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Transforming Flaring Into Opportunity: Energy Efficiency and Sustainability at OLNG

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Oman LNG (OLNG) is leading the way in environmental sustainability and operational efficiency through its strategic approach to flare optimization and comprehensive flare quantification, aligned with the Net Zero Emissions (NZE) strategy of the Sultanate of Oman. By implementing advanced technologies, innovative methodologies, and precise measurement tools, OLNG is minimizing environmental impact, maximizing energy savings, and setting new standards for sustainable LNG operations.

The initiative focuses on five key areas: Flare Purge Optimization, Elimination of Flaring during Warm LNG Ship Handling, Cold Gas Recovery, Direct LNG Ship Cooldown Method, and Comprehensive Flare Quantification. These targeted interventions significantly reduce flaring emissions and enhance energy efficiency.

Flare Purge Optimization replaces traditional fuel gas purging with nitrogen purging, saving approximately 7 tons of fuel gas daily and reducing carbon emissions. This innovative approach ensures accurate monitoring and optimized nitrogen use, enhancing operational safety and cost efficiency.

Elimination of Flaring during Warm Ship Handling solves the issue of vapor return during ship cooldowns, which previously led to unplanned flaring. By implementing a Fuel Gas Performance Tool and real-time monitoring systems, OLNG optimizes fuel gas balance while minimizing flaring. The Marine Pilot's presence during cooldown ensures safe, efficient operations.

Cold Gas Recovery captures cold gas during train shutdowns and recycles it through the Boil Off Gas (BOG) system instead of flaring it. This method prevents the flaring of 60-80 tons per day of cold gas, achieving annual CO2 savings of approximately 3,300 e-tons.

The Direct Cooldown Method revolutionizes ship gassing-up by diluting nitrogen-inerted cargo tank content with vaporized LNG and recycling 100% of the diluted gas into the fuel gas system. This approach bypasses the gas-up phase, reducing jetty occupancy, energy consumption, and flaring, contributing to OLNG’s zero routine flaring target.

Comprehensive Flare Quantification is a key element of OLNG’s strategy. By developing Quantification Tool, OLNG ensures precise monitoring of flare volumes and accurate tracking of nitrogen purging activities. This enhances real-time operational transparency, regulatory compliance, and decision-making accuracy.

These initiatives reflect OLNG’s commitment to sustainability, operational efficiency, and environmental stewardship. The systematic approach showcases OLNG’s innovative methods and leadership in flare management, positioning it as a National Champion and trusted partner in Oman Vision 2040.

By strategically integrating these initiatives, OLNG optimizes energy use and sets a new industry standard for sustainable LNG operations. This approach not only reduces emissions but also demonstrates OLNG's leadership in environmental responsibility, solidifying its position as a pioneer in the global LNG industry.

To view the full technical programme, visit https://lng2026.com/technical-programme

This abstract will be presented during LNG2026 conference on 2-5 February in Doha, Qatar