

# GLOBAL POWER

Delivering a World Connected by Energy

**KBR**

## COMBINING HISTORICAL POWER EXCELLENCE WITH INNOVATIVE SOLUTIONS

Through our engineering, construction management and maintenance services, KBR has successfully delivered power across the globe to even the most remote locations. In recent years, our domestic power capabilities have broadened to complement our international presence, creating an unparalleled portfolio of capabilities in the power market.

With nearly a century of experience in the development, engineering, procurement, construction and maintenance of a wide variety of power generation technologies, KBR provides economic and efficient solutions to clients worldwide.

KBR recognizes the growing importance of renewable energy sources for our environment, our customers and the communities in which we live and work. Among our wide-ranging capabilities, KBR offers solutions for the construction, servicing and maintenance of alternative energy facilities including biomass, solar and wind power, alternative fuels and waste-to-energy facilities.

Our resume of experience in the power industry is built upon an impressive list of successfully completed projects, many of which have been completed on time or ahead of schedule.

KBR is consistently awarded top marks for safety, quality and project management ability and many of our projects have received industry awards for construction excellence. With our commitment to high standards and the use of innovative solutions, we deliver efficient power production at great value.

KBR has outstanding Environmental, Health and Safety programs that include comprehensive supervisor and employee training and a dedication to a safe workplace that is exemplified by five OSHA Star sites. Clients can count on KBR's commitment to implementing safety initiatives and training to improve our safety performance and the standards of excellence to support our mutual goals.



KBR is committed to safety in all our projects. Our programs have resulted in multiple Occupational Safety and Health Administration (OSHA) "Star" site awards and incident rates well below industry averages. Multiple awards have been received including many from DuPont, Champion International, Southern Company, CURT, and several different One Million Hour Club Awards, which have been consecutively awarded for several years. Receiving these awards represents our employees' safe work environment on all our projects, all the time.



1 Dynegy Riverside



2 Southern Company Plant Franklin

Our experience and innovative techniques allowed us to create the first offshore wind farm in the United Kingdom. KBR was responsible for the design, procurement and installation of the Barrow Offshore windfarm in the North Sea on a full-scope EPC basis.

The Nigg Fabrication Facility was established to fabricate large steel structures and production facilities for the North Sea oil and gas industry. At its peak, the facility employed more than 5,000 workers and produced nearly 20,000 tons of fabricated structures per year.



Our team of renewable energy experts can also help facilitate environmental management, coastal process modeling, asset management, and electrical design engineering, to support studies and development for offshore wind farms.



The addition of BE&K broadened KBR's capabilities of addressing specific technologies associated with biomass based generation projects. The special skills associated with biomass fueled boilers, material handling systems, woodyards, and related systems and equipment are essential to the cost-effective design and construction of these facilities.

## FOCUS ON THE FUTURE: GENERATING POWERFUL SOLUTIONS

### ALTERNATIVE ENERGY EXPERTISE

In the face of growing energy demands and the need for sustainable energy, KBR has increased its focus on delivering energy projects that minimize environmental impact. We successfully implement power plant projects that generate electricity using renewable energy sources such as biomass, wood-waste, and other fossil fuels that provide clean energy solutions.

KBR is committed to addressing the challenges of the energy sector to ensure that renewable energy technology remains an integral part of the world's long-term energy solutions.

### POWER GENERATION SERVICES

KBR provides a wide variety of services for power generation including engineering, procurement, construction, start-up and testing, maintenance / boiler repair, and general consulting services. The services can be provided on a stand alone basis or as part of an Engineering, Procurement and Construction (EPC) package.

Services span from conceptual studies, to in-depth Front End Engineering and Design (FEED) studies, through full EPC and beyond, for projects from a few thousand workhours, to multi-million dollar projects.

KBR's objective is to deliver power projects on-time or ahead of schedule, within budget, and have received multiple commendations for quality, safety, project management and construction excellence. This reputation has led to an expanding circle of repeat clients in power and in a variety of other industrial markets.

1 Barrow Windfarm

2 Temple-Inland Corrugated Packaging



## FOSSIL FUELS

KBR has an extensive history of providing energy services to clients across the globe. To meet this emerging demand, we are a leader in engineering and constructing natural gas-fired power plants from 25 MW to 1250 MW and beyond. KBR's history and capabilities include major coal-fired power plants as well as strong industrial coal, biomass, and waste-to-energy, and cogeneration capabilities.

## COAL-FIRED POWER PLANTS

As one of the world's most plentiful resources, coal will remain a key power source for the foreseeable future. Ranked as one of the Top 25 fossil fuel contractors by ENR Magazine, we have managed the development, design and construction of power and industrial coal plants for more than forty years, including multiple units in the United States and internationally. KBR provides licensing; engineering services and proprietary equipment for one of the world's most efficient coal-powered plants – Dongguan Power Plant in China's Guangdong Province – which uses both pulverized coal and synthetic gas.

Together with Southern Company, KBR has worked to provide Integrated Gasification Combined Cycle technology to gasify a variety of coals and make them into a synthetic gas for burning in a highly efficient combined cycle power plant. The process has been through the demonstration phase and is anticipated to support our clients' projects in the US and China next year.

KBR recently completed a CFB boiler project at Georgia Pacific's Port Hudson plant in Louisiana which included the latest in boiler technology, allowing the boiler to operate on a variety of fuels with low emissions. GP has the capability to generate its own power using a choice of petroleum coke, low-grade coal or wood chips with nearly 100% burn and within emissions limits.



1 Georgia Pacific Port Hudson

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Working with Southern Company on its Plant Franklin project in Smiths Station, Alabama, KBR was awarded top honors and received the ABC Excellence in Construction Award at the state level in the Industrial Category. The contract spanned over 17 months achieving mechanical completion over two weeks ahead of schedule. The Franklin project included the completion of installation of a 630 MW, two-on-one combined cycle power generating plant. The project was also cited by Southern Company's independent consultant as having the highest productivity of any project on their system.

Working with Southern Company on its 3400 MW Scherer coal plant near Macon, Georgia, KBR is providing EPC services to install bag-houses to help the plant meet air quality requirements. This work involves the engineering, procurement and construction of Siemens-Wheelabrator bag-houses, associated major ductwork, and all related structural, mechanical, electrical and control systems and equipment on the largest coal plant in the United States.

Working with Calpine Corporation, KBR simultaneously built two nominal 800 MW, three-on-one combined cycle units at separate sites in Decatur, Alabama. The projects each required three advanced combustion turbines and HRSGs, along with one large steam turbine generator. Both projects were completed on time. In addition, we received accolades for the quality, safety and project management.

## GAS-FIRED POWER PLANTS


There is growing demand for new gas-fired facilities in the current market, and the need for companies with experience designing and building them on-time and within budget. KBR has a substantial track record of success in EPC of simple and combined-cycle plants from small peakers to major multiple train projects.

Power plants built by KBR can be found throughout the southern United States. Our grassroots projects – from a 170 MW Combustion Turbine project in Kentucky to a 1250 MW combined cycle plant in Georgia – are of high quality, impeccable value and consistently exceed our clients' expectations.

## AIR QUALITY CONTROL RETROFITS

Improving air quality across the globe is a top priority, and KBR has been a part of the essential effort to reduce air emissions by installing control equipment on numerous power plants to help protect our environment.

We offer engineering, procurement and construction services for the installation of air quality control systems such as baghouses, flue gas desulfurization systems (scrubbers), precipitators, SCRs and related systems and equipment.

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- 1 Southern Company Plant Franklin
  - 2 Southern Company Plant Scherer



## PLANT MODIFICATIONS

KBR provides unique capabilities for modifications of power generation facilities from small power or industrial cogeneration facilities to major power plants. We have innovative laser scanning systems to develop accurate models of existing facilities so that modifications can be efficiently designed, modeled and implemented. We have a full-service engineering staff with extensive experience in plant modifications and upgrades, and support of outage work. Our Boiler Group specializes in boiler and other outage related work, and is organized to accommodate the special requirements, and scheduling limitations of outage work.

Our experience also includes major modifications to power facilities. We have completed conversions of steam plants to combined cycles by replacing old boilers and repowering the existing steam turbine generators with new combustion turbines and HRSGs, build outs of existing simple cycle projects into combined cycles, and boiler fuel conversions.

## SUBSTATIONS

As an essential part of electrical power transmission, KBR has far-reaching experience in the installation, building and upgrading of Gas and Air Insulated Substations. Our capabilities include constructing high-voltage transmission substations, generator step-up stations and complex cogeneration distribution substations.

## MAINTENANCE

We partner with our clients to increase their reliability and reduce operating costs without compromising our commitment to safety and the environment. We offer total maintenance solutions from management to workforce, supplemental maintenance, outage planning and maintenance training supported by the best practices of more than 75 maintenance sites both domestically and abroad.

KBR is working with the Solid Waste Authority of Palm Beach to provide engineering, procurement and construction services for the refurbishment of its waste-to-energy resource recovery facility. Within the budget restraints and scheduled time frame, KBR will replace boiler internals, upgrade the electrical and control systems, pollution control equipment, and replace electrostatic precipitators with fabric filter houses.

An essential aspect of our services is the ability to attract and maintain labor. KBR is continuously working to provide labor to projects in many locations and will use those resources to obtain the labor needed for new work. We also have a large network from which to identify craft personnel. By working with state employment agencies and local resources to bring personnel to each project, our current initiatives have more than 50% NCCES certified craft labor at each site which gives us an advantage in retaining labor resources for our projects throughout the globe.

KBR's power projects have received commendations from our clients and Excellence in Construction Awards from Associated Builders and Contractors. In 2008, we received an Excellence in Construction award from ABC for Southern Power's Plant Franklin unit. This follows similar awards for MEAG Power's Wansley Project, Oglethorpe Power's combined cycle at Wansley, and our Foothills generating facility in Kentucky.



KBR serves as a good citizen in the communities surrounding our projects. From working with high schools and community colleges to implement training programs for the local workforce, to raising money for the disadvantaged, providing funds and technology to the local schools, supporting of local charities, KBR prides itself on giving back to the communities in which we work.

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