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Qurayyah Combined Cycle 4,600 MW



“Financial Management role is more complex than ever in exploring ways in which the financial function can bring greater value to their organizations.”


Ghassan Basna
Chief Financial Officer
Arabian Bemco

Financial Management Role

In today's ever-changing business environment, Financial Management role is more complex than ever in exploring ways in which the financial function can bring greater value to their organizations. To this end, they are transforming their organizations from focusing primarily on regulatory reporting to most effectively providing the information that internal management needs to more effectively “run” the business. This role continues to expand and evolve.

Financial executives must now think beyond the traditional financial information contained in general ledger systems and consider how to best provide for the comprehensive measures and analytical methods needed to drive decisions throughout complex, dynamic, competitive and risky environment.

The evolution of financial analytics has been driven by the emergence of new business models, the changing role of the traditional finance department, modifications to business processes and advances in technology. This dynamic environment presents the finance function with tremendous opportunities and challenges. Finance Management role entails detailed knowledge of the organization's business, awareness of market trends, risks and issues, knowledge of Key Performance Indicators (KPI's) in relation to the strategic plan, business performance management and knowledge of competition performance.

Furthermore, it requires evolution in financial planning and reporting for projects and in enhancement of communicating financial information effectively, assessing drivers of profitability, forecasting future performance and identifying corrective action wherever required.

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Qurayyah Combined Cycle Project – 4,600 MW One of the largest and most complex combined cycle power plant ever built in the Kingdom of Saudi Arabia. *p. 05*

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PP12 Combined Cycle Project Sheikh Saleh Bin Laden, Board Member of Arabian Bemco signs contract for PP12 Combined Cycle Project – 2,175 MW. *p. 27*



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Qurayyah Combined Cycle Project – 4,600 MW



Overall Plant and Seawater Intake



Mr. Giovanni Zannerini, Project Director

Sep the 16th of 2009, Arabian Bemco was awarded by Saudi Electricity Company a lump-sum turnkey project to convert the existing units of Al-Qurayyah Open Cycle Power Plant (which was executed and completed by Arabian Bemco in August 2009) to a Combined Cycle Power Plant. The existing plant is based on 15 GE GT's Frame F (ISO 172 MW), 15 GSU's and Unit Transformers. The plant is configured for five power blocks, each block comprising of three GTG's, three HRSG's, and one STG and shall result in a Combined Cycle Gas Turbine net power of approximately 3,190 MW with an expected rating for each of the STG's of approximately 260 MW. Well ahead in

Dec 27, 2010, Arabian Bemco was awarded an extension contract to the existing Combined Cycle by adding a 6th Block with an additional three GTG's, three HRSG's, and one STG.

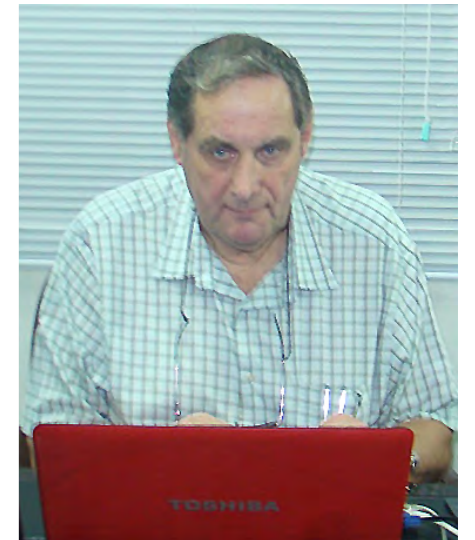
Major Components:

Scope of work of this EPC contract includes design, supply, installation, erection, painting, testing, commissioning and start-up, for the equipment necessary to convert the existing open cycle gas turbine power plant to a combined cycled gas turbine power plant.

Mechanical equipment includes eighteen 7FA GE Gas Turbines, eighteen

HRSG's vertical type (natural cooling), six Steam Turbine driven Generators, six Water Cooled Surface type Condensers (2-pass, 19.8 m³/sec CW flow each), six Generator Step-Up Transformers comprising main tank, conservator, HV, LV, and neutral bushings, Coolers, Fans, instruments, etc., fifty-four Boiler Feed Pumps 3x50% for each HRSG, eighteen Condensate Extraction Pumps 3x50% for each Steam Turbine Condenser, MSF Desalination Plant 5,500 m³/day, Seawater Intake Screens System, twelve Drum Screens, Stop Logs & Flushing water systems for the screen, twelve Circulating Water Pumps 53,200 m³/hr @1.2 mt head 2x70% per block c/w expansion joints, CCCW System for six blocks,

Demineralization plant mixed bed 3x70% streams 2,450 m³ each, Re-mineralization & Neutralization Plants, Chlorination plant, Hydrogen plant, CO₂ System – storage & vaporization, two Distillate Water Storage Tank 10,000 m³ each, one De-mineralized Water Storage Tank 8,750 m³, Fuel Oil Tank 17,000 m³ x 3 numbers, Diesel Oil Tank, De-Min Water Tank 4,500 m³ x 2 numbers., Potable Water Tank 1,000 m³ x 1 numbers, Fire Water Tank 13,500 m³, De-Min Water Tank 2,200 m³ x 2 numbers, Fixed Roof Cone Type, Distilled Water Tank 3,500 m³ Raw Water Fixed Roof Cone Type, Potable Water Tank 1,400 m³ Fixed Roof Cone Type, and Fire Protection & Detection



Mr. Edward Devery, Deputy Project Director



Six Combined Cycle Blocks with three GTG's and 1 STG each

systems. Electrical equipment includes six Generator Step-Up Transformer 386 MVA each, six Generator Circuit Breakers, six Isolated-Phase Bus Ducts, two IPB Taps to Station Transformers from existing IPB's of open cycle GTG, six Unit Auxiliary Transformer, Station Transformers 45 MVA each, Auxiliary Transformers, six Static Excitation Transformers, 13.8 kV Switchgear, Seven (7) 4.16kV Switchgear, LV SWGR, MCC's & Distribution Boards, Protection & Relay Panels, DC & UPS Systems, MV, LV, and I&C cables, Grounding & Lightning Protection Systems, Lighting & small Power Systems and External lighting. Instrumentation and Control includes local Human Machines Interfacing (HMI) DCS

workstation including Simulator, Plant Performance Monitoring Equipment, Continuous Emissions Monitoring System, Load Dispatch: SCADA Data Server, Vibration & Control Monitoring, CEMS, Field Instruments, Extension to the existing DPABX, Extension to the PA and Security Systems, etc.

Civil works involves heavy offshore works consisting of Seawater Lagoon, Intake Structure, Seal Weir Pits, Outfall Structure & Discharge Channels, Pre-stressed Concrete Cylinders underground piping (3,000mm dia) for Circulating Cooling System 5,200 Lm approximately and other civil buildings, structures, and works.

Challenges:

Qurayyah Combined Cycle Power Plant is one of the largest and most complex combined cycle power generation plants ever built in the Kingdom of Saudi Arabia with Arabian Bemco as the main contractor. At Qurayyah Power Plant every power block is considered as a project on its own due to different engineering of the piping and pipe joints, pipe racks, cable trays whereas, in normal cases, a power plant is designed in a way where all equipment to be installed and erected are identical from one unit/block to another.

As a result, the learning curve would peak and construction progress will

accelerate after completion of the first unit.

Arabian Bemco had restructured its project and construction management team at the job site since November 2012 utilizing highly qualified and cream of the crop management teams to accelerate construction to meet with Saudi Electricity Company expectations and fire-up the units.

With the new restructuring, major issues were laid out on the table and strategic solutions were in place to rectify difficulties. Furthermore, complete organization of site activities and subcontractor management in



Steam Blow



Block 1 First Fire

terms of intensive performance evaluations; re-scope allocation, identifying missing scope, identifying critical issues, mobilizing additional subcontractors, and much more. With the exceptional efforts of the project management team, Arabian Bemco succeeded in achieving the starting of the steam blow on the 20th of Feb, 2013. Moreover, blocks 1 & 2 are successfully synchronized delivering power of approximately 500 MW with the 3rd block coming soon.

With the support of the Client and the Consultant, Arabian Bemco's project

and construction management team will exert all necessary efforts and engage all parties involved for a job recovery leading to successful completion of Qurayyah Combined Cycle Power Plant.

Once completed, Qurayyah Combined Cycle Power Plant will stand out amongst all other simple cycle and combined cycle power generation plants contributing to the Kingdom of Saudi Arabia a total of 4,600 MW in a more efficient state-of-the-art technology.

Riyadh Power Plant No. 10 Combined Cycle - 4,512 MW

*The World's Largest Combined Cycle Power Plant with
40 GT Units in One Location*



Blocks A and B



Mr. Bassem Haddad, Sr. Project Director

Project Description:

In Oct 16, 2011 Arabian Bemco was awarded a Lump-Sum EPC Turnkey project at Riyadh Power Plant No. 10 for the conversion of the existing 40 Simple Cycle Gas Turbine (SCGT) units to Combined Cycle Gas Turbine units (CCGT). Once completed, the new PP10 Combined Cycle Power Plant will be the largest Combined Cycle Project, generating additionally 1,280 MW conveying a total generation capacity of 4,512 MW ISO rating (3,634 MW site rating). The existing PP10 Simple Cycle Power Plant was successfully executed by Arabian Bemco and in recognition of Arabian

Bemco's effort, SEC Executive Vice President Mr. Fouad Al-Shereibi issued his appreciation letter on Jul 10, 2011. The PP10 Simple Cycle Power Plant was also recognized by MEED in 2012 as the Number 1 EPC Turnkey Project in the GCC and Arabian Bemco received the MEED Number 1 EPC Award on this occasion.

Major Components:

Project scope of work covers Engineering Design, Procurement, Construction, Installation, Startup, Testing & Commissioning, Training, including common balance of plant, of 10 Steam Turbines,

Generators & associated auxiliaries, 40 HRSG & associated auxiliaries, 10 Air Cooled Condensers & associated auxiliaries, 1 Laboratory with all necessary devices & equipment, apparatus etc., Raw Water Supply System including 10,000 m³/day Pumping Station & 15KM pipeline from HEET Water Treatment Plant to PP10, Water Treatment Plant, Treated Water Storage Tanks, Pumps, Piping systems, Oil Treatment and Storage, Chemical Unloading and Storage, N₂ Storage and Distribution, Compressed Air System and Distribution, 10 x 380 KV Generator Step-Up (GSU) Transformers, 380 KV GIS Protec-

tion & Control System, 380 kV XLPE Cables & Cable Protection System, DCS (Distributed Control System), Modification to existing DCS, MV & LV Switchgear, DC and UPS Systems, PLC systems, SCADA System, CEMS system, Fire Alarm and Fire Fighting Systems, HVAC systems, 10 STG Extension Buildings, 10 STG/ACC Electrical & Control Buildings, 10 HRSG, Electrical & Control Buildings, etc.

Progress Status:

Arabian Bemco has selected and assigned top caliber professionals to handle stringent requirements of



Mr. Jorge Ruiz, Combined Cycle Project Manager



Blocks A1 and A2



Eng. Abed Shakour Salameh, Sr. Project Site Manager

engineering, procurement, construction, testing, commissioning, start-up, quality control and safety training. To

have better to control of quality and progress and serve project requirements, Arabian Bemco has established a 90,000 square meter fabrication facility, two batching plants and a precast yard, all adjacent to the project site, maximizing prefabrication and pre-assembly for project requirements.

As the saying goes, "measure twice cut once", Arabian Bemco has substantially completed engineering and value engineering, and obtained necessary approvals from the Client and Consultant resulting in IFC drawings for major components.

Major equipment, mainly 4 Steam Turbines, 4 Generators, 2 ACC Steel Structures and 32 HRSG Material, are

already delivered to site. Another 2 Steam Turbines, 4 Generators and 4 ACCs have been cleared from local Ports and are on route to Project Site.

Construction work is aggressively progressing, pipe racks for Blocks A1, B1 and A2 are erected whereas Steel Structures & Pipe Racks for 22 HRSG are making headway through several erections teams.

Challenges:

Quality Control and Safety remain as one of the most critical and challenging aspects for the success of a given project and in particular a project of this magnitude and complexity. Extensive and continuous Safety & Quality Control Orientation, Reviews and

Training are conducted covering all levels of personnel involved in the project. As quoted by the Project Director Mr. Bassem Haddad: "We do not compromise on quality, we strive to complete the project on time while maintaining the highest level of quality." Arabian Bemco has developed a solid Quality, Safety and Environmental System that creates continued capability improvements of business processes, key performance indicators and technical knowledge and competence to achieve high inspection pass rates.

Engineering Designs preparation and approval represented a critical challenge in this Mega Scale project. A series of on-board design review



Entering the Modules into the HRSG using a Special Remote Controlled Hydraulic Trailer (SPMT)



Pipe Rack and HRSG

meetings with the client representatives were held as deemed necessary where resolutions are reached and thereby saving considerable amount of time.

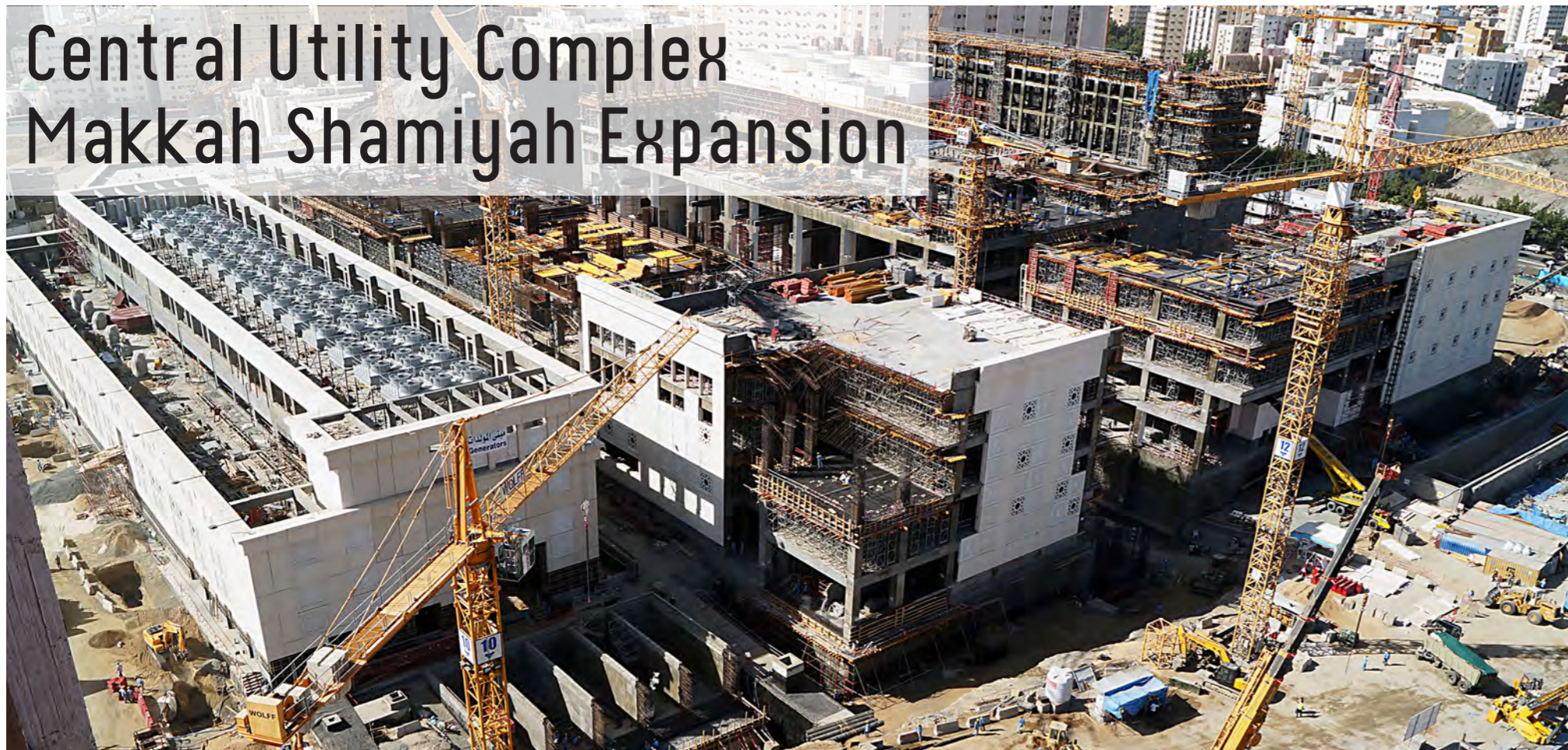
Staffing the project is another critical activity due to limited market availability of experienced and qualified Human Resources in the required numbers when needed. Therefore, creative alternative solutions are sought.

Needless to say, establishing a one team

approach with the client and consultant is crucial to the overall success of the project and client satisfaction.

The Project and Construction Management team will exert all necessary efforts for the successful completion of Riyadh Combined Cycle Power Plant, on-time and up to the highest level of quality standards. The team has the objective: sustain high levels of client satisfaction and fulfill the growing power demands of the Kingdom of Saudi Arabia.

Central Utility Complex Makkah Shamiyah Expansion



Central Utility Complex - Overall View



Eng. Mostafa Nader, INMA Projects Director

The Project:

In 2010 INMA Utilities and Contracting Co., an affiliate of Arabian Bemco, was awarded the Central Utility Complex (CUC) in Makkah Haram Shamiyah

Expansion. The project is located at the north-western side of Al-Haram near the intersection of the section ring road and will connect to the Shamiyah Haram Expansion through a 1.25 km underground tunnel. The CUC is an 84,000 m² complex housing a chiller plant with total planned refrigeration capacity of 160,000 Tons (32 York Titan Multistage Industrial Chillers at 5,000 TR each). The first 24 units are under installation and is expected to be operational in April 2014. Once completed, the Kingdom of Saudi Arabia will utilize the largest Chiller Plant in the World placing Qatar in second place (130,000 TR).

Power Generation, Services and Fire-fighting Facilities:

The CUC includes a Diesel Generator Plant to be used as stand-by feeder for Shamiyah Expansion, Chillers, Fire-Fighting and other services with total capacity of 70 MVA (14 Standby

Diesel Units at 5 MVA each) and also includes Grey Water Treatment Plant, Central Refuse Collection Station, Administration & Services Building, Pump Rooms and Water Tanks. Major mechanical equipment includes chillers, cooling towers, pumps, chilled water pipes, valves and fire-fighting systems, whereas, major electrical equipment includes diesel generators, MV transformers, LV transformers, MV switchgears, LV switchgears, Motor Control Centers (MCCs) and MV Cables.

The Technology:

The chilled water system focused on the chiller because the chiller is the most efficient high capacity refrigeration producer, however the largest energy consumer in the facility where manufacturers continue to make great progress to improve the efficiency. Utilizing a high performance chiller can both reduce the energy used where auxiliary equipment such as water pumps and

cooling towers make up a larger percentage of the chilled water system energy usage.

The Central Utility Complex is based on a Chilled Water System which employs a centrifugal refrigeration chiller, cooling tower, circulation pumps, and interconnecting distribution piping. Theoretically, the refrigeration cycle is designed at the basis of removing heat from buildings i.e. "closed space" and rejecting it to the outdoor, or transferring heat from one location to another. The CUC, however, will have to boost 120,000 to 160,000 Tons of Refrigeration capacity through a 1.25 km underground chilled water pipe to remove heat from the "open space" for cooling the Holy Haram. Needless to say, the Makkah Haram CUC is rather a remarkable phenomenon considering the area of the Holy Haram of over 26,000 square meter air-conditioned open space. There are four basic components of a



York Centrifugal Chiller - 24 Units at 5000 TR each



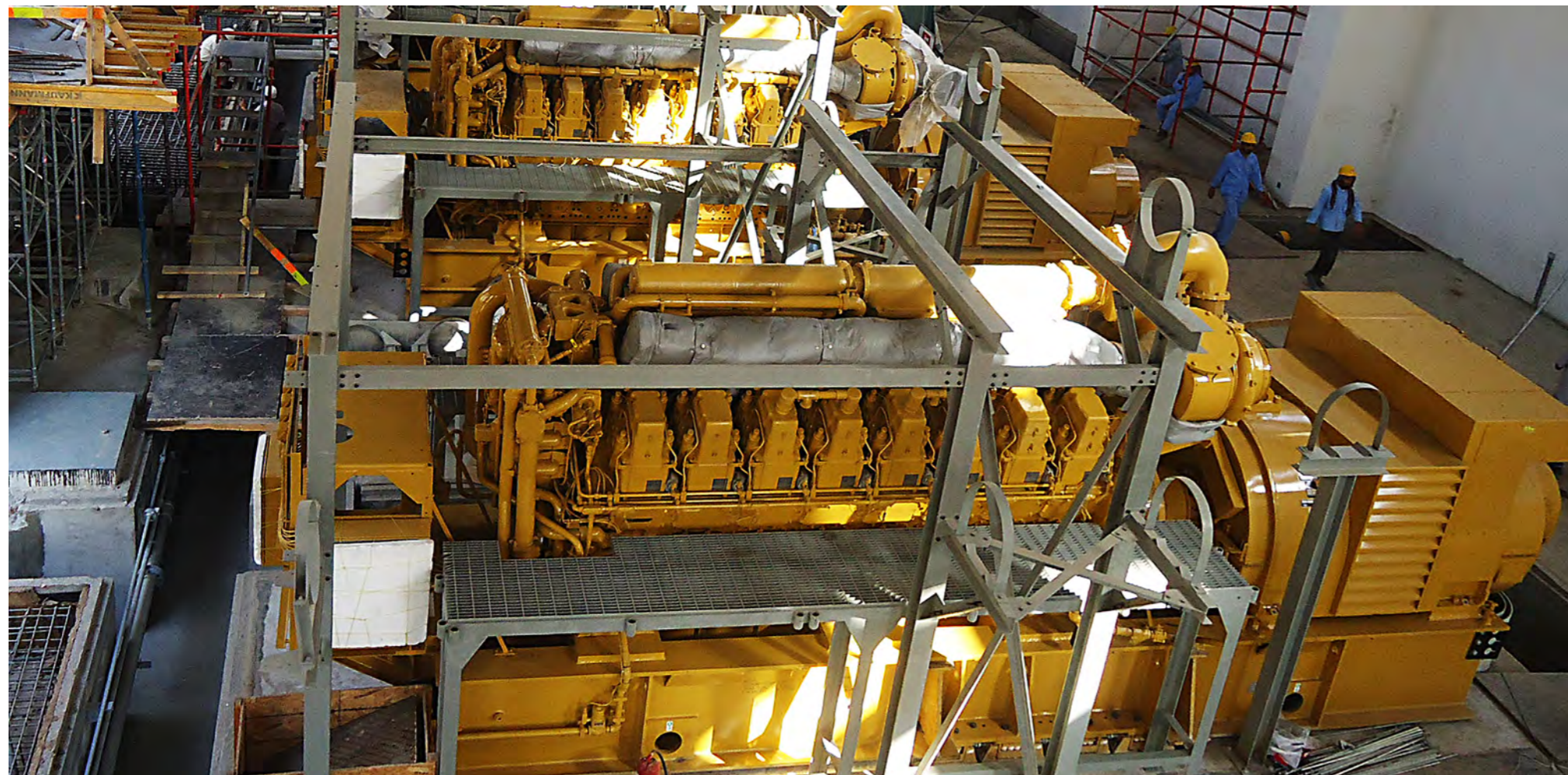
Fire Fighting Building

refrigeration cycle: Compressor, Evaporator, Condenser, and Expansion Valve.

Once the compressor starts to rotate, it sucks the vapor refrigerant as low temperature, low pressure, superheated vapor and compresses the vapor refrigerant to a high temperature, high pressure and more superheated vapor. The vapor enters the condenser where the high temperature of the vapor is transferred to cooling medium causing the vapor to condense and change to liquid. The refrigerant leaves the condenser as high temperature, high pressure, sub-cooled liquid and enters in the expansion valve and leaving as low temperature, low pressure and saturated liquid. This liquid enters the evaporator taking heat from the surroundings and causing cooling as a result of evaporation having low temperature, low pressure, and saturated vapor. When the cycle continues transferring heat to chilled

water, the chilled water in the evaporator cools (5.5 to 6 °C) will run through the Chilled Water Supply Pipes (see Figure 1) which passes in the 1.25 km underground tunnel into the air handling unit coils located in the Makkah Haram.

Once the coils fills up, the water returns back to the evaporator at 18 °C temperature through the Chilled Water Return Piping. As illustrated in Figure 2, the hot water in the condenser resulting from cooling the compressor is pumped to the top side of the cooling towers where it is sprayed across the sides. The fans in the Cooling Tower draft the air from down to meet with the fallen particles of water coming out from the nozzles of cooling tower which cools it from 40.5 To 33 °C. The cooled water falls into the water basin, gets sucked out from the cooling tower basin and returns back to the chiller's condenser.



Standby Diesel Generators - 14 Units at 4.4 MVA each

Additional Scope:

The CUC Project started out as an EPC Turnkey Contract to install a 120,000 TR Chiller Plant including electro-mechanical works for Fire-Fighting Building, Services Building and Training Center building. In August 2012, INMA was awarded the underground utility tunnel T4 of 1.25 km that connects the CUC with the Holy Haram. The T4 includes four chilled water pipes, one water main pipe, five waste force main pipe to plant, fourteen refuse vacuum pipes, three ventilation jet fans, one waste force main to plant, sump pumps at station, one external fire-fighting pipe, one internal fire-fighting pipe, wide control cable trays and wide MV cable trays.

Just recently, on Mar 27, 2013, INMA received additional scope of work to build a large Security Building outside the CUC near the Haram area. The

Security Building has a total area of 180,000 m² consisting of 9 podium floors with area of 100,000 m² and three 17 Floor Towers with 80,000 m² each where to INMA will provide the turnkey scope complete electro-mechanical works including a 7,000 TR HVAC System, Fire-Fighting System and its network, Cold and Hot Water Supply System and its Network, and Electrical System with Network demand 22.7 MVA Complete with 4 MV Feeders, 4 Substations and Standby Diesel Generator, Switchgear, Lighting, Power, BMS and Lightning System.

Project Execution:

With such a large scale project, many challenges will appear during the project execution that will work against on-time project completion. Not only does the CUC require hundreds of thousands of different quantities and bulk material to be procured at the

earliest time possible, but also the challenge exists when suppliers and manufacturers are not able to supply non-time due to production queuing or in-availability of stock.

Once equipment and material start to flow to site, a highly qualified workforce will have to be on site ready for fabrication, installation, welding and erecting equipment and material, which brings us to the next biggest challenge; non-availability of sufficient and qualified workforce. Further, the contractor must have a strong financial position and to be able to arrange for credit facilities from local banks at the earliest time possible to fulfill cash and payment requirements to suppliers, manufacturers, subcontractors, and other related parties.

Given all these challenges, the Project Manager will take necessary steps to

ensure successful project completion at the highest quality of work within the project budget. The basis for a successful project execution would be in planning and monitoring on a weekly basis the project's milestones, costs, quality, safety and other risks after completion of all engineering and value engineering, securing professional management team and supervision team on time, hiring qualified and specialized subcontractors and taking proper actions, preventive actions, or recovery plan immediately.

Finally, it is worth mentioning that INMA has achieved 2,000,000 accident-free man-hours in executing the CUC and will continue its prowess to maintain high standards for quality, health and safety, and is committed to delivering projects on budget and on schedule to the complete satisfaction of its clients.



Cooling Tower

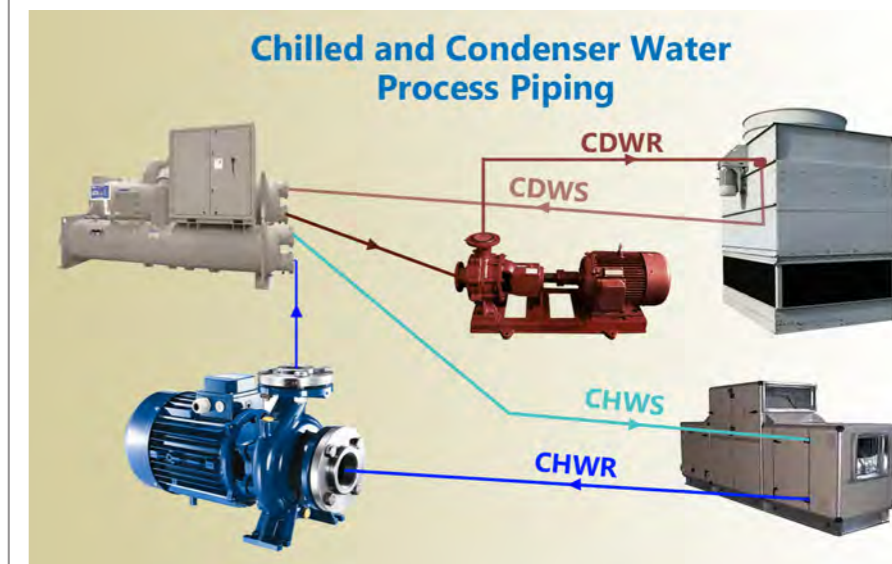


Figure 1

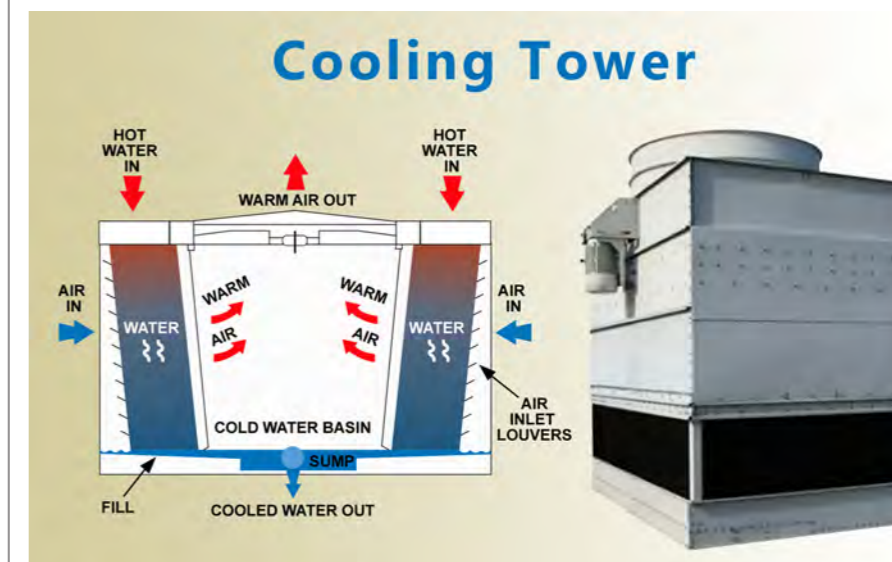


Figure 2

Rush Project – Al-Qurayyat Open Cycle Power Plant – 120 MW



Overall View



Eng. Rafeek Khateeb, Proposal & Engineering Manager and Al-Qurayyat Project Director

On Jan 24, 2012, Arabian Bemco was awarded a Lump-Sum Turnkey Contract to build the extension of two GTG Units to the existing Al-Qurayyat Power Plant. The project is located on the main Al-Qurayyat to Al-Jouf Highway in north-east of Saudi Arabia in

Al-Qurayyat City and will add 120 MW to the existing 250 MW Plant by installing two GE 7EA Gas Turbines and two Generator Step-Up Transformers (GSTUs) including all support facilities and balance of plant.

The project is currently under construction and Arabian Bemco has performed all detailed engineering and design for the plant. The GTG and the GSTU units are supplied by SEC, however Arabian Bemco will secure all other equipment and material, and will construct, erect, test and commission the plant in an 18 months schedule. Contractually, the Technical Completion Certificate was due on the 11th of July followed by the Preliminary Acceptance Certificate on the 11th of August and finally the Final Acceptance Certificate on the 11th of Nov, 2013. Due to urgent power demands, SEC has requested to fire the first unit in mid-May, i.e. two months

ahead of schedule. Mr. Bassam Khaled, Project Manager said: "Arabian Bemco has proven track records for successful completion of super rush projects, however completing one unit in a 15 months schedule (and balance of plant will be as per original schedule) is rather challenging due to its remote location." He continues, "Availability of many essential material and resources (that is often made available in other locations in Saudi Arabia) especially concrete due to none or low production and low quality of water, have been relatively scarce due to the remote area and therefore will cost more time and money to secure it to site from different locations such as Riyadh, Dammam, or Jeddah. What makes the project even more challenging is the rescheduling of first-fire for mid-May instead of the 11th of July, 2013 as well as a delay in receiving the GTGs to site". The balance of plant includes a wide range of state-of-

the-art Systems such Compressed Air System, three Crude Oil Tanks with 15,000 m³ each and one 10,000 m³ Diesel Oil Tank coupled with Crude and Distillate Fuel Oil Unloading, Forwarding, Treatment Systems and Piping Network. A Water Treatment and Demin Treatment Plant including Gas Turbine and Compressor Section Water Wash System and Water Supply System with an Oily Water Treatment and Disposal System is under construction as well as a Waste and Sludge Tank, Fire Detection and Protection System and other mechanical systems and equipment.

The new extension will interface with the existing 132 kV GIS Substation by extension of Protection and Control and SAS System. Electrical equipment also includes installation of two GSUT 13.8/132kV 90/110 MVA, Unit Auxiliary Transformers 13.8/4.16 kV, 4.16kV/480V Transformers for Unit's Auxiliaries and



Two GE 7EA GTGs 55-80 MW each

Three Crude Oil Tanks 15,000 m³ each & One Diesel Oil Tank 10,000 m³

BOP, LV Switchgear and Power Distribution Boards 480V, 380V, 208V, 3 phase 220/120V single phase including Lighting Transformer, 125V DC System for GTG Units & BOP Loads, MV & LV XLPE Power Cable & Accessories, Instrumentation & Fiber Optic Cables, 132 kV XLPE HV Cables, Relaying, Metering, and Protection & Control, Motor Control Centers, DCS System and Uninterrupted Power Supply.

Arabian Bemco will construct a new SEC Administration Building including other buildings related to the facility such as Turbine Building, Fuel Processing Building, Local Electric Building, Central Control Room, Black Start Diesel Generator Building, Water Treatment Building, Fire-Fighting Building, Laboratory and Chemical Storage Room. Other civil works include Roadways, Equipment Foundations, Trenches/Road Crossing/Duct Banks, Plant Drainage,



Eng. Bassam Khalid, Project Manager

Fencing, etc. "Regardless of all these challenges and the delay of two months in supply of GTGs and GSTUs by the client, we are exerting full efforts and we will have the 1st unit tested and commissioned for fire-up in mid-May" says Mr. Kahlid.

SANG Housing Project



Mr. Yousef Abbas, Project Director

Project Description:

On Nov 17, 2011, Arabian Bemco signed a contract for the construction of the Saudi Arabia National Guard (SANG) Housing Project consisting of 1,150 soldier villas (two floors and roof) with an approximate area of 295 square

meters each and 100 officer villas (two floors and roof) of 539 square meters each. The site area is approximately 1.46 million square meters where Arabian Bemco is executing the construction of all villas and infrastructure facilities such as roads, storm water, sewage network and sewage treatment plant capacity of 5,000 m³/day, irrigation network, water supply and fire-fighting, electrical system to include substations, MV and LV cables, street lighting, lighting panels telephone networks, etc. Other civil works include earthworks, landscaping, asphaltting and fencing. The project is planned to be completed in 36 months after site receiving date.

Challenges:

The main challenge in this type and magnitude of project results from finishing works. With the large area and number of villas, manpower availability

in the market is very limited or have restricted qualifications for high quality finishing. To overcome this dilemma, a number of teams are placed under direct supervision and trained for adequate competence and performance which will in turn promote the quality levels of the available workforce and provide for a smooth and successful project execution.

What makes the project even more challenging is the combination of Quality, Budget and the relatively short time given for completing the project. An acceleration program has been adopted to complete the project on time.

The learning curve in the tunnel system in the finishing is peaking. Three mock-up villas are under finishing ensuring that high-end quality meets client satisfaction.



Mr. Samir Qassem, Project Manager

Safety remains a challenge. Deep excavation, tunneling, rebar, precast installation and working at different levels of height draws high risk exposures. A large site area of 1.46 million square meters and a number of 2,500 workforce requires an extensive



Mock-Up Villa



Evaporation Pond

amount of training, strict supervision, safety awareness programs and incident reports. A safety culture will have to be implanted within all personnel and workforce on site for a safe and healthy environment. Further, there are strict policies for new safety induction programs and strict observation on the use of PPE. Dedicated safety meeting is held every week which involves all project, construction and safety management staff.

"We are determined and persistent on

completing milestones for this prestigious and large scale project until final delivery of a high-end quality project meeting client satisfaction and further grow a highly skilled workforce equipped with the experience and know-how. SANG Housing project will be the beginning to a success story for pure civil and residential projects that will develop into the structure required for executing even more challenging projects such as large residential complexes and high-rise towers", says Eng. Samir Qassem, Project Manager.

Qassim Power Plant Extension III



8 Gas Turbine Units 60 MW Each



Mr. Hassan Bayrakdar, Project Manager

Project Description:

On November 07, 2010 Arabian Bemco signed the Lump-Sum EPC Turnkey project with Saudi Electricity Company to extend Al-Qassim Power Plant with additional eight (8) GE 7EA Gas turbine

units. The project is located in Central Region of Saudi Arabia, Al-Qassim city. It is worth mentioning that, Arabian Bemco had successfully completed on June 04, 2010 the super rush project of Al-Qassim power plant-Extension-II consisting of four (4) GE 7EA Gas turbines in only 7 months, (Contract signed on October, 2009 and the units were connected to SEC's grid by first week of May, 2010, with generating capacity of 59.5 MW/ unit.

Major Components:

Project scope of work covers Engineering Design, Procurement, Construction, Installation, Startup, Testing & Commissioning including common balance of plant (BOP) and 8 GE 7 EA Gas Turbines (60MW/ Unit) including Generator, Exhaust System, Inlet Air Filter System, and associated auxiliaries, indoor low speed 4MW Black Start Diesel Genera-

tor unit, Compressed Air system, Fire station and Fire Detection & Protection System, Raw Water Station, R.O Treatment Plant, Demin Water Plant including storage and distribution systems, Crude Oil Treatment Plant with capacity of 400 m³/hr, Crude & Distillate Fuel Oil Forwarding System, HVAC System and Piping System.

Electrical scope included 6 x 220 MVA GSU Transformers, 4 x 30 MVA UAT Transformers, Generator Circuit Breakers, MV Black Start Switchgear & associated transformer, Metal-clad Switchgears MV, MV/LV BOP transformers, 132 KV XLPE Power Cables, 132KV Protection and Control System, LV bus Duct System, Grounding & Lighting protection, Transformer & Generator Condition Monitoring, DC Power Supply including Batteries & UPS, Modification at Substation 8801 & 8825, Interconnec-

tion of the new project system with the existing system, Instrumentation & Control works, DCS System, Security System.

Civil works included site clearance and site preparation, foundations for GTG, Exhaust Stack, GUT, BSDG, Irrigation and Drainage System, Piping Distribution, Plant Drainage, Turbine Buildings, Control Room, Battery Room, Switchgear Room, Gate House and Security Fence, etc.

Challenges:

Arabian Bemco successfully connected to SEC's grid ahead of schedule four units on May 2012, two units in June & the last two units in July 2012. One of the main challenges in executing the project was on top of project tight schedule, the laborious process for engineering, design and approvals. As a



Boiler for Crude Oil Treatment Plant



220 MVA GSU Transformer



Compressed Air System



Water Tanks



Mr. Ali Hindawy, Construction Manager

result, the project execution schedule became very stiff/rigid and left no room for errors. For instance, the 132 KV substation cable route designs were approved (IFC was issued) however, several revisions for the route of the cable were requested by the client and took three months before final version was approved. Furthermore, there were no as built drawings for the existing situation at the substation, which caused a deferment in the construction schedule.

Moreover, extreme weather conditions throughout the year became an obstacle against the construction sched-

ule / progress, and taking into consideration the safety aspects, where in some cases work has to come to complete stop due to the harsh rain/sand storms.

Working in an existing SEC's facilities where security is paramount requires extraordinary procedures and guidelines. Material, equipment and manpower were not allowed to enter until & unless all proper documentation and permits are in order, and approved under the very strict rules and regulations.

With all the above challenges, tremendous efforts have been expended to

erect, test and commission these 8 units, not forgetting that fire-fighting / fire protection systems were essential and a must to be operational prior to any firing / synchronization.

It is quite appropriate to highlight at this juncture that BEMCO has achieved over 7 millions safe man-hours satisfying Saudi Electricity Company by meeting quality expectation, and delivering power as the units operate at base load (60 MW/ unit) with a record of safety and reliability.

Accordingly, PACs for these units were successfully achieved.



Main Control Building



Crude Oil Treatment Plant



Fire-Fighting System

SABIC's PET Preform Plant



Eng. Abdullah Aboharba, Project Manager

On Dec 1, 2011 and for the first time, SABIC (Saudi Basic Industries Corporation) awarded Arabian Bemco a prestigious contract "PET Preform Plant" which is part of the IBN RUSHD (Arabian Industrial Fibers Company) Strategic Project.

This marks the first SABIC project awarded to Arabian Bemco and the beginning of a promising and fruitful business relationship between each other. The contract was to build a new grass root plant to produce PET (polyethylene terephthalate) preforms suitable for 0.33L and 10L bottles for the use of ZAMZAM water. The plant is capable of producing a 70 million

preforms per year with an approximate weight of 130g/bottle for the 10L bottles. The machines process approximately 9,000TY of PET within 24 hours of operation and 350 days/year. The plant is located in the Holy City of Makkah, Saudi Arabia and includes all required facilities such as injection molding machines, buildings, offices, warehouse, electrical substations and related balance of plant.

PET Explained:

PET is a linear thermoplastic bluish white resin made from the condensation of Terephthalic Acid and Ethylene Glycol, hence the name Polyethylene Terephthalate (PET). PET does not break



Mr. Ibrahim Salem, PEM Manager



easily and edibles stored in it taste good because of its purity. PET is utilized mainly for mineral water since it has good barrier properties against oxygen and carbon dioxide and provides a long shelf life. PET is also used for other applications such as food trays for oven use, roasting bags, audio/video tapes, as well as mechanical components.

The Process in Brief:

The PET material will first have to be dried and dehumidified through a hopper dryer and dehumidifier. Once dry, these crystals are melted from the barrel of the molding machine, and then injected under pressure to fill a mold cavity. The result is that the shape

is exactly copied. Once the plastic molding has cooled enough to harden, the mold opens releasing the preform. The whole injection molding process will then repeat.

On Jun 26, 2012 Sabic awarded Arabian Bemco an additional scope of work for installation of cap machine and handle machine, each machine can produce 4,200 pcs/hr. Arabian Bemco has successfully completed the project in Jul 15, 2012 and has received an appreciation certificate from the client recognizing Arabian Bemco's contribution and efforts for putting together a successful and high quality project.

King Abdul Aziz University

Central Utility Plant- #2 for New Academic Square Building



Central Utility Plant



Dr. George Aboufadel, Executive Director, Projects

Project Description:

On Oct 24, 2012 Arabian Bemco successfully completed the EPC contract to build the new Central Utility Plant (CUP) # 2 for the New Academic Square Building at Jeddah's King Abdul Aziz University. Central Utility Plant # 2 comprises of five Dual Mode Ice/Water Chillers at 3,600 TR each, two Chillers at 2,180 TR and four Ice Storage Tanks at 21,000 TR x hr each. This Central Utility

Chiller Plant Ice Storage system is the first in size in the region and one of the largest in the World. The plant produces approximately 35,000 Tons of Refrigeration, with provision for future expansion to 56,000 TR. The purpose of the plant is to allow the University to expand its central cooling system in the most economical and efficient manner to all campus buildings that shall be connected to the plant through a network of underground GRE piping.

Major Components:

Arabian Bemco scope of work included



Ice Storage Building of 84,000 TR x hr each - The Largest Ice Storage Tank in the World



Mr. Ibrahim Masri, Project Manager

Engineering, Procurement, Construction including civil work, Testing, Pre-Commissioning, Commissioning and Operation of the Central Utility Plant II of the New Academic Square Building including supply and installation of Centrifugal Chillers Dual Mode Ice/Water (5 nos.) 3,600 TR each, (2 nos.) Centrifugal Chillers of 2,180 tons each, (4 nos.) Ice Storage Tanks 21,000 TR x hr each, Fluid Coolers (60 nos.), Pumps and



York Centrifugal Chillers Dual Mode Ice/Water @ 3,600 TR Capacity

all necessary Valves and accessories, Air Handling Units, Fans, Chilled Water Piping, Control Valves, overhead Cranes, and Electrical System to include dry-type Transformers, Auto Transformers, Load Starters, Soft Starters, Standby generators, Fire Alarm System.

System Description:

CUP-2 contains a multi stage open drive centrifugal compressor/chillers, 105,000 ton-hours of ice based thermal storage equipment, heat rejection



5 York Chillers @ 3,600 TR Capacity

equipment, chiller pumping systems, and all necessary auxiliary equipment. The mechanical refrigeration equipment provides an instantaneous plant cooling capacity of 22,360 TR that is supplemented with up to 12,600 tons of cooling from the thermal storage system at peak output. During normal campus operating hours (7:00am to 8:00 pm), chilled water is supplied from



13.8 KV SWG / MV



Condenser Water Pump

the plant at 35 °F (1.7 °C), which carry the flow in order to meet the cooling demands of the campus buildings. Output from ice based storage equipment is used during these periods to meet the supply temperature requirement while the use of mechanical refrigeration equipment from CUP-2 is minimized.

During night operating hours, the cooling demands are met through the instantaneous use of mechanical



MCC1 82 /LV

refrigeration. The chiller water supply temperature during these periods is 41°F (5.0 °C). CUP-2 shall have a rated peak output capacity of 35,000 TR out of which 22,360 TR or approximately 64% of this capacity shall be provided by mechanical refrigeration equipment operating to chill water prior to and in series with an ice-based thermal storage tank that shall provide the



Control Room



13.8KV SWG and 4.16KV MCC /MV

remaining 36% or 12,600 tons of chilling capacity.

Challenges:

During the project execution, the Client had requested change of designs to increase the plant capacity to 56,000 TR instead of 35,000TR. Arabian Bemco participated in the re-designed and obtained approvals during construction to include this change, which in turn signified as the main challenge in this project. Another challenge was the



Manager's Office

integration of the Ice Storage Tank System as part of the cooling cycle. Thermal Storage Tanks are more often used in Turbine Inlet Air Cooling Systems for Gas Turbines. CUP-2 Chiller Plant project utilizes Ice Storage Tanks to store ice during off-peak hours (night time) to be utilized during peak hours (day time) to further chill the water from 5 °C to 1.7 °C. The Ice Storage Tanks in CUP-2 is the largest in the Gulf and Middle East as well as one of the largest in the World. This technology is not normally implemented and Arabian Bemco was the only Contractor to acquire experience from Engineering, Installation, Construction and Control to successfully complete a high-end quality project of that size regardless of all the challenges involved.

Contract Signing Ceremony for PP-12 Power Plant

On May 16, 2012, Arabian Bemco signed a S.R 4.7 billion contract with the Saudi Electricity Company to build a Grass Root Combined Cycle Power Plant in Riyadh, Saudi Arabia. The signing ceremony of the contract, "Construction of Riyadh Combined Cycle Power Plant No. 12 (PP-12)" was held at the Saudi Electricity Company office in Faisaliyah Tower, Riyadh.

The Contract was signed by H.E. Dr. Saleh Al-Awaji, Deputy Minister for Electricity and Chairman of SEC, Mr. Ali S. Al-Barrak President and CEO of SEC, Sh. Saleh Bin Laden, Board Member of Arabian Bemco, Mr. Henry Sarkissian, CEO of Arabian Bemco and Mr. Jung-Jae Huh, Sr. Executive VP of GS Engineering & Construction.

The plant is located in Saudi Arabia, 100 KM West of Riyadh City. Once completed, the new grass root combined cycle

power plant (PP12) will produce a net output of 2,175 MW at ambient temperature of 45 °C with high efficiency. The plant utilizes exhaust gases from the gas turbines to generate steam and run the steam turbines, maximizing the fuel utilization with a highly efficient combined cycle design. In addition, a new 380 kV Substation will be built adjacent to the power plant.

Saudi Electricity Company is speeding up its power projects and planning to raise over \$80 billion investment to add 30,000 MW of additional power generation capacity by 2018.

Bemco is a leading Saudi contractor with 22,000 MW of power generation experience and is currently executing two combined cycle power plants in Saudi Arabia, PP10 Combined Cycle and Qurayyah Combined Cycle. PP12 is expected to be completed in 2015.



Mr. Henry Sarkissian, Mr. Jung-Jae Huh, Sh. Saleh Bin Laden, Dr. Saleh Al-Awaji, Mr. Ali Al-Barrak.



Mr. Emad Ghandourah, Mr. Jung-Jae Huh, Sh. Saleh Bin Laden, Dr. Saleh Al-Awaji, Mr. Ali Al-Barrak, Mr. Henry Sarkissian, Mr. Tarek Tahini.

Building Towards Excellence

Achieved ASME "A" Stamp Certification



Mr. Abdulraheem Al-Marwani Corporate Technical Audit Manager



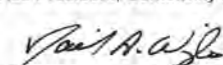
On Dec 11, 2012 Arabian Bemco successfully completed the final ASME (American Society for Mechanical Engineers) inspection process and as a result, achieved a new milestone; the ASME "A" Stamp. ASME is the leading international developer of codes and standards associated with the art, science, and practice of mechanical engineering.

Code Stamps are regarded as a hallmark of acceptance and certification indicating that the product conforms to the latest edition of the ASME Codes. The ASME "A" stamp is used for the assembly of power boilers as per ASME Code Section I and ASME Section B31.1. These codes Power Piping, ASME SEC IIC Material Specifications, ASME SEC V Non-Destructive Examination, ASME SEC IX Welding and Brazing Qualifications, General Welding Requirements, General Calibration Requirements, Welding Heat Treatment, Preheating and Post Weld Treatment, Welding, Drawing, Materials Control, Examination and Inspection Related to the Assembly of Power Boilers and assembly of pressure piping at field sites and field fabrication.

During the final ASME inspection, not only that Arabian Bemco complied with all applicable codes and standards for

assembly of Power Boilers and assembly of Pressure Piping at field sites but also demonstrated high quality standards during the process. Throughout the validity of the Certificate, Arabian Bemco can stamp the product to indicate that it conforms to the latest edition of the ASME Boiler and Pressure Vessel. Utilizing ASME Code Symbol Stamp is also a means of complying with the laws and regulations of USA and Canada and over 100 nations accepting the ASME Boiler and Pressure Vessel Code as a means of meeting strict government safety

regulations. ASME Certification is believed to strengthen the company's competitive edge by allowing Bemco to have full execution of the project. It is also an added value to Arabian Bemco quality which will resolve to complete customer satisfaction. This will make Arabian Bemco self independent. Regulators and purchasers throughout the world look for the ASME stamp as a mark of excellence. Today Bemco is unique having its own capability using the top notch and state-of-the-art technology to execute the entire scope.

The American Society of Mechanical Engineers		CERTIFICATE OF AUTHORIZATION
		<p>The named company is authorized by the American Society of Mechanical Engineers (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME for Boiler and Pressure Vessel Code. The use of the certification mark and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with this certification mark shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.</p>
COMPANY:	<p>Arabian Bemco Contracting Co. Ltd. Prince Mohammad Bin Abdul-Aziz Street Elite Center Floor # 4 Jeddah, Western Province 21471 Saudi Arabia</p>	
SCOPE:	<p>Assembly of power boilers at field sites controlled by the above location</p>	
AUTHORIZED:	December 19, 2012	
EXPIRES:	December 19, 2015	
CERTIFICATE NUMBER:	44,650	
 Vice President, Conformity Assessment		 Director, Conformity Assessment

Building Towards Excellence

Achieved ISO 14001:2004 Certification

Nov 20, 2012 Arabian Bemco has successfully achieved International Environmental Standards (ISO 14001:2004) and International Occupational Health and Safety Standards (OHSAS 18001:2007). Although Arabian Bemco has been following ISO Standards and Procedures, this marks the very first attempt for Audit and has proven to be entitled for a certification. The audit has taken place in Saudi Electricity Company's Qurayyah Combined Cycle Power Plant (4,600 MW), one of Arabian Bemco's major under-execution Power Generation Project.

The process of obtaining ISO 14001:2004 and OHSAS 18001 Certification is rather challenging. For a better understanding of the basic concepts and standards, an effective presentation is offered to the concerned employees by the certification body as a first step in the process. This presentation draws up a framework that a company should follow for an effective management system. The certification body will then review and evaluate existing procedures and instructions using gap analysis to furthermore develop a complete and comprehensive set of procedures compliant to ISO 14001 and OHSAS 18001. Upon establishing the system, an internal audit and pre-assessment is conducted to ensure that the established system is being implemented effectively and is compliant to the standards. Finally, Auditors of the ISO Certification body will inspect, evaluate, and make an assessment of the company status towards compliance.

Arabian Bemco had completed an audit review of its Environment Management System and Occupational Health Safety Management System by LMS Certifications Private Limited, a

member of International Accreditation Forum (IAF). As a result of the positive outcome of audits conducted at all major sites, the Company is, for the first time, certified compliant with ISO 14001:2004 and OHSAS 18001 Standards. Mr. Abdualraheem Al-Marwani, Corporate Technical Audit Manager, stated that this accomplishment was

rather outstanding especially since the process took few months, he added: "Hard work was put to meet the mandatory requirement to become ISO 14001:2004 and OHSAS 18001 certified. It is truly a collaborative effort and it would not have been possible without the contributions of many people. Thanks are due to many people who



Building Towards Excellence

Achieved OHSAS 18001:2007 Certification

have participated in the the ISO Audit. It is recognized that this has involved many individuals spending a lot of time in their already busy schedule."

ISO 14001:2004 is a standard related to environmental management that exists to help organizations to minimize negatives in their operations with the environment by maintaining and improving the state of an environmental resource affected by human activities. These standards include, but not limited to, waste management, material management and efficiency, savings in consumption of energy, and improving the image of the company by being environmentally friendly as well as minimizing risks of liability penalties as far as industrial hazards are concerned. In a way, implementing environmental management system will let an organization discover and control the effects of the company on the environment, and in another way, improving efficiency and productivity, i.e. save on costs by detecting ways to minimize waste and dispose it more effectively. As far as customers, employees and shareholders, Arabian Bemco is committed to environmental issues and will work towards improving the environment while improving the economy and productivity of the nation.

OHSAS 18001 is the world's most recognized occupation health and safety management system and a British standard that was created by a number of the world's leading national standards and certification bodies, specialists and consultants. OHSAS 18001 was developed to be compatible with ISO 9001 (already existing with Arabian Bemco) and ISO 14001, and it exists to help organizations put in place sound occupational health and safety performance by providing a framework

that helps organizations to consistently identify and control health and safety risks, reduce the potential for accidents, aid legislative compliance, and improve overall performance.

This new accreditation (ISO 4001:2004 and OHSAS 18001), with the use of their management systems, as well as

Arabian Bemco's existing ISO 9001:2008, are designed to continually improve the quality of construction to the Client in the direction of increasing efficiency, and in turn, helps the client with confidence that Arabian Bemco is committed to ongoing development and maintenance of its management practice.



Bemco Completes PP10 Project (Block C1) and Receives 2 Awards

On the 10th of July 2012, Arabian Bemco received two Awards for Outstanding Performance and Completion of 8 Gas Turbines at Power Plant No. 10 (Block C1) Project. The first award was presented by GE, Mr. Tomas Eldahouk, Porto Folio Manager and Mr. Eissa Ageeli, Executive Account Manager for "the Successful Completion of 8 GT's at PP10 Block C1" and was received by Mr. Henry Sarkissian, CEO of Arabian Bemco. The second award was presented for "Outstanding Performance and Team Work" and was received by Mr. Bassem Haddad Sr. Project Manager and Mr. Abed Shakour Salaimenh

Sr. Project Site Manager

The celebration took place in Riyadh Power Plant No. 10 with the presence of Saudi Electricity Company, Mr. Khalid Al-Harbi Manager Generation Projects - COA and Mr. Zayed Al-Saeed Dept. Manager Generation Projects COA & East (A) wherein Bemco's efforts for completing the project on time was commended. Block C1 is an extension to the main PP10 Project by adding 80.8 MW Gas Turbine Generator units and interfacing with the existing PP10 facilities and utilities.



Arabian Bemco Receives the GE Energy #1 EPC Award for 2012

October 11, 2012 During GE's yearly conference "Global Engineering and EPC Summit" in London, Arabian Bemco received the GE Energy Number 1 EPC Award for 2012 in recognition of Overall Project Performance and long relationship with GE. The award was presented by John Reinker, Global Project Operations Leader, at GE Power and Water and accepted by Mr. Hrag Sarkissian, Business Development at Arabian Bemco.

Arabian Bemco was selected amongst 350 EPC contractors in the Europe and AIM (Africa, India and Middle East Region) for the best overall performance, strong leadership, quality, safety, ability to meet challenging schedules, and ultimate user satisfaction for services rendered in the installation of GE equipment.

Amongst the recent achievement is the recent completion of the Riyadh Power Plant No. 10 Simple Cycle Project where 40 GE Gas Turbines were successfully commissioned in 2011.

In addition, Bemco was further awarded the Combined Cycle Conversion Project for PP10 where 40 HRSG's along with 10 GE Steam Turbines will be installed to increase the 3,232 MW of the existing plant to 4,512 MW. The Project is due to complete in 2014. PP10, today, marks the largest order of HRSG's and steam tail end equipment ever placed in the world.

Furthermore, Bemco was awarded the Grass root Riyadh PP12 Combined Cycle Power Plant (GAS, ASL, and Distillate) where 8 GE Gas Turbines will be installed with a simple cycle capacity of 1,425 MW to be commissioned on January 2014 followed by the combined cycle portion of around 750 MW to be commissioned by the third quarter of 2014. PP12 will be the first project to use GE's new 7FA.05 Gas Turbines. Arabian Bemco has installed overall capacity of 24,000 MW out of which 16,000 MW are GE's Gas Turbines and Steam Turbines in the Kingdom and the region achieving constant client satisfaction and trust.



Arabian Bemco Receives the GCC Quality Award for PP10

On May 21, 2012, MEED Quality Awards for Projects 2012, in association with Ernst & Young, hosted a dinner in Abu Dhabi to celebrate the national winners selected from each country in the GCC and from every industrial category; i.e. Oil & Gas, Power & Water Desalination, Water Reuse, Industrial, Leisure & Tourism, Social, Building, Sustainable and Transport projects. On this occasion, MEED announced Arabian Bemco as the winner for the best Power and Desalination Project in the GCC for 2012.

The projects were evaluated based on economic and social feasibility, design and architecture, engineering and sustainability by six judges from Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and U.A.E. The MEED Quality Awards are for completed and successful projects that deliver value for their owners and users.



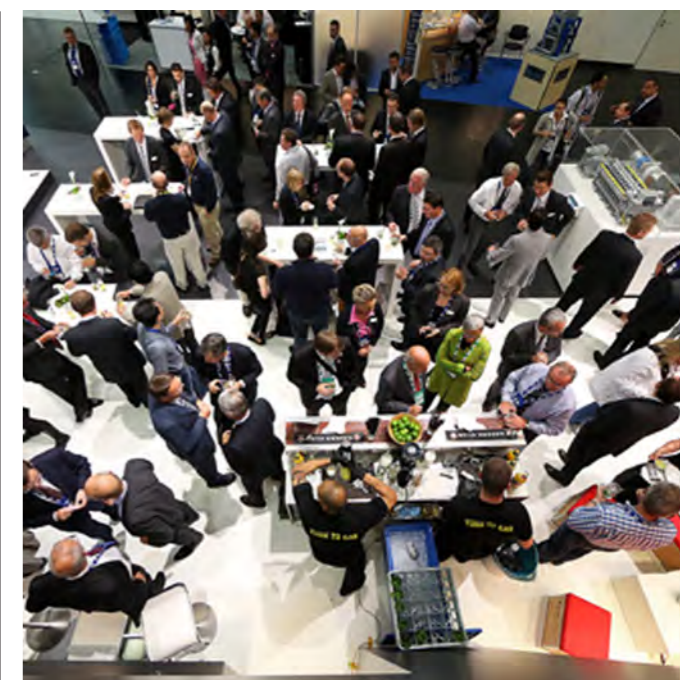
Amongst the hundreds of nominated projects this year, Riyadh Power Plant No. 10 stood out as the region's best. Valued at \$2.9 billion and consisting of 40 GTG's generating approximately 3,232 MW power to the central region, Riyadh PP10 is one of the largest single-contract Simple Cycle Power Plant and has achieved outstanding success in quality during the delivery of the project taking into consideration the challenges overcome from design planning, to engineering and construction.

The award reflects Bemco's commitment and dedication to quality and its high level of expertise in the GCC.



Power-Gen 2012

By : Vahe Hadajian, Operations & Business Development



During the month of December 2012, Arabian Bemco participated at the yearly Power Gen conference at the Orange County Conference center in Orlando, Florida. Vahe Hadajian and Hrag Sarkissian were in attendance of the 3 day conference. The conference was attended by over 22,000 individuals, power professionals and executives from 92 countries (including 27 international delegations) and exhibit 1400 companies.

The main topic at the event launch was: "The Challenge ahead", looking at the future of power generation, advances in the technologies leading to increased plant efficiencies and emission reductions. The keynote speakers included d Gordon Gillette, president of Tampa Electric & Peoples Gas;

Jon Wellinchoff, chairman of the Federal Energy Regulatory Commission; E. James Ferland, president and CEO of The Babcock & Wilcox Company; Paul Browning, president & CEO of GE Thermal Products; and VADM Dennis V. McGinn (USN, Retired), president of the American Council on Renewable Energy.

During the conference, Arabian Bemco delegates met with several technology leaders to develop new opportunities, partnerships, and discuss current projects and challenges ahead. In order to further market its capabilities to the world, Arabian Bemco is looking to participate further in 2013 and to contribute as an exhibitor or Sponsor.

Bemco International for Industries

Profile:

Bemco International for Industries (BII) operates from premises measuring a total of 90,000 square meters on a site adjacent to the prestigious Power Plant No. 10 Combined Cycle (PP10) in Riyadh, Kingdom of Saudi Arabia. The factory was built in 2011 as a strategic manufacturing facility to support Arabian Bemco's PP10 project by manufacturing Pressure Pipes, Pressure Vessels, Steel Plates, Heavy Structural Steel and associated secondary steel

works such as ladders, handrails and supports etc.

The emphasis on utilizing state-of-the-art equipment and machinery was employed to ensure that high quality standards are achieved while maintaining good production levels in a safe working environment. BII successfully achieved ASME "S" Stamp for Power Boilers, "U" Stamp for Pressure Vessels, "PP" Stamp for Pressure Piping using the top notch and state-of-the-art technol-

ogy to fabricate high quality products that conform to ASME Codes. BII production line operates at six different Bays with each bay designed to ensure maximum efficiency. Bay 1 and Bay 2 are dedicated to 8,000 square meters of simple and complex pipe spool fabrication and include high-tech machinery such as CNC Band Saw with capacity of over 1,000 dia inches per day, High-Speed Beveling Machines giving accurate weld-butt bevels, HRSG's Pipe Cutting Plasma Machine 1,500 dia inch



90,000 Square Meter Fabrication Facility



Mr. Ousama Ismail, BII Executive Manager

capacity, Semi-Twin-Head Semi-Automatic Welding Machines, Quick Pipe Spool Stations, and Full Conveyor System Production Lines. Highly skilled workers operate the machinery where production progress is monitored through a real-time production and monitoring system. Bay 3 measures to about 4,000 square meters and is used

as an assembly bay for exhaust stacks and steel plates, after the process of bending and cutting, and utilizes a Guillotine Max Cut Machine, Semi-Automatic MIG Machines and Welding Rectifiers (SMAW) where fully qualified welders operate. The manufacture of duct works and cylinder plates are fabricated in a 4,100 square meter space, Bay 4, using a 24 mm Plasma and



Pipe Spooling Fabrication and Production Line

Multi-Head Oxy Gas CNC Cutting Machine, a 600 ton Brake Press, MIG Machines, and SMAW Machines.

BII is also capable of manufacturing large diameter cylinders used for cylindrical tanks and exhaust stacks associated with the power industry, and this is done through Bay 5. Heavy duty and High-tech machinery is put in place at Bay 6 and that includes a 16 meter CNC Plasma/Oxy Gas Plate Cutting Machine of 50mm thickness cut, NC Horizontal Plate Rollers 3m x 25 mm thickness plate capacity, NC Horizontal Profile Bending Machine, Column and Boom Welding Stations complete with automated production line, Semi-Automatic (MIG) Welding Machines, Sub-merged Arc Welding Machines, SMAW Welding Machines, Sweep



Submerged Arc Welding Machine



Mr. Norman Lawson, BII Factory Manager

Blasting Shop/Booth, Painting Shop/Booth. Bay 6 is designed for Structural Steel Works with a total area of approximately 4,200 square meters.

Bay 6 is capable of producing over 5 tons per normal workshift day. Bay 6 is fully equipped with metal workers, Medium Size Band Saws, Hydraulic Band Saws, 10 Ton Overhead Cranes, Semi-Automatic (MIG) Welding Machines, Sub-merged Arc Welding Machines, and SMAW Welding Machines.



Bay 1, 2 & 3

Shot Blasting and Painting:

The area is approximately 2,000 square meters and this workshop is used for shot blasting and painting of structural steel, steel plate and pressure pipe associated with the Power industry. The shot blasting and painting Bay is able to produce in excess of 20Tons of blasted steel work per normal dayshift pattern, the bay is fully equipped with modern machinery for blasting and recycling, paint coating equipment and sweep blasting. Real time production /progress monitoring by use of a bar coding systems for each individual structural item from goods inward,



Engineering Team

manufacture through to delivery dispatch.

Structural Engineering:

BII Structural steel department comprises of highly qualified personnel and within specific fields of steel design and operates from the main office. All personnel are fully experienced with



Profile Bending Machine

Pipe Engineering:

BII Pipe Engineering department comprises of highly qualified personnel all within the specific field of pipe design and operate from the main office. All personnel are fully experienced with pipe work design and manufacture and use the latest CAD/CAM program including Autocad, Smart



Exhaust Stack

Plant Isometric and Spoolgen.

The Pipe engineering departments design capabilities generically generates detailed design shop drawings, CAD/CAM cutting files for CNC cutting machines, and documents for fabrication workshops covering Material Take Offs (MTO), weld map drawings, and



CNC Band Saw - over 1000 dia inch per day

Pipe-nested cutting plans. All Pipe welding and structural steel processes are carried out using international standards, codes and machines such as B31.1, B31.3, SMAW, and TIG. Bemco International for industries has become a leader in the steel fabrication industry not only through its state-of-the-art workshops but also its site activities, always striving to ensure that erection



Completed Exhaust Stack Ready for Site Erection

activities are completed on time and within budget. BII have all the resources available expected from a successful company and has full back up of the Arabian Bemco group ensuring that the resources, facilities and experience are available to ensure a successful contract.



Column and Boom Welding Station



CNC Band Saw - over 1000 dia inch per day

Arabian Bemco Ranked on the 2012 ENR Top 225 Global Contractors List

August 27, 2012 Once again, Arabian Bemco has made its way to the Top-225 Global-Contractors-List by Engineering News Records (ENR), a leading publication for the engineering and construction industry. Arabian Bemco was listed at 153rd place based on overall 2011 global contracting revenue, which in turn, marks Arabian Bemco as one of the leading Industrial and Power EPC contractor globally.

In 2011 Arabian Bemco has executed Multi-Billion Projects, Riyadh Power Plant No. 10 (3,232 MW) and Qurayyah Combined Cycle Power Plant (4,600 MW), the largest in the Kingdom of Saudi Arabia, which has significantly contributed to revenue. Furthermore, Arabian Bemco has signed two new contracts from 2011 to date: Riyadh Combined Cycle Power Plant No. 10 (1,280 MW), Riyadh Combined Cycle Power Plant No. 12 (2,175 MW) SABIC's Pet Preform Plant, Al-Qurayyat Open Cycle Power Plant (120 MW).

The Top-225-Contractors revenue from projects outside their home country has increased by 18% from 2010 generating over \$453 billion in 2011. On the domestic front, the Top-225-Contractors generated revenues of over \$749 billion having a 9% increase from 2010.

The ranking is a reflection of Arabian Bemco's dedication and commitment to implementing different strategies that allows it to deliver competitive offers to the client, despite resilient competition, and yet remain as one of the globally renowned contractors.

ENR		THE TOP 225 GLOBAL CONTRACTORS		#153	ARABIAN BEMCO CO. LTD. from Jeddah, is one of the leading EPC Contracting Company in Saudi Arabia and the Region.											
RANK 2012	2011	FIRM	2011 REVENUE \$ MIL. TOTAL	INT'L	2011 NEW CONTRACTS \$ MIL.	GENERAL BUILDING	MANUFACTURING	POWER	WATER SUPPLY	SEWER / WASTE	INDUS. / PETROLEUM	TRANSPORTATION	HAZARDOUS WASTE	TELECOM		
103	97	MORTENSON CONSTRUCTION, Minneapolis, Minn., U.S.A.	2,467.6	213.2	2,192.0	54	0	32	0	1	0	0	0	1		
104	165	KHARAFI NATIONAL KSCC, Safat, Kuwait	2,447.0	1,558.0	4,984.0	12	3	53	0	6	25	0	0			
105	106	STRUCTURE TONE, New York, N.Y., U.S.A.	2,427.4	118.7	3,705.9	84	0	0	0	0	4	0	0	1		
106	98	MCCARTHY HOLDINGS INC., St. Louis, Mo., U.S.A.	2,379.0	0.0	3,196.0	84	0	3	3	3	3	5	0			
107	135	TAIKISHA LTD., Tokyo, Japan	2,309.7	980.2	0.0	22	33	0	0	0	45	0	0			
108	113	URS CORP., San Francisco, Calif., U.S.A.	2,266.4	233.0	2,291.2	3	9	47	0	0	11	15	9			
109	127	PUNJ LLOYD LTD., Gurgaon, Haryana, India	2,249.0	1,332.0	2,882.0	20	0	12	1	0	51	11	0			
110	95	HENSEL PHELPS CONSTRUCTION CO., Greeley, Colo., U.S.A.	2,230.9	0.0	1,958.7	77	0	1	0	0	0	17	0			
111	112	VAN OORD, Rotterdam, The Netherlands	2,229.5	1,768.1	2,018.9	0	0	3	0	0	20	78	0			
112	92	BESIX SA, Brussels, Belgium	2,219.7	1,347.1	2,752.5	57	0	1	0	4	2	35	0			
113	115	DOOSAN ENGINEERING & CONSTRUCTION CO. LTD., Seoul, S. Korea	2,214.0	332.3	2,214.0	48	5	1	2	3	12	29	0			
114	104	CHIYODA CORP., Yokohama, Japan	2,205.0	1,467.0	6,775.0	0	4	12	0	0	78	0	0			
115	125	SEPCHUI ELECTRIC POWER CONSTRUCTION CORP., Qing Dao, China	2,178.7	2,019.6	256.0	0	0	100	0	0	0	0	0			
116	114	MCCONNELL DOWELL CORP. LTD., Hawthorn, Victoria, Australia	2,071.3	704.2	3,064.7	12	0	14	5	11	18	37	0			
117	130	SHANGHAI ELECTRIC GROUP CO. LTD., Shanghai, China	2,013.9	1,546.0	5,217.1	0	0	100	0	0	0	0	0			
118	144	DPR CONSTRUCTION, Redwood City, Calif., U.S.A.	2,000.3	41.7	2,455.0	51	0	0	0	0	16	0	0	3		
119	119	GRAHAM GROUP LTD., Calgary, Alberta, Canada	2,000.0	240.0	2,900.0	30	3	5		8	28	20	0			
120	123	JIANGSU NANTONG LIJIAN CONSTR. GROUP CO., Rugao, Jiangsu, China	1,996.4	190.2	1,682.6	78	4	0	0	4	7	5	0			
121	124	GRANITE CONSTRUCTION INC., Watsonville, Calif., U.S.A.	1,989.0	0.0	1,891.0	0	0	0	2	0	0	77	0			
122	137	POLIMEKS INSAAT TAHHUT VE SAN TIC. AS, Istanbul, Turkey	1,941.0	1,941.0	213.0	64	0	0	0	0	9	11	0	1		
123	117	JE DUNN CONSTRUCTION GROUP, Kansas City, Mo., U.S.A.	1,924.3	0.0	1,834.8	95	0	0	0	0	0	0	0			
124	121	TOYO ENGINEERING CORP., Chiba, Japan	1,921.3	1,406.3	3,276.5	0	6	21	0	0	66	0	0			
125	206	HOFFMAN CORP., Portland, Ore., U.S.A.	1,910.0	0.0	0.0	31	59	0	0	5	0	2	0			
126	133	TURNER INDUSTRIES GROUP LLC, Baton Rouge, La., U.S.A.	1,870.0	47.1	0.0	0	0	1	0	0	97	0	1			
127	143	XINJIANG BEIXIN CONSTRUCTION & ENG'G CO., Urumqi, Xinjiang, China	1,864.6	340.6	5,015.8	47	0	1	13	0	0	39	0			
128	141	SALINI COSTRUTTORI SPA, Rome, Italy	1,854.4	1,432.7	1,902.0	5	0	0	30	0	0	65	0			
129	134	HOLDER CONSTRUCTION CO., Atlanta, Ga., U.S.A.	1,766.0	126.6	1,593.3	24	0	0	0	0	0	4	0	7		
130	111	HABTOOR LEIGHTON GROUP, Dubai, U.A.E.	1,757.0	434.0	1,440.0	76	0	0	5	0	0	18	0			
131	126	HUNT CONSTRUCTION GROUP, Scottsdale, Ariz., U.S.A.	1,750.0	0.0	601.0	83	3	0	0	0	0	14	0			
132	140	SALFACORP, Santiago, Región Metropolitana, Chile	1,736.0	143.0	1,583.4	58	2	13	0	0	2	4	0			
133	145	CTCI CORP., Taipei, Taiwan	1,691.2	592.7	2,707.4	4	5	6	0	7	67	12	0			
134	109	SINOPEC ENGINEERING INC., Beijing, China	1,654.6	634.9	1,730.7	0	0	0	0	0	100	0	0			
135	129	BRASFIELD & GORRIE LLC, Birmingham, Ala., U.S.A.	1,645.1	0.0	2,032.6	80	2	3	1	6	1	3	0			
136	136	NANTONG CONSTR. GROUP JOINT-STOCK CO., Nantong, Jiangsu, China	1,602.9	204.5	1,400.1	75	4	3	0	1	16	1	0			
137	139	JOHN SISK & SON LTD., Dublin, Leinster, Ireland	1,592.0	802.0	1,500.0	58	3	10	0	0	10	18	0			
138	103	ELLAKTOR SA, Kifissia, Greece	1,558.3	253.3	1,346.0	14	0	19	0	8	3	55	0			
139	142	AUSTIN INDUSTRIES, Dallas, Texas, U.S.A.	1,522.2	0.2	761.2	29	1	1	0	0	26	44	0			
140	152	DAY & ZIMMERMANN, Philadelphia, Pa., U.S.A.	1,514.6	19.3	58.6	1	1	97	0	0	2	0	0			
141	157	IMPRESA PIZZAROTTI & C. SPA, Parma, Italy	1,511.5	481.3	1,062.4	33	0	1	1	0	0	65	0			
142	158	PJSC STROYTRANSGAZ, Moscow, Russia	1,496.0	263.0	1,300.0	2	0	60	0	0	37	1	0			
143	161	SHENYANG YUANDA ALUMINUM INDUS. ENG'G CO., Shenyang, China	1,493.0	396.7	1,650.7	100	0	0	0	0	0	0	0			
144	116	SSANGYONG ENGINEERING & CONSTRUCTION CO. LTD., Seoul, S. Korea	1,491.0	462.0	1,926.7	44	0	1	8	0	0	47	0			
145	169	CENGIZ CONSTRUCTION INDUSTRY & TRADE CO. INC., Istanbul, Turkey	1,488.5	466.9	712.7	1	0	4	26	0	0	37	0			
146	122	JOANNOU & PARASKEVAIDES GROUP OF COS., Guernsey, U.K.	1,462.5	1,462.5	1,200.0	24	0	8	1	2	3	58	4			
147	174	PRIMORIS SERVICES CORP., Lake Forest, Calif., U.S.A.	1,460.2	0.1	1,720.0	2	0	13	0	2	49	34	0			
148	203	SHAPPOORJI PALLONJI & CO. LTD., Mumbai, Maharashtra, India	1,450.1	360.0	2,120.0	55	0	1	3	0	9	32	0			
149	167	WILLBROS GROUP INC., Houston, Texas, U.S.A.	1,447.8	227.2	0.0	0	0	43	0	0	0	57	0	0		
150	146	ARABIAN CONSTRUCTION CO. SAL, Beirut, Lebanon	1,433.9	1,387.5	1,118.0	92	0	0	0	0	0	0	0			
151	**	KUMHO INDUSTRIAL, Seoul, S. Korea	1,432.4	105.1	1,476.7	52	0	4	7	8	0	26	0			
152	205	METKA, Marousi, Athens, Greece	1,371.4	1,157.4	392.8	0	0	97	0	0	2	1	0			
153	148	ARABIAN BEMCO CONTRACTING CO. LTD., Jeddah, Saudi Arabia	1,360.0	122.3	1,780.9	12	0	82	1	1	1	0	0			

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