



WHITE PAPER

Flaring & Compliance Challenges In The Middle East

How to manage the risks posed by flaring and reach regulatory compliance

 Flaring is the deliberate burning of natural gas when it is released as a byproduct during the extraction of oil.

The high volume of underground oil extraction in the Middle East and North Africa (MENA) region means it accounts for 40% of all global flaring, with 50 billion cubic metres of gas flared annually in the region.

In this whitepaper, we will take a closer look at the practice of flaring, including why and when it is used, the gases involved, the health risks, and the regulations and initiatives that are in place to reduce the negative impact of flaring around the world.

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What is flaring and why is it used?

During the process of underground oil extraction and drilling, pockets of natural gas are often disturbed, potentially releasing a mixture of gases into the atmosphere. Flaring involves igniting the gas as it reaches ground level, in order to burn off the toxic gases and convert them into less harmful compounds.

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A typical flare consists of a stack or boom, which is a vessel that collects the unwanted gases and releases them in a controlled flow. The tip of the stack has an air input mechanism that combines free air with the unwanted gases to improve the combustion efficiency. The combined gas and air is ignited at the tip and a controlled flame is released into the air.

A lesser used process is venting, which involves the release of methane gas directly into the atmosphere. The environmental impact of venting is more significant, as methane is 25 times more impactful than CO₂ over a 100-year timeframe. For this reason, flaring is often seen as the preferred method for dealing with unwanted byproduct gases compared to venting.



What gases are involved in flaring?

The natural gas that is burned during flaring is mostly composed of methane (70 to 90%) and a variety of hydrocarbons such as butane, propane, and ethane (around 10 to 20%). Other gases and contaminants may be present in smaller quantities, such as hydrogen sulphide (H_2S), oxygen (O), carbon dioxide (CO_2), nitrogen (N), helium (He), neon (Ne), water vapour, and sand.

The most prevalent impurity in natural gas is H_2S , with an estimated [30% of global natural gas supplies containing the compound](#). When H_2S is combusted, as is the case in flaring, sulphur dioxide (SO_2) is created as a byproduct gas.

Both hydrogen sulphide and sulphur dioxide can be harmful to human health and generate a negative environmental impact.



When natural gas is flared, there is a high possibility that it will contain hydrogen sulphide, which means that sulphur dioxide will be generated as a byproduct.

Increased Health & Environmental Risks of Flaring

Oil-producing countries are under increasing pressure to limit the amount of natural gas flaring and venting that takes place for environmental reasons.

The Global Gas Flaring Reduction Partnership (GGFR) has been instrumental in shaping government policy and regulations to reduce gas flaring around the world.

The World Bank and United Nations (UN) launched the Zero Routine Flaring by 2030 initiative in 2015 which encourages the development of plans to conserve natural gas rather than flare it, except in emergency situations. Existing oil production sites are encouraged to scale down and eliminate flaring by 2030. The initiative has been moderately successful with a total of 45 oil companies, 15 development organisations, and 34 governments signing up to it so far.

In the USA, Alaska, Colorado, and New Mexico have all banned non-emergency flaring of gas, which accounts for 20% of US oil production.

Norway is a good example of an oil-producing country that has introduced successful regulation of flaring. The country has reduced flaring emissions by more than 80% since 1993, when regulations were first introduced.

Presently, there is very little to no government regulation on flaring in the MENA region, although most oil companies have signed up to the Zero Routine Flaring by 2030 initiative.

In 2020, independent policy institute Chatham House released a report urging the incentivisation of flare gas capture and commercial structuring to deliver wasted gas to market by pipeline. Capturing and selling gas to global markets would help to solve the environmental problem, provide a much needed energy resource, and provide extra revenue for the MENA region.



Gas detection equipment and products are a highly effective way to identify gas leaks and to monitor the concentration of potentially harmful gases in the atmosphere.

Gas detection technology for oil companies

Oil companies need to ensure the safety of their employees and make sure that they comply with gas emissions regulations and initiatives.

In order to achieve these goals, gas detection technology can be applied that signals an alert when gas levels exceed predefined limits.

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The following gas detection devices are ideal for managing gas hazards in the oil and gas industry. Portable solutions including the [Clip SGD](#), [T4x](#), [Gas-pro](#), [Gasman](#), [Gas-Pro TK](#) and [Detective+](#) provide peace of mind for organisations with workers operating within environments that produce H2S, SO2, O2 or CO. Fixed detection products include the [Xgard](#), [Xgard IQ](#), [TXgard plus](#), [IRMax](#) and [Flared IR3 flame detector](#). While the [Vortex](#) control panel and the [Gasmaster](#) also help to protect employees from hazardous gases in an efficient manner.

For more information about gas detection solutions for the oil and gas industry and the steps you can take to mitigate those risks or to ask further questions [get in touch](#) today.

