

David Coleman joined the NorthBridge Group in 1997. Mr. Coleman's background is in asset valuation, market price forecasting, commodity risk management and strategic analysis for clients in both the electric and natural gas industries. His recent projects at NorthBridge include:

RENEWABLE ENERGY AND CARBON POLICY

- Mr. Coleman implemented a resource planning model to identify the impact of wind resource expansion on energy and capacity prices in the Midwest. The model incorporated a linear-programming algorithm to determine the optimal combination of resource expansion and utilization while satisfying environmental restrictions.
- For a large integrated utility in the Southeast, Mr. Coleman constructed a supply curve of on-system CO₂ abatement options and quantified the investment and production subsidies available to renewable resources.
- For a large integrated utility in the Southeast, Mr. Coleman assessed the economics of biomass co-firing in coal units and the implied cost of CO₂ abatement. Separately, Mr. Coleman evaluated the revenue requirement of a purpose-built biomass facility and its ability to provide a hedge against future carbon allowance costs.
- Mr. Coleman performed a cost-benefit analysis contrasting weatherization programs to residential solar cell installations.
- For a large integrated utility in the Southeast, Mr. Coleman analyzed the likely allocations of CO₂ allowances to local distribution companies (LDCs) and the net impact on retail rates of the CO₂ and renewable energy requirements contained in Waxman-Markey climate bill.
- Mr. Coleman advised a not-for-profit organization on the economic viability of a new compressed air wind energy storage technology. He developed a model using linear programming to optimized storage and generation decisions thereby maximizing value.
- Mr. Coleman provided analytical support for a client's lobbying effort advocating for climate legislation. He addressed the congressional delegation's concerns about the impact CO₂ emission restrictions might have on the price of natural gas.

BUSINESS STRATEGY AND ASSET VALUATION

- For a large integrated utility in the Southeast, Mr. Coleman used a real-option framework to identify the optimal investment approach for a deferrable nuclear investment. Mr. Coleman quantified the value created by deferring the investment and learning more about potential carbon regulation and gas price movements and the value lost by foregoing attractive government debt guarantees and equipment purchase incentives.
- For a large integrated utility in the Southeast, Mr. Coleman performed an in depth analysis of the costs and benefits of a new coal-based resource in a predominantly gas-based market. He analyzed the future uncertainty surrounding carbon costs and the costs of a gas-based alternative resource. The analysis emphasized the distinction between cost savings on an expected basis versus the probability of achieving savings.
- For a large integrated utility in the Southeast, Mr. Coleman utilized a real-option approach to value the benefit of delaying further capital commitment in a project that had become only marginally cost competitive.

- For a large integrated utility in the Southeast, Mr. Coleman determined CO₂ allowance price levels that would force the retirement of a coal unit. Mr. Coleman identified retirement thresholds for both scrubbed and unscrubbed resources.
- For a large Texas utility, Mr. Coleman evaluated the economics of potential coal resource expansion plans in ERCOT, including the identifying the point at which further resource development would cannibalize margins due to market price depression.

PRICE FORECASTING AND RISK MANAGEMENT

- Mr. Coleman developed a risk assessment tool which incorporates a stochastic mean-reverting model of commodity prices, inter-commodity correlations and stochastic volatility. The model has been used to illustrate potential spot price outcomes as well as potential forward curve movements for natural gas and electricity commodities in a variety of hedging valuation projects.
- For a large Midwestern utility, Mr. Coleman provided the principal analytical support for risk distributions of off-system wholesale energy margins. The analysis utilized a stochastic model of electricity and natural gas prices, load levels and unit outages in conjunction with an hourly dispatch model.
- Mr. Coleman utilized a stochastic model of natural gas prices to evaluate whether a large scale gas hedging program could adequately hedge system production costs for a gas-based electric utility. The analysis involved evaluating credit and mark-to-market requirements.
- For a large utility in Texas, Mr. Coleman replicated ERCOT's hourly balancing energy market model to evaluate and rebut accusations of market power abuse and claims of damages due to bid withholding. Mr. Coleman also illustrated the effects of voluntary mitigation policies on balancing energy prices through an ex-post replication of the balancing market with modified bidding practices.
- For a large utility in Texas, Mr. Coleman evaluated the ability of large nuclear operating companies to improve performance by reducing forced outages. Mr. Coleman conducted an analysis illustrating the 'long-tail' nature of nuclear forced outages and the replacement power cost risks associated with liquidated-damages contracts.
- Mr. Coleman developed mapping software to aid in visualizing market price gradients and visualizing the geographic boundaries of transmission constraints.

WHOLESALE PROCUREMENT STRATEGY

- Mr. Coleman conducted risk analysis and strategic support for a large Eastern utility evaluating its general wholesale procurement process, including forecasting retail rates, credit requirements, rate volatility, and comparing full requirements approaches to active portfolio management.
- For a large Midwestern utility, Mr. Coleman researched the impact of long term purchase contracts on imputed debt and debt ratings.

Mr. Coleman graduated cum laude from Dartmouth College with an A.B. in physics, and received his M.B.A. from the Tuck School at Dartmouth where he was a Tuck Scholar. Before returning to Dartmouth for his business degree, Mr. Coleman was a research analyst at The NorthBridge Group.