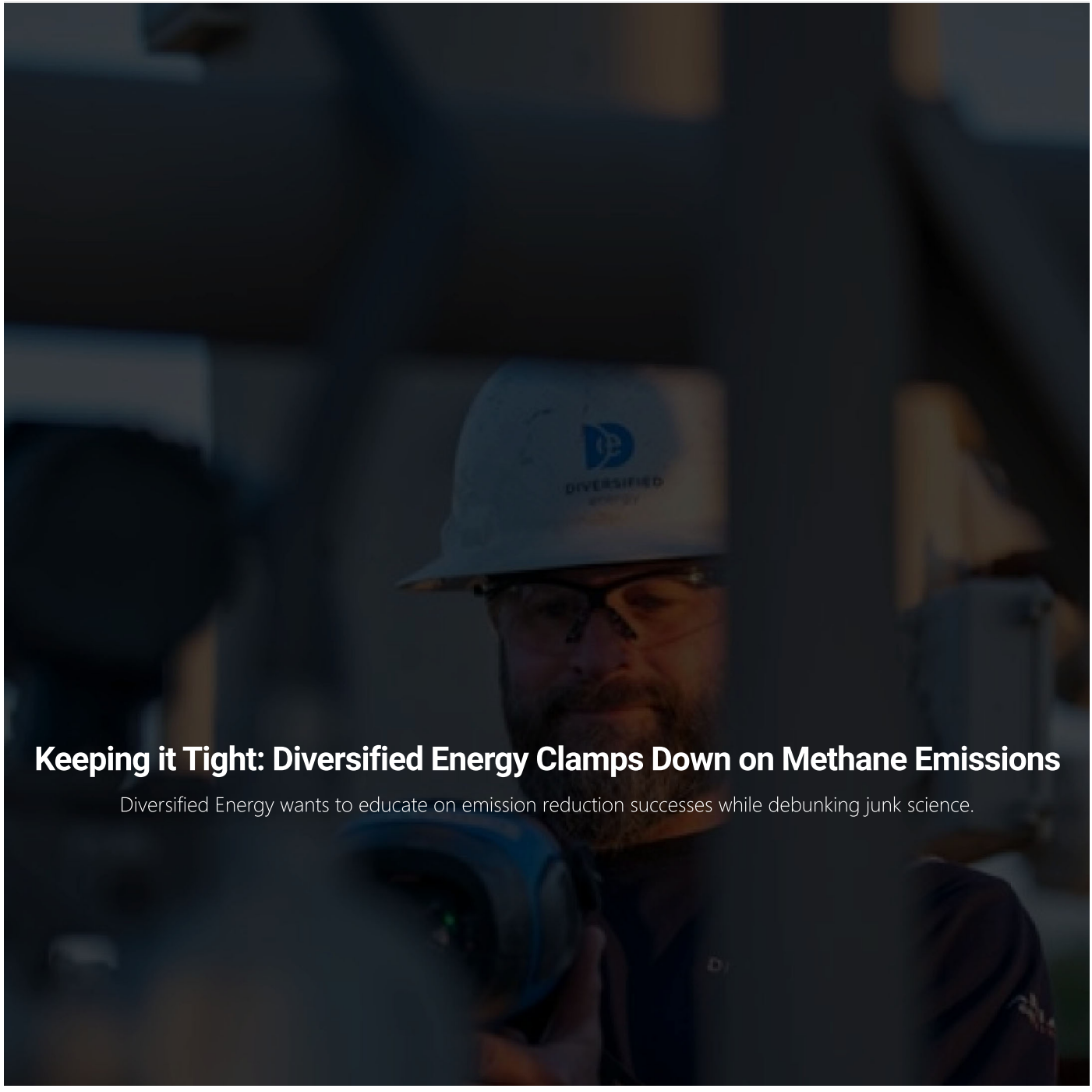
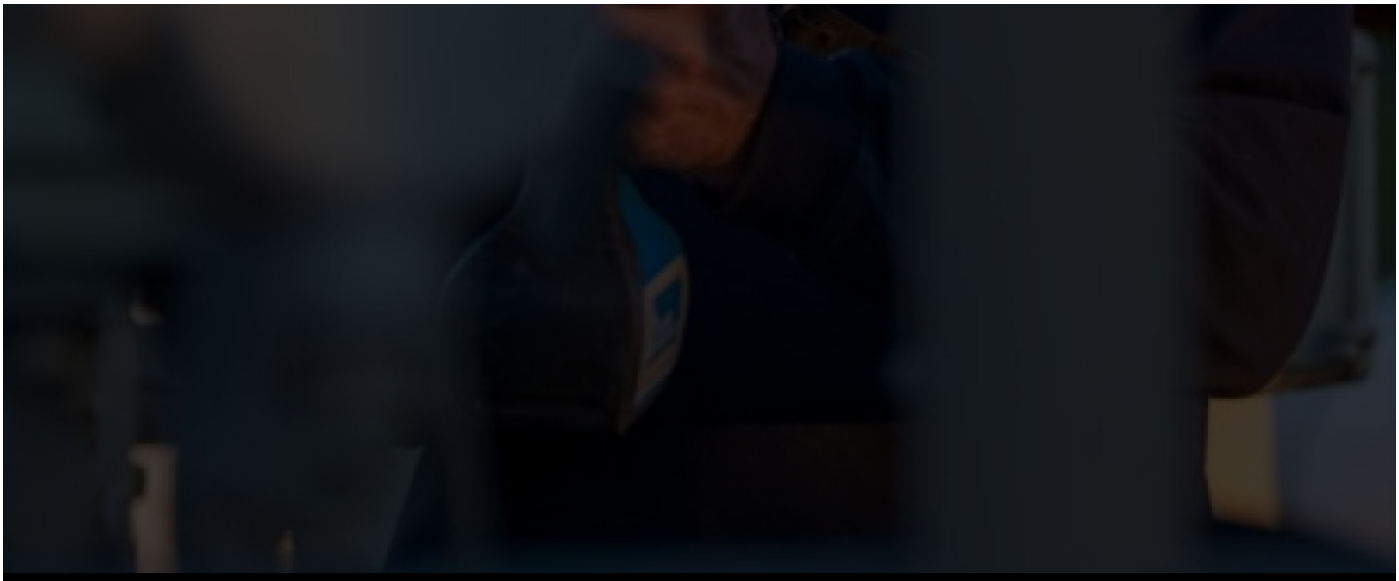


# Keeping it Tight: Diversified Energy Clamps Down on Methane Emissions

Diversified Energy wants to educate on emission reduction successes while debunking junk science.



Diversified Energy says it made about $7 million in investments in 2023 to lower emissions, mainly in additional upstream and midstream fugitive emission leak detection and repair, natural gas-driven pneumatic replacements, and compression conversion and elimination. (*Source: Diversified Energy*)

**By Velda Addison** Hart Energy

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When it comes to taming the so-called super pollutant, methane, all eyes are on the oil and gas industry as regulators roll out new rules.

The U.S. Environmental Protection Agency (EPA) has set standards to lower emissions from high-emitting equipment and mandated monitoring of methane leaks from well sites and compressor stations. The federal regulator has also required companies, among other directives, to eliminate routine flaring of natural gas—primarily made of methane—produced by new oil wells. Plus, they must switch to zero-emitting technologies and ditch natural gas-powered pneumatic controllers, which are responsible for a substantial amount of the industry's methane emissions.

Publicly traded companies are also in the crosshairs of the U.S. Securities and Exchange Commission, which narrowly passed rules requiring disclosure of climate change related information in their filings. A federal appellate court, however, imposed a temporary stay on the rules pending a judicial review amid legal challenges.

The year is bringing change for oil and gas companies, including Alabama-based Diversified Energy, an active M&A player with tens of thousands of wells across parts of the U.S. Its production mix is about 97% natural gas and NGL.

"There's so many things in flux. We just need to reevaluate what our next targets are," Paul Espenan, senior vice president of environmental health, safety and risk management for Diversified Energy, told *Oil and Gas Investor*. "We're still focused on methane reduction. We have methane reduction projects that are moving forward, and so we're not stopping."

Diversified reached its 2030 target to reduce methane intensity by 50%, compared to its 2020 baseline, ahead of schedule. The company reported in April a methane intensity of 0.8 metric tons of $CO_2$ equivalent (MT $CO_2e$) per MMcfe. Its absolute Scope 1 methane emissions dropped 39% to 420,000 MT $CO_2e$, compared to 686,000 MT $CO_2e$ in 2022. The company said it conducted about 246,000 voluntary emission detection surveys with about a 98% no-leak rate on companywide surveyed assets.

Tools in its kit include leak detection and repair (LDAR) equipment such as optical gas imaging (OGI) cameras and the Teledyne FLIR GT-44 handheld gas detector, Bridger aerials for methane detection for midstream assets, measurement technologies, predictive analytics and one of Espenan's favorites—Xplorobot, which makes a 3D digital model of an inspected asset and provides measurements if emissions are detected.

Espenan and Teresa Odom, senior vice president of sustainability for Diversified, shared additional insight on the company's methane emissions efforts.

(*Editor's note: This interview was edited for length, clarity and style.*)

Paul Espenan, senior vice president of environmental health, safety and risk management, Diversified Energy. (*Source: Diversified Energy*)

**Velda Addison: Diversified Energy has a business model that differs from most other oil and gas companies, focusing on "acquiring existing long-life, low-decline producing wells, and at times their associated midstream assets" to improve production, optimize operations, increase efficiencies and reduce emissions. What challenges, if any, does this model pose when it comes to mitigating methane emissions, especially from acquired assets?**

**Teresa Odom:** I wouldn't see it as a challenge. Paul may feel differently, but we see it more from the perspective of, because of that business model, we're not out there drilling very capital-intensive brand new wells with larger emissions. What we're trying to do is focus on the wells that we already have and make those wells as efficient as possible from a production and an operations standpoint, but also from a responsible stewardship environmental performance standpoint. And to that end, that's exactly what the methane emissions activities that we're doing are.

**Paul Espenan:** We have the same challenges on methane reduction that everyone else does. Ours are certainly of a large scale.... We made a very bold decision a little over two years ago to make every single one of our well tenders and operators an LDAR technician and arm them with the tools they needed to do that. From a logistics standpoint, somebody travels to a location, finds a leak and then—under many models—ties a yellow piece of ribbon around that leak and then waits for somebody else to come and fix it. Our model says: You're going to show up at that location. You're going to look for leaks, and you're going to fix them right away before you leave. When we did that, we obtained a 98% tight rate. In other words, when that operator left that location in 2023, 98% of those locations were leak free. So that's a challenge for everyone. We're ahead of the pack in terms of what we like to say making leaks rare by land and air.

Diversified Energy says it reduced its methane intensity by 33% in 2023, compared to 2022, to 0.8 MT CO2e/MMcfe and exceeded 75% of its 5-year goal for pneumatics conversions. (*Source: Diversified Energy*)

**VA: Pneumatic devices in particular have been singled out for contributing significantly to emissions from oil and gas operations. What methods and technologies are the company using regarding pneumatic devices?**

**PA:** Once upon a time, folks didn't really do what I would call a hard inventory of their pneumatics. They didn't make sure that they knew exactly what was out there, and not just what was out there but the make, the model, the function, the how far does the stroke in it travel? How often does it actuate? There's all these characteristics that you can get on your pneumatics. Only then, can you calculate your emissions and find out where the highest ones are. Then, target those for elimination.... It's extremely hard work to get all that data in there, get it cleaned, get it understood. Then and only then you can strategize on it.... We're working more this year on converting from using natural gas to compressed air. And, we're evaluating other technologies like nitrogen and chemical reactions to control those emissions, rerouting them or just eliminating them.

Teresa Odom, senior vice president of sustainability, Diversified Energy. (*Source: Diversified Energy*)

**TO:** Being able to understand that and then measure it is a whole lot different when it comes to your emissions profile than using default factors that the EPA is requiring us to use, which are outdated and overstated. So, it's significant for us to be able to fully understand and appreciate what our inventory is, what we have in our inventory before we start the process of conversion, elimination, whatever the next step may be.... Our well tenders are effectively the owners of those wells in a sense that they know what that well does now, should do, can do, needs to do better, and we empower them to make the decisions around those wells for repairs, for getting things done. I think that's a little bit of a different business model for us, too. Whereas, before, if it's a low-producing well, and these other developers are more interested in, to Paul's point, sort of a shinier penny, making that new well happen and not necessarily the old one, then the well tenders for those older wells are maybe not necessarily empowered. That's not where they want to spend the money. We're the opposite. We take those wells and we make them core in our portfolio, and then we empower those well tenders.

**VA: When you detect these emission events, are they typically fairly simple to fix and inexpensive? Can you talk about more about the cost associated with solving some of these emissions events?**

**PE:** They are very fixable. They are something that an operator could just make a visit and resolve pretty easily. Most of the time they don't really cost much to fix, if anything. Sometimes it's just a simple malfunction.

**VA: Are there any best practices for emissions reduction you would highlight for others?**

**PE:** No. 1, have a detailed inventory. No. 2, understand how everything fits together. No. 3, when you do your LDAR, make sure that it's fit for purpose. For example, the RMLD [remote methane leak detector] laser device does really good in windy conditions. This little handheld sniffer [GT44], not so much. Also, the OGI camera doesn't do so well in windy conditions. So, when you're planning how you're going to find leaks, it's very important that you look at the environment and that you look at the asset and the characteristics of an asset.

I'll give you one more example. We have some areas where we have to use acoustic imaging. It listens for the sonic signature of a leak. It's ultrahigh pitched, probably beyond what the human ear can hear. We use that in environments where you might have some background methane concentrations because of normal operations. In a compressor building, you're going to have some expected emissions of methane from a packing or a valve or packing on a compressor. To find a leak in that environment, you've got to use something that is just going to hear the leak as opposed to try to measure it. The point is this: fit-for-purpose LDAR, then focus on elimination.... Do you really need that pneumatic? Is there another way you can do it? The last one is measurement. Don't use theoretical or factors if you can help it. Measure, measure, measure, measure, measure.

**VA: The focus is high on emissions with intense scrutiny, including on Diversified, with December's Congressional committee inquiry. Plus, satellites are watching and others are gathering data. How to control the narrative? Is that even possible? What is your strategy?**

**PE:** It's about education. You get a congressional inquiry, and you use that as an opportunity to tell your story. And that's what we do really well. Once people find out all the work we're doing and how we're leading, they say, "Oh, gee, why did we even ask?" There's so much misinformation out there.

With satellites, when you increase distance, you decrease accuracy. When you decrease the frequency of making observations, you decrease accuracy. Even the EPA themselves said satellites cannot be used for reporting of emissions. They aren't good enough yet. But yet people persist. Hardly a week goes by without an article that says such and such about oil and gas being emissions higher, and then you look down in there and you say, oh, they didn't even peer review this. There's junk science out there.... We have to be the voice of education.

**VA: What is your favorite emissions detection tool to use out in the field?**

Diversified's suite of handheld emissions technologies includes the Teledyne FLIR GT-44. Well tenders survey wells across the company's operating areas. (*Source: Diversified Energy*)

**PE:** All of them. It's really hard to pick. But the one that we've really gotten a lot of benefit from is the Semtech Hi-Flow 2 and another one spotlighted in our sustainability report this year is Xplorobot. We partnered with them last year to do a series of field trials. I feel strongly, and I'm going to geek out here on you, that this technology has the ability to leapfrog camera-based OGI at about half the cost and provide a digital twin, a 3D model, at the same time.

So why is that important? Look, if you're a LDAR technician and you had a fight with your wife last night and you didn't get much sleep, and then you come to work and you're looking at that camera looking for leaks. The quality of that is only as good as you are that day. If I have this laser-based OGI device, I could teach you or anybody in five minutes how to use it. And the quality of that would be 100% perfect because the machine does all that. There's no subjectivity left in it. So, I'm excited because it shows if you have a leak exactly where it is, how much it is, and then shows you—this is the important part—where you didn't have a leak, and it has a digital record of where you didn't have a leak. In this adversarial world we live in, being able to show where you were tight is important because otherwise he says, "hey, you got a leak. How long has it been going on?" Well, here's the paper trail.... We've got a level of technology that is going to be independent of the inspector.

**VA: Is there anything else you want to speak on or share?**

**TO:** At the end of the day, our goal is to keep those gas molecules in the pipe. We want to keep them in the pipe because we want to get them to a sales point, and we want to get them to meet the energy demand that's out there. From everything that we see, it's just a growing demand, so it's in our best interest. It's in the climate's best interests. It's in our neighbor's best interest when we can meet their energy demands, keeping that in the pipe. So that's what we want to do.

**PE:** We've been educating as many people who will listen. I took time last year to participate in a series of workshops to educate smaller operators on everything we've learned, everything we just finished talking about. Other operators presented too … just trying to share what we've learned and to help them to get better. So, it isn't just about us getting better, it's about us helping others to get better.… We're [also] actively collaborating with a lot of vendors in the development of their products and have played a part in perfecting their products. Why do I bring this up? It's not just about us. That's it.

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**In this article**

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Velda Addison is the senior editor of digital media for Hart Energy's editorial team. She covers energy with a focus on renewables and the energy transition.