



### About this report

Fossil fuel operations generate over one-third of all methane emissions from human activity. Action on methane is th

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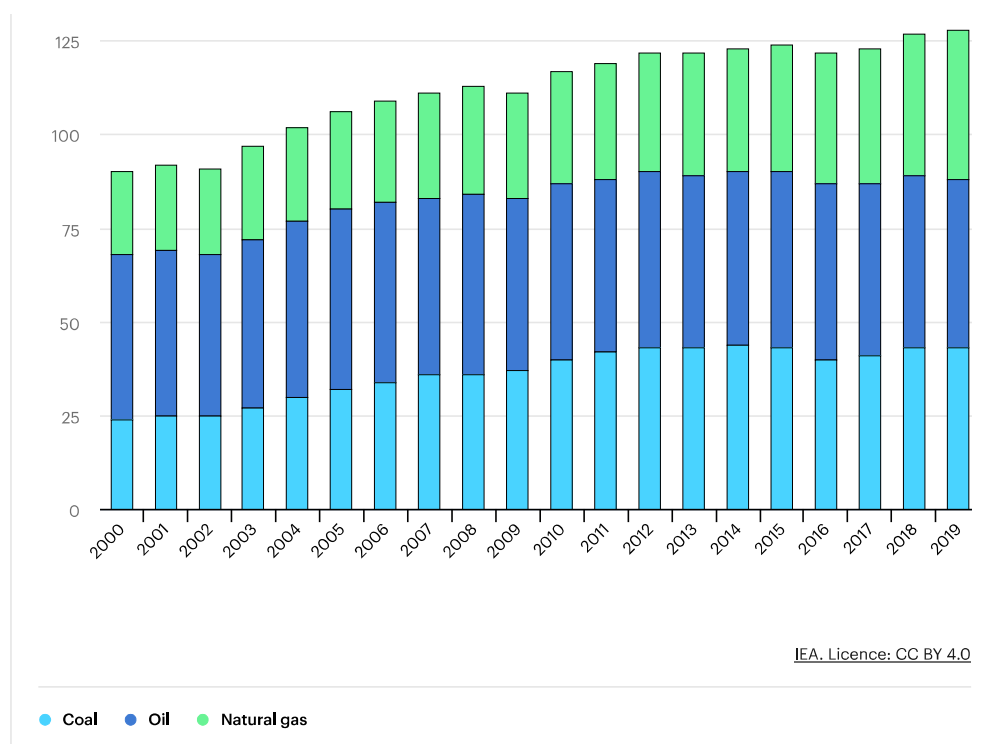
## Methane Emissions

# Methane emissions from oil and gas operations must be the first go

Methane emissions from fossil fuels in the Net Zero Scenario, 2000-2030

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Methane emissions are currently the second largest cause of global warming. They come from a range of anthropogenic and natural sources – in the energy sector, from oil, natural gas, coal and bioenergy. Due to the near-term warming potential of methane emissions, reducing their level will be critical to avoid the worst effects of climate change.

Oil and gas operations are the largest source of methane emissions from the energy sector and there is clear potential to reduce them cost-effectively. Annual investment of around USD 11 billion would be required to mobilise all methane abatement measures in the oil and gas subsectors. Taking average natural gas prices from 2017 to 2021 – before the recent price surge – the annual investment required is less than the total value of the captured methane that could be sold, meaning that related methane emissions from oil and gas could be reduced by almost 75% at an overall saving to the global oil and gas industry.

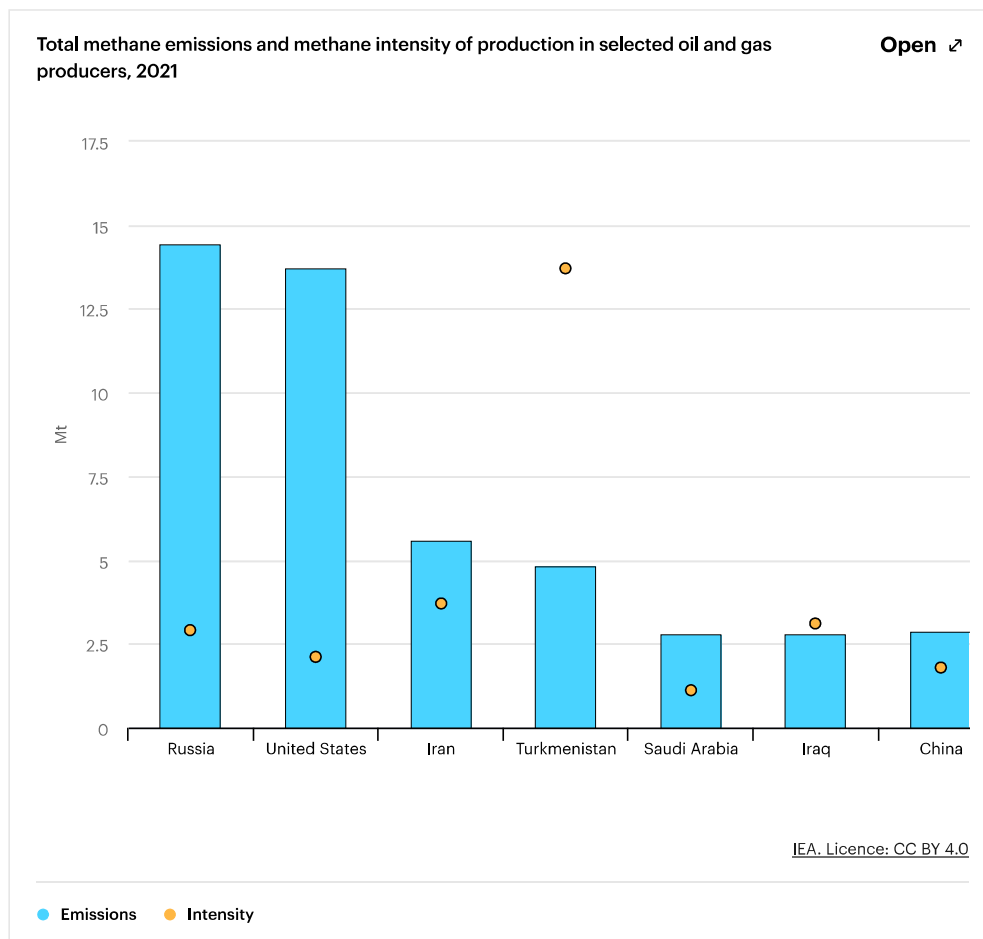
In the Net Zero Emissions by 2050 Scenario, methane emissions decline rapidly in the coming years, fulfilling this abatement potential by 2030. This results mostly from the rapid deployment of emission reduction measures and technologies, which leads to the elimination of all technically avoidable methane emissions within this decade.

## Energy

### Immediate and major reductions in methane emissions are necessary for gas to play a supporting role in energy transitions

In the Net Zero Emissions by 2050 Scenario, oil and natural gas continue to comprise a large part of the overall energy mix to 2030. Natural gas can play a supporting role in the energy transition by replacing more polluting fuels or enabling low-carbon hydrogen production with carbon capture and storage. It may also deliver services that are difficult to provide cost-effectively with low-carbon alternatives, such as peak winter heating, seasonal energy

in methane emissions are central to this.



The IEA [Global Methane Tracker Data Explorer](#) tracks oil and gas methane and provides detailed country-by-country estimates of emissions, abatement technologies, costs and regulation. The intensity of methane emissions currently varies widely across countries that produce oil and gas. If all producing countries were to match the emissions intensity of Norway, the best performing country, global methane emissions from oil and gas operations would fall by more than 90%. Upstream oil and gas operations contribute more than three-quarters of total emissions globally, with the downstream segment accounting for the remaining share. Increased attention to methane abatement in recent years, including new measurement campaigns and technologies, may be having some effect. The estimated rise in oil and gas methane emissions in 2021 leaves them slightly below where they were in 2019, even though overall demand and fossil fuel production are both back above pre-crisis levels.

### Policy

## The launch of the Global Methane Pledge needs to be a watershed moment for accelerated action on methane

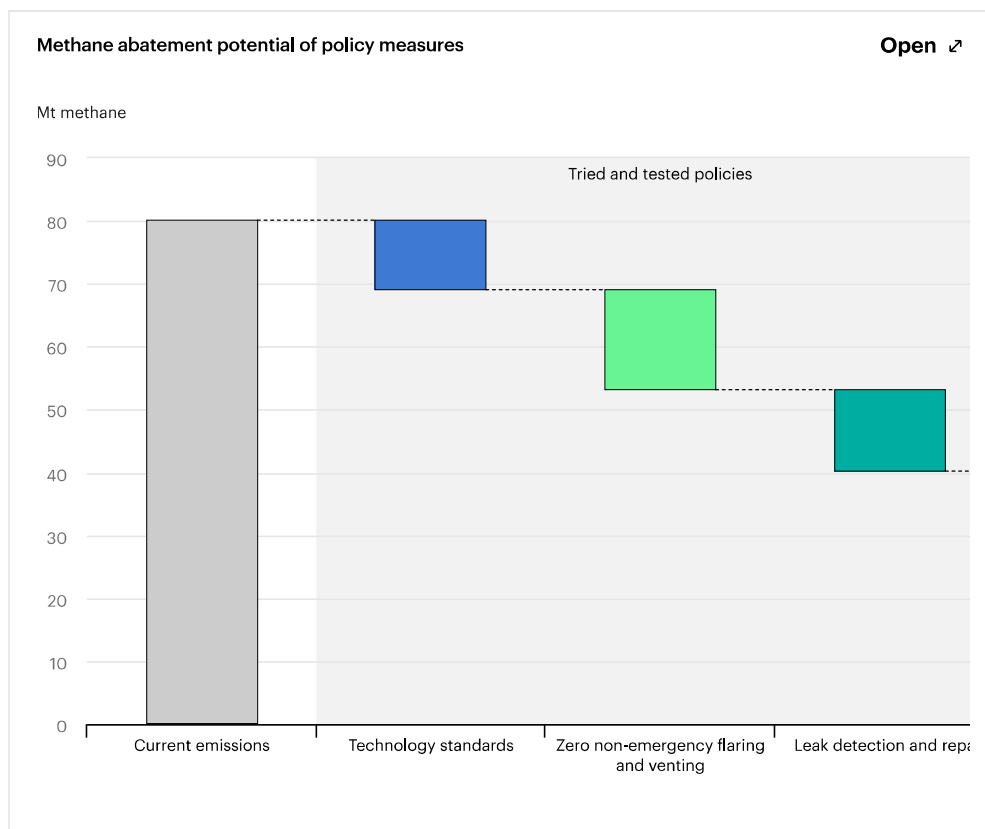
The [Global Methane Pledge](#) was launched at COP26 in November 2021 to catalyse action to reduce methane emissions. Led by the United States and the European Union, the pledge

In order to collectively reduce methane emissions by at least 30% below 2020 levels by 2030. Meeting the Global Methane Pledge target has the potential to make an enormous impact on climate change, similar to the entire global transport sector adopting net zero emission technologies.

As always with climate action, implementation is key. The pledge is non-binding and individual countries are not assigned targets. Some countries may be able to show measurable, verifiable reductions in emissions within a few years, and their progress should be measured by demonstrable reductions. However, it may be several years before most countries can comprehensively track emission reductions with the necessary confidence. Until then, a number of actions could signal progress, such as developing national action plans or strategies, establishing policies and reduction targets aimed at methane emissions, and updating national greenhouse gas inventories and working to improve their quality.

### If all countries adopted tried and tested abatement policies, this would cut oil and gas methane leaks by half

The [International Methane Emissions Observatory \(IMEO\)](#) is an initiative that aims to improve the world's understanding of methane emissions by commissioning measurement studies and developing a public dataset that tracks methane emissions levels and abatement efforts. However current uncertainty over emission levels is no reason to delay action on cutting methane. If all countries implemented tried and tested policies that have already been used effectively in multiple settings, it would cut global methane emissions from oil and gas operations in half. Most standards in this category do not require a robust measurement-based monitoring regime to verify compliance, although a quantification and reporting system is usually necessary. Tried and tested policies include leak detection and repair requirements for fugitive sources, equipment mandates for sources known to emit significant volumes of methane, and measures designed to limit non-emergency flaring and venting.



Our broad reviews of policies and regulations reveal some success stories that other countries can look to for inspiration. The United States and Canada have both implemented tried and tested approaches, although there remains room to strengthen their requirements and expand coverage further. The United States recently approved the Inflation Reduction Act of 2022, which provides incentives for methane mitigation and establishes a tax on oil and gas methane emissions. In 2021, Canada announced a target to reduce methane emissions from the oil and gas sector by at least 75% from 2012 levels by 2030. Norway and the Netherlands have gone the furthest towards adopting a comprehensive regime, as they have robust measurement and reporting requirements, ensure best industry practice, and have economic incentives that encourage abatement action. Actions under the EU Methane Strategy will broaden these efforts across Europe.

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### Private-Sector Strategies

## Voluntary initiatives must work in tandem with policies and regulations to ensure a definitive fall in emissions

In parallel with government action, industry initiatives have an important role in driving rapid cuts and leading abatement efforts. In certain countries, companies may be able to implement emission reductions more quickly than governments, particularly where regulatory capacity is limited. Multiple international oil companies have set targets to restrict emissions or the emissions intensity of production, and many voluntary, industry-led efforts are attempting to reduce methane emissions from oil and gas operations:

- The [Methane Guiding Principles](#) aim to advance understanding and best practices to reduce methane emissions, and to support the development of sound methane policies and regulations.
- The [Oil and Gas Climate Initiative](#) launched the [Aiming for Zero Methane Emissions Initiative](#), which aims for companies to have zero methane emissions from their operations by 2030. It calls for an all-in approach that treats methane emissions as seriously as the industry already treats safety.
- The [Oil and Gas Methane Partnership 2.0](#), an initiative of the Climate and Clean Air Coalition, published a revised [reporting framework](#) to provide a gold standard for companies reporting on methane emissions.
- The [China Oil and Gas Methane Alliance](#) aims to build a platform in the country for technical experience-sharing and co-operation to improve methane emissions control and engage with climate governance.

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### Recommendations for policy makers and the private sector

## Design frameworks that are adapted and tailored to the challenges in view

Policy and regulatory tools should address barriers to action and enable the implementation of new technologies and methodologies. If high-emitting sources have been identified, technology standards can abate emissions even in the absence of a robust monitoring

reporting standards, and initiatives to encourage knowledge-sharing and best practices.

For infrastructure and marketing challenges, governments can introduce requirements at the project planning stage, directly invest in new infrastructure or adopt supportive market policies. If misaligned incentives are a hindrance, policy makers can price environmental externalities, create financial incentives for abatement technologies and remove institutional barriers to investment.

## Form a broad coalition of stakeholders

Countries, companies and investors need to work together to expand action on methane, as it will take a range of complementary efforts to ensure deep cuts in methane emissions. While companies implement and spread best practices in methane management, policy makers can establish strong regulations and engage in diplomatic efforts to encourage all countries to act on methane. The financing sector can join the effort by using transparent systems to provide the right mix of incentives and funds to spur implementation of abatement measures.

More transparency, through satellite detection, better industry standards and other monitoring tools, can facilitate targeted action. Up until now, large emitters have been able to shield themselves from scrutiny by simply not measuring or reporting their emissions. However, as their emissions become more visible with the wider deployment of measurement instruments and greater data availability, public awareness will grow and demand further action. Meanwhile, investors and financiers can take this information into account when making funding decisions.

[Learn more](#)

**Methane Policy Toolkit** [▶](#)

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## Related sectors & technologies

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Oil and Natural Gas Supply

Not on track

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Flaring Emissions

Not on track

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## Analysis

[All analysis](#) ▶

### Global Methane Tracker 2022

Fuel report — February 2022



### Driving Down Methane Leaks from the Oil and Gas Industry

A Regulatory Roadmap and Toolkit

Technology report — January 2021



### Curtailing Methane Emissions from Fossil Fuel Operations

Pathways to a 75% Cut by 2030

Fuel report — October 2021



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