Estimation of the fair market value of income-producing assets involves appraisal of the physical condition of the assets as well as their capacity to generate income in the future. Such estimations require an understanding of engineering principles, current economic conditions, risk factors, and the general availability of capital for new ventures of the type being appraised. Due consideration must also be given to recent transactions involving similar properties. Baker & O’Brien consultants have experience in appraising a wide array of assets, including petroleum refineries, natural gas processing facilities, petrochemical plants, crude oil and product pipelines, offshore production platforms, retail marketing facilities, power plants, and pulp and paper mills. We value individual, stand-alone assets, as well as enterprises that may be involved in all phases of refining, chemicals, distribution, and marketing.

Our appraisals and valuations are prepared for a variety of purposes, including fair value in mergers and acquisitions, insurable value, collateral for financing, asset transfers, ad valorem tax value, and bankruptcy re-organization. Clients who rely on our expertise in asset valuation include plant owners and operators, financial institutions (both commercial and investment banks), insurance companies, municipal taxing authorities, and legal firms involved in disputes over the value of assets.

Our asset valuation experts often work closely with and advise financial teams on a wide range of technical and economic issues that impact the hydrocarbon processing and utilization industries. Such issues may include the current economic and market outlook, anticipated margins in the industry being assessed, both the weighted average and market-derived cost of capital for different industry sectors, depreciation factors, sustaining capital, regulatory factors, future feedstock availability, and capacity to upgrade.
EXPERT WITNESS AND DISPUTE SUPPORT

Asset Valuations

PRIMARY CONTACTS

Daniel R. Finelt
Consultant
Houston

Donald L. Flessner
President
Dallas

Amy L. Kalt
Consultant, Manager of Analytical Services
Houston

Charles G. Kemp
Vice President, Dallas Office Manager
Dallas
EXPERT WITNESS AND DISPUTE SUPPORT

Asset Valuations

RELATED EXPERIENCE

- **Audit of Gas Contract**
  Conducted an audit of the revenue settlement of natural gas liquids and residue gas per the terms of a gas processing agreement. Investigated causes of reduced product yields, and reviewed compressor operation, fuel consumption, and product and fuel allocation procedures.

- **Business/Technology Valuation**
  Conducted a due diligence assessment and preliminary economic valuation of an existing business with proprietary technology designed to significantly reduce crude oil exploration and finding costs.

- **C4 Upgrade Project Due Diligence**
  Conducted preliminary due diligence for a project to upgrade various mixed C4 streams into a range of higher valued butylenes streams and chemical products.

- **Chemical Plant Evaluation**
  Provided an independent assessment at a chemical plant of recent maintenance and sustaining capital projects.

- **Chemical Plant Fair Market Valuations for Ad Valorem Tax Appeals**
  Developed fair market valuations for two major chemical plant installations on behalf of the local appraisal district. The engagement included valuation by discounted cash flow, depreciated replacement cost, and comparable sales approaches, as well as a critique of the petitioner's methodologies and assumptions.

- **Cogeneration Plant Property Tax Dispute**
  Assisted municipality in developing preliminary value estimates for cogeneration facility under appeal. Work focused primarily on income approach values based on various forward pricing scenarios.

- **Contractual Dispute - Property Tax**
  Prepared an analysis of property taxes relative to refining complexity for a number of refineries in a particular region, using public information, for hearings with a district appraisal board.

- **Crude Oil Pipeline Acquisition**
  On behalf of an international pipeline company, prepared an assessment of the acquisition of a fifty percent ownership in a pipeline system that transports crude oil from Canada into the U.S. Study included crude oil supply/demand projections for the markets served.

- **Crude Oil Royalty Litigation**
  Assisted in a lawsuit between an oil company and a royalty owner of oil company's crude oil production for alleged underpayment. Work included identification of the various markets for this crude oil to established whether its value in these markets was consistent with the price received.

- **Estimate for Fire Rebuild**
  Developed a cost estimate for replacing and/or purchasing new equipment and materials after damage from plant fire.

- **Evaluate Biodiesel Production Facility**
  Provided due diligence review of a biodiesel facility in support of project financing. Reviewed capital costs, operating costs, process technology, and maintenance requirements.

- **Fair Market Valuation**
  On behalf of a major U.S. gas power plant developer, estimated the fair market value of a 1,000 MW natural gas-fired electric power project. Evaluated turn key fixed-price contract for engineering, procurement, and construction for the combined-cycle
generation facility along with utilities, rights-of-way, and permits. Reviewed the procurement and delivery of four natural gas turbines and two steam turbine generators.

- **Fair Market Valuation of Refinery for Ad Valorem Tax**
  Fair market valuation of a major US Gulf Coast refinery for the local appraisal district. Provided a critique of the valuation methodology used by the refinery as basis for lawsuit seeking reduced ad valorem taxes.

- **Feasibility and Economics to Produce CARB Phase 3 Gasoline and Diesel**
  Performed independent assessment of a refinery project to produce CARB gasoline and diesel. Assessment included feasibility, cost, and economics of the project. Study was performed for a prospective buyer of the refinery.

- **Fertilizer Project Due Diligence Assessment**
  In conjunction with a leading upstream consulting firm, conducted a due diligence assessment of gas resources for the purpose of developing a fertilizer complex associated with onshore and offshore gas production under development. The assignment entailed delineating the quantity and quality of gas resources available to support the prospective fertilizer project and estimating costs to deliver natural gas suitable for producing nitrogen fertilizers to the project.

- **Agrochemicals Manufacturing**
  Performed due diligence for the purchase of several fertilizer plants on behalf of an investor. These plants manufactured nitrogen fertilizers, phosphate fertilizers, methanol, and other related industrial chemicals. Inspected company assets, assessed technology, analyzed feedstock and product markets, reviewed contracts, evaluated capital investment programs, and analyzed comparative manufacturing economics.

- **Financial Model**
  Developed a financial model for a large private equity firm to enable estimates of the future financial performance for the major business segments of a large international refining and petrochemical company.

- **Gas Processing**
  Performed a preliminary evaluation of the gas processing design, capital costs, and economics for a natural gas liquids recovery and fractionation facility and a condensate stabilization facility in the Republic of Turkmenistan.

- **Gas to Liquids Evaluation**
  On behalf of a major oil and gas producer, prepared a conceptual design for a Fischer-Tropsch based gas-to-liquids unit using low value associated gas to produce LPG, gasoline, and zero sulfur diesel. Developed estimates of charge and yield, capital and operating costs, and project development and capital spending schedules.

- **Grassroots Refinery Feasibility Study**
  Conducted a feasibility study for a grassroots refinery project that included assessment of potential crude oil supplies, various refinery configurations, and a detailed analysis of target markets and product distribution logistics. The study also included an integrated coke gasification complex to supply hydrogen, power, and steam to the refinery. Capital cost estimates were prepared and project economics were developed for a range of scenarios.

- **Impact of Gasoline Toxics Regulations**
  Quantified the impact of proposed changes in gasoline toxics regulations (MSAT-II) on each individual refinery in the U.S. Using our proprietary PRISM refinery modeling system, calculated investment costs, changes in operating costs and product yields. Our report was presented in testimony before the U.S. E.P.A.

- **Independent Engineer**
  Retained as the Independent Engineer for the "grassroots" Tangguh LNG Liquefaction Project in Indonesia. Prepared the technical due diligence for the US$3 billion facility on behalf of a financial consortium.
Isobutanol Valuation Study
In order to assess the potential value of isobutanol as a gasoline blending component, performed simulations of refinery operations at a select group of West Coast refineries to calculate isobutanol value relative to blending ethanol into gasoline.

Market Impact of Low Sulfur Fuels Regulations
Using our proprietary PRISM refinery modeling system, performed a refinery-by-refinery analysis of potential production of low sulfur fuels by U.S. refineries. Analysis included the seasonal productions of conventional and reformulated gasolines and ULSD and also included jet fuel and high sulfur diesel production.

Modular Refinery Conceptual Study
Performed a conceptual analysis of a small, skid-mounted refinery operating in the Middle East to serve local markets. Assessed the likely configuration and capital costs and yields, given an assumed crude slate.

Offshore Pipeline Project
Served as Independent Engineer on behalf of a major financial institution for a $200 million project to build a deepwater gas and oil-gathering system. Prepared a valuation of offshore pipelines and an onshore gas processing plant for gathering and processing of deepwater Gulf of Mexico oil and gas production in support of structured finance. Certified completion of the project for financial purposes.

Oil and Gas Royalty Valuation
In support of a potential public offering, calculated the net present value of a defined royalty interest payable on all proceeds from the sale of crude oil, condensate, natural gas, and natural gas liquids produced from the Gippsland Basin in the Bass Strait off the coast of Australia. Worked in conjunction with an oil reservoir firm that prepared field production estimates over the next 20 years. Report became part of the offering memorandum submitted in compliance with local Public Securities Commission regulations.

Oil Company Privatization
Performed due diligence for the purchase of an integrated oil company on behalf of an investor. Inspected company assets, assessed technology, analyzed feedstock and product markets, evaluated a capital investment program, and analyzed manufacturing economics.

Paper Coating Plant Project Finance
Served as independent engineer on behalf of a major financial institution for the construction of a new $100 million paper coating plant. Prepared due diligence, assessed technology, evaluated project scope of work and schedule, reviewed engineering, procurement, and construction contracts, and advised bank with respect to mitigation of project risks.

Petrochemical Business Privatizations
Developed market valuations, evaluated strategic business alternatives, and formulated short-term planning objectives for several diversified East European chemical companies undergoing the transition from state control to private ownership. Engagements included marketing efforts directed to attracting investors and joint venture partners.

Review of Power Development Projects
Evaluated the economic value of five interim power projects in various stages of development for an international power project developer.

Valuation of Pipelines and Gas Plant
Served as independent engineer on behalf of a major bank to value and certify completion of a project to build offshore pipelines and an onshore gas processing plant for gathering and processing of deepwater Gulf of Mexico oil and gas production. The valuation was prepared for the lender in support of $200 million of structured finance.

Project Feasibility and Start-Up Assistance
Retained by a financial institution to conduct an independent assessment of a refinery project to restart and expand idle equipment to produce transportation fuels and lube base oils. The feasibility analysis included review of project costs, a product price forecast and margin outlook, as well as an assessment of the competitive market environment. Provided assistance to the lender in structuring terms for loan agreement and establishing project milestones for the funding. Monitored construction and revamp progress for the lender and certified mechanical completion of the project. Following start-up of the units, attended performance test runs and provided certifications to the lender that the units met design throughput capacities and products met required quality specifications.

- **Refinery Evaluation**
  Retained by a financial institution to conduct an independent assessment of an asphalt refinery. In addition to an analysis of the market environment, the assessment included a review of the general condition of machinery and equipment and projected operating performance of the refinery.

- **Refinery Valuation and Due Diligence**
  Prepared an analysis of refining and marketing assets for a company that was considering acquisition of shares of a refining and marketing business located in South Korea. The analysis included refining and marketing economics, and due diligence of the facilities.

- **Refinery and Expansion Project Valuation**
  Assisted a refinery owner in establishing a value for an existing refinery, the value of a large expansion project, and the additional value resulting from a guarantee clause associated with the expansion project. The analysis included cash flow modeling, comparative sales assessments, and an evaluation of expansion project capital requirements and economics.

- **Technology Assessment**
  Working for potential investors, reviewed plans for a grassroots lube oil re-refining facility, and advised our client regarding technology and commercial risks.

- **Refinery Valuation Study**
  Provided an opinion as to the fair market value of a large European refinery that changed ownership during the 1980s. Party filed arbitration proceedings against its former partner, claiming that the refinery was sold for well below market value. Prepared several reports that were submitted as evidence.

- **Refinery Acquisition Study**
  Provided assessment of refinery technical and economic features for prospective buyer, including on-site inspection and projections of potential capital investments for refinery upgrades.

- **Technical Review**
  Performed technical review of chlor-alkali and calcium chloride processes and project plan on behalf of prospective lender. Reviewed the process design packages for the chlor-alkali and calcium chloride production facilities and provided opinions regarding the selected processes and their technical compatibility. Reviewed the project schedule and cost estimate for the facilities and provided input to the prospective lender regarding the appropriate level of contingency. Evaluated the contracting strategy and project execution plan and provided opinions.

- **Transmix and Biodiesel Processor Valuation**
  Developed a business valuation for an entity engaged in transmix processing, biodiesel production, and ethanol terminaling. The engagement entailed analysis of historical, current, and projected cash flows from operations to generate an income-based value for the enterprise. The work included updates to valuations of operations previously assessed by Baker & O'Brien, as well as analysis of new facilities.
Refinery Valuation Dispute
Asisted in a dispute between minority shareholders and company management concerning claims that certain refinery assets were improperly valued when the group's ownership interests were purchased by the company's management. Prepared a detailed valuation of the refinery assets in question and showed how their location, processing capability, and access to feedstocks contributed to their value relative to the competition. Prepared an expert report and testified in Federal Court.

Refinery Fair Market Value Dispute
On behalf of one of the interested parties in a bankrupt oil refinery, conducted a technical and economic evaluation of the facility to determine if the plant was economically viable and had value as a "going concern." Study was submitted into evidence before an international arbitration tribunal established to determine the ultimate disposition of the facility.

Refinery Feasibility Study
On behalf of a financial institution considering the financing of a "grassroots" refinery project, prepared a detailed feasibility study for the refinery. The proposed facility was to be based outside of Phoenix, Arizona, where it was to serve the fast growing Phoenix/Tucson area with new "clean burning" fuels. Analyzed regional product markets, existing and potential competition, alternate crude oil sources and availability, optimum refinery configuration, and by-product disposition. Attended meetings with potential crude suppliers and product customers. Feasibility study was also used in negotiations with equity participants.

Polypropylene Manufacturing Facility
Provided a cash flow valuation of a polypropylene complex in support of an ad valorem tax matter. The valuation included analysis of recent historical operations, review of the markets for feedstocks and products, development of operating costs, and analysis of industry trends.

Valuation of Refineries
Performed valuation of three Russian mini refineries located in Western Siberia. Work involved market analysis for crude oil and products, logistics infrastructure, refinery configuration and yield, and construction costs.

Replacement Cost Determination
Provided a comprehensive estimate of replacement costs for oil and gas producing facilities, offshore production and drilling platforms, gathering systems, storage facilities, and processing plants. These costs were used as a basis for establishing appropriate levels of insurance coverage for a major petroleum corporation.

Process Plant Leasehold Settlements
Assessed the market value of residual operating interests held by a major financial entity in several leased chemical processing facilities. Each engagement included an ongoing advisory role pursuant to successful negotiations for sale of the institution's ownership interests.

Arbitration - Refinery Valuation
In support of a valuation dispute, developed an economic model to assess the value of a fuels refinery. Submitted an expert report and provided testimony.

Asphalt Refinery Valuation
Concerning an owner's capability and obligation to pay a prior arbitration award, determined a retrospective fair market value of an asphalt refinery and provided testimony regarding the estimated value of the refinery assets.

Terminal Facility Due Diligence
Conducted financial and operational due diligence on behalf of lenders for a large regional petroleum terminal facility with associated transmix processing and commercial waste treatment operations. Tasks included inspection of facilities, assessment of competitive market position, evaluation of financial performance, and estimation of potential market value for the facilities.
Preliminary Refinery Value Assessment
Established a preliminary valuation assessment of a refinery for a local taxation district. Assessment was used in initial discussions with the taxpayer.

Petroleum Terminal Valuation
Updated valuation of petroleum terminal and trans-mix processing facility completed previously in order to reflect changes in the business environment, and to reflect specific transaction scenarios designated by the client.

Offshore Oil Lease Development Dispute
Provided an assessment and expert report that determined estimates of the economic value for an undeveloped oil block in offshore Sierra Leone. The analysis synthesized an FPSO development approach and various scenarios of reserve volumes, development timelines, and oil prices to arrive at an indicative value for lease development.

Gas Gathering and Treating Due Diligence
Performed due diligence of West Texas natural gas gathering and treating system. Reviewed contracts and facilities, assessed competition, developed economic model, and estimated market value of assets.

Petroleum Refinery Due Diligence
Prepared a due diligence report on a full conversion refinery, including a review of regional crude oil supply and regional products markets. Reviewed refinery operations, including high level assessments of refinery safety and environmental performance. Developed economic model of refinery and estimated market value.

Refinery and Pipeline Systems Valuation
Provided values of a refinery, crude oil gathering, and products marketing system to be recorded as fair values for purchase price allocation purposes.

Refinery Risk Assessment
In support of questions relating to company stock valuation, assessed the technical and commercial risks inherent in several refineries owned by a U.S. refining company.

Refinery Valuations
Prepared annual property values for several major refineries amounting to several billion dollars. Assisted with discovery, inspected each of the plants, and analyzed refinery operations and profitability. Assisted in negotiating settlements. Testified in public hearings before appeals boards.

Refinery Venture Development
Performed economic evaluation and developed comprehensive financial models for a West Coast refinery restart and upgrade program. The engagement included market analysis, evaluation of investment options, and support of project financing efforts.

Reorganization of Crude Oil Trading Business
Analyzed crude trading business for potential reorganization.

Review of Power Development Projects
 Evaluated the economic value of five interim power projects in various stages of development for an international power project developer.

Terminal Facility Valuation
Reviewed the operating results and management projections for a terminal and transmix processing facility to develop an income-based valuation for the business enterprise. This engagement was one of a series of valuations prepared by Baker & O'Brien to support the financing requirements for this business since its inception.

Terminal and Pipeline Studies
Managed several competitive assessments of major crude oil and refined products logistics systems, including pipeline transportation and inland and coastal storage terminals.

**Product Terminal and Transmix Processing Valuation**
Physical asset appraisal and business valuation of a refined product terminal and transmix processing facility. Estimated the replacement cost and deferred replacement value of the physical assets to provide a depreciation basis for taxes. Valued the business enterprise using a discounted cash flow approach based on an analysis and projection of transmix processing and product terminal activities.

**Product Pipeline and Terminal Valuation**
Prepared a valuation of a pipeline and related terminal associated with client's refinery. The valuation was used by the client for accounting and tax allocation purposes.

**Independent Engineer for New Refinery in Egypt**
Technical due diligence for financing of a 200,000 B/D merchant export refinery in Egypt. Our review included opinions on site selection, owner's development plan, supply agreements, offtake agreements, EPC Contracts, refinery unit technologies including sulfur recovery, 'over-the-fence' utility interface, crude oil supply and product export terminal facilities. Our review also included opinions on environmental compliance, licenses and permits, CAPEX, construction schedule, completion risk, OPEX and technical comment to the financial model.

**Alaska Refinery Evaluation**
Assisted our client in evaluating the profitability of one of the refineries in Alaska. The evaluation provided inputs that were instrumental to the client in its ongoing discussions with a refiner regarding a long-term crude oil supply contract.

**Refinery Valuation and Synergy Analysis**
On behalf of two international refining companies, investigated and estimated the potential value of synergies that might be realized upon the combination of the two refineries. Provided indication of value capture, based on criteria provided by companies.

**Refinery Valuation Dispute and Arbitration**
Developed an opinion of the value of a joint venture company that owned and operated a large petroleum refinery in Eastern Europe. Evaluated the refinery's financial performance, capabilities and competitive position, as well as other valuation metrics, such as replacement cost and comparable refinery transactions. Provided testimony at international arbitration.

**Refinery Valuation: Ad Valorem Tax Support**
Developed income and cost indications of value for a refinery in an ad valorem tax dispute.

**Refinery Risk Assessment**
Assessed the technical and commercial risks inherent in each of several refineries owned by a U.S. refining company.

**Product Pipeline Terminal Valuation**
Prepared a terminal valuation based on a discounted cash flow analysis of transmix and terminal businesses and an appraisal of the physical assets.

**Polypropylene Plant Due Diligence Support**
Provided technical due diligence support for a moth-balled polypropylene plant. Evaluated capacity, historical utilization and mechanical availability and other factors.

**Natural Gas Midstream Due Diligence**
Conducted due diligence on gas gathering assets in East Texas for a prospective purchaser. Inspected facilities, reviewed pipeline and facility construction records, confirmed regulatory status, evaluated pipeline integrity management program, and assessed process safety.
EXPERT WITNESS AND DISPUTE SUPPORT

Asset Valuations

- **Owner’s Engineer for New Refinery Project**
  Reviewed key project assumptions and provided guidance on various aspects of project development, including: transportation infrastructure; refinery design basis; EPC strategy and contract; refined product markets and pricing basis; crude oil sources, quality, and pricing assumptions; project financial model and economics.

- **Wyoming Refinery Appraisal**
  Fair market appraisal of a refinery including connecting crude and products pipelines and storage assets to support debt financing. Project included income valuation with forecast prices, discounted cash flows, and replacement cost estimates for the refinery as well as the pipeline and storage assets.

- **Refinery Acquisition Screening and Valuation**
  Provided refinery modeling, valuation and M&A support for a client that was considering a refinery acquisition.

- **Refinery Due Diligence Support**
  Provided due diligence support for potential refinery acquisition. Developed cash flow models for valuing the refinery. Developed price forecast used in cash flow model. Evaluated key drivers and their impact on the refinery valuation.

- **Residual Fuel Oil Valuation**
  Provided an assessment of the quantity, quality, and value of fuel oil recovered during demolition of storage tanks at a power plant.

- **Logistics services company assessment**
  Provided an independent financial and commercial assessment of a logistics services company that our client was considering purchasing.

- **Refinery Equipment Valuation**
  Determined the estimated market value of idle refinery equipment that was designated as loan collateral. Prepared a report valuing the equipment under different sales scenarios including as an entire refinery, by individual process units, by individual equipment item and as scrap value.

- **Asphalt Refinery Due Diligence**
  Performed due diligence on behalf of a financial institution for funding the startup of an idle asphalt refinery. Advised client on technical issues related to running black/yellow (Uinta) wax crude in the asphalt refinery. Work included evaluation of the condition of the process units and infrastructure, assays of feedstocks, analysis of yields, and evaluation of process bottlenecks.

- **Refinery Due Diligence Assessment**
  Provided an initial assessment of a Gulf Coast refinery for possible acquisition by the client. Provided estimated refinery yields and profitability.

- **Gas Plant Acquisition Dispute**
  After concluding a transaction, the acquiring party claimed that the facilities were not sufficient to conduct business due to deficiencies related to design, construction, safety, and failure to meet environmental regulations. Visited the plant to interview key personnel, viewed the physical facilities, and reviewed relevant operational, safety, and engineering design information. Our findings and opinions were presented in an expert report which was submitted into evidence.

- **Condensate Splitter Due Diligence**
  Conducted asset due diligence activities: (1) inspected facility under construction; (2) provided market incentives; (3) operating costs; (4) risk overview; and (5) staffing recommendations for successful acquisition of condensate splitter and associated logistics.

- **Condensate Splitter Market Study**
  Developed market study and economics for a "grassroots" Eagle Ford condensate splitter located in Corpus Christi. Evaluated alternate locations and presented to CEO and management.
Refinery Environmental Review
Reviewed and reported on potential environmental solid waste issues associated with a large idled refinery in support of a client's bid for the facilities. Performed an on-site inspection of the refinery to identify potential environmental risks.

Crude Oil Supply Contract Dispute
Provided an expert report for a crude oil supplier who lost its contract to a refiner. Provided a valuation versus alternative crude oils as to the value of the cancelled crude oil supply contract. Dispute settled prior to trial.

Refinery Acquisition Assessment
Prepared an initial profitability assessment of two refineries for possible acquisition. Identified key drivers to profitability and the strengths and weaknesses of each refinery.

Refinery Acquisition Assessment
Provided initial due diligence for a potential refinery acquisition. Evaluated refinery profitability and strengths and weaknesses. Developed forecast for future refinery profitability.

Gas Recovery Unit Valuation
Prepared a fair market valuation assessment of a leased refinery gas recovery process unit located within a refinery. Visited the site and assessed the overall condition of the asset. Applied a cost approach to value the asset. The valuation was used by the client to negotiate a buy-out of the leased process unit.

Transmix Facility Due Diligence
Completed technical, financial, and operational due diligence analysis on behalf of lenders for an existing transmix processing facility and associated terminal. Tasks included inspection of facilities, assessment of competitive market position, and an evaluation of a new hydrotreater project for ULSD production.

Project Feasibility - LNG
On behalf of the major oil company project sponsor, prepared a capital cost estimate for a proposed world-scale, “grassroots” liquefaction plant. The cost estimate was used to evaluate competing Front-End Engineering and Design (FEED) technology packages from engineering, procurement, and construction (EPC) contractor/licensors.