

Gasification Project Services

Feasibility & Pre-FEED Support

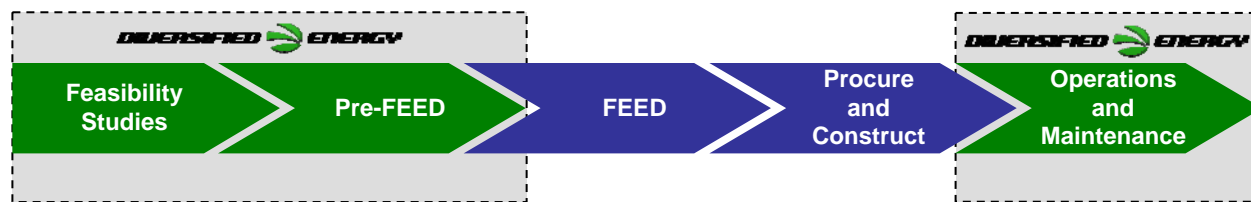
The Market Need

Numerous gasification projects are being proposed in the U.S., the result of rising energy prices, the push for energy independence, and a re-invigorated focus on the environment. These projects are various in nature – coal-to-liquid (CTL), integrated gasification combined cycle (IGCC), coal-to-synthetic-natural-gas, biomass gasification, and more – with outputs such as fuels, electricity, and chemicals. They are also various in scale, from 10's of MWe for industrial type applications to 100's of MWe for utility-scale projects. One common challenge among the owners and developers of these projects is to get early, accurate, and project-specific analyses on the technical and economic viability prior to committing large financial resources. It has been repeatedly demonstrated that the earlier and more complete the up-front assessment, the more likely the project will meet cost, schedule, and performance objectives. This result is fairly intuitive because early in a project is where the most influence is possible at the least cost. The accompanying Construction Industry Institute graphic of 53 large projects provides one example of these tangible benefits.



Experienced Accurate Responsive Objective

Where can owners and developers turn to for this initial work? While Front End Engineering Design (FEED) and Engineering, Procurement, and Construction (EPC) contractors are necessary later in a project, the handful of current companies offering these services are not focused on providing developers quick, thorough, customized, and low cost analyses at the front-end of a project. It is in this market niche, “feasibility studies” and “pre-FEED,” that Diversified Energy is leveraging its technical and economic know-how to bring value to gasification projects. The company is also leveraging its field experience to offer Operations and Maintenance (O&M) planning and support.



Diversified Energy Project Services

Diversified Energy can provide in-depth expertise for owners and developers during the feasibility, pre-FEED, and O&M phases of a project. Providing an “owner’s perspective,” the ultimate goal is to evaluate and optimize a project’s efficiency, availability, emissions, and safety, all while maximizing financial performance and minimizing initial capital outlays. The accompanying table describes just a few examples of the services Diversified Energy can provide.

Operating Performance Evaluation <ul style="list-style-type: none">• Plant efficiency, reliability, and availability (for both the gasifier, power train or synthesis system, and end-to-end plant)• Feedstock options – coal types, pet coke, biomass, and others• Value-added byproduct possibilities Environmental Profiling and Options <ul style="list-style-type: none">• Air, ground, and water emissions• CO₂ capture and sequestration options Gasification Requirements Definition, Conceptual Design, and Interface Definition <ul style="list-style-type: none">• Feedstock preparation and handling, gasifier, and gas clean-up systems• Interface to back-end systems: IGCC turbines, Fischer-Tropsch or synthesis systems, etc• Auxiliary resource requirements (water, electricity, oxygen, etc.)	Economic Analyses <ul style="list-style-type: none">• Capital and O&M costs• Rates of return• Trades on redundancy, availability (e.g., multiple gasifiers) and additional plant flexibility Technology Selection Support <ul style="list-style-type: none">• Development of selection criteria and evaluation metrics for a specific project• Creation of request for information and request for proposals• Evaluation and selection of commercial gasification and other plant systems to meet project needs FEED and EPC Contractor Integration and Support <ul style="list-style-type: none">• Selection support and program management (if required)• Integration and transition support to chosen FEED and EPC contractors
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Why Diversified Energy?

Understanding the many technical and economic nuances of a commercial gasification project is absolutely critical to success. Diversified Energy is currently performing advanced gasification research and development activities and, as a result, has developed a comprehensive understanding of feedstocks, feed handling systems, commercial gasifiers, gas clean-up technologies, back-end turbine or synthesis systems, and CO₂ handling methods. Knowledge of these technologies are complemented by hands-on experience in doing projects and operating gasification systems. The company has developed its own performance and economic modeling tools and has relationships with multiple strategic partners to provide specialty engineering or support. For our customers this translates into the most up-to-date and credible domain knowledge available today.

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