

THE RISE AND FALL OF ENRON'S ONE-TO-MANY TRADING PLATFORM

© 2004 William Bernstein

**By William Bernstein,
a partner at Lief Cabraser Heimann & Bernstein, LLP,
a San Francisco, California-based law firm
representing plaintiffs in cases nationwide.
www.lieffcabraser.com**

Acknowledgment: Thank you to Kirti Dugar whose help was invaluable in assembling the research materials upon which this article is based.

1. Introduction

On November 29, 1999 Enron Corporation launched EnronOnline (www.enrononline.com) (“EOL”), an electronic trading platform which allowed no-cost transactions and “free” real-time pricing information for approximately 850 commodities including electricity and natural gas. Unlike every other commodities trading exchange (such as the New York Mercantile Exchange (“NYMEX”), the Chicago Mercantile Exchange (“CME”) and the Chicago Board of Trade (“CBOT”)), which match buyers and sellers and are known as “many-to-many” trading exchanges, EOL was designed and operated as a “one-to-many” platform, allowing buyers and sellers to trade directly and only with Enron as a principal.



2. The California Natural Gas Market

In 2000, California’s electric sector alone used 1.1 trillion cubic feet of gas, approximately 83% of which was imported from out of state, specifically basins in Western Canada, the Rocky Mountains, and the Andarko, Permian, and San Juan basins in the Southwest United States. Traders, marketers and customers of natural gas rely principally on out-of-state gas to meet demands of California producers. Gas is delivered to California through interstate pipelines at border delivery points such as those in Topock, Arizona and Malin, Oregon. The Topock gate, located at the California-Arizona border where El Paso’s natural gas pipeline delivers gas into SoCal Gas’s interstate gas distribution system, is the key delivery point for California’s marginal supply of natural gas. Typically, California utilities and large industrial users buy bundled natural gas either at the California border in the spot market, such as the Topock spot market, or, they buy gas at the production basins and arrange for transportation to the California border delivery by one of four interstate pipelines.

In California, natural gas marketers play a significant role both in marketing natural gas to large users, and in trading natural gas in California’s natural gas market. Historically, the spot prices for natural gas at the California delivery points such as Topock have correlated highly with prices at producing basins and at Henry Hub. In turn, because of this high correlation, participants generally looked to the NYMEX (the world’s leading exchange for trading

standardized natural gas futures and options for delivery of gas at the Henry Hub) for pricing information.¹

In addition, since the mid 1990s, natural gas price indices published by the trade press were a central tool for disseminating wholesale natural gas market price information, asset valuation, and financial and physical transactions. Contracts for the sale of physical natural gas in California are typically tied to the reported daily spot and bidweek market index prices published by *Gas Daily*, *Inside FERC* (published by Platts Natural Gas Products), *Natural Gas Intelligence* (“NGI”) (published by Intelligence Press), and *Natural Gas Week* (published by Energy Intelligence Group). These index prices² are also used for settling many financial derivative products in the California natural gas market, such as swaps, options, forwards, and basin-to-border price basis transactions, and the index prices are also used to compute payments to qualifying electricity generators (QF’s) in California.³

3. The Enron Online e-Trading Platform

Enron claimed in comments to the Federal Trade Commission (“FTC”) that “[t]he advantages derived from Enron’s electronic trading platform – dynamic real-time pricing, informed price competition, transaction efficiency and timeliness, and convenience – are encouraging the type of competition that e-commerce advocates anticipate and desire.”⁴ On August 16, 2001, the Federal Energy Regulatory Commission (“FERC”), after a two-month inquiry into e-trading in the natural gas and power industries, issued its Report on EnronOnline (“Report”). According to the Report, the business concept underlying EOL was simple. Trading on EOL replaces marketing that previously took place by phone and fax. (Report, p. 3) In order to conduct a trade with

¹ Prices for natural gas in the Topock spot market reflect short-term changes of supply and demand. The Topock market is the principal spot market for natural gas and serves as a benchmark for the pricing of natural gas in California.

² Indexes published by the Trade Press are based on price and volume data supplied by the key marketers of gas in California.

³ For example, the Los Angeles Department of Water and Power’s (“LADWP”) purchases of natural gas were priced on the basis of the NGI monthly index and the Gas Daily index of daily spot prices. See Decision 96-12-028, California Public Utilities Commission; http://nic.epuc.ca.gov/divisions/energy/QF_issues.

⁴ Comments of Enron Corporation regarding B2B electronic marketplaces submitted to the FTC in response to its request for comments concerning competition policy in business-to-business (“B2B”) electronic marketplaces.

Enron on EOL, a trader simply clicked on either the offer or the bid price, depending upon when the trader wished to buy or sell at Enron's posted price, and the trade was executed.⁵ (Report, p. 4) The Report noted that because Enron took one-side on every transaction, EOL differed from traditional exchanges like the NYMEX, CME, CBOT and even other electronic energy trading platforms such as Altra and Intercontinental Exchange ("ICE") which all use many-to-many models where the price is determined by the many buyers and sellers.

In fact, EOL was the exact opposite of the regulated, multilateral trading exchanges such as the NYMEX, CME and the CBOT. At the outset, EOL was an anomaly, as far as trading systems go. EOL was essentially an unregulated, bilateral trading platform. EOL posted, executed, settled and cleared every trade. There was no monitoring or surveillance. The only rules that applied were the ones that EOL made up, and transactions were settled by prices made up by EOL.

Since its inception, EOL was the primary trading platform for natural gas transactions for Topock gas and for swap and basis transactions tied to prices indexed for Topock. Natural gas traders and marketers in California flocked to EOL to trade Topock natural gas, both for spot or next day delivery and for trading derivatives based on Trade Press indices such as the NGI SoCal Topock Index. EOL soon became the dominant trading platform for natural gas transactions relating to California.⁶ As an example, in the key month of December, 2000, EOL reported 4000 spot market transactions⁷ for natural gas relating to California delivery points. Of these, 60% related to SoCal Topock. In addition, participants on the EOL platform conducted a large number of swap and basis transactions relating to Topock and other California related markets (including source basins such as the San Juan and Permian basins). On an average, about 1200 such California related swap transactions⁸ per month were traded through EOL.

⁵ The Report, in Figure 2, reproduced a sample page of Enron online, which is reprinted here as Appendix 1.

⁶ By November, 2000, the level of participation by traders and marketers was so huge that EOL was claiming a 60% share of the world's natural gas trading volumes on its platform.

⁷ The average transaction size was 10,000 MMBtu. (= 10 MMcf)

⁸ The average transaction size for swaps was 5000 MMBtu/day over a three month period. The implied volume of gas per transaction would be nearly 0.5 Bcf; at an average of 40 transactions per day, swaps implied a total volume of 20 Bcf/day.

The FERC team which investigated EOL found that e-trading was not a separate market from traditional telephone and fax trading, concluding that “it is not unusual for a trader to be linked directly to eight voice brokers. Thus, a trader can quickly obtain price quotes from many sources when making a trade.” (Report, p. 8) Even though, as the Report found, the general opinion in the industry was that a many-to-many model would be how e-trading would develop, the most successful platform was EOL using its one-to-many model.⁹ The Report quotes Ken Lay, the Chairman of Enron, as having said that EOL’s “four biggest competitors represent an eighth of what we [EOL] have.” (Report, p. 9) The FERC team concluded that Enron’s system outstripped all others because of its ease of use and its inexpensiveness. Moreover, the team believed that “traders would be reluctant to use EOL if they had reason to believe that Enron is abusing the system. No trader expressed the opinion he was being cheated by EOL.” (Report, p. 11)

After conducting its investigation, the team concluded “while we found that there was no reason for concern about EOL at this time, deregulation and the introduction of e-trading are causing rapid changes in the energy industries. If Enron and EOL continue to grow at their current pace, competitive problems could develop. . . . The team recommends that it continue to monitor EOL and electronic trading of natural gas and electric power to keep abreast of developments and to maintain the expertise developed by the team.” (Report, p. 16)

4. Price Manipulation in the Natural Gas Markets

While the FERC was conducting its investigation and publishing its Report on Enron Online, the very traders who had expressed no dissatisfaction with Enron and who were connected with each other by email and telephone on a real time basis, were engaged in alarming anticompetitive conduct which contributed to the loss of more than \$7.5 billion¹⁰ from purchasers of natural gas

⁹ “The one-to-many structure used by EOL is relatively rare. The only other such trading structure is the Specialist system at the NYSE. However, the Specialists are subjected to substantial affirmative obligations and oversight by the NYSE to ensure that their monopoly position is not abused. In contrast, EOL was not subject to any rules or regulations.” (Final Report, p. VIII-1)

¹⁰ See e.g., Prepared Testimony of Dr. Gary A. Stern on Behalf of the California Parties filed on March 3, 2003, in *San Diego Gas & Electric Company v. Sellers of Energy and Ancillary Service into Markets Operated by CAISO and CALPX*, FERC Docket # EL-00-95-000 et seq. at p. 86.; see also, California Parties’ Supplemental Evidence of Market Manipulation by Sellers. . . . at p.2, “From November 2000 through June 2001, the total cost of electricity needed to serve California

and electricity in California as a result of artificially high prices for the delivery of natural gas to the California border. Less than a year after its Report on EnronOnline (specifically, on February 13, 2002), the FERC launched a fact-finding investigation to determine whether Enron Corporation or any other sellers manipulated electricity and natural gas markets in California and other Western states in 2000 and 2001.

While the initial FERC investigation gave EOL a pass, later, the Final Report on Price Manipulation of Western Markets, dated March 26, 2003 (“Final Report”), concluded that “The Report recommends that the Commission prohibit the use of one-to-many trading platforms such as EOL and explicitly prohibit wash trading.” (Final Report, p. ES-2). The earlier hands-off approach¹¹ was also abandoned: “Staff recommends that Congress consider giving direct authority to a Federal agency to ensure electronic trading platforms for wholesale sales of electric energy in interstate commerce are monitored.” (Final Report, p. VII-16)

The FERC investigation was a result of obvious dysfunctions in the natural gas market which impacted not only the price of natural gas but also the price of electricity in California and Western energy markets. Since natural gas-fired electricity generation units are usually the marginal units during peak demand periods, input prices had a significant impact on the market clearing price at the California ISO. For example, for a gas fired unit with a heat rate of 10,000 Btu/kWh, if the natural gas price goes from \$2.00/MMBtu to \$5.00/MMBtu, the fuel cost of the generator rises from \$20.00/MWh to \$50/MWh.¹² Natural gas and electricity markets are “inextricably linked.”¹³ (Final Report, p. ES-1) As

was more than \$44 billion. This compares to less than \$25 billion total for the years 1998, 1999, and 2002, combined.”

¹¹ “[B]ecause the EOL platform was wholly controlled by Enron, there were no fixed rules.” (Final Report, p. VII-14)

¹² Part I, Section 3, p. 3-20 of the Staff Report to the Federal Energy Regulatory Commission on Western Markets and the Causes of the Summer 2000 Price Abnormalities, dated November 1, 2000.

¹³ Profits from generation of electricity are commonly referred to as the “spark spread,” which is the difference between the price of electricity and the cost of generating electricity. More specifically:

$$\text{spark spread} = \text{electricity price} - (\text{heat rate} \times \text{natural gas price})$$

The price of electricity is in fact inextricably linked to the price of natural gas. See *Hedging on a Spark* by Michael Hsu, “Energy Power Risk Management: Natural Gas Special Report,” October 2001 www.eprm.com.”

natural gas prices in California shot up in December 2000, electricity prices averaged \$317/MWh — a tenfold increase over historical averages.

Since EOL took the other side of every transaction, behind the scenes, EOL knew what the entire market was doing. According to a story in Computerworld,

Traders like John Arnold, who personally executes about \$1billion per day in trades, have real-time access to virtually any information that might affect their split second buy-and-sell decisions.... Behind the scenes all of Arnold's trades are instantly analyzed and processed by a sophisticated, proprietary risk-management system and then updated across multiple back-end computer systems worldwide. Less than a year after launching the operation, 60% of the world's [natural] gas is traded on EnronOnline.¹⁴

Accordingly EOL was the primary source of price discovery, and price formation, in California's natural gas markets during 2000 and most of 2001.

Historically, spot prices for natural gas at the California delivery points correlated with the prices as producing basins and at Henry Hub in that the price at the California border reflected both the basin price and the transportation costs to the border. The differential between the basin price and the border price is known as the basis differential which historically had been reasonably constant and (compared with 2000 and 2001 differentials) modest. During the end of 2000 through the spring of 2001, the market experienced at least three enormous increases in the basis differential which caused the price of natural gas in California to reach unprecedented historic highs.¹⁵ For example, in mid-November 2000, the price of natural gas at the California border was approximately \$5/MMBtu. By early December the price had spiked at about \$55/MMBtu, even reaching \$68/MMBtu at one point during a trading day. The significance of this unprecedented increase can be illustrated by The Brattle Group's conclusion that a 10¢ increase in the price of natural gas results in a

¹⁴ Computerworld, November 20, 2002; www.computerworld.com.

¹⁵ A graph showing these differentials is attached as Appendix 2.

\$34.2 million increase in the cost of electricity to Southern California Edison's customers alone.¹⁶

During this period of extreme volatility, natural gas traders were trading natural gas on EOL at prices which were unrelated to the actual costs of supply and delivery of natural gas, and without regard to the need for physical deliveries of the product. In other words, financial positions would expire and could be settled for cash rather than natural gas flowing into the state. Financial transactions resulted in overall demand (financial plus physical) that far exceeded the available supply of gas at the SoCal Topock gate and magnified a shortage of physical gas during this time period.¹⁷

In its Final Report, the FERC staff report found that "manipulation of price indices apparently drove, at least in part, dysfunctions of the natural gas market." These manipulations included at least two forms of serious anticompetitive behavior: "(1) trading in anomalous patterns at Topock, and (2) false reporting of market transactions and publications for compilation and price indexes." (Final Report, pp. 1-17).

Anomalous trading patterns identified by the FERC include roundtrip or wash trades which are described by the FERC Report as churning. Wash trades in financial markets have been called "the archetypical form of fictitious trading." Abraham L. Friedman, *The Sciencter Requirement and Wash Trading in Commodity Futures: The Knowledge Lost in Knowing*, 16 *Cardozo L Rev.* 1625, 1639.

Traditionally, a wash sale or a wash trade was defined as 'a transaction which gives the appearance of being a purchase and sale but which avoids any actual change of ownership.' Wash trading is inimical to the pricing and risk shifting functions of the futures markets because it can result in the reporting of prices for commodity futures contracts that are not true and bona fide

¹⁶ *Anticompetitive Implications of the El Paso Natural Gas – El Paso Merchant Energy Transaction, prepared for Southern California Edison by The Brattle Group*, August 31, 2000 at p. 3.

¹⁷ For reasons which are hard to fathom, certain California utilities did not charge up their storage fields with natural gas during warm weather months for distribution during the winter of 2000/2001.

prices, and it can result in the promulgation of inaccurate information concerning the futures contracts being traded.

Id. at 1639, citing *In re Collins* [1986-1987 Transfer Binder] Comm. Fut. L. Rep. (CCH) 22,982, *In re Eisen*, 22 Agric. Dec. at 760.

Essentially wash trading occurs when a party simultaneously buys and sells (or sells and buys) the same commodity at or near the same price within a very short period of time so that the party has no financial risk in the transaction. While parties occasionally argue legitimate or quasi-legitimate motives for engaging in wash transactions, more likely, the conclusion to be drawn is that the purpose for engaging in those transactions is “to defraud customers, and to manipulate prices of future contracts.” *Friedman, supra*, at 16 Cardozo L. Rev. 1639, citing *In re Rosenberg* [1986-1987 Transfer Binder] Comm. Fut. L. Rep. (CCH) 23,775 at 34,037 (*Init. Dec.* July 8, 1987). Wash trading is specifically prohibited by the Commodities Exchange Act in § 4c(a). The FERC’s Final Report echoes the manipulative effects of wash trading.

The Trade Press has reported that, like a casino, Enron had the “house” advantage by trading on EOL in energy markets.... Simply put, the use of EOL enabled Enron to post any price it wanted.... The overall evidence [of commonplace wash trading] supports the conclusion that trading abuses and manipulation occurred on EOL. (Final Report at p.VII-14)

The FERC Report found that one trader “often swamped the Topock delivery point with its net gas purchases.” Its “rapid fire sale and purchase of gas in amounts far in excess of its needs raised the price of gas on EOL significantly. On average, the price is \$9/MMBtu higher on churn days than on other days.”¹⁸ (Final Report, p. II-58) The impact of wash trades or roundtrip trades on EOL accomplish two purposes which undermine the integrity of the natural gas market. First, the agreement among two parties to buy and sell natural gas at a price which involves no financial risk to either party established bogus prices which are unrelated to supply and demand or other market conditions. Second, these trades create an illusion of volume on the EOL trading platform and

¹⁸ A spreadsheet showing a snapshot of this type of EOL trading activity is attached as Appendix 3.

an illusion of liquidity which in turn encouraged market participants to join in the frenzy.¹⁹

The second form of market manipulation identified by the FERC was false reporting to the Trade Press. During the FERC investigation at least five companies have admitted that their employees provided false data to the *Natural Gas Trade Press* including *Gas Daily* and *Inside FERC*. (Final Report, p. III-2)

Because of EOL's dominance in the key Topock markets, many traders looked at EOL to observe market conditions and to price off-EOL trades (for trades conducted on other platforms such as Alltrade and ICE). In addition, the volume and price data reported to the Trade Press by traders was often a fabricated volume based on the observed EOL price. This naturally magnified the volume of trading reported to the Trade Press. For example, on January 31, 2001, total trading volume at SoCal Topock reported to Gas Daily was 6,766,000 MMBtu. The actual volume on EOL Topock gas for the day was 2,240,000 MMBtu based on trading verified by FERC Staff. FERC suspects that of the 6,766,000 MMBtu reported by Gas Daily, much of it was based on trades observed on EOL, or made up on the basis of EOL prices in addition to the actual trades made on EOL.

While each of the companies who admitted false reporting expressed their own reasons for doing so, staff at FERC was unimpressed. The Final Report found:

[a] manipulated price sends a false price signal and misallocates resources.

The accuracy and integrity of the market price are especially critical in capital-intensive industries

¹⁹ Enron was able to create an economic monster, because of certain "loopholes" in the Commodities Exchange Act ("CEA") as amended by The Commodity Futures Modernization Act (of 2000) ("CFMA") through which trading platforms in energy markets escaped the oversight of the Commodities Futures Trading Commission ("CFTC"). Energy swaps and OTC derivatives, including energy spot market transactions are statutorily exempt from regulation under the CEA. According to CFTC Commissioner Tom Erickson, "It is like Swiss Cheese. There are a lot of holes where you can get out of the block. The Enron episode highlights the holes in the regulatory fabric." (www.futuresmag.com; May, 2002). Section 2-g of the CEA (as amended by the CFMA) excludes all swaps transactions and 2-e excludes electronic trading facilities. Together, these sections are the so called "Enron loopholes" in commodities regulation. Senator Diane Feinstein has been proposing an amendment to the energy bill to close these loopholes.

such as natural gas and electricity. Moreover, as the predominate input choice for new electricity generation, the accuracy and integrity of natural gas prices are particularly critical. ... Accurate natural gas prices that are free from manipulation are the cornerstone of competitive natural gas and electricity markets.

...When index prices are manipulated (up or down), financial derivative products are not priced properly, market participants lose faith in financial markets, and the cost risk management is increased. Ultimately, energy consumers are hurt by the increased costs and inability of energy companies to properly manage risk.

(Final Report, p. III-19)

As a result of the investigation the Final Report concludes:

The process for reporting natural gas price indices was fundamentally flawed and must be fixed. Traders had the ability and incentive to manipulate the published indices and they did so.

(Final Report, p. III-54)

5. Conclusion

As a result of price manipulation in the California natural gas market, a number of complaints have been filed in California alleging violations of California Cartwright Act (Cal. Bus. & Prof. Code § 16729 *et seq.*) and for unfair business practices in violation of California Bus. & Prof. Code § 17200 *et seq.*) The complaints allege concerted action among traders of natural gas to manipulate natural gas prices through wash trading and false reporting. The litigation will be complex insofar as it involves multiple parties with voluminous business records conducting activities in a deregulated environment with little applicable precedent. Nevertheless, plaintiffs will inevitably prove that the market participants were connected by instant email and by telephone, all looking at the EOL screen simultaneously, all participating in a market whose prices bore no rational relationship to supply and demand principles and where market

participants were conducting fictitious trades and reporting false prices and volumes to the Trade Press. The stakes are high: at least \$7.5 billion trebled.

One thing is certain: it is highly unlikely that a market participant will ever successfully launch a one-to-many trading platform again. The one-to-many trading platform concentrates too much information in a single market participant resulting in too much potential for abuse and market manipulation. The Final Report notes:

The Enron market maker was on one side of every trade done on EOL. The market maker established the bid and ask prices and profited from the spread between the two. In addition, the market maker had information superior to the rest of the market and had the ability to influence the price. By posting the bid and ask prices for a particular location at a given price, an Enron trader would have a greater likelihood of affecting the index price at any point traded on EOL than any other single trader. Thus, trades made on EOL could be fed into a particular index over and over, as other traders were reporting what they observed on EOL to the Trade Press. Some of the traders that attempted to manipulate the indices said that they were doing so in order to offset Enron's perceived dominance at particular trading points, particularly at Topock on the California Border.

Speaking before the Federal Reserve Bank Roundtable on the Institutional Structure of Financial Markets in Chicago, Illinois, on February 15, 2002, Leo Melamed, Chairman Emeritus and Senior Policy Advisor of the Chicago Mercantile Exchange, explained:

I have no hesitation in saying that these components [neutrality of clearinghouses, system of multilateral clearing and settlement, daily mark-to-market, daily margining demands, full disclosure standards, transaction transparency, audit trail regimen, financial surveillance procedures, regulatory requirements] epitomize financial safety and transaction transparency—Enron represented their opposite. . . .

No bilateral system, no matter the parties involved, can hope to match the financial integrity and transparency of a multilateral clearing facility composed of the above enumerated strictures—safer yet if the facility is integrated with its trading engine so that at all times it has the pulse of the entire marketplace. . . .²⁰

Enron hardly turned out to be an honest market maker. Equally important, a “one-to-many” trading platform cannot work without the “many.” It is doubtful any other group of corporations will ever be trusted to participate in a one-to-many e-trading platform for a commodity so vital to the economy as natural gas.

²⁰ Mr. Melamed went on to say, “In other words, every trade on EnronOnline depended on Enron’s credit-worthiness. If you don’t understand what that means, ask the people who are left holding the bag.” www.leomelamed.com.