



**MCG ENERGY SOLUTIONS, LLC**

Software Solutions for Energy

**INTEGRATED ASSET MANAGER**



[www.mcgenenergy.com](http://www.mcgenenergy.com)

# MCG'S INTEGRATED ASSET MANAGER (IAM)

**MCG's Integrated Asset Manager (IAM)** is a fully-integrated wholesale energy marketing and trading solution hosted in MCG Energy's FedRAMP® Authorized, SOC and NIST SP 800-53 compliant Private Cloud. IAM provides coverage across all North America in physical bi-lateral markets as well as ISOs. IAM's user-friendly interface streamlines your workflow for managing all front-office and back-office operations including trade capture, transmission reservation management, fully integrated native E-Tagging, scheduling, bidding, dispatch, settlement and reporting for all resources and loads.

IAM simplifies complex physical, financial and ISO market operations, allowing an organization to focus on the operational efficiency and financial performance.

## KEY FEATURES

**Market Integration:** Integration of functionality for all ISO and Bi-lateral energy markets in a single system.

**Transaction Management:** Deal capture for ISO, bi-lateral, transmission, and all other financial transactions including ICE and NYMEX. Fee modeling and management allows for the creation of an initial P&L based on estimated fees. The estimated fees automatically become actuals once available. The system also provides an audit trail for all transactional information.

**ISO Communications:** Complete ISO portal replacement provides the ability to submit operating parameters, energy, financial and ancillary services bids & offers to ISO markets. The system also retrieves dispatch messages, market awards and settlement statements from the ISO as well as historical pricing for all nodes.

**Physical Scheduling:** Native E-Tagging and OASIS portal replacement allows for visibility to Day-Ahead and Real-Time Energy and Transmission positions. IAM integrates the E-Tag and Transmission reservation with transaction management to drive deal automation. Trade capture, inventory utilization and E-Tag submittal are done in a few simple clicks.

**Back Office Solution:** Comprehensive back office functionality includes counterparty credit management and checkout as well as Shadow Settlement for all ISOs. IAM's shadow process allows for the comparison of a shadow to any ISO settlement as well as the comparison of one ISO settlement to another

revision of the ISO settlement.

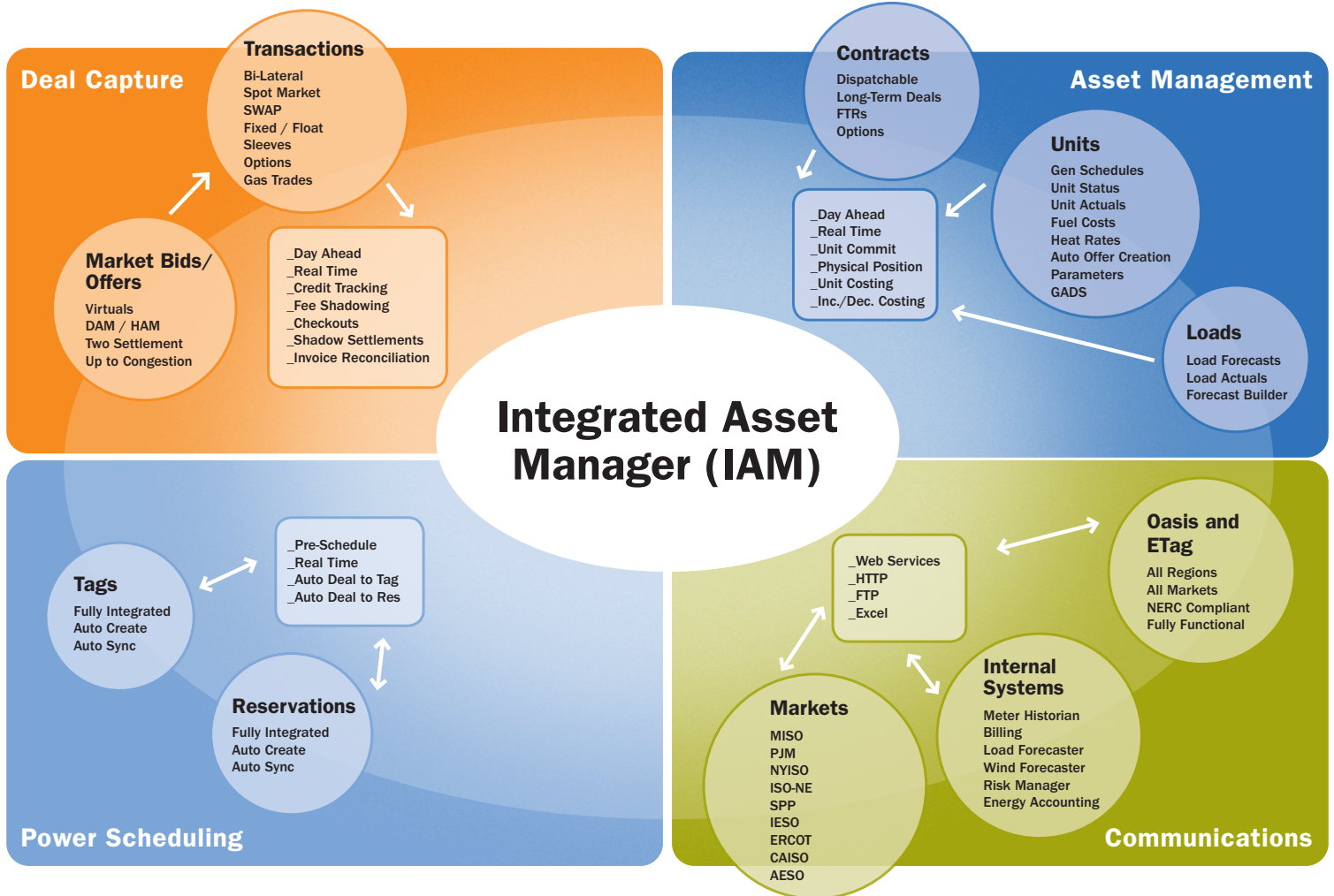
**Position Management:** The integration of transactions, schedules and forecasts allow for the creation of both physical and financial positions for Term, Day-Ahead and Real-Time windows.

**Asset Management:** Asset management includes the storage of operating parameters, fuel types, fuel costs, I/O curves and other unit specific data. The system includes a number of tools designed to assist or automate a number of functions. Included is a generation unit commit model, the auto creation of bid/quantity pairs as well as a forecast building tool for load.

**Reporting:** The system offers a number of standard reports to recap transactions, fees, reservations, generation, and P&L, as well as offering extensive ad-hoc reporting capabilities in a variety of formats. The system provides the ability to create dashboards, displays, and reports to ensure that users can create the reports they need in the format that best supports their workflow.

**System Integration:** IAM provides cost effective integration with internal systems, as well as a number of standard interfaces to various Energy Trading and Risk Management (ETRM) solutions. IAM also fully integrates to MCG's entire suite of products, including MCG's Energy Accounting System, Gas Module, and Risk Module. This allows organizations to create integrated scheduling, ISO Communication, trade capture, and risk management systems for both power and gas commodities.

# SOFTWARE OVERVIEW

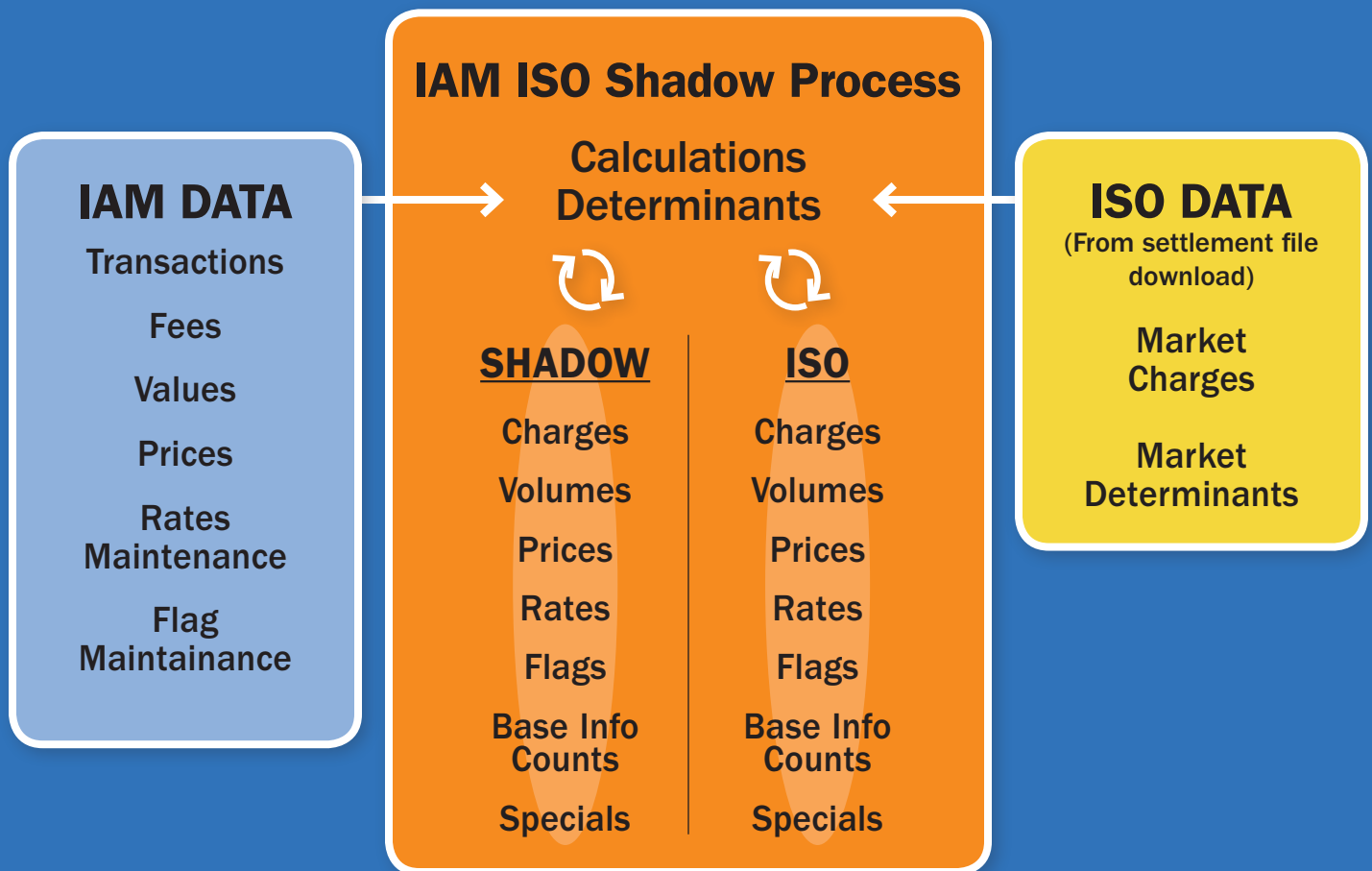


## KEY BENEFITS

- Integrated solution that drives workflow enhancement and out of the box automation
- Streamlined workflow with a single user interface for all market-related activities
- Ability to manage all aspects of multiple power markets from just one application
- Enhanced visibility into overall physical and financial position
- Maximize asset portfolio P&L with better financial performance tracking
- Flexible configuration allows MCG experts to adapt the solution to your business needs
- Scalable solution with flexibility to expand as the markets evolve
- System can be offered in a hosted or on-premise model

# IAM ISO SHADOW SETTLEMENTS

MCG's Integrated Asset Manager (IAM) is a fully-integrated wholesale energy marketing and trading solution providing coverage across all North American power markets. IAM's ISO Shadow Settlement functionality allows an organization to shadow and evaluate charges at the determinant level of granularity across all markets.



## KEY FEATURES

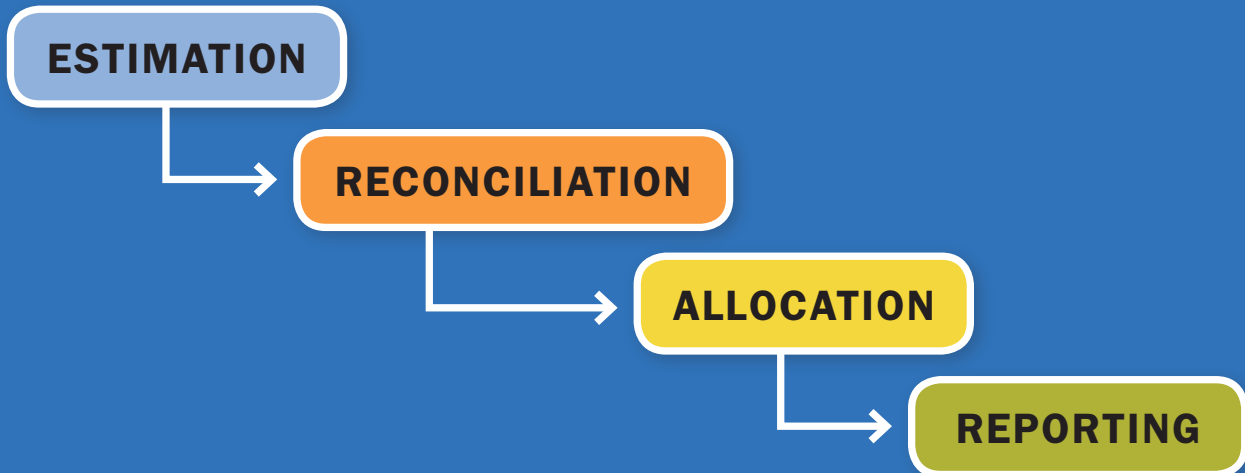
**IAM's Shadow compared to ISO Settlement Statement:** The system utilizes market rules and calculations to create a shadow from the data inside IAM and compares it to data obtained from the ISO Settlement. IAM uses color formatting and "problem only" functionality to efficiently identify differences between the two independent sources of data.

**ISO Settlement compared to another ISO Settlement Revision of same operating day:** Just as the system allows for the comparison of shadow data to ISO data for a given operating date, the system also allows for the comparison different ISO settlement revisions to each other. This function quickly identifies differences from one settlement to another all the way down to the market determinant level. The visibility to settlement revision differences allows an organization to plan for material affects to cash flow as well as explain differences to management.

# KEY ELEMENTS TO THE IAM SHADOW PROCESS

MCG's Integrated Asset Manager (IAM) is a fully-integrated wholesale energy marketing and trading solution providing coverage across all North American power markets. IAM's ISO Shadow Settlement Process has four key elements—Estimation, Reconciliation, Allocation and Reporting.

## ISO SETTLEMENT WORKFLOW



**ESTIMATION:** The estimation process allows an organization to perform pre-settlement reporting. Estimated determinant charges and calculations are configured in the system based on market rules. When pre-settlements are run, the organization has visibility to the estimated financial results for an operating day before ISO settlements have been published.

**RECONCILIATION:** The reconciliation process occurs when the ISO publishes its settlements. Estimated market-wide determinants such as Operating Reserve Rates, Revenue Sufficiency Rates and Admin Fees, are replaced with the actual fees published by the ISO. It is at this point a shadow settlement is created from IAM data and compared to the ISO settlement. Discrepancies can be investigated, and when necessary, disputes filed with the ISO. IAM provides the capability to create notes as well as file and manage disputes directly from the settlement comparison screen. Settlements can be marked “checked out” upon a satisfactory evaluation.

**ALLOCATION:** The allocation process is a necessary step in managing ISO settlement as not all charges can be directly attributed to a specific operational or transactional event. Charges such as Revenue Neutrality Uplift need to be allocated in a manner that fits with an organization's needs and business plans. Successfully completing the allocation process allows an organization to analyze market trends as well as report on market costs in a consistent manner.

**REPORTING:** Reporting occurs at all stages of Estimation, Reconciliation and Allocation. Some reports are specific to a stage, others can be run in any stage. Types of reports include financial as well as operational.

# ENERGY IMBALANCE MARKET (EIM) SOLUTION FOR MERCHANT OPERATIONS

## The MCG Value Proposition

Energy Imbalance Market (EIM) participants need tools to manage both new and legacy business requirements. MCG's suite of applications provide an elegant and robust solution designed to meet the demanding needs of EIM participants.

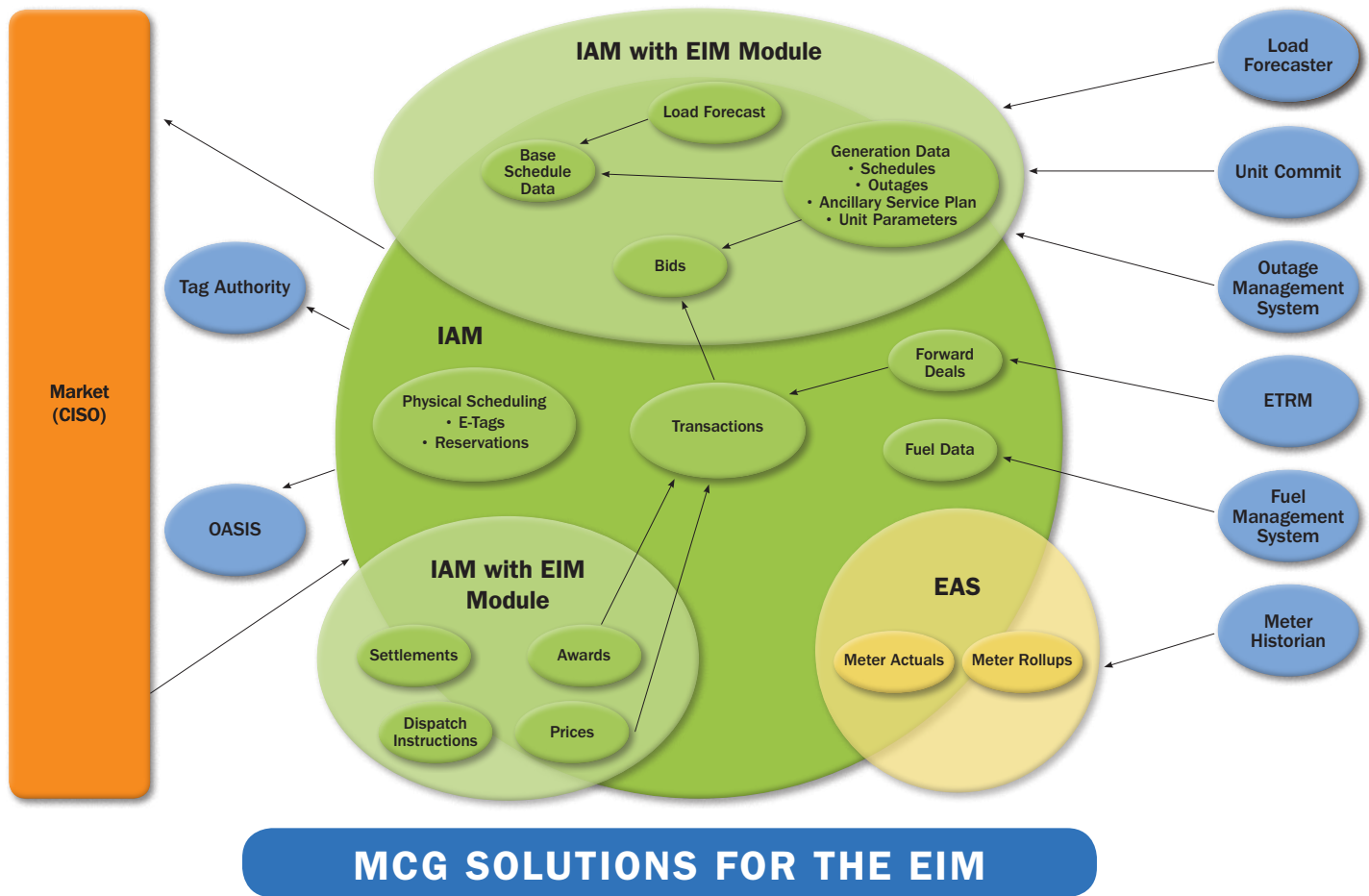
Alternative solutions only address a segment of requirements. Only MCG's EIM Market Solution addresses all aspects of the EIM in a comprehensive, integrated manner. MCG's products, experience and system implementation record makes MCG's Solution for the EIM a wise management decision.

## MCG Solutions—The right system for the specific requirement

MCG's Integrated Asset Manager (IAM). IAM is a comprehensive, integrated system for communication with the EIM, physical scheduling, trade capture and asset management. IAM is a critical system to manage many aspects of the EIM including: Base Schedule creation and submission, Bid/Offer/Parameter Submissions, Award retrieval, Shadow Settlements and related reporting. Additionally, IAM is used to manage physical scheduling by utilizing its E-tagging and Transmission Inventory Management functionality. Assets, including units, contracts and load obligations, are modeled in IAM for purposes of communication to the market as well as for internal analysis.

MCG's Energy Accounting System (EAS). Meter data management, as well as the related calculations such as Net Scheduled Interchange and Net Actual Interchange, are performed in MCG's EAS. Meter data submission to the market is a standard functionality of EAS. EAS is natively integrated with other MCG applications which directly lowers implementation risk as well as provides cost avoidance for needed interface work.

MCG's Hosted Data Services (HDS). HDS provides both a user interface as well as programmatic access to the data created and received by all MCG applications. The user interface is an efficient tool to run reports for large date ranges across multiple systems. The programmatic interface allows organizations to pull data as needed directly into internal systems with no direct involvement from MCG. Being hosted at MCG data centers, HDS requires no table or hardware maintenance by the customer.



## MCG SOLUTIONS FOR THE EIM

**Base Schedule Data Creation** – Allows the Participating Resource Scheduling Coordinator to submit base schedule data, bid range data, and outage data for non-participating resources to the Entity Scheduling Coordinator for aggregation and forwarding to the market.

### Data Management and Market Submission

- **VALIDATION, SUBMISSION AND REPORTING** – Prior to submission, validation reports allow the participant to review base schedule data, positions, bids/offers and reserve adequacy. Examples of validation reports include *EIM Resource Adequacy Validation* and *Operating Reserves Validation* report. Once validated, the system fulfills all required market submissions for the Participant for both Day Ahead and RTUC/RTD markets including Base Schedule Data, unit parameters, interchange data, bids, offers and capacity. Performance reports provide a review of overall generation and bid strategy performance and EIM market results by bringing together bid, cost, price, and settlement data in tabular and chart views. Examples include *EIM Generation Performance and Imbalance* and *EIM Bid Strategy Performance* reports.
- **DATA INTERFACES** – Provides integration to both internal and market systems for data acquisition. This layer provides tight integration with MCG systems such as EAS, as well as standard interfaces for internal system use.
- **DATA RETENTION** – All base schedule data, outage data, settlement data, and submission information (confirmation numbers, submission dates, status messages, etc.) will be held according to Participant's compliance and accounting policies.

### Asset Management

- **BID MANAGEMENT** – Bid management allows for the manual creation of participating resource schedules, bids and offers. In addition, the system can be enabled for automatic, multi-tiered bid generation based on a very flexible, user defined calculations that can be defined and tuned per resource. Using resource parameters incorporated from IAM's Asset Management Module, multiple bid strategies can be defined, saved and executed on a resource or portfolio basis.
- **POSITION MANAGEMENT** – Position management assists the operator in determining net position, potential imbalance, and scheduling workflow tracking. Positions are updated in real time and take load forecasts, generation schedules, deals, tags, and meter data into account to provide the most up-to-date information possible.
- **PHYSICAL SCHEDULING** – Physical scheduling fully integrates transactions, E-tags and transmission reservation management. Deal automation functionality allows the user to create transactions, pull from transmission inventory and submit tags in a few clicks of the mouse.

**Settlements** – The settlement subsystem pulls and displays settlements data from the EIM, as well as providing shadow calculations based on submitted data, accepted schedules, dispatches, and market prices. Multiple settlement statements can be aggregated for invoice reconciliation.

**Meters and Calculations** – The solution includes the ability to manage schedule and meter data from multiple data sources. Rollups and calculations allow for the visualization of your system as well as feeding internal billing systems. Meter data submission to the EIM can be performed manually or as an automated process.