

Drilling Down

Why metrics matter in climate accounting?

In this edition of KPMG Global Energy Institute's Drilling Down, we asked KPMG's Blockchain Leaders Tegan Keele and Pravin Chandran, to discuss the value of a climate accounting infrastructure in the oil and gas industry.

The imperative for producers is to mitigate emissions in the near term. What challenges are leaders facing—and how can they advance towards a low-carbon future?

A central challenge for oil and gas (O&G) companies is measuring, analyzing, and proving their existing efforts to reduce greenhouse-gas emission.

The context is familiar to leaders in the industry: investment in reducing greenhouse-gas emissions, but limited success satisfying stakeholders.

Look at just one of the big challenges facing the industry—methane leakage. Many players have upgraded and retrofitted pneumatic controllers and other equipment to address the issue. But they lack comprehensive and trusted data to prove the results.

O&G companies are investing in advanced sensors and piloting other technologies—drone and continuous monitoring systems, for example—to detect leaks as they occur, whether it's offshore or on terrain that's difficult for personnel with measurement devices to access. Efforts to fully develop IoT networks are going to progress over the next three to four years. As a result, O&G producers should have much more data to measure their emissions with greater precision and accuracy. But where does all of this data go—and are the actions taken based on the data being communicated effectively to regulators, customers, and investors?

We believe that all the pieces of the puzzle should be brought together in a way that provides a clear picture of a company's emissions. Data should be objective, easy to compare, and build confidence in O&G companies: Stakeholders can see that producers are actually doing what they said they would do. This is where KPMG Climate Accounting Infrastructure can help.

How does the climate accounting infrastructure support greenhouse gas mitigation?

KPMG Climate Accounting Infrastructure is a convergence of technologies—IoT, cloud, machine learning, and blockchain—that enables O&G companies to capture, measure, and verify emissions data that all interested parties can trust. Combined, these technologies give producers the capability to demonstrate in detail, back to the original emissions, that they have managed and reduced greenhouse gases. KPMG Climate Accounting Infrastructure uses cloud computing to store large volumes of data from O&G production systems. With machine learning, it supports rapid ingestion and advanced analysis of emissions and related data.

The data lives on the blockchain, which provides full traceability, allows third-party certifiers to access sensitive data, and enables producers to prove they have reduced their emissions. If companies made progress reducing their methane intensity, it will be “visible” right there in the data via a advanced visualizations.

Now it has opened up an opportunity. From a business perspective, companies can monetize their efforts and results. To prove reductions in emissions, it can create a higher-quality, differentiated “green” gas that could sell at a premium. At the same time, it can demonstrate to those who care about sustainability—customers, regulators, governments—that your processes and products adhere to environmental and sustainability standards.

Speaking of governments, environmental standards differ around the world—and, in the U.S., they are becoming more stringent under the new administration. How are producers to adjust?

Europe and many countries in Asia are moving very aggressively toward the use of low-carbon LNG. The French government recently put on hold indefinitely a \$7 billion long-term deal with an American LNG developer because it did not think the gas was produced in a responsible manner, given the easing of standards in the U.S.¹ It comes down to this: If the U.S. producers want to maintain access to global markets, they will have to meet a higher standard. What those higher standards will be is unknown right now, but writing is on the wall. The Biden administration is also acting quickly through executive orders. We'll soon see efforts to enact climate-change legislation. We don't know what the administration will do, but the barrier is surely to be raised in the U.S. That makes climate accounting critical from a compliance-risk perspective alone.

We also expect more and better ways of measuring methane to be reviewed and approved by the EPA and other agencies. At that point, our climate accounting infrastructure provides a trust anchor to generate reporting. Producers can show data lineage. Combined with KPMG Climate Accounting Infrastructure, our experts can help advise producers on specific actions to help meet new regulations.

Capture and storage is one of the strategies being deployed to address greenhouse gas emissions. How does climate accounting enable those efforts?

The business case for climate accounting in capture and storage efforts is clear. Part of a producer's journey toward reduced emissions—and eventually net zero—involves sucking up carbon. Detecting and demonstrating positive results enables you to tell a story of progress.

One large U.S. producer, for example, is investing in a large capture and storage plant that will remove up to 1 million metric tons of CO₂ from the atmosphere annually,² or the equivalent of over 112 million gallons of consumed gasoline. In terms of capture, it's equivalent to the amount of carbon sequestered by

1.3 million trees.³ Yet it's unclear how many people are going to trust such efforts if producers don't have the capability to collect data at the level of granularity and fidelity required to report their progress publicly.

One potential benefit of measuring emissions more precisely is greater visibility into operational issues, including leaks or malfunctions. In a recent event, a large carbon-capture plant had not been working properly through faulty equipment. A climate-accounting approach using various detection methodologies may have identified the issue earlier.

What impact can climate accounting have revenue and costs?

Launching a differentiated gas product is only possible through climate accounting and the existence of trusted certification models, which are in place or emerging. A differentiated gas—one that is certified as a low-carbon or low-methane product—could bring price premiums of up to 10 percent. This could have a significant impact on financial results for some of the large producers. In the world of LNG, the price premium for green products can be as much as 20 percent.⁴

In terms of costs, switching from traditional detection methodologies to an advanced technology, with drones and satellite imagery in the mix, can unlock savings. The cameras alone can cost USD \$124,000 and that does not include variable expenses, such as a technician's time and travel to individual wells. This process can cost USD \$124,000 per well, per unit of production.⁵ You can extrapolate from that figure to see how it adds up. Placing sensors across operations and gathering the data into our climate accounting capability could reduce cost, significantly improve detection and help companies demonstrate their ability to quickly remediate leaks.

Now consider compliance risk from existing and potential new regulations both in the U.S. and abroad. Avoiding penalties—and potentially benefiting from incentives—may be critical to success in a marketplace that is fundamentally shifting to address climate change. Advancing digital transformation is an imperative of the highest order because, among other capabilities, it can enable the precise

¹ Reuters, "France halts Engie's U.S. LNG deal amid trade, environment disputes," October 22, 2020. <https://www.reuters.com/article/engie-lng-france-unitedstates/france-halts-engies-u-s-lng-deal-amid-trade-environment-disputes-idUSKBN27808G>

² Reuters, "Occidental-backed company will build new CO₂ removal plant," August 19, 2020. <https://www.reuters.com/article/us-usa-carboncapture-dac/occidental-backed-company-will-build-new-u-s-co2-removal-plant-idUSKCN25F1VN>

³ United States Environmental Protection Agency, Greenhouse Gas Equivalencies Calculator. <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

⁴ S&P Global Platts, "US industry turns to 'responsible' natural gas to fetch premium price." April 5, 2019. <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/040519-us-industry-turns-to-responsible-natural-gas-to-fetch-premium-price>

⁵ Environmental Defense Fund. "Economic Analysis of Methane Reduction Opportunities in U.S. Onshore Oil and Natural Gas Industries," page D-15. March 2014. http://www.edf.org/sites/default/files/methane_cost_curve_report.pdf

measurement of emissions and the generation of insights that prompt effective action. KPMG Climate Accounting Infrastructure is a mechanism within this transformation for producers to demonstrate on a trusted platform how they manage and mitigate greenhouse gas emissions. It can provide the transparency and trust.

More on the journey to low carbon

Some O&G companies have already started down the path to net zero with a bold vision and a plan to reach it. They may plan to offer differentiated gas products, and they have a strong belief in the value to be gained by reducing the underlying carbon intensity of their products. They are responding to the demands of their

customers and regulators. If that's the case, KPMG firms can help start a pilot program to deploy climate-accounting technologies.

For companies in the earlier stages of reducing their journey toward decarbonization and net zero, our experts can assist you in developing a broader strategy. We can also focus on differentiated gas and look at your emissions volumes; we'll utilize public data, satellite imagery, and other sources to score your carbon footprint; we can make recommendations on reporting and disclosure processes. We'll help you decide whether you have an immediate opportunity with [KPMG Climate Accounting Infrastructure](#) or fundamentally need to invest more operationally to prevent the leaks.

About the KPMG Global Energy Institute

The KPMG Global Energy Institute (GEI) is a worldwide knowledge-sharing forum on current and emerging industry issues. Launched in 2007, the GEI interacts with over 43,000 members through multiple media channels, including audio and video webcasts, publications and white papers, podcasts, events, and quarterly newsletters. Subscribe today to begin receiving valuable insights covering critical business topics and industry issues by visiting the [KPMG Global Energy Institute](#).

Contact us



Tegan Keele
U.S. Blockchain Lead
KPMG in the U.S.
E: tegankeele@kpmg.com



Pravin Chandran
Blockchain Lead for Energy
and HCLS
KPMG in the U.S.
E: pravinchandran@kpmg.com

Some or all of the services described herein may not be permissible for KPMG audit clients and their affiliates or related entities.

home.kpmg/socialmedia



Throughout this document, "we," "KPMG," "us," and "our" refers to the global organization or to one or more of the member firms of KPMG International Limited ("KPMG International"), each of which is a separate legal entity.

The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act upon such information without appropriate professional advice after a thorough examination of the particular situation.

© 2021 Copyright owned by one or more of the KPMG International entities. KPMG International entities provide no services to clients. All rights reserved. NDP160638-1A

KPMG refers to the global organization or to one or more of the member firms of KPMG International Limited ("KPMG International"), each of which is a separate legal entity. KPMG International Limited is a private English company limited by guarantee and does not provide services to clients. For more detail about our structure please visit home.kpmg/governance.

The KPMG name and logo are trademarks used under license by the independent member firms of the KPMG global organization.