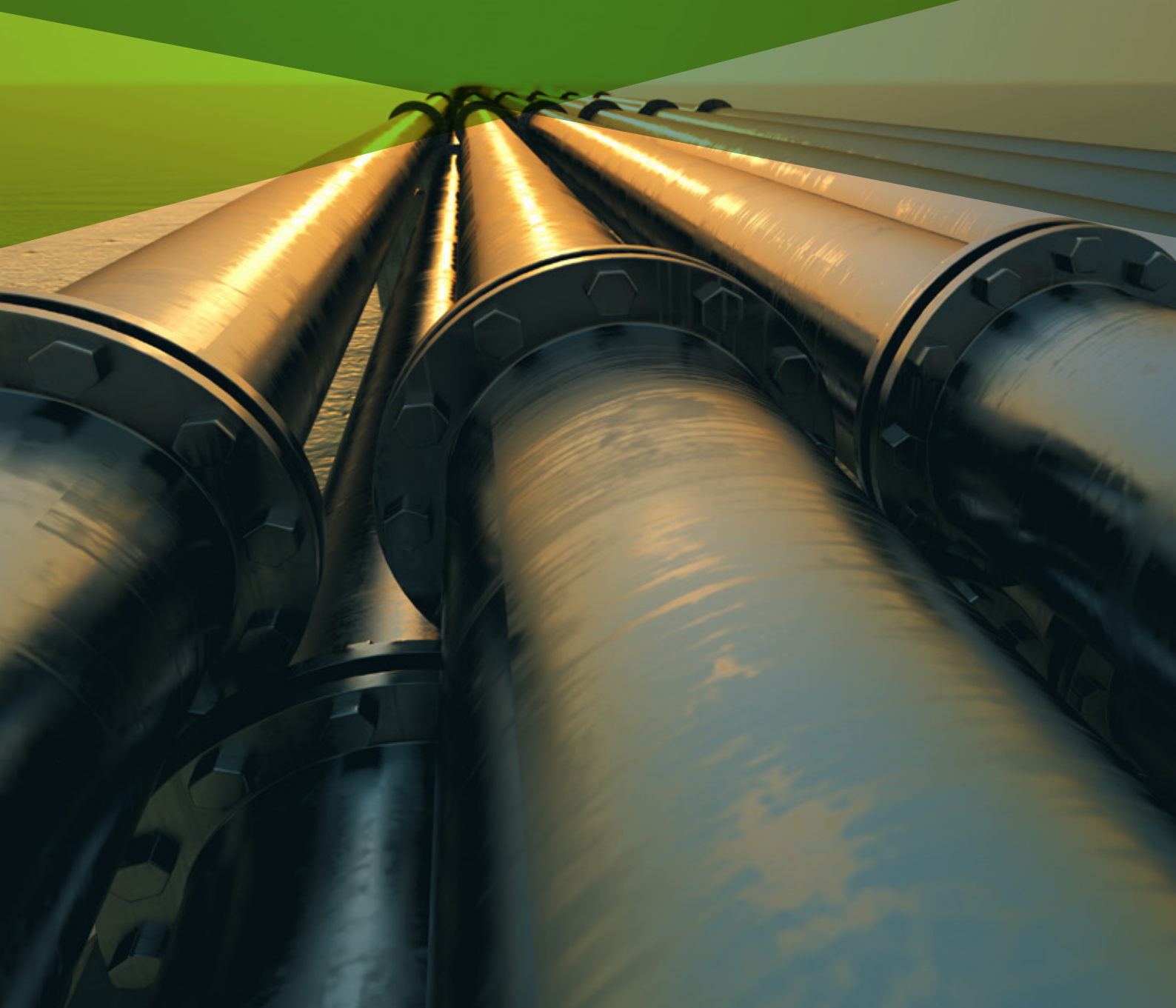


ENERGY AND COMMODITIES

ALIGN FOR NATURAL GAS PIPELINE AND STORAGE OPERATORS



Helping Natural Gas Pipeline and Storage Operators Attain Agile Growth and Smarter Operations Amid Evolving Market Trends

The changing landscape of North American natural gas pipelines the Energy Information Agency (EIA) has reported that the growing demand for natural gas from power and industrial customers will require nearly 60,000 miles of additional natural gas pipelines through 2030.¹

The natural gas market is undergoing rapid change, fueled by abundant natural gas supply, improved recovery technologies and lower gas prices. While this change will offer substantial opportunity for pipeline and storage operators, the complexity of this evolving market will require market participants to adapt their business models to manage new risks, implement smarter and more efficient operations and develop agility for growth. FIS has identified three key challenges that are shaping the natural gas pipeline and storage market:

- **Managing a growing and ever-evolving regulatory environment.** Frequent updates and new regulations are challenging the development and operation of pipeline and storage assets, as well as the day-to-day business operations of trading and scheduling.
- **Managing growth of infrastructure, both organically and by acquisition, to meet critical capacity requirements.** Fast-growing unconventional shale plays in the U.S. have created lack of natural gas gathering pipeline infrastructure, along with critical transmission capacity constraints to end users of natural gas.
- **Managing coordination challenges within the converging natural gas and power generation markets.** The increased use of natural gas to generate electricity poses certain integration, coordination, and reliability issues. Natural gas and power companies are seeking to solve these challenges to support the purchase, management and delivery of fuels for power generation operations.

“We chose FIS to assist us in making real-time nominations and to provide reports in a self-service mode as well as handle flow allocation. FIS was also able to meet our aggressive implementation timeline.”

TRAVIS RENK,
OPERATIONS MANAGER,
ENSTAR GAS.

¹<http://www.eia.gov/naturalgas/pipelines/EIA-NaturalGasPipelineProjects.xls>

Natural Gas Pipeline Operations

Overview

FIS Aligne for natural gas pipeline operations is your real-time platform for the next generation of pipeline operations providing a unique tariff and operational framework supporting real-time processing of pipeline and storage transactions.

A flexible configuration module, combined with a comprehensive reference data module facilitates straight through processing for even the most challenging business situations. A modern service-oriented architecture offers efficiency and scalability, as well as the ability to adapt to regulatory and business change in the future.

Features

- Pipeline tariff capture – rates, fuels, NAESB data element usage, code values usage and validation rules.
 - Ability to manage transactions at hourly, daily and monthly intervals.
 - Support of multiple contract service types – transportation, storage, sales, OBAs, park and loan, and asset management.
 - Nomination screens tailored to business activity of throughput nominations, pooling, end use or other.
 - Automated allocations that combine customer provided PDAs with operationally designated allocation tiers into one comprehensive allocation schema.
 - Full audit trail of contract changes, nominations, volumes, charges and invoices.
 - Invoice statement generation tailored to the individual customer and customer activity.
- Date effective transactions that are recorded for the life cycle of the transaction, eliminating monthly setup.
 - User-friendly design including saved searches and screen views, configurable screen layouts, user-defined favorites and import/export via Excel and CSV from the screen.
 - Full support of multiple currencies, multiple units of measure, varying pressure bases. Includes the ability to track the pipeline in one unit of measure while generating selected statements and invoices in another.
 - Support of multiple pipelines and multiple modules per environment – Aligne for natural gas operations, trade and risk management and natural gas pipeline operations can exist side by side in one integrated instance.

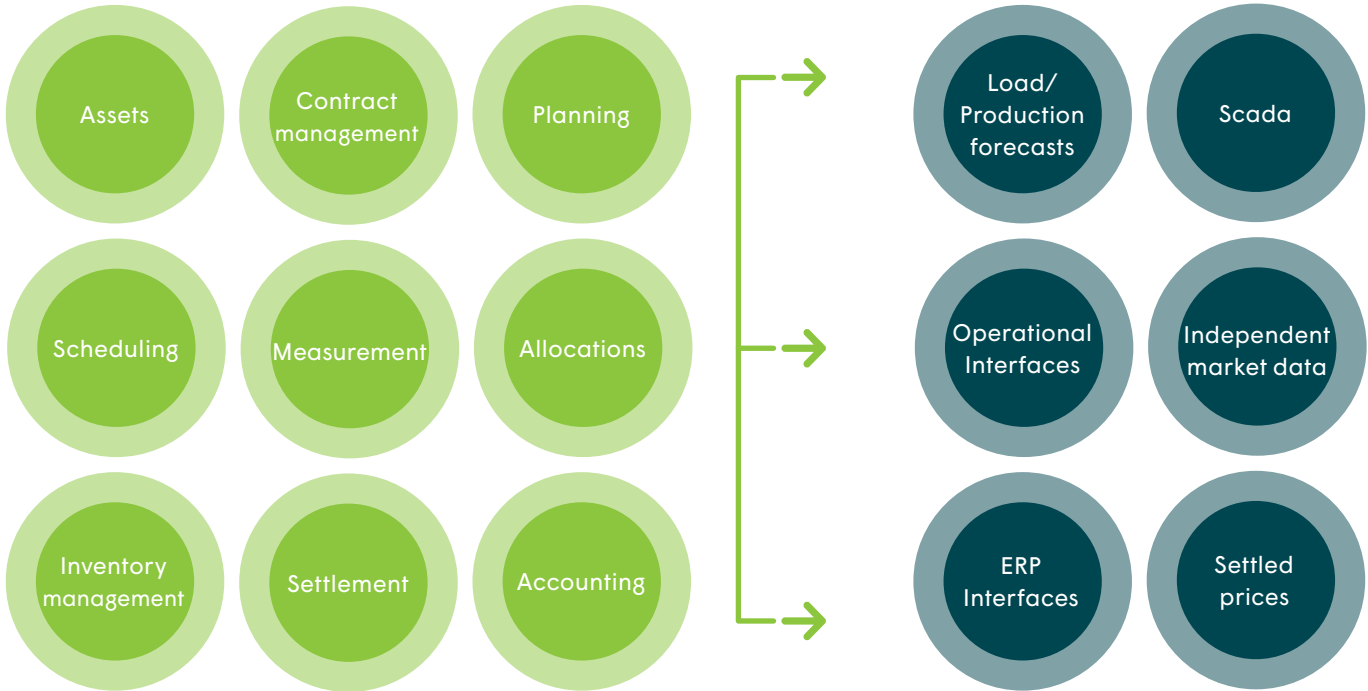
“As natural gas has become the dominant fuel source for power generation in the U.S., the establishment of a linkage with global natural gas prices (via LNG exports) will significantly increase price risks for utilities. Market participants should begin to map a systems strategy that ensures they can address the increasing risks and exposures associated with this very dynamic market.”

PATRICK REAMES, MANAGING
DIRECTOR, COMMODITY
TECHNOLOGY ADVISORY.

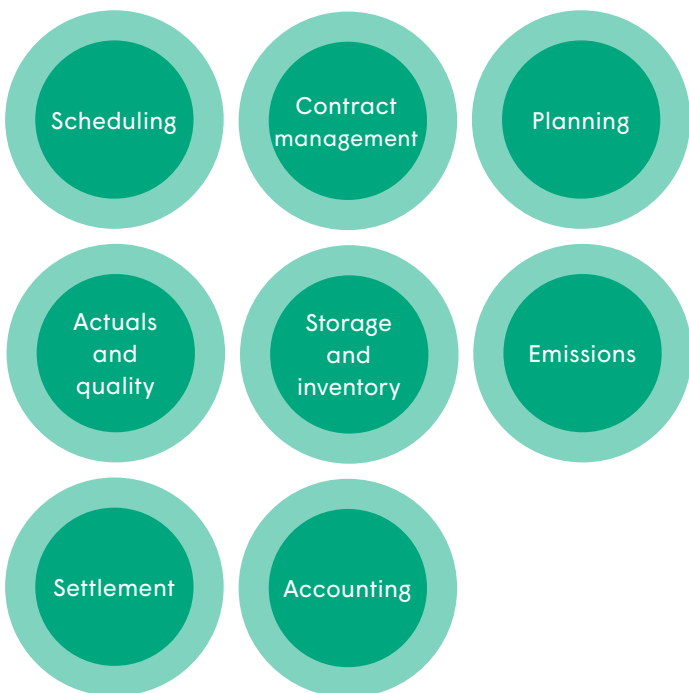
Operations & asset management overview.

A single platform, multi-nomination, multi-pipe, multi-commodity approach drives agile growth

Asset management



Operations



Benefits

- Real-time management information and intra-month cash flow forecasting.
- Robust controls and full audit history for business assurance.
- Configurability supports a changing regulatory and business environment.
- Enables straight-through processing and controls.
- Modular design provides a single business platform for transportation, operations, supply, trading and risk activities.
- Web access for customers allow real-time transaction views into their activities.
- Eliminates workarounds, manual invoices and manipulation of reference data by allowing accounting staff complete control of the configuration during the full invoice lifecycle, from creation to approvals and adjustments.

Nominations

The nominations screens in the Aligne for natural gas pipeline operations system are designed to work in chorus with the facility dataset configuration and facility configurable rules. Once the client has set these two configurations, the nominations process will dynamically build each nomination screen according to the model type selected on the contract and the rules for that specific pipeline and model type.

There are three nomination screens reflecting the three NAESB nomination model types and the corresponding business uses for those models.

- The nomination through-put transportation screen utilizes the pathed non-threaded nomination model with hourly profiling to support electric generation requirements.
- The nomination pooling screen utilizes the non-pathed nomination model. An agent or asset manager can use this screen to manage and view their transactions.
- The nomination enduser screen uses the pathed nomination model. This simple screen is quick and clear for an end user to manage the supply to their contract.

FIS Aligne PipeOps

Accounting	Customer care	Gas supply	Operator role	Regulatory compliance	Scheduling	Volume management	Web portal	Available Aligne modules

Allocations

FIS allocations process comprehensively supports customer and pipeline allocation rule sets, single and multitiered allocations, and all of the NAESB allocation types. Therefore, the system supports customer-provided (operator, third party or shipper) pre-determined allocations and marries them with the allocation rule sets that are established for the individual or grouped points in the system. Allocations are performed automatically when a measured volume changes on the system, providing ready access to allocated quantities at any time in the business cycle. Inventory, imbalances and charges are always current, based on best available volumes, and visible to management and customers.

Balancing and inventory

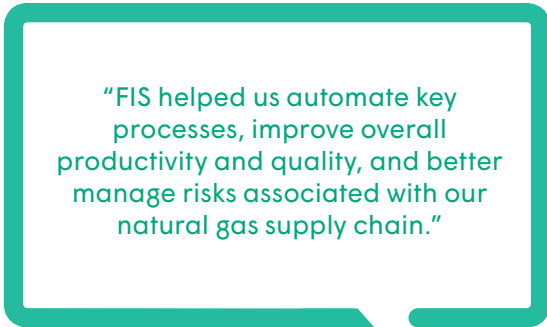
One of the strongest capabilities available in the Aligné toolkit, inventory management couples the balancing activities of pooling, storage, and imbalance management into one set of processes that maintain a cumulative balance, manage adjustments and assess value in support of cash out, imbalance trading, penalties and weighted average cost of gas (WACOG) calculations. Inventory is tracked by production month and accounting month, supporting a robust prior period adjustment (PPA) model throughout Aligné. The system provides internal views, web views and numerous reports to look at the data from the perspective of the business activity being conducted.

Accounting

FIS Aligné global back office (GBO) standardizes processes and controls, enabling back office staff to increase productivity, reduce errors, and improve decision-making in several key areas. Flexible invoice setup allows customization of invoice formats and timing, the level of detail to be displayed, and the ability to show transportation charges, non-transportation charges, prior period adjustments, taxes, cash outs, penalties and credits all together in one invoice. These invoices are available to shippers via the web. Controls are enforced through invoice lifecycle management, featuring a configurable approval process, limits and designations. Sarbanes-Oxley compliance is ensured through strict security control and audit on transactions with enforcement of separation of duties. A configurable, rules driven ERP interface facilitates seamless interaction with ERP systems.

Configuration

FIS Aligné for natural gas pipeline operations platform is designed to support a combination of interstate, intrastate, gathering and LDC information within one instance of the system. With that in mind, FIS recognizes that the business rules for these different types of pipelines will vary with their business scenarios, the operational makeup of the pipeline, and with the regulatory bodies that govern those entities. Comprehensive tariff capture gives a custom tailoring to the system to fit the regulatory requirements of the pipeline. A complete operational definition allows the operational parameters of the pipeline system to be identified to include point and meter characteristics, zones, point groups, segments and constraints. From the moment a nomination is entered into the system until the final bill is actualized, the pipeline operator can view the balance of any account on the system and can view the estimated charges associated with that account.



"FIS helped us automate key processes, improve overall productivity and quality, and better manage risks associated with our natural gas supply chain."

**ENRIQUE MORFÍN, MANAGER OF
NATURAL GAS AT COMISIÓN
FEDERAL DE ELECTRICIDAD (CFE).**

Natural Gas Operations

Driving Gas Scheduling Efficiencies with Reduced Operational Risk

Gas market participants face increasing pressure to make better decisions, deliver more value, and provide true transparency in an environment of concerns about security of gas supplies, evolving global gas trade, climate change and environmental impacts. They also place greater demands for real-time information flows that help streamline processes and avoid penalties.

Gas marketers today must exert tighter controls across the gas value chain to manage global supplies, unparalleled costs, a variety of transportation modes and a demand for alternative sources. This environment creates both new opportunities and new challenges, which in turn put more pressure on quicker responses to change. Gaining a real-time view of inventory, pricing, and the impacts of more complex contracts requires systems and processes that support real-time nominations, settlements, and invoicing. Aligne for Natural Gas Operations delivers proven flexibility to meet these challenges.

FIS Aligne for natural gas operations helps gas marketers drive efficiencies in their gas operations by managing cross-pipeline contracts, scheduling, nominations, balancing, allocation and actualization activities in a single platform, empowering companies to achieve competitive advantage. This module helps users make the timely decisions needed to maximize capacity while avoiding imbalance penalties.

Reaping the benefits of a single platform

When it comes to managing gas operations, doing so in real-time has become a necessity as pipelines and service operators expand globally, enact more stringent balancing requirements, and survive with leaner internal resources. FIS helps streamline gas operations by automating workflows, aggregating data and providing a smooth integration of physical risk and accounting systems. Key features and benefits include the following:

- Streamlines processes to help minimize data entry costs.
- Unique workflow automation enables efficiencies between traders and schedulers.
- Traders enter deals at trading locations, allowing schedulers to specify the specific pipeline meters for the nominations on a day-to-day basis.
- Automatically creates and balances complex nominations as deals are executed.
- Provides open integration between enterprise information systems to eliminate duplicate data entry and costly reconciliation.
- Helps improve operational visibility and responsiveness.
- Provides immediate feedback on positions, inventories, pricing and costs that facilitates reporting and streamlines invoicing.
- Drill down capabilities offer managers a detailed picture of cross-pipeline movements.
- Facilitates decision making with a consolidated view of cross-market positions and balances within and between markets.
- Provides ability to track and validate volumetric constraints on long-term swing contracts, transport positions and storage capacities for assessment of long-term contract performance and penalty avoidance.
- Tracks detail on physical locations down to the meter level, with aggregation to trading location for risk and accounting.
- Helps to ensure timely delivery and avoid penalties.
- Real-time balancing helps minimize reconciliation time and imbalances.
- Hourly nominations, scheduling, allocations, and automatic imbalance tracking.

Manage operations in real-time

FIS' extensive automation supports timely reaction to scheduling changes for cutbacks in nominations or physical deal volumes. Automated scheduling helps protect against the potential errors or time delays that may occur from manually scheduling in spreadsheets. For end users, automation supports both simple title transfers at a trading location or hub, as well as the more complex scheduling across multiple pipelines, varying contracts, and nomination models. In addition, these automation schemes are particularly beneficial in high-volume scenarios such as upstream production or downstream retail businesses.

FIS Energy supports pathed, non-pathed, and pathed nonthreaded NAESB nomination models among other variations. Some pipelines use NAESB's pathed nomination model for which schedulers communicate the source of supply, transportation required, and the market in a one-to-one relationship. Most pipelines use NAESB's pathed nonthreaded nomination model where the scheduler simply enters the total amount purchased and sold by each counterparty at each meter point and the total amount moving along each pathed segment. The platform allows these nominations to be aggregated at a counterparty level per path to meet the requirements of these pipelines, while simultaneously maintaining the deal level detail for the marketer's balancing and settlement requirements.

Manage inventory in real-time

FIS deploys a true inventory model to track balances for pools, storage, park and loan, and interconnects as well as contract imbalances. The system can track multiple inventories at a single location or for a single contract modeling the real complexities of the physical gas business. The platform manages contract imbalances in real time, which is critical for companies faced with hourly imbalance penalties from an increasing number of pipelines. Users have complete control over the hierarchy and the depth of detail that they wish to see.

Streamline settlements and invoicing

FIS' real-time charge processes eliminate the once common batch processing of price calculations and settlement transactions. Its real-time inventory tracking facilitates accurate information flows between departments, facilitates timely reporting and supports real-time charge calculations. Price and quantity formula capabilities allow users to track complex, long-term physical gas deals and contracts.

The system can model variations of over/under delivery penalties, buybacks, transport, storage, park and loan, price tiers, overrun charges, taxes and complex asset management scenarios with ease. Actuals can be entered as an aggregate, monthly level and allocated to daily transactions. Charges are generated automatically and grouped into statements according to rules defined upstream.

Trade and Risk Management

Effectively Trade and Manage Energy Transactions and Associated Risks

FIS Aligne for trade and risk management (TRM) helps energy market participants to effectively manage the complexities of trading power, natural gas, oil, emissions and weather for both physical and financial instruments. By integrating all the data from front-to-back office trading operations, energy companies are able to efficiently and confidently identify and manage risk.

Capture and report multi-commodity financial and physical deals

Our solution supports natural gas, power, oil, coal, emissions, biomass, metals, foreign exchange and weather for both physical and financial transactions where applicable. It also supports a variety of instrument types, including spot, forwards, listed futures and options, swaps, swaptions, transmission capacity, nominated/actual volumes, and a variety of complex or structured contracts. You can manage the price and operational risks associated with environmental trading, with support for a variety of schemes such as the US ARP and EU ETS, and in renewables schemes involving GOOs, ROCs, LECs, CERs, RECs, REGOs and carbon futures.

Manage multiple option types and pricing models

The TRM module enables capture, price, analysis and report functionality on Standard American and European options including exotic options such as Chooser, Asian, Basket Spread, Barrier, Rainbow and Swing. In addition to returning the option value, these models return a variety of Greeks to help you determine how much to hedge your portfolio and measure option sensitivities.

Measure market risks and define trading strategies

You can separate different risk exposures embedded in portfolios for an intuitive representation of potential hedging/ netting and analysis for your positions allowing short-term and long-term hedging strategies to be put in place. The TRM helps measure and assess both performance and accuracy of VaR. The VaR Toolkit helps determine the incremental effect on VaR by adding a new asset or trade to a portfolio. Credit related metrics including current and potential future exposure, expected and unexpected losses and credit VaR can be calculated and reported. It assists your trading decisions and assesses the impact of counterparty risk. Monte-Carlo or historic models help evaluate strategies.

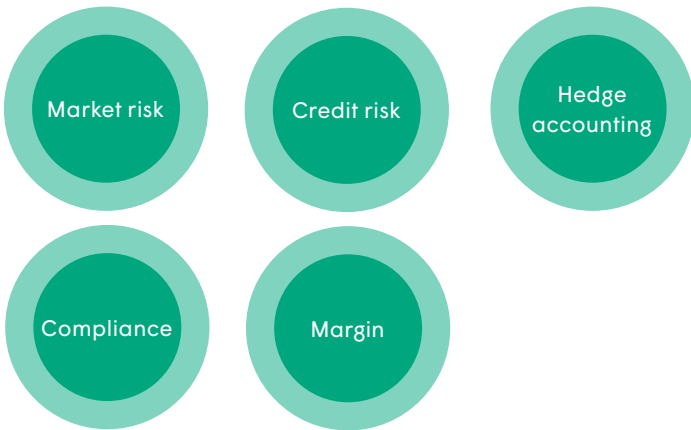
Trading and risk overview

FIS Energy trade and risk management

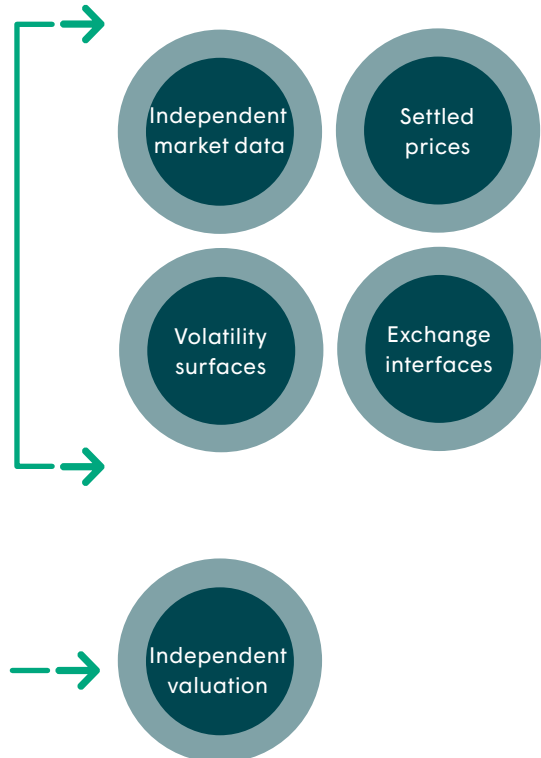
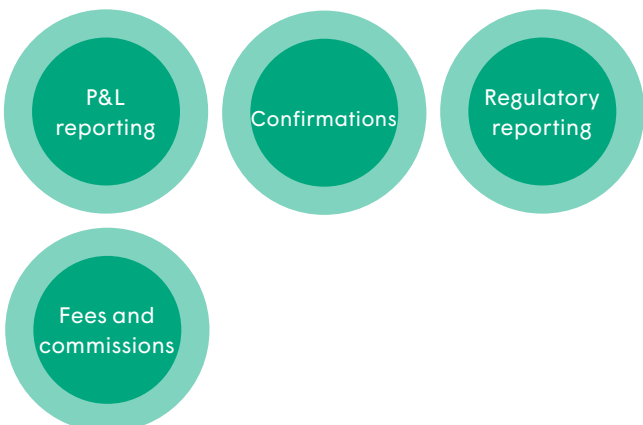
Trading



Risk and compliance



Middle office



Valuation, forecasting and optimization

FIS enables you to value, optimize, report and efficiently manage the embedded optionality in non-standard and long-term structured contracts and physical assets including swing contracts, spread options, gas storage, power generation, hydro assets and rainbow options. Plus, it also provides the flexibility to incorporate proprietary in-house valuation and optimization models. Additionally, the platform can help you optimally manage multiple physical assets, matching supply, storage, transport, transmission and demand reducing imbalances and gaining efficiencies through automation. Finally, leveraging advanced analytics, the load forecast tool can generate a forecast surface used to forecast loads with user defined factors. The load forecast can then be fed back into various processes within the platform.

Trade and manage logistics

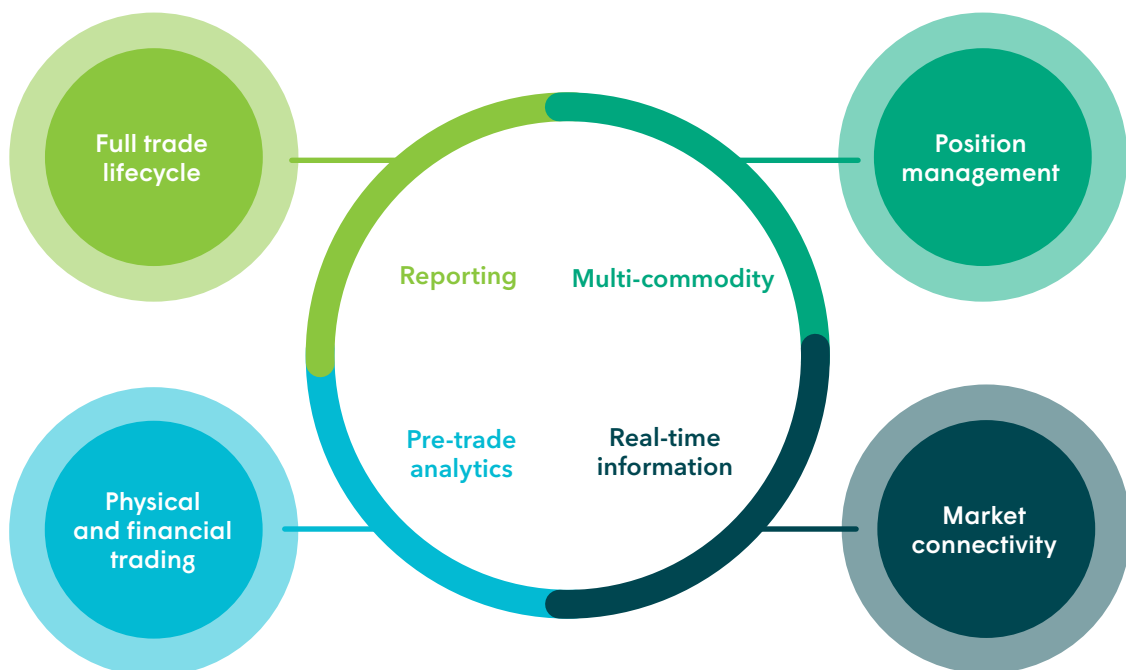
A major challenge for companies involved in power generation today is to capture risks and costs associated with coal fuel stocks. The TRM allows capture of physical and financial fixed, index and complex formula coal trading deals, quality specifications, contractual penalty and fees associated with the delivered coal product. It also helps you track and report on all scheduled and unscheduled volumes. Working together with Aligné Fuels Management, it can offer a full coal logistics solution, covering inventory management, delivery, and quality assurance.

Market connectivity

FIS offers seamless integration between its energy solutions and third party systems to enable true end-to-end business processes and Straight-Through Processing (STP). This results in a more efficient front office, a more accurate trade capture process, and a more complete view of trading activity. Our solution provides specific interfaces from the front office to the following:

- Exchanges – APX, NordPool, ICE, NYMEX, EEX and Nodal Exchange.
- Confirmations – eConfirm, eFETNET, Brokers: Trayport (e.g. Spectron, ICAP, Prebon, GFI).
- Physical Operators – Gemini (UK Gas), ESS (German/Austrian power), Producer/Shipper.
- Requests and Offtakes via email, EDI Gas.

The interfaces are designed to allow executed deals to electronically flow into the front office application for full reporting, valuation, and risk analysis. Additional interfaces to similar organizations can easily be created.



Designed for Usability

Dynamic and auditable spreadsheet control

Aligne5 (Aligne + HTML5 web and mobile technology) provides users with an ergonomic and truly user definable experience. Users are able to leverage our out of the box capabilities, as well as create their own workbenches with drag and drop components. Customers will benefit from a true web application that lowers the cost of deployment to the desktop.

Aligne5 Trader Workbench



Flexible user-defined workbench

A flexible framework allows users to create custom workbenches to refine their interaction with Aligne. Users can drag and drop a wide variety of components into the workbench such as real-time charting, customized maps, and feeds from external systems or websites.

Aligne5 Workbench Builder



About FIS Solutions for Energy and Commodities

FIS solutions for energy and commodities help utilities and retailers, pipeline and storage operators, marketers and traders as well as integrated energy companies compete efficiently in global markets by streamlining and integrating the trading, risk management and operations of physical commodities and their associated financial instruments. Through real-time data, connectivity and analysis, FIS solutions help you achieve transparency and regulatory compliance, optimize end-to-end transaction and operational lifecycles and meet time-to-market needs with flexible deployment options. As your technology partner, we can help take advantage of the latest innovation and explore new opportunities. For more information, email us at getinfo@fisglobal.com.

About FIS

FIS is a global leader in financial services technology, with a focus on retail and institutional banking, payments, asset and wealth management, risk and compliance, consulting and outsourcing solutions. Through the depth and breadth of our solutions portfolio, global capabilities and domain expertise, FIS serves more than 20,000 clients in over 130 countries. Headquartered in Jacksonville, Florida, FIS employs more than 55,000 people worldwide and holds leadership positions in payment processing, financial software and banking solutions. Providing software, services and outsourcing of the technology that empowers the financial world, FIS is a Fortune 500 company and is a member of Standard & Poor's 500® Index. For more information about FIS, visit www.fisglobal.com



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