

# PUTTING DATA ANALYTICS

# TO WORK IN ENERGY TRADING

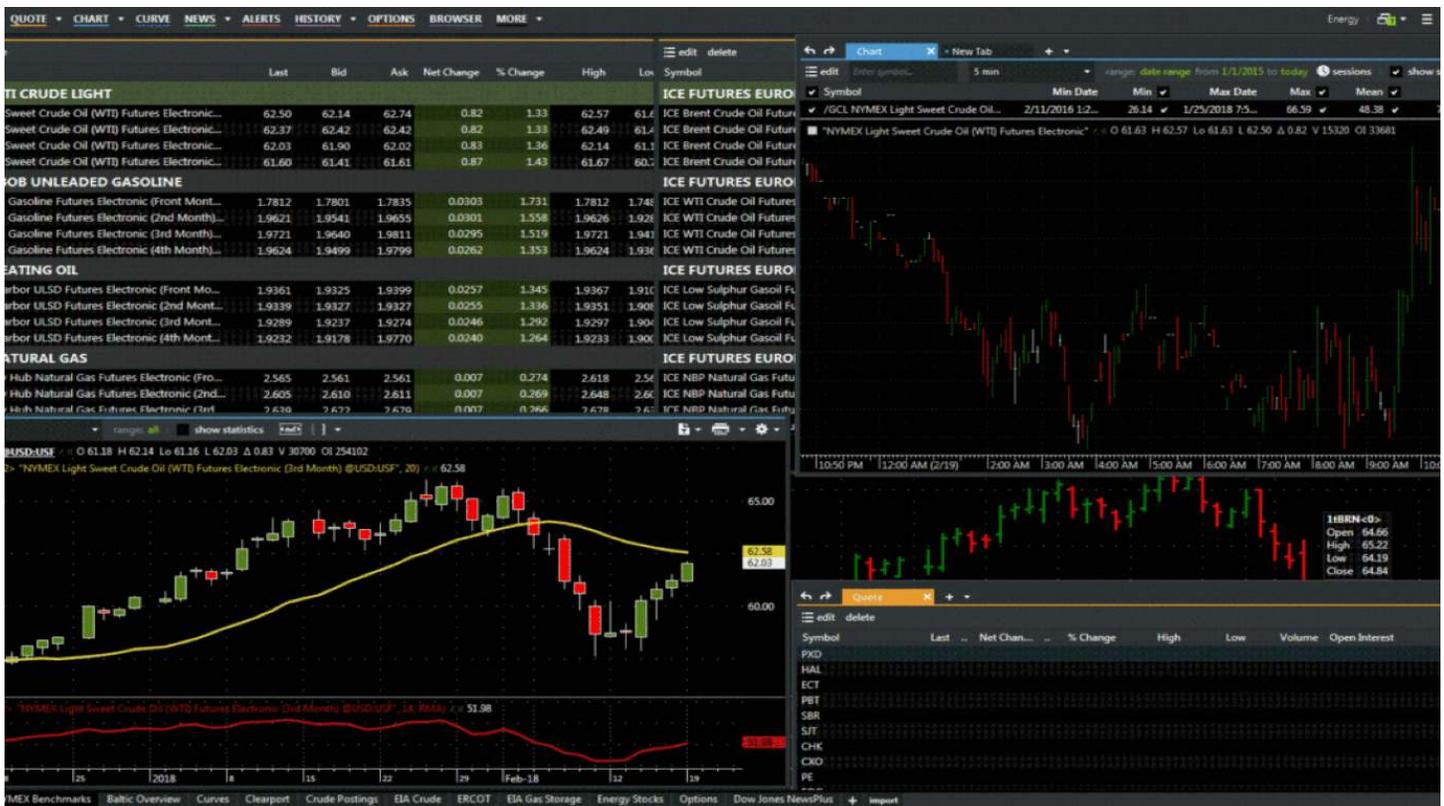
# Putting Data Analytics to Work in Energy Trading

## Overview

Few sectors have evolved as rapidly over the past few years as energy trading. Amid intense competition and narrowing margins, an ever-changing regulatory environment, a proliferation of systems and processes, and increased complexities in both data and reporting, energy trading companies are being challenged like never before on how best to use their data. There are also the dangers of subjective biases when designing complex and strategic data assets.

Oil and gas operators, such as Exxon, who had previously limited their energy trading, are starting to increase their trading presence and follow the paths of companies, such as BP, Chevron and Shell, who occasionally generate more profits from trading than their refinery businesses<sup>1</sup>.

This paper will look at trading across the energy spectrum, a few of the key prerequisites of a successful energy trading company today in the current high-stakes, time-sensitive environment and how one can best utilize data analytics to make sense of everything.



<sup>1</sup> 'Exxon Mobil breaks with past', Reuters, June 12 2018. <https://www.reuters.com/article/us-exxon-mobil-trading-exclusive/exclusive-exxon-mobil-breaks-with-past-bulks-up-energy-trading-to-boost-profit-idUSKBN1J80DQ>

## Embrace Data Analytics and Smart Commodity Data Management

Energy Trading and Risk Management (ETRM) systems are, for many, the cornerstone of energy trading today – helping companies manage complex risk scenarios and overseeing energy transactions from trade capture to delivery and settlement. The rise in over-the-counter (OTC) settlements has only increased the importance of these ETRM systems.

Yet, ETRMs are also highly complex systems, managing a wide variety of functions, requiring seamless data exchange, and focusing on traditional areas, such as trade capture, trade processing, hedge accounting/hedge analysis and regulatory reporting. Furthermore, the often ad hoc design of such systems – with many different vendors involved – and lack of focus on independent data analytics can lead to a lack of integration and subjective biases in decision-making.

To this end, there is a need for ETRMs and other data management systems to be able to handle strategic and operational challenges in a flexible manner and enable data and risk analytics to become better integrated as part of energy trading firms’ business strategies.

Many energy firms used to rely on verified transactional data supplied by exchanges and price-reporting agencies. Today firms are supplementing these traditional data sets with data analytics. In this way, energy traders can now manage their complex and varied strategic data assets, remove subjective tendencies, and clearly identify what actions need to be taken and when. It is the energy trading companies that embrace data analytics and smart commodity data management that are likely to set the agenda over the coming years.



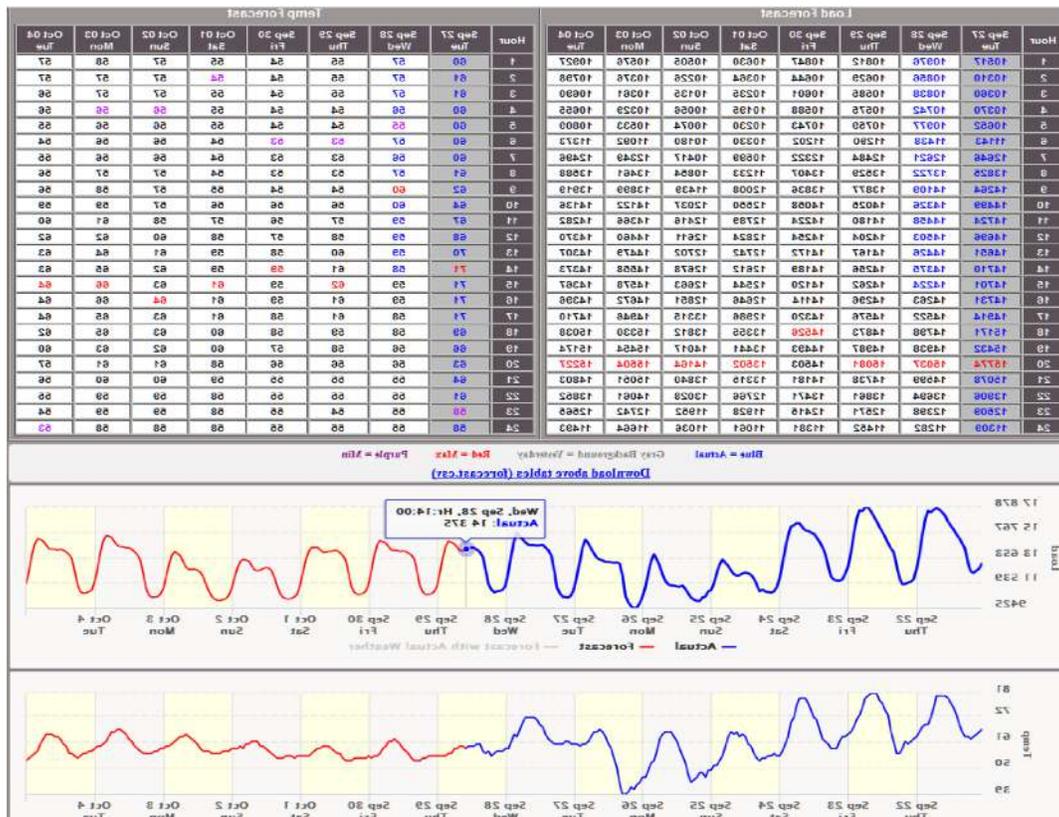
Drillinginfo’s enterprise data management system MarketView works alongside existing ETRM systems and is a streamlined, unified data management platform that integrates real-time proprietary and public energy data within the same solution.

## Ensure Your Forecasting Moves with the Times

With the growth of deregulated markets, increased energy efficiencies and the continued rise of renewables (the U.S. Energy Information Administration found that renewables produced close to 10 percent of U.S. electricity generation in 2017<sup>2</sup>), the way we use energy continues to evolve, with past patterns of use and forecasting models becoming increasingly outdated.

Accurate forecasting and precise predictions of how much power will enter the grid at any given moment remains vital to the power industry – for traders, risk managers and others. In addition, it can sometimes seem almost impossible to improve forecasts due to unpredictability in weather and constantly changing load profiles.

It's against this context that new data analytics technologies, such as machine learning and artificial intelligence, have come to the forefront. Through access to the latest data analytics and intelligent system technologies, such as artificial neural networks and machine learning, energy trading companies will be able predict how much energy will be needed in an electricity market or by a load-serving entity, such as a utility, municipality, retail or electric provider. Such forecasting data provides powerful insights to inform arbitrage opportunities for power traders, as well as helping traders calculate power production and energy pricing. It can also help utilities realize cost savings through operational efficiencies and hedging.



Drillinginfo, recently acquired Pattern Recognition Technologies (PRT), the leading provider of short-term power demand and price forecasts to the electric, gas, solar and wind markets.

<sup>2</sup> EIA, Electric Power Monthly, 2017

## Generate Real-Time Forward Curves

Forward curves are crucial to any energy organization engaged in trading activities that facilitate buying or selling of forward goods and services. They are vital for risk exposure assessments, investment decisions, inputs for derivative pricing models, identification of future arbitrage opportunities and trader evaluation strategies.

It's therefore surprising that forward curves still lack transparency for information to assist in thinly-traded hubs or delivery dates, trading the spread between two products, or trading time periods that do not match internal risk assessment periods. Often there is a need to draw from many data sources such as exchanges, brokers, data publishers, data distributors, ETRM system vendors and internally developed models. Such curves often use end-of-day pricing or require manual updates, resulting in prices that do not reflect the most recent market conditions and are open to human error.

Finally, there are notable omissions when it comes to forward price curves, particularly in the case of Liquefied Natural Gas (LNG) where if you are going to sell a shipment, there are limited forward price benchmarks to guide you.

Energy trading companies must look to robust, customizable rule-based engines that generate forward curves and enable traders and risk managers to build curves that reflect their own interpretation of the market in addition to relying on real-time market data.

## Create Clear Audit Trails for the Regulators

Whether it is the Commodities Future Trading Commission (CFTC) or Federal Energy Regulatory Commission (FERC) in the U.S. or the European Union's reworked markets in Financial Instruments Directive (MIFID), which is likely to lead to less OTC and exchange trading, energy trading organizations today face a series of regulations.

In such an environment, trading, operational and risk management personnel need to have access to and insight into all the information about their business, as well as open and transparent audit trails.

Again, data analytics is playing a crucial role. Previously the methodologies around the building of forward curves, for example, did not allow traders and risk teams to share curves or maintain an audit trail of changes to curve calculations. Today powerful data analytics and archiving tools can identify how, when, why, and under what decision-making criteria trades are made. Transparent audit trails must be central to all energy trading solutions and easily provided to regulators and auditors.

## The Power of Data Analytics

As energy trading organizations and their data assets become more complex, data analytics has never been more important for companies to effectively interpret large data flows and to ensure success. Whether it be through the provision of unified data management platforms, modern forecasting, real-time forward curves, or regulatory compliance, the need is clearly there.

The trading companies with the latest streamlined intelligent data analytics will continue to thrive.