Overview

Valuation is at the core of many legal, regulatory, and business issues, ranging from breach of contract disputes to regulatory decisions and M&A and other transactions. Valuation is particularly important in energy and resource industries, given the sizable amounts of capital involved, and also particularly difficult given the highly dynamic and uncertain nature of these industries.

NERA’s experts have extensive hands-on experience in the energy and resource industries, as industry executives, regulators, and consulting economists. We understand the special issues these industries face, including regulation, political pressures, price volatility, and rapidly changing market dynamics. NERA also has deep expertise in the economics of valuation, performing asset valuation in the context of regulatory hearings and court testimony, and in supporting business decisions.

At A Glance

Valuation of Energy and Resource Assets: A Real Options Approach

Approach

The valuation method chosen typically depends on the application and asset in question. Increasingly, more than one method is used when feasible.

We are experts in all three major forms of valuation:

• The “comparables” or “market” approach, which determines value by finding similar assets with an available market price and making appropriate adjustments.
• The “accounting” or “replacement” approach, which determines value by estimating what the asset cost to create or what it would cost to re-create.
• The “fundamental” or “cash-flow” approach, which is based on calculating the present value of the cash flows that the asset is forecast to produce in the future.

NERA experts have strong qualifications in fundamental valuation in circumstances involving uncertainty and flexibility, often called real option valuation. Our approach is based on three principles that can be critically important in valuing large energy and resource assets in complex environments.

• Comprehensive treatment of uncertainty. All uncertainties that significantly affect the value of the asset should be identified and quantified. The quantification of key inputs is a prerequisite to establishing the best numerical estimate of value. This is much preferred to treating uncertainties through qualitative scenarios or summarizing the effect of uncertainty in a single number, such as a discount rate.
• Comprehensive treatment of flexibility. Decisions that can and will affect the value of the asset going forward should be identified and incorporated explicitly, so the true value of the asset will be estimated correctly. This
is much preferred to forecasting a single future scenario or simulating alternative future scenarios without appropriate decision-making.

- Selective mark to market. Where elements of the asset have already been valued by the market (and only for such elements), the valuation should be aligned with those market values where appropriate. This is much preferred to purely “private” approaches that ignore the presence of markets and allow for arbitrage, or to purely “market” approaches that assume such markets exist where they do not and produce distorted results.

Examples

We have applied our valuation methods for a broad range of clients in a broad range of applications across the globe. Our clients include leading electric power, oil/gas, mining, and water companies such as PG&E, Chevron, BHP, and Water Corporation (Australia). A few examples include:

- Business Application: Offshore Oil Development. A major US-based oil and gas company was evaluating alternative investments off Western Africa, ranging from conservative to moderate to aggressive. NERA’s analysis showed that the aggressive alternative created the most value because of the inherent expansion options and the price/volume upside. Our client was unable to convince its partners, and the moderate alternative was chosen instead. This alternative was successful, but in retrospect it was clear that the aggressive alternative would have been far better—when geopolitical forces shut down competing facilities, our client was unable to take full advantage.

- Regulatory Application: Transmission Grid Expansion. Transmission investments in Australia are regulated under rules which require companies to incorporate option value where relevant in evaluating alternative investments. NERA outlined the fundamentals of option valuation in a realistic context, providing input to the development of regulatory arrangements, and helping companies improve their understanding of what is required to implement this approach in practice.

- Legal Application: Oil and Gas Contract Breach. Our client, an international investment firm, was sued for breach of contract over shared development of several offshore oil and gas properties. In our damages analysis, we identified and quantified specific important economic, political, and technical risks. We obtained the best available information on these risks, and incorporated them suitably into the valuation. This analysis showed that the value of the development was dramatically reduced when future uncertainties were captured appropriately. The dispute was settled under terms very favorable to our client.

About NERA

NERA Economic Consulting (www.nera.com) is a global firm of experts dedicated to applying economic, finance, and quantitative principles to complex business and legal challenges. For over half a century, NERA’s economists have been creating strategies, studies, reports, expert testimony, and policy recommendations for government authorities and the world’s leading law firms and corporations. With its main office in New York City, NERA serves clients from more than 25 offices across North America, Europe, and Asia Pacific.

Contact

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