

Ethane Embargo Fallout: Strategic Miscalculation in U.S. Energy Policy

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Cover Image Attribute: *The file image of Ethane Crystal (IMO 9752278, MMSI 538006974). It is the first of six very large ethane carrier (VLEC) vessels being built by Samsung Heavy Industries (SHI), for India's Reliance Industries Limited. As this article is being written, the vessel is en route from Houston to Dahej port in India with a cargo of ethane. / Source: American Bureau of Shipping (ABS)*

The recent U.S. decision to impose export licensing requirements on ethane shipments to China, as detailed in the U.S. Energy Information Administration's (EIA) June Short-Term Energy Outlook, marks a significant shift in American trade policy that has ripple effects across the global energy market. The EIA forecasts a decline of 80,000 barrels per day (b/d) in U.S. ethane exports this year, escalating to a 177,000 b/d drop in 2026, driven by these new regulations targeting the largest destination for U.S. ethane—China, which accounted for 47% of exports in 2024. This move, initiated by the U.S. Department of Commerce's Bureau of Industry and Security (BIS), stems from concerns that ethane exports pose an "unacceptable risk" of being used for military purposes, a claim that has led to stalled Very Large Ethane Carriers (VLECs) along the U.S. Gulf Coast and disrupted long-term contracts with Chinese petrochemical facilities.

The data paints a clear picture of escalation. Since January 2013, monthly U.S. ethane exports have risen steadily, peaking near 600,000 b/d around 2023 before a forecasted decline post-2025, as shown in the EIA's chart. Annual exports by destination, detailed in another EIA graphic, highlight China's dominance, with volumes reaching approximately 227,000 b/d in 2024, though this is expected to plummet to lower levels in the forecast period of 2025-2026. The imposition of licenses has already halted shipments, with the last U.S. ethane cargo to China departing on May 23 from Energy Transfer's terminal, and at least nine vessels now idling off the Gulf Coast. Two laden VLECs, each carrying nearly 1 million barrels, and three empty ones typically bound for China, reveals the immediate logistical chaos, while two others have been diverted to India's Dahej port, signaling a redirection of trade flows.

This policy shift arises amid heightened U.S.-China trade tensions, exemplified by recent negotiations in London where an initial agreement to lift these controls was reached. The BIS's notice of intent to deny licenses for three proposed export cargoes totaling 2.2 million barrels, targeting companies like Enterprise Products Partners and Energy Transfer, reflects a broader crackdown. Yet, the economic rationale behind this strategy is murky. Ethane, a natural gas liquid extracted for ethylene production—a building block for plastics and synthetic rubber—has minimal military applications, raising questions about the policy's foundation. The EIA notes that without export outlets, ethane recovery will decline, with production forecasted to drop from 2.9 million b/d to 2.8 million b/d in 2025, and further to 2.7 million b/d in 2026, a 12% reduction, as producers may opt to leave it in the natural gas stream.

The impact on U.S. producers is immediate and severe. With no alternative market to absorb the volume—China having been the destination for around half of all U.S. ethane exports—ethane prices have collapsed, inventories are building, and loaded tankers are treading water off Houston, costing roughly \$2 million per day in lost export value. This self-inflicted wound contradicts the Trump administration's energy dominance agenda, forcing companies to store, flare, or reject ethane, each option carrying financial and environmental penalties. The diversion of vessels like the Liberia-flagged STL Qianjiang to India's Reliance Industries, loaded at Energy Transfer's Nederland terminal, highlights how trade flows are shifting, but it does little to mitigate the domestic oversupply.

China, meanwhile, appears less affected. The country's petrochemical infrastructure, particularly its flexible furnace technology like Linde's PyroCrack systems, allows plants to switch from ethane to naphtha or liquefied petroleum gas (LPG) with minimal disruption. Ethane constitutes only 8-10% of China's ethylene feedstock, with naphtha dominating at 70% and LPG at 15-20%, meaning a loss of U.S. ethane impacts at most 5-6% of

capacity in the short term. Companies like Satellite Petrochemical, reliant solely on ethane, have shut down, but others, such as SP Chemical's Taixing cracker, can adapt. This resilience suggests that China can absorb higher feedstock costs and adjust supply chains, potentially reducing future dependence on U.S. ethane.

The strategic intent behind the controls—leveraging U.S. ethane exports as an economic weapon—seems misaligned with reality. Policymakers appear to have based their decision on aggregate trade flows, mistaking China's lack of tariffs on ethane as a chokepoint rather than a sign of limited strategic value. The EIA's forecast adjustments and the diversion of cargoes to India clearly depict that the policy inflicts more damage on U.S. companies than on Chinese competitors. The sudden imposition, with little advance notice or transition period, has stranded cargoes and created legal and financial complications, eroding confidence in American supply reliability among allies and partners.

This reliability concern extends beyond ethane. Markets for energy and chemical products rely on long-term contracts and predictable regulations, and the retroactive licensing requirement introduces political risk into previously stable trade relationships. For countries like Japan, South Korea, and emerging Asian economies investing in U.S. LNG infrastructure, or European allies reducing reliance on Russian energy, the ethane precedent raises doubts about U.S. supply security. If ethane—a commodity with minimal military use—can be weaponized, what assurances exist for LNG or crude oil? This timing is particularly detrimental as the U.S. competes for global LNG market share, where buyer confidence is paramount.

The broader pattern of U.S. trade policy missteps, as seen in technology sanctions and tariffs, suggests a systemic issue of assumption-driven rather than analysis-driven decision-making. The BIS, with its budget skewed toward enforcement over analysis, exemplifies this imbalance. The lack of interagency deliberation or vulnerability assessments, which could have highlighted China's feedstock flexibility and U.S. oversupply risks, points to a process failure. Chinese policymakers, adept at long-term planning, are likely studying this episode to exploit U.S. weaknesses in future trade conflicts, potentially diminishing the effectiveness of future economic pressure.

The London negotiations present an opportunity to reverse course, but the lessons are clear. Effective economic statecraft requires expertise in targeted sectors, rigorous stress testing, and consideration of ally relationships. The current approach, characterized by poor analysis and arbitrary implementation, has harmed U.S. producers, eroded trust in

the alliance, and provided China with strategic insights at minimal cost. The EIA's data, showing a 24% export drop in 2025 and a 51% decline in 2026, alongside the stalled VLECs and diverted shipments, quantifies this self-inflicted harm.

Lifting the controls, as part of the London agreement, could mitigate some damage, but the reputational hit lingers. U.S. negotiators now face a harder task convincing partners of credible economic threats when past actions have hurt domestic interests more. The American public deserves policies grounded in thorough analysis, not those that treat economic interests as collateral damage. As ethane tankers sit idle and producers face an oversupply, the ethane export controls stand as a cautionary tale of how haste and poor planning can undermine strategic goals, urging a return to deliberate, evidence-based policymaking in an era of global competition.

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