

Services

Construction Advisory Services

Whether as part of an entire EPC package (new or revamp) or a turn-key project or as a stand-alone Furnace Construction Project, BD Energy Systems with its team of individuals having of 30+ years of, design and construction experience, is available to assist in completing construction activities in an efficient manner by developing the construction feasibility starting from:

Delivery Process:

- Engineering and Design phase
- Reviewing Logistics for transportation
- Fabrication of Modules
- Laydown Yards
- Crane review and set up with Engineered Lifts
- Coordination with other contractors and subcontractors at site performing work at the same time.

Scope of Delivery:

- Construction planning & scheduling
- Construction management
- Mobilization & Demobilization
- Preturnaround activity or Demolition
- Turnaround activity or Installation. All major construction elements required for mechanical completion of a furnace such as construction personnel, crafts, subcontractors, tools, trailers, cranes, specialty welders, riggers, NDE, refractory installation, etc.



Services

Furnace Relocations

BD Energy Systems, LLC is known for proven and successful relocation, upgrades and rebuilds on Steam Methane Reformers for Ammonia, Methanol, and Hydrogen plants.

The company has added experienced resources to be an Engineering, Procurement and Construction [EPC] company capable of dismantling, relocation, upgrade and rebuild services for entire Ammonia, Methanol, and Hydrogen plants.

The services include the know-how to assist and develop business case pro forma to compare grassroots versus relocated facilities. Our partnership approach focuses on providing information, tools and services to meet expectations and promote successful projects.

BD Energy Systems, LLC has the Frontend Loading [FEL 1,2,3] and Frontend Engineering Design [FEED] experience to develop, plan and execute projects on time and on budget. Current estimating personnel and models are up-to-date and have a low risk of project time and cost overruns.

With over 30+ years of individuals experience and over 90+ projects completed we have the demonstrated ability to assist you on your next relocation evaluation and project.

Relocation and upgrading of existing facilities offer a number of advantages over building new plants:

- Utilization of a known and proven design assures the plant's production capabilities.
- Utilization of existing equipment that has been inspected and certified as Fit for Service can provide significant savings over new equipment.
- During the relocation and rebuild process an existing unit can be evaluated to incorporate known and proven upgrades for
 - Safety (New instrumentation to meet new codes, Evaluation of Process Safety Relief systems, new equipment and piping codes)
 - Environmental Emissions (to meet new permit limits)
 - Efficiency (Cost savings per unit of production)
 - Capacity (Increased Production)
- Faster timeframe to dismantle and relocate versus a new FEED design and long delivery of major equipment. This can translate into 1 to 2 ½ years of time savings – by completing and having production in operation. This speeds up the payback model and reduces the time period of paying construction interest.

Before Relocation



After Relocation



Services

Process and Feasibility Studies

BD Energy Systems works together with Mr. Steve Parrish of Parrish Process Services (part of BD Energy Systems, LLC.) to generate a detailed overall plant Heat and Material Balance and bring in-depth experience on evaluating equipment performance in Syngas plants. This combination provides an edge to BD Energy Systems capabilities to provide invaluable recommendations to process and feasibility studies undertaken on existing plants.

Typical evaluations include:

- Detailed audit at plant site
- Evaluation of tramp air in the furnace
- Evaluation of the plant steam requirements
- Evaluation of the existing flue gas or waste heat recovery coming from the primary reformer and turbines
- Evaluation of the natural gas consumption in the front end of the plant
- Evaluation of the process air system
- Evaluation of CO₂ removal
- Evaluation of refrigeration system
- Evaluation of cooling water balance
- Evaluation of the hydraulic profile and pressure drop through the plant
- Evaluation of NO_x requirements
- Evaluation of the fans associated with the Steam Reformer for increased production or energy savings
- Evaluation of the design parameters to current operating conditions



Services

Process and Feasibility Studies

With more than 90 projects executed, BD Energy Systems stands as a world leader in evaluating options for future revamps, evaluating efficiency and energy savings, and improving reliability of the existing plants. Our proven records on such revamps indicate the ROI for efficiency and capacity increase in plants <2 years. BD Energy Systems will be pleased to provide references for the projects executed. Regarding large Fired Heaters in the refineries and gas plants where efficiency is a target to achieve, BD Energy Systems have extensive experience in evaluating the best option for efficiency increases by carrying out a process model for the design case and comparing it to the current operating case. Tramp air issues (if any) and any losses in efficiencies are evaluated by BD Energy Systems, together with BD Heat Recovery Division, Inc., a leading supplier of compact Combustion Air Preheaters to provide a full range of efficiency and capacity increase solutions for both existing and new fired heater projects.

Standard Equipment Evaluations:

- Primary Reformer
- Secondary Reformer
- Shift Reactors
- Boilers
- Heat Exchangers
- Heater
- Compressors
- Turbines
- Fans
- CO2 removal system
- Converter
- Evaluation of various leaks
- Kickback valves
- Relief valves
- Bypass valves
- BFW into condensate
- Steam directly to surface condenser
- Instrumentation inaccuracies
- Catalyst bed for temperatures



Services

Turnaround Planning

With individuals having over 30 years of experience in different Steam Methane Reformers technology designs, construction, and operations, BD Energy Systems is well-suited to provide detailed planning and scheduling for plants having major turnarounds on their Steam Reformer furnaces and where these furnaces are the critical paths in the turnarounds. BD Energy Systems provides a detailed planning schedule, taking into account other equipment involved in the plant turnaround. BD Energy Systems turnaround planning services includes pre-turnaround, turnaround, and post-turnaround activities. This includes sequence of arranging the furnace and other plant equipment in scope of work in the laydown area to execute in an efficient way based on experience & lessons learned for installation with minimal time to keep track on proposed schedule.

As specialists in this field, BD Energy Systems are able to provide clients with more in-depth knowledge of the requirements of a successful turnaround unique to steam methane reformers. Having experience with a wide range of furnace designs, BD Energy Systems can offer these services to provide a smooth turnaround, from new plants experiencing their first turnaround to older plants with obscure or outdated designs.



Services

Field Services and Spares

BD Energy Systems are well placed in procuring of materials on an emergency basis from world-wide sourcing due to the magnitude of procurement we carry out on projects involving boilers, fired heaters and high temperature furnaces. Whether the items are radiant tubes, tube sheets, or boiler coils, we are well placed to execute the project with in-kind replacement or a better design. Additionally with BD Energy Systems experts placed world-wide, we are well placed to attend sites to assist in technical field services.

