



## Sealing Solutions

# Fueling Net Zero Progress by Curbing Methane Emissions

John Crane plays a key role in Smiths' corporate commitment to environmental sustainability. We are taking concrete steps to enhance sustainability in our own operations and are investing in solutions that enable our customers to do the same. We believe that a combination of ambitious policies, financial incentives, and industry actions can accelerate the energy transition while building a more secure energy ecosystem.

According to the United Nations' Global Methane Assessment, a 45% reduction in human-caused methane emissions by 2030 would put the world on a path to limiting warming to 1.5° this century. We strongly support the available, targeted methane reduction measures outlined in the UN assessment, which are among some of the most cost-effective strategies to limiting these harmful emissions<sup>1</sup>.

Accounting for approximately 30% of global greenhouse gas (GHG) emissions, methane emissions emanate from a variety of sectors, including energy, agriculture and waste. Methane has a global warming potential 28 to 34 times higher than carbon dioxide over 20 years in the atmosphere, making it a much more potent contributor to global warming in the short term<sup>2</sup>. Many methane reduction strategies target oil and gas operations, which the International Energy Agency (IEA) estimates produce 40% of the world's methane emissions. Among the strategies for reducing the oil and gas sector's methane emissions by 50% within the next 10 years, half allow organizations to either break even or drive positive paybacks<sup>3</sup>.

By pursuing all available methane mitigation measures, it is possible to slow the global mean rate of near-term decadal warming by around 30%, avoid a quarter-degree Centigrade of additional global mean warming by mid-century, and set ourselves on a path to avoiding more than a half-degree Centigrade by the end of the century<sup>4</sup>.

The biggest challenge to reducing emissions globally is the lack of a methane map benchmark for setting priorities and measuring progress. Monitoring and accounting for methane emissions can best be accomplished through direct measurements that enable industries to identify concrete mitigation solutions.

**John Crane, a division of Smiths Group, supports global efforts to address climate change and reach net carbon neutrality by 2050.**

Fugitive methane emissions further complicate the situation. These emissions are not just harmful to the environment; they also represent a financial drain on a company's profits. According to the Environmental Protection Agency (EPA), methane leaks account for 3% to 4% of total gas production; that translates to annual potential revenue losses of up to \$30 billion for the oil and gas sector. Policies that incentivize timely, meaningful action build upon the industry's readiness and its economic interest, providing the most effective pathway to rapid global methane emission abatement.

This paper outlines our approach to curbing methane emissions in the oil and gas sector and other process industries.

<sup>1</sup> United Nations Environment Programme and Climate and Clean Air Coalition (2022)

<sup>2</sup> <https://www.iea.org/reports/global-methane-tracker-2023>

<sup>3</sup> Ilissa B. Ocko et al | Acting rapidly to deploy readily available methane mitigation measures by sector can immediately slow global warming | Environmental Research Letters | Environmental Defense Fund | 2021

<sup>4</sup> United Nations Economic Commission for Europe (2023)

We believe that a combination of ambitious policies, financial incentives and industry action can accelerate progress toward net zero goals.



## Reducing Methane Emissions

Our mission is to enable the oil and gas sector and other process industries to reduce their methane emissions. We believe this can be achieved by helping companies identify the sources of methane emissions and providing them with effective solutions to reduce or eliminate emissions and maximize efficiency.

## Proven GHG Emissions Reduction Solutions

To support our customers' emissions reduction goals, John Crane offers a range of emission management solutions, including technologies such as dry gas seal and wet-to-dry gas retrofit solutions. To accelerate our industry's net zero future, we are also investing in innovative solutions that help operators detect, quantify and monitor fugitive emissions with confidence. Our innovative methane emissions reduction solutions include:

### Dry Seal Technology

Over the last 10 years, John Crane's wet-to-dry upgrades have helped customers reduce approximately 278,000 tonnes of CO<sub>2</sub> equivalent emissions per year. By switching to our dry gas seals, customers can minimize methane leaks and emissions while boosting the reliability of their compressors. These retrofit solutions improve a plant's efficiency and reduce its environmental footprint while significantly cutting emissions.

### Seal Gas Recovery

John Crane is a leader in solutions that prevent leaks and reduce emissions. Centrifugal compressors equipped with tandem Dry Gas Seals (DGS) can utilize Seal Gas Recovery (SGR) to reduce dynamic emissions when there is access to high-pressure motive fluid. By recovering valuable process gas, the SGR enables compliance with the latest governmental and corporate policies on emissions reduction.

## Asset Management Solutions

John Crane's Asset Management team integrates asset management services with environmental best practices.

We work closely with customers to develop mitigation plans that reduce overall emissions across a factory's asset base while maintaining reliability and safety.

Over the last decade, John Crane wet-to-dry upgrades have eliminated approximately 278,000 tonnes of CO<sub>2</sub> equivalent emissions per year.

Every day, customers are making tangible progress on methane emissions reduction using John Crane's proven solutions. To help our customers navigate future sustainability requirements, we are investing in technologies, services and solutions that tackle methane emissions. This includes a broad suite of leak detection and repair (LDAR) technologies. These complement our core solutions, such as wet to dry gas retrofits, seal gas recovery systems, valves and packing solutions.

More than 100 years after patenting our first mechanical seal, John Crane remains a leader in methane abatement solutions. We're committed to leveraging our legacy of technology leadership, innovative solutions and service excellence to power our industry's sustainable future.

**Contact our experts today to explore how our proven GHG emissions reduction solutions can help you achieve your sustainability goals in the new energy era.**



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