

# Business Case for Methane Emissions Regulation



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Report Authors: Michael Green, Liza Lamanna, and Devika Rao  
Contributions from: Abby Maxwell, Carolyn Pincus, Stephanie Erwin, Jessica Chen, and Marygrace Depp

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# Introduction

Over the past ten years, the American electric grid has decarbonized at a rate that few predicted. Since 2005, the grid has reduced its overall carbon footprint by 35% with a majority of these emissions resulting from the transition of coal burning facilities to natural gas. Natural gas is a cleaner as well as more efficient energy source than coal or oil and has seen a decrease in cost over the past three decades due to increased exploration and increased drilling. However, when you review the full lifecycle, the environmental benefits are quickly erased.

This document highlights opportunities to characterize economic outputs and gains that can be generated through addressing methane pollution. Addressing sources of pollution as well as supporting innovation in its management will spur economic opportunity as well as support a clean energy transition. Strong policy supports communities and businesses interested in advancing sustainable energy solutions and transitioning away from extractive industry status quo which has been overall detrimental to the environment and public health. This business case provides examples of approaches to quantifying these impacts and the benefits for industry action. We also cover various policies and specific industry resources and policies such as the Inflation Reduction Act and Bipartisan Infrastructure Law which unlock new opportunities and resources for Industry to take immediate action.

# Business Case for Methane Policy

**Businesses and supply chains will be directly and negatively impacted by methane without supporting strong policy action and investment.**

Methane is a naturally occurring gas which is used in industrial processes as well as a main ingredient for natural gas used in households across the country. Often, the infrastructure used to extract, store and transport methane is prone to leaking or even intentionally being dumped. As a greenhouse gas, methane has a much higher warming effect than carbon dioxide and leaking facilities are a danger for local public health. By protecting businesses and communities from the negative impacts of methane, policies can also support a transition to a more regenerative and renewable energy system.

Taking action to reduce the impacts of methane will:

## 1 Mitigate climate risks.

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The impacts of climate change on business and the economy are well-documented from extreme weather to disrupted supply chains, changes in consumer spending, and other localized community impacts. Businesses need to focus on a range of different greenhouse gasses, not just carbon dioxide, when understanding their overall environmental footprint. As a greenhouse gas, methane has more than 80 times the global warming potential (GWP) than carbon dioxide over the first 20 years after it reaches the atmosphere. Even though CO<sub>2</sub> has a longer-lasting effect, methane sets the pace for warming in the near term. A recent study by Abernethy and Jackson (2022) found that in the 1.5°C and 2°C 2040 scenarios laid out in the Paris agreement, metrics significantly underestimated the GWP of methane emissions by 67% and 34% respectively.

Businesses are dependent on a stable climate. A recent report from Columbia University found that moderate warming, as predicted by most climate models, could result in over \$500 billion in damages by the end of the century. These costs would be felt through extreme weather, fires, disrupted supply chains and global instability. Any actions to curb super pollutants such as methane will limit the impacts felt in the future.

## **2** Prevent continued harm to local communities and ecosystems.

This pollution has a very real impact on the climate and on the health of communities who live near these facilities. Facilities such as storage tanks, compression stations, and drilling sites emit significant volumes of methane as well as leak other pollution that is toxic to human health and can severely deteriorate air quality. Methane contributes to the formation of ground-level ozone, a dangerous air pollutant, reducing these emissions could also prevent 225,000 premature deaths and 775,000 asthma-related hospital visits. These impacts force higher health insurance premium costs, result in lost productivity and pose a severe health as well as economic risk to those who work and live closest to heavily polluted sites. Other economic risks of continued methane leakage include associated health risks impacting labor participation, consumer spending, and reputational risks for businesses located near sites where methane pollution occurs.

## **3** Reduce pricing uncertainty and market volatility.

The price of fossil fuels is often far outside of a businesses control and spikes due to demand, global conflict, and extreme weather. This issue prohibits businesses from being able to adequately plan for cost and prepare for infrastructure failure.



These costs have direct impacts across the value network of energy production, suppliers, manufacturers, distributors and ratepayers. These costs impact a business's ability to forecast performance and growth. While the transition to natural gas from dirtier sources of energy may have driven the carbon emissions decrease in the past decade, solar, wind, storage and cleaner energy sources have reached cost parity and proven more dependable.

“A study from Deloitte shows that if we stay on our current course, and stick to business as usual, costs could be as high as \$178tr by 2050, whereas staying below 1.5 degrees would result in a benefit of \$43 trillion. Many of the companies who are now actively leading on climate are attracting and retaining great talent, innovating more and performing better.” - **Paul Polman / Climate Voice**

## 4 Regulating the harmful impacts of Methane stimulates investment and innovation.

Currently the total methane market is over \$88B, projected to grow to \$126B by 2026. There is a large addressable market that can directly benefit from investment in efficiency, capture and sequestration innovation and new solutions like the \$2.8 Billion dedicated to the US Department of Agriculture's Climate Smart Commodities program which ASBN is entering into a partnership agreement to support the engagement of cattle and buffalo producers. The industries that are the source of methane pollution, Oil and gas as an example, have a large infrastructure footprint. Reducing methane pollution can be as simple as tightening a valve, but there are millions of oil and gas wells around the world and hundreds of thousands of miles of major pipelines. Using Practices such as mass balancing, or full scale measurements for all input and outputs, should be put into practice to guarantee no loss of methane or other harmful pollutants. Finding and fixing leaks is good business (lost gas equals wasted money) and can be done through new technologies and markets which generate new jobs and economic opportunity.

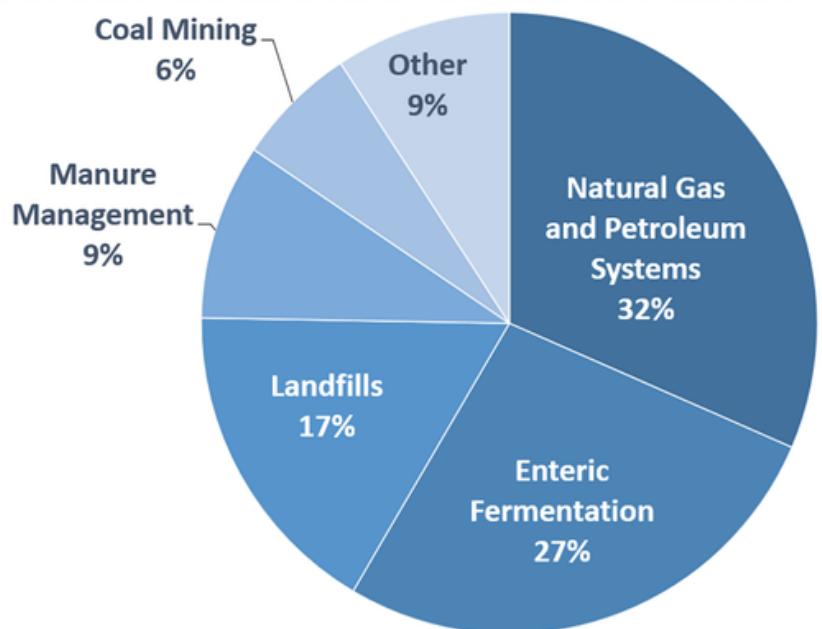
# Tackling Methane is More than Just Fixing a Leak

Methane, a product of extractive industries, has not been appropriately managed to date. The dominant sector practices of releasing the gas through flaring or other means externalizes the damaging costs onto communities and nearby businesses. Finding innovative uses for the fuel can not only start to address the issue but also spur opportunities for business development and growth. A report by EDF found that many of the technologies that stand to benefit from regulating methane are manufactured by domestic firms. In fact, nearly 70 percent of the companies in our burgeoning methane mitigation industry are small businesses.

The three industries with the largest emission are agriculture, energy and industry, and waste. The figure here shows these broken down into more specific sources. The Agriculture Industry is one of the largest anthropogenic methane emitters, mainly attributed to factory farming and cattle through *Enteric Fermentation*. Commercially, the energy sector is the largest contributor making it the sector with the largest potential for reduction in the United States.

*Enteric Fermentation: the fermentation that takes place in the digestive systems of animals creating methane as a byproduct*

2020 U.S. Methane Emissions, By Source



U.S. Environmental Protection Agency (2022). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2020

Source: *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2020* (excludes land sector)

Both energy and agriculture are critical industries to the US economy and are increasingly aware of their methane footprint. More efficient, regenerative and sustainable choices are increasingly available. Although some voluntary commitments have been made, further regulated efforts are needed to drive innovation and adoption to meet ambitious methane reduction targets set out by the federal government.

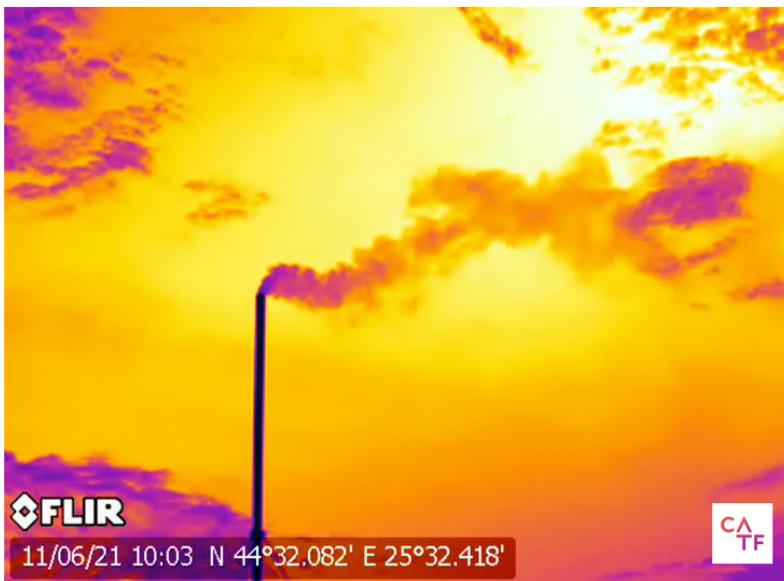


Image: "Vent Stack", Clean Air Task Force

Despite the initial costs of upgrading infrastructure and fixing existing leaks, there are long term business, investor and economic benefits of cutting methane production. In the fossil fuel industry, methane can be released through leaky infrastructure, such as pipes. Fixing leaky infrastructure has a simple solution, since producers are incentivized to fix leaky technology as they will ensure good resource management that otherwise would

have been wasted. Most of these costs from lost methane are actually pushed on to the consumer as a part of the delivery charge, forcing the customer to pay for poor infrastructure. Reducing leakage is also in the best interest of the companies who manage the infrastructure. The Obama administration noted that industry [in the U.S] could increase revenues by \$188 million yearly while also reducing the level of greenhouse gasses. Leaking gas is also a health and safety risk for businesses on the receiving end, and increases operational risk throughout the value chain of a company. There have been recent studies that will be discussed later in this document that uncover these critical factors.



While methane reductions would have real planet and health impacts, it also makes real business sense to capture and use methane. Statistics show that the leaking rate from oil and gas operations is 2.3%, or enough to fuel 10 million homes. In 2021 alone, the global oil and gas industry wasted \$19 billion of natural gas due to methane emissions. As a result of these emissions, the climate impact of the oil and gas industry is greater than the combined impact of every gas-powered passenger vehicle on the planet. Much of this leaking comes from gas storage facilities, liquid natural gas operations, and gas pipelines all that could be avoided by repairing or replacing faulty equipment.



Image: "Broken Emergency Vent Pipe", Clean Air Task Force

Across sectors, abatement measures vary widely in terms of cost for abatement, feasibility, and ease of implementation. This has generated a wide net of new companies looking to support industry action through technical applications. As such, mitigating methane emission pollution is a leading opportunity for job creation. A wide and steadily expanding range of skills are required, from field technicians to chemical engineers to data scientists. Due to the pervasiveness of the challenge, these are jobs that have a wide variety of applicability and can support a just transition away from the current harmful practices within the industry. Based on McKinsey analysis, implementation of these technical solutions in aggregate would require \$250 billion in capital upfront but could lead to savings of \$20 billion to \$40 billion in annual operating costs per year making for a meaningful return in the initial investment.

Reducing emissions is not the only opportunity for job creation as both tracking and measuring emissions will need many new businesses to address this very dispersed challenge. There are over 900,000 oil wells and 6,000 coal plants and mines across the United States which will need to continue to be measured and reported. Energy production is not alone as it is also hard to measure emissions from across the full lifecycle of most agricultural products. New firms are stepping up to the opportunity to provide tracking, measurement and reporting technologies. Further investment can drive regenerative practices and further regulation will increase these businesses' market and future opportunities.

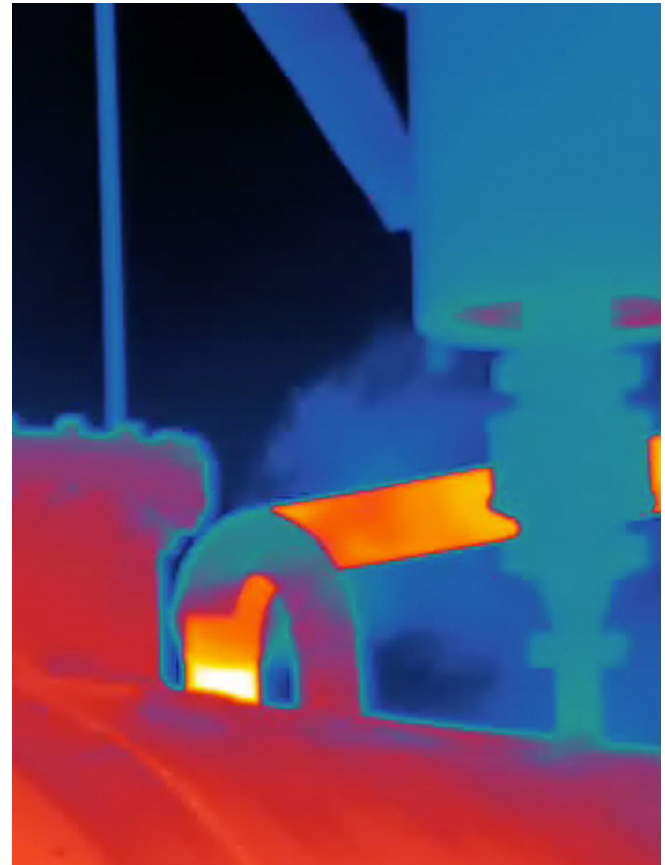


Image: "Venting from a Separator", Clean Air Task Force

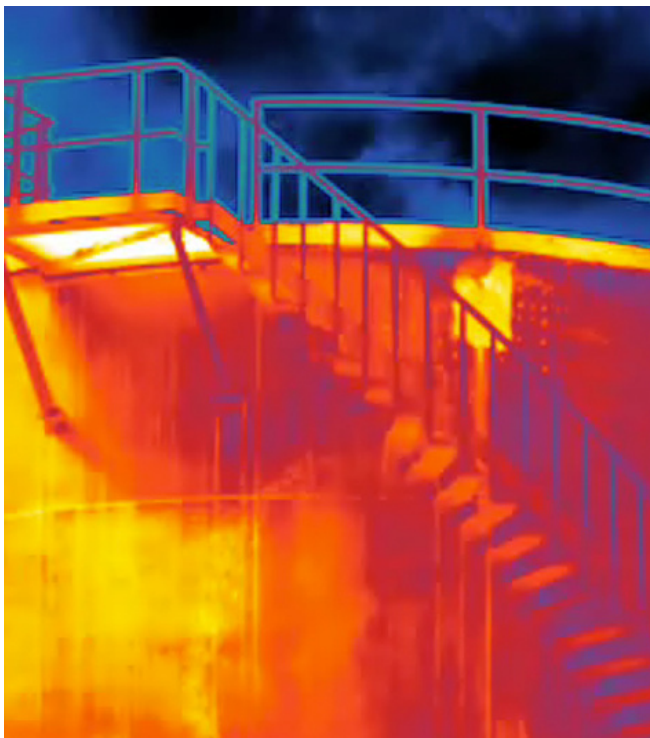


Image: "Hole in a Tank", Clean Air Task Force

These cost saving updates come at a time when oil and gas prices are soaring, increasing expenses on industry. Businesses are currently spending an unprecedented amount on energy, which is inherently not ideal for business. Additionally, price volatility and pricing out of the marketplace are both operational and reputational risks. In addition to these reasons, alongside efficiency, driving down and eliminating methane leakage serves to reduce operational cost, reputational risk, allows pricing to remain competitive and provides additional innovative opportunities to drive investments for capturing methane.

# Methane and Agriculture

As one of the leading sources of methane emissions, removing pollution from the agricultural sector is a persistent and dispersed challenge to tackle. ASBN believes policy must be introduced to support a transition to regenerative practices that mitigate against the various drivers of this challenge. The upcoming Farm Bill, USDA action, investors driven initiatives, and other regulatory authorities should foster the transition away from concentrated animal feeding operations (CAFOs.e. large confined operations) that heavily pollute air and water quality and towards regenerative livestock production. Regenerative livestock production improves soil health and sequesters carbon dioxide that research has shown can offset methane produced by cattle. The manure, rather than undergoing anaerobic digestion in manure lagoons that release methane, is decomposed into components that are integrated into the soil.

However, while there continue to be CAFOs, regulations (or emission taxes, etc) need to be put in place to reduce methane emissions through the implementation of technologies like methane digesters. Technical assistance can be provided for CAFOs to implement these technologies, however, long lasting regulation will push a more permanent and widely adopted practice than just an incentives based approach.

# Dangers to Human Health and Environment

Methane is a potent greenhouse gas and attributes to nearly 20% of the planet's warming. Even though this is the case, methane is a relatively under the radar issue and when it is in the news, it is usually for horrific and often tragic events. As an extremely volatile gas, it has exploded buildings and homes across the country and is a growing risk as faulty infrastructure continues to age and not be adequately addressed.

Catastrophic events are not the only risk as long term exposure also can cause concern. Often, methane is accompanied by other toxic and carcinogenic gasses that are unregulated in trace amounts. These pollutants are able to infiltrate aquifers and cause harm to local air and water quality across the country. Methane is a key component of ground-level ozone (smog) and is directly linked to increased exposure in areas in close proximity to high-polluting industries. Long-term exposure to ozone can lead to inflammation and allergic responses connected to respiratory mortality and increased risk of cardiovascular diseases as well as reduced agricultural productivity. Ozone formed from human-caused methane emissions causes approximately 500,000 premature deaths globally each year. Poorer minority communities are more likely to live in close proximity to oil and gas facilities making them disproportionately impacted by these health risks.

# Methane Policy Background

Methane policy targets three of the main sectors contributing to methane pollution: agriculture, landfills, and fracking and drilling. The United Nations Environment Programme (UNEP) identified the energy sector as the area with the largest potential for reduction in the U.S. because of the low or no cost solutions that already exist making it the main focus of policy. The biggest emissions tend to come in random, unpredictable ways, which means policies should support proactive action and regular monitoring as some of the best reduction strategies.

Methane is released into the atmosphere from almost every step of the fracking process. The policies regarding fracking provide economic consequences to emissions. For example, [HR.4084](#) and [S.645](#), the Methane Emissions Reduction Act of 2021, opt to levy a fee on the polluters. Those fees then are used as grants from the Fish and Wildlife Service. Many states have similar fracking-based laws, that provide polluters economic incentives to transition to safer practice and contribute to the overall push toward renewable energy sources. .

Another means of reducing emissions is to ban fracking altogether. This is the approach of New York State with the establishment of the [moratorium on fracking](#). The Empire State has banned fracking [due to the health and economic implications associated with the process](#), including contamination of the water supply and air pollution.

The Biden Administration introduced Executive Orders upon taking office and set an initial framework for agency review of emission sources and where the EPA can take stronger action under the Clean Air Act. This initial draft rule was subsequently updated to include coverage over smaller wells with leak-prone equipment. While individually they may be dwarfed by large industrial leakage, in aggregate they pose a major issue. The subsequent rule should also address major pollution events from super-emitters (such as animal feed lots or oil and gas wells) as well as equipment failures.



In the coal mining industry The Coalbed Methane Outreach Program (CMOP) is working to identify and implement ways to utilize methane that would otherwise be emitted into the atmosphere. This improves mine safety and productivity by reducing the risk of methane explosions, and generating revenues, and greatly reducing mine ventilation costs.

Congress has joined the President by passing one of the largest policy initiatives in this area to date through the 2022 Inflation Reduction Act. In the IRA there is a Methane Emissions Reduction Plan. This program, targeted at the oil and gas industry, will expand and update methane emissions tracking and creates a fee for facilities emitting above set levels. These fossil fuel companies leak or deliberately vent 13 million metric tons of methane into the atmosphere during oil and gas operations, which, according to a study, is 60% more than the Environmental Protection Agency (EPA) has estimated.

While the IRA is a huge win for methane reductions, it still requires the EPA's subsequent rulings to address additional persistent sources of pollution. In the agriculture sector, policies have been introduced to support tracking, voluntary partnerships, and incentive programs such as the AgSTAR program which provides technical assistance to farms looking to create biogas recovery systems to reduce methane emissions from livestock waste. Similarly, to address landfills the EPA has rulings to require reporting and biogas recovery system programs such as The Landfill Methane Outreach Program (LMOP). These programs are covered in greater detail in our initiatives section below.

# Initiatives

As discussed in the above section on policy, most initiatives focus on the oil and gas industry as it has the most promise for achieving goals in the near future. The United States has a history of advancing technologies and techniques in methane emission reduction but those efforts must continue and expand if we are to mitigate the effects on climate and human health in a timely manner.

## Federal Policy Initiatives

### **U.S. Methane Emissions Reduction Action Plan**

The U.S. Methane Emissions Reduction Action Plan was established in November 2021 by The Biden-Harris Administration, through the National Climate Task Force as a whole-government initiative to cut pollution from the largest sources of methane emissions, cut consumer costs, protect workers and communities, maintain and create high-quality, union-friendly jobs, and promote U.S. innovation and manufacturing of critical new technologies. The plan targets reductions in the oil and gas industry emissions, landfill emissions, and Agricultural Emissions.

### **The Inflation Reduction Act (IRA) and Bipartisan Infrastructure Bill**

One of the largest policy initiatives in this area to date is the 2022 Inflation Reduction Act. The Inflation Reduction Act pledged \$1.55B towards methane reduction through EPA grants as well as funding to clean up old oil extraction sites. This adds on to the large investment in site rehabilitation made by the Bipartisan bill passed through congress. In the IRA there is a Methane Emissions Reduction Plan. This will require the EPA to charge oil and gas sources reporting above a certain amount of emissions starting in 2024. Additionally, the EPA will be revising the Greenhouse Gas Reporting Program to ensure that reporting is based on empirical data and accurately represents the methane emissions from the applicable facilities. This will also expand the sources that have been historically covered by EPA methane rulings.

## **DOE Awards \$35 Million for Technologies to Reduce Methane Emissions**

Part of the Advanced Research Projects Agency-Energy (ARPA-E) program “Reducing Emissions of Methane Every Day of the Year (REMEDY),” this funding has the goal of developing technologies that will reduce methane emissions in the oil, gas, and coal industries through projects that can be easily replicated and commercialized quickly. This program is targeting three methane production sources.

1. Exhaust from natural gas-fired lean-burn engines are used to drive compressors, generate electricity, and increasingly repower ships.
2. Flares required for the safe operation of oil and gas facilities.
3. Coal mine ventilation air methane (VAM) exhausted from operating underground mines

Twelve teams were selected to address more than 50,000 engines, 300,000 flares, and 250 mine shafts that are producing methane emissions.

## **Domestic Partnership Programs**

### **The AgSTAR Program**

The AgSTAR Program was created by the EPA, U.S. Department of Agriculture, and the U.S. Department of Energy to promote the use of biogas recovery on farms by providing technical assistance to farmers looking to create anaerobic digestion systems.

### **The Coalbed Methane Outreach Program (CMOP)**

CMOP was created by the EPA to collaborate with coal companies and related industries to trap and use methane being emitted instead of continuing to release it. This program successfully improves mine safety and productivity, and generates revenues and cost savings.

### **The Landfill Methane Outreach Program (LMOP)**

Similar to The AgSTAR Program this voluntary initiative works with landfill to capture landfill gas (LFG) and market it for conversion into biogas for several different energy sources.

## **The Natural Gas STAR Program**

The Natural Gas STAR Program provides partners with a framework for documenting their voluntary emissions reduction and to implement methane reductions. Additionally, partners commit to evaluate and implement cost-effective methane emission reduction opportunities and communicate and share that information across their corporation and with the Natural Gas STAR Program.

## **Global Compacts**

### **Climate and Clean Air Coalition (CCAC)**

Established in 2014 by the UN Environment Programme, the Climate and Clean Air Coalition brings together governments, NGOs, and other stakeholders to reduce short-lived climate pollutants. The United States is a founding member and will serve as a co-chair until the end of its term in 2023. The coalition serves as a platform for assessing progress in the reduction of short-lived climate pollutants to share resources and accelerate action. The CCAC partners adopted the Mineral Methane Initiative to promote a significant methane reduction in the oil and gas industry. This initiative set ambitious reduction goals that will be supported through the following four projects.

1. The Global Alliance to Significantly Reduce Methane Emissions in the Oil and Gas Sector by 2030 (The Global Methane Alliance)

The Global Methane Alliance was established by CCAC to support countries in their methane reduction targets. All countries that join the alliance, the U.S. included, commit to either absolute methane reduction targets of at least 45% by 2025 and 60% to 75% by 2030 or to a “near zero” methane intensity target. International organizations and NGOs will provide technical assistance and policy support. Participating oil and gas companies will share knowledge, technologies, and best management practices. These efforts are further supported by the other programs within the Mineral Methane Initiative.

## 2. Oil and Gas Methane Partnership (OGMP) under the UN, EU, and the Environmental Defense Fund

The OGMP was established in 2014 as a voluntary program that is led by the UN Environment Programme (UNEP), the European Commission (EC), and the Environmental Defense Fund (EDF). It provides a protocol for companies to mitigate methane leaks from nine sources in upstream oil and gas operations. In 2021, the OGMP 2.0 reporting framework, a standard measurement-based methane-reporting framework, was created to improve the accuracy and transparency of reporting in the industry. Applied to the whole fuel supply chain, this framework encompasses methane emissions from midstream transportation and downstream processing and refining that frequently get overlooked in reporting. Over 60 companies, representing more than 30 percent of the world's oil and gas production, have already joined this partnership. This is one of the key sources of data used in the International Methane Emissions Observatory.

## 3. International Methane Emissions Observatory (IMEO)

The International Methane Emission Observatory was launched at the G20 summit to create a comprehensive global public dataset of methane emission levels and sources that will ensure there are no gaps in the data. Currently, a majority of data is generated from generic emissions factor-based calculations that have been shown to underestimate actual emissions. By connecting credible, full supply chain data with the action being taken in research, reporting, and implementation, IMEO allows countries and businesses to identify key opportunities for reduction.

## 4. Oil and Gas Climate Initiative (OGCI)

The Oil and Gas Climate Initiative is an industry-led effort that brings together almost 30% of the world's oil and gas production to accelerate the industry's response to climate change. Members invest over \$7 billion every year into low-carbon solutions and work collaboratively to meet their targets.



# Conclusion

While methane and natural gas have created a promise as an energy source, it is not a long term solution. The American Sustainable Business Network believes the U.S. must work actively to reduce its greenhouse gas emissions and to transition away from an extractive economy through public policy and strong regulation that will push private investment and foster greater innovation. The development and implementation of meaningful policy that supports control technologies, cleaning up retired extraction sites and supports a just transition to sustainable energy sources will deliver the greatest long-term economic and job creation benefits. While methane will undoubtedly remain a byproduct of domestic energy, agriculture and the other sectors outlined in this document, it must not be allowed to inflict lasting harm on the nation's economy, environment, communities, and public health. Our national priority must be to incentivize investment in clean energy technology and put policies in place that support the measurement, reporting and repair of harmful supper pollution sites.

## About the American Sustainable Business Network

*American Sustainable Business Network (ASBN) is a movement builder in partnership with the business and investor community. ASBN develops and advocates solutions for policymakers, business leaders, and investors that support an equitable, regenerative, and just economy that benefits all – people and planet. As a multi-issue, membership organization advocating on behalf of every business sector, size, and geography, ASBN and its association members collectively represent over 250,000 businesses across our networks. ASBN was founded through the merger of the American Sustainable Business Council and Social Venture Circle. [www.asbnetwork.org](http://www.asbnetwork.org)*

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Contact Michael Green, [mgreen@asbnetwork.org](mailto:mgreen@asbnetwork.org)