

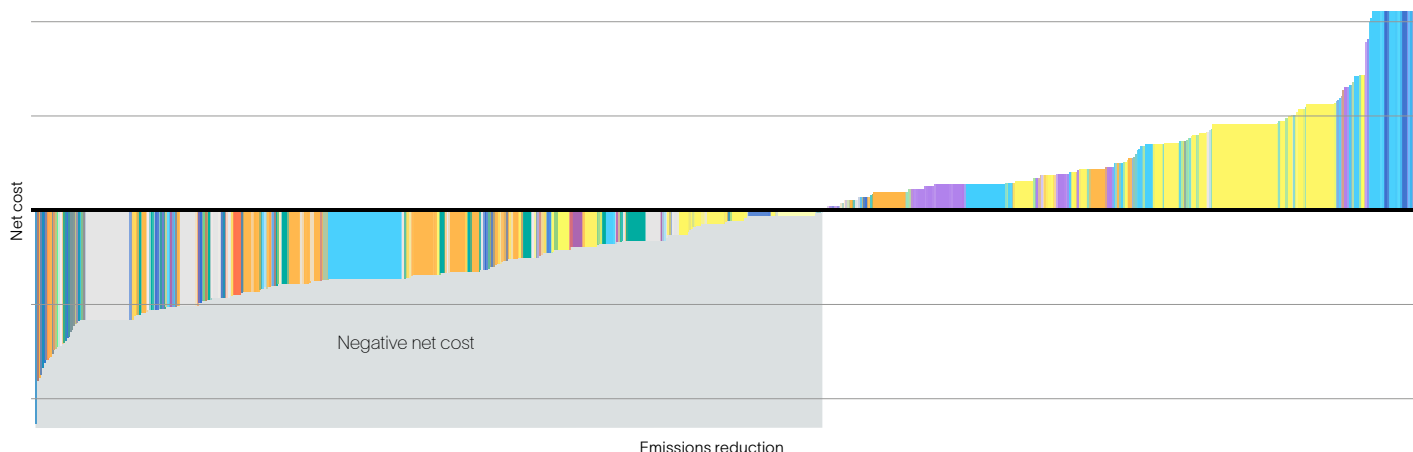
Methane consulting



Plan and implement the most economical emissions reduction and reporting strategies for your assets

Marginal Abatement Cost (MAC) Curve

Mitigation measures for oil and gas methane emissions



- Apply downstream leak detection and repair (LDAR)
- Install vapor recovery units
- Replace with instrument air systems
- Apply upstream LDAR
- Install plunger
- Replace compressor seal or rod
- Replace devices early
- Replace with electric motor
- Replace pumps
- Other

To help you make cost-effective decisions when you begin planning your emissions reduction program, we create marginal abatement cost (MAC) curves tailored to your assets and highlight the net cost and potential emissions reduction for each available technology.



Emissions reduction:

Enables reduced methane and flaring-related emissions



Service:

Global reporting, including Oil & Gas Methane Partnership (OGMP) 2.0 compliance

Measurement and abatement expertise and technologies

Techno-economic analysis

SLB End-to-end Emissions Solutions (SEES)

Applications

- Upstream, midstream, and downstream oil and gas operations or any sites that have methane emissions, flaring, or both

How it reduces emissions

Methane consulting assesses available and emerging technologies that can measure and reduce methane and flaring-related emissions cost effectively. Our experts provide you with key insights on the business economics involved to help you make better-informed decisions about the optimal approach as you plan your emissions reduction program. Many times, we help answer questions such as

- What is the optimal mix of technologies and number of measurements to meet OGMP, Veritas, or other reporting standards?
- Should I reduce methane emissions by performing more inspections for fugitive emissions or by installing low-emission equipment like instrument air systems?
- Is it more effective to reduce total emissions by monitoring for fugitive methane or by converting flare gas into a marketable product?

How it is unique

This SLB service offers multiple advantages to ensure that you arrive at the best strategy for each asset and location. The service delivers

- a rigorous plan that considers the most effective ways of tackling methane and flaring emissions
- in-depth knowledge of innovative technologies and a method that enables consistent assessment of what will work best for you
- consulting from leading experts who have designed and implemented plans to report at different OGMP levels and have helped develop natural gas certification standards
- technical expertise from across SLB business lines that have the capabilities to implement the emissions reduction plans.

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How it works

Our approach begins with a thorough understanding of your assets and goals, which could include complying with local regulations, earning gas certification, taking action on voluntary initiatives such as OGMP, or reducing emissions in a way that rapidly pays for itself with the saved production.

To report methane emissions, we identify a combination of measurement and monitoring technologies and plans to fulfill OGMP reporting requirements. Once measurements are complete, we analyze the data to identify the most effective strategies for eliminating emissions and achieving differentiated gas certification. SLB gas process engineers develop a MAC curve to illustrate the amount of greenhouse gas (GHG) emissions that can be avoided by deploying a specific technology in a specific location and the net cost of the deployment. The net cost accounts for both the expense of deploying the technology and the additional revenues that result from keeping more product in the pipe. Some emissions reduction techniques quickly pay for themselves.

To reduce flare emissions, we identify flares that can be addressed through increased combustion efficiency or optimized gas processing, or eliminated altogether by using innovative gas-to-value technologies.

Methane consulting prioritizes emissions reduction steps based on the environmental and economic benefits of each potential action in a like-for-like comparison. We can then provide a customized plan for each asset and location. Whether you need advisory, reporting guidance, or abatement services, our flexible consulting can support you at any stage of your emissions reduction journey.

Methane Consulting—Methods and Technologies

Methane monitoring	Bottom-up approaches, OGMP Level 4 (e.g., handheld sensors, detailed engineering calculations and simulations)
	Top-down approaches, OGMP Level 5 (e.g., drones, satellites, airplanes)
	Continuous monitors (e.g., cameras, point sensors)
Methane reduction	Leak repairs
	Changes to work practices
	Installation of new low- or no-emission equipment, such as instrument air systems and vapor recovery units
	Facility optimization and redesign
Routine flare elimination	Gas-to-value technology options that can enable converting otherwise-flared gas into marketable products:
	Power (e.g., heat and power for local use, power transmitted to the grid, power used for cryptocurrency)
	Fuels (e.g., compressed natural gas, extracted natural gas liquids, liquid fuels, hydrogen)
	Specialty chemicals (e.g., methanol mixed alcohols, dimethyl ether, acetic acid, formaldehyde, urea)
	Specialty products (e.g., carbon fiber, fertilizer, artificial protein)

Technologies listed are not definitive and are subject to change without notice.