



Automated Flare Stack Monitoring for Environmental Compliance, Improved Safety and Reduced Maintenance Costs

Flare stacks are commonly used in many industries to safely burn off harmful waste gases and byproducts as operators manage plant safety and efficiencies. Oil and gas refineries and drilling operations are the most common, but chemical processing, gas distribution and waste disposal companies are also users of flare stacks. All of these industries have the challenge of minimizing harmful emissions, complying with regulations and managing the high cost of manual monitoring and maintenance.

FogHorn Lightning™ Edge Flare Monitoring Solution

FogHorn Lightning Flare Monitoring Solution was developed after years of experience working with some of the largest oil and gas producers. The solution processes live video streams of flares in various conditions (day/night and clear/cloudy skies) to provide real-time insights. Metrics include the size of the flare, smoke to flare ratio, and flare angle, empowering operators to make real-time decisions. More sophisticated metrics related to gas volume, chemical composition and business impact will be coming soon.

The Flare Monitoring solution contains pre-trained deep learning algorithms developed exclusively for flares. These algorithms can be further customized and refined for each deployment site using a simple graphical user interface.

While new insights are gained by analyzing live video, FogHorn's Flare Monitoring solution takes that a step further with sensor fusion technology. FogHorn can bind multiple video stream with audio and vibration data. This holistic view of operations makes previously unseen nuances of operations visible and can be used to identify issues, such as compressor health or indicate potential environmental violations.

Technology Requirements

Delivered as a subscription software, the FogHorn Flare Monitoring Solution can be installed onto virtually any existing Intel x86 or Arm-based system with 1GB of free memory, allowing organizations to defer capital expenditures by leveraging existing infrastructure. In addition, the solution supports video feeds from practically any type of camera from standard color to thermal.

Challenges

- Manual monitoring of a large number of flare stacks
- Limited communications and compute resources
- Ensure compliance with environmental and regulatory agencies
- Reduce large spend on maintenance and compliance

FogHorn Solution

- FogHorn Lightning™ Edge can be installed on existing or new low-compute resources
- Real-time audio and video analysis of flare feeds
- Convolutional neural network (CNN) for deep learning
- Easy-to-use GUI for model re-training and customization

Benefits

- Replace human monitoring with automation
- Lower OpEx and maintenance costs
- Broad compliance monitoring capabilities
- Improved safety