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TECHNICAL REVIEW MIDDLE EAST

النشرة التقنية - الشرق الأوسط

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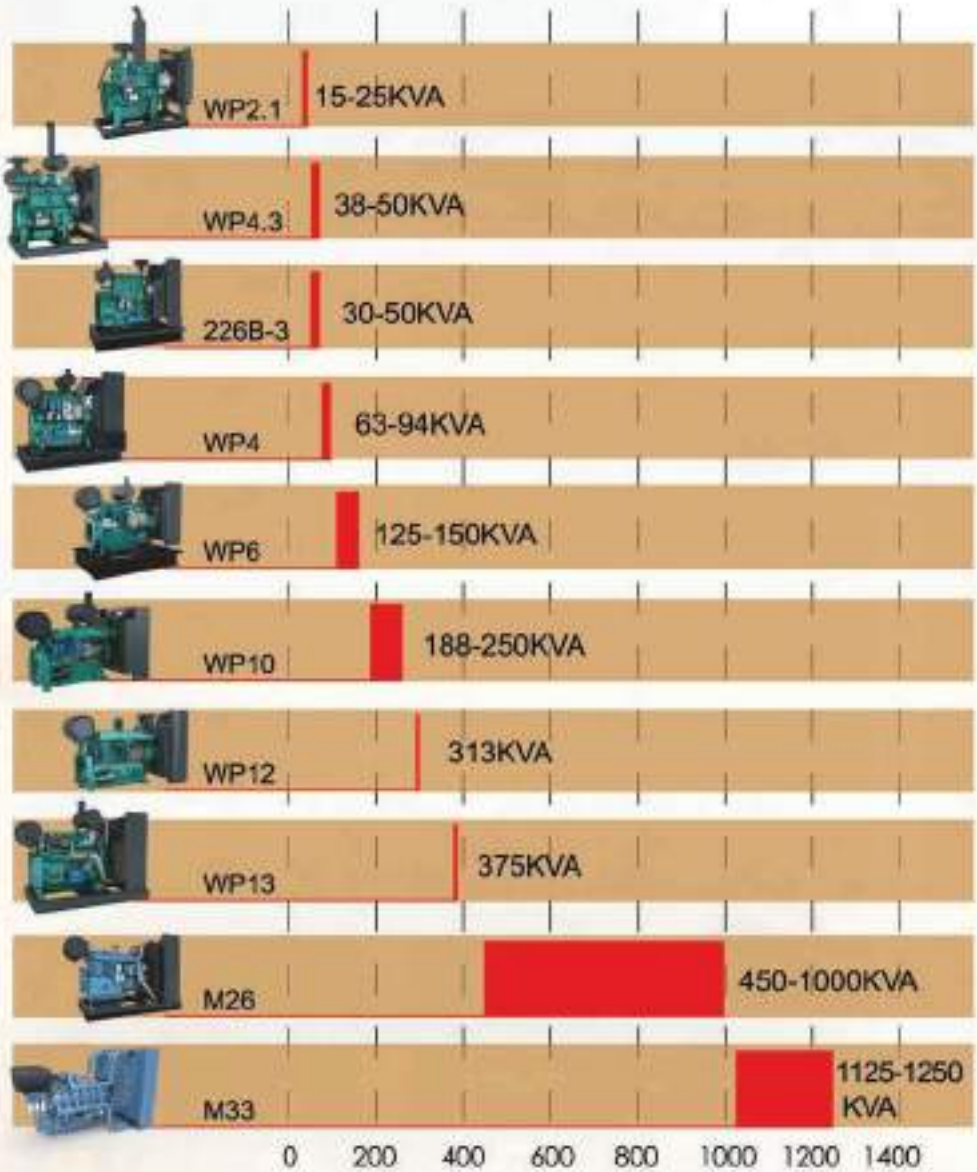

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EDITOR'S NOTE

IT'S THAT TIME of year again where *Technical Review* focuses on the Middle East's power industry in our Annual Power Review and, in sticking to the script, we have a host of stories and articles on the region's power sector. We lead this issue with a look at the Iraqi power sector (p14) and how, in spite of extremely difficult circumstances, the country's government hopes to put in place a framework that will enable the state to become self sufficient in meeting its own power needs.

We also review Saudi Arabia's ambitious nuclear power generation plans (p24) and look at the adoption of smart grid technology (p20). Elsewhere, there's news on the development of power storage solutions (p32), we explore the latest innovations in the process control sector, and we review two of May's biggest exhibitions, SSS Arabia (p46) and the GCC Environment Forum (p47).

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

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Briefly

Nesma and Keolis to bid for KSA transport contracts

SAUDI ARABIAN COMPANY Nesma and French public transport operator Keolis signed a Memorandum of Understanding (MoU) in Jeddah to develop new transport systems in Saudi Arabia.

Karim Chaiblaine, CEO of Keolis for the Middle East, said the strategic partnership with Nesma would aim to provide Saudi Arabia with public transportation that meets international standards.

"Keolis is committed to developing public transport systems within Saudi Arabia, with Nesma complementing the Middle East teams located in Jeddah and Riyadh," said Chaiblaine.

"We are honoured to enter into a partnership with such a leading company as Nesma, who share our values of safety and customer focus, and we are determined to provide world-class services to the residents of the Kingdom of Saudi Arabia. This is the first step in a long-standing and successful relationship."

Keolis operates a range of transport modes in four continents. The French National Railways Corporation holds a 70 per cent share in the company, and Canadian institutional fund manager Caisse de dépôt et placement du Québec is the other long-term shareholder with a 30 per cent share.

South Korean firm to provide electrical equipment for power projects in Iraq

SOUTH KOREAN ELECTRIC components manufacturer LS Industrial Systems Co., has won a US$150mn order to supply electricity equipment for sub-stations in Iraq.

According to the terms of the deal, LS Industrial Systems Co., will supply equipment to the Gas Insulated Switchgear (GIS) sub-stations to be built as part of the Bismayah New City Project (BNCP), led by South Korean construction firm Hanwha Engineering & Construction Corp.

The contract is valid for four years, according to a South Korean news agency. BNCP is one of the largest urban developments in Iraq. It is located 10 km southeast of Baghdad and is expected to accommodate 600,000 occupants in 100,000 residential units by 2019.

Elecnor set to build first wind farm in Kuwait

SPANISH RENEWABLE ENERGY solutions provider Elecnor has won a US$24mn contract to build Kuwait's first wind farm, which will have a capacity of 10MW.

The project includes the engineering, construction and installation of five 2MW wind turbines, connection to a 132kV sub-station and the start-up and subsequent maintenance of the facility for six years, said Elecnor officials.

The wind farm will be built in the Shagaya Renewable Energy Park, the officials added. The project will be jointly undertaken by Elecnor, with a 60 per cent share and Kuwaiti multinational Alghanim International holding the remaining 40 per cent.

The Shagaya Renewable Energy Park is a major Kuwaiti government project that is aiming to enable the nation to meet its energy needs through renewable sources. Elecnor's latest project is part of the first phase of developing the renewable energy park, along with a solar thermal and PV plant. Together, the three facilities will have a capacity of 70MW.

A 10MW wind farm will be constructed in Kuwait City's Shagaya Renewable Energy Park (Photo: WDG Photo)

Elecnor has a growing presence in the MENA region; in 2014, it won a US$90mn contract to build a wind farm in Maan, Jordan. According to the company, Kuwait is one of the MENA nations in which it is seeking to expand its presence.

DEWA launches Strategy 2021 and Sustainability Report

DUBAI ELECTRICITY AND Water Authority (DEWA) has launched its Strategy 2021 and second Sustainability Report.

DEWA MD and CEO HE Saeed Mohammed Al Tayer, who launched the documents at a ceremony at Grand Hyatt Dubai, said both plans supported the directives of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, promoting the 'green' development of the UAE in line with the UAE Vision 2021. The theme of DEWA's Strategy 2021 is 'DEWA at Work: Smarter and brighter energy future for Dubai'.

"Through our initiatives, we contribute to making Dubai the smartest city in the world and support the sustainable social, economic, and environmental development of Dubai in particular and the UAE in general," said Al Tayer. "DEWA Strategy 2021, which emphasises the need to continue these efforts to take Dubai to the next level on its journey to celebrate the Union's Golden Jubilee in seven years."

"This strategy will provide the support for the process to make effective strategic decisions, and develop a road map that enables DEWA to support Dubai's ongoing development," Al Tayer added. "It will serve as a reference point during the strategic planning process that supports DEWA's operational planning."

DEWA's second annual Sustainability Report, prepared in accordance with the Global Reporting Initiative (GRI) G4 Guidelines' Core option, addresses sustainability issues, such as economic development, energy efficiency and climate change, water availability and environmental protection. "The report also showcases case studies which highlight DEWA's achievements with regards to the economic, social, and environment pillars of sustainability," noted Al Tayer.

The launch event was attended by a number of leading energy industry players in the UAE, including HE Dr. Matar Al Neyadi, Undersecretary of the UAE Ministry of Energy, HE Fatima Al Foora Alshamsi, Assistant Undersecretary for Electricity, Clean Energy and Water Desalination at the Ministry of Energy, HE Abdullah bin Kalban, CEO and Managing Director of Emirates Global Aluminium (EGA), and Saif Humaid Al Falasi, CEO of Emirates National Oil Company (ENOC).

DEWA second annual Sustainability Report highlighted the utility's sustainability achievements in Dubai (Photo: Naufal MQ / Shutterstock.com)

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Briefly

Free zone status for DWTC

DUBAI WORLD TRADE Centre (DWTC) has been declared as a free zone as part of new laws and decrees issued by HH Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE, and Ruler of Dubai.

DWTC includes the Dubai International Convention and Exhibition Centre, which hosts a number of leading international and regional exhibitions.

The decision to designate the site as a free zone will aim to boost the exhibition and conference industry in the emirate, as well as target local and international investments.

The DWTC zones includes free zones and districts managed and supervised by DWTCA, including DWTC and the Dubai Trade Centre Jebel Ali.

DWTCA will be an affiliate of Investment Corporation of Dubai (ICD) as an incorporated public body with financial, administrative and legal independence. It will be responsible for establishing, developing and managing infrastructures and administrative services inside DWTC.

Kingdom Tower elevators installation begins

GLOBAL ELEVATOR AND escalator company Kone has initiated the first phase of elevator installations at Saudi Arabia's Kingdom Tower.

Kone, which was awarded a contract to supply elevators for the nearly one-kilometre-tall building in Jeddah, is currently working on pre-installation activities pertaining to fitting the elevator system's guiderails. The installation of guiderails and the eventual installation of elevator cars will commence by the end of 2015.

Mounib Hammoud, CEO of the tower's owner and developer Jeddah Economic Company (JEC), said, "Kone is the only vertical transportation service provider in the world capable of delivering what we need at the Kingdom Tower – specifically the capability of travelling at a speed of an excess 10 metres per second with double-deck elevators to reach the highest liveable floor in the world, within 52 seconds."

The high-speed elevators will rise 660 metres to the observation deck, making it the world's highest elevator rise.

Industrial waste facility to be built in Sohar

OMAN ENVIRONMENTAL SERVICES Holding Company has announced that it will set up an integrated waste management facility in Sohar.

The facility will include a three million cu/m industrial waste landfill, a 28mn cu/m slag landfill, a 100,000 tonnes per annum (tpa) stabilisation plant, a 1,000 tpa physical and chemical treatment plant and a 50,000 tpa incineration plant. The plant will also include dedicated systems for recycling special waste streams such as lead acid batteries, e-waste and end-of-life vehicles (ELV).

The industrial waste landfill, solidification plant and waste storage facility has been scheduled to begin operations by 2016 (Photo: TonyTaylorStock)

Under the Integrated Hazardous Waste Management System (IHWMS), Oman Environmental Services Holding Company will establish a thermal treatment plant, physical and chemical treatment plant, solidification plant and disposal facilities.

A 2.4mn sqm area has been allocated at Liwa, near Sohar Port, for the construction of the facility.

According to the Oman Daily Observer, the facility will be equipped to handle 1.47mn tonnes of industrial waste, mainly generated by the various industries operating in Sohar. The city generates 90 per cent of the country's hazardous waste, said Mohammed Sulaiman al Harthy, executive vice-president of corporate strategic development at Oman Environmental Services Holding Company.

The organisation is also considering floating a tender for the construction of a solidification plant.

Authorities stated that the industrial waste landfill, solidification plant and waste storage facility is likely to be operational by 2016, physical and chemical treatment plant by 2018 and the thermal treatment plant by 2019.

Empower highlights power saving prowess

DISTRICT COOLING SERVICES provider Empower, has made a huge leap in power saving by utilising district cooling instead of traditional air conditioning systems, claims the company.

In terms of power, the company saved 837MW in 2014, marking a huge increase from the 4MW saved in 2004, when the company first started its power saving initiative. According to H.E Ahmad Bin Shafar, chief executive officer of Empower, "The achievement is equivalent to reducing CO_2 emissions of more than 300,000 cars on UAE roads.

"Since adopting district cooling services in the UAE, we realised that this technology could contribute to energy saving and conservation of natural resources. Our strategy has led to making us a major contributor in Dubai's transition towards a green economy. Empower's efforts are in line with the Dubai government initiatives in rational consumption, for companies or individuals," added Bin Shafar.

Empower CEO Ahmad Bin Shafar

According to Bin Shafar, district cooling systems are far more efficient than conventional systems, using half the energy consumed by existing traditional cooling systems. Dubai's district cooling capacity amounts have been increasing in recent times due to the growth in the number of construction projects throughout the emirate.

Empower currently operates more than one million refrigatation tons (RT), providing district cooling services to large-scale real estate developments including Business Bay, Jumeirah Beach Residence, Dubai International Financial Centre and Palm Jumeirah.

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ON THE WEB

A round-up of the leading developments and innovations recently featured on *Technical Review Middle East*'s online portal. To read more or to stay up to date with the latest industry news, visit *www.technicalreviewmiddleeast.com*

Cital inaugurates Algerian tram assembly plant

CITAL, A THREE-COMPANY joint venture (JV) comprising French multinational Alstom, Entreprise du métro d'Alger (EMA) and Spanish infrastructure company Ferrovial, has inaugurated a tramway assembly and maintenance site in Annaba, Algeria.

The Cital plant has assembled 20 trams to date for use in Algerian cities (Photo: Cital)

The assembly plant spans 46,000 sqm and is equipped to assemble five trams per month. To date, 20 trams have been assembled.

The JV was created in 2011 to maintain Alstom Citadis trams for major Algerian cities. Cital maintains and runs trams for Algiers, Oran and Constantine. Around 210 trams are likely to be assembled in Annaba for transport in Oran, Constantine, Ouargla, Mostaganem, Sidi Bel Abbes, Setif, Batna and Annaba.

www.technicalreview.me/logistics

IRENA launches project navigator tool

THE INTERNATIONAL RENEWABLE Energy Agency (IRENA) has launched a new tool called the Project Navigator Tool, which can aid energy project developers to complete their projects.

The tool has been designed to provide case studies, best practices and devices that would enable project developers understand the various aspects of a project and figure out ways to best implement them.

IRENA director general Adnan Z Amin said, "This new tool makes it easier for project developers to initiate, develop, fund and complete renewable energy projects around the globe."

www.technicalreview.me/power-a-water

Exclusive solar expo to debut at WFES 2016

SOLAR-POWERED ENERGY pricing is now at par with fossil fuel models, making it economically attractive and commercially viable, according to a recent 'REmap 2030' report.

WFES will return to ADNEC from 18-21 January 2016

Published by IRENA, in conjunction with Masdar Institute and the UAE's Directorate of Energy and Climate Change, the report added that solar power, together with other renewable energy sources, could save countries billions of US dollars annually while introducing innumerable health and environmental benefits and creating new jobs.

With this in mind, the World Future Energy Summit (WFES) 2016 will see the launch of a dedicated zone within the event – WFES Solar Expo – which will cater to the burgeoning solar sector.

www.technicalreview.me/events

Italian company secures Saudi Telecom IP port deal

SAUDI TELECOM HAS chosen TI Sparkle to provision IP transit connectivity for the Middle East.

The Italian firm, which forms the international services branch of Telecom Italia Group, will provide Saudi Telecom with the use of two 100 Gigabits per second (Gbps) IP ports, located at the company's Sicily Hub in Palermo.

"We are delighted to be collaborating with TI Sparkle in introducing this state-of-the-art technology to respond to an ever-growing demand for more sophisticated and innovative IP services, which we are experiencing in our home market," said Saudi Telecom's vice president for wholesale Humoud Alkussayer.

www.technicalreview.me/it

Black & Veatch appointed to conversion project

SAUDI ELECTRICITY COMPANY (SEC) has named Black & Veatch as the Owner's Engineer for the Qassim II and III Conversion in Burdayah, Al Qassim.

The Qassim power plant serves Buraydah, capital of Saudi Arabia's Al-Qassim Region (Photo: Wikimedia Commons)

Owner's Engineer refers to a representative of a commissioning company for a construction or engineering project, who generally ensures technical contractors adhere to project specifications.

The Qassim power plant serves Buraydah, the capital of the Al-Qassim Region in north-central Saudi Arabia. The power plant is being expanded to meet increasing demands for power in the region through the conversion of a simple cycle to a combined cycle operation.

www.technicalreview.me/power-a-water

Abu Dhabi Ports grows 30 per cent in Q1 2015

ABU DHABI PORTS has announced a 30 per cent growth in Q1 2015, propelled by the introduction of new shipping lanes, growth of roll-on-roll-off trade and an increase in cruise passenger traffic. The number of TEUs (20 foot equivalent units/containers) has increased year-on-year from 224,080 in 2014 to 302,151 in 2015, mainly due to the increase in the number of shipping lines and new connections to ports across the world. Abu Dhabi Ports has connections to more than 100 direct destinations and 36 shipping lines.

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New alliance set to power future business

As Japanese diesel engine manufacturer Yanmar acquires a 70 per cent stake in Spanish genset manufacturer HIMOINSA, Guillermo Elum discusses the benefits of the deal for HIMOINSA's customers in the Middle East.

THE DEAL THAT has seen Japanese engine manufacturer Yanmar purchase a 70 per cent stake in Spanish genset manufacturer HIMOINSA represents more than just one company becoming the parent of another. Both firms, among the leaders in their respective fields, will now have the opportunity to unite their specialities in an alliance that will likely lead to a number of commercial developments.

According to Guillermo Elum, sales and marketing director at HIMOINSA, "The strategic alliance of these two family companies is based on a shared vision of the future." This, says Elum, is due to their collective synergies, which have been realised from their existing distribution networks and the development of new power solutions.

Prior to the deal being announced, Yanmar and HIMOINSA spent more than 18 months analysing the benefits that an alliance between the two entities could offer their distributors. The global reach of the two companies is impressive, with both active in a total of 120 countries.

"As a result of this alliance, our worldwide network will benefit from an increased and enhanced product range, allowing our distributors to expand in their current markets and develop new revenue streams in areas they were previously excluded due to lack of products," Elum explains.

The main focus for the new group will be on analysing and implementing the synergies that have emerged from the alliance, as it looks to strengthen both its strategic and commercial position.

"There is no question that this alliance will help and speed up the development and design of HIMOINSA products," states Elum. "On the one hand, Yanmar has vast experience in the design and manufacture of industrial and agricultural products, and from the very beginning they have been real pioneers in diesel engine development.

"On the other hand, HIMOINSA also has a wealth of experience in the power generation

Guillermo Elum, sales and marketing director for Spanish genset manufacturer HIMOINSA

sector. HIMOINSA has been building generators for more than 32 years, and has developed the technologies and capacity to build every other part of the genset, including electronic devices, canopies, containers, control panels and alternators."

Strengthened distribution

Both Yanmar and HIMOINSA share a distributor in the Middle East in Al-Futtaim Auto and Machinery Company (FAMCO). The deal, says Elum, has been warmly welcomed by the UAE-based company, which is part of Al-Futtaim Group, one of the largest privately-owned businesses in the Gulf region.

"It is the oldest Yanmar distributor outside of Japan and has been the official distributor for HIMOINSA in the UAE for the last five years, and is also now distributing in Qatar and Saudi Arabia," notes Elum.

Since setting up its own subsidiary in Jebel Ali Free Zone in 2004, HIMOINSA has enjoyed steady growth throughout the Middle East, in terms of both sales and investment.

"Part of the secret of our growth has been the selection of the right partners, as well as our proximity to the market," Elum reveals. "Our team in the Middle East travels constantly throughout the region and our presence in the market ensures that our business is well served."

> "Our engineering department is constantly studying new products and modifications to existing models"

New products on the horizon

At Middle East Electricity (MEE), held in Dubai in March, HIMOINSA launched a new range of hybrid generators for the UAE, Saudi Arabian and Qatari markets. Elum says that customer response has been positive since the launch, leading the company to announce plans to launch more hybrid models.

"We plan to speed up the development of our hybrid generator range and present new advantages to the telecom sector in terms of operational cost," he notes.

Lighting towers also make up an important part of HIMOINSA's product portfolio, and, at MEE, the company launched the AS4006V lighting tower, completing the firm's Apolo range of products.

"Our engineering department is constantly studying new products and modifications to existing models, which will help make our lighting towers even more attractive to customers," says Elum.

Alongside plans to enlarge its range of hybrid generators, HIMOINSA will look to enhance its presence in the heavy-range market with a number of new engineering solutions. It will also be presenting a new logistics solution for its Power Cube Generation model. ■

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Iraq's transmission and distribution grids require significant investment (Photo: Gua)

Iraq: solving the power problem

Despite possessing the world's third-largest proven oil reserves and 10th largest reserves of natural gas, Iraq's energy sector continues to run at a deficit. Precise estimates vary, but demand for power outstrips the country's capacity to supply by between 8GW and 16GW. So what are the issues blighting the sector? And what can be done to resolve them?

WHEN ASSESSING THE problems faced by the Iraqi power sector, the most obvious starting point is generation capacity. There had been some progress on this front until the onset of the recent conflict with Islamic State (IS) militants in June 2014, with the country reaching record daily production levels of 8GW over the summer of 2013.

> "If you build a gas-fired power plant, it normally takes around five years; if you start to procure a solar plant today, it takes a maximum of two years to have the electricity on the grid"

Despite setbacks caused by current instability, this general trend towards increasing capacity is "likely to continue over the coming years", according to business research group BMI. In its Q3 2015 industry forecast on the country's energy and utilities infrastructure, the group points out that "a number of new contracts to build power plants have been awarded and are set to be tendered out".

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Untapped resources

Diversification of the country's power sources looks certain to be a key part of any future strategy to boost generation. According to BMI, 44 per cent of Iraq's nameplate generation capacity comes from gas-fired combustion turbines, with 35 per cent from thermal plants relying on various oil-based fuels, five per cent from diesel generators, and just 16 per cent from its eight hydroelectric plants.

A recent report by Brookings Doha Centre confirms a similar set of figures, advocating that "more attention should be given to renewable energy resources within Iraq", as "solar and wind power, as well as expanded hydroelectric power, can help meet the country's energy needs".

Bernhard Haider, a partner at PricewaterhouseCooper (PwC), says it is well within the ability of Iraq and other countries in the region to generate 25 to 30 per cent of their electricity from renewables, particularly given recent advances in technology.

"If you decide to procure and build a gas-fired power plant, from the date the operation begins it normally takes around five years," says Haider, speaking to *Technical Review Middle East*. "If you start to procure a solar plant today, it takes a maximum of two years to have the electricity on the grid."

Generation costs are also getting cheaper, eliminating the need for government subsidies, with comparable wind and solar projects in other countries in the Middle East costing between US$0.40-60c per kWh.

Regulation and structure

However, Haider is keen to point out that "it's not only about increasing the generation capacity…this is only one part of the issue in Iraq", adding that transmission and distribution are equally important pieces of the power puzzle, all of which require better coordination.

"These three areas of investment need to be governed by proper regulation, which is either not in place or has simply not been implemented properly," explains Haider. "It's not clear which market structure you have in Iraq and what is the role and responsibility of each stakeholding and market."

Bernhard Haider, partner at PwC

Haider's calls for greater regulatory structure are echoed in BMI's forecast, which says that "establishing a separate entity to distribute electricity and collect revenues is essential in creating a self-sufficient electricity sector".

Many see in this need for apparently inevitable reform a greater future role for private firms in Iraq's energy sector, much of which remains nationalised.

"There is a key role for private sector investments in meeting the challenges of the electricity sector, both from domestic companies and foreign investors," says Brookings' report.

Ismail Maraqa, PwC's senior country partner for Iraq, concurs, telling *Technical Review Middle East*, "They [the Iraqi government] need to decide how they want to proceed with this sector, build the right legislation to facilitate their plan and, most likely, create a regulator and allow for privatisation in order to achieve a successful model."

> "There is a key role for private sector investments in meeting the challenges of the electricity sector, both from domestic companies and foreign investors"

It is an assessment which Haider also agrees with, although he is quick to emphasise that the devil is in the detail in terms of what precise form private companies' new role might take and how they might be incentivised to invest.

Attracting investment

"If you build a power plant, who will provide you with the feedstock? Who will offtake the power? Will it be a distribution company or a federal transmission company which will offtake it? And last, but not least, who will guarantee that you will get your payment?" asks Haider. "Nobody can answer these questions at the moment."

There exists something of a consensus amongst industry experts that Iraq's transmission and distribution networks require significant investment to improve not only their quality, but their overall design structure. A 2012 International Energy Agency (IEA) study, quoted by Brookings, reported that estimated losses resulting from inaccurate metering, unmetered supplies and power theft reached up to 34 per cent in some areas.

One possible solution could lie in the eventual roll-out of a smart metering system. "I'm always very optimistic and pushing for the implementation of smart meters," says Haider. "But again, you have to have a lot of technical stuff in place before you start. Even in Baghdad there aren't the right kind of lines to install smart meters.

"Secondly, who will read the data from a smart meter if you don't have a distribution company in place? And through which communication tool – GPS or fibre-optic, for example – will you get the data to the distribution company? So there are a lot of questions which have to be answered first."

So is there any light at the end of the tunnel for Iraqi power?

"We see steps forward, we do see things improving," says Maraqa, citing the appointment of Qasim al-Fahdawi as minister of electricity late last year as one example of the country's progress. The sector has the potential to make great leaps forward in the near future, providing a plethora of opportunities for a variety of private firms in the process. However, the government must first develop what Maraqa calls a "masterplan"; a coordinated strategy to move the country forward and solve the energy question once and for all. ■

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Powering the Medina-Mecca high-speed train

Spanish power firm HIMOINSA has been supplying generator sets to power the 444-km-long Medina-Mecca high-speed train line, which will cover vast swaths of desert in Saudi Arabia.

MULTINATIONAL ENERGY COMPANY HIMOINSA has delivered 29 generator sets to provide standby power to various sections of the railway line that crosses the coastal and desert areas of Saudi Arabia, between Mecca and Medina.

The generator set manufacturer has installed 29 of the 38 generators that the Spanish company Cobra Group has so far requested. Cobra is one of the 12 companies that make up the Spanish consortium responsible for implementing the high-speed project in Saudi Arabia.

The high-speed rail corridor will serve 166,000 passengers daily, with trains set to cover a distance of 444 km in less than three hours. The project, which will be completed in late 2016, will bring the two cities in the Gulf region's most-populated country closer together. The railway line will permit speeds of up to 320 km/h and will, according to the project's developers, offer a high degree of comfort to travellers.

Key statistics

- 166,000 passengers a day
- 444 km of track
- 35 trains
- 320 km/h travelling speed
- Less than three hours travelling time

Cobra, a leading industrial infrastructure company with an international presence, has demonstrated its trust in the quality of HIMOINSA gensets on numerous occasions, choosing them as a safe bet to power many of its industrial and international construction projects.

In this case, HIMOINSA installed 29 gensets on several sections of the railway line, using models HFW 155 T6, HFW 200 T6, HFW 250 T6 and HFW 290 T6. These generators feature Iveco engines, which operate in standby power to cover any network failure and ensure continuity in the functioning of all the services of the stations and stopping points on the rail route.

Once open, the 444 km rail line will carry 166,000 passengers a day

The delivery of equipment is not yet over, however, as an initial 38 gensets were requested by the contractor, including several units of the HMW 405 T6 model, gensets with MTU engines that will be delivered progressively as required by the project. In late 2014, a number of technical professionals from Cobra attended quality tests conducted in HIMOINSA factories in Spain and found that the equipment met the demands requested by Cobra's engineers, as well as demands set out by a technical team from the Saudi Arabia Ministry of Transportation, the end user of this equipment.

"There were two main reasons why we chose HIMOINSA gensets," explained a Cobra Group representative, in reference to HIMOINSA's Dubai-based subsidiary in the Middle East. "On the one hand, the success we've experienced with HIMOINSA on many other projects; and on the other hand, the fact that HIMOINSA can guarantee a local service in Saudi Arabia through the company's regional technical and sales teams."

Extreme weather conditions

In addition to being an active response to the mass movement of Muslim pilgrims who arrive in Saudi Arabia every year from different parts of the world, the rail project is also considered of extreme importance due to the climatic and geological conditions of the route, which means the project will require high-quality and long-lasting equipment.

A journey of more than 440 km, passing through stretches of sand dunes and strong winds, means that the gensets have had to be designed to withstand intense sandstorms and very high temperatures.

HIMOINSA gensets can endure temperatures of 50° and have been designed to operate in dusty environments – factors that can damage the generator filters and therefore affect operation. As a result, this type of equipment for desert areas have been designed with tropicalised radiators that have double varnish and anti-condensation resistance.

The alternator air filters have been specially treated to prevent dust from entering and to ensure an uninterrupted power supply. ■

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GCC leads MENA in adopting smart grids

The region's power sector is gearing up for a 'massive transformation' thanks to huge investments in the application of smart grid technologies, although many major challenges lie ahead. Nnamdi Anyadike reports.

A MASSIVE TRANSFORMATION IS currently underway in the power sectors of the Middle East and North African (MENA) countries, led by the Gulf Cooperation Council (GCC) countries. So far, the region has lagged behind the developed world in the modernisation of its power grid.

But all that is about to change with the amount of investment pledged to this sector – including the installation of 'smart grids' – running into many billions of dollars. Over the next five years, the GCC is expected to invest close to US$73bn to boost generation capacity by 36GW and a substantial portion of this is earmarked for smart grids.

A report released by the Washington, DC-based smart infrastructure market intelligence firm, Northeast Group, estimates the amount allocated for smart grid infrastructure in the GCC, by 2024, at US$9.8bn cumulatively. A key driver will be the addition of some US$27.9bn in new solar resources.

Growth in the building of smart grids has raced ahead globally, and, by 2017, it could achieve a compound annual growth rate of 26.6 per cent to reach US$1 trillion. In the GCC, implementation of the technology, has hitherto, been sluggish.

Despite commencing the Gulf Cooperation Council Countries Interconnection Grid (GCCIG) initiative in 2009, regional utilities have largely opted to meet their individual power needs in a fragmented way.

However, a number of these countries now have smart grid projects that are in the pilot or planning stages. Qatar is currently implementing a US$13mn plan to evolve towards smart grids through a mix of smart meters, broadband power-line communication networks, Global Positioning System (GPS) modules and integration with existing back-office IT systems.

The UAE has three initiatives underway, through the efforts of Dubai Electricity and Water Authority (DEWA), Abu Dhabi Water and Electricity Authority (ADWEA) and Masdar. And Bahrain is in the process of introducing smart grids with the objective of integrating a proposed 5MW solar plant into the grid through a mixed solution involving outage management, Advanced Metering Infrastructure (AMI) and demand response.

Smart grid activity in the region is driven by forecasts of a compound annual growth rate of about eight per cent in electricity demand by 2030. Much of the power generated domestically to satisfy this demand though is wasted through theft and poor management.

Switchgear market booms

Wealthy Gulf countries are now turning to smart grid technology in order to better manage their electricity demand. The scale of the investment in new power grids has been impressive and it has pushed the demand for medium voltage (MV) and high voltage (HV) switchgears in the GCC to an all-time high.

Frost & Sullivan estimates that by 2020 the GCC's MV switchgears market will reach US$1.64bn, compared with revenues of US$1.10bn in 2014. It expects revenues for the HV switchgears market to reach even higher at US$2.46bn over the same period, with Saudi Arabia contributing the largest share of this revenue with 45 per cent, followed by the UAE and Qatar.

The report says that the interconnected power grid project is expected to be the backbone for the deployment of high-voltage grids in the GCC, drawing huge investments from countries in the region. With the first phase alone bringing in investment capital of around US$1.1bn, this project will rejuvenate the MV and HV switchgears market in the region.

Northeast Group sees MENA countries taking a two-pronged approach to addressing their power sector challenges. The first is the installation of more than 26GW of solar capacity by 2024, led by Saudi Arabia. This will allow the kingdom to reduce its reliance on oil and gas power generation. The second approach is to deploy smart grid infrastructure that will help incorporate this solar power, enable better electricity demand management and improve reliability.

Ongoing grid works include the US$290mn project awarded by

A growing number of companies, including ABB, Alstom and GE, have been targeting the GCC's power grid sector, as utilities look to operate more efficient electricity networks (Photo: gyn9037)

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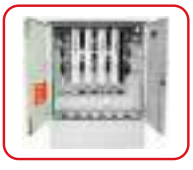
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Saudi Aramco last year to Larsen & Toubro for the installation of a 230kV double circuit overhead transmission line and 55km of underground cabling. It is expected to be completed by first quarter 2016. Also in Saudi Arabia, the Saudi Electricity Company (SEC) has awarded to the National Contracting Company a US$166.12mn contract to install 380kV overhead transmission lines in the kingdom's Eastern Province.

At the end of April, the 14th meeting of the GCC electrical grid authority met in Kuwait to review progress and discuss options for the future. A bone of contention within the region has been that so far the grid has only been used in emergencies to automatically re-route power from one state to another. An example was in February, when Kuwait had to switch to the GCC grid during a major domestic electricity outage.

Energy swaps

A more regular transfer of power in the region may, however, have to await the project's next stage when attention is shifted to energy swaps and the setting up of a joint Arab energy market. Energy swaps would provide GCC member states with the option of paying for GCC grid power with energy instead of cash.

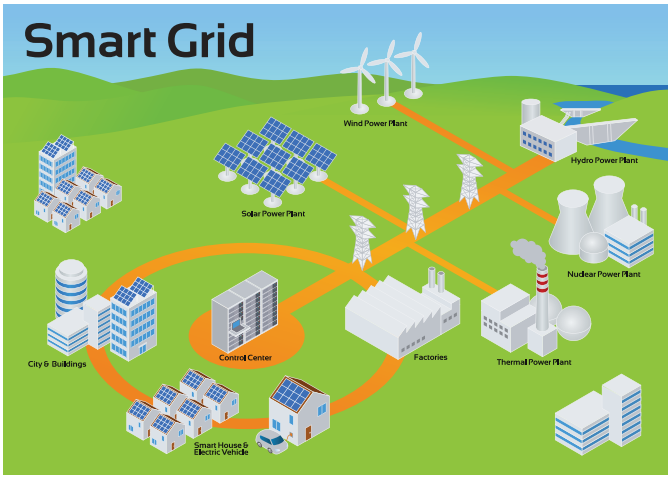
It would be a move, the UAE-based daily *The National* said, that would not only promote further interconnectivity of the regional power grids, but also allow for a greater pooling of resources and help streamline calculations in terms of how electricity is priced between different states.

However, as Salam Awawdeh, partner, energy and resources leader at Deloitte Middle East points out there are disagreements among the member states. "Countries like Kuwait and Oman on the 'demand side' and Qatar and UAE on the 'sell side' have yet to discuss and agree power system and market administration details as part of the trading model specifics," he said. The fee for grid usage in 2015-19 looks like remaining a thorny issue.

Meanwhile, the number of vendor companies that have flocked to the GCC's power grid sector is growing. They now include ABB, Alstom, Echelon, Elster, GE, Itron, Landis+Gyr, Petra Solar, SAP, Siemens, Silver Spring Networks and Suez.

Many of their wares were showcased at the Water, Energy, Technology and Environment Exhibition (WETEX), which was held on 20-23 April 2015 in Dubai.

Sitaram Chodimella, head of the Smart Grid division – Middle East at Siemens LLC, said at the event, "As peak electricity demand in the region grows, it is important for nations to invest in smart grid solutions to enhance energy efficiency, manage demand and integrate renewable energy sources into the grid, while improving their reliability and stability."



Smart grids enable utilities and operators to gather and act on collected data to ensure the reliable production and distribution of electricity (Graphic: chombosan)

Siemens is implementing Qatar's first smart metering solution under a EUR10mn (US$11.4mn) turnkey contract that was signed with Qatar General Electricity and Water Corporation (Kahramaa) – Qatar's state-owned utility. The order feeds into the Phase IX upgrade of Qatar's power transmission infrastructure.

The project will measure energy demand and help manage it during peak load periods, while seeking to identify ways to improve the billing process with customers. The contracts awarded to the German company in Qatar's power sector currently total around US$790mn. It has so far supplied 15 fully-fitted turnkey substations, encompassing all transmission voltage levels between 11kV and 400kV, to Kahramaa. Siemens has also provided more than 70 switchgears and 1,400 km of cable, worth more than a total of US$2bn.

Ericsson and ABB are involved in the "final stages of negotiating the roll-out process" for smart meters in Dubai. The country plans to start implementing smart meters this year. And Ericsson is in discussion with Sharjah Electricity and Water Authority (SEWA) to begin the smart metering and grid pilot project in the emirate.

Sharjah plans to reduce power consumption by 30 per cent by 2020 and Dubai to reduce energy consumption by the same amount by 2030. At the Dubai exhibition, Ericsson unveiled its new Private Virtual Network operator (PVNO) – an innovative machine-to-machine communications solution for smart grid communication. It also presented 'Smart4Society', which will enable household's greater control over their bills through the use of the Internet.

First Smart Grid Centre

The French company Alstom Grid though may have stolen a march on its rivals. Last year, it inaugurated the Middle East's first Smart Grid Centre in Dubai, which it described as "a cornerstone of the group's commitment to the development of the smart grid in the UAE and Middle East region".

The company's smart grid and super grid projects in the Middle East include an integrated Distribution Management System (iDMS) in Saudi Arabia, Kuwait, Qatar and Bahrain that allows customer to pilot in real time their entire grids and minimise energy losses.

Alstom is also involved in a wide area monitoring systems (WAMS) and interconnection project for GCCIA should guarantee stability and reliability for the grid. It has also set up Asset Management in Qatar to allow customers to have technical status on grid infrastructure assets and to identify maintenance needs.

In addition, the company has created the first energy market management system in Saudi Arabia. This is designed to enable the interconnection of the regional control centres of Gulf countries through GCCIA and enable the management of an electricity wholesale market between the various stakeholders.

The GCC is going through a turbulent time and renewables and smart grids can prove to be the one key stabilising factor that can support the GCC's plans for accelerated development.

As Frost & Sullivan notes, "Smart grids present significant potential in terms of equipment sales, increasingly skilled manpower and value-added services, all of which can act as an impetus for the economic growth of the GCC and neighbouring countries."

The onus though will lie with the industry and vendors to guarantee a seamless integration and a comfortable transition for the GCC into renewable energy and smart grids. ■

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Jubail on Saudi Arabia's Gulf coast, and Tabuk and Jizan on the Red Sea coast have been selected as the location for the kingdom's upcoming nuclear power plants (Photo: TTstudio)

Making the nuclear breakthrough

Saudi Arabia has plans for an ambitious programme of nuclear development. By 2040, 17GW will be in place, freeing up vast amounts of oil and gas for export.

EACH YEAR THE level of interest in nuclear power increases at industry trade shows, such as Dubai's Middle East Electricity and Abu Dhabi's Power-Gen Middle East. The low risk of disruptions in international fuel markets makes nuclear a very reliable source of baseload electricity.

Waste disposal and safety issues have to be faced, of course. Facilities cannot be turned on and off to match demand, and the upfront costs to install them are high. Once on line, however, such generation plants will significantly improve local energy security in countries like the UAE and Saudi Arabia, and also allow for substitution of hydrocarbon fuels on a very large scale. This means that global energy security will also be enhanced, in line with OPEC objectives.

The International Energy Agency (IEA) states that in 2013 global installed capacity amounted to 392GW, less than one-quarter of which is located in what it terms 'transition' economies. But of the 76GW actually under construction in 2014, three-quarters was in this second group. Some OECD countries are in the process of terminating their nuclear programmes. In others, the majority of plants are now more than 25 years old. So one-half of the European Union's current operational capacity is expected to be retired by no later than 2040.

On a brighter note, the IEA says, "Uranium resources are more than sufficient…identified resources equate to more than 120 years of consumption at current rates of use" (WE Report, November 2014).

And, according to the World Nuclear Association (WNA), Saudi Arabia plans to construct up to 16 nuclear stations over the next 20 years, with the first coming on line in 2022. By the WNA's calculations this will be the world's second-largest construction programme. The UAE's shorter sequence of commissioning dates will run from 2017 to 2020. Iran already possesses a single operational facility and Jordan is keen to develop its nuclear industry as well.

The cost of the massive Saudi Arabian programme has been estimated at more than US$80bn. By 2040 the plan is to have 17GW capacity in place, to provide 15 per cent of the kingdom's power. Solar capacity by this time will exceed 40GW. The justification for such plans is that Saudi Arabia is by far the largest consumer of power in the Gulf states, with an estimated 300bn kWh or more of gross generation – mostly fuelled conventionally by oil and gas – this year.

Energy demand in Saudi Arabia is projected to increase substantially by 8-10 per cent a year, as both the population and the economy expand, but oil production does not. Current per capita usage is well over 8,000 kWh per year, much of this being required to run the huge reverse osmosis-based desalination industry.

Current generating capacity is well over 30GW; the WNA expects this to have to meet peak demand of 70GW by 2020 and 120GW by the end of the next two decades.

By 2020, the Saudi Arabian Water & Electricity Ministry plans to install upwards of 24GWe renewable capacity (the 'e' refers to usable output, rather than thermal output) and 30-plus more of this by 2032. By that date, the original plan was for 18GW to be online from nuclear sources; the recent change in oil export circumstances has encouraged that date to be put back to 2040, according to the WNA. By 2020, all of the kingdom's desalination facilities should be powered by solar resources and it is hoped there will be a surplus of electricity available for export in the winter months, when air conditioning demand is at its lowest.

The nuclear option was selected in 2010 by royal decree. King Abdullah City for Atomic and Renewable Energy (KA-CARE), which

Saudi Arabia is by far the largest consumer of power in the Gulf states, with an estimated 300bn kWh or more of gross generation

specialises in all aspects of nuclear and renewable power generation, has been established as a centre of excellence in the capital, in association with the Swiss division of international engineering consultants Pöyry. UK-based consultancy firm WorleyParsons has been tasked with searching for suitable construction sites and to prepare detailed tender documents.

In 2013, the Nuclear Holding Company was established and the range of sites narrowed down to Jubail, on the Gulf coast, and Tabuk and Jizan on the country's Red Sea coast. At that stage, the plan was to construct no less than 16 reactors, capable of supplying 20 per cent of the kingdom's power, of which some was dedicated to the huge desalination demand.

KA-CARE was then able to predict 17GW being on line by 2032; in January of this year, the plan (plus many other non-fossil generation facilities) was pushed forward to 2040, because of the prevailing circumstances.

According to the WNA, "In September 2013 both GE Hitachi Nuclear Energy and Toshiba/Westinghouse signed contracts with Exelon Nuclear Partners…to pursue reactor construction deals with KA-CARE. GEH is proposing its ABWR and ESBWR, while Toshiba/Westinghouse is proposing the AP1000 and its ABWR version.

"Areva and EDF have signed a number of agreements with Saudi Arabian companies and universities, and EDF signed an agreement with Saudi Arabia's Global Energy Holding Company for the creation of a joint venture whose first task will be to carry out feasibility studies for an EPR reactor."

The WNA points out that SAARA (the Atomic Regulatory Authority) started functioning last year; experts from Finland are already at work bringing together a workforce and establishing the highest safety standards. The kingdom has had a safeguards agreement in force with the IEA since 2009, while contact with numerous other international experts is also being maintained. ■

French energy firm EDF has signed an agreement with Saudi Arabia's Global Energy Holding Company to create a joint venture, which will carry out feasibility studies for an EPR reactor (Photo: Marcin Balcerzak)

Back-up during the blistering summer

PEAK SHAVING INVOLVES reducing the amount of energy purchased from a utility company during peak hours when the tariffs are at their highest. Usually, businesses pay a premium on electricity, in order to execute their day-to-day functions without any interruptions. However, in places with a very high demand for power, there is always a concern that the grid could get overloaded and, invariably, push the company's costs.

At such times, utilities need to consider the practicalities of load management and load shedding during peak demand times. Peak shaving solutions enable companies to regularise load shedding for stipulated time periods, and ensure smooth functioning of a power grid. APR Energy designed, installed and commissioned a fast-track turnkey power plant, able to provide 24MW (33kV) of peak demand back-up power in Oman. Using its proprietary modular system of connecting generators and transformers, APR Energy was able to deploy and commission the site in less than 20 days.

Located on the southeast coast of the Arabian Peninsula, Oman is known for its hot and dry weather, especially from May to September. With temperatures exceeding 50° C in summer, there is an excessive load on the country's power grid that leads to intermittent power outages. During summer months, the Oman Power and Water Procurement Company (OPWP), via the Oman Tender Board, contracts seasonal power solutions that help provide electricity during the peak power period.

APR Energy normally provides engineering, logistics, installation, operation and maintenance services for each of its project through a comprehensive turnkey approach, which it says enables its customers to quickly benefit from reliable power without waiting for the up-front capital investment that is usually needed for a permanent facilities. The full turnkey approach also includes step-up MV or HV transformers to deliver electricity in accordance with the customer's specific requirements. In addition, the power generation technologies are all based on rapidly deployable modular designs and engineered for diesel, natural gas, or dual-fuel operation. At Al-Misfah in Oman, civil works such as modification of existing equipment for the electrical interconnection points and the construction of perimeter lighting was carried out. Specialised fuel and electricity metering equipment were also developed and put in place, which helped track the plant's performance and provide complete operational transparency for the customer.

APR Energy's turnkey power plant at Al-Misfah in Oman

Peak shaving solutions allow companies to regularise load shedding for a stipulated period of time, ensuring the smooth functioning of a power grid

APR Energy designed, installed, and commissioned the plant to provide 24MW (33kV) of peak demand backup power via MEDCO, one of Oman's electricity distribution companies. Using a proprietary modular system of connecting generators and transformers, the company was able to deploy and commission the site in less than three weeks from the time equipment arrived on site. Local specialised contractors were hired to fabricate the fuel supply system and build the interconnection infrastructure.

The plant was able to provide reliable backup power for three months during the peak demand season.

Following the end of the peak season, APR Energy used its proprietary modular system to fully dismantle and vacate the site in only eight days. ■

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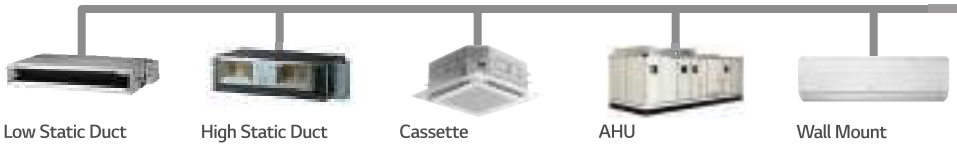

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Maintenance planning can be assisted through diagnostic measurements, which are necessary for utilising the condition evaluation of cable systems (Photo: BAUR GmbH, Sulz, Austria)

Compact and versatile cable solutions

In the first of a two-part series, Martin Jenny, product manager at BAUR GmbH, Sulz (Austria), explores the latest cable testing and diagnostics solutions for medium-voltage cables with VLF sine voltage sources.

EVALUATING THE CONDITION of cable systems helps medium-voltage network operators with efficient network planning and maintenance. Cable diagnostics can be made cost-efficient and easy to integrate into day-to-day operations by deploying measurement technology that uses a very low frequency (VLF) sine voltage source. This source can be used for cable testing and diagnostics. It weighs less and delivers reliable results.

Diagnostic measurements are necessary for utilising the condition evaluation of cable systems for better investment and maintenance planning. For example, such measurements provide information on aging behaviour or hidden defects. Mains operators that would like to carry out diagnostics in addition to power-on tests (cable testing) are therefore concerned about how to achieve significant results while keeping time and cost outlays as low as possible. Among other things, the significance of the measurement results depends on the voltage source of the testing and measuring device. Various sources are available in the market, such as 50 Hz resonance systems, VLF sine 0.1 Hz, damped AC (DAC) and VLF cosine rectangle (cos-rect, also called 50 Hz slope). This article describes why a test with the VLF sine 0.1 Hz presents the best solution for daily tasks.

An essential aspect is that a voltage source with VLF sine 0.1 Hz is not only suitable for cable testing, but also delivers good results during diagnostic measurements. The tan delta measurement (also called dissipation factor measurement) and the partial discharge measurement (PD test) are relevant here. An overview of the properties of various voltage sources clarifies this.

Characteristics of various voltage sources

The essential requirements for the voltage source are:

- Suitable for cable tests/withstand voltage tests
- High measurement accuracy during dissipation factor measurement
- Significant results during the PD test (inception and extinction voltage, PD level and phase-resolved PD pattern), and good localisation of the PD
- High reproducibility of results to guarantee the comparability of staggered measurements and various cable routes in the network

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- Possibility of applying different methods in parallel, i.e. combine and save time
- Light in weight, easy to handle, easy connection, easy operation, short test duration

Table 1 (below) shows a comparison of the voltage sources in relation to the various requirements. With reference to the withstand voltage, almost all standard voltage sources in the market have been found suitable in theory and in practice. However, the VLF 0.1 Hz sine voltage is the only voltage that is suitable both for measuring partial discharges and for the dissipation factor measurement (tan delta). Note that it depends on the voltage shape: To achieve reliable results independent of the cable route, an ideal sinusoid (with constant frequency) is an advantage. For the measurements carried out with an ideal sine, users can compare the measurement results of various cable routes or joint types.

Implications for practical use

For practical use, other aspects besides measurement accuracy and reliability must be taken into consideration. The following aspects are important during use in the field:

- Easy transport and easy connection of measurement technology
- Staff expenses, training
- Time required for the connection
- Time required for the measurement
- Cost-benefit ratio
- Relevance of measurement results for future maintenance

Under these aspects the VLF voltage sources are able to register low weight and compactness as plus points when compared to a 50 Hz voltage source. Furthermore, as the VLF sine source is considered an option for cable testing and diagnostic measurements (tan delta and PD), network engineers can perform all relevant measurements on new and old cables with only the one voltage source. In comparison to conducting different measurements/tests with different voltage sources, using a single VLF sine voltage source definitely saves time, as less time is spent establishing connections. By working with one universal voltage source, it is also possible to apply test and measurement methods in parallel, e.g. during the monitored withstand test (MWT). By MWT, one means the partly simultaneous implementation of cable testing and cable diagnostics with tan delta methods. As the test engineer needs to connect only one device for the MWT and then start a related workflow, it takes little additional time to perform the usual test after installing a new cable or repairing a cable route and simultaneously determine the cable condition.

A combination of testing and diagnostic measurement - the MWT - offers the following benefits:

- Easy test set-up, easy flow (no additional connections and no introduction to MWT needed)
- Shorter test duration (from 60 minutes to 15 minutes, for example) if the cable is in good condition
- No cable overload
- Result evaluation in real time
- Easy interpretation of cable condition with Smiley symbol on display
- Precise results on cable condition ■

In the next issue of Technical Review, Martin Jenny will look at how to collect additional information and the voltage source for daily tasks, before summarising the possibilities of utilising a VLF sine voltage source.

Table 1: Comparison of various voltage shapes with regard to different practical requirements

Requirement	VLF sine	VLF Cos-Rect	50 Hz resonance systems	DAC
Withstand voltage test in compliance with IEC, VDE (CENELEC), IEEE	Yes	Yes	Yes	Yes, IEEE standard in preparation
Load-dependent test signal	Yes	Swing phase varies in the region of 30-250 Hz acc. to IEEE400.2 [7], reload phase varies depending on load	Test frequency depends on cable length	Test frequency depends on cable length
Tan delta measurement accuracy	High (1*10--4)	Unsuitable for tan delta	High	Medium
Tan delta sensitivity / comparability	High	Unsuitable for tan delta	Medium, sensitivity less than with VLF	Medium, load-dependent
PD localisation possible	Yes	Yes	Yes	Yes
PD level and PD pattern comparable with measurement at 50 Hz	Yes	Not yet studied in sufficient detail	Yes	Yes
PD inception voltage comparable with measurement at 50 Hz	Yes	Not yet studied in sufficient detail	Yes	Yes
Compact voltage source	Yes	Yes	No	Yes

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Seeking successful storage solutions

Many ideas have been put forward for matching the supply of renewable electricity with demand. Most likely is some form of integrated grid management, for which the Gulf could be a suitable location.

THE STORAGE OF surplus power intermittently available is recognised as one of the key problems faced by promoters of renewable energy. "Renewables are no longer a fad but a fact of life, supercharged by advances in power storage," said *The Economist* earlier this year.

A wide range of technologies has been proposed and tested as a way of managing peak loads by smoothing out irregular supply. The inventors' task now is to scale them up. The traditional solution has been to implement pumped-hydro generation, with the water flow being reversed when required. Of course, there are few sites throughout the Middle East and North Africa where these schemes are feasible. Therefore, similar schemes based on the principle of the hydraulic jack, or on compressed air, or even on giant flywheels, have been proposed.

One revolutionary alternative is to cash in on the Western (and Far Eastern) trend for the adoption of electric cars. Most are unused more than 20 hours out of 24; the battery capacity this represents could be used to boost grid supplies. The engineers' jargon for this is "Aggregating small-scale storage held by consumers".

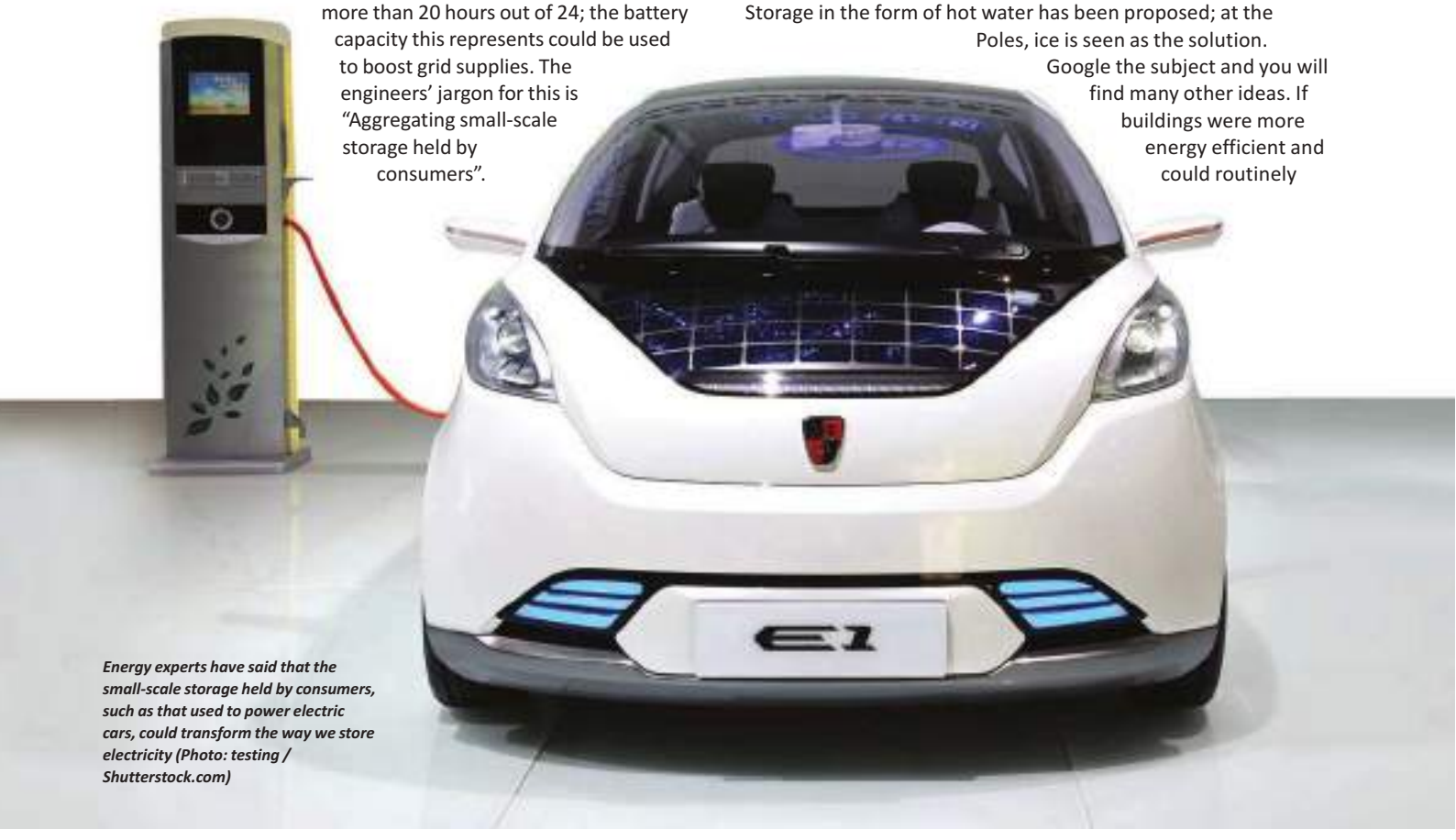
Other technologies abound, based on very large capacity batteries incorporating either conventional lead-acid components, or a wide variety of others. Lithium-ion is well advanced; sodium-sulphur and nickel-cadmium are well on their way. Guangdong Province in southern China will probably be the first large utility scheme to rely heavily on battery storage to smooth its peaks and troughs. Names to watch for include Alevo (Switzerland), Tesla (USA) and Gildemeister (Germany).

Many technical problems, such as heat and the wearing out of electrodes, remain to be solved; but at least grid-scale storage weight saving – the bane of electric vehicle developers – is not one of them.

Thinking alternatively

Other ideas abound, some of them at the wacky end of the spectrum, such as the use of poised rail freight cars for what amounts to a pumped-storage scheme in dryland areas.

Storage in the form of hot water has been proposed; at the Poles, ice is seen as the solution. Google the subject and you will find many other ideas. If buildings were more energy efficient and could routinely



Energy experts have said that the small-scale storage held by consumers, such as that used to power electric cars, could transform the way we store electricity (Photo: testing / Shutterstock.com)

export to the grid, the problem would certainly be diminished.

The most likely winners from all this will be the utility companies that implement so-called 'integrated smart grids' that will enable automatic response at the generation end to changes in demand. The US's Electric Power Research Institute[1] maintains that the rapid rise of so-called Distributed Energy Resources (DER), such as popular roof-top photovoltaic panels, "could change the structure of the electric grid".

In a previous study, the R&D organisation pointed out that DER customers could simultaneously enjoy the benefits of centralised supply (adequate capacity at all times, reliability) and local generation (low cost) in the most cost-effective way, via what the non-profit organisation calls an "integrated electric grid" incorporating localised power storage where, when and in what form it is needed.

The paper[2], first in a promised series and based heavily on recent experience in Energiewende-focused Germany where both PV and wind are widely relied on for supply, points to a need for collaborative not competing solutions, including the updating of system interconnection rules/standards, integrating DER into grid planning and operation, shaping national/region policies and standards regulation. A three-phase programme is outlined in the downloadable paper cited below.

"The system is beginning to change with the rise of DER," the Institute says with reference to the US, where, of course, small gas-fuelled generators are now widely used; some of the data was gathered in offshore Hawaii.

"Through a combination of technological improvements, policy incentives and consumer choices in technology and service, the role of DER is likely to become more important in the future."

Via such means as localised virtual storage, responsive demand management, smart metering and others it identifies "potential for customers to become more active participants in the power system."

However, "prudent" investments are needed to modernise the mature and available-everywhere US grid, it says. Here in the Gulf, where utility and private systems are expanding and interconnecting fast – there's always plenty of evidence of that at Middle East Electricity in Dubai – there is a strong belief that a golden opportunity awaits in the form of large-scale integration of energy storage and DER technologies. Exploit these and the renewables age really will have dawned. ■

DER customers could simultaneously enjoy the benefits of centralised supply and local generation in the most cost-effective way

[1] *www.epri.com*

[2] *The Integrated Grid: Realising the full value of central and distributed resources*

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Daikin launches GCC's first high ambient inverter air conditioning system with R32 refrigerant

MANUFACTURER OF HEATING, cooling and refrigerant products Daikin Industries has launched the GCC's first commercialised high ambient air conditioning system that uses R32 refrigerant, which is an alternative to R22, with zero ozone depletion potential and lower global warming impact than R410A refrigerant.

R32, a chlorine-free, single-component refrigerant, has a global warming potential of about one-third compared to the more commonly used refrigerant R410A. Up to 15 per cent less refrigerant is needed compared to an equivalent air conditioner system with R410A.

Daikin Middle East & Africa product marketing manager Sana Hamdani said, "The unique combination of R32 and inverter technology in the new Daikin air conditioner range enables end users to benefit from class-leading energy efficiencies, with excellent cooling capacity and high indoor climate comfort, while lowering the environmental impact."

The wall-mounted cooling and heat pump air conditioners come in three capacities — 18, 24 and 28 MBH (thousand British thermal unit per hour). According to the company, these units offer the best nominal and seasonal efficiencies in line with conditions in the Middle East. They can achieve high Energy Efficiency Ratio (EER) (Btu/kWh) in cooling of up to 13.3 at T1 conditions (35°C) and up to 8.6 at T3 conditions (46°C) that makes them the most energy-efficient air conditioner of their type in the market.

The tropical compressor is capable of operating fully in extreme weather conditions for at least 52°C and delivering a powerful year-round cooling performance regardless of the outside temperature, up to 1.5 times faster than traditional systems.

The units are reasonably quieter with sound pressures as low as 32 dBA. They also deliver an improved air flow pattern that cools a room uniformly. The 'intelligent eye' further enhances energy efficiency by adjusting according to occupancy level of the room. The system comes with a user-friendly wireless control.

All of the units have a Titanium Apatite air purification filter, designed to improve air quality by absorbing and decomposing microscopic particles and organisms, while removing odours.

Globally, Daikin R32 air conditioners were also introduced in many markets such as Australia, Europe, New Zealand and Asia. In Japan alone, approximately five million units were sold by Daikin, out of the eight million total sales.

In the US, the Environmental Protection Agency (EPA) announced in March the approval of R32 refrigerant for use in certain air conditioning applications, says the company.

"As part of its serious commitment towards the environment, Daikin aims at developing systems that improve comfort levels while having low environmental impact. Refrigerant choice is a key factor in the drive to maximise energy efficiency and to minimise the global warming impact of systems," said Michel Farah, product planning director.

Emerson Climate Technologies MEA hosts 2015 Distributors Conference

EMERSON CLIMATE TECHNOLOGIES hosted a two-day Distributor Conference at The Meydan Hotel in Dubai, the UAE. The prime objective of the event was to educate key customers on the latest products and services, celebrate key industry partnerships, and present awards for outstanding sales.

Emerson Climate Technologies MEA V-P Sales and Marketing Tom Parrish said, "The objective of the Distributors Conference was to engage with prospective enterprises in the HVACR industry, educate them about our unique products and take them through our future partnerships or projects. Throughout the years, we've emerged as pioneers in the refrigeration and air-conditioning industry across the world, therefore our conference this year in Dubai was crucial in terms of awareness, direction and opportunity."

The two-day conference focussed on Emerson's solutions for the Middle East region

The two-day event hosted by Emerson Climate Technologies MEA included presentations, live demonstrations of various technologies and keynotes by esteemed guest speakers. The conference culminated with a tour of the new distribution facility, plant and training centre in Dubai.

According to president Pratap Chavan, "Dubai is booming with large-scale, state-of-the-art projects such as Mall of the World, that demand eco-friendly systems and world-class refrigeration. The presentations at the conference highlighted Emerson's air-conditioning technology and unique refrigeration systems that caters to a broad audience while meeting the needs of the environment."

An Emerson Climate customer and managing director of Hashem Hassounah & Sons Ref. Trd. Co. H (HRC) Hashem Hassouna added that the conference has given them a closer look at the air conditioning and refrigeration industry with respect to Emerson's solutions.

"We're looking forward to seeing these technologies come to life and transform our industry," he added.

LIGHTAIR brings patented air purification technology to the Middle East

SWEDISH COMPANY LIGHTAIR recently introduced the filter-free air purification system IonFlow 50, based on IonFlow technology to improve indoor air quality, in the Middle East.

The innovation can be used in households, offices and schools as well as laboratories, high-tech industry, food production as well as in whole buildings.

Available in five models, including a compact ceiling mounted air purifier, The Lightair IonFlow technology uses a two pole ionizing technique. By using 110V or 220V and very low strength of current 50 mA, the technology is capable through a cascade of diodes and capacitors to accelerate an extremely high voltage of more than 200.000 eV. This enables the extremely high production of several billion electrons per second, which means mean several billion negative ions per second. Consequently, the particle reduction is massive as the number of ions produced corresponds to number of particles charged and collected in a certain time.

LIGHTAIR IonFlow 50 air purifier removes airborne particles from 0.01-1.0 µm

The enormous production of ions makes it possible to effectively distribute the negative charge into all corners of a room, which means that the air in the entire room will be cleaned from particles not only the air closest to the device.

LIGHTAIR IonFlow 50 air purifier effectively removes airborne particles from 0.01-1.0 µm. It is especially efficient eliminating the smallest and most dangerous particles (nano particles below 0.1 µm), but it also removes larger particles (1.0-25.0 µm) at a reasonable rate.

The negative ions attach to the positively charged pollution particles in the air, such as from dust, pollen allergens, smoke, car fumes, pat dander, bacteria, mould, viruses, etc. It is especially effective in removing the smallest particles in the air, usually referred to as fine particles. These are considered the most hazardous to one's health. The collector will be covered by particles and slowly change colour as it becomes more and more dirty. When necessary, the collector can easily be removed and washed clean in water and washing-up liquid.

The product will be available in collaboration with Easa Saleh Al Gurg Group division Better Life in the region.

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Inmesol celebrates 25th anniversary

Spanish generator manufacture celebrates its rise from a small workshop to expansion across 80 countries.

"Inmesol's human capital is our best asset: we work so we can make our clients' projects grow"

IN 1982, A Spanish entrepreneur, José Luis Solano, began designing and manufacturing bedplates, soundproof bodywork and electrical components for generator sets in a small metalwork studio in Corvera, a small village situated 20 km from the city of Murcia in the southeast of Spain.

At the time, Solano's main business was centred on the manufacture and monoblock assembly of the motor and alternator for gensets. Now, 33 years later, his business project has evolved into Grupo Solano, whose flagship company is Inmesol.

Inmesol is currently present in more than 80 countries across the five continents, offering a wide range of equipment with the most innovative technology for the most demanding markets, and has a 25 per cent annual growth rate.

Jose Luis Solano, founder and president of Solano Group

2003 marks turning point towards continuous growth

1987 saw the inauguration of the factory to produce generator sets; however, the main line of business was still the bodywork, which was highly appreciated in the market for its excellent quality. The company continued to specialise in the manufacture of this product until 2003, when it was decided to make a firm commitment to R&D in order to make a strong entrance into the international generator set market.

Since that time, Inmesol has grown exponentially to become one of the leading manufacturers of generator sets in the world. Over the past quarter of a century, its facilities have also expanded to keep up with the demands of the increase in the volume of business; its installations now occupy a surface area of 100,000 sqm.

One of the assembling lines at Inmesol's facilities

Designed for demanding industry sectors

Inmesol designs, manufactures and sells highly-technologically advanced generator sets, both in open and soundproofed versions and with power capacities ranging from 2 to 2,500 kVA. The diverse equipment on offer comes in five ranges to provide solutions to any power supply needs their clients may have, regardless of their geographical location or the extreme conditions in which the equipment has to function.

The generator set ranges are: stand-by, portable, industrial, rental and heavy, all of which comply with current regulations on low levels of acoustic and atmospheric gas emissions. Recently, Inmesol was honoured with the 2015 Entreps Energy Award for providing power to SMEs which work in remote locations by the International Board of Entrepreneurs and Business People.

Rental Range generator on a high speed trailer

Super-soundproof, transportable and eco-friendly equipment

This year Inmesol has presented several new generator set models that incorporate the latest advances developed by its Engineering Department. In May 2015, the company put its new Rental Range 22-550 kVA soundproofed gensets on the market, using Kohler, Volvo Penta and FPT Iveco motors, which all comply with the current strict STAGE IIIA gas emission regulations.

The Rental Range gensets have an upper air vent, a waterproof control panel, reinforced drag points and a design that facilitates maintenance and cleaning tasks. They are also designed to work at maximum power in severe weather conditions. Another novel feature is the super-soundproof container: unlike the series models, the new gensets have two external silencing modules, one for admission and the other for expulsion. These design features have managed to reduce the gensets' acoustic emissions even further, from the 75 dB(A) at 7m of sound pressure of the standard models in normal conditions to 70 dB(A) at 7m.

The new models are the result of months of research in order to maintain their position as leaders in advanced equipment, which is also environmentally friendly – a commitment that has defined Inmesol's company policy since it was founded and which is translated to all the stages of manufacture, transport and operational life.

The generator sets incorporate the most modern, low-emission motors; the alternators are mounted with the utmost efficiency; the chassis and bodywork are made using pickled sheets; they work with pre-cut metal sheets to reduce both the number of journeys to and from the factory and the waste to be recycled; and the punching and bending of the steel sheets in profile is mechanised, while the welding is optimised by the use of robots.

On the assembly line, most of the work is carried out manually. A controlled powder painting system is used, which reduces the environmental impact, while dilutions and liquids are drying. There are also constant improvements made to the generator set and pallet design in order to optimise the space in lorries and containers during transportation.

A heavy range generator in a super-soundproof container

Also notable among the latest products presented by the company are models that can be monitored and controlled remotely from anywhere in the world via mobile devices (such as tablets, mobile phones and computers). This technology greatly simplifies the maintenance tasks performed by the personnel responsible for the equipment, allowing them to visualise the control panel in real time and interact with it remotely at any time, with the same efficiency as if they were in the same place, producing significant savings on time and travel costs.

Intelligent and transportable lighting towers

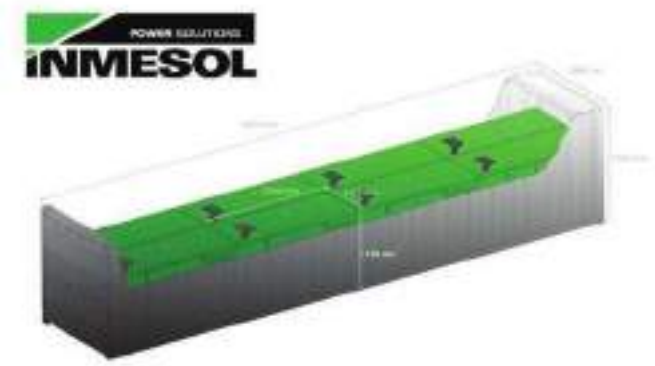
Another Inmesol line of business is the manufacture and commercialisation of lighting towers. These lighting towers have been designed so that they can be transported quickly on roads and motorways during emergency situations that require greater illumination in a specific area or an additional electrical power source.

Among the many models available, the Mobile Kit is worth special

mention: it comprises a tower and a generator set that have been prepared in such a way as to be hitched and towed in compliance with all the relevant regulations.

The towers are environmentally friendly as they use LED lamps that substantially reduce the diesel consumption, meaning that the equipment, besides providing energy for the spotlights, can be used to supply other auxiliary charges.

In late 2014, the company launched another model with LED lighting that, instead of using a generator set as a power supply source, has been designed so that it can be connected to either the power grid or autonomous equipment.



An infographic demonstrating how Inmesol optimises the load capacity of generator set containers

Integrated in the towers are a 220 V clock to programme the lighting to come on at a certain time, a twilight relay (light sensor) that activates the spotlights when the sun sets and turns them off at daybreak, and a motion detector that triggers the lights when any movement is detected within a 280° angle around the tower. Likewise, the model is designed so that it can be connected to other towers and operate in a series. To facilitate handling and transport, the towers have wheels and a handle, and the lamps are easily disassembled. The "autonomous" towers, like other products developed by the company, respond to a common demand among many of Inmesol's clients, as they are designed to facilitate and multiply their use.

Inmesol at the Sochi 2014 Winter Olympics

Inmesol generator sets are manufactured with top quality materials: the steel used for the bodywork and chassis and the laminated carbon steel in the structure are both DD11 according to EN 10111:2008, for example. The joints are welded using robotic MIG-MAG technology and the Qualicoat paint used on the equipment prevents corrosion in saline and humid environments.

Another key component of Inmesol generator sets are the control switchboards, which undergo constant improvements as new technological advances become available to facilitate equipment monitoring or event and alarm programming. Moreover, to 'arm' them against any eventuality, they include functions to protect the motor and automatic monitoring for anomalies which may occur in the current, voltage, frequency, speed, oil pressure and levels, the motor, fuel and coolant levels.

Likewise, alarms can be configured for the oil level and temperature, the coolant level or to stop the generator set when it functions outside certain parameters. The equipment is also designed to be towed and lifted securely and stably. Inmesol has specially designed mobile kits to transport the gensets by road or around building sites, for example.

In addition to its advanced production lines, are its demanding quality control processes and its excellent post-sales service. All of these characteristics have inspired confidence in Inmesol technology in companies around the world. Its equipment is used to supply power in public works, hotels, ports, military facilities, hospitals, large concerts, mines and airports, whether as a main power source where there is no electricity grid available or to provide full emergency power when there is a failure in the grid.

A clear example of how far the company has developed over the past 25 years is the trust placed in Inmesol to supply generator sets to construction companies contracted to build the infrastructure for the 2014 Winter Olympics in Sochi.

Inmesol equipment supplied power during the construction phase of the Olympic Park and stand-by generator sets were installed in the oval Olympic skating centre and the data centre.

"Inmesol's trajectory has been marked by the commitment to excellence, a commitment which is shared by all the personnel who form part of the company and which is manifested in their attitude and ability to add value to projects and to facilitate their progress," says José Luis Solano, when commenting on Inmesol's work at Sochi and other recent projects, which have consolidated the company's leading position in growth sectors such as telecommunications since 2013.

A containerised generator being exported

Innovation, human capital and exports

To the president and founder of the company, Inmesol is the result of his view of life and work – the paradigms of which make up its business culture.

Instead of settling into a comfort zone, new challenges are continuously set. This ability to enter new territory and a vocation for service permeates the entire organisation. Continuous staff training and research translate into a great capacity for innovation and excellent technical advice for clients.

"Inmesol's human capital is our best asset: we work so we can make our clients' projects grow," says Jesús Fernández Cano, the company's financial director. This philosophy acts as internal engine and is precisely what has opened the doors to international markets and enabled the company to grow in times of crisis.

In the past five years, Inmesol has increased production by 100 per cent, its network of distributors and clients has grown by 50 per cent and it currently exports 96 per cent of its production output.

"Over the past three years we have expanded our technical engineering workforce by 100 per cent to further strengthen our post-sales service," adds Cano.

With a solid presence in countries in the Middle East, Africa, Europe and South America, its target for the next five years is to expand its distribution network to more than 120 countries and to maintain and improve its competiveness. ■

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Progress unthinkable without process control

Automation increases the productivity of industrial systems, from the outsourced garment workshops of Tunis to the gas facilities at Ras Laffan. Visiting Germany, India and ASEAN is the best way to keep up to date with industry developments up with the curve, writes Robert Adams.

PROCESS CONTROL SYSTEMS are universally used within chemical. petrochemical, refining, food processing, pharmaceutical, power generation and other activities. They are an offshoot of the wider automation and robotics industries. All these systems seek to maintain continuous "output" (however that is defined) within a specified range, allowing mass production to a consistent standard in complete safety/security. Thereby, a small team can operate a complex process from a central control panel, on the site or even remotely. Hand-held devices are now widely used.

As applied to modern processing facilities in the Gulf, today's control systems operate on either a "feedback" or "open loop" basis. A thermostat or ball valve operating a pump uses the first of these, continuously monitoring a critical variable (liquid level and temperature). A simple cycle-responding washing machine is an example of the second.

Typically, with the more sophisticated of these, for example, a condition sensing sprinkler system, some kind of programmable logic controller or distributed control system reads digital input (soil moisture deficit in this case) continuously and reacts in a pre-set way, generating appropriate output, such as opening a flow valve. Thus the condition of liquid in a vessel, or the on/off status of a pump, can be controlled within pre-programmed limits.

Process control is usually applied to continuous manufacturing systems such as baking, maintaining smooth output to a consistent quality. But it can be adapted to variable batch systems, such as those that blend raw materials with limited mix life (e.g. biscuits, adhesives and mortars) to fill a waiting container. These are widely used in the food, construction, and pharma industries.

With a sophisticated system like a sprinkler, a programmable logic controller reads input

The third sub-type is a discrete process control system which operates on a demand response basis, e.g. by reacting in a pre-programmed or intelligent way to digital signals received from part of an automated assembly line, as found in the automobile industry.

These are the basics, but advanced process control systems can typically be added on as an (already operational) continuous manufacturing operation is expanded or updated, often as part of a debottlenecking operation in the energy-products industries. These can be further categorised as customised regulatory control systems, multi-variable predictive systems, inferential, and sequential control systems.

Mix and match them all together and you have a complete manufacturing planning and optimisation system that can be designed to meet the specific requirements of a unique sequence of processes to conform to safety, defined output, or other pre-set objectives.

This step can usually only be taken by a qualified control application engineer who is specially experienced in designing and monitoring operations within one industry. They usually combine process control and specific processing skills as applied to that activity, e.g. food and pharmaceutical applications where consistency, precision and cleanliness are particularly important. Some of these process-control professionals are available to hire on a visiting service contract basis – system consultants in effect.

A wide variety of process control systems designed for specific MENA industries like food manufacturing, garment-making and downstream oil/gas activities can be readily inspected and discussed at regular local events such as Middle East Petrotech (Bahrain) and Adipec (Abu Dhabi). For a dedicated trade exhibition on the wider field of automation control systems generally you may find it convenient to travel to specialised venues as found in Germany and Southeast Asia, where events like Cebit, Interkama (both Hannover), Automation Asia and Manufacturing Solutions (Singapore), and Asean Industrial Automation (Kuala Lumpur) take place regularly.

India is also a noteworthy home to many aspects of this important industry where both Industry Automation & Control World and Industrial Automation are held regularly in Mumbai. ■

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‘One-Millionth Bobcat Loader’ sold in Spain

THE BOBCAT 2014 Dealer Convention, held in Prague, Czech Republic, marked the beginning of festivities celebrating the production of the millionth Bobcat compact loader. To mark the historic milestone, Bobcat produced a range of special edition ‘One-Millionth Bobcat Loader’ models.

Marcos Marín, the official Bobcat dealer for more than 39 years in the Murcia and Alicante zones of Spain, announced that his company had sold the first of these ‘One-Millionth Bobcat Loaders’ in Spain, an S650 skid-steer loader model, to Coysa Viguer S.L.

Based in Santa Cruz, Murcia, Coysa Viguer S.L. is a family business belonging to the Vigueras Group, which includes Instalaciones y montajes Vigueras S.L., Instalaciones Vigueras S.L. and Coysa Viguer S.L., offering extensive experience and expertise in the construction industry. The company operates primarily in the public works market

José Vigueras, owner of Coysa Viguer S.L., said he purchased this particular Bobcat model for a reason as special as the machine itself.

“We’ve always preferred the Bobcat brand, from the very beginning. I found out about this machine on my son’s birthday, and he’s part of the company. I couldn’t imagine a better gift for him,” remarked Vigueras.

“Obviously, it was a huge surprise for him. The machine was delivered during a dinner party we hold every year for our employees and friends, which coincides with my son’s birthday, in a festive family atmosphere. Marcos Marín’s sales team went to the restaurant that evening and parked the machine at the entrance, after decorating it with a big bow. Marcos officially handed over the keys himself.

“We now have six Bobcat compact loaders, including two S300 models, two 753s and a 453, as well as this special limited edition Bobcat S650 ‘One Millionth Bobcat Loader’, commemorating the million loaders produced by the company,” Vigueras added.

In addition to special paint and decaling schemes, the limited edition loaders incorporate features and extras not present on other Bobcat machines, including black non-slip sheets on the lower rear struts, cushioned boom cylinders, and a specially-designed two-tone leather air-ride seat, in addition to a two-tone interior, commemorative logo on the control panel starting screen and a new intermittent windshield wiper system.

The machine was delivered during an annual dinner party hosted by Coysa Viguer S.L. for employees and friends

Bobcat’s range of special edition ‘One-Millionth Bobcat Loader’ models features the exclusive premium cab, which has a forward-positioned design that moves the operator closer to the attachment

The hydraulic Bob-Tach system is also a standard feature and there are special reinforcements on the tyres, along with decorative chrome elements and metal reinforcements all over the machine, with the model delivered to Coysa Viguer S.L. customised for the occasion.

A new generation of compact loaders

One of its most noteworthy features is the exclusive premium cab, which features a comfortable, forward-positioned design that moves the operator closer to the attachment, providing omni-directional visibility around the machine.

The largest swing-open door on the compact loader market makes it easier to enter and exit the cab, which features 10 per cent more interior space, less noise and more ergonomic controls.

It also offers simplified maintenance and a new engine design, enhancing durability and further increasing uptime. Superior power and hydraulic performance boost productivity.

“Right now we can say that we’re the only company in Spain which owns one of these limited edition models, and we may continue to be,” Vigueras remarked. “We haven’t heard about any other company having one. We’re the exclusive owners of a historic machine, and that gives us enormous pleasure.” ■

For more information about Bobcat and its products, please visit ***www.bobcat.eu***

Inmesol launches new rental range of soundproof generators

SPANISH GENERATOR SET manufacturer Inmesol has launched its new Rental Range of soundproof generator sets, which will target third-party end clients who rent equipment to intermediary companies.

The company has described its target market as a competitive growth sector that demands "robust, technically innovative, cost-effective equipment", which has been designed to meet a broad range of requirements, including European regulations on low-level acoustic and atmospheric gas emissions.

Inmesol's new Rental Range features a broad range of components and characteristics (Image: Inmesol, S.L.)

Over the past 12 months, Inmesol's technical department has been working to reduce the noise emissions of its generator sets and the resulting technology has been incorporated into the new Rental Range's 22-550 kVA gensets. The firm's engineers designed the soundproofed bodywork to comply with rigorous acoustic specifications, such as the upper air outlet, which allows the generator to cool the motor to reduce its noise level, while the materials used to manufacture the gensets also make them fire resistant.

The generator sets in the Rental Range are designed and manufactured to work in severe weather conditions, and feature a waterproof control panel. The quality of the steel used in the bodywork, chassis and laminated carbon steel structure are DD11 according to EN10111.2008, and the joints are welded using robotic MIG-MAG technology.

The motors, designed for maximum power, are provided by Kohler, Volvo Penta, FPT Iveco and Honda, all of which comply with the strict current regulations on STAGE IIIA gas emissions.

Each set features anti-corrosive Qualicoat paint, used to ensure long-lasting bodywork and prevent rust from forming in saline or humid environments. The entire Rental Range includes a complete series of generator accessories that help to speed up the maintenance process such as the refueler or the wide access radiator door, which facilitates cleaning.

Among the many features of each genset is a detachable handle-like piece, which when removed means the equipment cannot be manipulated, offering an additional safety mechanism.

The range also incorporates large capacity tanks as standard, which comply with European regulation and have been designed to ensure that diesel remains trapped inside a sealed container with a double wall.

The generator sets have a hook that ensures stable lifting and safety during these operations, as well as a hook that enables them to be towed. A mobile kit – designed to transport the generator sets on the road or around building sites – has been equipped to secure the sets easily to trailers. Inmesol also designs and manufactures tailor-made generator sets for rental companies with specific requirements.

Providing power to remote island communities

AKSA POWER GENERATION, the leading company in the Turkish generator market, has proven its prominent position in the industry with the undertaking of a major project in the Pacific Ocean. Thanks to a new agreement, Aksa Power Generation has started to supply the full-scale generator needs of New Caledonia, a special collectivity of France, with diesel generators.

New Caledonia, a special collectivity of France, is located in the south east of the Pacific Ocean (Photo: Ethan Daniels)

New Caledonia is located in the south-east of the Pacific Ocean, 1,210km from Australia. The power needs of the archipelago, which has a population of 240,000 according to the 2007 census, are mostly provided by wind energy. The islands experiences frequent power outages due to climatic affects and such outages caused by weather conditions negatively affect the local inhabitants. Cooperation has been established with Aksa Power Generation in order for the population to no longer experience such power outages during bad weather periods.

Aksa Power Generation, which will provide supplementary services to the power plants on the islands, has completed the production phase for the first stage.

The container group, with a total standby power of 15 MVA, reached the islands in the first phase of the project, delivered by seaway. Aksa Power Generation, which transported a total of 30MVA power generator group to the islands, has almost completely supplemented the archipelago's power.

Made in India – Indo Asian to take valiant strides

WITH MORE THAN five decades of experience in manufacturing and marketing LV switchgear products, India-based Indo Asian has found itself working at the forefront of the power industry in a number of developing economies where potential customers are demonstrating a willingness to deliver quality solutions.

"Our approach of speed, flexibility and delivering promise gives us an edge, and the same is reflected by our rapid growth – especially in developing economies," the company says.

Indo Asian integrates technologies and design into people-centric solutions, using re-engineering methods that, it says, provide value optimisation. According to the firm, its products meet global standards while keeping costs for the customer to the minimum through the utilisation of indigenous processes and materials during the manufacturing process.

The brand's core products are divided into four categories – namely power and control (moulded case circuit breakers, air circuit breakers, HRC fuses, switch disconnector fuses, contractors, thermal overload relay and digital time switch); protection (miniature circuit breakers, isolators and residual current circuit breakers); distribution (distribution boards and panels) and connective devices such as wiring equipment.

By focusing on performance and safety, and by opting to take a business-friendly approach, Indo Asian says that its customers are those that are seeking value for their money.

The brand, which is now part of global electrical and digital building infrastructures specialist Legrand, is increasing its footprint across the world, with the Middle East and Africa regions proving to be strong markets for the firm, and the company has been making its presence felt at leading trade shows such as Middle East Electricity (MEE), WETEX Dubai, Hannover Messe Germany and, more recently, Africa Utility Week in South Africa.

Indo Asian is also playing what it calls a "confident role" in the 'Make in India' movement, which aims to enhance India's global value as a manufacturing hub.

The power equipment manufacturer has set its sights on markets throughout the Middle East and Africa, having already achieved considerable success in India

Utility products specialist

Indo Asian collaborates with major power utilities and is, it says, helping to redefine standards within the power sector – a poignant point in a region where millions of homes need to be connected to the grid in spite of budget constraints. As a veteran player in the market to supply feeder pillars, the company has supplied products to customers across the globe, providing tailor-made products as per utility specifications.

Indo Asian has been involved in a number of prestigious projects and has worked with well-established utilities, including DEWA (Dubai), FEWA (UAE), ADWEA (Abu Dhabi), EDD (Bahrain), KAHRAMAA (Qatar), CREDEG (Algeria), EDM (Egypt), PEC (Yemen), JEPCO/EDCO (Jordan), MEW (Kuwait), UMEME (Uganda), ZESCO (Zambia), ZETDC (Zimbabwe), TANESCO (Tanzania), PHCN (Nigeria), KPLC (Kenya), CEB (Sri Lanka) and TNB (Malaysia).

With consumers today craving cost-effective and optimally-safe products with consistent performance, Indo Asian says it has been pursuing such requirements by acting to block inferior, fake, unsafe and non-standard products. The firm claims to have "triggered a wave" in regulating the markets at entry points by working with reputed regulatory agencies such as BVQI, Intertek and SGS. Approvals from the likes of SONCAP from Nigeria and KBS from Kenya also act to protect the average customer from risk exposure caused by an inferior product.

Indo Asian has grown from a company operating in its domestic market in India to one that covers 45 nations. Now, says the firm, it is aiming to expand its presence further by aiming to cover a majority of the world's developing economies. ■

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Security concerns addressed at Saudi safety event

Following the success of the recent SSS Arabia exhibition and workshops at Dhahran International Exhibitions Center in Dammam, we spoke to Alain Marhic, managing director of event organisers BME Global Ltd., about the highlights of the 2015 edition of the show.

What were the major highlights of this year's SSS Arabia?

The major highlight of the 2015 edition of SSS Arabia was the growth of more than 40 per cent in visitors from last year's event. This is proof that security is very high on everyone's agenda and that SSS is the recognised platform for all stakeholders to meet and network.

Some 80 per cent of the event's exhibitors have requested the same stand or an increased size for 2016, while another highlight was the presence of key public stakeholders such as Saudi Aramco (through ASIS72), the Saudi Arabian Ministry of Health, SABIC, KA-CARE, Saudi Electricity Company and the Royal Commission for Jubail and Yanbu, as well as technology and service providers such as Draeger, Dupont, 3M, ECA and Hytera. SSS Arabia has never been so big and relevant.

How successful was the show in highlighting developments in the safety and security sectors throughout the Middle East?

Looking at the record number of countries represented at SSS Arabia 2015 and the wide range of services showcased, Saudi Arabia is definitely an attractive market.

The presence of key public companies also enabled efficient networking with participants at the show.

> "20 per cent of this year's participants in the exhibition have already rebooked"

Local dignitaries checking out one of the exhibitor's automotives safety products during SSS Arabia 2015 (Photo: BME Global)

How well received were the supporting conferences and workshop, and how did you go about creating a multi-faceted knowledge platform for the industry?

The workshop agenda was developed for professionals by professionals. We carefully researched the hot topics in the industry to make sure it was as relevant as possible and brought the most knowledgeable speakers from across the region and beyond.

The two-day workshop was well attended and so well received that some delegates asked for the workshops to be extended to a third day for next year.

What can we expect in terms of the profile of next year's exhibitors?

Next year we want to bring even more key public stakeholders to the show, as well as focusing even more on industrial security. SSS Arabia, although established for five years, wants to reach a new level for 2016 and attract more critical infrastructure owners to discuss solutions with our exhibitors.

Are there any geographical markets currently underserved at SSS Arabia that you would be keen to tap into for the 2016 edition?

We also want to attract more exhibitors from the international market. We expect that participants from Europe and Asia will increase at next year's show, which will take place at the same venue from 16-18 May 2016. ■

www.sss-arabia.com

Highlighting Saudi Arabia's sustainable potential

THE FIFTH EDITION of the GCC Environment and Sustainable Development Forum (GEF) concluded in Riyadh in May 2015, with the show having grown in popularity and prestige over the years to assert its position as Saudi Arabia's flagship environmental event.

Launched in 2010 by the Jeddah-based Presidency of Meteorology and Environment (PME), the governmental body in charge of all environment-related issues in Saudi Arabia, the 2015 event featured a number of major players from across the industry, including SABIC, SEC, SWCC and Equate Petroleum. All major industry players were on hand at the Al Faisaliah Hotel in Riyadh on 24-26 May 2015 to discuss the various important aspects and issues relating to turning environmental challenges into business opportunities and moving beyond environmental compliance.

GEF 2015, which was held under the patronage of the Custodian of the Two Holy Mosques, King Salman bin Abdulaziz Al Saud, brought together business, policy and technology experts, along with high-profile decision makers from the public and private sectors. It came at a time when Saudi Arabia has begun a transition towards a more sustainable economy and was the first event that the new King has given his esteemed patronage to.

Among the exhibitors and sponsors at the show, all on hand to display their latest products and services, were The Royal Commission for Jubail and Yanbu, GEMS, SEPCO, Saudi 3M, EDCO, Veolia, Gulf Advanced Control Systems, Huta and Greentech Saudi.

Over the last few years, Saudi Arabia has started to operate a huge transition towards a more sustainable economy and society. GEF combined an international exhibition and strategic conference that serves to aid this process by bringing together business experts, technology providers and high profile decision makers from the public and private sector for three days of networking and learning.

GEF 2015 was the first event that the Custodian of the Two Holy Mosques, King Salman bin Abdulaziz Al Saud, has given his esteemed patronage to since becoming King (Photo: BME Global)

The show's strong message that environmental conservation could provide future prosperity at national, regional and international levels, lead to some very positive feedback from visitors and exhibitors, according to Alain Marhic, managing director of joint organisers and international events company BME Global.

"The feedback that we have received so far, from everyone from exhibitors, visitors, delegates and speakers, shows that GEF is a very valued event and it is still continuing to grow in popularity and prestige," said Marhic.

At the event, 92 per cent of the exhibitors said they would be interested in returning to exhibit in 2016, with Dr. Fadi Trabzuni, vice-president – strategic and innovation at Cristal, remarking, "We have seen all the experts in this field of environment and sustainability, and we had very good discussion with them."

Miriam Mujtaba, environmental engineer for SEPCO, remarked, "We participate every year and we generate a lot of leads. It's an important event where we meet many of our clients."

The opening ceremony added much prestige to the event with speeches from PME, SWCC, SABIC, the Regional Organization for the Protection of the Marine Environment (ROPME) and the General Secretariat of the GCC.

Among the key messages of the event were the localisation of technology; Developing in-house R&D; Nurturing the talent and exchanging expertise and lessons learned; Minimising the impact of desalination on the environment; Identifying and ranking options for re-use and economic pricing of re-use, applying true cost of water and water impact index assessments.

"Waste was probably the single most discussed topic at the event," noted BME Global's Marhic. "In particular, medical waste received a lot of attention from companies such as Huta and Veolia who discussed various models and the collection, transportation, treatment and safe disposal of medical waste.

With 86 per cent of sponsors and exhibitors confirmed to come back in 2016, including GEMS, SEPCO and HUTA, next year's edition of GEF looks set to surpass the successes of the 2015 edition. ■

www.gccenvironmentforum.com

Electrical Equipment and Materials Buyers' Guide 2015

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

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Section One: Listings by category

AC Alternators
Mecc Alte UK Limited

AC Drives
CG
Control Techniques, business unit of Emerson Industrial Automation
Lloyd Dynamowerke GmbH

Accumulators
Saft SA

Air Compressors
FAMCO (Al-Futtaim Auto & Machinery Co. LLC)
Gardner Denver FZE
Kaeser Kompressoren FZE
Samsung Techwin

Air Conditioning / Chillers /Heat Exchangers
Aggreko Middle East Ltd.
Bosch Industrial
Eksen Teknik Sunger San. ve Tic. Ltd. Sti.
LG Electronics Gulf FZE
Luvata Söderköping AB
Rittal Middle East FZE
UL

Air Curtains & Filters
Panasonic Marketing Middle East and Africa FZE

Air Purification & Cleaning Equipment
LG Electronics Gulf FZE

Ammeters
KFB Holding Group

Auto Recloser
KFB Holding Group
Tripp Lite

Automation Systems
ASCO Numatics, business unit of Emerson Industrial Automation
Emerson Industrial Automation
HIMA Middle East FZE
Huegli Tech AG Ltd.
KFB Holding Group
Phoenix Contact Middle East FZ LLC

Batteries
ASCO Numatics, business unit of Emerson Industrial Automation
Dale Power Solutions
KFB Holding Group
Saft SA

Battery Lighting
Saft SA

Boiler Plant/Instrumentation
Bosch Industrial
HIMA Middle East FZE
Megger Ltd.

Boilers & Auxiliary Equipment
Bosch Industrial

Bus Bar Systems
Eaton Power Quality SAS
Imequadri Duestelle S.p.A.
KFB Holding Group
Pollmann Elektrotechnik GmbH
UL

Cable - Conductor Products
HELUKABEL Middle East
KFB Holding Group
UL

Cable Fault Locator
BAUR GmbH
Prime Meiden Ltd.

Cable Handling Equipment
Eland Cables
HELUKABEL Middle East

Cable Jointing & Termination
Eland Cables
First Forever Co. Ltd.
HELUKABEL Middle East
KFB Holding Group
Megger Ltd.
Mosdorfer GmbH
Novoflex Marketing Pvt. Ltd.
Power Testing Ltd.
Yamuna Cable Accessories Pvt. Ltd.

Cable Labeling
Brady Middle East

Cable Protection & Support
HELUKABEL Middle East
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Eland Cables
Phenix Technologies Inc.
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Zahid Tractors

Cable Tiles / Protections
Novoflex Marketing Pvt. Ltd.

Cable Trays
Eland Cables
Electric House Est.
Galva Coat for Galvanizing & Light Poles
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Nuhas Oman LLC
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Yamuna Cable Accessories Pvt. Ltd.

Capacitor Banks
ICAR S.p.A.
Powertech Switchgear Industries FZE
UL

Capacitors
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Cast Resin Transformers
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Zahid Tractors

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Zahid Tractors

Cogeneration
Broadcrown Ltd.
Deep Sea Electronics PLC
Kohler Power Systems
LG Electronics Gulf FZE
Samsung Techwin
SDMO Industries

Communication Equipment
Deep Sea Electronics PLC
LG Electronics Gulf FZE
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Samsung Techwin

Compressors
Kaeser Kompressoren FZE
LG Electronics Gulf FZE
Samsung Techwin

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HELUKABEL Middle East
Oriental Copper Co. Ltd.
Pollmann Elektrotechnik GmbH

Conduit & Fittings
Appleton Group, business unit of EMERSON Industrial Automation
HELUKABEL Middle East
Novoflex Marketing Pvt. Ltd.
Panasonic Marketing Middle East and Africa FZE
Super Impex
UL

Connectors
HELUKABEL Middle East
Marechal Electric
Pollmann Elektrotechnik GmbH

Consultancy Services
HIMA Middle East FZE
UL

Control Equipment/Systems
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Cummins Middle East FZE
Deep Sea Electronics PLC
Eksen Teknik Sunger San. ve Tic. Ltd. Sti.
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JMG Limited
John Deere Power Systems
Jubaili Bros
Kirloskar Oil Engines Ltd.
Lister Petter Ltd.
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Motorenfabrik Hatz GmbH & Co. KG
Perkins Engines Co. Ltd.
Scania CV AB
Volvo Penta

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Downhole
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Earthing / Lightning Equipment & Accessories
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Phoenix Contact Middle East FZ LLC
Pollmann Elektrotechnik GmbH
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Electric Drives
Control Techniques, business unit of Emerson Industrial Automation
IGEL Electric
Lloyd Dynamowerke GmbH

Electric Generators - Turbo Generators & Hydro Generators
AJ Power Ltd.
Altaaqa Global CAT Rental Power
Ascot Industrial S.r.l.
Cummins Middle East FZE
Deep Sea Electronics PLC
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Kohler Power Systems
Linz Electric S.p.A
Lloyd Dynamowerke GmbH
Mahindra Powerol - Mahindra & Mahindra Ltd.
Marelli Motori S.p.A.
Mecc Alte UK Limited

Electric Motors / Repairs Equipment
CG
Gamesa Electric
Lloyd Dynamowerke GmbH
Marelli Motori S.p.A.
Tripp Lite
Udeyraj Electricals Pvt. Ltd.
Zahid Tractors

Electrical Control Unit Equipment
Elser Solutions LLC
National Instruments
Sakr Power Systems S.A.L

Electrical Meters / Actuators
ASCO Numatics, business unit of Emerson Industrial Automation
KFB Holding Group

Electrical Testing & Certification
Elser Solutions LLC
Phenix Technologies Inc.
Power Testing Ltd.

Electrical Wiring Accessories
Eaton Power Quality SAS
Electric House Est.
HELUKABEL Middle East
Novoflex Marketing Pvt. Ltd.
One Electrical Ltd.
Super Impex

Electricity Digital Markets
Elser Solutions LLC

Electricity Utilities
Dale Power Solutions
Elser Solutions LLC
First Forever Co. Ltd.
Sergi France

Electronics
LG Electronics Gulf FZE
National Instruments

Emergency Lighting
Eaton Power Quality SAS
Thomas & Betts / A member of the ABB Group

Enclosures
alfanar trading
Eksen Teknik Sunger San. ve Tic. Ltd. Sti.
Jubaili Bros
Novateur Electricals & Digital Systems Limited
Rittal Middle East FZE
Sakr Power Systems S.A.L

Energy Conservation Products
Ascot Industrial S.r.l.
INMESOL S.L
LG Electronics Gulf FZE

Energy Efficiency/Savers
Bosch Industrial
Emerson Industrial Automation
HIMOINSA
INMESOL S.L
IREM S.p.A.

Energy Management & Services
DEIF India Pvt. Ltd.
Eaton Power Quality SAS
Galva Coat for Galvanizing & Light Poles
HIMOINSA
National Instruments
IREM S.p.A.
LG Electronics Gulf FZE
Lovato Electric S.p.A.

Energy Measurements
Elser Solutions LLC
KFB Holding Group
Lovato Electric S.p.A.
National Instruments
Phoenix Contact Middle East FZ LLC

Engineering Services
alfanar trading
COELMO Spa
Jubaili Bros
Mosdorfer GmbH
Rittal Middle East FZE

Engines/Motors/Engine Parts
Caterpillar Inc.
Cummins Middle East FZE
Dresser-Rand
Eksen Teknik Sunger San. ve Tic. Ltd. Sti.
FAMCO (Al-Futtaim Auto & Machinery Co. LLC)
Huegli Tech AG Ltd.
INMESOL S.L
JCB Power Products
Marelli Motori S.p.A.
Volvo Penta
Weichai Middle East FZE

Equipment for Electric Motor Repair
Marelli Motori S.p.A.
Phenix Technologies Inc.

Equipment for Power Transmission Lines
Cressall Resistors Ltd.
First Forever Co. Ltd.
Galva Coat for Galvanizing & Light Poles
Mosdorfer GmbH
Prime Meiden Ltd.

Equipment Inspection & Repair
Power Testing Ltd.

Explosion Proof Equipment /Lighting & Switchgear
Appleton Group, business unit of EMERSON Industrial Automation
Eaton Power Quality SAS
IGEL Electric
KFB Holding Group
Marelli Motori S.p.A.
Rittal Middle East FZE
Sakr Power Systems S.A.L
UL

Fan & Exhaust Systems
Bosch Industrial
Panasonic Marketing Middle East and Africa FZE
Rittal Middle East FZE

Fault Recorder/Event Recorder
KoCoS Messtechnik AG
National Instruments

Fiber Glass Products
Rittal Middle East FZE

Filters
Jubaili Bros
Lucy Electric Ltd

Fire Safety Systems
Eaton Power Quality SAS
Sergi France
UL

Firefighting Equipment & System
Green Power Systems S.r.l.
UL

Fuses / Fuse Switches / Fuse Gear
B.N Ham Eletrical Equipment ~Trading LLC
Eaton Power Quality SAS
KFB Holding Group
Leroy-Somer Electric Power Generation
Novateur Electricals & Digital Systems Limited
Rittal Middle East FZE
Sakr Power Systems S.A.L

Galvanizing Products
Galva Coat for Galvanizing & Light Poles

Gas & Power Equipment
Altaaqa Global CAT Rental Power
COELMO Spa
GENMAC Generators
Green Power Systems S.r.l.
HIMOINSA
IGEL Electric
JMG Limited
Leroy-Somer Electric Power Generation
Samsung Techwin

Extend the service life of your bushings and transformers

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Deep Sea Electronics PLC
Dresser-Rand
Huegli Tech AG Ltd.
Lister Petter Ltd.
Mantrac Group
Weichai Middle East FZE

Gas Insulated Switch Gear
KoCoS Messtechnik AG
Lucy Electric Ltd

Gas Turbines
Ansaldo Energia
Dale Power Solutions
Samsung Techwin

General Renewable Energy Services
JCB Power Products

Generating Sets
ABZ Aggregate-Bau GmbH & Co. KG
AJ Power Ltd.
Aksa Power Generation FZE
Altaaqa Global CAT Rental Power
Broadcrown Ltd.
Caterpillar Electric Power
COELMO Spa
Deep Sea Electronics PLC
Dresser-Rand
Eksen Teknik Sunger San. ve Tic. Ltd. Sti.
Enrogen Ltd.
FG Wilson
Genesal Energy
GENMAC Generators
Green Power Systems S.r.l.
HIMOINSA
Huegli Tech AG Ltd.
JCB Power Products
JMG Limited
Jubaili Bros
KFB Holding Group
Kirloskar Oil Engines Ltd.
Kohler Power Systems
Lister Petter Ltd.
Lovato Electric S.p.A.
Mahindra Powerol - Mahindra & Mahindra Ltd.
Mantrac Group
Mecc Alte UK Limited
Motorenfabrik Hatz GmbH & Co. KG
Powersource Projects Ltd.
PR Middle East FZE
SAB, Evers & Co. Standard Aggregatebau KG
Sakr Power Systems S.A.L
SDMO Industries
SES SMART Energy Solutions FZCO
Teksan Jeneratör
Visa S.p.A.
Weichai Middle East FZE

Generating Technologies
Altaaqa Global CAT Rental Power
Deep Sea Electronics PLC
Eksen Teknik Sunger San. ve Tic. Ltd. Sti.
Enrogen Ltd.
FG Wilson
HIMOINSA
INMESOL S.L
JCB Power Products
Kirloskar Oil Engines Ltd.
Powersource Projects Ltd.
Teksan Jeneratör

Generators
Aggreko Middle East Ltd.
AJ Power Ltd.
Aksa Power Generation FZE
Ansaldo Energia
Ascot Industrial S.r.l.
Autotank International Ltd.
Broadcrown Ltd.
Caterpillar Inc.
COELMO Spa
Cummins Middle East FZE
Dale Power Solutions
Deep Sea Electronics PLC
Eksen Teknik Sunger San. ve Tic. Ltd. Sti.
Enrogen Ltd.
FAMCO (Al-Futtaim Auto & Machinery Co. LLC)
FG Wilson
Gamesa Electric
GENMAC Generators
Green Power Systems S.r.l.
Grupos Electrógenos Europa SA
HIMOINSA
INMESOL S.L
JCB Power Products
JMG Limited
Kirloskar Oil Engines Ltd.
Kohler Power Systems
Linz Electric S.p.A
Lloyd Dynamowerke GmbH
Mahindra Powerol - Mahindra & Mahindra Ltd.
Mantrac Group
Mecc Alte UK Limited
ORTEA S.p.A.
Powersource Projects Ltd.
PR Middle East FZE
SDMO Industries
Teksan Jeneratör
Visa S.p.A.
Weichai Middle East FZE

Geothermal Power Engineering
LG Electronics Gulf FZE

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A JCB generator to support all your power needs…24/7! Whether you need efficient prime power on a remote construction site or reliable back-up power in a built-up area, the new QS generator range is the ideal power solution for you. Designed and developed by JCB and fitted with premium quality components to deliver you a world class product for non-stop power performance.

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Inmarco Industries FZC

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Bosch Industrial
Broadcrown Ltd.
Caterpillar Electric Power
HIMOINSA
Marelli Motori S.p.A.
Teksan Jeneratör

Heat Recovery & Exchangers
Bosch Industrial
Inmarco Industries FZC
Luvata Söderköping AB
Rittal Middle East FZE

Heating Equipment
Bosch Industrial
LG Electronics Gulf FZE

High-Voltage Equipment of Distribution & Control
alfanar trading
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Eaton Power Quality SAS
Phenix Technologies Inc.
Udeyraj Electricals Pvt. Ltd.

Hydraulic & Pneumatic
First Forever Co. Ltd.
Tripp Lite

Hydro-Electric Power Plant
Marelli Motori S.p.A.

Independent Power Producers
Altaaqa Global CAT Rental Power
Caterpillar Inc.
INMESOL S.L
JMG Limited
SES SMART Energy Solutions FZCO

Industrial & Power Automation
DEIF India Pvt. Ltd.
Emerson Industrial Automation
HELUKABEL Middle East
HIMA Middle East FZE
Lovato Electric S.p.A.
National Instruments
Rittal Middle East FZE
WAGO Middle East FZC

Industrial Electronics
Indian Electrical and Electronics Manufacturers Association (IEEMA)
Phoenix Contact Middle East FZ LLC

Industrial Power Engineering
Altaaqa Global CAT Rental Power
HIMA Middle East FZE
HIMOINSA
IGEL Electric
KoCoS Messtechnik AG
Lister Petter Ltd.
Lucy Electric Ltd
Rittal Middle East FZE

Industrial Relays
KoCoS Messtechnik AG
WAGO Middle East FZC

Industrial Ventilation Systems
HIMA Middle East FZE
Segula Ltd.

Information Systems and Telecommunication
Rittal Middle East FZE
Segula Ltd.

Inspection and Testing
KoCoS Messtechnik AG
Zahid Tractors

Installations
Bosch Industrial

Instrumentation & Calibration
Rotork PLC

Insulation Materials
Eksen Teknik Sunger San. ve Tic. Ltd. Sti.

Inverters
AEG Power Solutions B.V.
Control Techniques, business unit of Emerson Industrial Automation
Delta Energy Systems AG
Layer Electronics S.r.l.

Irrigations Systems
Green Power Systems S.r.l.
Motorenfabrik Hatz GmbH & Co. KG
Visa S.p.A.

Isolators
Phoenix Contact Middle East FZ LLC

Junction Boxes
alfanar trading
Appleton Group, business unit of EMERSON Industrial Automation
Marechal Electric
Rittal Middle East FZE

Labeling & Identification
AEM Cores Pty. Ltd.

Laboratory Equipment
National Instruments
Udeyraj Electricals Pvt. Ltd.

Lamps – Discharge & Special Lamps
alfanar trading

Leak Detection Equipment
Megger Ltd.

Level Detection & Control
Megger Ltd.

Lifting Equipment
Mantrac Group
PR Middle East FZE

Lighting Design, Building etc.
One Electrical Ltd.

Lighting Equipment & Fittings
Galva Coat for Galvanizing & Light Poles
Grupos Electrógenos Europa SA
HIMOINSA
LG Electronics Gulf FZE
PR Middle East FZE

Lighting Fixtures - Industrial & Residential
One Electrical Ltd.

Lightning Protection
Specialist Services
Super Impex
Thomas & Betts / A member of the ABB Group

Limit Switches
B.N Ham Eletrical Equipment ~Trading LLC

Load Banks
Aggreko Middle East Ltd.
Cressall Resistors Ltd.
Powersource Projects Ltd.

Low - Energy Buildings
Bosch Industrial

Magnet Wire
Nuhas Oman LLC
Precision Wires India Ltd.

Maintenance Services
SAB, Evers & Co. Standard Aggregatebau KG

Management Systems & Maintenance Services
Bosch Industrial

Measure & Test Equipment/ Systems/Monitoring
BAUR GmbH
Phenix Technologies Inc.
National Instruments
Udeyraj Electricals Pvt. Ltd.

Measurement, Control & Diagnostic Instrumentation, Diagnostic Equipment
BAUR GmbH
National Instruments
Udeyraj Electricals Pvt. Ltd.

Metallic Expansion Joints
Inmarco Industries FZC

Meter Cabinets
KFB Holding Group
Specialist Services

Metering Devices
KFB Holding Group

Minor Hydro-Power Engineering
Marelli Motori S.p.A.

Motors & Motor Winding Equipment
Gamesa Electric

Motors/Starters/Control Gear/Protection Relays
IGEL Electric
Novateur Electricals & Digital Systems Limited
Powertech Switchgear Industries FZE

Mud
Leroy-Somer Electric Power Generation

New & Renewable Energy
AEG Power Solutions B.V.
Bosch Industrial
JCB Power Products
LG Electronics Gulf FZE

Noise Control Equipment
Eksen Teknik Sunger San. ve Tic. Ltd. Sti.

Non Metallic Expansion Joints
AEM Cores Pty. Ltd.
Eksen Teknik Sunger San. ve Tic. Ltd. Sti.

Outdoor Lighting / Floodlighting
Appleton Group, business unit of EMERSON Industrial Automation
Eaton Power Quality SAS
FAMCO (Al-Futtaim Auto & Machinery Co. LLC)
JCB Power Products
One Electrical Ltd.

Overhead Line Equipment Materials/ Hardware & Accessories
Galva Coat for Galvanizing & Light Poles
KFB Holding Group

Package Tansformer Substations
alfanar trading
Altaaqa Global CAT Rental Power
KFB Holding Group

Panel Instruments
KFB Holding Group

Photovoltaic
Control Techniques, business unit of Emerson Industrial Automation
HELUKABEL Middle East
Layer Electronics S.r.l.
UL

Pipe & Pipeline Fittings / Coating Items
Inmarco Industries FZC
Lucy Electric Ltd

Pipe Suspension
Lucy Electric Ltd

Plugs & Sockets
Appleton Group, business unit of EMERSON Industrial Automation
Electric House Est.
Marechal Electric

Pneumatics
ASCO Numatics, business unit of Emerson Industrial Automation
Rotork PLC

Power Control & Regulation Equipt for Generators & Motors
Deep Sea Electronics PLC
DEIF India Pvt. Ltd.
Genesal Energy
HIMOINSA
INMESOL S.L

Power Factor Correction Equip/Regulators
ICAR S.p.A.
ORTEA S.p.A.
Powertech Switchgear Industries FZE

Power Monitoring & Supplies
AEG Power Solutions B.V.
Deep Sea Electronics PLC
Eaton Power Quality SAS
HIMOINSA
National Instruments

Power Plant Design
Ansaldo Energia
Broadcrown Ltd.
Dresser-Rand
Genesal Energy
HIMOINSA
SAB, Evers & Co. Standard Aggregatebau KG
SDMO Industries
Segula Ltd.
SES SMART Energy Solutions FZCO
Weichai Middle East FZE

Power Transformers
Altaaqa Global CAT Rental Power
KALPA ELECTRIKAL Pvt Ltd.
KoCoS Messtechnik AG
Power Testing Ltd.
Prime Meiden Ltd.

Private Power & Water Utilities
Altaaqa Global CAT Rental Power
Power Testing Ltd.

Process Control & Process Automation
HIMA Middle East FZE
National Instruments
WAGO Middle East FZC

Process Control Equipment
HIMA Middle East FZE
Rotork PLC

Production Systems
Altaaqa Global CAT Rental Power

Protective Coating Items
Lucy Electric Ltd

Public Power Utilities
Altaaqa Global CAT Rental Power

Pumps, Compressors & Filters
FAMCO (Al-Futtaim Auto & Machinery Co. LLC)
Kaeser Kompressoren FZE
Lister Petter Ltd.
Samsung Techwin

Reactors
ICAR S.p.A.
KALPA ELECTRIKAL Pvt Ltd.

Refineries/ Refinery Equipment
HIMA Middle East FZE

Regulators
ICAR S.p.A.

Relays - Control & Protection
KoCoS Messtechnik AG
Lucy Electric Ltd
Specialist Services

Ring Main Units
alfanar trading
Eaton Power Quality SAS
Lucy Electric Ltd

Rotary
AEM Cores Pty. Ltd.

Safety Equipment
AEM Cores Pty. Ltd.

Silicon Rubber Insulators Cuts-Outs
Tripp Lite

Solar Energy Equipment
Bosch Industrial
Delta Energy Systems AG
Eaton Power Quality SAS
Emerson Industrial Automation
Layer Electronics S.r.l.
LG Electronics Gulf FZE
Specialist Services

Solar Power Engineering
Emerson Industrial Automation
KoCoS Messtechnik AG
Mahindra Powerol - Mahindra & Mahindra Ltd.

Solar Thermal Application
Bosch Industrial

Stand-Alone Sources of Energy
ABZ Aggregate-Bau GmbH & Co. KG
AJ Power Ltd.
Altaaqa Global CAT Rental Power
Genesal Energy
INMESOL S.L
Saft SA
SES SMART Energy Solutions FZCO

Steam Turbines, Electric-Power, Combined-Cycle & Gas-Turbine Units
Ansaldo Energia
Deep Sea Electronics PLC
Samsung Techwin

Steam Turbines/Metering Systems
Ansaldo Energia
Samsung Techwin

Street Lighting & Poles
One Electrical Ltd.

Substations
alfanar trading
Imequadri Duestelle S.p.A.

Switchboards & Switchgear
Aksa Power Generation FZE
Caterpillar Electric Power
Eaton Power Quality SAS
Enrogen Ltd.
Imequadri Duestelle S.p.A.
INMESOL S.L
KFB Holding Group
Kohler Power Systems
Novateur Electricals & Digital Systems Limited
Panasonic Marketing Middle East and Africa FZE
Power Testing Ltd.
Rittal Middle East FZE
SAB, Evers & Co. Standard Aggregatebau KG
UL

Switches
alfanar trading
Panasonic Marketing Middle East and Africa FZE

Switchgear Products, Low & Med Voltage
alfanar trading
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Imequadri Duestelle S.p.A.
KoCoS Messtechnik AG
Kohler Power Systems
Lucy Electric Ltd
Novateur Electricals & Digital Systems Limited
Powersource Projects Ltd.
Powertech Switchgear Industries FZE
Rittal Middle East FZE
UL

Synchronizing Equipment
Aksa Power Generation FZE
Deep Sea Electronics PLC
DEIF India Pvt. Ltd.
Huegli Tech AG Ltd.
INMESOL S.L
Kohler Power Systems

Systems
HIMA Middle East FZE
Netcontrol

Systems Engineering
Delta Energy Systems AG
HIMA Middle East FZE
Power Testing Ltd.
Rittal Middle East FZE

Systems Operation & Control
Deep Sea Electronics PLC
HIMA Middle East FZE
Netcontrol

Tanks & Silos
UL

Technology & System of Water Treatment
Ascot Industrial S.r.l.

Technology of Energy Efficiency and Energy Saving
Ascot Industrial S.r.l.
INMESOL S.L
JCB Power Products
KoCoS Messtechnik AG
Samsung Techwin

Telecommunication Equipment
INMESOL S.L
Mahindra Powerol - Mahindra & Mahindra Ltd.
Mecc Alte UK Limited
Netcontrol
Visa S.p.A.

Testing & Inspection Services
Ansaldo Energia
KoCoS Messtechnik AG
Power Testing Ltd.

Transducers
KoCoS Messtechnik AG
WAGO Middle East FZC

Transformers
alfanar trading
Altaaqa Global CAT Rental Power
KFB Holding Group
KoCoS Messtechnik AG
Power Testing Ltd.
Sergi France
Udeyraj Electricals Pvt. Ltd.

Transmission & Distribution
Imequadri Duestelle S.p.A.
Indian Electrical and Electronics Manufacturers Association (IEEMA)
Netcontrol
Power Testing Ltd.

Turbines
Ansaldo Energia
IREM S.p.A.
Samsung Techwin

Turnkey Installations
Aksa Power Generation FZE
Altaaqa Global CAT Rental Power
Ansaldo Energia
Delta Energy Systems AG
Dresser-Rand
Genesal Energy
SES SMART Energy Solutions FZCO

Uninterruptible Power Systems
AEG Power Solutions B.V.
Caterpillar Electric Power
Caterpillar Inc.
Dale Power Solutions
Delta Energy Systems AG
Eaton Power Quality SAS
GENMAC Generators
INMESOL S.L
KFB Holding Group
Layer Electronics S.r.l.
Marelli Motori S.p.A.
SAB, Evers & Co. Standard Aggregatebau KG

Valves / Gauges / Fittings
ASCO Numatics, business unit of Emerson Industrial Automation
Inmarco Industries FZC
Rotork PLC

Variable Speed Drives
Control Techniques, business unit of Emerson Industrial Automation
Eaton Power Quality SAS
Mahindra Powerol - Mahindra & Mahindra Ltd.

Voltage Stabilizers & Regulators
IREM S.p.A.
Layer Electronics S.r.l.
ORTEA S.p.A.

Welding Equipment / Electrodes / Services
GENMAC Generators
Linz Electric S.p.A

Wind Energy
HELUKABEL Middle East
UL

Wind Power Engineering
KoCoS Messtechnik AG
Power Testing Ltd.

Wind Turbines and Related Equipment
Deep Sea Electronics PLC
DEIF India Pvt. Ltd.

Wire Manufacturing
Bahra Cables Co.
Nuhas Oman LLC

Wiring / Tubes & Accessories
Bahra Cables Co.
Electric House Est.
HELUKABEL Middle East
Novoflex Marketing Pvt. Ltd.

Wiring Identification / Wire Markers
Brady Middle East

Section Two: Suppliers

3GK Ltd.
Unit 3 Price Street Business Park
Park Street, Birkenhead
Wirral, CH41 3PE
United Kingdom
Tel: +44 151 6475380
Fax: +44 151 6662660
Web: www.3gk.co.uk
E-mail: enquiries@3gk.co.uk

ABZ Aggregate-Bau GmbH & Co. KG
Gutenbergstr.11
Henstedt-Ulzburg
D-24558
Germany
Tel: +49 4193 903635
Fax: +49 4193 93473
Web: www.abz-power.com
E-mail: info@abz-power.com

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

AEG Power Solutions b.v
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AG Zwanenburg
1161, The Netherlands
Tel: +31 20 4077800
Fax: +31 20 4077801
Web: www.aegps.com
E-mail: info@aegps.com

AEG Power Solutions helps customers worldwide to meet their power challenges with rugged, highly reliable, innovative, premium power solutions. The company offers a full range of AC and DC Power Systems.

Agents:
United Arab Emirates - AEG Power Solutions

AEM Cores Pty. Ltd.
95B Bedford Street
Gillman
South Australia
5013
Australia
Tel: +61 8 83410086
Fax: +61 8 83410225
Web: www.aemcores.com.au
E-mail: sales@aemcores.com.au

AEM Unicore Machinery for the manufacture of LOW LOSS Distribution and General Purpose Transformers Cores is used in 40 countries worldwide. It is preferred by major manufacturers in North and South America, India, Europe and Asia. New model Unicore Machines feature integrated dust extraction hood and industrial touch screen controller.

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

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

AJ Power Ltd.
1 Charlestown Drive
Carn Industrial Area, Craigavon
Northern Ireland, BT63 5GA
United Kingdom
Tel: +44 28 38361000
Fax: +44 28 38361010
Web: www.ajpower.net
E-mail: sales@ajpower.net
info@ajpower.net

Established in 2003, AJ Power manufactures diesel generating sets from 10kVA to 3300kVA. These are provided as open skid base units, as well as sound attenuated canopies/containers. Range includes 110V I phase to 13.8kV, 60Hz. The company offers volume production of high sets on short lead time at highly competitive prices.

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

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

Al Muqarram Auto Spare Parts LLC
PO Box 60235, Deira
Dubai, United Arab Emirates
Tel: +971 4 2241423
Fax: +971 4 2241450
Web: www.a-map.net
E-mail: info@a-map.net

A-Map trading is the sole distributor of Solite Batteries in the region. Solite Batteries are O.E.M to Hyundai and KIA motors. The batteries are currently being used by some of the biggest Construction and Heavy Equipment companies in the UAE.

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

Headquartered in Riyadh, alfanar operates a gropu 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 desgin and devlopment centers integrate with a distinguished host of facilities in the Kingdom, the Middle East and other countries.

Agents:
United Arab Emirates - Alfanar Electric LLC

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

Altaaqa Global CAT Rental Power
PO Box 262989
Dubai
United Arab Emirates
Tel: +971 4 8808006
Fax: +971 4 8808007
Web: www.altaaqaglobal.com
E-mail: rbagatsing@altaaqaglobal.com

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

Ansaldo Energia
Via Nicola Lorenzi, 8
16152, Italy
Tel: +39 010 6551
Fax: +39 010 6553411
Web: www.ansaldoenergia.com
E-mail: ansaldoenergia@aen.ansaldo.it

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

APC by Schneider Electric
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Web: www.Emersonindustrial.com
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As a global manufacturer of electrical products for commercial, industrial, hazardous and adverse environments. Appleton Group combines the industry's best known brands, including ATX and SolaHD. Together, these brands offer a complete solution for electrical power, distribution, control and lighting that lead the industry in efficiency, durability, safety, quality and ease of installation.

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Agents:
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Cressall Resistors manufacture high power resistors, neutral earthing resistors (NERS), portable load units, bespoke LV and HV 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.

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

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Agents:
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Huegli Tech is a leading supplier and wholesaler with core competences in Engine Govering Systems, Generating Set Controls, Hydraulic Engine Starting Systems, Vehicle Control Systems, Gas Engine Management System, Engine Accessories and Dual Fuel Conversions. We are active worldwide and our distribution network is well developed.

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20900
Italy
Tel: +39 039 83951
Fax: +39 039 833227
Web: www.icar.com
E-mail: sales@icar.com

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E-mail: commerciale.quadri@imequadriduestelle.it

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Agents:
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Indian Electrical and Electronics Manufacturers Association (IEEMA)
501 Kakad Chambers
132, Dr. Annie Besant Road
Worli, Mumbai
400018
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Tel: +91 22 24936528/4227
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Web: www.elecrama.com
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IEEMA - Indian Electrical and Electronics Manufacturers Association is the apex association of manufacturers of electrical, industrial electronics and allied equipment in India, IEEMA the first ISO certified Industry Association in India, has over 800 members organisations.
IEEMA also organizes, the world's largest biennial T & D Exhibition ELECRAMA.

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INMESOL S.L, is a Spanish company dedicated to the design, manufacture and technical services of generators from 3-2500 kVA, engine-driven welders, lighting towers and hybrid modules. His philosophy is to satisfy the requirements of all kinds of projects, including those most demanding.

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Web: www.irem.it
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Lloyd Dynamowerke GmbH

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Lucy Electric

Lucy Electric Ltd.

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Mahindra group, US 16.2 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.
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MAN

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National Instruments is a provider of automated test, control and monitoring equipment and graphical system design with a broad focus on the energy, oil and gas, and condition monitoring sectors. NI has established its presence in Arabia in 2004 along with offices in Lebanon, Egypt, Saudi Arabia and Turkey.

Agents:
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Fax: +44 161 7039939
Web: www.oneelectrical.com
E-mail: ghall@oneelectrical.com

Established for over 15 years, One Electrical Ltd are a UK based premium brand of electrical wiring accessories & lighting. The brand is a well known name across the global industry and more recent growth can be put down to the specialisation in LED lighting and a huge growth in export demand.
Agents:
United Arab Emirates - MSS Electrical LLC

Oriental Copper Co. Ltd.
27th Fl. Bangkok Insurance
Y.W.C.A.Building
25 South Sathon Road
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ORTEA®

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Founded in 1969, ORTEA is now a leading company in manufacturing and engineering voltage stabilisers, magnetic components, generators and electrical equipments. Beside standard production, ORTEA is able to be extremely flexible in developing and manufacturing special equipment according to user's specifications, thanks to the experience gained in over 45 years.

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One of the world's leading supplier of off-highway diesel and gas engines in the 4 - 2000kW market, Perkins key strength is its ability to tailor engines to meet customer's precise requirements, which is why its power solutions are trusted by over 1000 leading manufactures around the world.
Agents:
United Arab Emirates - Power Systems Gulf LLC

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E-mail: info@phenixtech.com

Phenix Technologies is a manufacturer and global supplier of ultramodern high voltage, high current, high power test systems and components for testing cables,circuit breakers,generators,GIS/switchgear, insulation materials, motors,reclosers, transformers, utility worker's rubber goods/protective gear including mobile field test sets, plus 40 years' experience, and ISO9001 quality certification.
Agents:
United Arab Emirates - ARABCAL

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Phoenix Contact, founded in 1923, is a leading manufacturer of electrical connection, electronics interface and industrial automation technology with headquarters in Germany. Our worldwide distribution is effected via a global network of 50 own subsidiaries and approximately 30 representations in Europe and Overseas. For agents and suppliers please check our website for more details: www.phoenixcontact.ae/channel_partners

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Pollmann Elektrotechnik is specialised in busbars for low-voltage switchboards. Furthermore we produce main terminals, connectors, earthing material and fixing devices. We are able to manufacture within our product range nearly every special type according to our customers' needs and their various applications. Pollmann Elektrotechnik is DIN EN ISO 9001:2008 certified.

Power Testing Ltd.
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Founded in 1966, PTL specialize in LV and MV commercial industry, offering solutions to testing, maintenance, installation and reactive works.
It is our aim to offer our excellent service to new clients in the UAE and Middle East assisting in their economic growth and ensuring safety of supplies.

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Tel: +44 1428 684980
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UK manufactured diesel generating sets and associated products with expert, in house parts department giving full product support and genuine parts from renowned global manufacturers such as Perkins, Stamford (Newage), Meccalte, Deep Sea, FG Wilson and more. Please visit www.power-source-pro.co.uk to find out more.

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Powertech Switchgear Industries FZE is a panel builder for ABB ArTu-K Systems and authorized value provider for ABB VFDs in UAE. Our panels are fully type tested by ASTA/LOVAG and have ADDC and AADC approvals up to 3200A and SEWA approval up to 2500A. We also fulfil DEWA, FEWA and KAHRAMAA regulations.

Agents:
United Arab Emirates - Powertech Electrical Distribution Boards Manufacturing Co. LLC

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Pramac develops and manufactures a wide range of power generation equipment from 1 kVA to 3.360 kVA with Perkins, Volvo, MTU, Deutz, Cummins, Doosan, FPT, Iveco and Yanmar Engines and materials handling equipment. Pramac uses its global network to supply these products to markets throughout the world.

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E-mail: export@pwil.net

Precision Wires India Ltd. is the largest manufacturers of enamelled copper wire in South Asia with a capacity of 35000 MTs p.a. We manufacture round wires in the range of 0.080 mm – 5.00 mm, PICC in the range of 5 sq mm to 65 sq mm and continuously transposed conductor from 5 strands to 43 strands.

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Prime Meiden Ltd (PML) is one of the leading players in the field of power transformer having the most modern and state-of-the-art factory for supply of EHV power transformer up to 765 kV located in special economic zone (SEZ), Naidupeta; district Nellore, Seemandhra the Southern State of India, spread over 100 acres of land.

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Founded in 1999, Rittal Middle East FZE - a subsidiary of Rittal GmbH & Co. KG. Composing an active team with over 30 professionals addressing the Middle East market, with headquarters based in Herbon, Germany. Rittal Middle East is one of the recognized innovative suppliers for the industrial and electrical sectors as well as a key player in the networking infrastructure & datacentre arena. A perfectly coordinated platform with a vast product range covering industrial/electrical enclosures, system climate control and power distribution suitable for oil & gas, energy, industries, construction etc. Ri4Power Form 2-4: New structured solution for reliable low-voltage switchgear system compatible with international players (breakers), type tested to 5500A as per the worldwide standard, IEC60439-1 and IEC61439-1/2.

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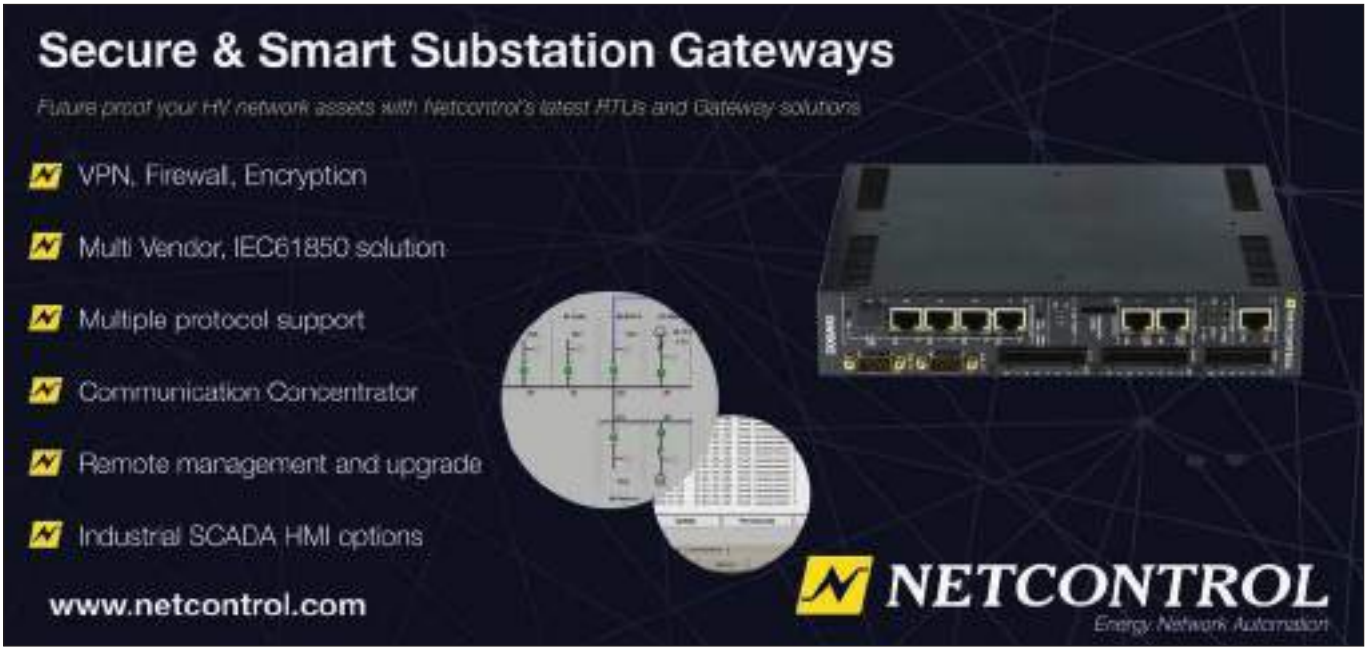

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Rotork is the world's leading manufacturer of electric, pneumatic & hydraulic valve actuators and control systems, valve gearboxes, valve accessories and precision control instruments supported by the Rotork worlwide service network.

Agents:
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Agents:
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Saudi Arabia - Dar Al Fursan Trading Est.
United Arab Emirates - Al Hamra

Sakr Power Systems S.A.L

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Founded in 1972 in Lebanon, Sakr Power Group is a group of companies specialized in power generation, with a scope of services covering the manufacturing, sales and rental of power generating sets and related electrical equioment, and the implementation of turnkey power projects. We are present around the world with out International branches and our distributors.

Agents:
United Arab Emirates - Sakr Power Generation FZE

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Samsung Techwin is specialized in designing and manufacturing of integrally geared air and gas compressors which are being operated around the world for plant air, process air and gas applications.

Agents:
United Arab Emirates - Samsung Techwin Dubai Office

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Agents:
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Iraq - Qanadeel Al Rafidain Auto Trading Company Ltd.
Kuwait - ICTCO Industrial Construction & Trading Co. WLL
Oman - SATA LLC
Qatar - Arabian Agencies Company (ARACO) LLC
Saudi Arabia - General Contracting Company - Olayan
Saudi Arabia - Mohammed A Al-Faddaghi & Partners
United Arab Emirates - Al Shirawi Enterprises LLC
United Arab Emirates - Bin Brook Motors & Equipment LLC

SDMO Industries

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SDMO Industries is one of the world's leading generating sets manufacturers. A wide range 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 worldwide.

Agents:
United Arab Emirates - SDMO Middle East

Segula Ltd.

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Segula offers LED lighting replacement for classical bulb shapes, flood & street lights, T8 for commercial, government and private energy saving goals.

Agents:
Saudi Arabia - Lifelight Co.

Sergi France

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Sergi France was created in 1955 to design and manufacture of oil-filled transformer fire extinguishing systems. Since then, the company has specialised in the transformer fire protection business by developing the Transformer Protector (TP). During a transformer short circuit, the TP is activated within milliseconds by the first dynamic pressure peak of the shock wave, before static pressure increases thus avoiding transformer explosions.

Agents:
Iran - UBUN Best Parts Engineering Company Ltd.
Oman - National Factory for Security and Safety Equipement LLC
Qatar - KBF Trading & Contracting Co.
United Arab Emirates - Ageco International FZE
United Arab Emirates - FALCOR

SES SMART Energy Solutions FZCO

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SES is leading power 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 maximise on productivity and profitability, while minimizing on downtime and resources with highest safety standards.

Agents:
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Qatar - SES SMART Energy Solutions
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Specialist Services

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Specialist Services is a global supplier of modular buildings and packaging solutions for people and equipment in Oil & Gas and Utility industries. Our electrical power skids ranges from basic off the shelf design for sound attenuation containers to full EPIC transformer and switchgear packages including VSD/VFD shelter, Gensets etc.

Super Impex

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ISO, UL approved exporter of electrical accessories, earthing and lightning protection, cable glands accessories, flexible conduit and fittings, cable lugs, bimetallic lugs, grounding rods, cable accessories, penal board and switchgear accessories, overhead line accessories, bimetallic lugs, cable terminals, pole mounted cutout, fuses, pvc conduit fittings

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- Diesel, Natural Gas & Biogas, Marine Gensets
- Cogeneration & Trigeneration Systems
- Containers/Soundproof Canopies, ATS,
- Control Panels, Fuel Tanks

Thomas & Betts / A member of the ABB Group

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At Thomas & Betts, our focus is on improving your business performance by providing practical, reliable electrical products and services that solve everyday problems in the areas of wire & cable management, cable protection, power connection & control and safety technology.

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Over 90 years of manufacturing excellence. Tripp Lite is a leading manufacturer of products that power, connect and protect computuers and other electronics. Founded in 1922, it is best known for its uninterruptible power supply (UPS) systems and ISOBAR®. Surge Surpressors (with over 18 million sold).

Agents:
United Arab Emirates - Tripp Lite Middle East

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UL

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UL is a premier global independent safety science company that has championed progress for 120 years. Its more than 10,000 professionals are guided by the UL mission to promote safe working and living environments for all people. UL uses research and standards to continually advance and meet ever-evolving safety needs. We partner with businesses, manufacturers, trade associations and international regulatory authorities to bring solutions to a more complex global supply chain. For more information about our certification, testing, inspection, advisory and education services, visit www.UL.com

Visa S.p.A.

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Visa S.p.A. is a modern Italian company manufacturing 4000 gensets per year, for continuous and emergency service, ranging from 9 to 3000 kVA, in standard or customised versions. It has networks of distributors in more than 60 countries worldwide. Visa is amongst the most qualified companies in the power energy sector, guaranteeing a highly operational flexibility and qualitative standards for which it has become a leader in the market for more than 50 years. Visa also offers a range of products specifically designed to meet the needs of the telecommunication sector.

Volvo Penta

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Volvo Penta, with approximately 4,000 dealers in over 130 countries, is a world-leading and global manufacturer of engines and complete power systems for boats, vessels and industrial applications. The engine program comprises diesel and gasoline engines with power outputs of between 10 and 900 hp. Volvo Penta is part of the Volvo Group, one of the world's leading manufactures of heavy trucks, buses and construction equipment.
For dealer information, please visit the Dealer Locator at www.volvopenta.com

WAGO Middle East FZC

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WAGO is a family owned company headquartered in Minden, Germany that has been operating in the market independently for three generations and has become an international trend setting provider of electrical connection and automation technology. WAGO is the world leader in spring clamp technology having a workforce of 5600 around the globe.

Wahah Electric Supply Co. of Saudi Arabia Ltd.

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Weichai Middle East Fze

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Agents:
Bahrain - National Establishment of Technical & Trade Services
Saudi Arabia - Advance Machinery EST
United Arab Emirates - SunPower Gen FZCO

Whitelegg Machines Ltd.

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Yamuna Cable Accessories Pvt. Ltd.

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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 "Densons" brand.
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All products are qualified and type tested under qualifying standards in NABL approved labs such as CESI, CPRI, KEMA, etc. The companies strong R&D wing in house manufacturing of all key inputs, and strict qualification compliance inputs ensures high quality materials and solutions, batch on batch, year on year.

Zahid Tractors

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Established in 1976 by Sheik Ali A. Tamimi and the General Electric Company, Saudi Electric Supply Company (SESCO) is the premier distributor in the Middle East for electrical supplies. SESCO offers a full range of electrical, industrial, mechanical, valve, instrumentation and automation products from many of the world's leading manufacturers.

Section Three: Agents/Local Offices

BAHRAIN

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AJM Kooheji and Sons
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للوكالة الدولية (الذي يفترض التكيف الواقعي للحكومات مع تغير المناخ)، من المتوقع أن تزيد القدرة النووية العالمية حوالي ٦٠ في المائة لتصل إلي ٦٢٤ جيجاواط بحلول عام ٢٠٤٠. وبحلول ذلك الوقت، يكون عدد الدول التي تشغّل المفاعلات قد ارتفع من ٣١ إلى ٣٦ دولة، وهو ما يمثل مجموع الاستثمارات في هذه الصناعة التي تبلغ ١,٥ تريليون دولار أمريكي. ووفقا لمنظمة مراقبة الطاقة الواقعة في فرنسا تعتبر مصادر اليورانيوم أكثر من كافية لدعم هذا التوجه.

الاهتمام العالمي

يدرس الآن ما يقرب من ٤٠ دولة في جميع أنحاء العالم استخدام الطاقة النووية. وفي منطقة الشرق الأوسط وشمال أفريقيا، تشمل هذه الدول كلا من دولة الإمارات العربية المتحدة والأردن (حيث الخطط الأكثر تقدما)، وفي مراحل متقدمة تشمل أيضا الجزائر ومصر والمملكة العربية السعودية وليبيا والمغرب وتونس.

وتشير الوكالة الدولية للطاقة إلى أن هناك العديد من العقبات التي يجب التغلب عليها قبل الشروع في هذه الخطوة الأولى الهائلة. يشمل ذلك إنشاء إطار تنظيمي ملائم تُشرف عليه جهة مختصة ومستقلة. ويجب تفعيل مجموعة واسعة من الشروط، بما في ذلك قضايا الأمن، مع الأخذ في الاعتبار «ضرورة إتاحة الموارد المالية المناسبة لبناء مفاعل على نطاق واسع، وأن تكون الشبكة كبيرة بما يكفي لاستيعابه».

ومع تجاوز إجمالي الناتج القومي مبلغ ٥٠ مليار دولار، وقدرة النقل والتوزيع التي تزيد حاليا على ١٠ جيجاواط في كل من الجزائر ومصر والمملكة العربية السعودية والإمارات العربية المتحدة، تكون هذه الدول قد لبت بالفعل على الأقل واحدا من هذه الشروط. ولكن اتباع الطرق الاقتصادية الصحيحة يعتبر أمرا أساسيا. إذ يجب على المرافق العامة تقييم التكاليف الدائمة لتوليد الكهرباء بهذه الطريقة، أو بأي طريقة أخرى، مع الأخذ في الاعتبار جميع المخاطر التجارية التي تواجهها. وتلخص الوكالة الدولية للطاقة هذا، فيما يتعلق بالطاقة النووية، على النحو التالي:

رغم الدعاية السلبية والمعوقات خلال السنوات الأخيرة، تفكر ٤٠ دولة حول العالم في تبني الطاقة النووية

- التكلفة الاستثمارية – عالية جدا
- وقت الإنشاء – من ٤ إلى ١٠ سنوات
- التكلفة التشغيلية – منخفضة
- الخصائص التشغيلية – الحمل الأساسي ومرونة محدودة
- انبعاثات ثاني أكسيد الكربون – لا تذكر
- المخاطر الرئيسية – التنظيمية (التغييرات السياسية) والقبول العام والسوق

وقورنت تصنيفات الطاقة النووية هذه، في تقرير الوكالة، مقارنةً مفيدة مع غيرها من المحطات المماثلة التي تعمل بالطاقة الحرارية التقليدية (الفحم / البخار)، والتوربين الغازي ذي الدورة المركبة، ومصادر الطاقة المتجددة الجديدة (مثل الرياح البرية والطاقة الشمسية الكهروضوئية). وتواجه الطاقة النووية مجموعة خاصة من التكاليف «الخارجية» التي تشمل الأضرار العارضة التي لا تغطيها المرافق العامة بسبب مسؤوليتها المحدودة، والنقص المحتمل في الأموال اللازمة لوقف التشغيل، والإدارة طويلة الأجل للنفايات المشعة. ويوازن ذلك الفوائد الخارجية المُحققة، مثل تجنب انبعاثات الكربون وتعزيز أمن الطاقة. وكل هذا يصب، بطبيعة الحال، في مصلحة الجميع.

يمثل تأمين التمويل اللازم لبرنامج إنشاء نووي تحديا في أي مكان، ويزداد الأمر سوءاً عندما يكون هناك برنامج متجدد بديل قيد التنفيذ في الوقت نفسه. فمن حيث تكاليف التشغيل اليومية، عادة ما تكون تكاليف تشغيل المحطة النووية بعد الإنشاء أقل من المحطة التقليدية التي تعتمد على الوقود الأحفوري. وعلى الرغم من ذلك، يُعد التشغيل المستمر في وضع الحمل الأساسي ضروريا لاسترداد نفقات الإنشاء الهائلة، وتوفير التمويل اللازم للنفقات الإجمالية عند انتهاء أجل المنشأة. ويبلغ المدى العمري، وفقا لتقرير توقعات الطاقة في العالم، من ٤٠ إلى ٦٠ عاما. وعلى الصعيد العالمي، عادة ما تكون تكاليف الوقود عامة أقل من المحطات الحرارية المعتمدة على الوقود الأحفوري، وحتى هنا في الخليج إذا ما أخذت في الاعتبار «تكاليف الفرصة البديلة». لكن تكاليف وقف التشغيل أمرٌ آخر.

وأوضحت الوكالة الدولية للطاقة أنه «بالنسبة للمحطات النووية المنشأة حاليا، يفترض أن تصل تكلفة وقف تشغيلها، وفقا لتحليلنا، إلى نحو ١٥ في المائة من التكلفة الاستثمارية للمنشأة، من حيث القيمة الحقيقية». هذه القضية تحتاج إلى الدراسة بمزيد من العمق.

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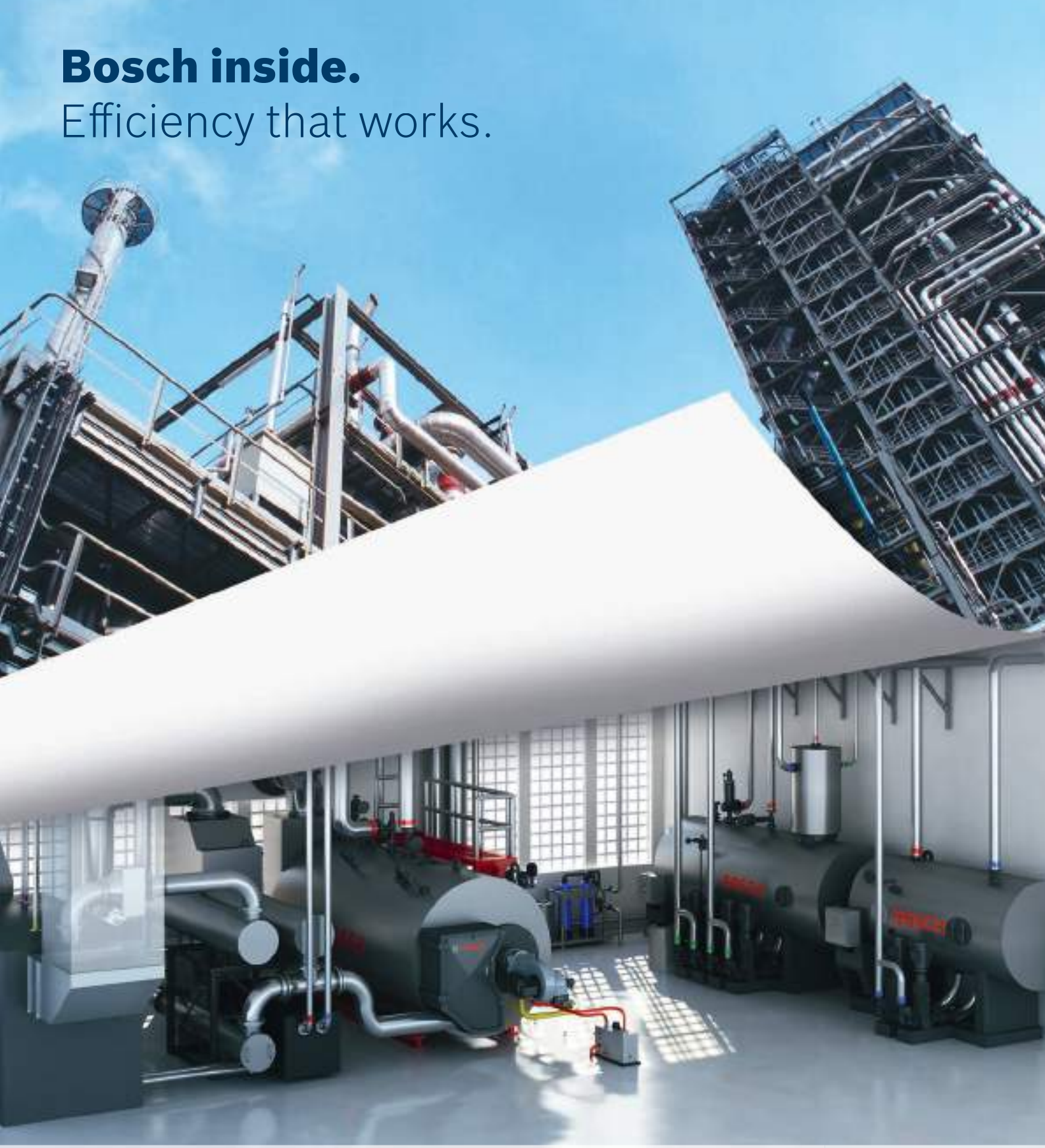

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مؤسسة الإمارات للطاقة النووية وعمال الموقع يسجلون بداية صب خرسانة الأمان في مبنى احتواء المفاعل في الوحدة ٣ بمنطقة البركة في الإمارات

تأمين الطاقة: الخيار النووي

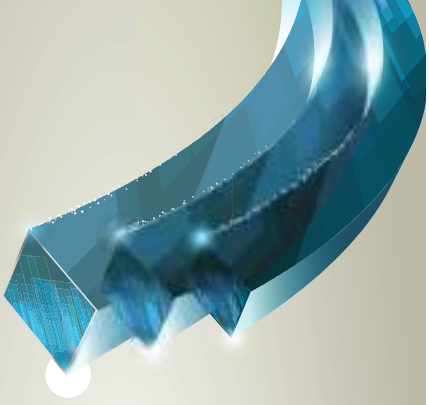
تقول الوكالة الدولية للطاقة، في تقرير توقعات الطاقة في العالم (نوفمبر/تشرين الثاني ٢٠١٤)، إن الطاقة النووية هي مصدرٌ يمكن الاعتماد عليه للحصول على تيار الحمل الأساسي الذي يعزز أمن الطاقة في العالم. غير أنها تقر بأن الفكرة المأخوذة عن هذه الصناعة لاتزال تمثل مشكلة. ففي عام ٢٠١٣ انخفضت القدرة العالمية النووية، التي تبلغ ٣٩٢ جيجاواط، والتي تمثل ١١ في المائة من جميع أشكال توليد الكهرباء، في حين أنها كانت تمثل ١٨ في المائة في عام ١٩٩٦، وذلك بسبب إغلاق المفاعلات. علما بأن أكثر من ثلاثة أرباع هذه القدرة يقع في البلدان الصناعية، ويبلغ عمر أغلبها الآن أكثر من ٢٥ سنة.

لهذا، تقول الوكالة الدولية للطاقة إن واحدة من القضايا الرئيسية، التي تواجه هذه الصناعة على مستوى العالم، هي «توفير الوضوح بشأن الإمتدادات العمرية. فالموقف العام تجاه الطاقة النووية يشكل أهمية بالغة بالنسبة لتنميتها في المستقبل». إذ يقوم الآن عدد قليل من البلدان الصناعية بتخفيض الطاقة النووية أو التخلص منها تدريجيا.

ونتيجة لكل هذا، تقع ثلاثة أرباع القدرة النووية، التي هي قيد الإنشاء في الوقت الحالي، في البلدان غير الأعضاء في منظمة التعاون الاقتصادي والتنمية، وتقع في المقام الأول في الدول التي تتحمل كياناتها الحكومية مخاطر البناء والتشغيل المحتملة. وتُعد منشآت مفاعلات الماء المضغوط متعددة التيارات بقدرة ١٤٠٠ ميجاواط، التي ستقام قريبا في منطقة البركة بأبوظبي، مثالاً بارزا على ذلك.

وفي عام ٢٠١٢، أصبحت دولة الإمارات العربية المتحدة أول «وافد نووي جديد» يبدأ في بناء أي من هذه المصانع الجديدة في آخر ثلاثة عقود تقريبا. وكان من المقرر أن يعمل أول مفاعل في الموقع بحلول عام ٢٠١٧ . وتعتزم مؤسسة الإمارات للطاقة النووية توليد ما يصل الى ربع احتياجات البلاد من الطاقة من خلال هذه الوسائل الجديدة في غضون بضع سنوات.

ووفقا لسيناريو التنبؤ بالسياسات الجديدة



مفكـــرة رجال الأعمال

يونيو/حزيران

٤ ـ ٢ ..... معرض العُدد والأدوات الميكانيكية في الشرق الأوسط ..... دبي

سبتمبر/أيلول

٥ ـ ٣ ..... معرض اسطنبول للمياه ..... اسطنبول

١٤ ـ ١٦ ..... معرض بيج فايف الكويت ..... الكويت

١٤ ـ ١٦ ..... معرض تناول المواد في الشرق الاوسط ..... دبي

أكتوبر/تشرين الأول

٤ ـ ٦ ..... معرض توليد الطاقة في الشرق الأوسط ..... أبوظبي

١٨ ـ ٢٠ المعرض السعودي للطباعة والتغليف والبلاستك والبتروكيماويات ..... الدمام

١٩ ـ ٢٢ ..... معرض مشروع العراق ..... إربيل

٢٦ ـ ٢٧ ..... قمة قطر للطاقة ..... الدوحة

٢٧ ـ ٢٩ ..... المعرض السعودي للتعدين والمعادن ..... الرياض

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التصنيف الائتماني للعملاء. كما نقدم أيضا خيار التمويل الإسلامي ومجموعة من الهياكل الضريبية التي توفر لعملائنا جدول سداد مرناً ومريحاً». وتعمل شركة شاحنات رينو مع شبكة واسعة من البنوك الإقليمية والدولية التي تتعامل من خلال مجموعة متنوعة من العملات، بما في ذلك الدولار الأمريكي واليورو والكرونا السويدية، مما يتيح المزيد من خيارات التمويل للشركات الإقليمية. وفيما يتعلق بخطط التوسع، أنشأت شاحنات رينو مصنعا للتجميع في العراق لتصنيع مجموعاتها من الشاحنات بقدرة تجميع ٣٠٠٠ شاحنة سنويا. كما ستنشئ مصنع تجميع في مدينة الملك عبدالله الاقتصادية في المملكة العربية السعودية ابتداء من عام ٢٠١٦ حتى تتمكن من تجميع ١٠٠٠ شاحنة رينو سنويا. ويعتبر هذا المصنع مشروعا مشتركا بين شاحنات رينو وشركة الزاهد للتراكتورات، الموزع الحصري لشركة شاحنات رينو في المملكة. كما أعلنت رينو مؤخرا عن افتتاح ورشة متطورة مخصصة في العاصمة القطرية الدوحة باستثمار قدره ٦,٥٩ مليون دولار أمريكي.

كيير تستحوذ على موشيل البريطانية

مجموعة كيير للخدمات العقارية المتكاملة سوف تستحوذ على مجموعة موشيل لخدمات الأعمال التي مقرها الرئيسي في المملكة المتحدة، وذلك مقابل ٤١٠,٣ مليون دولار أمريكي، بعد التحسن الملحوظ في أداء موشيل خلال السنوات الثلاث الماضية. ووفقا لموشيل، تم التوصل إلى اتفاق بيع المجموعة ودفع مبلغ ٤١٠,٣ مليون دولار أمريكي نقدا مقابل كل رأس مال الأسهم الصادر للشركة. وكانت مجموعة موشيل قد قررت، بعد تحسن أدائها في السنوات الثلاث الأخيرة، المضي قدما في هذه الصفقة مع كيير. فقد ارتفعت أرباح التشغيل الأساسية لشركة موشيل إلى ٤٢,٩ مليون دولار أمريكي، مع معدل دوران وصل إلى ٩٥٥,٦ مليون دولار أمريكي في السنة المالية المنتهية في ٣٠ سبتمبر/أيلول ٢٠١٤. كما زادت إيرادات الشركة في الثلاثة أشهر المنتهية في ٣١ ديسمبر/كانون الأول ٢٠١٤ بنسبة ٣٨ في المائة، مقارنة بنفس الفترة في العام السابق، وفقا لبيان الشركة. وعلاوة على ذلك، اعتقد أعضاء مجلس إدارة شركة موشيل أن الشركتين ستوفران مجموعة أكبر من الفرص للموظفين والعملاء، كما يتوقع أن تكون الشركة المندمجة رائدة في مجال تعزيز سوق إدارة الطرق السريعة وصيانتها في المملكة المتحدة. وقال جرانت رامبلز، الرئيس التنفيذي لشركة موشيل: «شركة كيير وشركة موشيل تتوافقان توافقا ممتازا. إذ ستمكننا الشركة الموسعة من تحسين العروض المقدمة لعملائنا، وتعزيز الفرص الوظيفية المقدمة لموظفينا. وتُعد هذه الصفقة شاهدا على التحول الناجح لشركة موشيل عقب عملية إعادة الهيكلة التي أُجريت في عام ٢٠١٢. وقد أصبح الوضع

بمجرد إتمام الصفقة، سيتنحى رامبلز ويتولى هايدن مورسيل الرئيس التنفيذي لشركة كيير منصب الرئيس التنفيذي للمجموعة الموسعة

المالي للشركة جيدا، حيث بلغت دفاتر الطلبات التجارية لدينا حاليا ما يربو على ٤,٣ مليار دولار أمريكي، وذلك بفضل إعادة تركيز الشركة على نقاط قوتها الأساسية، واستهدافها تحقيق النمو المربح. لذا أتقدم بالشكر لفريق الإدارة الممتاز وجميع موظفينا لعملهم الجاد وعزيمتهم على مدى السنوات القليلة الماضية».

يجدر بالذكر أن شركة موشيل أكدت أنه بمجرد إتمام الصفقة، سيتنحى رامبلز ويتولى الرئيس التنفيذي لشركة كيير منصب الرئيس التنفيذي للمجموعة الموسعة. وبالإضافة إلى توسيع سوق إدارة الطرق السريعة وصيانتها في المملكة المتحدة، من المتوقع أن تعزز الصفقة خدمات إدارة المرافق والتعهيد الخارجي للعمليات التجارية التي تقدمها المجموعة الموسعة لعملائها من السلطات المحلية، لاسيما في سوق المياه والصناعات المنظمة.

دوبال تتطلع نحو الاستحواذ على مشروعات الطاقة

تدرس شركة دوبال القابضة، التي مقرها الإمارات العربية المتحدة، فكرة الاستحواذ على مشروعات الطاقة المحلية والدولية، وذلك لتنويع أعمالها. ووفقا لعبد الناصر بن كلبان، الرئيس التنفيذي لشركة دوبال القابضة، تتطلع الشركة للحصول على حصص رأس المال فيما يتعلق بالفحم والطاقة الشمسية والغاز ومصادر الطاقة البديلة الأخرى. وأضاف كلبان أن قرار الاستثمار في مشروعات الطاقة النظيفة يتناسب مع هدف شركة دوبال القابضة ويُشركها في قطاع مختلف تماما. وكانت شركة دبي للألومنيوم (دوبال) قد اندمجت، في عام ٢٠١٣، مع شركة أبو ظبي الإمارات للألومنيوم لتكوين شركة الإمارات العالمية للألومنيوم، وهي خامس أكبر شركة ألومنيوم في العالم، حيث تقدر قيمة مشروعاتها بحوالي ١٥ مليار دولار أمريكي. وفي شهر يناير/كانون الثاني ٢٠١٥ طرحت دوبال قرضا لمدة سبع سنوات تبلغ قيمته ١,٨ مليار دولار أمريكي لأغراض تجارية عامة.

تتطلع شركة الألومينيوم العملاقة للحصول على حصص رأس المال فيما يتعلق بالفحم والطاقة الشمسية والغاز ومصادر الطاقة البديلة الأخرى

شركات قطرية تشارك في حلول المدينة الذكية

سوف تتولى كل من شركة مشيرب العقارية التابعة لمؤسسة قطر، وشركة ميزة لخدمات وحلول تكنولوجيا المعلومات، توفير حلول المدينة الذكية لمشروع مشيرب قلب الدوحة. وقال عبد الله حسن المحشادي، الرئيس التنفيذي لشركة مشيرب العقارية، إن هذا المشروع كان خطوة استراتيجية تشمل الاتفاقات واسعة النطاق لخلق بيئة متكاملة مع أفضل حلول المدينة الذكية.

وبموجب العقد، توفر شركة ميزة جميع أنظمة تكنولوجيا المعلومات، وأنظمة التكامل لجميع عمليات التصميم والتشغيل والصيانة في مشروع مشيرب قلب الدوحة. وأضاف المحشادي أن هذه الشراكة سوف تمكن المجموعة من تحقيق كل مواصفات المدينة الذكية؛ مثل تكنولوجيا المعلومات والاتصالات التي ستمنحنا بدورها القدرة التنافسية اللازمة لخلق مجتمع مدني حديث متماشٍ مع الثقافة والتقاليد العربية في الدوحة.

وسوف يمكن مُنصب مايكروسوف MSI شركة مشيرب من تقديم خدمات متكاملة ونظم معلومات وتطبيقات تربط المستهلكين وتجار التجزئة، وقطاع الأعمال عموما، بينما يرصد مجموعة شاملة من تحليلات المعلومات لتوفير بيئة ذكية ومتنقلة وآمنة في مشروع مشيرب قلب الدوحة. وهذا يعني أنه سيكون لدى المواطنين والمقيمين والضيوف في دولة قطر، الفرصة لتجربة تكنولوجيا لا مثيل لها عند زيارة أول مشروع تجديد حضري في العالم يقام وسط المدينة. ووفقا لغادة الراسي، الرئيس التنفيذي لشركة ميزة، تميز هذه الشراكة بداية حقبة جديدة في تطوير المدن الذكية في جميع أنحاء المنطقة

هذا المشروع، الذي يتكلف ٥,٥ مليار دولار، سوف ينعش المركز التجاري القديم في الدوحة بما يقدمه من لغة معمارية جديدة

وخارجها. وأضافت: «فهي تجلب النطاق المحلي للمعرفة والتكنولوجيا إلى جانب شراكات رائدة متعددة الجنسيات تحت مظلة إطار الحكم القطري. ولاشك أن مستوى الرقي والعدد الكبير من الخدمات المقدمة على المستوى السكني والتجاري والإداري، يشكل منظومة ترابط تخدم بشكل أفضل من خلال موقعنا الفريد باعتبارنا مزودا لخدمات تكنولوجيا المعلومات وأنظمة التكامل».

شاحنات رينو تدشن برنامجاً مرناً للتمويل

في أعقاب إطلاق مجموعة C و K و D الجديدة في نوفمبر/تشرين الثاني عام ٢٠١٤، أعلنت شركة شاحنات رينو الشرق الأوسط عن برنامج تمويل مرن في المنطقة لدعم احتياجات الصناعة. ووفقا للشركة الفرنسية لتصنيع الشاحنات، سوف يعمل برنامج التمويل المرن على دعم شركات الإنشاء، كما سيساعد الشركات الأخرى على إدارة المشروعات دون قيود على الميزانية. وقال هنريك لارسون مستشار تمويل المبيعات بالشركة: «هناك نمو في السوق الإقليمية أدى إلى زيادة الطلب على الشاحنات. ونحن، باعتبارنا شركة مصنعة للشاحنات، سنقدم حلولاً معززة لعملائنا. فبرامج التمويل المرنة تتيح لعملائنا الوصول إلى بعض من أفضل منتجاتنا، بما في ذلك مجموعات الشاحنات المدشنة مؤخرا، هذا بينما ينتقون الخيار المالي المناسب لقدراتهم. هذا المخطط يسمح لنا بالانتقال بخدمة العملاء إلى مستوى جديد، ومساعدتهم في اختيار المنتجات وفقا لاحتياجاتهم المحددة، وأيضا قدراتهم المالية. ويتمثل دورنا، باعتبارنا مستشارين، في مساعدتهم على التوصل إلى فضل خيار ممكن».

ومع برامج التمويل النموذجية التي تصل إلى خمس سنوات، والتي يمكن تصميمها حسب احتياجات العميل، يوفر المخطط عددا من خيارات السداد مصممة لتخفيض الدفعات أو الدفعة الأولية، وذلك لتحقيق المعدلات الثابتة من أجل تعزيز الرقابة المالية. وأضاف لارسون «نحن نفهم احتياجات عملائنا المالية ونقدم لهم الأسعار الأكثر تنافسية في السوق، وننافس مجموعة من أكبر البنوك في المنطقة دون تغيير

شاحنات رينو الشرق الأوسط لديها شبكة واسعة من الوكلاء في ١٣ دولة

المحتويات

ملخص محتويات القسم الانجليزي

أخبار: أخبار السوق، مختارات من أخبار شبكة الإنترنيت، الاستراتيجية التنفيذية.

تحليلات: تحليل الطاقة في العراق، أضواء على قطاع الطاقة الإقليمية.

طاقة ومياه: تخزين الطاقة، الطاقة النووية في المملكة العربية السعودية، الشبكات الذكية، الإضاءة.

فعاليات: منتدى البيئة في منطقة مجلس التعاون الخليجي، المعرض والمؤتمر السعودي للأمن والسلامة والوقاية من الحريق.

الدليل السنوي للمشترين: المعدات والمواد الكهربائية.

القسم العربي

أخبار

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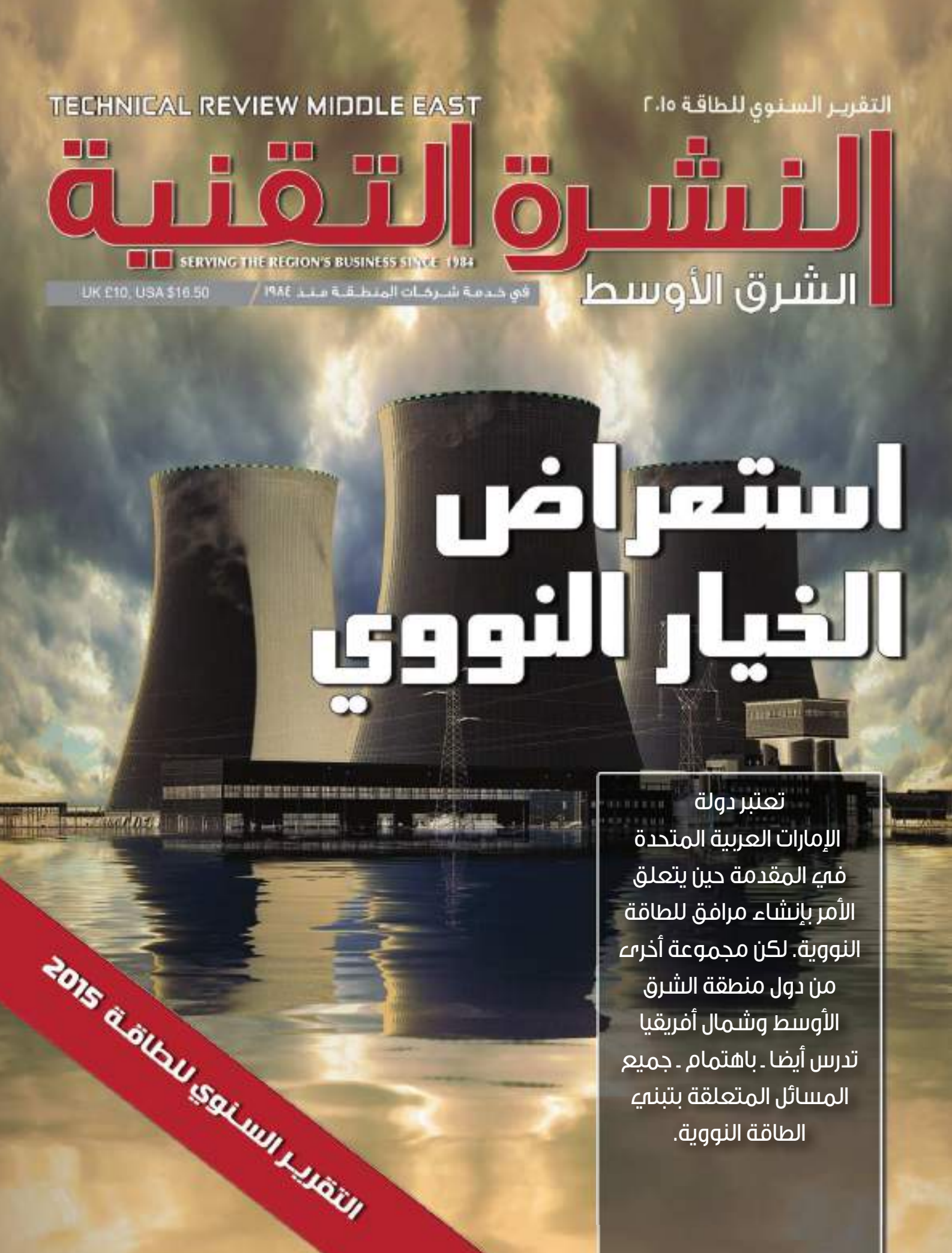

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