



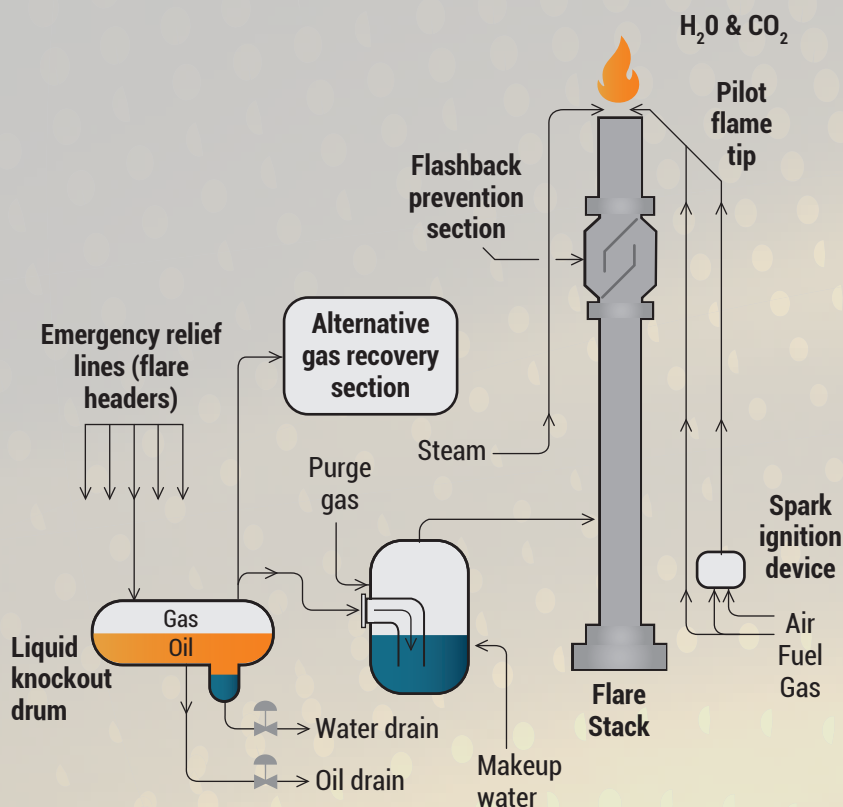
## Flaring 101

### What is flaring?

Because natural gas is a valuable commodity, companies have an economic incentive to capture it. However, there are several reasons why it may be necessary to flare gas during drilling, production or processing.

Flaring is the controlled burning of natural gas. It is a common practice in both the exploration and production of oil and natural gas, as well as other petroleum operations, such as refining.

A flare system consists of pipes that feed gas to what's known as a flare stack. Flare size and brightness differ based on the type and amount of gas or liquids in the flare stack.



### Why it is necessary?

#### Safety

Flares safely burn excess gases that cannot be economically recovered. If these gases are allowed to accumulate, they can create significant safety hazards, both for workers onsite and for the surrounding environment. Pressure buildups, for example, could pose an explosion risk.

#### Emissions

The alternative to flaring is often releasing the gas directly into the atmosphere, which is known as venting. Products of flaring are typically water and carbon dioxide, while the flare itself safely eliminates sulfur dioxide and other potential emissions. Methane is also a more potent greenhouse gas than carbon dioxide, which means flaring can reduce the load of greenhouse gases released.

“Flaring is appropriate for continuous, batch, and variable flow vent stream applications, but the primary use is that of a safety device used to control a large volume of pollutant resulting from upset conditions”

- U.S. Environmental Protection Agency

“Methane emissions reductions of 2,000 Mcf per year apply to a single flare with a single pilot.”

- U.S. Environmental Protection Agency

## Flaring regulations

Under the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has a variety of rules and guidelines targeting methane and other volatile organic compound (VOC) emissions. These include New Source Performance Standards, the Greenhouse Gas Reporting Program, and the National Emissions Standards for Hazardous Air Pollutants (NESHAP). These rules and programs set requirements and regulations on the types of emissions that flaring helps mitigate.

The Bureau of Land Management (BLM) also has regulations targeting methane emissions on federal lands, through the Methane and Waste Prevention rule. The rule "requires operators to flare gas rather than vent it" as a way of mitigating methane emissions while operating on public lands.

## Ways to mitigate

Uncaptured natural gas is a loss of a valuable product. One of the best ways to reduce flaring is to build additional energy infrastructure, such as pipelines.

Flaring will always be a part of oil and natural gas operations to some extent, due to a combination of safety, environmental, and economic concerns. But every molecule of gas that flows into a pipeline is one that is ultimately delivered to customers, instead of flared.



**"A lack of natural gas gathering lines in the region leads to flaring of natural gas at the wellhead, and additional pipeline infrastructure would reduce air emissions while providing a new revenue stream."**

- New Mexico Energy Policy and Implementation Plan



**"Flares protect employees, residences, and resources that may be located near oil and natural gas sites by safely burning the flammable gases."**

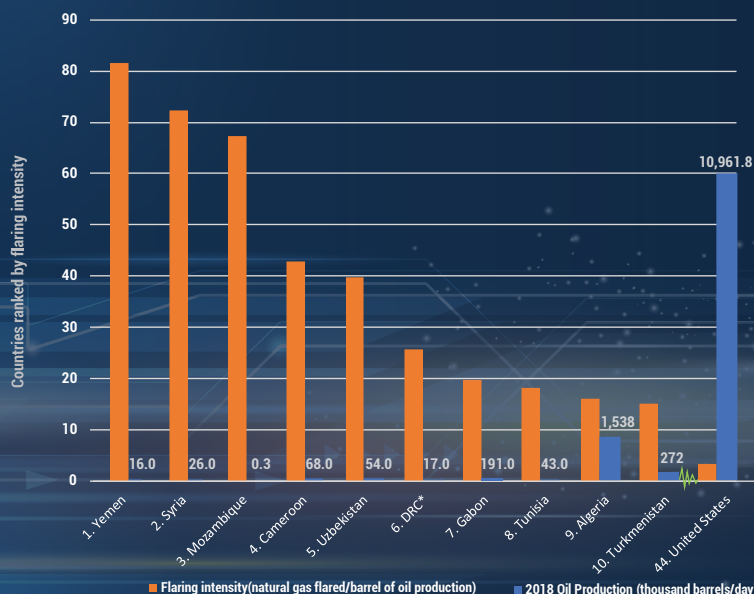
- Texas Commission on Environmental Quality



**"The Commission may require flaring of releases of gas not readily measured if the Commission determines that flaring is required for safety reasons (e.g. high concentrations of H<sub>2</sub>S)."**

- The Railroad Commission of Texas

### FLARING INTENSITY VS. OIL PRODUCTION



Source: EIA, 2019  
and World Bank,  
2019.

\*Democratic  
Republic of  
the Congo