

Flare System Optimization & Compliance Solution

In today's evolving oil & gas landscape, flare systems play a critical role in ensuring safe disposal of hydrocarbons during upset and emergency conditions. However, aging infrastructure, increased operational loads, and evolving regulatory requirements can lead to hydraulic bottlenecks, safety risks, and environmental non-compliance.

Utthunga delivers data-driven flare system assessment and optimization solutions to enhance system performance, ensure API compliance, and future-proof plant operations.

PROVEN VALUE



API RP 521 Compliance Achievable



Up to 50% Reduction in Thermal Radiation



Improved Combustion Efficiency (>97%)



Reduced Backpressure & Hydraulic Constraints



Enhanced System Reliability & Operability

KEY CHALLENGES IDENTIFIED



Hydraulic & System Limitations



Relief System Performance Risks



Knock-Out Drum Inefficiencies



Combustion & Environmental Gaps



Operational & Monitoring Gaps

FLARE SYSTEM OPTIMIZATION SOLUTION

- Flare Network Rating & Simulation
- Hydraulic Debottlenecking & Design Optimization
- Knock-Out Drum (KOD) Evaluation & Redesign
- Flare Tip Selection & Combustion Analysis
- Thermal Radiation & Dispersion Assessment
- Instrumentation & Control System Upgrade
- Compliance & Regulatory Advisory

OUR INTEGRATED SOLUTION



Hydraulic Optimization (Debottlenecking)

- Upsizing flare headers, riser, and stack (14" → 22")
- Reduction in Mach number and gas velocity
- Improved flow distribution and system capacity



Flare Technology Upgrade

- Implementation of steam-assisted flare system
- Enhanced air-fuel mixing and flame stability
- Reduced smoke and improved combustion performance



Knock-Out Drum (KOD) Redesign

- API-compliant horizontal separator design
- Increased volume and residence time (>30 sec)
- Improved liquid separation efficiency



Relief System & PSV Optimization

- Tailpipe resizing and backpressure control
- Introduction of balanced bellows PSVs where required
- Improved response during emergency scenarios



Thermal & Safety Compliance

- Steam-assisted flare reducing radiant fraction by ~50%
- Optimization of flare height and flame characteristics
- Defined exclusion and safety zones



Digitalization & Smart Control

- On-demand flaring philosophy
- Automated ignition and flame monitoring system
- Real-time pressure, flow, and level monitoring
- Integration with DCS/SCADA

Let's Future-Proof Your Flare System

Partner with Utthunga to transform your flare system into a safe, compliant, and future-ready asset.

Our expertise ensures end-to-end optimization from assessment to implementation delivering measurable improvements in safety, compliance, and performance