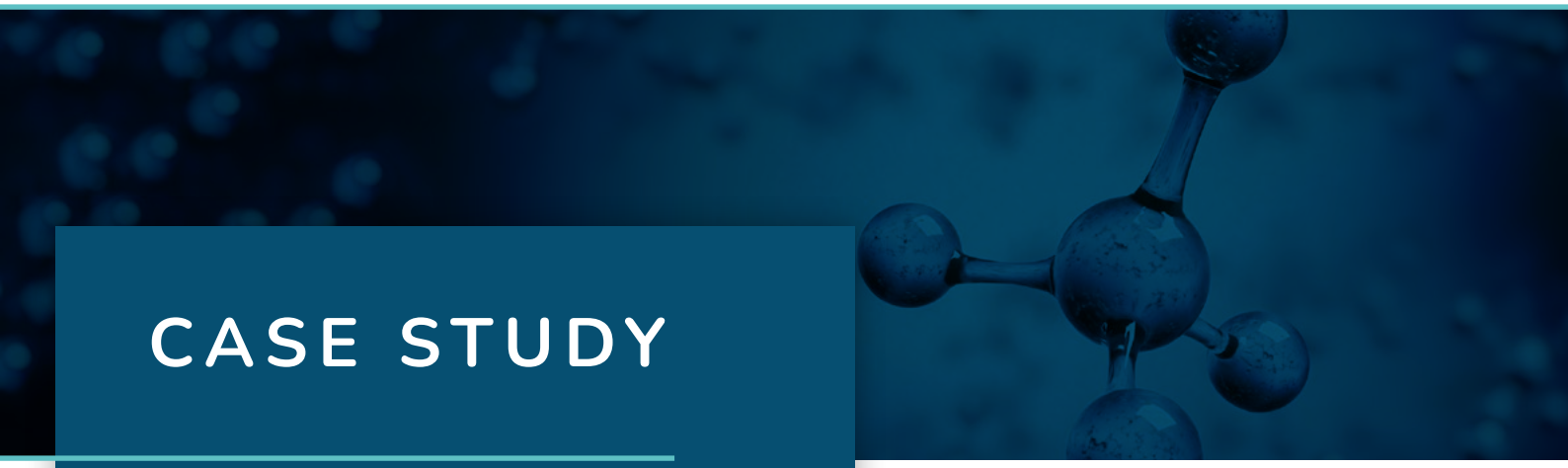
METHANE GUIDING PRINCIPLES

Baker Hughes



CASE STUDY

Reducing methane slips from flaring: Flare.IQ

Flares are an essential safety device that enable gas to be disposed of when a part of an oil and gas facility has an unexpected event - upset conditions - requiring gas to be safety released. Operators and regulators recognize the importance of achieving high combustion efficiency of flare gas in order to reduce methane emissions and destruction and removal efficiency. When properly burnt off, the gas converts to carbon dioxide and prevents raw methane from entering the atmosphere via the flare stack. The destruction and removal efficiency of flares should be at the level of 98% or higher. This case study shows how bp is using Flare.IQ to better understand, measure and ultimately reduce methane emissions associated with flares.

Context

bp's ambition is to be a net-zero company by 2050 or sooner, and to support others to get there, too. This ambition is supported by 10 aims, including aim 4: "To install methane measurement at all our existing major oil and gas processing sites by 2023, publish the data, and then drive a 50% reduction in methane intensity of our operations". As part of that plan, bp is using Flare.IQ to help better understand, measure and ultimately reduce methane emissions.

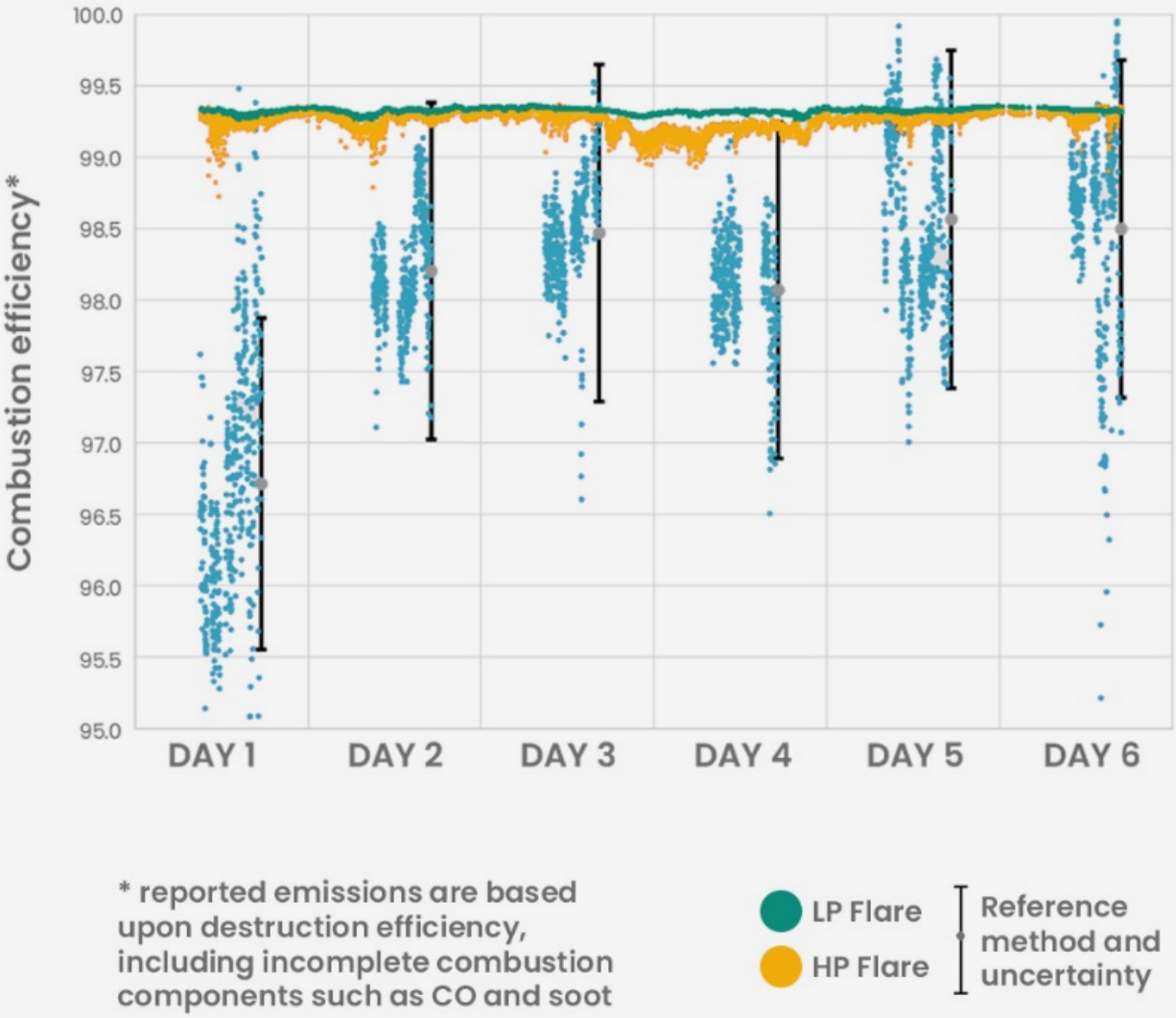
Reducing methane slips from flaring with Flare.IQ

Flare.IQ is an advanced flare control and digital-verification platform developed by Panametrics, a Baker Hughes company, and part of the company's broad emissions management capabilities. The flare.IQ solution sits on a plant's control system, constantly measuring emissions and providing real-time data so that operators can ensure the flare is running at the targeted 98% destruction and removal efficiency.

The Flare.IQ technology was originally developed to help oil and gas refineries meet EPA regulations in the US, where the EPA requires flares to be monitored every 15 minutes. The power of Flare.IQ is that it takes real-time measurements and instantly turns them into information, so that operators can quickly tweak their combustion process to improve their destruction and removal efficiency:

> *"It's a series of computational models that turn the raw data into an output that is functionally useful in terms of showing us methane intensity" says Peter Evans, who is a geoscientist with a PhD in geochemistry and an MBA in technology management. He further states that "It gives us real-time data on the performance of the flare, and we can see if it's not hitting the standards that we need it to meet."*

The first trial site for Flare.IQ was on a FPSO (floating production storage and offloading) facility, operating in the North Atlantic Ocean. For the inaugural six-day trial, bp used the vessel's existing control system to take information from the flow meters, run the Flare.IQ algorithms and provide real-time feedback. Below are the results.



Sample flare measurement data, showing combustion efficiency over a 6-day period

The data showed consistently high combustion performance standards, often above 99%, consistent with project design. Flare.IQ enables operators to see how the flare is performing, and if there is a change in performance because a component needs maintenance, or environmental conditions are putting extra stresses on the flare, they can make any necessary interventions in a timely manner.

The system is based on advanced analytics, without the need for extensive changes to the way the flare is built or operated, and does not require a service engineer to physically change anything on the flares. Moreover, the capabilities of the flare.IQ platform are growing:

> *"In the latest release, we're able to do remote verification of flare efficiency, which means no manpower, no infrastructure, no need to take the meters off," says Colin Hehir, Vice our current VP of Panametrics. He adds "For example, if we take a facility operating at 70% flare efficiency, deploying Flare.IQ will achieve 98%+ efficiency – the emissions savings is the equivalent of removing some 34,000 cars from our roads."*

For more on flaring data, see the Global Flare Tracker. For more on managing methane emissions from flares, check the MGP Best Practice Guide - Reducing methane emissions from flaring.

Find out more

MGP Flaring emission mitigation cost tool

World Bank Financing Solutions to
Reduce Natural Gas Flaring and methane emissions

World Bank Global Flare Tracker

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