of an unprecedented development. As governments in the region aim to diversify their economies, new mining codes and regulations have opened up a wave of private sector opportunities across several exciting countries.

For this reason, The Mining Show 2018 is going to bring together the entire mining and quarrying ecosystem from across the region between 8-10 October 2018 at Dubai International Convention and Exhibition Centre to focus on the most pressing issues in the industry right now.

Returning in its 11<sup>th</sup> year, the Middle East's one of the leading mining and quarrying exhibitions will discuss the challenges and opportunities the sector is facing in the region. Organised by Terrapinn Events, more than 100 exhibitors from across the globe will showcase a range of products and solutions including latest technologies such as dust suppression, ICT infrastructure, IoT and big data integration, which are changing the industry landscape.

### The event will focus on:

- Major country plans for mining and mineral industry expansion.
- Discussing global market trends and their impact on Middle East and North Africa (MENA) mining.



*The future is bright for mining in the Middle East.*

Photo Credit : nellockhart/Adobe Stock

- Exploring the mineral potential of the region: update on planned and future projects.
  - Showcasing world-class solutions that are spearheading innovation in the industry.
  - Identifying important technology requirements of MENA governments and regional producers.
  - Reviewing various investment models and partnership options
- In addition, there will be the on floor demo zones that will enable the visitors to learn about the latest updates on regional projects.

Going forward, the event will be incorporating the RAK Quarry Show, aiming to showcase the quarrying industry in the UAE's Ras Al Khaimah and uncover the emirate's burgeoning sector.



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*FG Wilson Genuine Parts for generator set that help optimising product performance, fuel efficiency and life span.*

Photo Credit: FG Wilson

# Powering On

Design, testing and reliability ensure continuous power from FG Wilson. New MD Paul Creighton explains why the 50-year-old generator sets manufacturer is still the world's best.

**“THE MARKET FOR** generator sets is a crowded and unforgiving place,” says Paul Creighton, the newly-appointed Managing Director of FG Wilson, and with around 30 years of commercial and product background in the industry, he knows and understands the industry very well.

As a way of providing guaranteed electric power, generator sets have been around for a long time and the simple economics of securing the power supply mean that they are a strong consideration for many people.

FG Wilson has been in business for more than 50 years, installing more than 625,000 generator sets since 1990 (as far back as their computer records can search). Paul can see why they are a popular choice: “When it comes to guaranteeing standby or emergency electrical power, in terms of cost, flexibility and responsiveness, for many, the best option is a generator set.”

Diesel engines are the most common prime mover for generator sets and the reasons have always been practical: compared with other engines, they are more economical to run, typically easier to service and maintain, fuel is safer to store and transport than petrol or gas fuel and engines are durable. Because the engines operate at relatively low RPM in power generation applications, they can expect a long working life, if looked after and in countries where usage is high, examples of generator sets with 30,000 operating hours are not uncommon.

The basic technology in a generator set today remains very similar to what it has always been: FG Wilson can point to a 70-year-old 50kVA generator set on display in one of their factories which wouldn't look out of place on a customer site today. However, as Paul notes, “What has changed is the efficiency of the generator sets you see now. The 70-year-old 50kVA generator set is about the same size as a 250-300kVA generator set today.”

That big reduction in size, in other words the improvement in power density, has meant a corresponding reduction in fuel consumption and in emissions from generator sets, with emissions further reduced by new engine technology. FG Wilson engines are sourced from UK-based manufacturer Perkins, designed in the UK and among the most modern and fuel-efficient engines available. All meet or surpass standards wherever the engines are being used.

Rightly, there's growing interest in renewable sources of energy. Paul remarks, “We're seeing this in many applications where a generator set may be running for four or five hours a day and

customers are seeking to reduce operating costs by adding a renewable element. We're working with some telecoms networks and supplying hybrid generator sets with solar panels as part of the package.

Thinking ahead, in countries where generator sets may be running for several hours a day, we can see solar panels, batteries, wind turbines and generator sets all linked and capable of powering settlements or customer applications. In regions where mains supply is more secure and power outages less common, energy storage is also starting to become an option for some users. These are usually domestic or other light users of electricity, who may have enough electrical energy stored to see through short outages. However, where you have a facility which requires substantial electric power, like a data centre or hospital, current renewable and energy storage technology is not sufficiently well developed to be a commercially viable option for standby power. For guaranteed continuity of power, you still need a generator set, but that might exist along with some renewable energy sources, so you could end up with a slightly smaller generator set installed or perhaps run on batteries for a very short outage.”

For FG Wilson products today, the watchwords that design engineers live by are customer operational efficiency and keeping customer operating costs low. That means long service intervals, up to 1,000 hours on some of the popular small models with fewer parts consumed and fewer maintenance calls. On the popular 6.8–25kVA range there's a choice of three sizes of fuel tank, with the largest 2,000-litre tank capable of fuelling the 11kVA unit for up to 185 days for four hours a day at 75 per cent load. A choice of sound attenuated enclosures means customers can fit needs to budgets.

Reliability in service is also a big priority: every new design is thoroughly validated at the UK facility including 500 hours of testing at full load power rating, covering maximum cold load step and hot load step and further testing for vibration, engine/alternator cooling, electromagnetic compatibility, noise, water ingress and rating/transient performance.

Coming from an engineering background, Paul sees this as especially important. “We're a volume manufacturer and we take reliability extremely seriously. We know that thorough upfront design, testing and validation all lead to superior reliability throughout a product's lifetime and that this can really save customers a substantial amount of money over time. If you add to this the wide and efficient FG Wilson dealer network with fast delivery of parts, it really does make a difference.” ■





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*Saudi Arabia, Kuwait and the UAE have pledged US\$2.5bn aid to Jordan to help it weather the economic and political crisis.*

# Jordan finds support in regional collaboration

Tourism is still the top supporter of Jordan's economy but with the introduction of Jordan Economic Growth Plan this year, the government is committed to achieving a balance by promoting business investments and activating free trade agreements. Economist Moin Siddiqi reports.

**This year the government unveiled the “Jordan Economic Growth Plan 2018-22 (JEGP)” to position the country of almost 10mn people onto much higher growth trajectory.**

**T**HE ORIENTATION OF Jordan's small-open economy is outward looking and geared to trading and investment conditions in the Gulf Cooperation Council (GCC) and to a lesser extent Iraq, Lebanon and Syria (prior to military conflict).

Geopolitics and regional headwinds weighed heavily on Jordan's trade sector and fiscal burdens. The United Nations Refugee Agency (UNHCR) record shows an influx of nearly 655,000 registered Syrian refugees into Jordan. This exogenous shock coupled with a slowdown in the GCC's business cycle led to protracted tepid real GDP growth averaging 2.5 per cent during 2010-17, down from 6.5 per cent over 2000-09 (World Bank data).

“Today, average growth is about 2.1 per cent and the main reason for that is the

closure of the natural markets [in Iraq and Syria],” explained Muhannad Shehadeh, Jordan's minister of state for investment affairs. Between 2014 and 2016, exports to Iraq and Syria plummeted more than two-thirds, according to official figures.

Meanwhile, Jordan suffers from perennial fiscal and external imbalances (Table 1) that generate large financing needs, which are met via international/ donor assistance. Current GCC aid package includes US\$2.5bn from Kuwait, Saudi Arabia and the UAE in form of direct deposit in the Central Bank of Jordan (CBJ), guarantees to the World Bank, plus annual budget assistance. The USA renewed its budgetary grants to Jordan in early 2018 for a three-year period.

The reopening of trade routes with Iraq on August 2017 (after a two-year closure) bodes well for revitalising bilateral trade and



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Rotair - photo: David Rodriguez on Unsplash

improves prospects of building the oil pipeline from Basra to Amman and Aqaba. The two countries agreed in September 2017 to establish a joint Jordanian-Iraqi industrial estate on the newly reopened Karameh-Tureibil border with customs free access for selected goods. Jordan also has free trade agreements with the USA and the European Union (EU). The latter relaxed the rules of origins requirements, allowing products with one-third Jordanian content to enter the eurozone.

Positive developments, through Jordan's prosperity, are tied to the GCC.

The services sector (led by tourism), private consumption and investment (real estate) as well as net merchandise exports are principal drivers of medium-term growth. Sectorally, services and industry continues to fuel the economy over years. "Creating conditions for increased private investment and improved competitiveness will remain indispensable for Jordan to stimulate job-creating growth," advised the World Bank. Unemployment stands at 18.5 per cent.

### Gulf connections

Historically, the 'correlations' between six-member GCC-bloc and Jordan are manifested via several primary channels, chief of which are:

- Merchandise trade, exports to the GCC region comprised about a fifth of Jordan's total exports over the past decade. Out of 148 countries, four GCC states were among the top 10 export markets for Jordan, with Saudi Arabia, Kuwait and UAE ranking second, fifth and sixth, respectively, according to department of statistics. In 2017, manufactured goods, chemicals, plastics,

**Table 1: Selected Macroeconomic Indicators and Outlook, 2016-20**

	2016	2017	Projections 2018	2019	2020
<b>Domestic Sector</b>					
Nominal GDP (US\$ billions)	38.8	40.17	42.55	44.79	47.24
Real GDP growth (annual % chg)	2.0	2.3	2.5	2.7	2.9
CPI inflation (average)	-0.8	3.1	1.9	2.2	2.5
Fiscal Balance % GDP (incl. grants)	-3.2	-2.6	-1.6	-0.5	1.3
Total Investment % GDP	22.1	22.0	22.2	22.5	
<b>Structure of Output % GDP</b>					
Agriculture	3.4	3.4	3.4	3.3	
Industry	24.9	24.8	24.8	24.9	
Services	56.3	56.4	56.4	56.3	
<b>External Sector (US\$ millions)</b>					
Exports FOB	7,520	7,788	8,214	8,720	9,260
Imports FOB	17,056	17,491	17,947	18,619	19,455
Merchandise Trade Deficit	-9,536	-9,703	-9,733	-9,899	-10,195
Remittances	3,337	3,458	3,595	3,740	3,896
Net Foreign Direct Investment	1,553	1,665	1,720	1,909	2,175
Total Debt Stock	36,843	38,835	40,556	42,169	
Foreign Currency Reserves	12,883	12,585	13,345	14,105	

Population: 9.7mn (2017); Purchasing Power Parity GNI: US\$88.4bn (2017);

FDI Stock: US\$33.8bn (2017); Official Development Aid: US\$2,739mn (2016).

Sovereign Credit Rating (2018): Moody's (B1); Standard & Poor's (B+).

Sources: World Bank, IMF, World Investment Report 2018 & GOVT data.

machinery and transport equipment constituted 73 per cent of exports, while food and live animals almost one-fifth of aggregate (World Bank data).

- Consequently, growth slowdown in the Gulf impacted Jordanian exports. On a product basis, hardest hit were beverages/tobacco; animal/vegetable oils, fats and waxes; and machinery/transport equipment – each declining 56, 49, and 30 per cent, respectively, in the first eight months of 2017, compared to 2016 corresponding period (CBJ data).
- Remittances have always been the mainstay of Jordan's economy – comprising one-tenth of GDP annually over the past decade. Of some 750,000

Jordanian expatriates, the majority are based in the Gulf with 40 and 27 per cent, respectively, working in Saudi Arabia and UAE (Economist Intelligence Unit data). In recent years, downturn in GCC construction industry has decreased inflows of remittances, which in turn, affects domestic demand in Jordan.

- GCC tourists are major sources of forex for Jordan, where tourism sector represented about two-thirds of invisible exports (i.e. services) in the past decade. GCC tourists accounted for 12 per cent of total tourist receipts during the first ten months of 2017, while tourist arrivals from GCC states rose by 8.3 per cent. This year's pick-up in oil prices should boost spending power of Gulf tourists.

Photo Credit: chiaros5/Adobe Stock



*GCC tourists are major sources of forex for Jordan, where tourism sector represented about two-thirds of invisible exports (i.e. services) in the past decade.*





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- Capital inflows are crucial for Jordan. Major donors of official development assistance, grants and soft loans are GCC countries (see table below). Further, half of total foreign direct investment (FDI) derives from GCC bloc, with Saudi Arabia and Kuwait representing 18.2 and 15.6 per cent of total net FDI to Jordan, respectively, according to latest data from Central Bank Jordan.

#### Official Financing, 2016-18 from GCC-BLOC, US\$mn

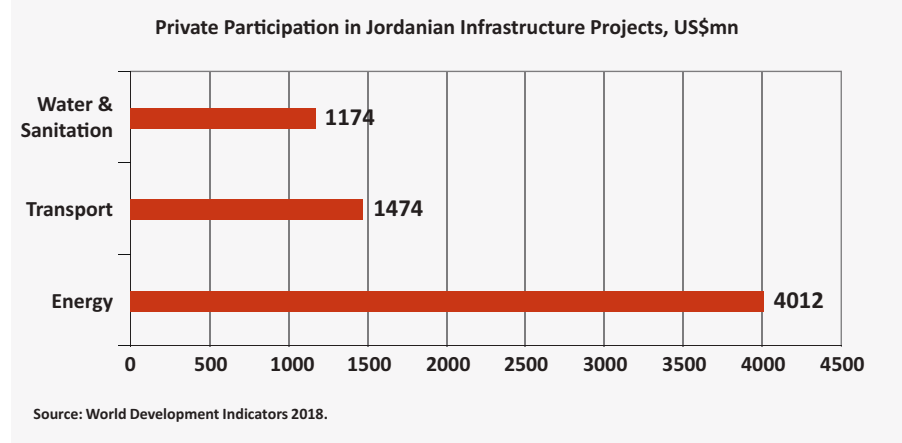
	2016	2017	2018
Saudi Arabia & Kuwait (development budget support)	94	224	224
GCC grants to CBJ*	145	110	280
GCC grants to MoF **	420	329	278
Arab Monetary Fund (loans)	198	127	
TOTAL	857	790	782

\*Central Bank Jordan; \*\*Ministry of Finance.

Source: IMF staff estimates and projections.

### National agenda

The government unveiled a comprehensive strategy, "Jordan Economic Growth Plan 2018-22 (JEGP)" to position the country of almost 10mn people onto much higher growth trajectory. The plan seeks to improve macroeconomic stability by



tackling huge debt level – averaging 98 per cent of GDP in 2018 (World Bank data) through fiscal consolidation and increased output growth. Specific policy actions include enhancing investment climate by cutting unnecessary red tape, facilitating access to credit and streamlining economic judicial procedures.

JEGP also lists a set of public and private investment projects to digitalise the economy and upgrade its transportation, energy, water and tourism facilities.

The World Bank has outlined three pillars

to equip Jordan for the 4th Industrial Revolution – 'Connectedness' (improved transport logistics, reduced trade barriers and trade in logistics services), 'Capabilities' (new labour skills, technical innovations, and increased digital readiness) and 'Competitiveness' (new business models and improving industrial and agriculture productivity).

In summary, Jordan's prosperity lies in globalisation and new technologies, as well as geopolitical stability. It remains a small but potentially vibrant economy. ■

## Climbing the production 'value chain'

IN TODAY'S INTEGRATED global marketplace driven by technical sophistication, declining transportation/communication costs and division of labour, many products and services from conception and design through production, marketing and distribution are being dispersed across the globe and between firms. The interconnected production process where value is added at each stage before passing onto the next stage is referred to as 'global value chains' (GVCs). Various tasks that constitute the supply chains are undertaken in diverse locations, depending upon respective countries' comparative advantages. This enables a particular country to join a production network without having to provide all the other upstream or downstream capabilities.

A developing economy like Jordan could link to GVCs at a specific stage, usually assembly in manufacturing and commodity production or agribusiness. This offers opportunities to upgrade through knowledge transfers mainly in the form of FDI, product differentiation and over time installing adjacent stages of the value chain. A country can be positioned 'upstream' or 'downstream' in GVCs depending on its specialisation. The former produces the raw materials for initial production stages; the latter assembles industrial products such as machinery/ mechanical appliances and electrical and electronic equipment, etc.

Jordan's share of global trade in value added is tiny, though it has scopes in light manufacturing, textiles/apparel and agribusiness, thanks largely to a relatively young/educated demography and a liberal business climate. Over the past decade, Jordan has pursued structural reforms such as privatisation, liberalisation and promoted public private partnerships in infrastructure.

## What determines GVC investment?

**\*Reliable infrastructure** for supporting output facilities and handling exports. A host country must provide efficient transport linkage both internal and external, utilities (power/water) and ICT accessibility. The presence of cluster industrial parks and special economic zones where investors receive fiscal incentives attract foreign manufacturers. The latter also place a premium on socio-economic stability and pro-business policies within host countries.

**\*Degree of industrialisation** – local manufacturers should be capable of handling outsourcing businesses from overseas firms, sub-contract works and producing components, with effective quality-control methods. In agriculture, modern cold chain logistics and applying water desalination technology as well as compliance with international food certifications, i.e. (phytosanitary) standards could also capture a higher share of value-added agro trade.

**\*Establishing faster import/export processes** is vital to integrate the global supply networks that heavily rely on imports for assembling activities. Policy barriers such as lengthy customs procedures undermine the competitiveness of time-sensitive and perishable products. Further trade liberalisation measures would make Jordan more competitive in global supply chains.

**\*Skill upgrades** are prerequisite to shift into higher value added activities in GVCs, such as processing and packaging. Delivering high-tech products requires setting up training institutes specialised in the field and establishing testing laboratories. An educated workforce is crucial for export-oriented activities.





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In 2016, an estimated 3,000-3,500 units were sold in Saudi Arabia with an estimated value of US\$175mn, with a slight drop in 2017 due to the oil prices and the introduction of some reforms and governmental regulations but the first half of 2018 saw an increase in sales.

# Temporary, not temperamental

The boom in Saudi Arabia's infrastructure sector has led to a rise in the diesel genset segment, which remains the go-to option for its reliability and technology advancement, not to mention the low-cost factor. *Rhonita Patnaik* reports.

**T**HE EXPLOITATION OF oil and gas led to the emergence of Saudi Arabia as the economic powerhouse of the GCC region and the top oil exporter. However, the downturn of crude prices in 2014 drove the kingdom to take up diversification measures, which led to the birth of Saudi Vision 2030.

This vision focuses on making Saudi Arabia an infrastructure and manufacturing hub. A report from Strategy& published in September 2018 estimates that Saudi Arabia is likely to spend US\$1.1 trillion on infrastructure projects from 2019-2038. The report also states that Saudi Aramco is targeting 70 per cent localisation by 2021 as part of its In-Kingdom Total Value Add (IKTVA) programme, which favours local content during the procurement process and makes localisation a key condition that encompasses all its commercial arrangements.

As the kingdom strengthens its local core with infrastructure and manufacturing facilities, the diesel genset market looks buoyant with projected growth at a CAGR of 3.7 per cent until 2022.

Massive power consumption, a rise in construction activities, and improvement in power infrastructure is anticipated to generate a profitable roadmap for the power rental market in the coming years in Saudi Arabia. Even the emergence of hospitals, data centres, IT and transportation systems are demanding continuous electricity supply. In such a scenario, it is necessary to implement backup power sources such as gensets (mainly diesel) to ensure smooth running of the facilities.

By 2020, it is expected that 429bn kW will be generated in Saudi Arabia. During 2014, the residential sector alone represented 30 per cent of the market of diesel generator

sets in Saudi Arabia, according to TechSci Research, in its report which highlights the northern, central and western areas as those with the greatest demand for generator sets with 56 per cent market share.

This proves that Saudi Arabia is the key region in the GCC diesel genset rental market. Although the kingdom's diesel genset market was stagnant in 2017-18, it is anticipated to witness growth going forward largely due to the government's plans to reduce its dependency on crude oil and rising demand for power to support infrastructure development. By 2021, the kingdom is expected to see its infrastructure construction market reach US\$37.5bn (in nominal value terms), with several large-scale projects planned, including transportation.

Besides Riyadh and Jeddah, Makkah and Medina are undergoing development



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transformation and there is a growing demand for more power generation to aid growth in these markets.

Since power grid stability remains a major issue in the kingdom, even with a plethora of renewable energy projects, replacing fuel sources with renewable energy fully is unrealistic at the moment. Being cheaper and more reliable, diesel gensets gain the upper hand as the preferred choice of power generation for many in the kingdom.

The major players in the market include Perkins, Cummins, HIMOINSA and Doosan Bobcat who have predicted the growth in the diesel genset market in the coming years.

### Traditional but dependable

The need to meet the continuous growing demand for reliable and seamless electricity supply is expected to pump growth in the country's diesel gensets market through 2020, according to recent market reports. The highest demand for diesel gensets in the country is forecast to emanate from the northern, central and eastern parts, as a large number of major residential, commercial and manufacturing facilities are situated in these regions. The residential sector, which accounted for a majority volume share in the country's diesel gensets market in 2014, has been growing consistently in Riyadh and Jeddah, and both of these regions are expected to fuel growth during the forecast period.

Mohammed Qunaibi, sales director of the power generation division at Saudi Diesel Equipment Company, authorised dealer for the generator range from Doosan Portable Power in Saudi Arabia, stated that the fact that the kingdom does not have sufficient transmission and distribution lines to cover the remote locations, and the increase in the industrial sector in eastern and western regions, have been factors in powering the growth in the diesel genset market.

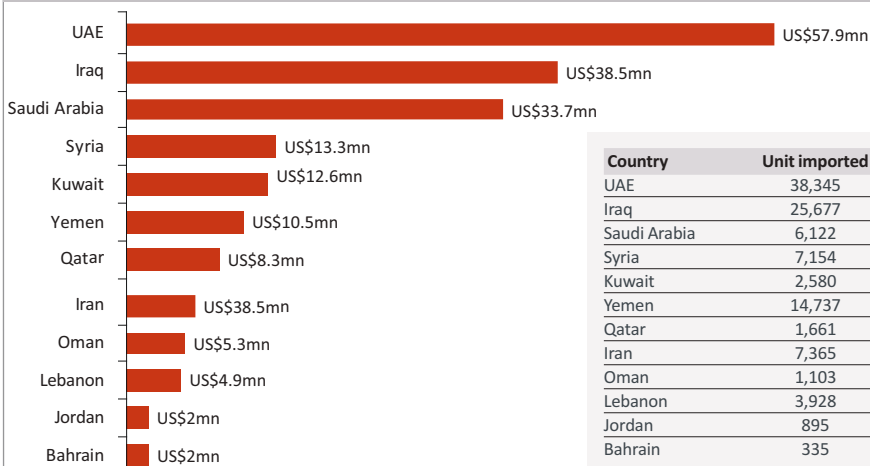
"Adding to this has been the regulation of having to have standby power available in shopping malls, amusement parks, industrial units as well as power plants as backup in case the main utility suppliers fail. Also, telecommunications and the rapid increase of subscribers have led to increasing tower numbers and more need for diesel gensets."

For Spain's HIMOINSA too, business is getting better in Saudi Arabia. The kingdom represents one of HIMOINSA's main Middle East markets and the manufacturer works in the region via its distributor FAMCO.

"In the past 20 months, 33 per cent of sales of HIMOINSA gensets in the Middle East are accounted for by Saudi Arabia," says Guillermo Elum, sales and marketing

## Generating sets, diesel, output <75kVA

### Genset import to ME countries from July 2016-June 2017



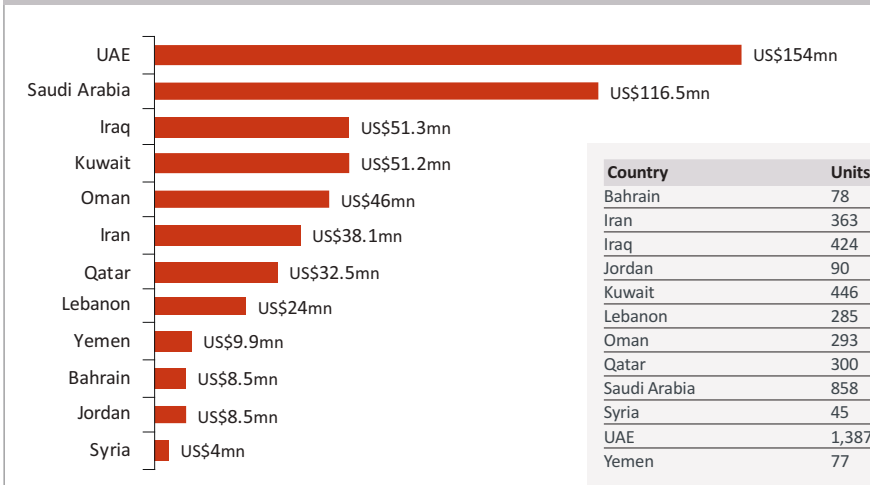
## Generating sets, diesel, output 75-375kVA

### Genset import to ME countries from July 2016-June 2017



## Generating sets, diesel, output >375kVA

### Genset import to ME countries from July 2016-June 2017





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## Middle East YoY diesel genset market

Country	2017-2018 evolution (in US\$ value)
Kuwait	+26%
Syria	+11%
Bahrain	+7%
Qatar	+5%
Saudi Arabia	+0%
Iraq	-3%
UAE	-9%
Yemen	-12%
Iran	-15%
Jordan	-16%
Oman	-24%
Lebanon	-50%

director in Middle East, Africa, Latin America and Europe in September, who describes Saudi Arabia as “one of our major markets in the region”.

While the construction sector has been one of the most important for HIMOinsa, the company is now focusing its attention on the telecommunications, residential and industrial sectors to provide innovative solutions.

The bridge project linking Bahrain with Saudi Arabia and the Makkah-Medina high speed railway project have both employed HIMOinsa gensets. Most of the gensets sold in Saudi Arabia have been distributed via rental companies.

Growing demand for medium voltage diesel gensets over the last five years has led Perkins Engines Company Limited to account for the largest share in the Saudi Arabia diesel gensets market. In the GCC, YBA Kanoo Machinery has helped establish Perkins as the engine of choice for power generation in the region. YBA Kanoo's acting country manager Graeme De Villiers says that the company ensures Perkins' global parts and service support standards are delivered at each location across Saudi Arabia. This allows YBA Kanoo to meet the customers' ever-changing product support requirements as a new generation of technologically advanced Perkins engines enters the market. “We have an aftersales network of dedicated Perkins technicians who offer both field service and workshop repairs along with regional technical product support.”

As the demand for residential projects grow, powered by Perkins engines, genset manufacturer Teksan supplied 20 sets to Saudi construction rental giant Bin Quraya to support its power needs.

According to Teksan, Bin Quaraya had two orders to fulfill. Firstly, it required prime power for its own residential camp near its headquarters in Salasil. This secure compound provides housing, services and facilities for its employees. Located in a remote region of Riyadh, the site requires

## Middle East YoY diesel genset market imports

		July 16 to June 17	July 17 to June 18	YoY evolution
<75kVA	Value	US\$195.8mn	US\$173.3mn	-11%
	Quantity	110,148	110,944	+1%
75-375kVA	Value	US\$156.7mn	US\$167.2mn	+7%
	Quantity	9,441	9,235	-2%
>375kVA	Value	US\$544.8mn	US\$509.6mn	-6%
	Quantity	4,655	4,415	-5%

prime power support to keep the lights on. Secondly, it needed a new line-up of generator sets in the oil and gas industry. The customer, oilfield service provider Schlumberger, had won a contract to provide drilling rigs and services for up to 146 gas wells and 128 oil wells in the kingdom. It requires considerable prime generation support to keep its machinery and operations online where mains access is not available.

Closely followed by Perkins in the medium voltage category, Cummins Inc. is committed to maintain power supply in the GCC region.

To cater to the GCC's increasing demand, in May 2017, Cummins Arabia was launched. Headquartered in Al Khobar, Saudi Arabia, it is a joint venture between Cummins Inc. and Olayan Group, serving Saudi Arabia, the UAE and Kuwait. “The formation of Cummins Arabia fulfils a vision to consistently deliver seamless, world-class service and support to customers regardless of geography and product type, and the first 12 months has gone extremely well. Our product range is well above the norm in a technology sense,” maintains Mike Sharp, managing director of Cummins Arabia.

### Customised options and customer satisfaction

Speaking about customised products for this part of the globe, HIMOinsa's executive director Lydia Gracia reveals that the key to success in Saudi Arabia lies in the flexibility of the company when it comes to adapting the product to the needs of a special market, among others, due to its extreme weather conditions. “We are prepared to work in extreme conditions, withstanding temperatures of 50°C. Desert areas require special working conditions, as at certain times of the day it can be humid but always dusty, factors that could damage the genset's filters and, therefore, affect its operation.”

Customer-focused and agile, Cummins' Sharp believes that driving more consistent customer service across the country is particularly important, allowing it to support its customers as they grow across geographies and require greater technical and business support. “We have always been at the forefront of diesel engine technology, resulting in many milestones in

the evolution of diesel. Our commitment to innovation continues to be an integral part of the product strategy,” he adds.

Cummins Arabia covers several industry sectors, and is valued in the country because it is ‘on-site’. “Yes, competitors are represented in the Middle East, but none have laid down roots like Cummins. And to achieve this, the company has majored on two specific areas – customer service satisfaction and employee satisfaction.”

Similarly, with an aftersales network of dedicated Perkins technicians who offer both field service and workshop repairs along with regional technical product support, YBA Kanoo Machinery comes with the expertise and diagnostic skills needed to carry out all servicing and maintenance on Perkins engines. Thanks to the presence of multiple parts distribution facilities in each region, the company is able to maximise parts availability as well as engine uptime for the customers.

### The future

Though the market for genset growth was restricted in 2017, projects such as the world's first independent economic zone NEOM City, entertainment park in Qiddiya and the 34,000 sq km Red Sea project is determined to change the downward trend of the genset market. As most of these projects are situated in remote locations, the support can be provided only by gensets.

Along with infrastructure, the Saudi government has turned its focus to the mining segment. And this expansion comes amid a push to attract private investment into the sector to further develop it as one of the main contributors to the economy. All the major players in the kingdom provide gensets for the mining sector..

It is, therefore, safe to say that diesel gensets provide us with temporary, not temperamental, power. ■

– *Graphs courtesy of PowerGen Statistics.*  
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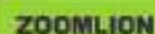
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# Energy for prosperity

As the UAE gets ready to host the 24<sup>th</sup> World Energy Congress next year in Abu Dhabi, *Rhonita Patnaik* was in conversation with Dr Matar Al Neyadi – Undersecretary at the UAE Ministry of Energy and Industry and Chairman of the UAE Organising Committee – about the preparations underway.



Photo Credit: World Energy Congress

**Technical Review Middle East (TRME): How significant is the 24<sup>th</sup> World Energy Congress that will be held in Abu Dhabi next year and what will this mean for the UAE and its energy sector?**

**Dr Matar Al Neyadi (MAN):** The 24<sup>th</sup> World Energy Congress will be, for the first time, hosted by an Arab nation and an OPEC member country in its 94-year history. It will be a momentous step for the UAE in our journey to further reinforce our position as a leading force in international energy policy, and as a world leader in sustainability and energy transformation.

Our country has already embraced the vision that energy plays as a driver of social and economic growth. Hosting the Congress is a testament to this vision as it highlights the fact that key companies and organisations are joining us in our ambition

to deliver the most relevant World Energy Congress since its creation in 1924.

To achieve this, the organising committee has worked since the day the Congress was awarded to Abu Dhabi in October 2014 with the goal to bring the most relevant leaders and stakeholders of the global energy industry together in Abu Dhabi to discuss the fundamental role and energy plays in providing prosperity. This is why the 2019 World Energy Congress runs under the theme “Energy for Prosperity.”

The progress of the organising committee has been remarkable: with nearly one year ahead, we already count with the full support of the leadership of the UAE, and of the Abu Dhabi National Oil Company (ADNOC), Dubai Electricity and Water Authority (DEWA), the Emirates Nuclear Energy Corporation (ENEC) and Mubadala

as Host Sponsors. We have also partnered with regional and international leaders such as Kuwait Petroleum Corporation (KPC), the Gulf Cooperation Council Interconnection Authority (GCCIA), the German energy agency (DENA), business information provider IHS Markit and the World Nuclear Association. The list does not end here. In the coming months, we will be announcing additional strategic partnerships, sponsors and exhibitors.

Together with our partners, we are looking forward to welcoming the most influential and diverse group of participants – from heads of state, ministers and policymakers, to world-leading energy and technology companies and financial institutions, energy-engaged citizens, start-ups, think-tanks, universities and technology providers – to provide a fresh perspective and ignite action on how to resolve the world’s energy challenges. For Abu Dhabi and the UAE, the Congress will provide a unique opportunity to show the world the progress made to diversify our energy sources.

We have a lot of exciting announcements in the next 12 months and we look forward to our engagement with energy stakeholders and the general public.

**“For Abu Dhabi and the UAE, the Congress will provide a unique opportunity to show the world the progress made to diversify our energy sources.”**



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**TRME:** What will be some of the main themes of the event? To what extent will the energy transition be a focus?

**MAN:** The Congress will run from 9-12 September 2019. It will attract more than 250 speakers and have more than 70 sessions. The four-day programme is centred on the theme “Energy for Prosperity” and it is ultimately set to highlight the need for cross-sector collaboration and action-orientated goals to ensure a sustainable and more prosperous future for all.

The energy transition will definitely be a key component, but we are addressing it from a holistic perspective. Our discussions will, therefore, extend beyond the usual industry experts to include leaders from technology, finance, and civil society so we can collectively look at the trends that are shaping the future of energy, urbanisation, technology, and social development to deliver a more prosperous future.

Day one will open by exploring the pathways and new visions that are reshaping the outlook for energy systems. We will then look at the new opportunities and risks facing energy businesses, exploring new business models and the radical choices energy leaders face in remaining competitive today. The third day will focus on the discussion around the policy actions needed to achieve inclusive prosperity in the energy transition. The final day is entirely dedicated to innovation, a topic which is central to both the energy sector and the UAE Government, with sessions exploring the emerging opportunities for collaboration within and beyond energy systems.

**“Our country, through the UAE Energy Strategy 2050, is committed to developing a sustainable energy mix that maximises our natural resources while transitioning to clean fossil fuels, nuclear and renewables.”**



Dr Matar Al Neyadi.

**TRME:** How important is digitalisation and the digital transformation for the UAE's energy industry?

**MAN:** They are very important: digital technologies are making energy systems in

the UAE and across the world more connected, intelligent, efficient, reliable and accessible. As the recent report ‘Digitalization & Energy’ from the International Energy Agency (IEA) highlighted, innovation and digitalisation are inherent to the energy sector. At the same time, digitalisation exposes energy systems to an inherent risk and this is why the issue of cybersecurity is so fundamental to energy stakeholders and why it will form a key component of the 2019 Abu Dhabi World Energy Congress.

The oil and gas sector, for example, has traditionally been a pioneer in using digital technologies to model exploration and production assets. The UAE's energy leadership has been built, among others, on this strong heritage. We are now taking the same approach in other energy sectors and parallel areas such as smart appliances, autonomous cars and 3D printing.

The case for digitalisation in the UAE is very strong and it can be felt across sectors. If we look at buildings, for example, smart thermostats, controls and sensors can cut energy use by 10 to 20 per cent by using real-time data to improve operational



The 2016 edition of World Energy Congress in Istanbul.

Photo Credit: World Energy Congress



efficiency. The potential for energy savings in the UAE can be even greater.

Being a relatively young nation with a strong energy heritage, we are well positioned to take a leading role in grasping the massive opportunities that digitalisation offers while also addressing any emerging security and privacy risks.

**TRME: How is the UAE spurring innovation in the energy industry, and how can further innovation and entrepreneurship be encouraged?**

**MAN:** Innovation is a theme very close to the heart of the UAE leadership and it will run throughout the 24<sup>th</sup> World Energy Congress. When we talk about innovation we should be thinking broadly. For example, in the UAE we have been encouraging the transfer of clean technologies through economic free zones such as Masdar City, one of the world's most sustainable urban communities.

We believe that innovative business models and projects can make a big difference on the path to a sustainable energy future. The World Energy Congress is

the ideal platform to show this by connecting innovators with policymakers and investors who can take their ideas to the next level while strengthening and promoting the innovation ecosystem here in the UAE and enabling knowledge sharing.

For example, our partnership with Deutsche Energie-Agentur GmbH (DENA) is testament to this knowledge sharing and part of our goal to bring the major energy stakeholders to the 2019 Abu Dhabi World Energy Congress. The Congress will be the perfect opportunity for DENA to provide global expertise in energy transition to local entrepreneurs by bringing to Abu Dhabi its Start Up Energy Transition (SET) programme. Launched in cooperation with the World Energy Council, the SET initiative is based on the approach that energy transition and climate protection can only become global models for success with the help of innovation. It is comprised of an annual start-up award that identifies the top global innovators, a vast network of key international energy players, and a global

summit – the Tech Festival – where the network is brought together.

**TRME: What do you hope will be the main outcomes and achievements of the WEC?**

**MAN:** As the world's largest energy event and the only to cover the entire energy spectrum and energy sources, from oil and gas to power, renewable energy and nuclear, the World Energy Congress is a global stage, and we intend to make the most of it. We will ensure that the 2019 event does not comprise conversations that begin and end within its walls, but discussions that promote action-oriented and sustained activity far beyond the closing remarks.

We want every keynote, discussion and side conversation to be a catalyst for ongoing action to shape the future of energy and its touch points, including urbanisation, technology and social development – all of which will contribute to a more prosperous global future.

This is why, in preparation for 2019, we call on innovators, entrepreneurs, students – and dreamers – to bring fresh ideas to the table. ■

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*Big Data and complex analytics, the Internet of Things (IoT), an agile and mobile workforce, and the Cloud are just some aspects of technology that must now be considered for FM.*

# Aiding digital FM adoption in Saudi Arabia

Photo Credit: Wasim Alnahawi/Adobe Stock

A report from the Middle East Facilities Management Association (MEFMA) confidently forecasts that revenues for the GCC region's facilities management (FM) industry will continue to grow at 10 per cent annually for the next two years. Rhonita Patnaik touches base with Adrian Jarvis, director of FSI Middle East, to understand how the company is facilitating better services in GCC's biggest market – Saudi Arabia.

**“A drive towards greater transparency of performance data, aligned with the introduction of some output driven elements in contracts could start to shift the adoption process of software tools.”**

**S**AUDI ARABIA ACCOUNTED for a value share of about 55 per cent in the region's facilities management market in 2016 according to MEFMA's report titled 'FM in Saudi Arabia – An Emerging Giant'. The report stated that the FM market in the kingdom was estimated to be worth around US\$20bn and estimates a growth of 13 per cent year on year of the FM market in Saudi Arabia, which shows a positive growth within the industry.

Investment worth US\$47.73bn is expected during 2016-2020 for the development of private sector business in the country, and a large number of facilities management service providers have already started investing in Saudi Arabia to utilise these opportunities in order to strengthen their business by catering to the demand for industries such as the retail, tourism, and the service sector.

Meanwhile, Saudi Arabia FM market is estimated to reach US\$49.82bn by the end of 2030. And FM services would support these sectors by ensuring their smooth operational performance.

Since 1990, FSI has been a major influence on computer-aided facilities management (CAFM) software and services for the built environment, delivering a truly versatile business tool. Headquartered in

the UK, FSI has offices in Australia, Dubai and Hong Kong, plus an international partner network.

Jarvis says, “We have been present in the Middle East for 15 years, with a direct team of technology and facilities management software specialists.”

Speaking about the FM technology advancement in Saudi Arabia, Jarvis maintains that the kingdom remains, in general, at a fairly basic level and more education about the benefits of technology in FM is required. He mentions that the preponderance of input-driven contracts provides little incentive to invest in proper technology, as there is a suggestion that there remains a lack of trust between customers and suppliers, and in the government sector, regulatory barriers.

“A drive towards greater transparency of performance data, aligned with the introduction of some output driven elements in contracts could start to shift the adoption process of software tools,” Jarvis suggests and believes that the adoption of FM technology is often lead often by international service providers who understand the benefits of investing in facilities management technology tools, and this will hopefully happen more widely as the market matures.





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To further better FM services, digitalisation plays a huge role. As the use of technology within the FM sector continues to evolve at a rapid pace, the amount of disruption and change in the digital workplace means building managers and service providers cannot afford to be content with their technology platforms simply treading water. "Big Data and complex analytics, the Internet of Things (IoT), an agile and mobile workforce, and the Cloud are just some aspects of technology that must now be considered. Implementing an FM platform that supports these technologies – among others – and enables collaborative working with a building's owner, occupants, and other business systems leads to both, flexibility and agility in service delivery."

Intelligent buildings yield vast volumes of data from a plethora of systems, sensors, and data sources, but how that data is interpreted and used collaboratively is what contributes value and efficiencies. The solution is to leverage the IoT ecosystem with technologies that can sense, communicate, analyse, and drive best practices.

CAFM is, therefore, essential to the FM industry, and the coming generation of FM apps in end users' hands has considerable potential for clients and end-user consumers of the service alike, according to Jarvis. Smartphones and the apps have been growing as a vital interface for maintenance and other FM professionals.

Inputting data into CAFM or similar systems through a smartphone interface is seen, if anything, as a better solution than the dedicated data recording devices that have been so ubiquitous but are so



Adrian Jarvis is the director of FSI Middle East.

quickly being displaced.

What's new, and what brings with it the potential to hugely affect both the type of facilities service and its delivery, is end users themselves gaining access to FM systems and departments through such apps – allowing those who experience the service to benefit from a direct connection to those providing it.

Besides lack of adoption and understanding, some of the other challenges looming over Saudi Arabia's FM sector include:

- Cost-driven customers, which result in contracts are awarded to the lowest-cost contractor or supplier, and clients are often unaware that quality FM lowers the

lifetime cost of an asset. It's very much a cost-driven market and we personally struggle to convince customers of the value of technology to assist them with FM. According to Jarvis, FSI has found that some companies only invest in technology to tick a box, as there is no understanding of how to specify and select the right tool for the job.

- Unsophisticated approach to asset management, as there is a lack of basic data i.e. an asset register. Similarly, FM is not well understood and is considered only as "preventive" maintenance under O&M.
- The current workforce lacks training and education is not aligned to fulfill the training requirements of the FM sector. There are currently no recognised FM qualifications in the kingdom, and it is a struggle to find qualified staff capable of delivering high-quality FM, as a result of the lack of education.
- Lack of regulations. There are currently minimal regulations in place, and current contractor certifications provide little assurance of quality.

Right now, for many, FM is an unattractive career to Saudi nationals, and FM companies have difficulty meeting the minimum Saudi employment percentage, set by the Saudisation programme. Jarvis believes that this needs to change.

In Saudi Arabia, FSI currently works with Sharqawi Co., National Industrial Training Institute (NITI), Museaad El Seif & Sons Co., Musanadah (Al Turki Holding Co.), National Company for Management & Services (NCMS), Madar Maintenance for Trading Services Co., Muheel Facilities Management, Al Rajhi Bank and Hilton Madinah. ■



A drive towards greater transparency of performance data, aligned with the introduction of some output driven elements in contracts, could start to shift the adoption process of software tools.



Photo Credit: FSI Middle East

## FSI suite of CAFM solutions includes:

- Concept Evolution: a CAFM solution that merges powerful functionality with sophisticated technology to extend facilities management across borders, and optimises process efficiency, accuracy and productivity.
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# Increase the safety margin for nuclear plants

Russia's Rosatom plans to commercialise the accident tolerant fuel (ATF), which employ advanced cladding materials and fuel pellet designs to increase the safety and performance of nuclear fuels, by 2020.

**R**ISING ELECTRICITY demand has prompted several Middle East and North African (MENA) countries states to turn towards nuclear power to diversify their sources of energy and reduce their carbon footprint. The Barakah nuclear plant in the UAE is currently under execution whilst projects in Egypt, Jordan and Saudi Arabia remain at the planning phase. By 2030, MENA is expected to have added 15.8 GW of nuclear capacity. At present, 2.4GW of nuclear power facilities in MENA are complete - of which only 1GW is operational, 5.4GW are under construction and a further 8 GW are planned by 2030.

As more and more countries such as the UAE, Saudi Arabia, Turkey and Egypt are opting to go nuclear as a key source of power in their energy mix, a number of technical aspects are coming to the fore. Safety is, quite naturally, chief among them. While nuclear power has widely been acknowledged as the safest type of power generation, its constantly evolving technology means that nuclear power plants are becoming ever safer.

A systematic approach to safety margins and the subsequent margins management options represents a vital input to the licensee and regulatory analysis and license making that will be involved.

Specifically, one of the areas the nuclear industry has been intensely focused on is developing different types of reactor fuels that are more robust and have improved performance during normal and accident conditions. The resulting technology has been dubbed accident tolerant fuel (ATF) – an term used to describe new technologies that further enhance the safety and performance of nuclear materials.

ATF technologies have been under development since the early 2000s. However, it received a marked boost in the wake of the Fukushima accident in March 2011. These technologies create opportunities to modernise the industry and regulatory oversight and improve



Photo Credit: Wikipedia Commons

safety. Earlier this year, at the International Forum ATOMEXPO-2018, which took place in Sochi (Russia), vice-president for R&D of Rosatom, Alexander Ugryumov announced that a new tolerant fuel resistant to accidents would be tested at the Scientific Research Institute of Atomic Reactors (SSC RIAR) in Dimitrovgrad later this year.

Speaking about ATF, Ugryumov said, "First of all, we exclude and try to reduce the amount of hydrogen produced during a severe accident – which was the initial reason for the explosion at the Fukushima nuclear power plant."

The representative of the fuel division of Rosatom outlined three directions of developments designed to improve the safety of the fuel element cladding.

The first direction is represented by the use and modernisation of heat-resistant chromium-based coatings for traditional zirconium alloys used as the main material for fuel cladding. In the framework of this solution, it is proposed to isolate zirconium from the coolant, thereby preventing the steam-zirconium reaction with the release

of a large amount of hydrogen in the event of an accident.

The second direction of tolerant fuel development is the use of the 42CNM alloy (chromium-nickel-molybdenum) instead of zirconium alloys for the fuel element cladding, which should in principle exclude the problem of hydrogen production during a beyond design basis accident. Ugryumov noted that this solution has proved effective in the transport sector (in nuclear icebreaker reactors) and also as a shell of absorbing elements in VVER reactors.

The third key area of research is focused on the implementation of a fuel matrix based on uranium-molybdenum (today the most common option is the use of uranium dioxide). This fuel composition has a higher density and, as a consequence, a higher thermal conductivity, increasing the stability of the reactor core during design basis accidents. Due to a significant reduction in the temperature of the course of accidents, it is planned to exclude beyond design basis accidents – that is, accidents with core meltdown – as a category, Ugryumov said. ■





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*The TL43.80HF telehandler  
from Bobcat.*

Photo Credit: Bobcat

# Lift your **business standards**

Automation and intelligence is the future of materials handling in the Middle East.

**A**S THE GCC market begins to stabilise owing to the increased oil price, the materials handling and logistics industry continues to enjoy a relatively healthy growth rate in the region.

According to research by analysts Frost & Sullivan, the market revenue for materials handling equipment in the GCC is set to maintain a CAGR of more than four per cent while reaching an estimated US\$4.8-5bn in revenues by 2020.

Saudi Arabia, with about 46 per cent and the UAE with 35 per cent, make up the largest markets in the region. According to a recent industry report, the kingdom's logistics and warehousing sector is set to witness a considerable boom, driven by the the government's push to expand the industrial sector's contribution to the economy to 20 per cent by 2020, up from the current 10 per cent level.

Major drivers for the continued expansion in demand for materials handling equipment, continues to be the ongoing focus of the GCC countries in large-scale infrastructural and logistics development including that of key transport and shipping hubs, export processing and free zones as well as the high dependence of many countries on imports of goods and services that calls for increased reliance on materials handling and logistics facilities.

Equipment specialist Bobcat has a new solution for heavy lift handling applications in manufacturing, building materials, warehousing, quarrying and mining.

With the launch of the TL43.80HF telehandler in the Middle East and Africa, Bobcat now offers a range of fifteen different rigid frame telehandler models, covering maximum lifting capacities between 2.6 and 4.3 tonne and maximum lifting heights from six to 18 metres.

"The new TL43.80HF is no exception to this legacy as it completes our range of telehandlers and ensures customers can benefit from unmatched loading productivity and lift capacity. Bobcat machines are made for tough jobs, whilst still providing all the agility and versatility any application would require," said Olivier Traccucci, senior product manager.

All Bobcat telehandlers are covered by a three-year/3,000-hour warranty as standard, with the option of extending the warranty to five years/5,000 hours. Thanks to a high lift capacity of 4.3 tonne and a maximum lift height of almost eight metres, the TL43.80HF is a compact telehandler offering an impressive package, which brings together robustness, rough terrain ability and ease of use for the operator in the same machine. The high stability of the TL43.80HF is due to the box welded frame, the low load

centre, the long wheelbase and the new massive rear counterweight, allowing Bobcat to minimise the overall dimensions of the machine, resulting in a width of only 2.3 metres and a length of less than five metres from the rear to the face.

Together with a short turning radius of just 3.71 m, this is a very manoeuvrable machine, a particularly useful feature when it comes to working in confined environments like a warehouse.

Similarly CombiLift's new high capacity powered pallet truck – the Combi-PPT – can be customised from standard lift capacities of 3,000kg and 6,000kg to higher capacity models of up to 16,000 kg to provide an added benefit for operators when large distances have to be covered in a warehouse or production plant (More details on p58). Earlier this year, Liftomatic Material Handling introduced FTA drum handling units. The FTA drum handling units are designed for loading, unloading, palletising and storage of steel drums in about any configuration including 30 gallon, 55 gallon and 85 gallon.

The attachment fits directly onto the forks of any standard lift truck with Liftomatic's Parrot-Beak® clamping system and cushioned belt-cradles. The FTA protects the drums during transport, provide a sure grip and handle the drums safely to and from any location. ■



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# Celebrating the best in infrastructure

Bentley's Year in Infrastructure in London this year will bring together global leaders in infrastructure design, construction and operations to learn best practices for going digital.

**B**ENTLEY SYSTEMS, INCORPORATED, a leading global provider of comprehensive software solutions for advancing infrastructure, will hold the Year in Infrastructure 2018 Conference from 15-18 October at the Hilton London Metropole in London.

Presented by Bentley Institute, the conference is a global gathering of leading industry executives and prominent thought leaders in the design, construction, and operations of the world's infrastructure. The theme of this year's conference is 'Going Digital: Advancements in Infrastructure'.

The conference features nearly 70 speakers and more than 50 informative sessions. Attendees can visit the Technology Pavilion, which features exhibits and presentations from Bentley Systems and its strategic partners Microsoft, Siemens, Topcon and Bureau Veritas.

The conference also includes the selection and announcement of the winners of Bentley's Year in Infrastructure 2018 Awards, which will honour the extraordinary infrastructure projects by users of Bentley software throughout the world. Twelve jury panels of distinguished industry experts selected the 57 finalists from 420 nominations submitted by more than 340 organisations around the world. Some of the finalists include:

## Bridges

- GS E&C Corporation – S Korea
- Indian Railways – India
- PT. WIJAYA KARYA (Persero) Tbk – Indonesia

## Buildings and Campuses

- Anil Verma Associates, Inc. – USA
- Shalom Baranes Associates – USA
- Voyants Solutions Private Limited – India

## Communications Networks

- iForte Solusi Infotek – Indonesia
- PT. Linknet – Indonesia
- SiteSee – Australia

## Construction

- AAEngineering Group, LLP – Kazakhstan
- Lendlease Engineering – Australia
- Tianjin Tianhe – China

## Digital Cities

- Avineon India Pvt. Ltd. – Netherlands
- CCCC Water Transportation Consultants Co., Ltd. – China
- Yunnan Yunling Engineering Cost Consultation Co., Ltd. – China

## Environmental Engineering

- China Water Resources Pearl River Planning Surveying & Designing Co., Ltd. – China
- PT. WIJAYA KARYA (Persero) Tbk – Indonesia
- Setec-Terrasol – France

## Manufacturing

- Brownfield Engineering Sdn. Bhd. – Malaysia

- Digital Engineering (BIM) Center of Shenyang Aluminum & Magnesium Engineering & Research Institute Co., Ltd. – Indonesia
- Toshiba Transmission and Distribution Systems Asia Sdn. Bhd. – Brunei Darussalam

## Mining and Offshore Engineering

- CADDS Group Pty Ltd – Australia
- Northern Engineering & Technology Incorporation, MCC – Australia
- POWERCHINA Huadong Engineering Corporation Limited – China

## Power Generation

- JSC ATOMPROEKT – Finland
- Northwest Electric Power Design Institute Co., Ltd. of China Power Engineering Consulting Group – China
- Sacyr Somague – Portugal

## Project Delivery

- AECOM – UK
- Arup – Australia
- Dragados SA & Transport for London – UK

## Rail and Transit

- China Railway Engineering Consulting Group Co., Ltd. – China
- Italferr S.p.A. – Italy
- Skanska Costain Strabag Joint Venture (SCS) – UK

## Reality Modeling

- Hong Kong Science & Technology Parks Corporation & Chain Technology



Development Co. Limited – China

- Skand Pty Ltd – Australia
- Transport for London – UK

#### Road and Rail Asset Performance

- CSX Transportation – USA
- Illinois Department of Transportation – USA
- Maharashtra Metro Rail Corporation Ltd. – India

#### Roads and Highways

- Alabama Department of Transportation – USA
- Henan Provincial Communications Planning & Design Institute Co., Ltd. – China
- Lebuhraya Borneo Utara – Malaysia

#### Structural Engineering

- Arab Engineering Bureau – Qatar
- Shilp Consulting Engineers – India
- VYOM Consultants – India

#### Utilities and Industrial Asset Performance

- Oman Gas Company S.A.O.C. – Oman
- Vedanta Limited – India
- Volgogradnefteproekt LLC – Russia

#### Utilities T&D

- Northeast Electric Power Design Institute

Co., Ltd. of China Power Engineering Consulting Group – China

- Pestech International Berhad – Malaysia
- POWERCHINA Hubei Electric Engineering Corporation Limited – China

#### Water and Wastewater Treatment

- MCC Capital Engineering & Research Incorporation Limited – China
- Shanghai Civil Engineering Co., Ltd of CREC – China
- Suez Water Technologies & Solutions – India

#### Water, Wastewater and Stormwater Networks

- Beijing Institute of Water – China
- DTK Hydronet Solutions – India
- NJS Engineers India P Limited – India

During six industry-focused forums featured during the conference – Buildings and Campuses, Digital Cities, Industrial Infrastructure, Rail and Transit, Roads and Bridges, and Utilities and Water – the finalists will present their projects to independent panels of jurors, more than 130 members of the press and conference attendees.

From those presentations, winners are selected by the jurors, and will be announced at the conclusion of the conference on 18 October during an evening ceremony and gala.

Chris Barron, Bentley Systems' chief communications officer, said, "The Year in Infrastructure Conference is an ideal opportunity for infrastructure leaders from around the world to network with their peers, and learn about technologies and best practices to accelerate their organisations' digital advancement."

"As part of the conference, we are pleased to congratulate and acknowledge the awards programme finalists for their excellent work, and to provide conference attendees with the chance to meet the finalists and watch their project presentations, which represent this year's most outstanding going digital advancements in infrastructure."

Bentley's strategic partners for the YII 2018 in London are Microsoft, Siemens and Topcon.

In October 2019, the Year in Infrastructure Conference will return to the Marina Bay Sands Expo and Convention Centre in Singapore. ■

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Photo Credit: Informa Exhibitions

# Riyadh: The new MEEting place

*Middle East Electricity in Dubai is one of the largest exhibitions for the power industry, and covers the generation, transmission and distribution of electricity, including the renewable energy sector and the lighting industry globally.*

Ahead of Informa Exhibition's flagship Middle East Electricity (MEE) show launch in Saudi Arabia in October 2018, the official trade publication *Technical Review Middle East* catches up with exhibition manager Deep Karani.

## **TRME: Can you throw some light on Saudi Arabia's utilities market? How much investment do you see coming in the next five years?**

**Deep Karani (DK):** The Saudi Arabian power sector is on a growth trajectory and steaming ahead in order to keep up with the ever-growing demand for electricity.

Leading up to 2015, domestic consumption rose at an unprecedented yearly rate of seven to nine per cent. Due to heavily subsidised domestic oil prices, the kingdom currently relies on liquid petroleum for approximately 60 per cent of its electricity generation. As a result, the yearly increases in electricity demand are cutting directly into the country's oil export volume and export earnings.

To reduce consumption of oil in the generation of power, Saudi Arabia is looking to upgrade its entire power sector. Apart from increasing its non-oil generation capacity, it is looking to replace its outdated distribution infrastructure, implement smart grid technology, and promote international grid connectivity.

It is estimated that the country needs to increase power generation capacity from 77 GW in 2014 to 156 GW in 2040, in turn increasing its supply by more than 100 per cent. To achieve this, the kingdom will need to install approximately 5GW of capacity and distribution infrastructure each year after 2020 and are looking to make a yearly investment of approximately US\$5bn in generation and US\$4bn in distribution.

Another key strategy is to privatise all electricity generation by 2020. The newly privatised power generation companies are

expected to need substantial investment to increase efficiency, meet environmental standards, and replace ageing power plants.

## **TRME: What are some of the emerging trends in the kingdom's utilities sector?**

**DK:** According to the National Transformation Program (NTP), there are a number of initiatives it plans to deliver over the next five years. These include expanding fuel efficiency in power generation; increase percentage of power plant electricity generation through strategic partners from 27 per cent to 100 per cent by 2020; and increase power generation capacity of 3.45 GW from a baseline of zero and eliminate subsidies on utilities.

In 2017, the MOEIMR formed the Renewable Energy Development Office to tender out 9.5 GW of mainly PV solar and wind by 2023, with the intermediate goal of 3.45 GW by 2020. As renewable energy comes online, there will be increased demand for integration technology into the national grid.

## **TRME: What makes Saudi Arabia a promising business environment for the power sector?**

**DK:** There is a lot of activity taking place in the kingdom, which is at the forefront of a regional power investment drive. According to a 'GCC Power Market' report we had commissioned for Middle East Electricity 2018 by Ventures Onsite, the value of power construction contracts awarded throughout the GCC in 2018 will reach US\$23.6bn.



The impressive figure represents a substantial 41 per cent increase on 2017. The report highlights that Saudi Arabia will lead the awards ranking accounting for 59 per cent of contract value, followed by the UAE and Kuwait.

This upsurge in the value of contracts reflects the vibrancy of the region's power sector where governments are looking to meet spiralling demand – between seven to eight per cent a year.

Saudi Arabia is also seeking investment of up to US\$7bn to build about 4 GW of renewable energy capacity, as well as targeting 40 GWh of energy savings in 2018 as part of the country's economic diversity and environmental sustainability objectives.



Deep Karani is the exhibition manager of MEE Saudi 2018.

Photo Credit: Informa Exhibitions

distribution, lighting, renewable energy, primarily covering solar, wind and energy storage and management.

**TRME: Do you think that the annual MEE edition in Dubai has been instrumental in the launch edition of the show in Saudi Arabia?**

**DK:** Running Middle East Electricity in Dubai allows us to get a very good understanding of what is happening across the regional power market, where interest is growing or where more visitors are travelling from.

Each year we host a number of special VIP delegations from Saudi Arabia and welcome on average of 4,000 inbound visitors every event. We have been consistently

conducting surveys, interviews, market research as well as attending several major events and conferences across the kingdom to ensure we were fully confident that launching Middle East Electricity Saudi would both add value to our portfolio of exhibitions, but more importantly value to our stakeholders and the wider Saudi market.

We strongly believe that MEE Saudi, with support of key authorities such as the Saudi Electricity Company, has the potential to be one of the most important power platforms within the kingdom that caters to the networking needs of contractors/developers, consultants, manufacturers and distributors.

**TRME: What do you hope will be the outcome of the show?**

**DK:** As we embark on a long-term business strategy within the kingdom with plans to expand exponentially in the coming year, we aim to deliver a world-class power exhibition this year with a key focus on connecting international manufacturers to local distributors.

As of mid-September, we registered more than 100 companies from international markets such as the UAE, Italy, China, Egypt, Lebanon, India, UK, India, Oman, Russia, Pakistan and Germany. We are hosting a number of technical seminars and workshops covering a wide range of topics which are free-to-attend to all visitors.

We already have significant government support from the likes of Saudi Electric Company, which cements trust in what we are planning to launch in the kingdom, and with their guidance we are confident that Middle East Electricity Saudi will become a regional power house event the same way Middle East Electricity is today. ■

**TRME: What will the launch edition of Middle East Electricity Saudi mean to the kingdom's power sector?**

**DK:** Very significant. We have ensured that by launching Middle East Electricity Saudi, we are strategically aligning ourselves with the Saudi Vision 2030, and partnering with institutions, such as the Saudi Electricity Company, who can offer us the guidance we need to make sure what we have on offer is exactly what the industry needs.

We are a market-specific event that aims largely at contributing to the modernising Saudi power market by bringing together a range of key stakeholders, from power manufacturers, suppliers, domestic wholesalers and distributors to thousands of visitors from across the kingdom and neighbouring countries, all with decision making competence.

We will also be capitalising on the international reach and reputation that the Dubai edition (our flagship event) garners. It is recognised as one of the largest exhibition and conference on a global scale for the power industry, and covers the generation, transmission and distribution of electricity, including the renewable energy sector and the lighting industry.

Each year, more than 1,600 companies from more than 143 countries participate at the show with the intention to find new customers, strengthen relationships with existing clients and develop or expand their business in Middle East and North Africa.

**TRME: How big a role will renewable energy play at the show?**

**DK:** Playing off the strengths of Middle East Electricity in Dubai and current market needs in Saudi Arabia, Middle East Electricity Saudi will also have a specific section dedicated solely to renewable energy. This part of our show being co-organised with Intersolar Global, who work together with our team to ensure the best possible content that drives the industry and sparks meaningful conversations on the floor.

Even though 2018 is a launch year for us in Saudi Arabia, we already have significant support from some of the regional solution providers such as Canadian Solar, JinkoSolar and JA Solar, who will be displaying their latest range of solar modules to meet the growing need of renewable options in the kingdom. They will also be conducting a series of technical seminars during the show, which will be free-to-attend for our visitors.

**TRME: Are there any other sub-sectors at the MEE Saudi edition? How many visitors are you expecting at the show?**

**DK:** There will be five sub-sectors at the launch edition of Middle East Electricity Saudi – power generation, transmission and



# Enhancing HSE performance

The 4<sup>th</sup> Annual Health, Safety & Security Forum takes place in Dubai from 27-28 November 2018 under the patronage of the UAE Ministry of Health and Prevention and with the support of the RTA Dubai, ADNOC, Emirates Authority for Standardization & Metrology and Emirates National Accreditation System.

**H**EALTH, SAFETY AND security are receiving an increased focus in the UAE, in response to rapidly evolving security threats worldwide, as well as continued growth in the country's commercial property, financial and tourism sectors. Fire protection also has huge growth potential, with the Middle East fire security market estimated to grow annually by 12.5 per cent from 2012 to 2020, making it one of the largest in the world.

Continuing the highly acclaimed event series, the 4th Annual Health, Safety & Security Forum will bring together HSE practitioners, government regulators, policy makers and solutions providers to share insights and experiences on critical health and safety issues. It will highlight best practices, strategies, process improvements and technology advances for the enhancement of HSE performance in the UAE, as well as endeavouring to align world class principles with local industry requirements.

The main themes this year include occupational health in the era of big data; preventing accidents caused by falling from height; crafting a behavioural change strategy; creating a resilient and productive workforce by investing in employee health; and managing security risks in the oil and gas industry.

Speakers include Raed Al Marzouqi, head of section, Occupational Health and Safety, Dubai Municipality, a stalwart of previous forums, who will speak on preventing accidents caused by falling from height, while Jorge Manuel Miranda Dias, Professor, Electrical and Computer, Engineering Department, Khalifa University Abu Dhabi, will discuss how to detect abnormal behaviours and human crowd modelling using video.

With numerous studies underlining the business benefits of investing in health and



*Raed Al Marzouqi, Head of Section, Occupational Health and Safety, Dubai Municipality, will return to the 4th Annual HSE Forum in Dubai this year.*

Photo Credit: Technical Review Middle East

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

Farah al-Ansari, Head – Airport Security, Dubai Airports, will discuss embedding a world class security culture whilst ensuring stakeholder engagement. Also speaking will be Dr Mohammad Aref, OSH expert, Ministry of Human Resources & Emiratization.

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

Harnessing technology will feature strongly at this year's event. The role of artificial intelligence and robots will be discussed, along with leveraging data technologies and analytics to improve HSE

performance. The use of UAVs to inspect hazardous locations, VR as a learning tool and the effective use of wearable technology will also come under scrutiny.

A highlight of the event will be a mock evacuation fire drill to prepare for emergencies, following its successful introduction at previous Forums. Other special features will be a workshop presented by the Ministry of Health, and an innovation showcase, featuring the latest products and technology.

The 4th Annual Health, Safety & Security Forum will provide a valuable opportunity to obtain an update about the latest HSE developments and regulations in the region, learn about the strategies, technological advancements and best practices for the enhancement of HSE performance, and meet face to face with leading decision-makers from industry and government. ■

*For further information and to register, see the website at [www.hse-forum.com](http://www.hse-forum.com).*



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# Discover green innovations at WETEX 2018

Held under the umbrella of Green Week from 23-25 October, which includes activities to raise awareness about the importance of conserving energy resources and promoting sustainable development and green economy in Dubai.

**T**HE WATER, ENERGY Technology and Environment Exhibition (WETEX 2018) will be held in Dubai from 23-25 October at the Dubai International Convention and Exhibition Centre.

The 20<sup>th</sup> edition is organised by Dubai Electricity and Water Authority (DEWA) under the directives of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai and under the patronage of HH Sheikh Hamdan bin Rashid Al Maktoum, Deputy Ruler of Dubai, Minister of Finance and President of DEWA.

The show also coincides with the third Dubai Solar Show, which highlights the latest innovations in the solar sector. Both WETEX and the Dubai Solar Show will highlight DEWA's Shams Dubai initiative, launched by DEWA, in support of the Smart Dubai Initiative, to make Dubai the world's smartest and most successful city by encouraging homeowners to install photovoltaic (PV) panels on the roofs of their buildings and connect to DEWA's network to produce electricity. Such initiatives will increase reliance on clean energy and the buildings' share in the energy mix, as well as engage the public in reducing their carbon footprint in Dubai.

"WETEX 2018 and the third Dubai Solar Show are ideal platforms to showcase the latest developments, solutions and technologies in the field of renewable and clean energy. Shams Dubai contributes to the establishment of a sustainable energy model that promotes Dubai's economic growth without harming the environment or its resources.

It supports the UAE Centennial 2071, and the long term national initiative launched by HH Sheikh Mohammed, under the theme 'Green Economy for Sustainable Development', to build a green economy in the UAE. This also supports the Dubai Clean Energy Strategy 2050, which aims to transform the emirate into a global centre for clean energy and green economy and increase clean energy in Dubai to 75 per cent by 2050," said Saeed Mohammed Al Tayer, MD and CEO of DEWA, and founder and chairman of WETEX.

"Solar energy is one of the most preferred energy sources in the Middle East. Due to the region's unique geographic location around the solar belt, it receives a large amount of solar radiation. DEWA is keen to encourage research and development in this area to promote energy security and sustainability as the most important forms of safe, unlimited energy. It is a source that does not cause any carbon emissions, which makes it healthy and environmentally friendly. This form of energy reduces our dependence on traditional sources of energy, which damage the environment and use up natural resources," added Al Tayer.



*DEWA invites companies to use opportunities and investments provided by WETEX and Dubai Solar Show.*

For the third consecutive year, DEWA will set up its Innovation Hall at WETEX to attract creative minds and innovative start-ups to display their inventions and innovations along with leading local and international companies, in smart technologies in conventional and clean energy, water, environment, and green development.

"HH Sheikh Mohammed once observed, 'Creativity and ideas can build countries and institutions. The future belongs to those who generate ideas.' Every year, the UAE dedicates a full month to celebrate innovation and encourage all who live in our beloved country to innovate. At DEWA, we give exceptional priority to innovation in line with the National Innovation Strategy, which aims to make the UAE one of the most innovative countries in the world, and the Dubai Innovation Strategy to make Dubai the most innovative city in the world. This is achieved by adopting innovative technologies and making use of disruptive technologies to keep pace with the Fourth Industrial Revolution, to achieve the vision of our wise leadership to reach the government of the future," the DEWA CEO stated.

WETEX 2018 will be held less than a month before the first Solar Decathlon Middle East (SDME), which DEWA is organising from 14-29 November 2018. SDME is part of an agreement between the Dubai Supreme Council of Energy and DEWA, with the United States Department of Energy, and in collaboration with a number of government and private organisations in the UAE. 18 university teams from 13 countries will compete to design, build, and operate sustainable, cost-and-energy efficient models of solar-powered homes, with a focus on protecting the environment, taking into account the region's climate. ■



# Summit to accelerate talks on green capital

Focusing on green loans, bonds and savings, WGES 2018 will explore methods to promote international collaboration to facilitate cross-border investment in green funds and provide strategic frameworks and policies to help reduce uncertainties for green investment.

**GREEN CAPITAL** WILL be the focus of discussions at the annual World Green Economy Summit (WGES 2018) amid the global commitments to build a green and sustainable world economy. Green finance refers to the financing of investments that provide environmental benefits in the broader context of environmentally sustainable development.

Taking place on 24-25 October under the patronage of HH Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, WGES is a strategic platform to share and exchange knowledge and bring to focus new technologies that drive the growth for a green economy including improvements in energy efficiency, energy conservation and waste reduction.

The summit is organised by DEWA and the World Green Economy Organisation (WGEO) in collaboration with international partners under the theme 'Driving Innovation, Leading Change'.

With input from governments, businesses, financial institutions and investment advisors, the summit will examine current climate-finance gaps in

order to define areas where investments are most needed. It will also shed light on green investment vehicles, climate-change reporting, carbon pricing as an instrument to raise green capital and the widespread problem of greenwashing.

Saeed Mohammed Al Tayer, chairman of WGES, said, "With growing emphasis of governments and public and private sectors on going green and the rapidly increasing need to find ways to build a sustainable future, green capital is the new trend for innovative financing solutions. While WGES 2018 will outline several green financing options, it will also help participants develop policy frameworks to promote green capital."

Dubai Green Fund (DGF) raised US\$650mn last year to support green financing. The new platform directly invests in environmentally-focused companies, whilst offering loans to businesses in the green sector at reduced interest rates. It constitutes the investment arm of DEWA and it was established in 2016 to offer loans to companies in the clean energy sector with favourable interest while also investing directly into green projects acting like a traditional fund.

"Mobilising sufficient public and private green capital is a key success factor. Accordingly, the DGF was created to crowd-in investors into the green economy. It will not make subsidised financing; ultimately, it needs to attract private sector institutional investors who seek market based returns. Its role is to lead the way into investments that have to date not been taken up by existing lenders and private equity firms. Green finance should be the mainstream, not the alternative," said Samy Ben-Jaafar, CEO of Dubai Green Fund.

WGES 2018 will gather financial executives, investment professionals, and thought leaders to discuss ways to increase green capital flows into regional and global environment-friendly projects and how to de-risk those investments.

According to the United Nations' Sustainable Infrastructure Imperative report, the world will need to mobilize US\$90 trillion in public and private capital over the next 15 years to achieve the sustainable development goals. In addition, developed countries are working to meet a commitment to mobilise US\$100bn annually by 2020 to mitigate the effects of climate change in developing countries. ■



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# Building Saudi Arabia

For the 30th time, leading construction technology and building materials exhibition in Riyadh will bring together leading decision makers and buyers to the Middle East's strongest construction market.

**I**T'S BEEN EXACTLY 36 months since Saudi Vision 2030 came into effect under the chairmanship of the Custodian of the Two Holy Mosques King Salman bin Abdulaziz Al Saud and His Royal Highness Prince Mohammed bin Salman bin Abdulaziz, the Crown Prince, Vice-President of the Council of Ministers and Chairman of the Council of Economic and Development Affairs in 2016.

According to Crown Prince Mohammed bin Salman, Vision 2030 is the roadmap for the country's development and economic objectives. Fast forward to 2018, the government has rapidly moved ahead with a range of developments and reforms that has had an immediate impact on construction demand. The Saudi construction sector is currently valued at US\$600bn with infrastructure projects alone amounting to US\$350bn. Current ongoing projects constitute 82.4 per cent of overall planned construction activities, reflecting the continued growth and development within the sector.

The National Transformation Programme (NTP), which runs to 2020, is central to the delivery of Vision 2030's medium-term targets, and has led to the launch of large-scale investments in sectors, from utilities to tourism. While strategic government plans in rapidly growing markets can often take the

form of a list of aspirations rather than a practical programme, it is clear from early implementation efforts that Vision 2030 is already taking a concrete form, according to recent reports.

**The Saudi construction sector is currently valued at US\$600bn with infrastructure projects alone amounting to US\$350bn.**

Meanwhile, Saudi Arabia's contractor awards across the building, infrastructure and energy sectors are forecast to increase from US\$34,151mn in 2017 to US\$40,068mn in 2018. The building construction sector is expected to register the highest contractor awards followed by the energy and

infrastructure sectors in 2018. Increase in population growth, urbanisation, and tourism are expected to drive growth in the building sector. According to Oxford Business Group, the government is stepping up investment in the kingdom's transport infrastructure, fast-tracking major projects and creating new opportunities for service providers. Transport infrastructure gains prominence in the Vision 2030 and NTP as vital to economic growth. In 2018, the government has allocated six per cent of its budget towards transport and infrastructure.

With almost 5,000 projects in the pipeline, Saudi Arabia is fast becoming one of the world's busiest markets for construction – led by urban development and a growing transport network. To encourage investors and develop business opportunities in the kingdom, Riyadh Exhibitions Company Ltd is organising the 30th edition of Saudi Build at Riyadh International Convention & Exhibition Center from 22-25 October. The four-day exhibition is an absolute must for companies that work in or support the construction industry. ■

*Saudi Build 2018 will showcase digitalisation trends, which is vital in modern construction activities.*

Photo Credit: Sarunas Vaitkus/Adobe Stock



## Showcasing formwork expertise at Saudi Build 2018

FOR THE NINTH year, PASCHAL will exhibit at the Saudi Build exhibition in Riyadh.

The formwork and shoring expert will be presenting the practical application possibilities and system diversity of the PASCHAL formwork systems to visitors at booth 217-3 in Hall 3. Well-trained experts will be available at the booth to demonstrate the simple handling and some of the many projects that PASCHAL has been involved in the Middle East as well as across the globe.

### Modular universal formwork

Modular universal formwork has demonstrated its versatility, adaptability and flexibility on a very wide range of construction sites – whether that is for foundations, walls, shafts, curvatures, columns or beams. The well-balanced range of elements allows it to be used as both hand-sized and large-size formwork.

### Adjustable modular column form

PASCHAL will also be displaying the adjustable modular column form as a practical extension to the modular formwork system. The simple windmill principle allows you to form a wide variety of different reinforced concrete columns from just a few individual panels of the adjustable modular column formwork simply, quickly and in an uncomplicated manner.

### LOGO.3 and LOGO alu

The flexible LOGO.3 wall formwork system with robust flat steel frame can cope with all of your formwork jobs in a systematic manner due to the comprehensive range of panels. The LOGO.3 wall formwork system will be displayed in steel and aluminium versions. The LOGO alu formwork system is advantageous in construction sites where no crane is available.

### Dismantling inside corner post

With the variable dismantling inside corner posts for the LOGO.3 and modular formwork systems, the amount of time needed for preparing and moving the internal formwork for lift cores, staircase cores and for structural shells with tight space conditions is reduced enormously. The benefits of PASCHAL's dismantling inside corner post can particularly be seen when dismantling the formwork. After opening the corner posts, the complete inner formwork can be moved by only one crane lift.

### TTR trapezoidal girder formwork

TTR trapezoidal girder formwork with an infinitely variable radius stands for perfect and reliable circularity and dimensional accuracy. Due to the robust design, this system also uses extremely few tie points.

*Modular formwork from PASCHAL is the proven universal formwork for systematic formwork according to the modular principle.*



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*Cost of ownership is what sets the F-MAX apart from the competition, thanks to the vehicle's powerful and efficient 12.7L E6D Ecotorq engine.*

Photo Credit: Ford Trucks

# Ford Trucks tractor crowned International Truck of the Year

**T**HE ALL-NEW THE new Ford Trucks tractor F-MAX, which was launched at IAA Commercial Vehicles 2018 in Hanover, Germany, has won the '2019 International Truck of the Year' award. The award of the heavy commercial vehicles industry was presented by Gianenrico Griffini, chairman of International Truck of the Year (IToY) jury, to Haydar Yenigün, Ford Otosan General Manager at the Ford Trucks stand at IAA Commercial Vehicles 2018.

Members of the International Truck of the Year (IToY) jury, which consists of leading trade journalists from 23 European countries, carried out a strict evaluation process. After being put through its paces in the road tests in different categories and static assessments, the F-MAX underwent a rigorous assessment covering key criteria such as technological innovation, comfort, safety, drivability, fuel economy, environmental footprint and total cost of ownership (TCO). The F-MAX scored the highest number of points and winning the '2019 International Truck of the Year' award.

Ford Otosan general manager Haydar Yenigün said that the award "is a very important step toward Ford Trucks' future", adding that the F-MAX, with its 2.5-m full-width cab and 500 PS engine power, will become a major player in the international transport industry.

The new F-MAX was designed and tested by 500 Ford Otosan engineers over a five-year period. Tests were carried out in 11 countries using 233 prototype units. This involved 15,500 hours of lab testing and five million kilometres of road testing.

"Ford Trucks has a very challenging promises. Saying "sharing the load" as a brand promise, we commit our self to understand customers' needs and share all kind of load that they might have," added CEO Yenigün. "We developed our new tractor with Ford's principles of comfort, power, efficiency and technology at its heart. To ensure that the design guarantees the most, in terms of efficiency and practicality, we examined every part and every detail over and over again."

Cost of ownership is a key factor for the new F-MAX. F-MAX covers the three areas of cost of ownership – production and product development, combined with increasing vertical integration, give Ford Trucks a competitive edge in terms of its cost base.

The new F-MAX offers a high performance engine with 500PS, 2,500Nm and 400kW braking power. Superior aerodynamics, powertrain calibration and technical features also ensure outstanding performance in terms of fuel consumption with a six per cent margin of improvement over previous models. Technical features

include E-APU technology, eco-roll function, predictive cruise control (Max Cruise). Up to seven per cent reduced maintenance costs and long service intervals reduce the total cost of ownership. F-MAX's Ecotorq engine offers maximum performance and minimum fuel consumption under any road conditions.

12-speed ZF automated transmission and different drive modes such as Eco-Mode and Power-Mode help optimise fuel consumption. The new F-MAX is also empowered by a variable-geometry turbocharger, a water pump and compressor with multiple working speeds, 400kW engine brake power which achieves 1,000kW total braking power with the optional interarder.

Ford Trucks also offers a revolutionary technology 'ConnecTruck' with the new F-MAX with many benefits. These include remote monitoring of the vehicle using remote diagnostic and over-the-air software. The special topographic map means that F-MAX is able to analyse road conditions, allowing the vehicle to drive at optimum speeds, thereby reducing fuel consumption by up to four per cent. FMS Integration allows the ConnecTruck Module and Ford Trucks cloud to act as a data gateway for third-party fleet management systems to access selected vehicle data.



## New QAS 5 mobile diesel gensets from Atlas Copco

ATLAS COPCO HAS launched the fifth generation of its flagship QAS generators range. Developed in response to today's operational challenges, the new QAS 5 models offer end users in the construction, events and industrial sectors quieter operation (up to 1/5th lower noise perception), a 20 per cent smaller footprint than comparable models on the market, reduced emissions, faster plug-and-play paralleling, enhanced fuel economy, 24-hour autonomy and lower total cost of ownership. As a consequence, the QAS 5 range helps customers to improve their fleet utilisation and return on investment.

The range has been developed to provide generator users with a smooth transition towards the phased adoption of EU Stage V engine emission standards in 2019/20. The first five models in the range are new versions of the QAS 80, 100, 120, 150 and 200 generators. All include optimised Stage IIIA engines, a high capacity fuel tank and integrated variable speed drive (VSD) motor to power the cooling fan. These features, along with an integrated VSD motor, combine to provide users with an average five per cent reduction in fuel consumption compared to the industry average for equivalent models.

With larger capacity and fully EU Stage V compliant models set to be introduced in the coming years, the QAS 5 range offers customers a clear pathway towards Stage V adoption and beyond.



The QAS 5 model from Atlas Copco.

"This year we are celebrating 30 years of leadership and innovation in the realm of mobile generators, and are proud to mark the occasion with the introduction of our QAS 5 range. The fifth and latest generation of QAS gensets are designed from the outset to meet end-users' evolving needs for sustainable productivity, increased operational flexibility and compliance with environmental and regulatory obligations," said Adrian Ridge, president of Atlas Copco's power and flow division.

## Hyva launches remote-controlled skiploaders

HYVA, PROVIDER OF innovative transport solutions for the commercial vehicle and environmental service industries, has introduced skiploaders with new remote controls, weighing systems and cranked lifting arms.

The new range of telescopic Titan skiploaders are available with lifting capacities of 12, 14 and 16 tonnes, for vehicles of 16-22, 18-26 and 26-32 tonnes GVW respectively.

Re-engineered from the base up, the new Titan skiploaders aim to reduce costs and increase efficiency by cutting

installation times with the new QIK fully boltable mounting kits, accommodate higher payloads by virtue of their high strength, low weight steel floors, speed operations with extra extension speed (EES) turbo lift and reduce the number of trips by loading multiple containers.

A range of optional, bolt-on accessories includes ladders, toolboxes, guards and fenders, tail light protectors and cab guards. In addition to powerful XL fixed lift arms and stronger, longer TAXL telescopic arms, the new TAZ cranked arms focus on giving the Titan skiploader the highest

lifting capacity and longest telescopic reach in the market.

Safe operating is further enhanced with Titan Radio Remote (TRR), which gives the operator a safer, unrestricted view of the work environment, thus avoiding potential hazards and enhancing safe operation.

TRR capability is further extended with the Titan Weighing System (TWS) which weighs the container and automatically shows the result in the display of the radio remote control of the skiploader. The typical accuracy is a less than or equal to one per cent of measured weight.

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# Standard but not ordinary

Jürgen Pump, Sales Manager at Standard Aggregatebau Evers GmbH & Co. KG, talks about true high-grade project solutions for generator sets and also about the law of business that the company stands by.

**Technical Review Middle East (TRME):**  
The name 'Standard Aggregatebau Evers GmbH & Co. KG' implies that you are a series manufacturer of generator sets like many others. What distinguishes you from the rest?

**Jürgen Pump:** You are right; there are countless packagers of generator sets in nearly every country of the world - from small garage companies to multinational corporations. What most of these enterprises have in common is their focus on serial production with standardised generator sets and firmly defined options. We clearly set ourselves apart from that by successfully focusing on true project-designed generator sets for applications with sophisticated requirements.

Our company's name resumes from the early days of generator sets manufacturing back in 1961 when we were one of the first to assemble diesel-driven generator sets in Germany. At that time, there were no technical regulations in place for the assembly of generator sets, so we set our own high standards of consistent design and quality.

**TRME: Many generator set manufacturers offer the same engines and alternators with an extensive range of options, so how do your clients benefit from your "project-designed" generator sets?**

**Jürgen Pump:** First of all the nature of serial-manufactured products have to be understood: cost-optimisation and large-scale production. This implies a basic design to cover the most common requirements and meeting the basic standards at best but does not allow for major variations, which are required by mission-critical projects on which we focus.

We sometimes see that serial manufacturers claim their range is adapted

to all conditions, which is just a pithy advertising slogan but far from reality as it is simply not economical to implement modifications needed for meeting extreme conditions or uncommon requirements as standard. Moreover, it is technically not feasible as some condition modifications have negative effects on other conditions, like exhaust optimisation reducing high temperature operation and increasing the fuel consumption. Additionally, though the generator set is the main component, it is just a part of a complete system, and a perfect match with the necessary auxiliary equipment and interfaces is vital for a reliable generator set system.

**TRME: But isn't individual manufacturing much more expensive?**

**Jürgen Pump:** Apparent investment savings backfire and actual losses turn out to be much more costly than an adequate initial project design and execution.

It is often in the news that an emergency generator did not work properly in shopping malls, airports, data centres and even hospitals, although well-reputed engine and alternator brands were installed and often in redundancy. While some incidents are caused by lack of maintenance, others are simply due to improper design, system integration or workmanship. Such failures can cause for the operator at best only monetary losses but fatalities in the worst cases. This is particularly bad as nearly all cases can be totally avoided by a proper design and selecting suitable specialist firms with the execution of mission-critical projects instead of choosing just the cheapest offer from a dealer whose technical capability ends with presenting just data sheets.

Although business has become much more complex, the basic laws of business have not changed, but the gap between ambition and reality is quite big when it comes to complete systems in which several companies are involved. We support project owners, design engineers and contractors likewise throughout the whole project and successfully handle every order individually to achieve the best price-performance-ratio for our customers for more than 55 years. ■

## The Law of Business

written over a century ago, it still holds true today...

"There is hardly anything in the world that someone cannot make a little worse and sell a little cheaper, and the people who consider price alone are that person's lawful prey.

It is unwise to pay too much, but it is also unwise to pay too little.

When you pay too much, you lose a little money, that is all.

When you pay too little, you sometimes lose everything because the thing you bought is incapable of doing the thing you bought it to do.

The common law of business balance prohibits paying a little and getting a lot... It can't be done.

If you deal with the lowest bidder it is well to add something for the risk you run.

And if you do that you will have enough to pay for something better."



by John Ruskin (1819 - 1900)

English critic, essayist & reformer

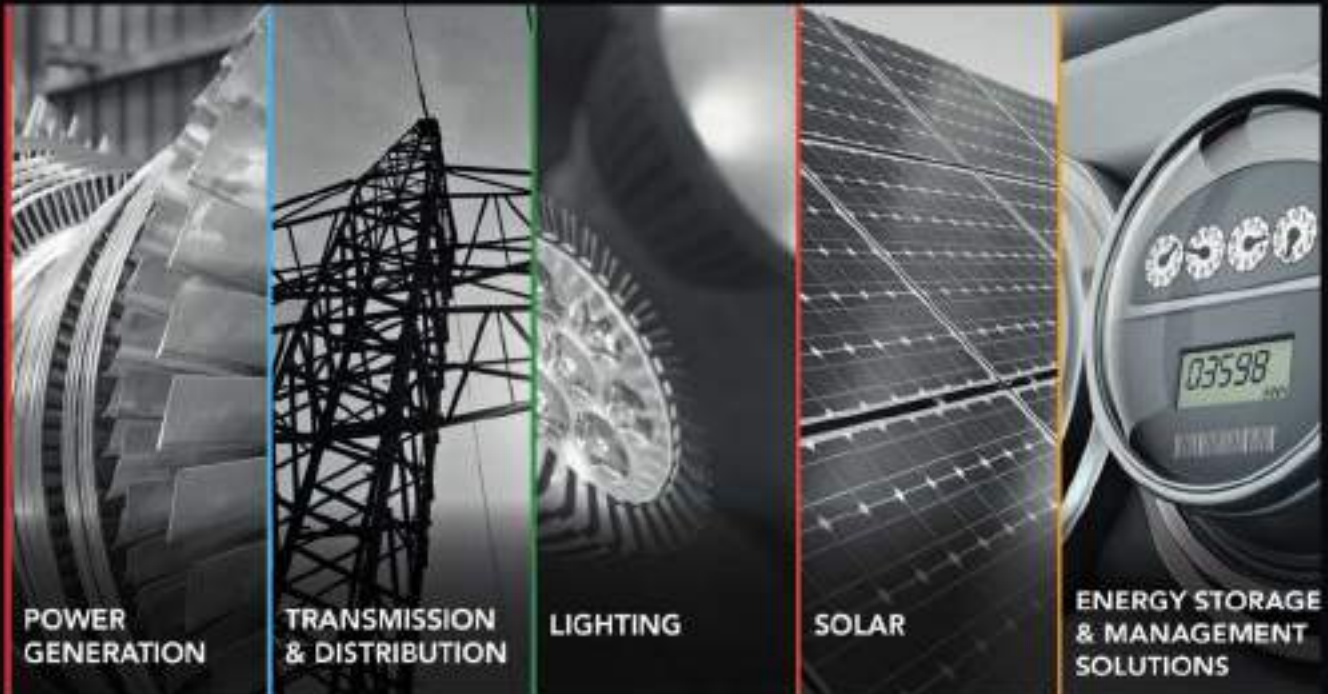




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# 966 Box Park supported by RANCO equipment in Dammam

**R**ABIAH & NASSAR GROUP (RANCO) was established in 1950 in Khobar City, Saudi Arabia. It has become one of the leading business groups contributing to the economic growth of the country. Rabiah & Nassar Commercial, as one of the most important pillars of this group, was introduced in the Eastern Region in 2013 as a subsidiary of RANCO Group. The rapidly growing division specialises in managing, trading, servicing and rental of construction, material handling and mobility equipment.

Now aligning with the Saudi Vision 2030 to support the entertainment activities and Saudi General Entertainment Authority, in March 2018, RANCO participated during the 966 Box Park event in Dammam. 966 Box Park was an exhibition of entertainment including art drawings and games for families and children. At the exhibition, freight containers were transformed into restaurants, cafes, shops, and creative meetings venues for attendees.

RANCO was the logistics and material handling solutions partner for the event. Its ZOOMLION cranes and GoodSense forklifts loaded more than 100 fabricated containers onsite. Skatework scooters were also provided to commute inside the venue.



ZOOMLION RT cranes lift the event sign during 966 Box Park Event.

Photo Credit: RANCO

Fahad Alrabiah, marketing manager at RANCO, said, "Rabiah & Nassar Group has been participating in CSR activities since 1950. Aligning with the Saudi Vision 2030, participation in these kinds of events supports the community by creating

more opportunities for local entrepreneurs and start ups. After the working hours at the Box Park, everyone became a part of the community. And we, as RANCO Group, should be where the community meets." ■



RANCO team at the venue.



Skatework scooters for visitors at 966 Box Park.

Photo Credit: RANCO



## Delivering versatility in high performance earth testing

THE NEW MEGGER DET2/3 high performance earth tester supports a comprehensive range of methods for measuring earth electrode resistance and soil resistivity, delivering accurate results even in challenging applications such as those involving large and complex earth systems. The DET2/3 is also easy to use because of its excellent error detection capabilities and a large colour display that shows detailed test information in both numerical and graphical formats.

Suitable for a wide range of applications from making accurate measurements on communications earth systems to carrying out archaeological and geological investigations, the DET2/3 can be used for tests in line with BS 7340 (earthing/grounding), BS-EN-62305 (lightning protection), BS-EN-50122-1 (railway applications) and IEEE Standard 81.

The DET2/3 provides earth measurement over a single continuous range from 0.001  $\Omega$  to 20 k $\Omega$  with a resolution of 1 m $\Omega$ . Test frequencies from 10Hz to 200Hz in steps of 0.5Hz are supported and an automatic frequency selection feature that ensures tests are carried out at the frequency with the lowest noise level. Test frequency, test current and filtering can also be adjusted manually to optimise results in particularly adverse conditions. Live display traces are provided during measurements, graphically showing the



The DET2/3 from Megger.

Photo Credit: Megger

amount of noise in the earth system under test.

The instrument's large internal memory allows immediate calculation of resistivity using the Wenner or Schlumberger methods, and can also store more than a full day's test results. The results can subsequently be downloaded to a USB flash drive or directly to a PC running PowerDBTM software.

The new DET2/3 supports two-, three- and four-pole earth resistance measurements, as well as three- and four-pole ART (attached rod technique) measurements, and stakeless measurements. Bidirectional continuity and bond testing are supported without the need to reconnect the test leads, along with lead-nulling facilities for lead resistance up to 10  $\Omega$ .

To ensure durability even in tough on-site operating conditions, Megger's new DET2/3 earth resistance tester features rugged construction and IP65 ingress protection. It is powered by an internal rapid-recharge Li-ion battery that, when fully charged, will last for a full day of tests in typical operating conditions. The instrument can also be powered from a standard 12 V vehicle supply.

To complement the versatile DET2/3, Megger offers an extensive range of ancillary items, which include cable reels with spikes, continuity test cables and clips, and a durable water-resistant bag that will hold a full complement of accessories.



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## SM rotary screw compressors from Kaeser

EQUIPPED WITH ADVANCED Sigma Control 2 compressor controller as standard and featuring flow-optimised Sigma Profile airends, SM series rotary screw compressors not only fulfil users' expectations with regards to compressed air availability and efficiency, but they also deliver high flow rates with minimal energy consumption.

SM series rotary screw compressors are the ideal choice for efficient compressed air generation in the

0.95 cu/m to 1.61 cu/m/min flow range at eight bar and are available with various drive powers from 5.5 to 9 kW. Amongst other design aspects, they achieve their exceptional performance through a high efficiency compressor airend featuring a flow-optimised inlet valve and through the minimisation of internal pressure losses.

Further energy savings are achieved by the use of IE4 motors (7.5 and 9 kW), which are currently the most efficient electric motors available. And Kaeser is the only provider in the market to equip its machines with these motors. Additional advantages include the internal Sigma Control 2 compressor controller, a compact footprint and, needless to say, super-quiet operation. All of these help save energy costs and increase availability.

The Sigma Control 2 internal controller also plays a key role in ensuring energy efficient compressor operation and performance. It not only enables efficient control based on respective compressed air consumption and reliable operation monitoring, but also allows connection to higher-level control systems such as the Sigma Network via the standard Ethernet interface. A large display and an integrated RFID reader in the control panel simplify communication with the system at the place of use and ensure secure log-on to the controller. The RFID reader also makes it possible to standardise service, to significantly increase service quality and to provide professional-grade security via SD card.

Since infinite speed control is advantageous in certain instances, a version with built-in frequency converter (Sigma Frequency Control) is also available with 7.5 kW drive power.

The modular package concept of SM series compressors also offers significant advantages: in addition to the standard version with a footprint of just 0.5 sq m, three models – SM 10, SM 13 and SM 16 – are available as so-called 'T versions', which feature an add-on, thermally shielded refrigeration dryer. The space-saving, compact design also makes these compressors perfect for use even in confined spaces. When closed, the enclosure with its soundproof lining keeps operating noise to an absolute minimum and helps maintain a quiet working environment.



*SM series rotary screw compressors are powerful, quiet, efficient and exceptionally service-friendly.*

Photo Credit: Kaeser Kompressoren



## MB Crusher buckets for construction applications

MB CRUSHER, ITALY-BASED global construction equipment supplier, has provided solutions for construction and demolition waste (CDW) processing.

"The process of recycling is pretty straightforward, firstly, fine material is separated. Subsequently, there needs to be a volumetric reduction, a separation from any metals and the final removal of the light fraction. However, of this whole process crushing is considered the critical phase for several reasons," said a company release.

### Case 1

In Hautes Pyrénées (France), a combination of a crusher bucket BF80.3 with an iron separator and a New Holland excavator are paring up to recycle railway sleepers.

The MB crusher bucket can work with any brand of excavator, utilising their hydraulic system, so material that represents difficult waste to dispose of can be not only a revenue source but an easy task to accomplish.

The alternative in the market is given by MB jaw crusher bucket, where concrete can be separated from the iron. To facilitate this operation, the suggestion is to load the bucket with an MB grapple and let the jaw and gravity do the rest. Alternatively, skilled operators can feed the bucket manoeuvring the excavator, a magnetic kit installed can also facilitate the separation and salvaging the metal.

### Case 2

In Brazil, light posts were accumulated in a warehouse, and treated as waste due to the difficulty of the reclaiming process. With the use of a Bucket Crusher BF60.1 mounted on a Case CX130B, these old posts became a source of income, easily processed to

The MB Crusher Bucket BF135.8.



Photo Credit: MB Crusher

extract the iron which is then resold.

Another way to optimise traditional crushers in reclaiming plants is to introduce uniform material, a step easily achieved by using the output material coming directly from MB crusher buckets and MB screening buckets.

### Case 3

In Paris, an MB Crusher Bucket BF135.8 feeds a screener already in place to obtain different outputs in record time with an incredible saving in production cost.

Pre-crushing the blocks, using the Volvo E700 70-tonne excavator permits a consistent input. Traditionally this operation would have required a wide size for manoeuvre and the use of more equipment.

But extraction sites are changing, job schedules are tight and commitment to

safety crucial. In this case, after the extraction, the silica needs to be reduced to be treated, the BF135.8 simply scoops it up and with jaws set to 0/120 the material is crushed directly into the screener's mouth, with one operator managing the entire chain safely from the excavator cab.

### Case 4

In Mexico, when there is a huge extension in the quarry, it is necessary to have agile systems. The MB-S18 screening bucket to process limestone with a Caterpillar 336D has increased the hourly production rate and minimised the impact on costs.

Modern quarries management often has problems with logistics, as to reach the fixed plant to process material, requires many trips. MB units offers the key solution with the plug and work flexibility provided by its attachments.



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### Eaton introduces 9SX UPS lower power range for industrial and data centres

#### POWER MANAGEMENT

**COMPANY** Eaton's new lower power-rated models to its 9SX UPS is now available in Europe, Middle East and Africa (EMEA).

The Eaton 9SX UPS offers high availability, flexibility and advanced protection for IT and small data centre infrastructure, as well as for networking, storage, industrial, medical and telecom applications. The new models extend the existing product portfolio of 5-11kVA UPS models across a larger power range from 700VA to 6kVA and are available in tower and rack formats.

The Eaton 9SX series is the successor to Eaton's market-leading 9130 UPS range, launched in 2008. The 9SX range builds on the features found in Eaton's 9130 product family and adds new capabilities, including eEnergy metering to track energy consumption, by monitoring kWh values, at the UPS level; improved LCD display with more parameters to give quick and precise UPS status updates; displays information on recommended battery replacement dates; and automatic extended battery module (EBM) recognition.

"The 9SX builds on the strengths of the 9130. We've taken a very well built, popular product and made it even better by adding new capabilities to support modern IT applications and infrastructure," said Karim Refas – regional channel manager, Eaton Middle East.

"This is a really important transition for Eaton and our customers, especially as the 9130 is our best-selling online UPS, and now we're providing an easy upgrade option to the 9SX for our customers as they look to modernize their IT and data center infrastructure."

The 9SX range features Eaton's market-leading technologies to ensure customers are provided with the best price and performance ratios. The 9SX has a power factor of 0.9, which means it provides greater real power (watts) to ensure more protection of equipment. It is also designed to be more reliable, thanks to a robust topology, and uses double conversion technology to constantly monitor voltage and frequency conditions and initiate automatic bypass in the event of an overload or UPS failure.

## Mitsubishi's new forklift truck is smart, agile

**BUILDING ON THE** success of its popular 80V, EDiA EX, Mitsubishi Forklift Trucks has announced the latest edition to its electric range: EDiA EM.

The most intelligent and agile truck in its class, this range of 1.4 to 2.0 tonne 48-volt electrics is also one of the most durable.

Designed and engineered to perform, the class-leading range works intuitively: tailoring the truck's performance to the individual operator's.

EDiA EM's sophisticated software examines and analyses real-use data – automatically adjusting the truck's parameters for operations that are safe and productive. For drivers, this means that – regardless of load weight – they can expect the same, predictable response.

Every model benefits from the Mitsubishi Sensitive Drive System (SDS). It automatically smoothens start-stop movements, increases agility and adapts the truck's performance to the speed of the driver's foot movements.

In addition, EDiA EM benefits from Intelligent Curve Control as standard. Sensing the angle of a turn, ICC responds automatically by seamlessly reducing speed very early in the manoeuvre – for maximum stability and accurate, positive cornering.

While a low, counterweight design ensures good rear vision, forward views to the fork tips benefit from simple, but often ingenious changes.

In the fully adjustable operator compartment, for example, forward vision is free of obstacles, thanks to its low-profile narrow bulkhead dashboard and small, featherweight steering wheel. In addition, designers have improved visibility through triplex masts with a clever mast redesign. Uniquely, the EDiA EM mast incorporates close-coupled hoses to widen the view for operators.



Photo Credit: Mitsubishi

*Safety was a top priority for the EDiA EM's designers. By thinking 'outside of the box', the team was able to successfully maximise visibility.*

Responsive, highly-ergonomic controls, improved legroom, and a low-noise design all work to minimise operator fatigue – thereby minimising the chance of costly accidents.

In busy operations every second counts. That is why the three-wheel model of the EDiA EM series can be specified with 360° steering – as found in the popular Mitsubishi reach trucks – allowing the driver to reverse directions smoothly, precisely and – most importantly – without stopping.

Not only can this speed up turn times and maximise productivity in tight spaces – even in containers – but it can greatly reduce the amount of centrifugal force acting up on a load, which could otherwise cause unsteady loads to fall.

With curve control stabilising the truck on turns and the Passive Sway Control system minimising sway action in higher lifts, EDiA EM is constantly working to make the operator's work as safe, efficient and predictable as possible.

### New high capacity powered pallet truck from Combilift

**COMBILIFT HAS LAUNCHED** a new high capacity powered pallet truck – the Combi-PPT.

With standard lift capacities of 3,000kg and 6,000kg and higher capacity models from 7,000 kg to 16,000 kg available on request, the pallet truck aims to provide an added benefit for operators when large distances have to be covered in a warehouse or production plant.

The Combi-PPT focuses on enabling the operator to stand at the side of the unit rather than at the rear and giving operators excellent visibility of even the bulkiest loads and their surroundings, eliminating the possibility of a crush risk when working in confined areas and prevents product damage.

"With the introduction of the Combi-PPT, very heavy loads can now be handled using these walk-behind machines, ensuring high levels of safety whilst guaranteeing efficient

procedures even in confined spaces," said Martin McVicar, managing director at Combilift.

"Combilift developed its first pedestrian models – the Combi-WR, Combi-WR4 and the Combi-CS – in response to an industry demand to move away from ride-on forklifts. As a company we are seeing a growing demand for pedestrian trucks, driven by safety concerns where customers and employees are in the vicinity of operating forklifts," McVicar explained.

The power steering, dual rear wheel drive and AC motor technology make it effortless and stress-free for operators. A range of optional fork lengths, widths and configurations are available for individual customer requirements.

With the new model, the company is set to expand its pedestrian forklift range that aims to provide safer operation, maximum operator visibility and narrow aisle performance.





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# Gensets Buyers' Guide 2018

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

**Section One:** International and regional suppliers of Gensets

**Section Two:** Contact details of Middle East agents & subsidiaries listed by country, page 69

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

### Aksa Power Generation FZE



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

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E-mail: [msd@alkhorayef.com](mailto:msd@alkhorayef.com)

Alkhorayef Group is an authorized dealer of Volvo and John-Deer Engines & Broadcrown Diesel Gensets in KSA. We Produce "Gulfpower" Diesel-Gensets.  
- Our diesel-gensets comprise of Volvo & John-Deere Engines with Stamford Alternator. Range 32 kVA 750 kVA.  
- Broadcrown comprise of Cummins Engines with Stamford Alternators. Range 750 kVA 4000kVA.

### Altaaq Global

VA 01, Jebel Ali Free Zone North  
Jebel Ali, Dubai, United Arab Emirates  
Tel: +971 4 8808006  
Fax: +971 4 8808007  
Web: [www.altaaqglobal.com](http://www.altaaqglobal.com)  
E-mail: [info@altaaqglobal.com](mailto:info@altaaqglobal.com)

Altaaq Global is a subsidiary of the Saudi conglomerate Zahid Group. We design, install, operate and maintain multi-megawatt power plants, on short-, medium- and long-term contracts, deploying technologies that include high- and medium-speed engines and turbines.

### Anhui EvoTec Power Generation Co. Ltd.

No. 9, Suhe Road  
Lujiang Economic Development Zone  
Hefei  
China  
Tel: +86 152 56521360  
Fax: +86 551 62580696  
Web: [www.evotecpower.com](http://www.evotecpower.com)  
E-mail: [leoli@evotecpower.com](mailto:leoli@evotecpower.com)

EvoTec specializes in manufacturing 3 phase A.C synchronous Alternators, Power Range from 8.5 kVA to 3500 kVA, we also customise High voltage alternator, IP 55 alternator for usage at power plant, dusty environment.

### Ansaldo Energia Group

Via Nicola Lorenzi, 8  
Genova  
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Italy  
Tel: +39 010 6551  
Web: [www.ansaldoenergia.com](http://www.ansaldoenergia.com)  
E-mail: [eleonora.gazzo@ansaldoenergia.com](mailto:eleonora.gazzo@ansaldoenergia.com)

Ansaldo Energia is a leading international player in the power generation industry, to which it brings an integrated model embracing turnkey power plants construction, power equipment (gas & steam turbines, generators and microturbines), manufacturing and services and nuclear activities. Ansaldo Energia is active as full service provider with a broad portfolio on heavy duty gas turbines offering complete maintenance solutions on power generation rotating equipment and plants, built both by itself or by other OEMs.

Our mission is to deliver innovative, proven, state-of-the-art, flexible solutions for the power generating industry, aimed at increasing the Customer's value.

#### Agents:

United Arab Emirates - Ansaldo Thomassen Gulf LLC

### Ascot Industrial S.r.l.

Zona Industriale  
Terza Strada  
Gela (CL)  
93012  
Italy  
Tel: +39 093 3901192  
Web: [www.ascotinternational.com](http://www.ascotinternational.com)  
E-mail: [sales@ascotinternational.it](mailto:sales@ascotinternational.it)

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

### Associated Power Solutions FZC

PO Box 122212  
Sharjah  
United Arab Emirates  
Tel: +971 6 5528142  
Fax: +971 6 5528143  
Web: [www.apsuae.com](http://www.apsuae.com)  
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### Atlas Copco Services Middle East

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Tel: +971 4 7040 168  
Fax: +971 4 3233 961  
Web: <http://www.gesan.com/>  
E-mail: [pt.info@bh.atlascopco.com](mailto:pt.info@bh.atlascopco.com)

Founded in 1986, Gesan is today an energy solutions integrator engaged in the manufacture of water and aircooled diesel generators, welders, petrol units and lighting towers.

Offering a complete range of products up to 3,100 kVA, we are able to supply over 778,000 kVA per annum in 90 countries around the world.



**Baudouin**

Technoparc du Brégadan  
Cassis  
13260  
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Tel: +33 (0)4 88 68 85 00  
Web: www.baudouin.com  
E-mail: contact@baudouin.com

For 100 years, Baudouin has manufactured the highest quality engines for power generation and marine applications. The Baudouin PowerKit engines provide a seamless range of power solutions from 15–2000 kVA. Based in France since 1918, Baudouin's global network of service points is ready to support our customers.

**Beijing Kadara Science & Technology Development Co. Ltd.**

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

Kadara engages in professional design and supply various power equipment such as Gasoline Generator, Diesel Generator, Welding Generator and ATS. The Generator brand is BINSON from 0.5kVA to 1000kVA.

**Caterpillar Electric Power**

PO Box 610  
Mossville  
Illinois  
61552-0610  
USA  
Tel: +1 309 5786298  
Fax: +1 309 5782599  
Web: www.cat.com/powergeneration  
E-mail: cat\_power@cat.com

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

**COELMO Spa**

Via delle Industrie 278  
Agglomerato Industriale ASI  
Acerra (NA)  
80011  
Italy  
Tel: +39 081 8039731  
Fax: +39 081 8039724  
Web: www.coelmo.it  
E-mail: sales@coelmo.it

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

**Agents:**  
United Arab Emirates - COELMO (DMCC branch)

**ComAp a.s.**

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Tel: +420 2 46012111  
Fax: +420 2 66316647  
Web: www.comap-control.com  
E-mail: info@comap-control.com

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

**Agents:**  
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**CompAir**

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Tel: +971 4 8811744  
Fax: +971 4 8811898  
Web: www.gardnerdenver.com  
E-mail: enquiries.fze@gardnerdenver.com

For more than 155 years, Gardner Denver has been a leading global provider of compressors, blowers and vacuum pumps. With global teamwork, strong customer focus, and vast application knowledge, our brands provide reliable, energy-efficient products that serve a wide range of manufacturing and process industries.

**CRE Technology**

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Zone des Templiers  
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Biot, 06410, France  
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E-mail: info@cretechnology.com

Genset control and paralleling unit (all-in-one), Man/Auto synchronizer and load sharer, Marine paralleling, Compact genset control unit, Marine range, Battery chargers, power metering.

**Cressall Resistors Ltd.**

Evington Valley Road  
Leicester, LE5 5LZ, United Kingdom  
Tel: +44 116 2733633  
Fax: +44 116 2737911  
Web: www.cressall.com  
E-mail: sales@cressall.com

Cressall Resistors manufacture high power resistors, neutral earthing (NERS), portable load banks, bespoke HV and LV load banks, dummy loads and dynamic braking resistors as well as resistors for use in high voltage filters such as HVDC, SVC and MSC systems.

**Cummins Generator Technologies**

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Fax: +27 11 5898468  
Web: www.stamford-avk.com  
E-mail: info@cumminsgeneratortechnologies.com

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

**Agents:**  
United Arab Emirates - Cummins Middle East FZE

**Cummins Middle East FZE**

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South Zone 2, Jebel Ali Free Zone  
Dubai, United Arab Emirates  
Tel: +971 4 8809911/800 CUMMINS  
Fax: +971 4 8860518/9  
Web: www.power.cummins.com  
E-mail: cummins.middleeast@cummins.com

Cummins Power Generation is a global provider of power generation systems, components and services in prime and

standby power to meet the needs of a diversified customer base. In Middle East the full range of services and solutions, including long-term operation and maintenance contracts, turnkey and temporary power solutions is provided through Cummins Middle East FZE, the first wholly-owned Cummins Inc. distributor established in 2000. We offer one of the widest ranges in diesel power generators, starting from 17kVA till 3750kVA for UAE, Bahrain, Yemen, Oman, Saudi Arabia, Kuwait, Jordan, Iraq, Lebanon, Afghanistan, and Pakistan markets.

**Dale Power Solutions**

PO Box 487282  
Suite 28, 33rd Floor  
HDS Business Centre  
Cluster M1  
Jumeirah Lake Towers  
Dubai  
United Arab Emirates  
Tel: +971 4 3641228  
Web: www.dalepowersolutions.com  
E-mail: info@dalepowersolutions.com

Founded in 1935 as a diesel generator manufacturer, Dale Power Solutions has since grown into a manufacturer of UPS systems, AC/DC systems and generators which manage and provide back-up electricity and can ensure a smooth transition between mains and generator power. On top of this we can provide turnkey solutions - keeping your power in safe hands.

**Deep Sea Electronics PLC**

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

UK based, leading global designer and manufacturer of generator controllers, ATS controllers, vehicle and off-highway controllers and intelligent battery chargers. Setting new standards through continual product innovation, DSE is recognised across the globe for producing market-leading products that enhance customer applications.

**Doosan Portable Power**

PO Box 262688 Cluster 1, Level 18  
JLT Platinum Tower  
Office 1802  
Dubai  
United Arab Emirates  
Tel: +971 4 276 7206  
Fax: +971 4 276 7204  
Web:  
<http://www.doosanportablepower.com>  
E-mail: [hazem.elnaqeeb@doosan.com](mailto:hazem.elnaqeeb@doosan.com)

Doosan Portable Power is a market leading manufacturer of generators, portable compressors and mobile lighting systems for the Middle East market. All Doosan Portable Power products are designed and rigorously tested to ensure they give outstanding operation on the toughest sites and in the most extreme conditions around the world, for applications in construction, roads, utilities, rental, quarrying and many other industries.

**Agents:**

Bahrain - MOHAMMED JALAL AND SONS  
Egypt - TRIANGLE HEAVY EQUIPMENT  
Iraq - TRI-STAR TRADING COMPANY  
Jordan - TOOLBOX  
Kuwait - BAHRAH TRADING CENTER  
Saudi Arabia - Saudi Diesel Equipment  
United Arab Emirates - SAUDI DIESEL EQUIPMENT  
Yemen - BLUE TRIANGLE

**FG Wilson**

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Springfield Road  
Belfast  
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Northern Ireland  
BT12 7AL  
United Kingdom  
Tel: +44 2890 495000  
Fax: +44 2828 261111  
Web: [www.fgwilson.com](http://www.fgwilson.com)  
E-mail: [web\\_editor@fgwilson.com](mailto:web_editor@fgwilson.com)

for over 50 years, FG Wilson has been a leading manufacturer of diesel and gas generator sets from 6.8 to 2,500 kVA and beyond. Since 1990 alone, we have installed 600,000 generator sets, supported by over 300 distributors, offering world-class levels of service from product selection to installation and lifetime support.

**First Forever Co. Ltd.**

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

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

**Forest City Generators Ltd.**

Albion House  
163 – 167 King Street  
Dukinfield, Cheshire  
SK16 4LF, United Kingdom  
Tel: +44 161 4490660/0770  
Fax: +44 161 4490880  
Web: [www.forestcitygenerators.com](http://www.forestcitygenerators.com)  
E-mail: [forestcity@compuserve.com](mailto:forestcity@compuserve.com)

Water cooled diesel generator sets from 7.5kVA to 2650kVA. Soundproof canopies available up to 2000kVA. Automatic load Transfer Switch (ATS) panels. Synchronising control systems and a full range of associated spare parts.

**G&J Technical Services Limited**

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43 Ring Road West, Accra  
Ghana  
Tel: +233 302 689178/9/682177/8  
Fax: +233 302 689177  
Web: [www.gjtechghana.com](http://www.gjtechghana.com)  
E-mail: [sales@gjtechghana.com](mailto:sales@gjtechghana.com)  
[customer.service@gjtechghana.com](mailto:customer.service@gjtechghana.com)

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

**GAMESA ELECTRIC**

Parque Tecnológico de Bizkaia,  
Edificio 100,  
48170 (Zamudio) Vizcaya.  
Spain  
Tel: +34 610 152 633  
Web: [www.gamesaelectric.com](http://www.gamesaelectric.com)  
E-mail: [jcmarrillo@gamesacorp.com](mailto:jcmarrillo@gamesacorp.com)

Gamesa Electric, one of the world's leading suppliers of electrical equipment (design, validation and manufacturing), takes another step forward in the genset

market with the launch of the electric generators GAE PO 63/71 series for medium voltage gensets, ranging from 2 to 3.5 MVA.

This new series GAE PO63 and GAE PO71 are mainly focused in Diesel engine manufacturers and genset integrators to give them the product which better matches their needs. They are 100% developed to fulfill the requirements of the generator set application.

**Generac Mobile Products S.r.l**

Via Stazione 3 bis  
Villanova d'Ardenghi (PV)  
27030  
Italy  
Tel: +39 0382 567011  
Fax: +39 0382 400247  
Web:  
[www.generacmobileproducts.com](http://www.generacmobileproducts.com)  
E-mail: [gmp.srl@generac.com](mailto:gmp.srl@generac.com)

Manufacturer of power generators, mobile lighting towers, diesel-driven pumps, dust suppression systems. Leader in the European market since 1997, Generac Mobile Products S.r.l has more than sixty distributors all over the world and is able to provide high quality machinery to the Construction, Mining, Rental, O&G and Event markets.

**GENMAC S.r.l - Power Products**

Via Don Minzoni, 13  
Gualtieri (RE), 42044  
Italy  
Tel: +39 0522 222311  
Fax: +39 0522 829218  
Web: [www.genmac.it](http://www.genmac.it)  
E-mail: [info@genmac.it](mailto:info@genmac.it)

Generators manufacturer since 1983. Made in Italy. Power range 2kVA - 2000kVA. Gas version available. Full range of accessories. References for: Telecom, Oil & gas, hospitals, government projects, Army & Civil Defence, rental & construction.

**Ghaddar Machinery Co.**

PO Box 110  
Ghazieh  
Sidon  
Lebanon  
Tel: +961 7 220000  
Fax: +961 7 221754  
Web: [www.ghaddar.com](http://www.ghaddar.com)  
E-mail: [info@ghaddar.com](mailto:info@ghaddar.com)

**Greaves Cotton Ltd.**

3rd Floor Motilal Oswal Tower  
Junction of Gokhale & Sayani Road  
Prabhadevi  
Mumbai, 400025  
India  
Tel: +91 22 33551700  
Fax: +91 22 3351799  
Web: [www.greaves cotton.com](http://www.greaves cotton.com)  
E-mail: [info@greaves cotton.com](mailto:info@greaves cotton.com)

**Green Power Systems S.r.l.**

Localita' Maiano  
Caprazzino Di Sassocorvaro  
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Web: [www.greenpowergen.com](http://www.greenpowergen.com)  
E-mail: [giovanni@greenpowergen.com](mailto:giovanni@greenpowergen.com)

Manufacturer of generating sets up to 2200 kVA

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5. Lighting towers
6. Welding Machines
7. ISO 9001/2000 - ISO 14001/2004

**Grupel SA**

Parque Empresarial de Soza  
Parcela A, Lote 5  
Vagos  
3840-342  
Portugal  
Tel: +351 234 790070  
Web: [www.grupel.eu/en](http://www.grupel.eu/en)  
E-mail: [grupel@grupel.eu](mailto:grupel@grupel.eu)

Grupel began its activity in 1976 where its main activity is the production and commercialization of a wide range of generators equipped with best quality components and with a power range between 3 to 3500kVA, dedicated to produce energy. Nowadays its, operating in the 5 continents with over 50 distributors.

**Agents:**

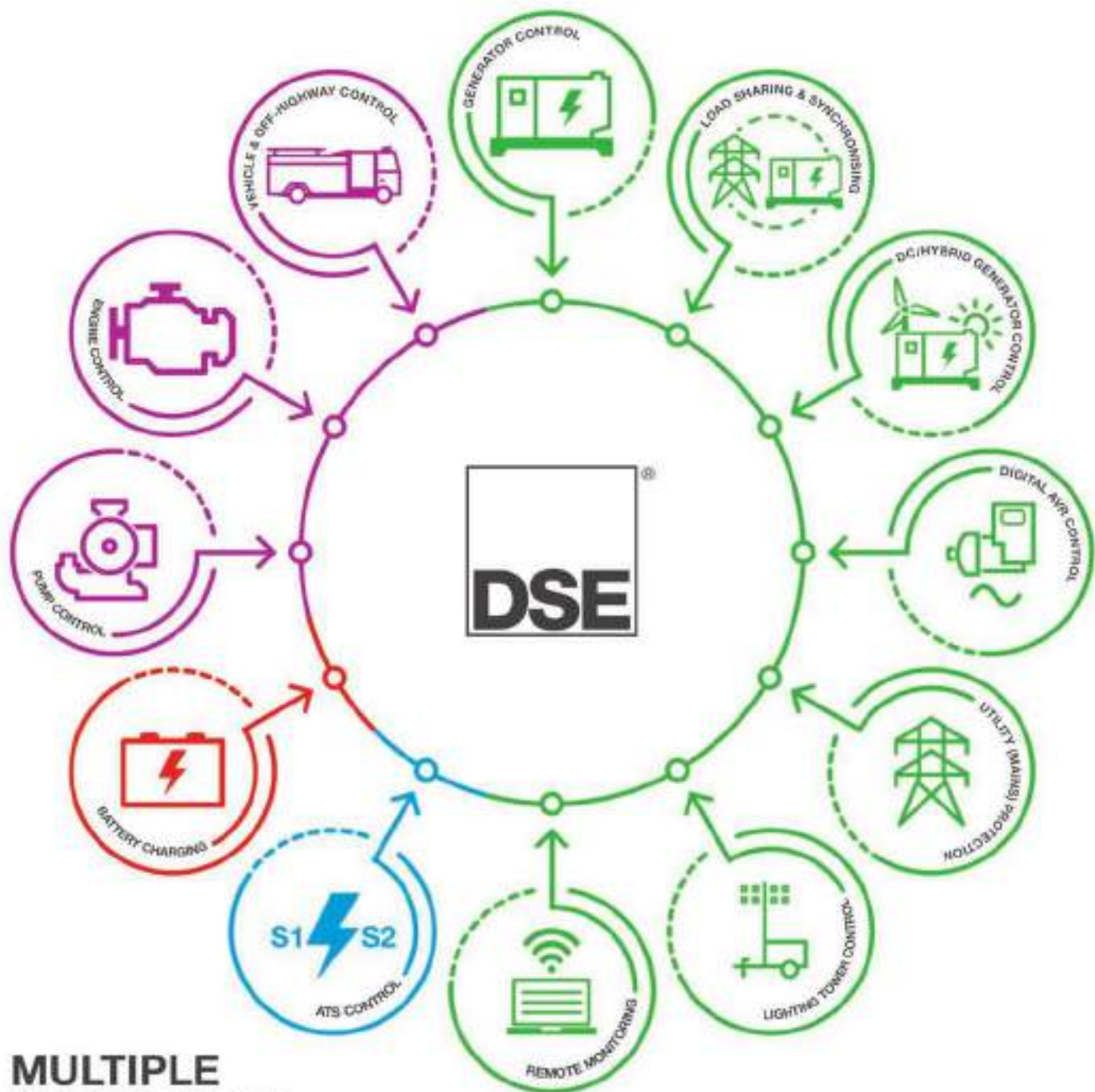
United Arab Emirates - Al Ghandi Group

**HAEFELY HIPOTRONICS**

Birsstrasse 300  
4052 Basel  
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Tel: +41 61 373 4111  
Fax: +41 61 373 4912  
Web: [www.haefely-hipotronics.com](http://www.haefely-hipotronics.com)  
E-mail: [sales@haefely.com](mailto:sales@haefely.com)

HAEFELY HIPOTRONICS is a part of Hubbell Incorporated, with offices in Basel, Switzerland and Brewster, New York, USA. As a leading customer-focused high voltage test equipment manufacturer with a reputation for outstanding customer support and product quality, HAEFELY HIPOTRONICS offers a full range of innovative test systems and measuring solutions.





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### DEEP SEA ELECTRONICS PLC

Highfield House, Hunmanby Industrial Estate Hunmanby, North Yorkshire, YO14 6PH, England

TELEPHONE: +44 (0) 1723 800099 EMAIL: [marketing@deepseapl.com](mailto:marketing@deepseapl.com)

To learn more visit: [www.deepseapl.com](http://www.deepseapl.com)



**HIMOINSA**

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30730, Spain  
Tel: +34 968 191128  
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Web: www.himoinsa.com  
E-mail: info@himoinsa.com

HIMOINSA is a global corporation that designs, manufacturers and distributes power generation equipment worldwide. The company adds incomparable application and engineering know-how, excellent design and service capabilities, delivering value beyond the equipment it produces.

The product range that the brand offers includes diesel and gas generator sets, control panels and paralleling systems for standby emergency power, prime power, peak power and distributed power. It also develops hybrid power gensets for the telecom sectors and manufacturers lighting towers for the rental and construction markets.

**Agents:**

United Arab Emirates - HIMOINSA Middle East FZE

**ICAR S.p.A**

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Monza, 20900, Italy  
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Web: www.icar.com  
E-mail: icar@icar.com

ICAR is one of Europe's leading capacitor specialists and bases its reputation on 70 years of experience in the design, development and production of capacitors and automatic systems for Power Factor Correction, Capacitors for Motors and Lighting, DC and AC Capacitors for Power Electronics use, Voltage Stabilizers and Active Filters.

**Inmesol, S.L.**

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Corvera (Murcia)  
30153  
Spain  
Tel: +34 968 380300  
Fax: +34 968 380362  
Web: www.inmesol.com  
E-mail: inmesol@inmesol.com

INMESOL – Manufacturer of generator sets, lighting towers, parallel systems, and

gen sets for hybrid electric power generation systems. With more than 25 years in the market, INMESOL S.L. is a Spanish company that designs, manufactures, markets and provides technical support service for technologically leading gensets, in both open and soundproofed versions and from 2.5 to 2,500 kVA (PRP), lighting towers, and parallel systems. INMESOL's highly specialised technical team enables it to meet specific requirements from the most demanding markets, offering optimal solutions for each one of them. It is currently present in more than 80 countries around the world, with equipment installed in all types of applications and uses.

**IREM S.p.A.**

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

IREM S.p.A specialises in design and manufacture of 1PH and 3PH electro-dynamic voltage regulators and line conditioners - in standard and customized versions - with power ratings from 1 to 8000 kVA for indoor and outdoor installation. In business since 1947, IREM is a medium size company (staff 90 people) exporting all over the world. Company certifications according to ISO9001 (since 1983), ISO 14001 (since year 2000), BS OSAS 18001 (since 2014) Standards. Typical application fields: Broadcast, Telecommunication, Industrial applications, Electro-medical appliances, Machine tools, Manufacturing plants, Banks and Insurance Companies, Construction, Oil and Gas, Mining, a.s.o.

**John Deere Power Systems**

Orléans-Saran Unit  
La Foulonnerie BP 11013  
Fleury Les Aubrais Cedex  
45401  
France  
Tel: +33 2 38826019  
Web: www.deere.com  
E-mail: jdenigne@johndeere.com

John Deere Power systems develops, manufactures and markets diesel engines for a large variety of generator sets, compressors, industrial and agricultural applications. John Deere is one of the very few engine manufacturers that doesn't make gen-sets, this makes us unbiased partners with gen-set OEMs, offering them a robust power generation line-up from 30 to 500 kVA.

**Agents:**

United Arab Emirates - Genavco

**Jubaili Bros**

Jebel Ali Free Zone  
United Arab Emirates  
Tel: +971 4 8832023  
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Web: www.JubailiBros.com  
E-mail: jbdubai@jubailibros.com

Jubaili Bros with over 40 years of experience is a leading provider of Power Solutions in the Middle East, Africa and Asia. Jubaili Bros serves its customers with high quality diesel generators and solar solutions. Our network consists of 3 manufacturing plants, 28 branches and service centres in 9 countries.

**Agents:**

Kuwait - Jubaili Bros (Kuwait)  
Lebanon - Jubaili Bros (Lebanon)

**KJ Power Generator**

Sanayi Mh., Sanayi Mah.,  
Uran Sok. No:3/1  
Pendik-Istanbul  
34906, Turkey  
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+90 (216) 378 9707  
Fax: +90 (216) 378 97 06  
Web: www.kj.com.tr  
E-mail: info@kj.com.tr

KJ POWER GENERATOR, with the production of generator sets of 7kVA-2500kVA power range, fulfills the energy requirements of distinguished institutions of the public sector and the leading companies of construction, petroleum, banking, telecommunication, food, health, education sectors and industries. As well as standard products, KJ POWER GENERATOR, through its trained and experienced staff, is capable to support the business partners in terms of special and bespoke projects as well.

KJ POWER GENERATOR has been exporting 70% of its products to more than 90 countries, with the superior performance of the generator sets and broad after-sales service availability.

**Kohler Power Systems**

Kristallaan 1  
Zevenbergen, 4761 ZC, Netherlands  
Tel: +31 168 331630  
Web: www.kohlerpower.com  
E-mail: powersystems.emea@kohler.com

For every aspect of your critical load requirements, Kohler has engineered the product: EPA-compliant generator sets from 5 to 4000kW, a full line of automatic transfer switches, customizable paralleling switchgear, controls that can manage a multitude of power systems applications, along with wireless and Web-enabled remote PC power system monitoring.

**Agents:**

Saudi Arabia - A.Abuanyan Trading Corporation

**KOHLER-SDMO**

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Fax: +33 2 96 41 63 07  
Web: WWW.KOHLER-SDMO.COM  
E-mail: sdmo@sdmo.com

SDMO Industries is one of the world's leading generating sets manufacturers. A wide of standard products from 1 kVA to several Megawatts through an efficient engineering department meets non-standard requirements. Present in over 150 countries through a dense network, SDMO Industries devotes its energy to supporting you in the successful completion of each of your projects world wide.

**Agents:**

United Arab Emirates - KOHLER-SDMO Middle East

**Linz Electric S.p.A.**

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Web: www.linzelectric.com  
E-mail: info@linzelectric.com

Linz Electric S.p.A is specialized in the production of alternators and rotating welders. Part of the Pedrollo Group of companies, Linz Electric has become one of the major players in the sector in just a few years, thanks to the original innovative solutions in energy transformations.

**Lister Petter Ltd.**

Hurricane Close  
Sherburn in Elmet  
LS25 6PB, United Kingdom  
Tel: +44 1285 702211  
Web: www.lister-petter.co.uk  
E-mail: sales@listerpettergroup.com

Since 1867, Lister Petter has not only manufactured diesel engines, generating sets and parts but most importantly it has continued to live and breathe quality, experience and rugged durability into every product. We do this by simply understanding and responding to customers needs and the particular requirements of different markets.

**Agents:**

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Iraq - Nafithat Al-Sharq for General Contracting Co.  
Jordan - Yazouze Est. Engineering Mechanical Agri  
Kuwait - Al-Khonaini Gen. Trading & Contracting Co.  
WLL  
Oman - Mohamed & Ahmed Alkhonji LLC  
Oman - Moosa Abdul Rahman Hassan & Co. LLC  
United Arab Emirates - Al Masaood - Power Engineering Division  
United Arab Emirates - M.A.H.Y. Khoory & Co.  
Yemen - Bahaj Yemen



**Lloyd Dynamowerke GmbH**

Hastedter Osterdeich 250  
Bremen  
28207  
Germany  
Tel: +49 421 45890  
Fax: +49 421 4589260  
Web: www.LDW.de  
E-mail: sales@LDW.de

LDW develops and produces electrical motors and generators for various industrial applications. Newest technologies in combination with over 90 years of experience - that's the successful foundation on which the extraordinary quality of LDW's machines is based. We do not manufacture standard machinery. Instead we develop specific solutions for your individual needs.

**Agents:**

United Arab Emirates - Salwo Trading Ltd. (Lloyd)

**Lovato Electric S.p.A.**

Via Don Mazza, 12  
Gorle (BG)  
24020  
Italy  
Tel: +39 035 4282111  
Fax: +39 035 4282400  
Web: www.lovatoelectric.com  
E-mail: info@lovatoelectric.com

World leader manufacturer of electromechanical or electronic products for genset control panels. Range includes generators, controllers, automatic trans switch controllers, battery chargers, changeover controller and switches and more.

**Mahindra Powerol - Mahindra & Mahindra Ltd.**

FES Gate No 02  
Akurli Road  
Kandivali East  
Mumbai  
400101  
India  
Tel: +971 564157555  
Web: www.mahindrapowerol.com  
E-mail: shelke.krunal@mahindra.com

Mahindra group, US 16.5 bn dollar empire, tractor & multi-utility vehicles major in India forayed into the field of Power Generation in 2002. Today, Mahindra engines with the brand name Mahindra Powerol are powering over 270,000 Diesel generating sets in India & in global markets ranging from 5kVA to 500kVA. It

offers several advantages like: Fuel Efficiency, Minimal vibration and Low noise levels apart from Diesel Generators, Powerol also deals in Industrial Engines across India & Home Inverters in selected markets. Mahindra Powerol products are presently available in over 20 countries across Africa, Middle East & Asia.

**Agents:**

Kuwait - Agrims Projects Services General Trading & Cont Co.  
Oman - Bin Salim Enterprises LLC (Mahindra & Mahindra)  
Saudi Arabia - Intermodal Services of SA Trading & Contracting (Mahindra & Mahindra)  
United Arab Emirates - Al Rawahy Establishment LLC

**MAN Energy Solutions SE**

Stadtbachstr. 1  
Augsburg  
86153  
Germany  
Tel: +49 821 3220  
Fax: +49 821 3223382  
Web: www.man-es.com  
E-mail: powerplant@man-es.com

MAN Energy Solutions SE is the world's leading provider of large-bore diesel engines and turbomachinery for marine and stationary applications. It designs two-stroke and four-stroke engines, gas and steam turbines as well as compressors. The product range is rounded off by turbochargers, propellers, gas engines and chemical reactors. Customers receive worldwide after-sales services marketed under the MAN PrimeServ brand.

**Agents:**

Saudi Arabia - MAN Diesel & Turbo Saudi Arabia LLC  
United Arab Emirates - MAN Diesel & Turbo Middle East LLC

**Mantrac Group**

(B-17) Smart Village Km 28  
Cairo-Alexandria Desert Road - 6th of October  
Egypt  
Tel: +20 2 35370798  
Fax: +20 2 35314000  
Web: www.mantracgroup.com  
E-mail: info@mantracgroup.com

Mantrac Group is the authorized Caterpillar dealer, distributing and supporting Caterpillar construction machines, power systems and material-handling equipment in nine countries spread over three continents. With decades of experience as CAT suppliers, Mantrac provides customers with comprehensive solutions backed by technical know-how, experience and in-depth knowledge of their local markets.

**Agents:**

Egypt - Mantrac Egypt Ltd.  
Iraq - Iratrac (Mantrac Group)  
United Arab Emirates - UNA Trading FZE

**Mecc Alte UK Ltd.**

6 Lands End Way  
Oakham  
Rutland  
LE15 6RF  
United Kingdom  
Tel: +44 1572 771160  
Fax: +44 1572 771161  
Web: www.meccalte.com  
E-mail: gen@meccalte.co.uk

Mecc Alte is proud to be the largest independent producer of synchronous alternators. Quite simply, we manufacture alternators through 'made for manufacturing' product designs from 1kVA through to 5000kVA. Operating in the electromechanical sector, we produce many types of special rotating machines, to cover a highly diverse range of applications. We've been totally independent since 1947 and that means we don't have to keep looking over our shoulder. We're free to do what we think is best for our customers....every hour of every day.

**Megger Ltd.**

Millennium Tower Office No.142,  
Bldg. No.205  
Road 2803  
King Mohammed IV Avenue Block  
No.428 Seef Area  
Bahrain  
Tel: +973 1 7740620  
Web: www.megger.com  
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The Megger product range includes some of the latest developments in electrical safety testing, cable fault location, protection testing, circuit breaker testing, earth transformer and battery testing, power quality analysis and insulation diagnostics. For over 100 years, Megger has been helping electrical utilities to operate safely, efficiently and reliably.

**MOTORTECH GmbH**

Hogrevestr. 21-23  
Celle  
29223  
Germany  
Tel: +49 5141 93990  
Fax: +49 5141 939999  
Web: www.motortech.de  
E-mail: motortech@motortech.de

MOTORTECH develops and manufactures ignition components, air fuel ratio controllers engine management systems and other accessories for stationery gas engines.

**N J Froment and Co. Ltd.**

Cliffe Road  
Easton-on-the-Hill  
PE9 3NP  
United Kingdom  
Tel: +44 1780 480033  
Fax: +44 1780 480044  
Web: www.loadbanks.ascopower.com  
E-mail: froment.sales@ascopower.com

Avtron and Froment are global leaders in power testing and control. Brands of ASCO Power Technologies, a complete range of capacities with a wide voltage range are available to verify generating sets and UPS systems including user friendly or intelligent control with data-acquisition capabilities to ISO8528.

**Agents:**

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**NED S.r.l.**

Zona Industriale Lotte 36  
Fragagnano (TA)  
74022  
Italy  
Tel: +39 099 9561799  
Fax: +39 099 9561799  
Web: www.nedgenerators.com  
E-mail: info@nedgenerators.com

NED is engaged in design, production and sale of generators of the highest quality, with excellent mechanical and acoustic properties. NED manufactures tailor design that can build your generator to be high customized and respond promptly to the particular need of each client with efficient business organization.

**Agents:**

United Arab Emirates - MII LLC

**Nidec Leroy-Somer**

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16915 Angoulême Cedex 9  
France  
Tel: +33 5 45 64 45 64  
Fax: +33 5 45 64 45 44  
Web: www.leroy-somer.com  
E-mail: contact@leroy-somer.com

Leroy-Somer is the global leader for alternators from 10kW to 25MW. Every day, our products help secure access to power for thousands of people, for the safety and peace of mind of everyone.

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United Arab Emirates - Nidec Motor DMCC - Leroy-Somer

**OMICRON Electronics Middle East****OMICRON**

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 Manama, Bahrain  
 Tel: +973 17116400  
 Fax: +973 17116401  
 Web: www.omicronenergy.com  
 E-mail: info.mideast@omicronenergy.com

**ORTEA S.p.A**

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 21 - 20873, Italy  
 Tel: +39 02 95917800  
 Fax: +39 02 95917801  
 Web: www.ortea.it  
 E-mail: ortea@ortea.com

Founded in 1969, ORTEA is now a leading company in manufacturing and engineering voltage stabilisers, generators, magnetic components, power factor correction systems and electrical equipments.  
 Beside standard production, ORTEA is able to be extremely flexible in developing and manufacturing special equipment according to user's specifications.

**Perkins Engines Co. Ltd.**

Frank Perkins Way  
 Peterborough, Cambridgeshire  
 PE1 5FQ, United Kingdom  
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 Fax: +44 1733 582240  
 Web: www.perkins.com

Perkins is a world leading supplier of off-highway diesel and gas engines, offering powers up to 2500 kVA in diesel or 1000 kWE prime in gas. Our cost effective solutions, from competitive fuel consumption to ease of maintenance, whatever the power requirement, add real value to our customers' equipment.

**Agents:**

United Arab Emirates - Power Systems Gulf LLC

**Peter Berghaus GmbH**

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 Tel: +49 2207 9677-0  
 Fax: +49 2207 9677-80  
 Web: https://www.berghaus-verkehrstechnik.de/en/  
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**Power & Industrial Machinery Co. "PIMCO"**

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 E-mail: pimco@pimcolb.com

We are specialised in selling and assembling generating sets and electrical control panel boards, manufacturing soundproofs, finding solutions for all soundproofing systems, offering installations of all kinds of generating sets with their correlative accessories synchronising and ATS panels. All kinds of insulation and anti-vibration systems and installation of fuel systems.

**Powersource Projects Ltd.**

PowerPro House, Unit 4  
 Capital Park Industrial Estate  
 Combe Lane, Wormley  
 Godalming  
 Surrey  
 GU8 5TJ, United Kingdom  
 Tel: +44 1428 684980  
 Fax: +44 1428 687979  
 Web: www.power-source-pro.co.uk  
 E-mail: sales@power-source-pro.co.uk

Powersource Projects Ltd. is an experienced and active supplier of generating sets under our brand name "PowerPro". We offer very competitive prices on a range of 1500 rpm, 50Hz gensets powered by Perkins, Volvo, Scania and Deutz. We hold a number of standard build units in stock for ex-stock delivery. We can also stock a wide variety of engines, alternators and panel spares. We are a Perkins SPI dealer and hold over 300 AVR's in our stock.

**Powertech Switchgear Industries FZE**

PO Box 2335, Ajman Free Zone  
 United Arab Emirates  
 Tel: +971 6 7472274  
 Fax: +971 6 7472551/7472558  
 Web: www.powertechswitchgear.com  
 E-mail: info@ptswitch.ae

**PR Middle East FZE**

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 1206 Jafza View 18  
 Jebel Ali Free Zone - South 1  
 Dubai, United Arab Emirates  
 Tel: +971 4 8865275  
 Fax: +971 4 8865276  
 Web: www.pramac.com  
 E-mail: info.ae@pramac.com

Pramac manufactures a wide range of power generation and materials handling

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**Rabiah & Nassar Group**

PO Box 100919  
 Riyadh, 11645, Saudi Arabia  
 Tel: +966 11 4910590/2544541  
 Fax: +966 11 4915977  
 Web: www.rancozamil.com  
 E-mail: info@rancozamil.com

The Established in 1950 in Khobar City, Rabiah & Nassar Group started as a small road-building contractor and worked in concert with the Arabian American Oil Company (Aramco) and municipalities to construct some of the major road networks in the Eastern Province. From these humble beginnings, Rabiah & Nassar Group expanded to partner with the Ministry of Communication to build the first road network in the Qassim area as well as a number of other major projects such as airports, water treatment facilities, bridges and other road networks.

After transferring to Riyadh City, the company continued to diversify into engineering and contracting, real estate, agriculture, mining, trading, industrial and other investments. Today, Rabiah & Nassar Group is one of the leading business groups that contributes to the economic growth of Saudi Arabia.

**ROTAIR S.p.A**

Via Bernezzo, 67  
 12023, Caraglio (CN), Italy  
 Tel: +971 50 2600 482  
 Fax: +971 6 557 9980  
 Web: www.rotairspa.com  
 E-mail: jayanthan@rotairspa.com

ROTAIR S.p.A is an Italian manufacturer of Portable Screw Air Compressors. Since its inception in 1961, the company has been specializing in design and manufacture of highly efficient and reliable screw compressors. Today ROTAIR compressors are enabling customers in 70 plus countries to meet their demanding business needs in the most efficient way.

- Product range: 25 – 900 CFM / 7 – 14 bar
- Airend: Manufactured in-house
- Engines used: Perkins-UK, Kubota-Japan, Honda-Japan, Deutz-Germany and Cummins-UK
- Version: Diesel, Petrol and Hydraulic

**SAB, Standard Aggregatebau Evers GmbH & Co. KG****SAB**

Oststrasse 11  
 D-22844 Norderstedt  
 Germany  
 Tel: +49 40 522 50 110  
 Fax: +49 40 522 50 1144  
 Web: www.generatingset.com  
 E-mail: info@generatingset.com

Reputable German manufacturer of custom-built diesel-driven generating sets from 50 to 8000 kVA in stationary, transportable or mobile executions for standby, peak load or base load applications world-wide. Main competencies are the planning, designing, manufacturing, installation and servicing of global plant constructions under consideration of individual customer and project requirements.

**Sakr Power Group**

PO Box 98  
 Jbeil  
 Halat  
 Lebanon  
 Tel: +961 9 442000  
 Fax: +961 9 445444  
 Web: www.sakr.com  
 E-mail: lebanon@sakr.com

Cummins: from 25kVA to 3125kVA.  
 Mitsubishi: from 800kVA to 2225kVA.  
 MBH: from 12kVA to 2552kVA.  
 Lister Peter: From 7kVA to 20kVA.  
 GE: from 1569kVA to 6331kVA.  
 FALCON: from 1kVA to 2552kVA

For more details on other Middle East offices please log on to our website [www.sakr.com](http://www.sakr.com)

**SES Smart Energy Solutions FZCO**

P O Box 18089  
 South 1  
 Jebel Ali FreeZone  
 Dubai  
 United Arab Emirates  
 Tel: +971 4 8862066  
 Fax: +971 4 8862067  
 Web: www.sesrent.com  
 E-mail: sales@sesrent.com

SES is leading provider serving temporary and medium term energy needs across the Middle East, Africa and South East Asia region. SES offers fast tract turnkey power rental solutions to help our customers maximize on productivity and profitability, while minimizing on downtime and resources with highest safety standards.





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**SIEMENS ENGINES S.A.U.**

Barrio Oikia, 44  
Zumaia (Gipuzkoa)  
20759  
Spain  
Tel: +34 943 865200  
Fax: +34 943 865210  
Web: [www.siemens.com/engines](http://www.siemens.com/engines)  
E-mail: [engines.pgdr.energy@siemens.com](mailto:engines.pgdr.energy@siemens.com)

Siemens designs, develops and commercializes Engines in its Power & Gas division, Siemens Engine Business. Together with Siemens' heavy investment on R&D and the experience it has gained for more than 50 years, this makes Siemens Engine Business a leading international technology provider in both liquid and gas fueled engines for a wide range of applications (power generation, cogeneration, trigeneration, marine applications,...) and sectors of activity.

The power range offered by this engine business goes from 190 to 2065 kWb for gas engines, while the range of diesel engines for marine propulsion ranges from 184 to 1324kW. Gas engines available for marine power generation too.

**Su-Kam Power Systems Ltd.**

Corporate Office  
Plot No. 54  
Udyog Vihar  
Phase VI, Sector - 37  
Gurgaon  
Haryana, 122001  
India  
Tel: +91 124 4170500  
Fax: +91 124 4038700/1  
Web: [www.su-kam.com](http://www.su-kam.com)

**Teksan Generator**

Yenidogan Mah  
Edebali Cad  
No:12 Sancaktepe  
Istanbul, 34791  
Tel: +90 4448576/216 3120550  
Fax: +90 216 3126909  
Web: [www.teksan.com](http://www.teksan.com)  
E-mail: [denizar@teksan.com](mailto:denizar@teksan.com)

Teksan Generator is a leading engineering company with solid sectoral experience and know-how that manufactures and installs diesel, natural and biogas Gensets, cogeneration-trigeneration and hybrid power systems for Telco Projects, Industrial Plants, Construction and Infrastructure Projects, Retail Chains, Shopping Malls, Banks, Universities, Hospitals, Residential Buildings in more than 120 countries.

**Agents:**

Iraq - KM Co.  
Saudi Arabia - Abdul Latif Jameel Machinery  
United Arab Emirates - Emirates Specialized Trading

**Turbomach SA**

Via Campagna 15, Riazzino  
6595, Switzerland  
Tel: +41 91 8511511  
Fax: +41 91 8511555  
Web: [www.turbomach.com](http://www.turbomach.com)  
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- Turnkey Power Plants

**Visa S.p.A.**

Via I° Maggio, 55 - 31043  
Fontanelle (TV), Italy  
Tel: +39 0422 5091  
Fax: +39 0422 509350  
Web: [www.visa.it](http://www.visa.it)  
E-mail: [visa@visa.it](mailto:visa@visa.it)

Visa S.p.A is one of the world's leading gensets suppliers, based in Italy, designing and manufacturing diesel generators, from 9 to 3000kVA, in standard or customized versions to meet your every need in a large variety of applications. With its network currently present in more than 80 countries worldwide, it provides versatile, high- tech energy solutions, guaranteeing a highly operational flexibility and qualitative standards for which it has become a leader in the market for almost 60 years.

**Volvo Penta**

Region International  
Gothenburg, 40508, Sweden  
Tel: +46 31 235460  
Fax: +46 31 510348/508187  
Web: [www.volvopenta.com](http://www.volvopenta.com)  
E-mail: [info.volvopenta@volvo.com](mailto:info.volvopenta@volvo.com)

Power generation diesel engines,  
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**Agents:**

Bahrain - International Agencies Co. Ltd.  
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Kuwait - Al Boom Marine Co.  
Lebanon - Khonaysser Motors  
Saudi Arabia - Alkhorayef Commercial Co. Ltd.  
(Riyadh)  
Saudi Arabia - Alkhorayef Ind. Co. Marine Division  
Syria - Nahas Enterprises  
United Arab Emirates - Al Masood Marine and Engineering (Abu Dhabi)  
United Arab Emirates - Al Masood Marine and Engineering (Dubai)  
Yemen - Elaghil Trading Co. Ltd.

**Wärtsilä Corporation**

PO Box 196  
Helsinki  
FI-00531  
Finland  
Tel: +358 10 7090000  
Fax: +358 10 7095700  
Web: [www.wartsila.com](http://www.wartsila.com)

Wartsila Power Plants delivers gas and oil fired power plant solutions from 1 mW to 300 mW based on Wartsila diesel and gas engines with a range of 920-17,000kW and a maximum rpm of 1,000. Wärtsilä power plants are used for baseload, load management, cogeneration and gas compression applications. Deliveries include turnkey construction and longterm maintenance and operation.

For other Middle East offices, please log on to our website.

**Agents:**

Oman - Apollo LLC  
United Arab Emirates - AlMansoori Specialized Engineering Company LLC  
Yemen - Al Ahram Trading Co. Ltd.

**Weichai Middle East FZE**

PO Box 18698  
Warehouse No. LA04  
Near Round About 8  
Jebel Ali Free Zone  
Dubai  
United Arab Emirates  
Tel: +971 4 8810650  
Fax: +971 4 8810651  
Web: [www.weichai.com](http://www.weichai.com)  
E-mail: [amitdeshpande@weichai.com](mailto:amitdeshpande@weichai.com)  
[zhonglei@weichai.com](mailto:zhonglei@weichai.com)

Weichai is a world class manufacturer of Diesel and Gas engines branded Deutz, Weichai, Baudouin & MAN used for Automotive, Industrial and Marine applications. We also produce Generator Sets rated from 10kW to 12000kW. Our products are supported with spare parts and warranty by Global Weichai Service network.

**Agents:**

Bahrain - National Establishment of Technical & Trade Services  
Saudi Arabia - Advance Machinery Est.  
United Arab Emirates - SunPower Gen FZCO

**Yamuna Cable Accessories Pvt. Ltd.**

3/101, Kaushalaya Park  
Hauz Khas  
New Delhi  
110016  
India  
Tel: +91 11 43577777  
Fax: +91 11 43577778  
Web: [www.yamunadensons.com](http://www.yamunadensons.com)  
E-mail: [enquiry@yamunadensons.com](mailto:enquiry@yamunadensons.com)

Established in 1973, Yamuna Cable Accessories Pvt. Ltd. (YCAPL) is a leading designing/manufacturing/supplier for power cable jointing accessories and associated power distribution goods, through its 4 global plants and channel partners through 35 countries under the "DENSONS" brand.

Offering a complete range in resin cast, heat shrink, cold shrink and pre moulded power cable jointing accessories up to 66 kV and plug in and elbow/straight/T connectors for GIS and RMU's application. All products are qualified and type tested under qualifying standards in NABL approved labs such as CESI, CPRI, KEMA, etc. The company's strong R&D wing and in-house manufacturing of all key inputs and strict qualification compliance inputs ensures high quality materials and solutions, batch on batch, year on year.

**Agents:**

United Arab Emirates - Al Yamuna Densons FZE

**YorPower Ltd.**

Hurricane Close  
Sherburn Industrial Estate  
Sherburn in Elmet  
Yorkshire  
LS25 6PB  
United Kingdom  
Tel: +44 1977 688155  
Fax: +44 1977 688158  
Web: [www.yorpower.com](http://www.yorpower.com)  
E-mail: [sales@yorpower.com](mailto:sales@yorpower.com)

Diesel generator specialist, YorPower, is the leading independent UK manufacturer today, supplying generators from 1.0KVA to 3000KVA. Our generators have all been designed with the ability to handle large single step-load demands with short recovery times. Our diesel generators deliver first class performance and reliability underpinned by the Yor-Power Warranty.

**Agents:**

Kenya - YorPower Kenya



## Section Two: Agents & subsidiaries in the Middle East

### BAHRAIN

#### Abbas Biljeek & Sons

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Sh. Salman Avenue  
Manama  
Tel: +973 17401555  
Fax: +973 17401333  
Web: www.biljeek.com  
E-mail: biljeek@biljeek.com.bh

#### International Agencies Co. Ltd.

PO Box 310  
131 Al Khalita Ave  
Manama  
Tel: +973 727114/28691  
Fax: +973 728412  
E-mail: sm-service@intercol.com

#### MOHAMMED JALAL AND SONS

239, Sh. Salman Highway Po Box 747  
Manama  
Tel: +973 17707070  
E-mail: vilas\_deshmukh@jalal.com

#### National Establishment of Technical & Trade Services

PO Box 644  
Building 128, Block 314  
Lulu Road (336)  
Manama  
Tel: +973 1 7270783  
Fax: +973 1 7273849  
Web: www.engineer.bh  
E-mail: fahad@engineer.bh

### EGYPT

#### Mantrac Egypt Ltd.

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Cairo  
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Web: www.mantracegypt.com  
E-mail: hmounir@mantracegypt.com

#### TRIANGLE HEAVY EQUIPMENT

48 Elthawra street  
Dokki, Giza  
Tel: +20 -225799711  
E-mail: kshawki@triangle.com.eg

### IRAQ

#### Iratrac (Mantrac Group)

Dist. 923, St. 29, Bldg. 76  
University St. Jaderia  
Baghdad  
Tel: +964 1 7783783  
Fax: +964 1 7786714  
Web: www.iratrac.com  
E-mail: idawood@iratrac.iq

#### KM Co.

Erbil-Makhmour Road  
Beside Fataka Flour Plant  
Tel: +964 750 4454027  
E-mail: kq\_teksan@yahoo.com

#### Nafithat Al-Sharq for General Contracting Co.

Al Wahda Quarter  
District No. 904, No. 56  
Hse #1/16  
Baghdad  
Tel: +964 781 1111196  
Fax: +964 770 0008000  
E-mail: ahmedk@orientgroupiraq.com

#### TRI-STAR TRADING COMPANY

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### JORDAN

#### Mithkal, Shawkat & Sami Asfour Co.

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Fax: +962 6 4649636

#### TOOLBOX

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Tel: +962 6 4773001  
E-mail: e.khateib@toolbox.com.jo

#### Yazoure Est. Engineering Mechanical Agri

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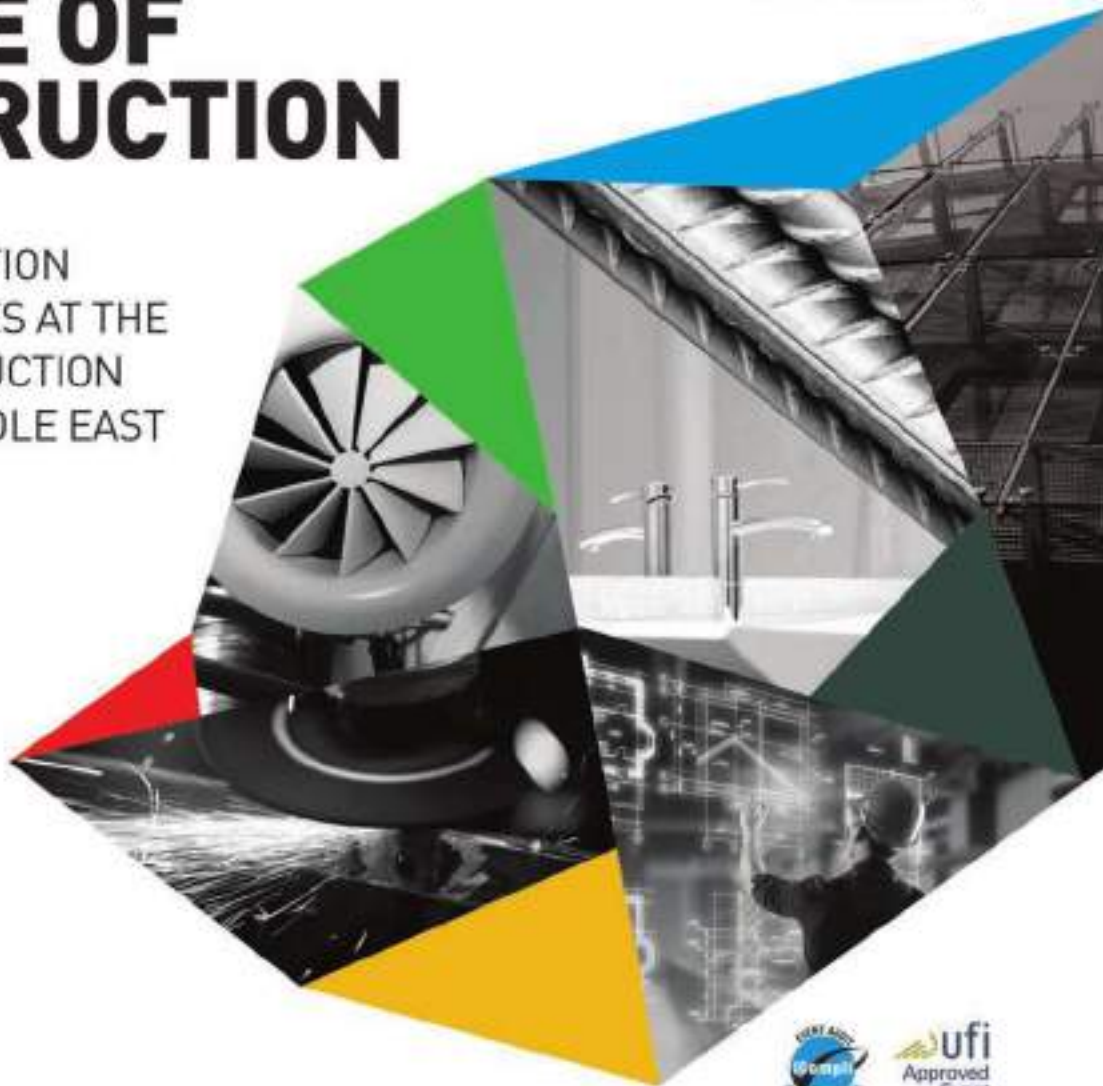
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أليساندرو مانشيني، المدير العام لشركة Cannon Automata.

وقال مانشيني إن التصنيع أتاح فرصاً هائلة في الإمارات العربية المتحدة. ومع التوجهات الرسمية التي تقود اتجاهات الأعمال في دول مجلس التعاون الخليجي، تتبنى المؤسسات بشكل متزايد حلول الأتمتة في عملياتها. فقد قال مارتن بالمر، المدير العام لشركة سيك الشرق الأوسط، إن دولة الإمارات العربية المتحدة، على وجه الخصوص، كانت من أوائل الدول التي طبقت تقنيات الأتمتة المتعلقة بالمنطقة.

وأضاف: «لقد رسخت الإمارات موقعها بقوة على خريطة الأتمتة الصناعية الإقليمية من المشاريع اللوجستية الكبيرة للطرق والموانئ والمطارات إلى إنشاء مراكز توزيع إقليمية لشركات السلع الاستهلاكية متعددة الجنسيات. إننا نرى على نحو متزايد في الشرق الأوسط أن الأتمتة أصبحت أكثر أهمية خاصة مع سعي المصنعين إلى زيادة الإنتاجية والسلامة في حين يطالب المستهلك بجودة أعلى وقيمة أفضل مقابل المال».

أما التحديات التي تعوق التنمية فتتضمن الحاجة لاستثمارات أولية كبيرة في التقنيات الحديثة، كذلك يتعين أيضاً معالجة نقص المعايير المشتركة بين الأجهزة المتصلة وبروتوكولات الاتصالات.

الجديدة في مجال الأتمتة. أما الأمر الأكثر أهمية فهو الانفتاح على المفاهيم الجديدة.

وأضافت شولتز أن تطبيق التقنيات والعمليات الجديدة يستغرق وقتاً ويتطلب العديد من الموارد، غير أنه يحقق الفائدة للمُصنِّعين على المدى البعيد. وأردفت «في ألمانيا، استغرق الأمر عدة سنوات لتحسين مصانع الإنتاج وتطوير المفاهيم الفعالة لبروتوكولات التشبيك الصناعي مثل PROFIBUS (بروتوكول التشبيك للعمليات) أو PROFINET (التشبيك الصناعي في مجال الأتمتة) أو «ASI».

«يمكن أن تستفيد منتجات الشرق الأوسط الأحدث من هذه المعرفة من خلال إنشاء شبكات محسنة ومراقبة بشكل دائم وتنفيذ أحدث الحلول. وعندئذ، ويفضل القوة المالية العالية، يمكن لمصانع الشرق الأوسط أن تصبح أفضل المصانع المؤتمتة في العالم، بل ونسهم بدور رئيسي في الإنتاج على مستوى العالم».

وقال سيفكت سراكوجلو، رئيس شركة ميتسوبيشي إلكترونيك تركيا: «هناك إمكانات هائلة، خاصة في الإمارات العربية المتحدة والمملكة العربية السعودية، وقد ركزت هاتان الدولتان على مجال الأتمتة الصناعية. وفي السنوات الأخيرة، جذبت دبي الاهتمام برجال الشرطة الآليين، وكان مثيراً حديثاً واسع النطاق بسبب سياراتها الشرطية ذاتية القيادة. وقد أجري أيضاً أول اختبار لسيارات الأجرة الطائرة هناك في 2017، يتم إنجاز كل هذه الأشياء من خلال ربطها ببعضها البعض عبر إنترنت الأشياء الذي يعد جزءاً أساسياً من «الصناعة 4.0».

«بخلاف دبي، يتلقى الإبداع دفعة للأمام باستعداد المملكة العربية السعودية للحد من اعتمادها على النفط، كما أنها تكثف تركيزها على تحليل البيانات الكبيرة لهذا الغرض. ومن المقرر أن تضع هاتان الدولتان، اللتان تسعى إلى تعزيز الإنتاج، استثمارات كبيرة في تقنيات الأتمتة خلال السنوات المقبلة».

ويتفق أليساندرو مانشيني، المدير العام لشركة Cannon Automata، أيضاً مع رأي سراكوجلو بأن الإمارات يمكن أن تصبح رائدة عالمياً في «الصناعة 4.0» التي تدمج الأتمتة وتبادل البيانات في تقنيات التصنيع، وتجمع بين النظم الفيزيائية السيبرانية وإنترنت الأشياء والحوسبة السحابية.



دولة الإمارات قادرة على دمج مدخلات التكنولوجيا الجديدة بسرعة أكبر

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الإمارات من أوائل الدول التي طبقت الأتمتة الصناعية في المنطقة

## شباب الخليج يدفع بعجلة الأتمتة الصناعية

أورد بحثٌ جديدٌ أن صناعة الأتمتة في دول مجلس التعاون الخليجي تسير في المسار الصحيح لتحقيق مُعدل نمو يتجاوز 10 في المائة خلال السنوات الخمس المقبلة، ذلك أن تعافي أسعار النفط، وخطط التنوع الاقتصادي الحكومية، تعزز الطلب على تقنيات الأتمتة الصناعية وأيضاً في مجال البناء والتشييد.

المُتعلمين الأكثر وعياً بالأتمتة وتطبيقاتها في مختلف القطاعات بما في ذلك التصنيع والخدمات. كما أن مصانع المنطقة قد تصبح ضمن أكثر المصانع تقدماً في العالم خلال السنوات المقبلة. إذ يؤكد موردد حلول الأتمتة العالميون على أن استثمار حكومات المنطقة في التقنيات الحديثة و«الصناعة 4.0» يمكن أن يلعب دوراً رئيسياً في مستقبل الإنتاج العالمي. وتعد شركات Indu-Sol، ومقرها ألمانيا، وميتسوبيشي إلكتريك من اليابان و Cannon Automata من إيطاليا من بين أحدث الشركات العالمية المهتمة بالفرض المستقبلية المتاحة للسوق.

من جانبها، قالت سثيفاني شولتز، مديرة المبيعات الدولية والتسويق في شركة Indu-Sol، إن الاستثمار في التكنولوجيا الصحيحة قد يجعل مصانع الشرق الأوسط الأحدث في العالم، حيث يرمز إنترنت الأشياء الصناعي و«الصناعة 4.0» عمليات طويلة المدى تتطوي على العديد من أنواع الابتكارات المختلفة والحلول

وأفاد تقرير المعرفة الصادر في يوليو/تموز 2018 عن شركة «تيك ساي للأبحاث» الاستشارية، بأن قيمة سوق الأتمتة الصناعية وأتمتة البناء والتشييد في دول مجلس التعاون الخليجي سترتفع إلى 10,3 مليار دولار أمريكي في 2023 من 5,6 مليار دولار أمريكي في 2017، مُعدل نمو سنوي مُركب يبلغ 10,7 في المائة. وهناك أحداث علمية، مثل معرض إكسبو الدولي 2020 في دبي، ومشاريع عملاقة مثل مدينة «نيوم» السعودية، تعتبر بمثابة قوة دافعة لأنظمة وعمليات التحكم المتطورة في مجال تطوير البنية التحتية، بينما يعني التركيز المُكثف على قطاع التصنيع تحت مظلة الثورة الصناعية الرابعة «الصناعة 4.0» سعي الشركات للبحث عن التقنيات التي تتيح لها تعزيز حصيلة الإنتاج بجودة أعلى. ويذكر التقرير الرسمي أن نمو سوق الأتمتة الصناعية بدول مجلس التعاون الخليجي يأتي مدعوماً بحقيقة أن غالبية سكان هذه الدول هم من الشباب

# المحتويات

القسم العربي

تحليلات

شباب الخليج يدفع بعجلة الأتمتة الصناعية

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تحليلات: التقرير السنوي عن المولدات الكهربائية.

مقابلة: المؤتمر الدولي للطاقة.

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