

Sarbanes Oxley has wide-ranging implications for US power companies on how they use, and record their use of, market data, writes *Sandy Fielden*

Taking stock of SOX

★ The 2002 Sarbanes Oxley (SOX) legislation in the United States created new accounting standards for companies within and outside the US who are listed on US stock exchanges. The law requires companies to disclose in their financial reports any material weaknesses in their financial reporting systems. Chief executives and chief financial officers must certify that the reports are accurate. Companies must not only audit their financial statements, but also audit the internal systems and procedures used to produce the statements.

The key piece of SOX for compliance is section 404, which requires companies to review their internal controls over any process that might affect reported financial results and report any 'material weaknesses' they find. Of the four types of utility – investor-owned, federally-owned, publicly-owned and co-operatively owned – investor-owned utilities represent about 70% of the generation capacity and own 73% of the transmission capacity in the United States. The majority of investor-owned utilities are publicly-traded companies and, as such, are required to conform to SOX legislation.

As with any company operating in the energy markets, utility companies must learn to live with volatile raw material prices.

US regional electricity markets

In a volatile price environment, energy players must determine their appetite for risk and set stockholder expectations for returns accordingly. As we have seen in 2005, the utility market appears to be increasingly divided in its appetite for risk. Companies like Calpine with an over-exposure to price risk compared to their debt level, ended the year filing for chapter 11 bankruptcy protection. Companies like Constellation and Florida Power & Light agreed a giant merger, which was in part, designed to consoli-

date their asset base and allow them to increase their profitable merchant trading activity by securing a higher credit rating.

Any utility company embracing the new world of retail and wholesale markets is going to increase its exposure to market price risk. The necessary response to increased risk is to increase the company's risk management activity. This can only be accomplished by hedging exposure to market price risks through financial instruments. The sophistication of financial instruments used for hedging energy price risk is increasing all the time.

Moving towards compliance

The SOX legislation increases the fiduciary responsibility of any company to manage market risk in a transparent and independent manner. Although traditionally these kinds of goalkeeping activities have been the responsibility of external auditors, the SOX legislation quite specifically requires companies to develop their own compliance regime without relying solely on their auditor's recommendations. It therefore follows that companies exposed to market risk must pay more attention to building internal controls and measures of compliance.

Since the most serious risks facing any utility company are related either to energy price volatility in the first place or the volatility of financial instruments used to manage risk, it is absolutely critical for the company to pay attention to market data. In any case, the measures used to manage market risks always start with effective price discovery. As risk measures become more sophisticated, they rely more heavily on actual and historical market data for their calculation.

SOX legislation requires proper internal controls over the handling of market data



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precisely because this data has such an important impact on the reporting of a company's exposure to price risk.

In the unregulated electricity market, there are a myriad of different data sources that drive prices. In the new regional transmission organisations (RTOs) market pricing is either driven by the Federal regulation and oversight of energy's (Ferc) standard market design model of locational marginal pricing (LMP) or zonal pricing as in California and Texas. Of these systems, the two-day LMP pricing model used by PJM, New York, New England and the Midwest Independent System Operator are the most sophisticated.

The basic function of the model is to determine the lowest priced generation bid into the

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system that will meet the expected load. The market price will 'clear' at the intersection of supply and demand bids. By providing day ahead and real-time pricing for every node on the transmission network, LMP price systems generate literally hundreds of thousands of market price signals every day. As well as these, the systems deliver a host of information on load and generation, forecast and actual.

Outside, the RTO's pricing is still largely set by bilateral trades between parties. Pricing data is distributed by price discovery service Platts, as well as by brokers and trading platforms like the Intercontinental Exchange (ICE), and clearing platform Nymex ClearPort.

Of course, electricity markets are closely dependent on raw material prices for natural gas and coal, as well as competing fuels like oil. Coal-fired generators must pay close attention to the market for emissions credits that will determine how best they meet Federal emission requirements. Weather data often drives short-term electricity demand, so different sources of actual and forecast weather are important for utilities to have access to. Understanding the often complex transmission system and its various congestion charges are critical as well. Generation capacity outage information also provides an important understanding of

potential network problems ahead of time.

Much of this market data is critical to day-to-day management of a utility. Information about the transmission grid and weather forecasts has always driven generating decisions. The new RTO SMD systems generate a lot of pricing information, but also take responsibility for network reliability and balancing supply and demand. The difference the SOX legislation makes is that the data assumes more than operational significance and its gathering and distribution must be organised in a way that ensures compliance with internal controls.

Utility companies, therefore, face an uphill battle in having to gather market data from hundreds of different sources and making sure the information is up-to-date, accurate and reliable. For example, much of the RTO data is only available from the websites that the system operators maintain. Daily and hourly LMP pricing must be literally scraped from these websites on a more than hourly frequency. The process of collection is not '9 to 5' because the electricity flows around the clock every day, including weekends.

In addition to public market data, utilities must interact with the RTO's to account for billing and scheduling of electricity flows. This is typically accomplished by secure certificates issued by the RTO that restrict access to authorised parties. Monitoring who received what data and ensuring the access of interested parties to the most current version requires proper organisation.

Data correction

Keeping track of any changes or corrections to data presents a host of organisation issues. The original source may change a number. Real-time system prices that end up driving invoices are constantly being revised when new system information becomes available. It is necessary to make sure changes are captured and made available to all interested parties. Keeping track of changes or corrections is one of the key internal controls that SOX legislation governs.

If unscrupulous individuals can simply change numbers with impunity, then data quality and accounting integrity both suffer. It is critical to understand when, where, and how changes occurred. Although most utility organisations can probably define a reasonable universe of market data that they must monitor, the changing shape of the elec-

Sarbanes Oxley Requirements			
Section	302, 906	404	409
Data Integration	<ul style="list-style-type: none"> Convert currencies Track record adjustments Keep historical data available for audit 	<ul style="list-style-type: none"> Integrate internal transactional systems, logs & audit trails with external market & analytical data Provide a search mechanism across structured & unstructured data 	<ul style="list-style-type: none"> Integrate information across systems to monitor exceptions or process failures
Data Quality	<ul style="list-style-type: none"> Identify & eliminate duplicates & data inconsistencies 	<ul style="list-style-type: none"> Measure & improve meta data quality (data definitions, specs & standards) Ensure data security Measure & improve data accessibility & ease of use 	<ul style="list-style-type: none"> Measure & improve data availability, timeliness & relevance
Meta Data Management	<ul style="list-style-type: none"> Document data mappings, aggregations & transformation 	<ul style="list-style-type: none"> Establish data stewardship Establish roles for data access & manipulation Establish approval hierarchies 	
Reporting and Business Intelligence		<ul style="list-style-type: none"> What-if analysis Drill down & drill through from aggregate to detail views Slicing & dicing Stress testing & simulation techniques Trend & historical performance analysis 	

SOX Mandates Regarding Data Management

tricity industry makes that task increasingly complex. New RTO's like the Midwest Independent System Operator are being planned and started all the time. Large RTO's like PJM are constantly expanding their territory. New market mechanisms seem to appear every few months as the RTOs experiment with different market designs. The complexities of transmission congestion management provide a good insight into the plethora of changing data.

Increased risk management normally includes the monitoring and valuation of medium and long-term electricity purchases and sales. Even if a utility company confines itself to short-term day ahead activity, it is likely to be involved in long-term fuel supply contracts. A variety of market-based mechanisms can be used to hedge these long-term exposures, but risk managers must be able to value a company's exposure accurately on at least a daily basis. This process of daily pricing of outstanding contracts is the starting point for risk reports that indicate to senior executives the 'value-at-risk' of their current market exposure.


'Value-at-risk' is one commonly accepted measure that tells management if their risk exposure is under control and obviously satisfies SOX legislator's concerns about monitoring performance.

SOX specifically requires that market information collected for making daily valuations of

term contracts be independently auditable. Risk managers, therefore, prefer to know the source of market data and that it accurately represents fair market value. When dealing in financial hedging instruments, this data is frequently hard to obtain if markets are not liquid. When the data is available from brokers or trading platforms, it is not necessarily consistent or clean and may require pre-processing.

Outsourcing data management

In the face of legislative requirements like SOX (and other predecessor accounting requirements such as the FASB 133 rule), utility companies must make appropriate arrangements for the collection, organisation and distribution of market data. As we have seen, the size of this problem in the deregulated electricity markets is not only large, but expanding rapidly.

While most organisations have a solution in place that has let them 'hobble' along for years, the pressure to improve data management is now coming from the top down. Since managing market data is not among the core capabilities of a utility company, many are looking to outside vendors for a solution. 

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