Financial institutions in physical power trading

Here, Nathan Sheik of SoftSmiths looks at the challenges of moving into physical energy markets, and examines the key elements of a transaction-management system

The power industry has seen tumultuous changes in the past few years. The changes are fundamental, and are reshaping the core of the physical power business. Financial institutions (FIs), such as Goldman Sachs, JP Morgan and Merrill Lynch, are major new players in both ownership and operation of physical power assets. Although these FIs have been successful in financial power trading, physical power trading is relatively new territory, opening new venues for profit in conjunction with related risks.

To successfully master a return on their newly acquired physical assets, FIs need to balance maximising capital value creation in the long term with operational profit generation in the short term. Several business models are being practised to achieve these overarching goals. For example, business alliances between FIs and energy players are complementary in nature, optimising the financial strengths and expertise of FIs with the operational and engineering acumen of energy partners. However, understanding physical power business processes and aligning them to operational and financial goals is key to any successful syndicate.

Physical energy transaction systems, therefore, are the linchpin of both financial gains and operational excellence (Figure 1). This article examines how physical energy transaction systems will affect the bottom line of FIs venturing into the physical energy trading business.

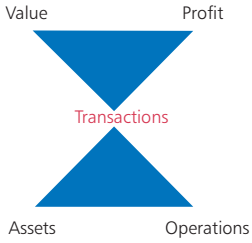
Physical power trading: Unique and challenging

Unlike financial power trading, physical power trading is complex and mission-critical. The power industry today is a patchwork of centralised markets and traditional utility-based reliability regions. Physical power trading requires managing assets in both of these environments.

In much of North America, centralised markets called regional transmission organisations or independent system operators (RTO/ISOs) calculate market prices based on market conditions and system constraints, control grid operations, provide despatch instructions to generation assets, and settle financial transactions. When operating in traditional utility-based reliability regions, physical power traders must follow the rules of each region when arranging use of the transmission grid to move power.

In addition, generating resources must operate within the constraints of safety, reliability, emission and regulatory requirements, while at the same time being economically optimised.

Figure 1. Transaction-management systems are the linchpin in physical power trading



In sum, FIs are faced with a triple challenge in their front-office physical power trading activities: regulatory compliance for their physical assets; physical scheduling in both centralised markets and utility-based regions; and profit maximisation.

In back-office activities, there are significant differences in business practices between FIs and the physical power industry in areas such as settlements and accounting. Also significant is the perception of various risks involved in physical energy trading, and the treatment of those risks within the existing business and application framework. The integration of physical power within the existing financial IT footprint poses another challenge.

The uniqueness of physical energy trading and its idiosyncrasies lead to a single question: How can FIs achieve financial viability while combining regulatory, market, operational, and system insights?

The role of technology

Physical energy transaction systems are central to physical market operations, given the complexity, uniqueness, and dynamically changing rules of the game. A well-rounded transaction system covers all bases. For example, it streamlines key processes, is RTO/ISO compliant, handles settlements, and manages mid- and back-office requirements while achieving both long-term and short-term financial obligations. Figure 2 illustrates how a physical energy transaction system is central to energy trading, asset optimisation,

settlements, and risk and accounting functions.

The physical energy transaction system performs complex and data-intensive communication and validation of transactions in RTO/ISO markets and traditional reliability regions. It also performs crucial settlement functions such as shadow settlements, prediction of cashflow and depiction of financial obligations for a profit and loss view, and verification and reconciliation of settlement statements. In combination with these business processes, the system supports optimisation of assets and their operations while maintaining regulatory compliance, thus consistently maintaining capital value appreciation and profits. It interfaces with existing risk management and back-office accounting applications and receives data to support analytical functions.

Critical elements of a physical energy transaction system

The inherent robust functionality of a physical energy transaction system does not translate directly into profits and value. It is the system efficiency that creates synergy and drives the bottom-line impact in physical power trading. System efficiency affects operations such that 'the whole is more than the sum of all the parts'. Included in 'the whole' are additional value-creating drivers such as implementation strategy, integration with internal and external environments, future scalability and, last but not least, services and maintenance. It also tracks operational strategies and enhances intelligent decision-making.

Most of the transaction systems being used for physical power trading today are incarnations of past applications. Their designs are based on the markets and functionality of the past. Over a period of time these systems have been upgraded with new functionality and new front-office features and looks, resulting in two fundamental traps:

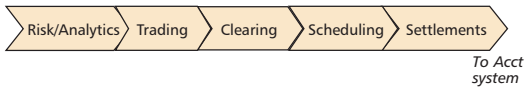
- The systems are cluttered with old functionality and old market rules.
- The system's core architecture is based on outdated technology, even though the front-end gives a new and seemingly intuitive look and feel.

The next generation physical energy transaction systems are coming from vendors who have gone back to the drawing board, taking a fresh and intelligent approach to meeting current needs while keeping the future in mind. For example, SoftSmiths has taken a component-based design approach for its Transaction Management System suite. It has the following distinct advantages:

- Installation is performed by bringing components together, avoiding programming-based configuration. It is quick and efficient to get the individualised system up and running using these core components.
- The component-based system-development approach addresses business analysts and end-users, rather than IT developers. Changes are identified and executed by business analysts and end-users, not isolated in the vendor's development shop.

The new generation of energy transaction systems addresses the profound issues of external threats and security, and the required Sarbanes-Oxley controls. While the existing crop of systems claim to meet these requirements, as a result of 'work around' solutions, the new systems have such requirements built in at the architecture and design level.

Figure 2. Risk integrated energy trading system chain



Choosing the right vendor is very significant in the current context of complexity, changes, dynamism, risks and liabilities involved in the physical power transaction operations. The vendor's ability to perform has never been more driven by the need to understand the physical power markets of the future, rather than rehashing experiences from past installations.

Vendors offering physical power transaction systems with transmission management functionality are rare. Functionality such as transmission procurement and inventory management, integrated with scheduling and North American Electric Reliability Council (NERC) electronic tagging, are basic requirements to fully participate in physical power markets. The lack of transmission management functionality forces FIs to install or contract with other point solution providers, increasing transaction costs and administrative expenses. This affects data security, system efficiency and functional credibility.

In short, it is critical for a physical energy transaction system to have relevant functional capability integrated within its environment and to offer an open, transparent and flexible architecture with competent vendor support.

Summary and conclusion

FIs in power trading are not new players. They have been in energy derivatives for a long time. What is new, however, is the FIs' foray into physical power trading resulting from ownership of power generation assets. With the right systems and controls in place, physical power trading offers attractive opportunities both in operational profits and asset value arbitration.

The challenge is how this is achieved. The physical power world has its own unique requirements and constraints, exposing FIs to new risks in compliance, technology, accounting and operations.

To meet these vastly complex requirements, technology plays a key role. Physical power transaction systems streamline key processes, are RTO compliant, handle settlements, and manage mid- and back-office requirements. Efficient energy transaction systems integrated with FIs' risk systems provide risk measurement and coverage of volatile market prices. In short, for FIs collectively, physical energy transaction systems become the linchpin for a successful power trading business. This, combined with operational competence, will drive up short-term profits and increase asset value for capital arbitrage in the longer run. ERI

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