



INSIGHT BRIEFINGS

ENERGY MARKETS OUTLOOK

S&P Global
Energy

WHEN MARKETS GO DARK ***The New Era of Energy*** ***Price Discovery***

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As geopolitical disruptions undermine vessel tracking, challenge established pricing mechanisms and increase the cost of physical energy delivery, verified market intelligence is becoming essential to trading competitiveness, investment confidence and supply security.

The disruption of global energy trade has exposed a fundamental weakness in market transparency: information traditionally used to price commodities, track shipments, and assess supply availability, can no longer be assumed to reflect physical market conditions. As vessels disappear from conventional tracking systems, established pricing mechanisms face unprecedented logistical constraints and heightened uncertainty weighs on market expectations, reliable intelligence is becoming a strategic commercial asset.

The next frontier of energy market resilience will depend not simply on access to more data, but on the ability to verify physical flows, establish credible prices and translate market intelligence into executable trading decisions. Maritime visibility represents an immediate challenge. Automatic

Identification System (AIS) tracking, historically central to vessel monitoring, has become increasingly unreliable in conflict-affected waterways. Ships operating without conventional tracking signals for legitimate security reasons create substantial gaps in reported trade flows, complicating assessments of cargo availability, vessel movements and export volumes.

Commercial satellite imagery, vessel identification technologies and proprietary maritime intelligence offer alternative ways to reconstruct physical movements. These capabilities may make access to and interpretation of verified intelligence an increasingly important differentiator for market participants.

Disrupted physical trade increases the importance of understanding the relationship between benchmark prices and delivery economics, including freight, insurance, logistics and timing. For Asian refiners heavily dependent on Middle Eastern supply, actual landed costs increasingly reflect exceptional freight premiums, war-risk insurance, ship-to-ship transfers, alternative loading arrangements and extended delivery schedules.

National oil companies are adapting through alternative cargo tenders, revised loading arrangements and more flexible

commercial practices. These developments highlight the importance of benchmarks continuing to reflect evolving physical trading practices.

Freight costs have become particularly consequential. Exceptional shipping premiums can offset substantial crude discounts, transforming apparently attractive purchases into complex calculations involving vessel availability, security exposure, delivery timing and refinery requirements. Market participants consider benchmark prices alongside delivery reliability, timing, freight, insurance and other procurement costs.

The implications extend beyond oil. Natural gas and electricity markets frequently face even greater information gaps, particularly where reporting about pipeline flows, domestic production and power generation varies across markets. For import-dependent economies, incomplete information about gas demand, LNG availability and infrastructure disruptions can undermine procurement decisions and increase exposure to sudden supply shocks.

Transparency also directly influences capital allocation. Investors financing pipelines, storage, LNG infrastructure and emerging energy technologies require credible information on demand, pricing, utilization and future revenues. Without reliable data, uncertainty raises financing risks and delays strategically important investment.

Artificial intelligence and advanced analytics can strengthen forecasting and independent verification, but their effectiveness depends on trustworthy underlying information and informed human interpretation.

Ultimately, market transparency must evolve beyond passive reporting towards an integrated system of verified intelligence, credible pricing and commercially actionable information.

The markets that successfully balance security requirements, information access and physical price discovery will be better positioned to sustain liquidity, attract investment and navigate prolonged disruption.

KEY THEMES AND CONSIDERATIONS

01 REBUILD MARKET TRANSPARENCY BEYOND CONVENTIONAL VESSEL TRACKING

Integrate satellite imagery, proprietary maritime intelligence and independently verified shipping information to address AIS visibility gaps and improve assessments of actual energy flows through conflict-affected maritime corridors.

02 KEEP PRICING GROUNDED IN TRANSACTABLE MARKET VALUE

Keep pricing grounded in repeatable, transactable market value under defined specifications, with relevant freight, logistics and delivery differences considered according to the applicable methodology.

03 BALANCE MARKET TRANSPARENCY WITH NATIONAL SECURITY REQUIREMENTS

Develop information-sharing frameworks that protect sensitive vessel movements and critical infrastructure while preserving sufficient aggregated market data to support credible pricing, commercial confidence and informed investment decisions.

04 STRENGTHEN VERIFICATION OF PHYSICAL ENERGY FLOWS

Cross-check available information to reduce double counting, identify gaps and distinguish verified supply developments from unverified market information.

05 EXPAND TRANSPARENCY ACROSS GAS AND ELECTRICITY MARKETS

Improve reporting of pipeline flows, LNG infrastructure utilization, power generation and domestic demand to strengthen forecasting, particularly in import-dependent economies exposed to infrastructure disruptions and seasonal consumption fluctuations.

06 MONITOR EVOLVING PHYSICAL TRADING PRACTICES

Benchmark methodologies can be reviewed through established consultation processes, while producers separately review their commercial pricing and marketing arrangements.



07 MAKE VERIFIED MARKET DATA CENTRAL TO INVESTMENT DECISIONS

Improve access to credible pricing, demand, utilization and infrastructure information to reduce investor uncertainty, strengthen financing assessments and accelerate capital deployment into strategically important energy projects.

08 DEPLOY AI TO STRENGTHEN MARKET INTELLIGENCE VERIFICATION

Apply artificial intelligence to satellite analysis, fragmented shipping records, anomaly detection and demand forecasting, supported by human expertise to validate outputs and prevent unreliable information from influencing commercial decisions.

09 INTEGRATE LOGISTICS UNCERTAINTY INTO TRADING RISK MODELS

Incorporate vessel availability, delayed cargo nominations, insurance exposure, alternative routing costs and uncertain delivery schedules into procurement decisions, refinery economics and counterparty risk assessments.

10 SUPPORT CONSISTENT AND TRANSPARENT MARKET INFORMATION

Encourage consistent, transparent and verifiable market information through stakeholder dialogue, while preserving the independence of price-reporting agencies and their methodologies.



Strategic Outlook

The future of energy market transparency will be shaped by a fundamental tension: markets require more reliable information to function efficiently, while geopolitical insecurity increasingly restricts the information that can safely be disclosed.

Three developments are likely to redefine the competitive landscape.

First, verified physical intelligence will become increasingly valuable. As conventional vessel tracking loses reliability in high-risk waterways, satellite monitoring, alternative data sources and advanced analytics will play a greater role in determining actual cargo movements and supply availability.

Second, changing delivery economics will increase the importance of understanding the relationship between benchmark prices and delivered crude values. For Asian refiners, benchmark prices are combined with freight, insurance, logistical uncertainty and delivery timing when evaluating total procurement costs. As marketing and loading arrangements evolve, understanding what each benchmark reflects remains important so that market participants can efficiently use them as a reference price, while adding their additional costs to effectively price transactions.

Third, information quality will become a stronger determinant of investment confidence. Markets providing credible signals on supply, demand, infrastructure utilization and delivery costs will be better positioned to attract liquidity and long-term capital.

The strategic imperative is to make energy markets more transparent without making critical infrastructure more vulnerable, while ensuring that price discovery remains anchored in the physical realities of energy trade.

Ultimately, the next generation of trusted energy trading centres will be distinguished not only by the availability of information, but by their ability to convert verified market intelligence into credible prices, efficient capital allocation and dependable commercial execution. ■



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