



ENERGY INTERNATIONAL REPORT



FALL-WINTER 2012/2013

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EIC report is published twice a year by and for the employees of Energy International Corporation and their friends and associates in the business. All inquiries should be sent to: jpeter@energyintl.com.
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Letter from the Top • Ned Fawaz

Welcome to the Fall/Winter edition of the Energy International Report. Let me take this time to wish each and everyone good health and prosperity in the new year. We, at EIC, look ahead to very prosperous 2013 coming on the heels of a very good 2012. We are continuing our involvement with a number of major projects in Saudi Arabia and are looking forward to some major projects coming on board in Qatar where construction should ramp up over the next few years in preparation for hosting the 2022 World Cup. We are also expanding our product line-up with the addition of a new line of Dynamix boilers manufactured in partnership with Burnham Boilers, a long-established U.S. We are also adding a new line of Dynamix pumps to our ever expanding catalog. Along with an expanded product line-up we are expanding our areas of expertise partnering with Cleanetics, a full-service design/builder of clean rooms. This issue includes a feature on EIC's shipping department and all of the excellent work they do in setting up and overseeing all of the shipments of products from our manufacturers to our many customers overseas. In this issue we cover several of the major projects we are working on in Lebanon and Saudi Arabia and take a look at some of the new technologies we are supplying along with the latest news from EIC. 🇸🇦



Dr. Ned Fawaz
Chief Executive Officer

Be A Part of the Energy International Report

The EIC Report is designed to keep everyone at Energy International informed about the happenings at EIC, from the acquisition of multi-million dollar contracts to the latest additions to the EIC family. We need your participation to help make it a success. If it's of interest to you, it's of interest to us. We'd also like to know what you think about the newsletter content and format and how we can make it better. Send all your news, information, thoughts and ideas to me at jpeter@energyintl.com. I look forward to hearing from you.



Energy International Adds a New Line of Dynamix Boilers

New Dynamix line of efficient wet back boilers to be built by Burnham Commercial Boilers in the U.S.

Energy International Corporation is proud to announce that they have chosen Burnham Commercial Boilers to manufacture a new line of Dynamix boilers to be distributed in the Middle East.

Headquartered in Lancaster, PA, USA, with facilities in six states, Burnham Commercial Boilers is a leading manufacturer of high-quality boilers and control systems for commercial and industrial applications, serving the international market for more than 150 years.

"The choice to have Burnham Commercial Boilers manufacture our new line of Dynamix Boilers was an easy one," said Ned Fawaz, CEO, Energy International Corporation. "Burnham is a well-respected name in the industry offering boiler systems designed to meet the stringent demands of our customers in the Middle East."

The Dynamix wet back boilers utilize state-of-the-art modeling and design technology to create a product with focus on long-term energy and maintenance efficiencies.

All of the new Dynamix boilers are designed to reduce potentially enormous hidden costs down the road," said William J. Bloom, National Sales manager, Commercial Steel Products. "With any ordinary boiler, expenses such as fuel, maintenance and repair costs can escalate over the life of the unit. Our packaged boilers are designed to significantly reduce these expenditures."

Unlike dry back systems, the new Dynamix wet back boilers don't experience a drop in performance due to deteriorating rear refractory, leaking door baffles and seals, and heat-stressed rear tubesheet.

"Over the life of a dry back, the refractory will require continuous monitoring and maintenance," said Bloom. "These built-in maintenance costs can eventually equal or exceed the



The Dynamix Wetback's innovative design eliminates unnecessary costs and downtime.

original cost of the boiler."

The Dynamix wet back eliminates unnecessary costs and downtime. The actively functional water jacket eliminates the need for a refractory wall, a rear door with rear-door inspection and sealing and a temperature alarm.

Dynamix wet back boilers feature a small, inexpensive refractory area in the burner area, for burner mounting. The lightweight rear access door is lined with a vacuum-formed ceramic fiber shell. The furnace and turnaround area are cool running, fully wet backed radiant heating transfer surfaces. They promote good internal water circulation and rapid heat absorption, eliminating the need for the forced internal circulation pumps often specified to cool the rear tubesheets of dry backs.

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The Dynamix wet back boilers utilize state-of-the-art modeling and design technology to create a product with focus on long-term energy and maintenance efficiencies.



EIC NEWS

The Latest News

The new Dynamix Scotch Marine wet back boilers feature separate tubesheets from each pass to expand and contract at its own rate without tube-to-sheet stress. Tubes are rolled and flared tube ends on low-pressure units, and rolled, flared and beaded ends on high-pressure units. Unlike dry back systems, tube replacement is simply a mechanical operation with no welding required.

"Our wet back design eliminates all the costly headaches associated with dry back boilers," said Bloom. "The end result is less cost, less headaches and increased boiler performance."

All Dynamix commercial cast iron sections are manufactured at the company's own foundry in Zanesville, Ohio. Manufacturing and assembly plants use state-of-the-art machinery and highly-trained operators to ensure that every boiler section is machined and assembled to the highest standards for quality and precision. Burnham's Quality Control department meticulously monitors the production process, checking tolerances and product quality to meet customer's specifications. Burnham's in-house Research and Development center assures that every Burnham product meets rigorous performance and safety tests.

"Dynamix boilers wet back design eliminates all the costly headaches associated with dry back boilers. The end result is less cost, less headaches and increased boiler performance."


— William J. Bloom, National Sales Manager, Commercial Steel products



Securing the doors on a Burnham wet back boiler requires no specialized skills or expensive repair materials.

The new line of Dynamix boilers offers hundreds of options beyond the standard trim and controls. The furnace box is designed to accommodate nearly any burner system available on the market.

No proprietary parts or gaskets. Most parts are readily available from any plumbing supplier reducing down-time and repair costs.

For more information on the new line of Dynamix boilers, contact your local Energy International representative or visit EIC online at www.energyintl.com. 


EIC Featured in Crain's Detroit Business

Energy International Corporation was featured in *Crain's Detroit Business* in a December 12, 2012 article titled "WORLD WATCH MONTHLY: Qatar, Jordan, Saudi Arabia. EIC was profiled along with a number of other Michigan, USA-based companies who are doing business in the Middle East. To read the complete article, go to <http://www.crainsdetroit.com/article/20121209/NEWS/312099984/world-watch-monthly-qatar-jordan-saudi-arabia>. 

EIC Signs Agreement with Radian Oil & Gas Services

Energy International Corporation has entered into an agreement with Radian Oil & Gas Services Co. to represent Tower Tech Cooling Towers in the Kingdom of Saudi Arabia.

Radian Oil & Gas is a provider of products and services to the oil, gas and petrochemical, power, water, engineering and energy services. With headquarters in Dammam, Saudi Arabia, the company is mainly focused on catering to the Oil, Gas and Petrochemical industries with specialist products and services.

Radian states that "Our commitment is to help customers conserve energy and operate more efficiently through a broad range of product and service solutions," says Radian. "Our commitment to energy reduction really helps our customers in reducing their CO2 emissions, while saving fuel, water and electricity." 



Cleanetics to Partner with EIC in the Middle East

Global provider of clean room technology looks to expand business interests in the gulf region

Energy International Corporation is expanding its technological reach by partnering with Cleanetics, a full-service, design-build provider of cleanrooms to international clients.

Cleanetics, with design-build and engineering facilities in Pittsburgh, PA and sales offices in New York, NY, Charlotte, NC, Los Angeles, CA, Abu Dhabi, UAE, Doha, Qatar, Riyadh, Saudi Arabia, San Juan, Puerto Rico and London, UK, is a leader in cleanroom design, engineering and construction, servicing clients in the Life Science, Health Science, Nanotechnology, Microelectronics and Aerospace Industries.

"The addition of Cleanetics' products and services to the Energy family further reinforces our focus on providing the latest technologies to our customers," said Ned Fawaz, CEO, Energy International Corporation. "The MENA region has a fast-growing technology sector, with the construction of state-of-the-art hospitals and expansion in the microelectronics and pharmaceutical industries. Cleanetics provides a unique and compelling portfolio of services, processes and products that is unmatched in this specialized industry."

Cleanroom technology is utilized in a number of industries including the manufacture of pharmaceuticals, computer chips and semiconductors as well as laboratories in the biotechnology and nanotechnology industries. Oil producers in the Middle East utilize cleanrooms when servicing high-pressure valves and fittings used in moving crude from the oil fields to storage facilities.



Cleanetics is a full-service designer and supplier of clean room technology to clients around the world including major hospitals and healthcare facilities.

Cleanetics, through its subsidiary HealthWorld Industries is also a specialist mission-critical service provider offering the latest advancements in sterile cleanroom design and engineering to meet the requirements of the USP 797 Federal mandate, a far-reaching regulation governing a wide range of pharmaceutical policies and procedures in the U.S.

Cleanetics has completed a number of USP 797 compliant pharmacies for such clients as the Cleveland Clinic, Duke University, Brookhaven National Laboratory and the Sheikh Khalifa Medical City in Abu Dhabi, UAE.


"We are looking forward to working with Energy International Corporation to bring our expertise to the MENA region," said Ben Brands, Tech Design Coordinator, Cleanetics. "Since the inception of the USP 797 Federal mandate Cleanetics has been setting new standards in the consulting, designing and building of USP 797 compounding facilities, creating world-class solutions for leading

hospitals around the globe."

According to findings presented by the Institute for International Research Middle East, Gulf countries are set to spend USD\$14 billion on the construction of new healthcare and hospital facilities in various states of construction throughout the region.

Many, if not all of these state-of-the-art facilities have more than one pharmacy, usually a main central pharmacy with several satellite pharmacies throughout the complex.

With Cleanetics expertise and experience and EIC's connections with consultants and contractors in the region," says Fawaz, "there are tremendous opportunities for growth in the region for both companies."

Those interested on learning more about Cleanetics products and services can contact their local Energy International Representative or visit the company's web site at www.cleanetics.com. 



EIC NEWS

The Latest News

EIC Exhibits at the Big 5 Show in Dubai UAE

The Middle East's largest construction industry trade event draws exhibitors and visitors from around the globe

Energy International Corporation was one of 2,371 exhibitors, from 60 countries showcasing the latest products and technologies from their roster of top-quality HVAC and electromechanical products.

This was EIC's 11th year as an exhibitor at the show held on Nov. 5 – 8, 2012 at the Dubai World Trade Centre in Dubai, United Arab Emirates. With more than 30 years history, the Big 5 Show is considered to be the preeminent trade show and exhibition for the building and construction sector in the MENA region.

"The event draws a number of prospective manufacturers from around the world," said Allie Bazy, President, Energy International Corporation. It not only allows us to demonstrate our current products to a large number of potential customers, but affords us the opportunity to meet with the best of the best in the manufacturing sector and discuss the potential for working together."

Along with current manufacturers like PennBarry, MetalAire, Jay R. Smith, Mars Air and BLE Group, EIC showcased products from Tower Tech Inc. and Burnham Commercial Boilers.

Tower Tech Inc., from Oklahoma City, OK, is an innovator in the cooling tower industry, manufacturing a line of patented, high-efficiency cooling towers since 1985. Burnham Commercial Boilers of Lancaster, PA, is a leading manufacturer of high-quality, boilers and control systems for commercial and industrial applications, serving the international market for more than 150 years. 🇸🇦



FADI SALIBI | PHOTOS



Energy International Corporation's booth at the 2012 Big 5 Show in Dubai, UAE, (top) draws potential clients and customers from more than 60 countries, all looking to do business in the Middle East. The show affords EIC's management the opportunity to meet with manufacturers who are looking to partner with reputable companies in the MENA region. EIC CEO Ned Fawaz (seated on left in photo at left) and Energy Industrial Manager Wissam Fawaz (standing) meet with a couple of gentlemen to discuss business.




EIC NEWS

The Latest News



EIC U.S. Office Staff Plans for Future Company Growth

Energy International U.S. Headquarters staff participated in an off-site workshop on Thursday, Oct. 4, 2012 at the Dalhman Campus Inn in Ann Arbor, Mich. All 22 members of the Canton staff were in attendance, participating in two, four-hour sessions to brainstorm ideas that will help grow EIC's business in the future.

The workshop was facilitated by Rick Venet of ROI Strategic Business Solutions who led the staff through a team-building exercise and helped with building a mind map to understand the companies strengths. 

The EIC staff (above) participates in a forward-thinking exercise with group moderator Rick Venet. Staffers (left) place dots on a mind map developed during the workshop exercise.



PROJECT NEWS

Verdun Heights Tower - Beirut, Lebanon

Building Green in Lebanon

Beirut's Verdun Heights tower uses PennBarry fans to achieve LEED certification

Verdun Heights is a new residential development under construction in Beirut, Lebanon. The exclusive high-rise property sits on two adjacent blocks (A and B) occupying 2,648 square meters on the Main Verdun Street in an upscale section of Beirut overlooking the Mediterranean Sea.

The building features 17 floors and six basement levels. There are 249 spacious apartment units (three per floor) ranging in sizes of 260 square meters, 300 square meters and 360 square meters. Retail shops, cafes and boutiques will occupy the street level spaces.

Verdun Heights' residents will be treated to the highest standards for international security and safety while enjoying the most elegant amenities.

Verdun Street is in the heart of Beirut's elegant, upscale shopping district. Verdun is Lebanon's Answer to "Fifth Avenue" occupying a distinct place in the Lebanese Shopping and Entertainment Scene. You can find top names like Massimo Dutti, Armani, Christian Dior, Springfield Timberland, Oysho, Mango, and Zara. Shops and boutiques are distributed among several shopping centers and along the street's sidewalks forming a retail haven for all shopping-addicts. The most famous of these is the Verdun 732 Center and Dunes Mall.

Verdun Heights is one of many construction projects in the Middle East



The Verdun Heights Tower (shown in this illustration) with its modern, elegant design will provide occupants with all of the amenities of upscale urban living.



PROJECT NEWS

Verdun Heights Tower - Beirut, Lebanon

that is designed with the intention of being LEED certified. Green building design and construction has become one of the top priorities throughout the region. In 2007, the Pacific Controls Headquarters in Techno Park, Dubai gained the honor as the first LEED Platinum rated building in the Middle East and the 16th in the World.

The United States Green Building Council, (USGBC) developed the Leadership in Energy & Environmental Design (LEED) Green Building Rating System. The non-profit organization that oversees the implementation of LEED certification, lists 1,188 lead certified projects in the Middle East. Verdun Heights is one of 24 projects in Lebanon.

Using the LEED rating system, a project can become certified by earning points for green building processes, systems and materials. The four levels of LEED certification are General, Silver, Gold and Platinum (the highest level).

The Project Checklist is made up of several sections with a number of Prerequisites and Credits within each section. For Verdun Heights to achieve LEED certification all sections of LEED must be met and LEED certified projects are required to provide annual energy consumption data to maintain their LEED status.

Verdun Heights owner, MEDProperties, a real estate management and development company in Beirut, worked with G,



Verdun Heights apartments feature a sleek modern design with large glass areas that flood the space with natural light while providing a stunning view of the city skyline and Mediterranean.

a full-service carbon consulting and carbon offsetting non-governmental organization located in Beirut that provides services throughout the Middle East.

G is the only Lebanese Non-Governmental Organization (NGO) that is a member of the USGBC and works closely with the Minister of Environment Municipality in Beirut on increasing the number of LEED compatible construction projects among other green initiatives.

The contractor chose Energy International to supply PennBarry fans for the building's HVAC system. EIC works with manufacturers like PennBarry

who understand the importance of developing products and processes that help builders receive LEED Certification.

PennBarry, headquartered in Plano, TX, USA, is a member of the U.S. Green Building Council and is committed to green building and the environment on every level of the company. The company currently has one LEED AP and 3 LEED Green Associates on staff with several more preparing for the exam.

"PennBarry has a thorough understanding of the LEED rating system and green buildings," said Paul Christiansen, Vice President Pennbarry.

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The United States Green Building Council lists 1,188 lead certified projects in the Middle East. Verdun Heights is one of 24 projects in Lebanon.



PROJECT NEWS

Verdun Heights Tower - Beirut, Lebanon

"At PennBarry, we are part of a corporate community that cares for our environment. All PennBarry employees have taken personal and corporate responsibility for our individual and collective levels of energy consumption and waste production."

"As a fan manufacturer, it is our responsibility to provide energy savings solutions to the market," said Christiansen. "Capitalizing on our knowledge of the HVAC industry, LEAN manufacturing, and product value analysis, PennBarry will continue to lead the industry in improving the efficiency of fan systems in new and existing buildings."

Fans are key components of a building's HVAC system, and major contributors to energy use in the building. PennBarry is working with the industry to improve the efficiency of fans and reduce their energy consumption meeting the industry's goal of net-zero by 2013.

Proper fan selection is a key factor in earning LEED certification. LEED is a system based on synergies. While a specific fan model can't automatically achieve a LEED point, fans provide the supply and exhaust air that contributes to many LEED credits. Proper fan application helps to meet a number of ASHRAE standards for



PennBarry Dynamo fans (above left) and Fumex fans (right) were sourced for the Verdun Heights project. Proper fan selection was critical in earning the credits to receive LEED certification.

indoor air quality – standards required to receive LEED Indoor Environmental Quality (EQ) credits.

LEED certification credits can also be earned through energy savings through the LEED Minimum Energy Performance and Optimized Energy Performance credits.

The HVAC system can account for nearly 40 percent of energy use in a structure and the fans can contribute to nearly 40 percent of that. Proper selection of the HVAC system, and fans for that system, are critical for achieving multiple points for the Optimized Energy Performance credit.

EIC's technical engineering staff is

well versed in the proper selection of fans for each project. The Verdun Heights project called for 32 units. A combination of Dynamo, Fumex and SX InLiner fans were selected to meet the specifications set by the contractor and HVAC design engineer while taking into consideration all aspects of the system including efficiency, airflow, pressure, noise, and system effects, helping the Verdun Heights project qualify for its LEED certification.

The units will be manufactured at PennBarry's facilities in Lebanon, Indiana and El Paso, Texas and shipped to the job site in Lebanon. ■

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PROJECT NEWS

Haramain High Speed Railway - Jeddah, Makkah, Saudi Arabia

Riding the Rails in Comfort

EIC air movement products provide a comfortable climate for those waiting on the train

The Saudi Railways Organization (SRO) signed a USD\$8.5 billion contract with a Spanish consortium to construct the Haramain High-Speed Railway, linking the cities of Makkah and Madinah to the Red Sea coastal city of Jeddah and the King Abdullah Economic City.

The consortium is made up of Spanish public rail companies Renfe and Adif, private builders OHL, ACS and Indra and Saudi companies Al Shoula and Al Rosan.

The contract calls for the construction of 450 km (280 miles) of high-speed track, six stations, 46 trains and maintenance and support for 12 years.

The double-track line will be electrified and designed to accommodate speeds up to 360 kilometers per hour (220 mph). At those speeds, the 78-kilometer (48 mi) trip from Jeddah to Makkah will take less than half an hour and the 410 kilometer (250 mi) ride from Jeddah to Madinah will take about two hours.

At full capacity, the high-speed rail system and its six stations is expected to service more than 3 million passengers a year, or about 160,000 per day.

The high-speed rail system was conceived to address the transportation needs of the growing number of pilgrims visiting Makkah, Umrah performers, and the people of the city. The train service was chosen as the best option for providing safe, comfortable



These illustrations of the Jeddah High-Speed Rail Station showcase the organic design including a roof ornament that resembles a large palm frond. The modular design uses a theme of arches that connect to form a flexible vaulted roof that provides for future expansion.

transportation for pilgrims and to relieve the congestion on local roads in the region.

The project is being constructed in two phases. Phase 1 includes the civil works (with work beginning in 2009), and the construction of four of six stations (Makkah, Madinah, Jeddah and the King Abdul Aziz Airport). The fifth station will be located at the King

Abdullah Economic City near Rabigh, which is currently under construction. A sixth station at Abyar Ali near Madinah was added to the original scope of the project by order of Crown Prince Naif, deputy premier and minister of interior. The station will be primarily used as a stopping point for pilgrims who will use the station to

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PROJECT NEWS

Haramain High Speed Railway - Jeddah, Makkah, Saudi Arabia

change into their ihram before heading into Makkah for Haj or Umrah.

Phase 2 includes the remaining infrastructure not included in Phase 1, construction and installation of the railway tracks, signaling, telecommunications systems, electrification, the operation control center and the procurement of the rolling stock and the operation and maintenance of the railway for a 12 year-period after completion.

Talgo will supply 35 Talgo 350 trains, similar to those used on the Spanish high speed lines, with an option for 23 more.

A joint venture between Foster + Partners and Buro Happold in collaboration with local architect Dar Al Riyadh, won a \$38 million contract to design four of the six stations (Madinah, Makkah, Rabigh and Jeddah). Saudi Binladin Group has been selected as the contractor for the Madinah and Makkah stations while Saudi Oger will oversee construction of the Jeddah and Rabigh stations.

The stations are designed to be more than just gateways to their respective cities, but serve as civic and social centers, with numerous shops, cafes, restaurants and meeting places all sheltered from the hot sun under beautiful arched roof canopies.

The basic design, common to all stations, features a 25-meter (82-foot) high arch rising over the main concourse,



The completed 450 km railway will connect Madinah with the King Abdullah Economic City, King Abdullah International Airport, Jeddah and Makkah at the other end.

complimented by a series of smaller nine-meter-high (29-foot) arches at the platform level. Supported by freestanding structural trees, repeated on a 27-meter (88-foot) grid, the arches connect to form a flexible vaulted roof that can be configured to handle passenger flows while providing for future expansion. The designers say that altogether, the stations will cover an area more than 30 times the size of London's Trafalgar Square and will accommodate up to 60 million passengers.

As passengers enter the stations, they will notice the large circular chandelier

that is the focal point. The glowing band of the chandelier is made up of a series of connected prisms designed to catch the light passing through the opening in the roof, reflecting the refracting the light onto the soffit and concourse floor. This natural light show will change patterns and colors as the sun moves across the sky. Secondary spherical chandeliers, suspended between the arches, provide focused lighting.

Each station is differentiated by the use of a variation of colors and textures and a unique combination of different facades. Solid facades are used to reduce solar gain and oriented where visibility is not a concern. The glazed entrances to the concourse and platform areas are concealed behind a combination of external mashrabiya (a traditional Arabic architectural element consisting of a projecting oriel window enclosed with lattice work) along with overhanging roof canopies providing additional shade.

The stations are decorated in their own specific color palettes, indicative of the city in which they are located. The station at Makkah is adorned in gold leaf, a reference to the decorated Kab'ah and the city's significance as a holy site. The Medina station wears vivid green colors inspired by the Mosque of the Prophet. The Jeddah station is done up in a shade of purple that has specific

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Energy International Corporation (EIC) has been chosen to supply industrial ventilation equipment to the construction of the Jeddah and Rabigh stations.



PROJECT NEWS

Haramain High Speed Railway - Jeddah, Makkah, Saudi Arabia

significance to that city, while the Rabigh station at the King Abdullah Economic City (KAEC), is decorated in blue and silver representing KAEC's role as a modern city.

Energy International Corporation (EIC) has been chosen to supply industrial ventilation equipment to the construction of the Jeddah and Rabigh stations.

EIC sourced from several U.S. and European manufacturers to supply the necessary equipment to outfit the first two of six stations on the High Speed Rail line.

Each station will utilize 66, eight-foot, Isis commercial fans, manufactured by Big Ass Fans in Lexington, KY, USA, to move cool air from the ceiling air conditioning units down to the station platform. Weighing in at less than 100 pounds, the eight-foot diameter fans are specifically designed for commercial spaces and can be installed in areas with ceilings as low as 12 feet.

The Isis fans will be installed in the ceiling over the passenger platforms, gently pushing cool air down on passengers as they wait for the trains to arrive.

Isis fans feature a patented, aerodynamically-inspired airfoil design that increases downward velocities to stabilize air movement. When integrated into the station's HVAC system, the Isis provides a cost-effective method of cooling by improving air circulation.

The cooling effect created by the breeze from the fan reduces the load on the building's cooling system. BAS says that in a typical application, many customers can save 25 percent or more on heating and cooling costs.



Eight-foot Isis fans (left) by Big Ass Fans in the U.S. will be suspended over the passenger platforms (illustrated above). These large, low speed fans help circulate cool air throughout the passenger loading area.

The Isis fans will be installed above the train platforms. Energy international's shipping department will handle the details of shipping the Isis fans from Kentucky to the port in Jeddah, Saudi Arabia.

Along with the Isis fans, Wolter AXVAL1250 and AXVAL1000 axial fans will be mounted horizontally at the peaks of each of archways that make up the platform. Serving like jet fans, the Wolter units will help circulate air to aid in keeping a constant temperature throughout the platform area.

EIC is also supplying PennBarry Zephyr and Inliner fans to the project.

These fans will be used throughout the commercial, office and retail areas including kitchen area and toilets to exhaust used air to be replaced by clean air coming from the central chiller plant.

The Wolter fans are manufactured at the company's factory in Malsch, Germany. The PennBarry Zephyr and Inliner fans will be made at Penn's El Paso, Texas factory in the U.S. The Zephyr Twin fans are a proprietary product made by EIC's factory in Sharjah, UAE. The EIC factory is licensed to manufacture PennBarry products in the Middle East. ■



PROJECT NEWS

King Abdullah Financial District - World Trade Centre - Riyadh, Saudi Arabia

Contributing to a Financial Success

EIC sources MetalAire air terminals to the construction of the KAFD World Trade Centre

The King Abdullah Financial District (KAFD) broke ground in 2007, many of its 30 towers are well on the way to completion. Situated northwest of Riyadh city center in Saudi Arabia, KAFD is envisioned as a state-of-the-art and fully self-contained financial mega-center on par with the likes of America's Wall Street and the International Finance Centre in Hong Kong.

When completed, the site, covering 1.6 million square meters, will have floor space for over 3 million people and house the headquarters for the Capital Market Authority (CMA) and the Stock Exchange (Tadawul), along with a number of the world's major banks, financial institutions and professional service companies already operating in Saudi Arabia.

A focal point of the development, known to contractor Saudi Binladin as parcel 1.15, will be the KAFD World Trade Centre, the second tallest tower at KAFD. The USD 68.2 million structure will reach a height of 303 meters (67 floors) with space designed to accommodate office, retail and residential tenants.

Gensler, an international architectural firm with headquarters in San Francisco, USA, was commissioned by Saudi Binladin and the Riyadh Investment Company after their design was chosen as the winner of an international design competition.

The designers followed master plan guidelines that stipulated a



The World Trade Centre, shown in the illustration above, will be the second tallest structure at the King Abdullah Financial District.

'faceted' architectural design, and clear regulations regarding the height and parcel footprint.

The Gensler design team said the client brief was simple; to provide 1.5 million square feet of office space. Through an 'optioneering' process,

the architectural team was able to quickly define the client's key business objectives, while easing any client concerns regarding the adjacent CMA Tower, which would be taller with larger center core floor plates.

Gensler envisioned the World Trade Centre as an iconic architectural landmark and gateway for international trade. The super-tall tower is designed specifically to cater to small and medium sized tenants seeking the prestige and amenities normally associated with global headquarters. This was accomplished with the creation of the 'Vertical Wadi'; a formal and organizational spine that visually and physically splits the building mass up the middle, effectively splitting the floor-plate, creating a living environment at the heart of the tower.

Designers set the tower's floor-plate at four tenants per floor, each with their own front door into the atrium areas. The creative design solution eliminates the disorientating race-track landlord corridor, providing access to views of the city.

The tower is divided into office zones of 12 floors and then again into business communities of three levels creating a scalable working environment. Smaller tenants share in the high proportion of managed amenity space, ranging from a full conference auditorium to executive club areas and business lounges.

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PROJECT NEWS

King Abdullah Financial District - World Trade Centre - Riyadh, Saudi Arabia



The monolithic facade, shown above, draws inspiration from a solid rock, cleft in two, to create a vertical wadi. The interesting architectural facade of the World Trade Centre takes shape as the tower rises to its 30-story height, (right).



The general public is also invited to experience the building with access to an observation deck on the top floor.

The monolithic facade draws its inspiration from a solid rock, cleft in two, to create the Vertical Wadi. While the design appears to be random it is actually formed from a series of repeating modular GRP (glass fiber reinforced plastic) molds. The Vertical Wadi opens dramatically at the base of the tower, creating a spacious Financial Plaza. Pedestrians can navigate through the communal area that connect the plaza to the larger, main retail and cultural areas. The interior areas are animated and interconnected, providing comfortable spaces for informal gatherings.

The tower's interior is clad primarily in back-painted glass of varying tones and transparencies, creating a smooth and gradually intensifying color experience as

it travels deeper into the building, much like a slice through a gorge.

Completion date for the tower is set for some time in 2014.


Energy International was chosen to supply constant volume air terminal units to the construction of the tower. MetalAire single duct terminal units are at the core or today's variable air volume (VAV) systems. The primary function of the single duct terminal unit is to regulate conditioned air flow into an occupied zone in response to a control signal. In essence, VAVs are used to control room temperatures in the many segregated zones within the structure. This allows each area of the building to adjust the temperature of that area without affecting other areas of the building.

MetalAire VAVs also lower the overall operating costs by keeping a moderate climate from floor one to floor 67 while


EIC Provides Products and Support to the Entire KAFD Project

EIC is one of the Middle East's leading suppliers of HVAC equipment.

Along with the MetalAire air terminals supplied to the World Trade Centre, EIC was also tapped to provide a number of other products to several other structures being built within the massive complex. Those include air terminals and controllers to parcel 4.10 and 4.11, 30-floor and 21-floor office, residential and commercial buildings under construction by Saudi Binladin Group.

Additionally, EIC is supplying expansion joints to the construction of the Conference Center and PennBarry fans and valves to the construction of the five parcels that will make up the Financial Plaza that includes the World Trade Centre. 

using less central fan energy and reducing the amount of refrigeration needed to keep the building cool in a climate that sees temperatures averaging +40°C.

They will be manufactured at Energy International's factory in Sharjah, United Arab Emirates. EIC's Sharjah facility is licensed to produce a number of MetalAire products. Each of the 344 TH-500 units is specifically-engineered to meet the technical criteria required by the contractor. The units will be shipped from the MetalAir factory in North Carolina to the job site in Riyadh, Saudi Arabia for installation. 



FEATURES

Saudi Oger Basketball League

EIC Gets in the Game

HAPCO and EIC sponsor team for this year's Saudi Oger Intercolor Basketball League



Move over LeBron James and Kobe Bryant, there's a new name joining the world of international basketball. Energy International Corporation has teamed up with contracting company HAPCO as co-sponsors of the HAPCO SITE basketball team that will compete in the Saudi Oger Intercolor Basketball League "Chairman's Cup" sponsored by the Saudi Oger Basketball Council.

The League was established by contractor Saudi Oger Ltd. to develop the

spirit of camaraderie and sportsmanship among the company's many sub-contractors and their employees who make up the teams competing in the tournament.

"The Game of Basketball is a favorite pastime and very popular among the Filipinos," said Doy Robles, HAPCO, "Basketball tournaments are held in various parts of the Kingdom during the end of the summer to the early winter period (August to December)."

This year's tournament will be held at the CICONEST Basketball Court at the Saudi Oger Diriyah Camp with two divisions competing. Two teams will vie for the 5' 10" and under title, while 19 teams play for the 5' 8" and under championship.

HAPCO SITE will field a team of 15 consisting of engineers and skilled and unskilled workers from the PNU site. All of the players are amateurs and Robles says the team is competitive. 🏀



FEATURES

Energy International Shipping Department

From Here to Eternity

EIC's shipping experts handle the big job of getting EIC products to the customers around the world

You don't become a leading supplier of HVAC and electro-mechanical equipment without selling a lot of product. But the work doesn't end once the quote has been accepted and a purchase order or letter of credit has been issued. In fact, for Energy International's Shipping Department, that's when the real work begins.

EIC's Shipping Department is responsible for a lot more than shipping. They work with EIC's sales engineers and suppliers to place orders, set manufacturing schedules, enter order information into the company's accounting system and handle all the logistical and international customs paperwork for each project that comes across the transom.

Manager, Beth Rutkowski, oversees all shipping with primary responsibilities for the EIC's offices in Beirut, Lebanon, Doha, Qatar as well as all shipments to Energy industrial, the company's factory in Sharjah, UAE and shipments to Saudi ARAMCO, Saudi Arabia's National Oil Company.

For many years, Beth was the entire EIC shipping department. The first employee hired by company CEO and founder Ned Fawaz, Beth has been with the company form more than 30 years.

Tracey Baughman, who will be celebrating her twelfth year with EIC this coming April, handles Saudi Arabia, Sharjah and Abu Dhabi in the UAE, Jordan, domestic shipments and orders for countries such as Oman and Egypt where EIC has yet to open an office.



Shipping Manager Beth Rutkowski (right) and Tracey Baughman handle all of the paperwork, logistics and other issues involved with getting EIC's products shipped from the U.S. to the Middle East.

Answering an inquiry, preparing a quote and securing the order are only about half the process of completing a job. Once a quote has been negotiated and accepted by the customer, a purchase order or letter of credit is sent in by the customer and forwarded to the appropriate expediter.

The expediter opens the job by entering the basic information into the Job Book including the Inquiry/Quote number, customer name, project name, product, manufacturer and a dollar value for the order. The job book is used to create a shipping log to allow each expediter to

keep track of the many shipments that go out each month.

An order number is assigned to the project and relayed to the Database Manager who updates pertinent information in EIC's Customer Relations Management (CRM) system. The information allows management to keep track of company performance and revenue.

Once the order is opened, the expediter sends the customer an "Order in Process" e-mail informing them that their purchase order or letter of credit has been received and an order is being
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FEATURES

Energy International Shipping Department



Energy International has a fully-functioning warehouse as part of its corporate headquarters. Whether its fans for Beirut, filters for Qatar or hose clamps for Saudi Arabia, items that are not shipped directly from the manufacturer come through the EIC warehouse. Each shipment is cataloged, packaged, palletized and shipped off to customers around the world.

processed. They are also informed as to which EIC expeditor and engineer will be handling the order and are given the EIC order number as a reference number for all future correspondence.

The expeditor and sales engineer work together to produce a cost sheet that lists the cost of the product, selling price and the amount of profit expected to be made on the sale. The information on the cost sheet is entered into EIC's accounting management software system to set up and to produce an invoice and collect payment. The sales engineer then places the product order with the manufacturer.

"Manufacturers like PennBarry (industrial fans) and MetalAire (air terminal boxes) have set up systems that let us submit orders over the internet," says Baughman. "Other manufacturers require

that purchase orders be typed and faxed or sent to them via regular mail."

When the manufacturers receive the order and schedule it into the production calendar, they send an acknowledgement back to the sales engineer and expeditor to let them know the order was received and what was included in the order.

Next, the order is entered into EIC's accounting system and an acknowledgement is generated. The expeditor has to enter each product as a line item along with the cost of each item and the build date from the factory. The acknowledgement is passed by the sales engineer for one final go-over before being forwarded to the customer.

For one PennBarry fan job, Baughman had to key in more than 700 line items. Each line item consists of the fan model

number along with all of the particular components that go in to a fan. Some fans can have as many as 40 lines of information that need to be entered for each fan. A 700 line item order could mean entering more than 20,000 lines of information into the accounting system for one order. That is no easy feat.

For very large jobs, the orders are often broken up into several parts, usually dictated by the number of items that will fit in a shipping container. This makes it easier on the manufacturer in setting up the build schedule and creates a more efficient means of entering the items into the company's accounting system.

"If there is a change in the order, we have to re-enter the order into the accounting system and generate a new acknowledgement," says Baughman. "You can imagine the time it would take to have to re-enter a 700 fan job if there are several changes to the order during the shipping process."

Once the products are ordered and scheduled to be manufactured, the expeditors move on to the next major step in the process, getting the finished product from the factory to the customer. This includes scheduling forwarders to truck the product from the supplier's plant to sea port or airport, and filing all the necessary paperwork to clear customs in the country that the shipment is being delivered to.

EIC's expeditors work with a number of forwarding companies and international forwarding agencies. The expeditors solicit quotes from several forwarders for each project. There are several variables involved in choosing a shipping agent, such as the type of shipment, what
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FEATURES

Energy International Shipping Department



Several of the engineers are trained to do double duty driving the hi-lo. Above, Alex Fawaz moves a pallet load to an awaiting truck for shipment to the airport to be air-freighted overseas.

manufacturer's product is being shipped and what country it is being shipped to.

"One forwarder may be better at shipping full container loads, while another might be best suited to ship LCL (less than a container load) or air freight shipments," says Baughman.

Beth and Tracey have a list of agents that they work with, and often solicit for quotes from newcomers to see how they stack up against their usual go-to companies.

"We get companys soliciting us for business all the time," Rutkowski says. "I will give a few of them a chance to quote on certain projects if I feel they might be a viable option for future shipping jobs."

Larger orders, like many from PennBarry, are packed in full containers. A standard

shipping container is 40 feet (12 meter) long by 8 feet (2.5 meter) wide by 8.5 feet (2.6 meter) tall and can hold up to 2,350 cu. ft. (66.5 cubic meters) of cargo. PennBarry loads the containers right at their factories in El Paso TX, and Lebanon, IN.

The smaller LCL (less than a container load) orders are stacked on pallets and banded and wrapped. Air freight shipments need to be fully crated. All shipments to Saudi Arabia need to be loaded on heat-treated wooden pallets. As a result of the Emerald Ash Borer infestation in the U.S. in the 1990's, the Saudi government required that all wooden pallets be heat-treated to prevent the pests from entering their country.

"The manufacturers that we do most

of our business with, like PennBarry and MetalAire, buy their own heat-treated pallets," Baughman says. "For others, like Mars Air in California, we have to buy heat-treated pallets and ship them to Mars before they'll pack the products for shipment. All of those extra expenses have to be factored in the shipping costs."

Container shipments can be booked in advance. Often, the chosen forwarding agency will have a truck drop off the containers for loading and return to pick them up at a later date for transport to port. At times, the amount of product being shipped overseas can be staggering. As of November 1, Baughman had scheduled 42 full containers of Penn fans to be sent out by the end of the year for a project in Jeddah.

All general fans manufactured at PennBarry's El Paso, TX plant ship out of Houston, TX if they are going Lebanon, Jordan or to Jeddah, on the eastern coast of Saudi Arabia. Product heading to western Saudi Arabia and other Persian Gulf countries such as the UAE and Qatar ship out of San Pedro, CA.

The larger Penn industrial fans, made in Lebanon IN, and MetalAire products coming from North Carolina ship out of the east coast ports, primarily New Jersey and New York.

"Interestingly," says Baughman, "the fans shipping out of Houston get there much faster than the fans shipped out of California. I think that has more to do with how long the containers sit at the port, and not how long they are on the water."

Once the forwarding agent is assigned, the customs paperwork begins. A Master Bill of Lading is sent to the forwarder. A copy of the Bill of Lading is sent to *continued on next page*



FEATURES

Energy International Shipping Department

the customer to advise them that the shipment is on its way.

The expeditors also fill in a Certificate of Origin (country of origin for the product), and a packing list. All documents have to be signed and stamped in blue ink and "chamberized." EIC documents carry the stamp of the American Arab Chamber of Commerce. The country of origin has to be marked on the product "In an unremoveable way." The shipper has to pay a fine if the rules are not followed and on rare occasions the shipment can be returned.

"We had a shipment of Zephyr fans from PennBarry that were labeled "Made in Mexico" and Penn forgot to inform us," says Baughman. "We filled out the paperwork listing the fans as having been "Made in the U.S." and the shipment was sent back. We had to revise all of the documents and send the shipment out again."

Once the products are on the ocean or in the air, arrangements are made to get the shipment through customs. This varies by the terms of the agreement with the customer.

If the terms are C&F (cost and freight) to the port of origin, then the responsibility for clearing the shipment goes to the customer. For a recent large project in Makkah, Saudi Arabia, EIC handled everything including delivery to the site.

Most all shipments to Dammam, Saudi Arabia are handled by Joint Gulf Business (JGB) a contractor that serves as an agent

for EIC in the eastern Saudi market. Most of the products they help clear and ship are for construction projects they are working on in the region.

"JGB works with its own agent," says Baughman. "They handle clearance through customs and delivery of the product to the job site. JGB also works with EIC's Riyadh sales office to handle shipments for projects in and around Riyadh."

Some countries are very strict in how they clear shipments through customs. Beirut, Lebanon requires that the paper work exactly match the shipment in the number and what types of products, weights and measures.

EIC works with some large domestic contractors who do work for the U.S. government and military. They require special forms be filled out before product is shipped. On occasion, a customer will ask for an inspection done in the U.S. before a shipment leaves for overseas.

Once the shipment arrives a delivery note is sent to the customer. The customer signs the delivery note as acknowledgement that they received the goods that were ordered, informing the shipping department if there are any problems.

If the problems are technical, such as a wrong fan or wrong motor, Beth or Tracey will get the sales engineer involved in a joint effort to find a solution.

Some problems are out of the control of the shipping department.

"Customs can change the rules and requirements anytime they wish without prior notice," says Rutkowski.

The Qatari government has tightened restrictions on the import of construction products as the country is in the midst of construction frenzy as it prepares to host the 2022 World Cup.

"I had three shipments on the water on their way to Qatar and the Qatari Minister of the Interior decided to raise the tariff on fans, says Rutkowski. "We had to wait until the shipments arrived and re-file the paper work so they could clear customs. That added to the shipping costs."

"As a result, we are no longer shipping "fans" to Qatar," says Rutkowski. "They are now called "HVAC Machines."

Rutkowski says shipments have also been left sitting at international airports while paperwork is revised to meet new rules.

Amazingly, with more than 30 years shipping history at EIC, there have been very few disasters. Baughman has never had a ship sink and has only had to file one insurance claim since she has been at EIC.

Beth lost a container of tires that was one of a dozen washed off the deck of a ship during a storm many years ago.

"We've probably filed less than 10 insurance claims in 32 years," says Rutkowski. "That's a testament to the shipping companies and to our suppliers who know how to pack goods for overseas shipment." 📦

*"We've probably filed less than 10 insurance claims in 32 years," says Rutkowski.
"That's a testament to the shipping companies and to our suppliers who know how to pack goods for overseas shipment."*



PRODUCT SPOTLIGHT

PCM Products Thermal Storage System

A Natural Alternative to Energy Reduction

PCM Solutions Thermal Energy Storage system reduces energy usage and environmental impact

Office and retail employees at the Jeddah rail station can thank Energy International Corporation (EIC) as they work in cool comfort. EIC not only provided the industrial fans that help move air throughout the office and retail areas of the complex, but also supplied an integral part of the station's air conditioning system – a Thermal Energy Storage system that reduces energy usage and environmental impact.

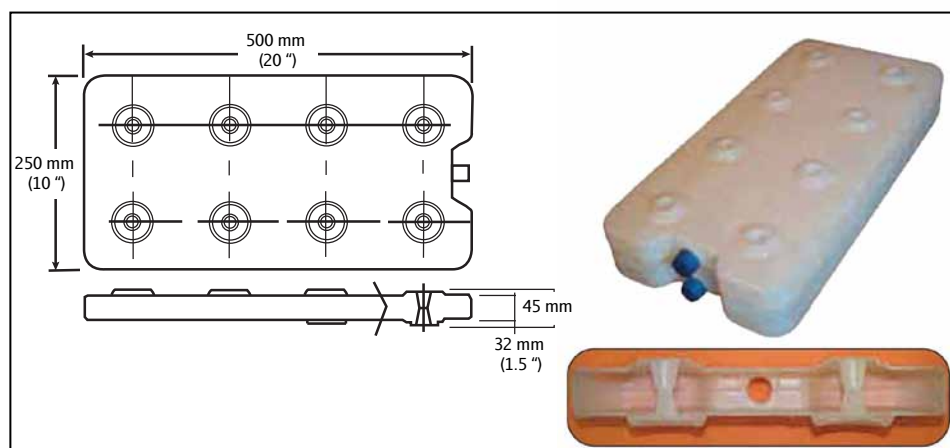
Like most of today's large industrial and commercial buildings, the new Jeddah station, part of the Haramain High Speed Rail System in Saudi Arabia, uses a chiller plant as an efficient means of cooling.

Chillers are large heat exchangers, providing cool air to the building by removing the heat from the air through a condensation process.

The air conditioning system pumps chilled water through a pipe loop to a number of Air Handling Units (AHUs) located throughout the station. Each AHU is equipped with a valve that varies the amount of water going to the unit's coils, controlling the temperature of the air coming out of the AHU.

The room heat is absorbed back into the fluid and returned to the evaporator side of the chiller where it is cooled back down by transferring the heat to the condenser side, a separate water loop.

The condensed water is pumped out to cooling towers situated outside of the



PCM Solutions FlatICE containers are constructed of blow-molded HDPE, filled with S10 PCM solution and welded shut on the end to prevent leakage. A standard container is 500 mm x 250 mm x 45 mm and is baffled for added strength when stacked.

building. The water flows into the top of the cooling tower where it rains down through the tower and is cooled by fans mounted at the top, side or bottom of the tower, depending on cooling tower design.

The cooled water is pumped back to the condenser side of the chiller where it repeats the process of being pumped through the building providing cool air and removing the heat.

To help the system run more efficiently, designers specified a Thermal Energy Storage System to be integrated into the chiller plant.

Thermal Energy Storage (TES) is the temporary storage of high or low temperature energy for later use. The systems are designed to make up the difference between energy requirements and energy usage. A thermal storage

application can be designed for continuous 24-hour operation or can be set up for weekly or even seasonal storage depending on the requirements of the system. While output is always thermal, input can be either thermal or electrical.

Contractor El Seif turned to Energy International to supply the Thermal Storage system for the Haramain stations. EIC sourced the system from PCM Products Ltd. of Yaxley, Cambridgeshire, UK, working with PCM engineers to design a custom system that met the requirements of the project.

Thermal storage systems are an ideal application for providing efficient cooling in extreme hot climates like those found in western Saudi Arabia, where the stations are located.

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PRODUCT SPOTLIGHT

PCM Products Thermal Storage System

At night, when the external temperatures are lower and chiller efficiencies are higher, the water from the chillers passes through the TES tank charging the system. The stored energy can then be tapped during the hottest part of the day providing extra power to the chillers during peak load periods. This "load shifting" provides reliable operation of the chiller system while lowering annual electrical energy costs.

In some cases the added energy source allows system designers to specify smaller machinery resulting in more than just cost savings. The smaller system occupies a smaller footprint and uses less energy resulting in a reduction of both direct and indirect CO₂ emissions.

PCM Products' provides custom-designed PCM systems that match TES capacity with system loads for more efficient performance. This allows the chiller to run longer with fewer stop/start operations reducing maintenance costs. Customized solutions offer quicker response compared with other TES systems on the market. As an added advantage, the Thermal Energy System can also be used as a power back-up in the event the main system shuts down.

The energy is stored inside the system through the use of Phase Change Materials (PCMs). The hydrated, salt-based liquid stores and releases thermal energy during the process of melting and freezing (changing from one phase to another).



The FlatICE containers are designed to stack on top of each other forming a self-assembling heat exchanger within the tank above and top right). The Jeddah station project will utilize a 2.5 meter by 8 meter pressurized tank, like the one illustrated above left, that will house 5,500 FlatICE containers.

When PCMs freeze, large amounts of energy are released in the form of latent heat of fusion or energy crystallization. Conversely, as the material melts, an equal amount of energy is absorbed from the immediate environment as the material changes phase from solid to liquid.

For the Haramain High Speed Rail project, the PCM solutions, with operating temperatures between -400C (-400F) and +1170C (+2430F) are encapsulated in PCM Products Ltd.'s FlatICE sealed containers. These containers are easily adaptable to either air or water based TES systems.

FlatICE containers are constructed of blow-molded HDPE and will be filled with S10 PCM solution. The rectangular design allows the containers to easily stack on top of one another forming a flexible, self-stacking heat exchanger. The units are designed to stack leaving a small

gap between containers allowing air or water to flow easily over the containers while providing a large surface area for heat transfer.

The Jeddah station project will utilize a 2.5 meter wide by 8 meter long pressurized tank to house the 5,500 FlatICE containers. The system is designed based on required energy storage of 1,200 kWh using +7C chilled water.

The thermal storage system will be integrated into the station's building management control system, allowing operators to monitor load pattern, water flow rates, water inlet/outlet temperatures, ambient pattern/temperature, cooling/heating equipment status, storage media status and electrical conductivity reading.

The system is under construction in PCM Product's UK plant and will be delivered to Saudi Arabia by boat where it will be trucked to the construction site. 🇸🇦



PEOPLE NEWS



EIC's U.S. staff (top left) enjoy a game of Deal Or No Deal with host Allie Bazzzy(left). The game has become a tradition at the annual Holiday party. Tina Troppi (top right) receives the surprise of her life as Ali Fawaz pops out of a large box. Ahmed Chughtai (below left) was this year's lucky winner of an Apple iPad. Tracey Baughman (below right) receives her Outstanding Achievement Award from President Allie Bazzzy. She was one of six employees receiving awards for assisting EIC in meeting the 2012 sales goal.

EIC U.S. Celebrates the Holidays

The Energy International U.S. staff gathered together on Friday, December 21, 2012 for their annual holiday party, held at Andiamos restaurant in Dearborn, Mich. The group enjoyed a delicious lunch and an enjoyable afternoon of games, raffles and a gift exchange.

Sales Achievement Awards were given to Alex Itawi, Ali Fawaz, Chuck Sikora, Salman Bukhari and Jeremy Kellogg. Tracey Baughman received an Appreciation Award Alex Itawi and Bethann Kukla celebrated their 25-year and 10-year anniversaries respectively. 📸

