

More regulation requires more accurate valuation of forward trades – and a need for more reliability in the forward curve tool. *Sandy Fielden* presents an informal survey of the data choices available to energy risk managers in the US natural gas and electricity markets who are looking for forward curves

Shopping for curves

★ The 2002 Sarbanes Oxley (Sox) legislation in the US created new accounting standards for stock exchange-listed companies required to report to the Securities and Exchange Commission (SEC) on a quarterly and annual basis. Section 404 of Sox covers internal control over financial reporting and requires that companies demonstrate adequate audit and control process over (among other areas) their financial transactions. Sox legislation implicitly requires US-registered energy trading companies to tighten control over the management of trading risk. It has become critical for risk managers in energy companies to find auditable and independent daily valuations of the forward trades on their books. This mark-to-market process requires a search for what are known as forward curves – market values that can be applied to forward positions in the risk portfolio.

In the near-term, or spot, markets, greater scrutiny of the US electricity and natural gas markets by the Federal Energy Regulatory Commission (Ferc) has led to the development of more robust and liquid price reporting indexes for day-ahead and balance-of-month transactions. These improvements are documented in the May 2004 Ferc *Report on Natural Gas and Electricity Price Indices*¹. As a part of the information gathered for

its report, Ferc surveyed 189 market participants voluntarily and discovered that while near-term price reporting had improved, “the results clearly indicate that few companies report long-term transactions to index developers; over 75% of respondents indicated that they reported no forward fixed-price natural gas or electricity transactions to index developers.” Simply put, traditional price reporting surveys do not provide adequate coverage of forward markets. What follows is a survey of sources of forward-curve data presently available to risk managers.

The first and most obvious place to find forward curve data is the exchanges. The New York Mercantile Exchange (Nymex) and London’s International Petroleum Exchange (IPE) provide liquid open outcry and electronic trading markets for key energy futures and options out as far as 10 years into the future. Daily published settlement values provide any participant with a clear indication of the forward curve. However, because the Nymex and IPE curves only cover a narrow range of heavily traded commodities that do not reflect all trading locations or commodities, they only meet a small part of most risk management requirements.

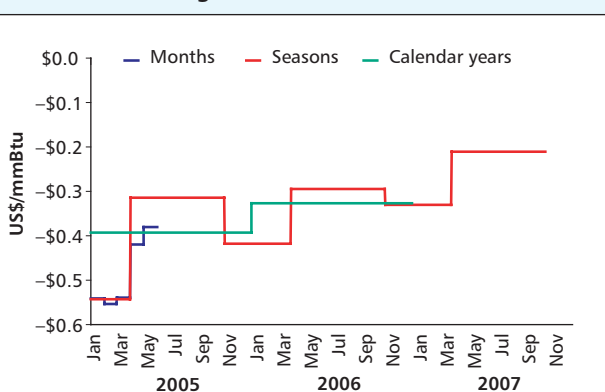
Nymex has broadened market coverage by extending its clearing mechanism to include transactions not traded directly on the exchange floor. While developed primarily to satisfy issues of counterparty credit risk, the resulting Nymex over-the-counter (OTC) market has greatly extended the forward curves that are publicly available to the energy market.

Nymex offers more than 50 OTC instruments in oil, natural gas, coal and electricity. Counterparties that trade in these instruments off the exchange can register their trade with Nymex and be assured that they are handled by the exchange clearing house, and that settlement values are available for open positions every day. The settlement procedure ensures a published value, but if there is no activity in the commodity, the value is “assessed”, not based on actual trading.²

The IPE is itself owned by the largest electronic trading platform for energy – the Atlanta-based Intercontinental Exchange (Ice). Ice provides a variety of market data to members and non-members alike through its 10X data group, which publishes Ice daily indexes for 60 gas hubs and 30 power hubs in North America. The methodology for the collection,

Source: Energy Curves

F1. Social natural gas forward curve as at 14/12/2004



The chart shows indicative pricing from the broker market for Southern California natural gas forward market prices on December 14, 2004. The market is traded ‘basis’ the Nymex Henry Hub natural gas futures contract. The forward curve shows six forward months, six forward seasons and two calendar years.

1. (see www.ferc.gov/EventCalendar for details).

2. See the Nymex OTC offering at: <http://www.nymex.com/jsp/markets>

processing and calculation of these indexes is wholly objective, says Ed Fraim, North America director of the 10X Group. “Each year, the index creation process and resulting calculations receive an SAS 70 audit,” he adds. “10x was recently recognised as the only publisher of gas and power indexes to fully comply with the Ferc policy statement on price indexes.”

The 10x end of day (EOD) report is an electronic summary of each trading day on the Ice platform, adds Fraim. The EOD data is sourced directly from the Ice trading platform where every bid, offer and trade represents actual dollars at risk in the market. The report is published each day at 3pm eastern time and features indicative price statistics for every power and gas derivative that is traded or quoted on Ice. Statistics include last price, high price, low price, total volume, volume-weighted average price, best bid, best offer, closing bid and closing offer. There is also a time and sales summary of every transaction including the price, timestamp and an indication of whether a bid was hit or an offer lifted.

On a monthly basis, adds Fraim, the 10x Market Price Validation (MPV) provides independent, consensus forward curve and option values for long-dated (5–20 years) global energy contracts. “On the last business day of each month, MPV participant companies submit their month-end forward curve and option prices for widely held global energy contracts such as Henry Hub natural gas, Brent crude, West Texas Intermediate crude and many others,” he says. “10x audits and averages these submissions to create consensus forward curve and option values that are then published back to MPV participants.”³

Forward curve data from Ice and Nymex OTC provide risk managers with what they need for transactions traded on electronic exchanges. However, according to the May 2004 Ferc Report on Natural Gas and Electricity Price Indices – a survey of market participants – the reported trading venues for forward fixed-price natural gas and electricity transactions (for long-term, fixed-price transactions a month or more forward) were as shown in the table below:

	Voice broker	Bilaterals	Electronic exchange
Natural gas	46%	39%	16%
Electricity	49%	33%	18%

Voice broker means using a traditional broker to connect counterparties, *Bilateral* means dealing direct with the trade counterparty
Electronic exchange means transacting on a trade platform such as Ice
 Source: Ferc

It is important to note that these statistics do not include day-ahead or balance-of-month transactions, and that they were the result of a voluntary survey response.

For risk managers, then, the evidence suggest that prudent price discovery of forward curves should include other data sources besides electronic exchanges. Any thought of finding bilateral market deal data quickly leads one back to the Ferc report’s earlier criticism that forward trades are not reported to price reporting services anyway. The broker community is a

more fruitful source of additional forward curve data.

As the Ferc numbers suggest, voice brokering of forward market activity is still popular. Brokers provide a customised service and have good working relationships with their clients that enable them to respect counterparty credit concerns and to provide a human feel for market depth and price indications. This makes customers feel more comfortable committing to longer term transactions through the broker mechanism.

Until recently, brokers have struggled to provide forward curve data to their customers in a form that can be used by risk managers. Individual brokers might provide data, but the format varies from broker to broker, and the risk manager is left sifting through large amounts of data to find mark-to-market values.

Four of the largest OTC gas and power brokers in North America have now made that search easier through a solution called EnergyCurves. EnergyCurves combines the end-of-day indicative price reports of brokers Amerex, Icap, Prebon, and TFS into one comprehensive and standard product for gas and power mark-to-market valuations. The solution provides indicative, unbiased independent broker data that is aggregated by an independent company (Logical Information Machines) and subjected to a number of stringent quality checks.⁴

As the executive director of the Committee of Chief Risk Officers, Robert Anderson, points out: “The use of aggregated, independent broker data for the construction of forward curves will be a very positive development for energy merchants and the energy markets they compete within.”

Even with ready access to exchange, electronic platform and broker data, risk managers looking for forward curves are still not happy. The common complaint arises that offerings derived from actual market trading activity do not offer complete coverage. If a particular forward instrument in your portfolio is not traded on an exchange or through a broker on a given day, then placing a market value on that instrument at the end of the day is difficult. It used to be OK to ask your own traders to place a value on such transactions, but tighter financial controls make that impossible now. Nevertheless, a couple of solutions to this ‘curve gap’ challenge are available.

Since February 2000, technology provider Kiindex has offered web-based risk management services to companies in the energy sector. A central plank in their offering has been a data service to provide market pricing for their calculations. Kiindex Global Data Management provides more than 140 curves going out from two to seven years, covering all energy markets. They offer 53 curves for North American natural gas hubs and 17 for electricity hubs. The curves have monthly granularity.⁵ Although the methodology Kiindex uses is proprietary, they survey a number of reported sources to assess a fair market value for their curves.

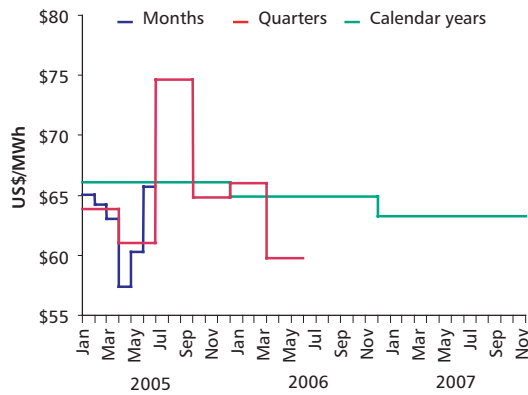
A more comprehensive product aimed directly at risk managers in energy is being developed by data provider Platts, which has recently released its new mark-to-market (M2M) offering. “Platts reporters cover the power and gas markets daily, delivering news and information to bring understanding and

3. For more information on 10X data contact Ed Fraim at +1 646 733 5018

4. You can learn more about EnergyCurves at www.energycurves.com

— Source: Energy Curves

F2. South Path 15 on-peak electricity forward curve



The chart shows indicative broker pricing for California electricity prices on the South Path 15 network. The market quotes forward prices for six months out, six quarters out and three calendar years. The electricity forward markets trade in absolute \$/MWh values

insight to the liquid markets for power and gas,” says Steve Piper, managing director of power forecasting at Platts. “This includes verification of reported prices and independent corroboration of index data.”

But many market hubs and many portions of the forward

5. A list of the curves is available at www.kiodex.com.

6. Find out more about their offering by calling Pamela Berberich on (212) 904 5104

curve remain illiquid. Piper says the Platts products M2M Power and M2M Gas attempt to solve this problem by using all the liquid data available in the market and combining it with energy forecasting expertise “to construct the best possible forward curves with fully specified price points and coverage periods”.

Forward contracts often trade for an annual or seasonal duration, allowing the reported price to be driven by underlying factors that are difficult to discern even when a lot of data on a given contract is available. Platts says it has developed shaping factors for forward contracts of any duration using a variety of sources, including historical spot prices and seasonal loads. “Specification of discrete monthly prices that match historical settlements allows for more robust calculations of volatility, and therefore forward value-at-risk,” adds Piper. The Platts data extends out as far as 20 years with monthly granularity.⁶

As the regulatory environment changes, the challenges facing risk managers sometimes seem to form an uphill forward curve of their own. The good news is that increased data offerings from the market are available to help meet the forward curve challenge. Many of these data sets are themselves available via a one-stop-shop provided by data aggregators such as Logical Information Machines. All of them improve market price discovery, and can only increase the prospects of better corporate governance in energy trading.

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