



The Brattle Group

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Energy

Current Topics in Energy Markets & Regulation

About this Newsletter

Complex commercial litigation in the energy industries is increasing. This is due to formerly regulated markets being restructured, market participants relying on wholesale power markets, and both fuel and power markets experiencing significant increases in prices and volatility.

Brattle has extensive experience in estimating damages and supporting commercial litigation in the energy sector, as well as a wide variety of other industries.

Our experts are familiar with the unique characteristics of energy markets and common practices, and they frequently support both the liability and damages phases of litigation matters.

*In this issue of **Energy**, we share some of our experience and insights into best practices for estimating damages in energy contract litigation.*

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When Sparks Fly: Economic Issues in Complex Energy Contract Litigation

By Dean M. Murphy, Johannes P. Pfeifenberger, and Gerald A. Taylor

Introduction

The uneven movement toward deregulation of energy markets has set the stage for an increasing level of contract litigation. On one hand, industry restructuring, the collapse of the merchant energy sector, and the demand to meet growing resource needs will force many utilities to contract for some combination of power purchases, new generator construction, and fuel supply.

On the other hand, fuel and power price volatility, changing network conditions, and evolving regulatory regimes and environmental requirements create uncertainties that complicate the contractual allocation of risks. This combination of circumstances will almost inevitably lead to unanticipated outcomes, disappointed parties, and thus, contract renegotiation and litigation.

While contracting principles for energy agreements are not fundamentally different than for other industries, the unique characteristics of the energy industry and its markets often complicate litigation matters and place a premium on specialized industry knowledge, particularly during the liability phase of most cases.

In damage calculations, the complex behavior of the power grid similarly requires in-depth industry knowledge and often involves detailed system modeling to establish “but for” conditions or appropriate mitigation in the case of a breach. Overlap between wholesale energy markets and retail service may also make it critical to understand the specific competitive and regulated environments in order to define performance failures and trace their ultimate impacts.

The views expressed in this paper are strictly those of the authors and do not necessarily state or reflect the views of *The Brattle Group, Inc.* or its clients.

This issue of **Energy** discusses several challenges frequently encountered in energy contract cases, including case studies where an appreciation of the inner workings of the energy industry was or might have been brought effectively to bear in the litigation.

We discuss such topics as the need to fully and consistently specify the circumstances in comparing breach and non-breach scenarios, including mitigation (even if it was not actually undertaken), the central role of market evidence, the need to consider potential changes in risk, the importance of non-price terms, and the significance of differences between an *ex-ante* and *ex-post* perspective on liability and damages. Economic and industry experts are frequently employed to establish damage claims, but the examples herein illustrate that industry knowledge and experience may be instrumental in the liability phase of energy contract litigation as well. ■

A Contract Damages Framework

Disputes, breaches and terminations of energy contracts typically involve claims for economic damages. The fundamental underpinnings of damage analyses are generally accepted. In practice, however, approaches to calculating damages vary widely.

Since economic factors can play a key role in developing damage estimates, an appreciation of how such factors apply in a particular industry can help practitioners prepare and communicate defensible damage estimates or effective critiques of opposing estimates.

There are several different conceptual approaches to determining damages including those based upon expectations (lost profits), reliance (restore injured party to their position prior to the contract), and restitution (offending party disgorges unjust enrichment). This discussion is cast in the context of the expectation approach, which often forms the basis of damage claims for energy and other commercial contracts.

Expectation damages are derived by comparing a plaintiff's economic situation in the "actual" world (where the contract was violated) to that in the "but for" world (the hypothetical state that would have prevailed but for the alleged breach).

The proper damage award seeks to provide the economic benefit that the plaintiff would have received had contract obligations been honored appropriately. Establishing this usually entails estimating cash flows in the actual and "but for"

worlds, calculating their present values (via discounting), and determining damages as the difference in these values.

Numerous steps may be required, each presenting opportunities for error. Conceptual mistakes, which are all too common, may include the failure to consider the following issues:

1. *Specifying the actual and "but for" case*
2. *Considering reasonable mitigation*
3. *Validating damage estimates with available market evidence*
4. *Recognizing differences in risk in the actual and "but for" case*
5. *Accounting for non-price terms*
6. *Applying consistent ex-ante and ex-post perspectives*

Importantly, the presence of liquidated damages provisions frequently does not avoid these problems for several reasons. First, liquidated damages provisions generally cover only contract termination and do not address contract disputes that involve violation of specific contract clauses or terms.

Second, such provisions generally will not fully specify every aspect of a liquidated damage calculation — which may leave open, for example, important aspects of how market prices or even contract revenues would be determined in the distant future. Finally, changed or unanticipated circumstances may render pre-specified liquidated damages provisions inapplicable, unfair, or even punitive. ■

CASE STUDY: FAILURE TO MITIGATE VOIDS DAMAGE CLAIMS

In a recent arbitration case, the operator of a power plant sold capacity and associated energy and ancillary services from two units under a long-term contract. The ancillary services provision included a “financial settlement” option under which the buyer could schedule ancillary services with the operator and receive the market price of the scheduled services as a credit against contract payments. This credit was regardless of whether the operator actually sold the services into the market or did something else (presumably more valuable) with the scheduled capacity.

After six months of providing credits for scheduled ancillary services to the buyer, the plant operator claimed that the ancillary service schedules received over the last six months were invalid because they failed to specify a bid (resale) price. The seller argued that the buyer had thus breached the agreement and sought a refund of all previously-provided ancillary service credits.

A *Brattle* witness testified on common industry practices regarding the scheduling of ancillary services and how the schedules would have been understood by market participants. We also explained that even if the buyer had in fact submitted invalid schedules and, as a result, breached the agreement, the claimed damages could have been mitigated almost entirely.

Evidence obtained in discovery showed that after two months of bidding the buyer’s schedules as a “price-taker” into the ancillary service market, the plant operator ceased selling the scheduled ancillary services into the market, and did not attempt to find more valuable uses for the scheduled capacity.

We explained that by simply continuing the price-taker bidding, the operator would have obtained the market price for ancillary services and received revenues that, “but for” minor transactions costs, would have fully offset the ancillary service credits that were payable under the contract. The decision of the arbitrator rejected the damage claim. ■

ISSUE 1: FULLY SPECIFY THE ACTUAL AND “BUT FOR” CASES

To capture the effect of a contract violation, a full characterization of transactions and associated cash flows for both the actual and “but for” cases is generally required. If damages are to be estimated by analyzing only a portion of such cash flows, then one must also show that the cash flows not modeled are the same in both the actual and “but for” scenarios.

For example, simply looking at revenue differences between the actual and “but for” worlds may miss material changes in costs. Similarly, it may be necessary to consider whether the type or volume of transactions differs substantially in the actual and “but for” worlds. Even with no difference at all between expected actual and “but for” cash flows, a change in risk (e.g., due to loss of revenue certainty when a contract is terminated) can diminish value and thus create economic damages.

Developing a comprehensive characterization of the actual and “but for” circumstances may consequently require characterizing reasonable behavior for the contracting parties in the differing environments, establishing what products or services might have been sold, and capturing changes in the cost, volume, timing, pricing, and risk associated with such sales. For the actual world case, this often also involves an evaluation of whether reasonable mitigation opportunities were pursued. ■

ISSUE 2: CONSIDER REASONABLE MITIGATION

The law obliges plaintiffs to undertake reasonable measures to mitigate damages. This not only reduces damages, but it is also economically efficient. A proper damage analysis reflects this obligation by incorporating reasonable mitigation opportunities in the “actual” world case, whether or not they were exploited by the plaintiff.

For example, if a purchaser terminates a natural gas contract, the seller must take reasonable steps to resell the gas for the best available price. Damages should thus be based on the difference between the contract price and a reasonable resale price, regardless of whether mitigation was actually pursued by the seller.

What qualifies as “reasonable” mitigation may be disputed, but assumptions will generally be reviewed on the basis of commercial reasonableness and common industry practice. The standard for reasonable behavior in the face of a contract violation will often be closely related to what would be reasonable commercial behavior in a similar situation that did not involve a violation.

Care must be taken to judge reasonableness based on information available at the time of the breach, not opportunistically with the benefit of hindsight. For instance, if the natural gas seller above immediately replaces the terminated contract with a lower priced sale, but market prices subsequently rebound, the seller’s action may be reasonable even though, in hindsight, it was worse than waiting longer to resell.

Not surprisingly, applying the mitigation standard can present difficult analytical issues. Because mitigation opportunities often go unexploited, estimating their value presents many of the same challenges encountered in establishing a “but for” case. Where mitigation has occurred, however, it may complicate economic and legal analyses, as the act of mitigation may obscure the nature and consequences of the contract violation. It may also raise questions as to whether certain costs incurred are recoverable as mitigation-related costs, or instead represent a claim for consequential damages that may not be available under the contract. ■



ISSUE 3: CONSIDER AVAILABLE MARKET EVIDENCE

Although market evidence is an obvious source of information for projected cash flows or values, it is frequently overlooked in contract disputes. For example, damage claims can be based on elaborate statistical analyses or market simulations, with results that may be inconsistent with market data. The objectivity and transparency of market information give it some clear advantages in a litigation setting. Still, adjustments may be needed to utilize market data in a particular circumstance.

In such cases, specific industry knowledge can be vital. For example, adjustments may be necessary to account for differences in timing, location, product type or quality between the particular product involved in the disputed contract and one for which market prices are available.

There are, of course, situations in which market evidence may be unavailable or incomplete. In valuing a long-term contract, for example, market price information may be unreliable or unavailable over the entire time period or for the relevant delivery point. In such situations it may be necessary to rely upon other types of information, such as statistical analyses, market simulations, or projections of technology costs. However, it is crucial that such other information and the results derived from it are consistent with any market evidence that is available, even if incomplete.

For example, an estimate of power plant value may be based on a forecast of market prices for power, hypothetical sales volumes, and projected operating costs. The near-term portion of the power price projection should be consistent with observable forward price data, and the long-term portion should be consistent with the long-run marginal cost of new generating capacity (unless excess capacity is expected to keep prices depressed).

Estimated plant output must similarly be consistent with projections of power and fuel prices. Finally, the calculated plant value should be consistent with prices paid for similar plants in recent transactions. ■

CASE STUDY: IGNORING MARKET EVIDENCE

In a case that involved the largest commercial damages award of its time, Pennzoil agreed to acquire 43 percent of Getty shares. However, Getty abandoned the deal in favor of an acquisition by Texaco. Pennzoil sued Texaco for tortious interference, presenting a damage claim of \$7.5 billion. Texaco chose not to rebut the damages claim, and when it lost on the liability issue, the jury awarded Pennzoil the entire amount of its claim.

In hindsight, Texaco's tactical error appears obvious, but it is all the more puzzling because an aggressive defense could easily have been offered on the grounds that the damage claim was obviously inconsistent with market evidence and ignored mitigation opportunities.

Pennzoil claimed that it would have acquired a 43 percent interest in Getty's proven reserves for \$3.4 billion. Pennzoil's \$7.5 billion damage claim was based on the difference between the stock acquisition cost and the cost of replacing the lost reserves, which it estimated would entail exploration and development outlays of approximately \$10.9 billion. Pennzoil effectively assumed an opportunity to acquire substantial assets at a fraction of their true value through the acquisition of Getty stock.

Pennzoil's damage claim was fundamentally at odds with available market evidence. To accept Pennzoil's claim, one would have to discount market dynamics that would drive buyers and sellers to transact Getty shares at a price fairly reflecting the market value of its reserves. Pennzoil's analysis implied that Getty's management was irresponsibly willing to give up the reserves at a fraction of their true value and that

thousands of shareholders who sold Getty stock at prevailing market prices were similarly foolhardy.

At the time of the Pennzoil-Getty agreement, the shares of many major oil companies, including Pennzoil, were selling at a similar fraction of the replacement costs of their reserves. Numerous investors, among them sophisticated equity analysts and fund managers, sat on the sidelines, when, according to Pennzoil, Getty's stock and those of other major oil firms represented fantastic deals.

Even the eventual Texaco purchase price was only 16% above the Pennzoil offer rather than the nearly 300% premium implied in the damage award. This absurdly suggests that the executives of major oil companies other than Texaco negligently failed to bid for Getty's shares.

Had the value of the Getty reserves been anywhere near the value ascribed by Pennzoil, payment of the damage award would have easily been accomplished by selling a portion of them. Instead, it pushed Texaco to the brink of bankruptcy. In addition, the prevailing low oil company share prices relative to reserve replacement costs suggested a readily available mitigation strategy: Pennzoil could have bought interests in other oil firms.

Indeed, why would Pennzoil not merely have outbid Texaco for the Getty assets if they were worth more than two and a half times what Texaco was offering? Clearly, Texaco squandered the opportunity to limit its exposure to a small fraction of the eventual damages award. ■

ISSUE 4: CONSIDER THE EFFECTS OF RISK

One purpose of contracts is to manage and allocate risk. It is consequently not surprising that risk can be a significant consideration in estimating contract damages. A fundamental tenet of modern finance theory is that risk affects value. A method often used to account for this is to apply a risk adjusted discount rate: a higher discount rate is applied to cash flows with greater risk.

Under some circumstances, there may be no “correct” discount rate, at least no single correct rate. When the actual and “but for” worlds have different risk characteristics, the commonly employed damage approach (first calculating the difference between “but for” and actual cash flows and then discounting the difference to present value) can either understate or overstate damages.

In such a case, the way to correctly determine damages is to separately calculate the present values of cash flows in the actual and “but for” cases using discount rates consistent with the risks in each set of circumstances, and then determine the difference in the present values. What appears to be a mere semantic distinction — taking the difference of the present values of alternative cash flows versus taking the present value of the difference of the cash flows — can cause a fundamental, yet common, valuation error. ■

ISSUE 5: CORRECTLY VALUE NON-PRICE TERMS

Non-price terms, such as renewal options, volume flexibility, price re-openers, alternative delivery points, or price indexing, can have important effects on the value of energy contracts and thus on damages in a dispute. The value of non-price terms is often overlooked or only addressed qualitatively in contract negotiations, even though the financial exposure they create can be substantial. In addition, the effect of non-price terms can change significantly whenever there is a change in market conditions or market rules.

CASE STUDY: GETTING RISK RIGHT

A *Brattle* witness provided testimony in arbitration involving a long-term power contract terminated by the buyer during the 2001-2003 collapse of energy trading markets. After the market crashed, most market participants were unwilling (or unable) to enter into long-term contracts; only spot and other short-term transactions remained available for power sales. Thus it was not possible to obtain a replacement for the terminated contract, at any price, for the full original contract period.

In addition to reducing the price the seller could receive for the output of the plant, the contract termination also increased the seller's risk relative to the original contract. The seller became an unsecured merchant generator selling into the short-term market, instead of having the financial security of a long-term fixed-price contract.

While there was some disagreement about future actual world cash flow projections, experts for both sides used similar simulation modeling to forecast future spot prices. The primary issue on which the case ultimately turned was how to account for the difference in risk. The opposing experts ignored the risk difference, simply subtracting forecast spot revenues from contract revenues, and then discounting the “losses”.

We explained that the “but for” and actual cash flows needed to be valued using different discount rates in order to accurately reflect the risk exposures in the two worlds. Although the two discount rates differed by only about 5 percent, the resulting damages differed by 150 percent or \$85 million.

The arbitration panel found that it was indeed necessary to account for the difference in risk, and unanimously accepted *Brattle's* approach. ■

CASE STUDY: IGNORING MARKET EVIDENCE

The Brattle Group assisted a client in assessing the financial exposure of its “zonal” electricity contracts to a change in market design under which spot prices would be determined on a “nodal” basis. This issue, frequently referred to as “seller’s choice”, has arisen in several parts of the country that have or are about to implement locational marginal pricing (LMP).

The existing contracts had broadly defined delivery points, which could be interpreted to give sellers significant flexibility in designating which nodes within each delivery zone were proper delivery points. In a nodal pricing system, this would create an opportunity for sellers to strategically choose low-priced delivery points for financial settlement, regardless of where the power was physically delivered. This obviously could result in significantly higher congestion costs paid by the buyer.

We quantified the financial exposure from such delivery point flexibility by estimating the range of future locational prices under the new market rules. We additionally compared our market simulation-based estimates of nodal prices within the specified delivery zones with locational marginal pricing studies that had been conducted by the system operator in another context. Since the results of this analysis are mostly driven by the lowest prices, special care was given to make sure that the lowest nodal prices within each region were in fact reasonable.

The additional future costs to the buyers imposed by the sellers’ unrestricted choice of delivery points within each delivery zone were estimated to be as high as several billion dollars. This prompted the involved parties and the regulatory commission to clarify the delivery point provisions of contracts under the new market design. It convinced the system operator to define additional trading hubs and to introduce additional market rules that would mitigate the potential for additional costs that could be imposed by the sellers’ delivery point strategies. ■

Valuing non-price terms can sometimes be relatively straightforward. For example, a contractually-specified delivery point for natural gas may offer value different from a standard delivery point, but that difference may be uncontroversial, as when it can be determined from stable transportation costs. On the other hand, terms involving options or flexibility can present a challenge, since their value derives from the existence of uncertainty.

However, some conclusions are clear. The value of an option is always positive for the option holder. A 10-year contract with an option for a 3-year extension, for example, is more valuable to the option holder, and thus less valuable to the counterparty, than a similar 10-year contract without that option. Similarly, it is more valuable than a fixed-term 13-year contract. To establish an option’s value, it is generally necessary to characterize in detail the uncertainties affecting the option. ■

ISSUE 6: PROPERLY ACCOUNT FOR DIFFERENCES IN EX-ANTE AND EX-POST PERSPECTIVES

Analyses of contract claims often raise the question whether liability and damages should be analyzed from a before- or after-the-fact perspective. Industry conditions may have changed significantly between the time of breach and the time litigation is initiated, damage testimony is filed, or the case is concluded. As a result, both the context of a claimed breach and the associated damages may differ fundamentally depending on whether an *ex-ante* or an *ex-post* perspective is applied.

The *ex-ante* approach is based upon expectations at the date of breach, while the *ex-post* perspective relies upon conditions as of the time of the trial. An *ex-post* assessment applies the benefit of hindsight, which may be inappropriate. For example, a power purchaser might argue that the seller’s breach deprived them of profits from the resale of power during an extraordinary run-up in prices following the breach.

Such *ex-post* claims may far exceed what would be reasonable based on prices that existed or were expected at the time the breach occurred. Similarly, mitigation taken by the buyer that



seemed reasonable at the time of breach may appear less so in hindsight. For example, a quick replacement of a repudiated contract at a higher price may look imprudent in light of a subsequent drop in prices.

In terms of economic efficiency, contract termination damages should generally be approached from an *ex-ante* perspective. This maintains incentives for economically efficient behavior by the counterparties. An *ex-ante* perspective is also often reflected in certain legal requirements, such as the treatment of damages from anticipatory repudiation under the uniform commercial code. Indeed, whether the termination of a contract and the claimed damages are consistent with “efficient breach” can only be analyzed meaningfully from an *ex-ante* perspective.

Ex-ante versus *ex-post* issues may also influence assessments of the materiality of events (e.g., behavior of the defendant) critical to a liability claim. For example, from an *ex-ante* perspective, certain behavior may be entirely inconsequential to the value provided by the contract.

However, where market conditions have changed and the contract has moved “out of the money” from one party’s perspective, finding a breach, however small, could be of significant value to the potential plaintiff. In such a case, a careful analysis of market conditions and the implications of the behavior at issue from an *ex-ante* perspective can be valuable to gauge the materiality of an alleged breach or the possibility of a waiver by the plaintiff.

Similar issues may arise where the dispute involves bargaining unfairness or the interpretation of contract clauses. Notions of fairness implicit in the common law tradition are consistent with the analytical model of economic efficiency. Whether a contract was constructed efficiently typically depends upon industry conditions at the time the contract was developed. However, knowing what transpired afterward can easily “infect” and significantly bias the analysis, which can make the careful application of a consistent *ex-ante* perspective one of the most important aspects of presenting the evidence.

Finally, *ex-ante* versus *ex-post* issues may be important when assessing the reasonableness of liquidated damage clauses. These may appear reasonable *ex-ante* but excessive from an *ex-post* perspective for two reasons. First, unanticipated circumstances may have altered the consequences of a breach. Second, the observed outcome may differ from the “average” anticipated outcome but may be within the range of the distribution of anticipated outcomes.

While a showing of the latter will generally reinforce the reasonableness of a liquidated damage clause, the former may do the opposite. In a case of changed circumstances, the parties may not have been able to foresee some event or the specific type of breach that might greatly affect the extent of potential damages. As a result, the predetermined awards specified in the liquidated damage clause may no longer be applicable legally, or, even if still applicable, may no longer provide incentives for efficient contractual behavior. ■

CONCLUSION

In many cases disputes over contract damages are rooted in disagreements about the economic character of the dispute. What may sometimes seem to be minor technical differences in the economic approach can lead to considerable disparity in damage estimates. There is, however, usually a “right answer” to such economic questions. To find these answers and avoid the errors often encountered in damage assessments:

- ◆ *The “but for” case needs to be specified fully to capture all effects of the dispute*
- ◆ *Reasonable mitigation opportunities must be considered*
- ◆ *Estimates must be consistent with available market information*
- ◆ *Differences in risks between the actual and “but for” cases must be accounted for*
- ◆ *The effect of non-price terms needs to be assessed, particularly regarding contract flexibility or options*
- ◆ *The choice between ex-ante and ex-post perspectives must be evaluated carefully*

A thorough understanding of these points will assist practitioners in developing clear and defensible damage estimates and in challenging opposing estimates that may violate these principles. Many of these issues can also inform the liability phase of litigation cases and are relevant even in the presence of liquidated damage clauses. ■

The Brattle Group’s Experience in Contract Litigation

The Brattle Group offers extensive litigation experience with energy contracts and transactions. Our experts frequently testify before regulatory commissions, courts, and arbitration and mediation panels addressing prudence and damages, as well as aspects central to the liability phase of litigation.

Our knowledge of the electric, natural gas, coal, and oil industries allows us to testify on:

- ◆ *Industry fundamentals*
- ◆ *Common use of industry terms*
- ◆ *Industry practices*
- ◆ *The materiality of misrepresentations in securities offerings*
- ◆ *Whether reasonable efforts were undertaken to mitigate damages*

We offer expertise in economic valuation of damages combined with in-depth experience of nationally and internationally recognized experts in industry structure and operations.

We also frequently assist our clients by providing litigation support, including the formulation of economic arguments, class certification matters, litigation risk analysis, and assistance with discovery, depositions, and cross-examination.

We help with the identification and coordination of expert witnesses and support clients in the drafting of legal documents involving economic subject areas or highly technical industry matters. Similarly, we often provide assistance on technical issues and strategy in settlement negotiations, and in allocating

damages awards or settlement amounts among multiple claimants.

In addition to litigation assignments, *The Brattle Group* also provides business consulting services to its clients in contract (re)negotiation, formulation and review of procurement strategies and auctions, and the valuation of contracts and specific contract terms.

Complementary to this experience in energy contract litigation, we also have extensive expertise and experience in mergers and acquisitions, risk management, business and asset valuation, antitrust and competition, securities and shareholder litigation, intellectual property, and environmental liabilities and damages.

About the Authors



Principal

Dr. Dean Murphy is an economist and engineer with expertise in the areas of competitive and regulatory economics, finance and quantitative modeling, and risk analysis. His work has centered on the electric industry, encompassing issues such as climate change policy, contract disputes, competitive industry structure and market dynamics, market rules and mechanics, and price forecasting.

He has addressed these issues in the context of litigation, regulatory compliance filings and hearings, and in support of business strategy and decisions. Prior to joining *Brattle*, he was an associate director for air, energy, and transportation at the White House Office for Environmental Policy.

Dr. Murphy holds a Ph.D. in Industrial Engineering and Engineering Management and an M.S. in Engineering-Economic Systems, both from Stanford University.

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Principal

Mr. Johannes Pfeifenberger is an economist with a background in electrical engineering and over twenty years of experience in the areas of regulatory economics and finance. He has assisted clients in the formulation of business and regulatory strategy, submitted expert testimony to the U.S. Congress, courts, arbitration panels, and regulatory agencies around the world, and provided support in mediation, arbitration, settlement, and stakeholder processes.

As head of *Brattle's* Utility Regulation and Electric Power areas, he specializes in industry restructuring, transmission and network access, ratemaking and incentive regulation, analysis and mitigation of market power, financial evaluation, and commercial litigation.

Mr. Pfeifenberger holds an M.A. in Economics and Finance from Brandeis University, and an M.S. in Electrical Engineering and Energy Economics from the University of Technology in Vienna, Austria.

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Mr. Gerald Taylor has over twenty-five years of experience providing expert testimony and litigation support in court and regulatory proceedings in the petroleum industry. His expertise includes advising clients on liability or damage issues arising from antitrust, tax, and contract claims in petroleum and other industries.

Mr. Taylor received his J.D. from the University of Kansas and his M.S. from the MIT Sloan School of Management.

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LATEST FIRM-WIDE NEWS

Brattle Report Shows Carbon Cap and Trade Policies Run Risk of Delaying Needed Investments by a Decade

Brattle has assessed the likely extent and potential impact of CO₂ price volatility on carbon abatement investments and recommends strategies to reduce volatility to protect consumers and investors.

In the discussion paper "CO₂ Price Volatility: Consequences and Cures," economists Metin Celebi and Frank Graves evaluate current U.S. climate policy proposals that involve a cap and trade mechanism with increasingly tight caps on carbon emissions over time. They found that the extent of volatility of CO₂ prices under these types of proposals could be substantial, and is likely understated even by the current wide ranges in CO₂ price forecasts.

The paper recommends several ways to help reduce potential CO₂ price volatility.

Brattle Publishes Newsletter on the Credit Crisis

In our latest **Finance** newsletter series, Brattle principals George Oldfield and Michael Cragg explain how the credit problems that began in the real estate market are now affecting the liquidity and solvency of the commercial banking system as a whole.

The newsletter, "Understanding the Credit Crisis: The Treasury, the Fed, and the Banking System," provides context for the current credit problem, discusses liquidity and solvency in the banking industry, and evaluates both the Treasury and Federal Reserve assistance programs.

Brattle Examines Alternatives for Fostering Demand Response in Energy Markets for the Midwest ISO

In a whitepaper written for the Midwest ISO, Brattle examines alternatives for fostering economic demand response (DR) in energy markets. The whitepaper's near-term recommendation is for the Midwest ISO to enable the participation of curtailment service providers (CSPs) in its energy markets, as a bridge to a future in which the states enable the first-best approach to economic DR by widely implementing retail dynamic pricing rates.

The whitepaper provides a two-year roadmap focused on: (1) establishing a customer baseline load (CBL) methodology, measurement and verification (M&V) protocols, and settlement changes to enable CSPs; and (2) engaging state commissions and utilities in discussing the benefits of demand response and dynamic pricing.

Brattle Recommends Incentives to Improve Energy Efficiency in Europe

Principal David Robinson has proposed guidelines for the economic regulation of energy suppliers and recommended incentives for suppliers to help encourage energy efficiency and cost savings throughout the industry.

The paper, "Energy Efficiency: The Belle of the Ball in Bali," recommends incentives for the industry, whether in a regulated or competitive market.

Guidelines include the importance of reflecting accurate underlying whole

energy prices, ensuring that environmental benefits are explicitly included in any analyses, and providing incentives to keep economic costs as low as possible.

Brattle Estimates \$1.5 Trillion Needed in Utility Infrastructure Investment Through 2030

Brattle has determined that growing demand for electric services will require investment on the order of \$1.5 trillion between now and 2030. Principal Peter Fox-Penner presented the preliminary findings in April 2008 at The Edison Foundation conference "Keeping the Lights On - Our National Challenge."

The study projects generation, energy efficiency, transmission, and distribution investment needed in the U.S. between 2010 and 2030, factoring in a range of capacity deferrals that are possible through the implementation of energy efficiency programs.

The study also notes that new and replacement generating plants will cost about \$560 billion through 2030, absent a significant expansion of efficiency programs or new climate initiatives. Transmission and distribution will require nearly \$900 billion by 2030, under current trends and policies.

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The Brattle Group

Our Functional Practice Areas

- Antitrust/Competition
- Commercial Damages
- Environmental Litigation and Regulation
- Forensic Economics
- Intellectual Property
- International Arbitration
- International Trade
- Product Liability
- Regulatory Finance and Accounting
- Risk Management
- Securities
- Tax
- Utility Regulatory Policy and Ratemaking
- Valuation

Our Industry Practice Areas

- Electric Power
- Financial Institutions
- Natural Gas
- Petroleum
- Pharmaceuticals, Medical Devices, and Biotechnology
- Telecommunications and Media
- Transportation

About The Brattle Group

The Brattle Group provides consulting and expert testimony in economics, finance, and regulation to corporations, law firms, and governments around the world.

We combine in-depth industry experience, rigorous analyses, and principled techniques to help clients answer complex economic questions in litigation, develop strategies for changing markets, and make critical business decisions.

We are distinguished by:

- ◆ *Thoughtful, timely, and transparent analyses of industries and issues*
- ◆ *Affiliations with leading international academics and highly credentialed industry specialists*
- ◆ *Clearly presented results that withstand critical review*

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