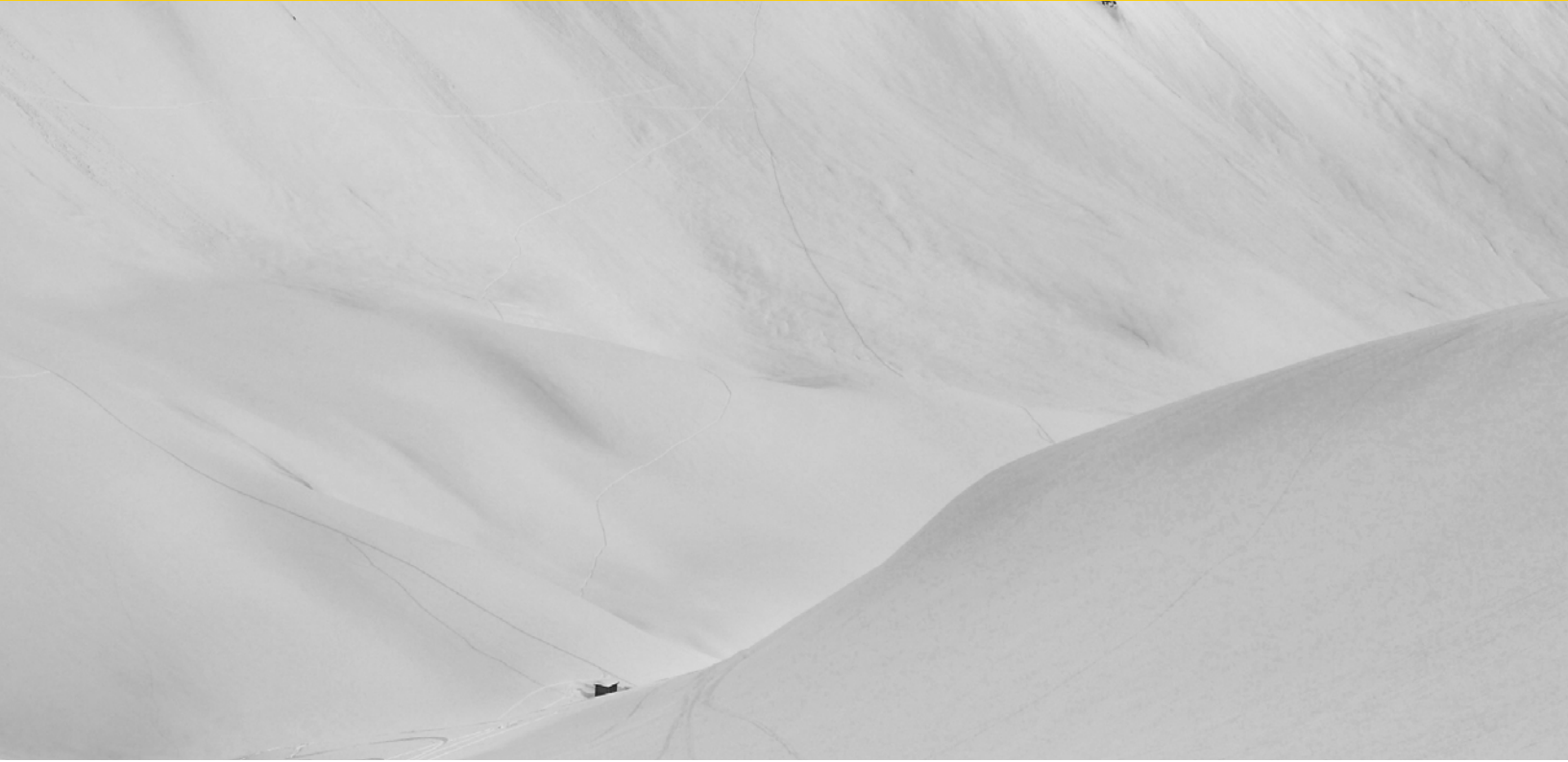




PROJECT CANARY UPSTREAM GUIDE



Four Reasons Responsibly Sourced Gas Reverses Headwinds for Upstream Operators and Helps Drive a Sustainable Future

EXECUTIVE SUMMARY

Headwinds tied to sustainability concerns and environmental, social, and governance (ESG) reporting are challenging the upstream gas business model and market. Investors and lenders are looking beyond primary financial data to make informed investments and evaluate risks and returns. What's more, pressure from downstream customers, policymakers, and employees for environmentally sustainable energy means upstream gas businesses must adopt best practices and push the needle forward even more as the economy moves toward decarbonization.

This guide helps operators quantify the risks, take action against the headwinds and build a competitive advantage by creating confidence in natural gas as a sustainable, decarbonization-compatible energy solution. It explores the benefits operators can harness by rigorously tracking methane emissions data, being transparent with the data, and adopting best practices to eliminate emissions.

By adopting a best-in-class, responsibly sourced gas production approach, upstream gas businesses can give stakeholders confidence in their sustainability and ensure their future success as part of a sustainable energy future.

What Does Responsibly Sourced Gas Mean to Downstream Customers?

No one knows their product better than upstream gas businesses themselves. But it's important to consider how the customer market defines responsibly sourced gas (RSG). When announcing its commitment to source more RSG, Southern California Gas defined it as natural gas procured from suppliers that proactively manage methane emissions across their entire gas supply chain.

RSG markets grew substantially in 2021, with 20% of U.S. natural gas certified as RSG.

However, not all RSG is certified with the same rigor and fidelity. While RSG standards are nascent and evolving, there is a strong push to ensure only the highest standards of certification carry the RSG moniker, rather than being based on repackaged methane estimates that simply meet current regulatory standards.



Surveying the Headwinds Demonstrates Sustainability Is an Upstream Business Imperative

Many of the most substantial headwinds facing upstream gas businesses swirl around the global push to reduce greenhouse gas (GHG) emissions to fight climate change and public awareness of related methane emissions. Those headwinds come in different forms depending on the stakeholder group, but they all point to the need for verifiable lower-methane RSG production.

Policy and Regulatory Headwinds

Upstream gas businesses have been very familiar with the existing methane regulations on well operations in place since 2015. However, the Environmental Protection Agency is pursuing a new methane rule called the “Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources,” which would expand methane regulations to — among other things — cover methane from older operations. The rule is one front in the Biden administration’s effort to make good on a stronger greenhouse gas emissions reduction target under the U.N. Paris Agreement. The new target aims to cut U.S. GHG emissions by 50%-52% from 2005 levels by 2030, and the commitment includes intentions to cut methane by capping wells and stopping leaks.

While the administration’s Build Back Better bill failed in Congress, reports suggest a new climate bill with a methane fee is gaining traction in a pared-down version of Build Back Better that has enough congressional support to become law.

The federal government isn’t alone in taking action. Nearly 40 states and U.S. territories have set goals to reduce GHG emissions, with states such as California, Colorado, Massachusetts, New Jersey, New York, and Washington committed to 100% clean energy or net-zero emissions from the power sector.

While the focus is often on power utilities, gas utilities face similar goals and pressures, which reverberate to upstream producers. In Massachusetts, the Department of Public Utilities issued an order to open an investigation into the future role of gas utilities in light of the state’s 2050 net-zero greenhouse gas emissions goal. California and New York have proposals under consideration to eliminate the use of natural gas in new construction, and Washington is considering a new construction proposal that would essentially ban gas appliances.

Investor Headwinds

In recent years, there have been a massive shift of investor money into environmental, social, and governance (ESG) funds. ESG funds now account for 10% of worldwide fund assets, with assets under management surging to \$649 billion as of November 2021, up from \$285 billion in 2019. In response to the rising investor interest, the U.S. Securities and Exchange Commission (SEC) has launched a series of efforts to review climate- and ESG-related disclosures to ensure they provide adequate information. This includes a new Climate and ESG Task Force in the SEC’s Division of Enforcement.

In addition, support for ESG proposals at shareholder meetings rose to 32% in 2021, from 21% in 2017, according to the Sustainable Investment Institute. These proposals included a landmark board challenge against oil and gas exploration and production major Exxon Mobil, which could foreshadow future challenges for oil and gas producers.

Creating a reinforcing cycle of ESG-based activism, the stock prices of companies with highly rated sustainability efforts have outperformed the broader market, up 22% in 2021 compared to 15% for the broader market.

Taken as a whole, these trends prove that simple ESG disclosures are no longer enough. Companies will need to track annual improvements and comply with the Sustainability-Linked Bond Principles. Meaningful sustainability measures are now a requirement to maintain investor support.

Customer Headwinds

Downstream gas businesses have their ESG commitments to meet, driven by similar stakeholder pressures. Finding suppliers that can help them verify these commitments and their net-zero progress will become a business imperative for many gas distribution utilities. Examples of a shift in downstream demand toward RSG include:

- Xcel Energy, in a November 2021 announcement, said it would reduce methane and CO2 emissions from its natural gas operations by 25% by 2030 on the way to net-zero emissions by 2030. It plans to do this, in part, by buying natural gas only from companies whose operations are certified as low emitting.
- Southern California Gas, in its 2045 net-zero climate commitment, said, “By 2025, we plan to increase procurement of responsibly sourced gas,” which it defines as natural gas procured from suppliers that proactively manage methane emissions across their entire gas supply chain.
- Puget Sound Energy, in its “Beyond Net Zero by 2045” report, said it aspires to transform its natural gas distribution business through “renewable natural gas, new technologies, and policies that enable transformation while supporting reliability and affordability for PSE customers.”

The pressure is now moving upstream. In 2021, The Wall Street Journal reported on several midstream and upstream gas companies going to great lengths to limit methane leaks and quantify emissions because of international pressure from buyers.

Employee Headwinds

Numerous studies show that the rising generation of employee talent wants to work for businesses with a genuine commitment to ESG in solving societal challenges like climate change.

One PwC study found that 84% of employees said they are more likely to work for companies that stand up for environmental issues. A Marsh McLennan study found that companies scoring the highest on employee satisfaction and attractiveness to talent have significantly higher ESG scores than their peers.


Marsh McLennan predicts that ESG performance will become increasingly important to attract and retain talent as millennials and Generation Z come to make up most of the global workforce. For upstream gas businesses, that means status quo operations will result in a talent drain that only makes it harder to compete and remain viable.

How Upstream Gas Can Demonstrate Net-Zero Performance

These challenges have left many in the gas industry feeling bleak about the future. But there is a path upstream operators can and must take now to beat those headwinds and create a sustainable future.

The solution is to scale up ESG commitments and produce the highest standard of responsibly sourced gas. For well operators new to the RSG journey, the path includes undergoing an environmental assessment and certification process to reap market benefits, continuous monitoring and measurement to harness the power of data and analytics for operational benefit, and quantifying emissions intensity for regulatory benefit. Done correctly, these measures will meet the expectations of today and the enhanced expectations around the corner.

We'll explore the four key ways upstream producers should signal that gas from their wells meets the highest RSG standard. They are:

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- Differentiate your product.
 - Eliminate risks.
 - Improve operations with tangible data from tracking.
 - Tell a story that wins over doubters.

REASON 1: DIFFERENTIATE YOUR PRODUCT

RSG certification is not just an audit to verify that production meets the regulation-mandated minimum. A differentiated advantage is not about just checking a box.

Differentiation needs demonstration. It is about validating that your company measures and mitigates emissions and demonstrates that your business goes above the status quo to produce sustainable gas across several vital dimensions – air, water, land, and community impacts. Then, it's about showcasing your annual progress with reliable, high-fidelity data that earn stakeholder trust.


Downstream gas utilities are looking for gas supplies that help them meet their ESG commitments and satisfy customer demand for sustainable energy. RSG certification is an external validation that provides access to the quickly growing RSG market, including 20% of the gas supply in 2021. A trusted certification differentiates the product even more by giving gas utilities and their customer's confidence and certainty about the product.

REASON 2: ELIMINATE RISKS

When an operator engages in an assessment and certification process that covers every wellbore – rather than less rigorous estimate-based approaches – it creates risk-eliminating benefits. This is accomplished through proven engineering, monitoring, and measurement solutions and working with certification professionals who understand operations, engineering best practices, and pain points that significantly impact methane emissions.


This sort of rigorous process assesses whether an operator has successfully eliminated or effectively mitigated operational and environmental risks affiliated with air, water, land, community, and engineering.





For example, a holistic Project Canary assessment and certification for one upstream gas producer in Colorado identified water use as an acute risk in the water-scarce region. The business reduced costs, protected the region's water supply and created a community benefit for farmers, who needed a lot of the available water supply to grow food.

REASON 3: IMPROVE OPERATIONS WITH TANGIBLE DATA FROM TRACKING



We live in the measurement economy. International corporations and individuals have started measuring progress using real-time data and analytics. Car insurance companies collect data on how people drive to calculate premiums. Oura rings calculate a person's readiness score based on biometrics and sleep patterns. Nest thermostats share how your home energy consumption measures up versus your neighbors. There's an onslaught of data-driven information to tap into. With IoT-enabled devices, upstream gas businesses can capture, process, and analyze data in real-time to measure and improve their operations using Project Canary's environmental assessments and high-fidelity Continuous Monitoring. This software-as-a-service solution delivers data to a custom dashboard.

Decarbonization begins with accurate data. For something as meaningful as creating an environmentally sustainable product that fights climate change, the best measurement and monitoring solutions are essential. The old way of estimating methane leaves well operators blind to risks and often simple ways to improve operations. Fortunately, technologies and methods to monitor and measure emissions at the well exist. They can be deployed quickly, and operational benefits that go beyond just reducing emissions will quickly follow.

A Project Canary Certified RSG is the most rigorous standard, so the story you're shaping for all stakeholders includes verifiable, fact-based data. Your story becomes one of leadership and confidence in the energy economy. Everyone loves a hero's journey; yours can be about a business undergoing dynamic improvements and doing the hard work to make natural gas an affordable energy solution within a sustainable future.

Upstream gas businesses face an urgent need to prove to regulators, investors, employees, and customers that they are serious about ESG. When they tell a credible ESG story through certification and data, it creates a competitive advantage.


One example that clearly illustrates the value of transparent and measured data is the development and implementation of FracFocus, the national hydraulic fracturing chemical disclosure registry. While the upstream industry was facing significant environmental pushback on hydraulic fracturing, operators took the unusual step of completely disclosing all information and using factual data to create transparency and overcome doubts. Their data and transparency helped halt the growing momentum to ban a game-changing process to produce gas.

Project Canary's Approach to Maximizing the Benefits of RSG

To harness the benefits of rigorously certified RSG, upstream gas businesses need a trusted partner to take action.

Project Canary offers environmental assessments, certification, ESG data and analytics, and emissions intensity quantification at every well site to help upstream gas businesses demonstrate the sustainability of their operations.

- **Environmental Assessment:** Project Canary evaluates localized air, water, land, and community impacts through a comprehensive review of environmental risks associated with a well's location and evaluation of customer-provided documentation to suggest risk-mitigation efforts. A qualitative and quantitative audit includes site visits, asset-level life cycle assessments of environmental impacts, and a robust examination of hundreds of data points.
- **Facility-Level Certification:** The TrustWell certification program from Project Canary is an independent assessment grounded in oil and gas engineering standards and best practices for the upstream sector. The certification process ensures that operators understand, monitor, and mitigate the specialized risks relative to their operations. It also addresses practices throughout the organization by thoroughly reviewing the policy, plan, and execution levels. Importantly, TrustWell contains both dynamic and static components so clients can measure and evaluate performance continuously. Continuous monitoring is a significant competitive advantage and a necessary practice to work toward real-time methane intensity measurements.
- **Measuring and monitoring for value-added data and analytics:** Site-level quantification of emissions through measuring and monitoring allows upstream gas businesses to lead with a traceable value chain. This means an accurate emissions profile created by



calculating actual emissions, not unmeasured estimates that have proven to be vastly underestimated. The data and accompanying third-party validation from Project Canary create transparency that gives markets and regulators confidence in a company's emissions reporting. Field teams need this 24/7 data to address fugitive emissions on the operations side. Project Canary's models provide actionable data, allowing field operators to quantify and attribute emissions volumes at the equipment group level.

Businesses that stand by the status quo of reporting methane emissions using estimates put sustainability in a can and kick it down the road. Project Canary is granular and pad level, compared to competitors that only complete infrequent basinwide spot checks. The process is rigorous and comprehensive to prove to stakeholders that natural gas is a viable, sustainable energy solution. If changes aren't made today, the challenges and risks for operators grow, and the inaction contributes to the narrative that is threatening gas' future share of the energy market. Project Canary provides the means to make operations sustainable and the integrity to validate your work so that natural gas isn't sitting on the sidelines of the sustainable energy future.

Reverse the Headwinds and Take a Leadership Position. Your Competitors Won't Be Able to Catch Up in the Future.

The headwinds will remain for upstream gas businesses that delay action and resist transparency. Action cannot be avoided, and the longer your business waits, the more risk that it'll

be too late for your company and the industry. But by taking action now, you can overcome the tsunami of headwinds the gas industry is facing today and ensure a sustainable future — for your business and society.

Recently named a Top 10 Innovator in the Energy Transition space by Darcy Partners, Project Canary offers a diverse team of engineers and industry experts and brings a deep commitment to practice the ESG principles we preach. We are on a mission to create a path for natural gas throughout the energy transition during a time of climate action.



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