LNG PULSE

DECEMBER 2025

The Pulse of LNG

Prices, Projects, and Perspectives.

01 Market Developments

U.S. LNG Exports Set a New November High as Cooler Weather Boosts Liquefaction Efficiency

Through November and into early December, U.S. LNG export activity accelerated into a new operating regime: higher baseline utilization, stronger volatility around weather, and a growing contribution from newly-ramping capacity on the Gulf Coast. In early December reporting, U.S. liquefaction demand averaged roughly 18 Bcf/d in November, with daily levels topping 19 Bcf/d for the first time in late month. That step-change matters because it turns LNG from a "marginal" pull on the U.S. system into a structural demand anchor - large enough to influence storage trajectories, basis behavior, and price discovery throughout winter.

Weather played an important enabling role. Cooler conditions along the Gulf Coast improve liquefaction efficiency and reduce operational constraints, and the month-to-month temperature delta was notable: average Gulf Coast temperatures were reported about eight degrees Fahrenheit lower in November than October. The result was higher effective output at export sites precisely when global buyers were leaning harder on Atlantic Basin flexibility, reinforcing the feedback loop between U.S. gas fundamentals and global LNG pricing.

The market signal was immediate. Henry Hub pricing strengthened materially in November versus October - reported averages moved up from roughly $3.36/MMBtu in October to about $4.47/MMBtu in November - reflecting both seasonal heating demand and the incremental liquefaction pull. Industry trackers also flagged LNG feedgas flows approaching 19 Bcf/d during mid-November, consistent with a system operating near the practical limits of available liquefaction capacity. In parallel, commentary from industry groups noted that U.S. gas demand including exports was tracking toward a new annual record, underscoring how exports have shifted the demand floor even in shoulder seasons.

What changed most in this period was the market's "controllability." When LNG feedgas sits in the high teens (Bcf/d), small operational shifts - maintenance timing, a brief curtailment, or an unplanned outage - can move national balances enough to swing prompt pricing and regional basis. This increases the value of operational transparency, particularly for downstream stakeholders whose costs are sensitive to gas volatility. It also raises the premium on flexible demand response in other sectors (power burn and industrial) as the market searches for balance.

Looking ahead, the strategic implication is less about one record month and more about elasticity. As liquefaction grows, the U.S. market becomes more sensitive to global pull and less able to "absorb" shocks without price response. For producers, this supports a stronger winter strip and underpins midstream contracting. For buyers, it raises the value of diversification and contractual flexibility - particularly for portfolios exposed to U.S.-linked LNG pricing. For traders, it strengthens the case that gas weather risk and global LNG spreads are now tightly coupled - requiring integrated risk management rather than siloed hedging.

Global LNG Supply Growth Collides with Weaker Spreads

As we approached year-end, the macro narrative shifted from scarcity to selectivity. The market is still absorbing a large buildout of liquefaction capacity, and as supply expands, the commercial question is no longer simply "can you produce?" but "can you clear the market profitably through the cycle?" A Reuters analysis captured this pivot directly: U.S. LNG exports may ultimately shrink if margin compression intensifies, highlighting the sensitivity of flows to the spread between Henry Hub and delivered prices in Europe and Asia.

The structural driver is the scale of new capacity expected this decade. The International Energy Agency has projected that between 2025 and 2030 new LNG export capacity could grow by around 300 bcm per year - an increase of roughly 50% from 2025 levels. In an environment where incremental supply grows faster than incremental demand, price signals must do more work, and the industry's operating model shifts toward optimization: lowering variable costs, securing flexible offtake, and improving shipping and portfolio routing to protect realized netbacks.

In practical terms, margin discipline is being expressed through three levers. First, commercial structures are increasingly designed to buffer volatility - mixing term contracts with optionality rather than relying on spot exposure. Second, operational performance is becoming a competitive differentiator: plants that can run reliably at high utilization through weather swings and maintenance cycles will capture disproportionate value when spreads are thin. Third, portfolio players are taking a more active stance on timing and destination, using storage, floating capacity, and shipping optionality to arbitrage micro-spreads when the headline arbitrage is closed.

Importantly, a "margin squeeze" is not synonymous with an immediate volume collapse. The market tends to curtail at the margin first: less efficient trains, higher-cost feedgas exposure, and spot volumes with weaker netbacks. In the near term, winter demand and contract commitments can keep utilization high even if spot economics are unfavorable. However, the investment signal changes quickly. If forward curves imply structurally thinner spreads, developers face higher hurdles to sanction new capacity, and financiers and offtakers become more selective on counterparty, emissions profile, and execution risk.

For investors and policymakers, the implication is that the "next build" will not be justified by narrative alone. Projects will need clearer cost advantages, credible execution plans, and differentiated commercial positioning. For incumbent exporters, the near-term signal is that volumes may remain resilient - particularly during winter - but the medium-term battleground will be cost and flexibility. In this cycle, competitiveness is defined less by nameplate capacity and more by the ability to protect margin when the market is well supplied.

ICE Posts Record TTF and JKM Volumes and Moves Toward Longer Trading Hours

A notable market-structure development in mid-December was the continued deepening of gas and LNG derivatives liquidity. Intercontinental Exchange (ICE) reported record trading volumes in benchmark European gas contracts, surpassing 103 million contracts across Dutch TTF futures and options in 2025 - the first time volumes exceeded 100 million. ICE also highlighted record activity in both its TTF first-line financial futures and JKM LNG (Platts) futures, each crossing the one-million-contract threshold.

This is not a trading-only story; it is a supply-security story. As Europe leans more heavily on globally traded LNG - and as cargoes reroute in response to weather and geopolitics - participants need instruments that hedge quickly across time zones and correlated benchmarks. ICE's launch of TTF Daily Options (December 8) and its work with clients to extend trading hours beyond the current European window are both responses to this new operating reality.

If longer trading hours are implemented, the change would be material for risk managers: it reduces overnight gap risk, improves the ability to respond to Asian or U.S. catalysts in real time, and supports continuous hedging as LNG cargo pricing and freight economics evolve around the clock. It also increases the incentive for market participants to rely on standardized benchmarks, because risk can be transferred efficiently at any point during the global trading day.

The second-order impact is improved "hedgeability" for physical portfolios. Deeper liquidity in TTF and JKM supports cross-hedging against Henry Hub-linked exposures, strengthens the tools available for storage and shipping optimization, and reduces the cost of carrying optionality. This can influence physical contracting: counterparties become more willing to accept indexed structures when the index can be hedged in size and with shorter-dated instruments.

As LNG becomes more central to Europe's energy system, the market is building the financial plumbing to match. The ecosystem becomes more resilient, and also more reflexive, with faster feedback loops between physical fundamentals and financial positioning.

Plaquemines Ramps and Expansion Ambitions Grow

U.S. LNG supply growth remained a defining storyline with Venture Global's performance offering a useful lens on what "ramp" looks like in the current cycle. In its third-quarter reporting, Venture Global highlighted record cargo activity - exporting 100 cargoes in the quarter as its Plaquemines LNG facility continued to scale up. Financial results were correspondingly strong, with Reuters reporting a return to profitability on the back of high LNG demand and growing output.

The strategic signal strengthened further in mid-November, when Venture Global indicated it wanted to materially expand the planned capacity of Plaquemines - seeking to add around 30 mtpa of additional LNG capacity on top of the previously approved 28 mtpa. While expansion aspirations do not equate to sanctioned projects, they shape market expectations by reinforcing the trajectory of U.S. supply growth through the late 2020s.

For global buyers, the implication is twofold. First, supply optionality improves: incremental U.S. capacity tends to be commercially flexible, with fewer destination restrictions than many legacy contracts, helping portfolios manage geopolitical and seasonal swings. Second, counterparty and performance considerations become more prominent: as the market transitions from tightness to abundance, buyers increasingly differentiate between suppliers based on reliability, contract integrity, and operational transparency.

The market's sensitivity to ramp performance is rising. In a tighter world, incremental supply is absorbed easily. In a better-supplied world, timing is value: bringing volumes online into winter demand can materially improve realized netbacks and strengthen commercial leverage, while missing that window can compress margins. This is why expansion intent is increasingly scrutinized through the lens of deliverability - contractor capacity, permitting, power supply, and the operational learning curve associated with larger, more complex facilities.

For the broader market, this matters because it contributes directly to record U.S. feedgas pulls and amplifies the link between domestic gas fundamentals and global LNG pricing. The result is a market that is simultaneously more liquid and more interconnected - where an operational event on the Gulf Coast can ripple into European balances, Asian price signals, and freight markets within days. As 2026 approaches, the takeaway is clear: U.S. supply growth is not slowing - and the competitive edge will shift toward execution quality and margin resilience rather than nameplate ambition alone.

02 Commercial Developments

ADNOC and Shell Finalize a 15-year, 1 mtpa SPA

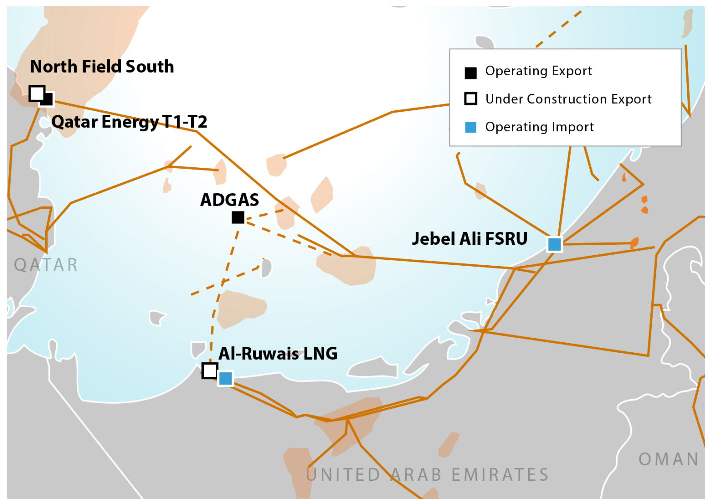
As we reported last month, ADNOC announced a 15-year sales and purchase agreement (SPA) with Shell for 1 million tonnes per annum (mtpa) of LNG from the planned Ruwais LNG project. The agreement is noteworthy for several reasons: it represents ADNOC's first long-term LNG agreement with Shell; it was described as the eighth offtake agreement for Ruwais; and it helped lift the project's contracted volumes above 8 mtpa out of a planned 9.6 mtpa capacity within roughly a year - an unusually rapid pace for commercialization at this scale.

Strategically, the deal illustrates how LNG's value proposition is evolving. Long-term contracts are returning - not as rigid take-or-pay relics, but as instruments that support energy security and portfolio stability while accommodating modern priorities such as carbon transparency and operational performance. For Shell, the SPA strengthens supply diversity and supports portfolio optimization. For ADNOC, it provides revenue visibility and supports execution certainty as the project advances toward targeted start-up.

The timing (signed during the ADIPEC period) also matters. Industry convenings increasingly serve as conversion points from heads of agreement into definitive contracts, compressing commercialization timelines. ADNOC has positioned Ruwais as a flagship in that regard, and the Shell SPA reinforces the narrative of "speed to market" as a competitive edge - particularly as global supply growth accelerates and buyers gain leverage.

The broader commercial implication is that buyers continue to pay for reliability. As more LNG comes online through the late 2020s, the market is likely to bifurcate: low-cost, high-reliability supply with credible execution will secure term commitments, while higher-cost or higher-risk

UAE's All-Electric Al-Ruwais LNG Project



projects may face slower contracting cycles and more demanding terms.

For contracting strategy, this pushes both sides toward clarity. Sellers must demonstrate not only cost competitiveness but a credible pathway to on-time delivery, emissions measurement, and operational resilience. Buyers, meanwhile, increasingly evaluate term deals against a portfolio lens: how does a contract hedge price risk, support security of supply, and retain flexibility if demand patterns shift (for example, due to renewables buildout or industrial load changes). The Ruwais–Shell SPA is a clean example of this modern calculus: it anchors a project while still fitting within a global portfolio strategy.

Japan Doubles Down on U.S. LNG While Traders Back U.S. FLNG Offtake

Two commercial threads dominated towards year-end: Japan's increased appetite for long-term U.S. LNG, and the continued role of trading houses in underwriting newer export concepts such as floating LNG (FLNG). Together, these developments signal that long-term contracting is not disappearing; rather, it is being modernized - built around flexibility, diversified counterparties, and portfolio fit.

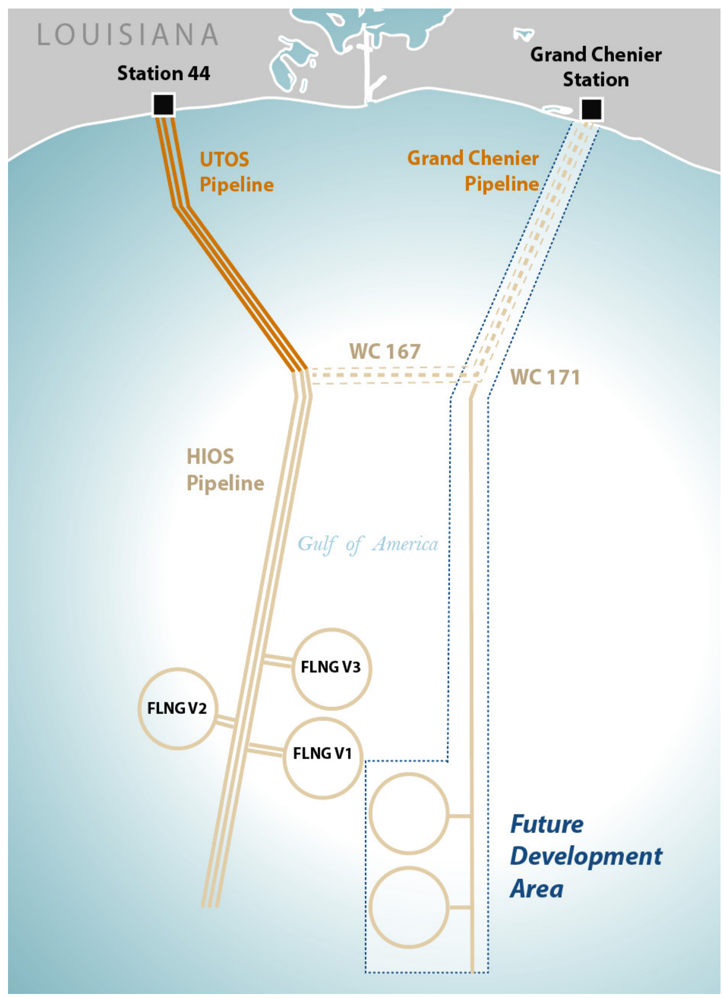
On the Japan–U.S. corridor, Reuters reported that Venture Global signed a 20-year agreement with Tokyo Gas to supply 1 million metric tons per annum starting in 2030. Earlier in November, Reuters also reported a similar 20-year deal between Venture Global and Japanese trading house Mitsui for 1 mtpa starting in 2029. Collectively, these agreements were framed as part of a broader Japanese push to secure stable supply for an electricity system facing incremental demand from data centers and high-tech manufacturing, where reliability is a strategic necessity. The attraction of U.S. LNG is not only price exposure but contractual structure: U.S. contracts often avoid restrictive destination clauses, improving the ability to manage portfolio swings and geopolitical risk.

In parallel, Reuters reported that International Resources Holding (IRH) signed a 20-year deal with Delfin LNG and Vitol for the purchase and sale of 1.0 mtpa of LNG from Delfin's U.S.-based export facility. The structure is instructive: Delfin supplies LNG on an FOB basis to Vitol as offtaker, with volumes then delivered to IRH's trading arm. This triangular model demonstrates how trading houses continue to function as commercial "connective tissue," bridging developers, end-buyers, and financing in ways that allow emerging projects to progress even when traditional utility-style offtake is slower to materialize.

These developments also reflect a subtle shift in who drives demand. Japan's focus on supply security is increasingly linked not only to household heating or legacy industry, but to digital infrastructure and electrification trends. As data centers expand and industrial policy emphasizes advanced manufacturing, demand becomes more "critical load," increasing the willingness to pay for reliability and long-dated supply. That, in turn, supports long-term contracting even in a market with ample spot liquidity.

The strategic takeaway is that contracting is returning as a foundation for investment and execution, but it is increasingly modular. Buyers want flexibility - destination optionality, diversification, and terms that can evolve with carbon reporting and regulatory expectations. Sellers want bankability - long-term revenue visibility that supports financing and de-risks construction. Intermediaries - especially trading houses - continue to play a critical role by absorbing complexity and providing liquidity at the interface between long-term commitments and short-term market realities.

Delfin LNG Assets



03 M&A Developments

IMM and KB Balhae Agree to Acquire 49.9% of Boryeong LNG Terminal

In mid-November, South Korea's infrastructure investment community delivered a clear signal about where it sees long-term value in LNG: not in speculative upstream exposure, but in downstream assets that behave like essential infrastructure. Local reporting indicated that IMM Investment and a KB Balhae Infrastructure consortium signed a share sale contract to acquire a 49.9% stake in Boryeong LNG Terminal, with the acquisition price reported around 559 billion won. The deal was described as an acquisition of shares from SK Innovation's stake, reflecting a monetization of mature infrastructure and an institutional appetite for stable, cash-yielding assets.

Boryeong is emblematic of what investors increasingly want from LNG: asset longevity, essentiality to national energy systems, and earnings profiles supported by long-term throughput rather than commodity price upside. For South Korea, LNG import infrastructure is strategically important - supporting power generation, industrial supply, and portfolio diversification amid global energy volatility. For investors, such assets can provide predictable cash flows and inflation-linked characteristics, particularly when governed by stable regulatory or contractual regimes.

The deal also reflects a broader re-rating of "midstream relevance." As global LNG supply expands over the next several years, the bottlenecks that matter are often logistical and infrastructural - terminal slots, storage capacity, and access to regasification pathways. Owning or controlling these nodes can create durable strategic leverage for both national systems and private capital.

In strategic briefing terms, the transaction illustrates how energy-transition portfolios are being constructed in practice. LNG infrastructure can be positioned as a resilience asset: it supports coal-to-gas switching, complements renewables by enabling dispatchable generation, and provides a platform for future molecules (including bio-LNG or hydrogen-adjacent services) depending on policy pathways. This "option value" is hard to capture in simple commodity exposure but becomes accessible through infrastructure ownership.

For LNG Pulse readers, the Boryeong transaction is a useful case study in the "infrastructure turn" in LNG investing. As the market matures, the winners will not only be the lowest-cost producers; they will also be the best-positioned infrastructure owners - those who can capture value from flexibility, reliability, and proximity to demand.

South Korea's LNG Import Infrastructure

04 Shipping Developments

Historic Softness Followed by a Winter Spike - What it Signals for 2026

A December analysis from Drewry framed 2025 as a year that was "quiet until winter arrived," a useful summary of LNG shipping economics over the past twelve months. According to Drewry, full-year 2025 LNG shipping rates sat at historic lows for much of the year, yet by October and November rates surged above $100,000 per day as winter demand arrived and the spot market tightened.

This pattern matters because it illustrates the market's limited resilience. When rates can move from historic lows to six-figure day rates in weeks, it indicates that effective vessel slack is thin. The market can appear oversupplied in benign conditions - then rapidly tighten when demand, voyage length, or congestion shifts. For LNG portfolios, this creates a risk profile characterized by punctuated volatility rather than stable averages.

From a strategic standpoint, the 2025 pattern suggests three implications for 2026 planning. First, freight hedging and chartering strategy will become more central - whether through longer charter coverage, portfolio vessel optionality, or emerging freight risk tools. Second, the value of operational reliability rises: shipping tightness penalizes delays, making scheduling discipline and terminal coordination commercially meaningful. Third, the freight environment may influence contracting choices - particularly how counterparties allocate shipping risk in FOB vs DES structures.

There is also a planning implication for project developers. As new liquefaction capacity enters service, incremental cargo volumes increase the call on shipping tonnage. If fleet growth does not keep pace, or if voyage lengths rise (for example, more U.S.-to-Asia flows), spot markets can tighten quickly. This tends to amplify volatility for marginal cargoes and can influence the relative competitiveness of supply basins by raising delivered costs.

It's true, 2025 demonstrated that LNG shipping remains cyclical - but with higher amplitude. The lesson for 2026 is to treat freight as a core component of LNG strategy, not an afterthought. Participants that combine commercial flexibility with disciplined shipping execution will be better positioned to capture value when winter volatility returns.

05 Technical Developments

U.S. Regulators Clear Receipt of a Cooldown Cargo Ahead of Golden Pass Start-Up

A practical indicator of U.S. LNG buildout progress is not an FID headline but a commissioning milestone: the receipt of a cooldown cargo. In early December, Argus reported that QatarEnergy and ExxonMobil's Golden Pass LNG export terminal in Texas received federal approval to unload a cool-down cargo - an important step in commissioning and start-up as the project works toward first LNG.

Cooldown cargoes begin the thermal conditioning of LNG tanks, piping, and equipment, enabling subsequent testing and the safe introduction of cryogenic operations. They also serve as a signaling mechanism to the market: when a terminal receives clearance to unload a cooldown cargo, the project has crossed technical and regulatory gates and is moving into the final stretch of commissioning.

Natural Gas Intelligence also reported that Golden Pass developers were cleared to begin key testing processes following delivery of a cooldown cargo, framing the event as setting up early-2026 LNG production. Golden Pass had previously stated in late October that it expected a cool down cargo to arrive in early December as part of planned commissioning and start-up activities, and the regulatory clearance aligns with that plan.

From a system perspective, these milestones matter because commissioning, not construction, is often the source of schedule risk. Introducing cryogenic operations can reveal latent issues in instrumentation, valves, insulation, and control logic. Projects that move smoothly through cooldown and initial startup tend to ramp faster and deliver more consistent volumes, while projects that encounter commissioning setbacks can lose valuable time and, in a well-supplied market, value.

Strategically, the key question is not whether one terminal reaches first LNG, but how quickly it transitions from initial production to stable, high utilization. In a market facing meaningful global supply additions later in the decade, the competitive advantage for U.S. projects will be determined by reliability and ramp discipline. Commissioning events will increasingly be the forward-looking indicators that matter - because they are the last technical gates before volumes enter the global market and start reshaping the balance.

Aerial View of Golden Pass LNG, Fall 2023

Photo courtesty, Golden Pass LNG

ABB Selected to Support ADNOC's All-Electric LNG Facility

The technical storyline that most clearly encapsulated LNG's next engineering direction came from ADNOC's Ruwais LNG project. In early November, ABB announced it had been selected to provide advanced automation, electrical, and digital solutions for the Ruwais facility, which ABB described as the region's first all-electric LNG plant. The significance is not only that Ruwais will use electric-driven motors instead of conventional gas turbines, but that the project is being designed around integrated control and energy-management capabilities from the outset.

For LNG plants, electrification changes both the performance envelope and the risk profile. Electric drives can improve controllability and reduce direct combustion emissions, but they also increase dependence on electrical infrastructure, grid stability, and power-quality management. As a result, the control system and energy management architecture become core to plant resilience, not ancillary.

In practical terms, Ruwais illustrates where EPC is headed globally. New LNG builds are being shaped by three converging pressures: (1) lower carbon intensity to protect market access, (2) higher reliability and uptime as margins tighten, and (3) stronger execution discipline to avoid schedule slippage. Electrification supports the first; integrated digital control supports the second; and standardized execution supports the third.

The broader implication is a new KPI set for "world-class" LNG. Historically, success was measured in cost per tonne, schedule, and nameplate. Increasingly, it also includes emissions intensity, instrumentation density, digital readiness, and the ability to verify performance. That places new demands on EPC firms and technology suppliers, and it shifts competitive advantage toward integrators who can deliver complex, high-reliability systems across automation, power, and safety.

LNG's technical evolution is therefore moving from incremental efficiency gains to structural design change. As electrification and integrated digital systems become more common in next-generation projects, EPC capability will increasingly be judged on integration expertise—how well contractors can deliver plants that are not only large, but intelligent, measurable, and resilient.

LNG TOOLS

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