
Flare Capture Offers Easy Wins



A thought piece by  **capterio**

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Reducing gas flaring can both accelerate progress to net-zero and offer a swift boost to industry credibility

Increasing commitments to a 'net-zero' society—be it by 2050, 2060 or a sooner or later date—pose both a generational challenge and an existential threat to oil and gas producers. There will be no more 'business as usual', but firms must also deliver more in environmental terms while grappling with reductions in their size and access to capital.

One modest, yet highly significant, contribution the oil and gas industry can make to almost immediately delivering material decarbonisation of production, improving the industry's social licence to operate and creating value is to stop wasting gas via flaring, venting and leakage.

Flared gas is generally concentrated at point sources, making it easier to recover, potentially commercially, at scale. Flaring is also highly visible and easy to measure (including from space).

The latest data from the World Bank highlights that flaring increased in 2019 at a global level, to 14.5bn ft³/d (410mn m³/d), representing some \$20bn of potential value—the highest in a decade. Five countries—Russia, Iraq, the US, Iran and Venezuela—alone account for over 50pc of the total. Ironically, many of the governments and companies that flare are also signatories to the World Bank's Zero Routine Flaring programme.

Globally, flaring is dominated by large flares and is mostly continuous, according to satellite data. More specifically, 5.8bn ft³/d, or 41pc of the global total, is from flares of more than 10mn ft³/d and, of these, 97pc operate continuously.

There is also a large range in the flaring intensity of different nations' production, from Venezuela and Algeria at over 700ft³/bl to Saudi Arabia and Norway at less than 20ft³/bl. Many flares are also rich with partially combusted liquids.

If it were a country, flaring would be the fifth-largest national source of combusted emissions, at some 280mn t CO_{2e}/yr. This figure rises to 1.2bn t CO_{2e}/yr when conservative rates of methane slip—from incomplete and inefficient combustion—are added, according to Capterio calculations.

Capture Projects

So-called flare capture projects recover and monetise flared gas through reinjection, disposal or storage, distribution to market via pipeline, or as CNG or LNG, or for power generation. There are also more exotic uses for the gas, e.g. to power [Bitcoin mining](#) or to [manufacture alternative proteins](#) to feed fish.

Flare capture projects deliver both environmental and economic value in several ways. Perhaps most importantly, flare capture projects improve a company’s social licence to operate. Projects can help to deliver net-zero by reducing CO₂ and methane emissions, contribute to Paris Agreement commitments, improve environmental health and provide local employment—significant selling points in an investment environment that can be impatient with oil and gas firms tardy in addressing environment, social and governance (ESG) issues.

But flare capture projects can also in themselves create value, generate additional revenue and lower operational and financing costs.

Challenges to realising this potential still exist. These types of projects are sometimes perceived not to be investable—for example, because government take on sales of the captured gas is too high, infrastructure is lacking, or flares are small or declining.

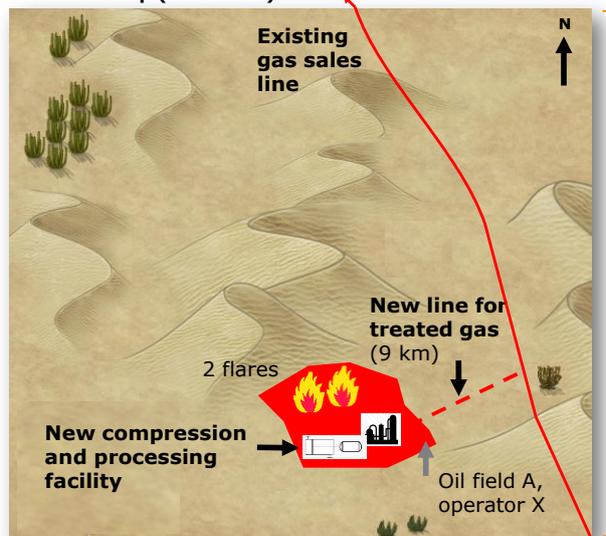
Flare capture projects are also too often seen by producers to be "non-core", and as a low priority do not get funding; even economically attractive projects struggle to make the cut in capital allocation rounds.

Some flaring is routinely underestimated, ignored or sometimes denied. In North America, technical or pricing challenges are the main driver, but outside the OECD the challenges are mostly non-technical, particularly involving bureaucratic barriers.

Recent Capterio analysis offers pathways to overcoming some of these hurdles. Globally, it finds that [54pc of flaring is within 20km of an existing gas pipeline](#) (see Fig. 1). Field and satellite data can also help identify opportunities to co-develop flare clusters across multiple operators.

This project illustrates a typical flare capture opportunity

Overview map (schematic)



Source: Capterio

- This example is illustrative of several highly attractive flare capture projects
- In this example, material large flares are associated with an producing oil field. There is no gas infrastructure at the field, but the flares are to an existing gas sales line
- Our project development concept is to install a new compression and processing facility at the field and build a new line to transport treated gas to the existing sales line
- The solution is technically straightforward, and leverages the spare pipeline capacity
- The economics for these types of projects are often highly attractive, especially if the right commercial structures are negotiated

Figure 1: A typical flare capture project

Of course, each project is different, as many factors vary—gas composition, liquids content, production outlook, technical solution, infrastructure, market, fiscal environment and commodity prices. While advanced technologies such as CNG, LNG and GTL may play a role, most large flares can be addressed with simple proven technology. The most common solutions involve either transporting the gas to existing pipelines or generating power for local operations or the grid.

Economically, these opportunities are often commercially attractive to investors, offering attractive NPVs and investable post-tax IRRs, and deliver strong cashflows to host governments. Upstream producers should also note that flare capture projects may deliver increased production and proved reserves, with limited technical risk, often more cheaply than drilling an additional well.

To meet its sustainable development scenario, the IEA estimates flaring must be reduced by 90pc by as soon as 2025. To make this happen, Capterio estimates that the upstream E&P industry would need to invest a modest 2-3pc of its \$450bn annual capex spend (some \$10-15bn/yr) over the next 3-4 years.

Countries such as Norway and Saudi Arabia, which combine effective regulation and stringent enforcement, set a precedent for what is possible. Flare capture projects can reduce emissions, create value and accelerate the energy transition. There is a limited window of opportunity to make these ESG-compliant projects happen, and now is the time to act.

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About Capterio: Capterio is an agile and specialist project developer focused on monetising waste gas in oil & gas energy systems. We bring together assets with technologies, know-how and financing to deliver on-the-ground, real-world, safe and reliable solutions. We support our work with our unique Global Flaring Intelligence Tool (GFIT) which provides real-time insights into flaring for every asset, operator and non-operated partner worldwide.