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# Energy ESG 2.0: The Evolution of a Megatrend

The concept of ESG in the energy sector continues to evolve amid increasing backlash as discussion around energy security takes center stage.

ARTICLE BY  
FAIZA RIZVI

The practice of ESG investing dates back to the 1960s when it was termed “socially responsible investing.” Over the years, transformation of topics such as climate change and social inequity have changed the business environment, driving the evolution of ESG risks and opportunities for organizations.

For the energy sector, which is increasingly under the spotlight of climate change activists, the concept of ESG has evolved from “nice to have” to “must have.” Boards of directors, shareholders and regulators demand to make ESG considerations central to business operations. But now, as the oil and gas companies face the dual challenge of addressing energy shortage and a compelling climate agenda, the discussion around ESG has taken a new turn.

While energy companies have taken meaningful steps toward achieving ESG goals, increasing concerns of energy security have given rise to ESG backlash in recent months, with many complaining of burdensome reporting, compliance costs and growing regulatory scrutiny of corporate or investment fund “greenwashing.”

So, what’s next for the three-letter megatrend?

“ESG will continue to evolve as shareholder and other stakeholder priorities change and as pressure from government agencies and activist shareholders continues to mount,” Travis Wofford, partner at Baker Botts, told Hart Energy.

ESG has already succeeded in acquiring the mindshare of boards of directors and management teams at many institutional investors and large public companies, Wofford noted, adding that the U.S. Securities and Exchange Commission’s (SEC) new disclosure rules will give rise to more ESG activism.

“New SEC disclosure rules will increase transparency and scrutiny of business operations and governance and will lower the cost of ESG activists to seek board representation instead of just making

**“ESG will continue to evolve as shareholder and other stakeholder priorities change and as pressure from government agencies and activist shareholders continues to mount.”**

—Travis Wofford, Baker Botts



Scan to watch an exclusive interview with Travis Wofford.





shareholder proposals," Wofford said, adding that ESG activism will continue to "flourish and be well-funded."

### 'Stronger than ever'

While many U.S. oil and gas companies have stated that ESG has taken a backseat amid energy security concerns, Appalachian-focused operator Diversified Energy Co. Plc's ESG commitment is "stronger than ever," according to company CEO Rusty Hutson, Jr.



**"We have a zero-tolerance policy for unintended emissions and this year, we're investing additional capital to prove it."**

—Rusty Hutson, Jr.,  
Diversified Energy Co. Plc

"Our company was resilient through the pandemic and like so many sectors of the economy, the energy industry is facing supply chain and worker shortages, higher costs to operate and an administration that says it wants to encourage increased production while continuing to pursue policies that have the opposite effect," Hutson said.

"But that doesn't mean that our commitment to ESG has fallen to the wayside. In fact, it's stronger than ever at Diversified, and I think that's probably the case industrywide," he added.

Over the past four years, Diversified Energy has purchased about 69,000 used wells, beating Exxon Mobil Corp. to become the largest well owner in the country. Despite the calls to produce more, Hutson noted that his company is incorporating ESG into its business model with heavy investments in emissions management.

"We have a zero-tolerance policy for

unintended emissions and this year, we're investing additional capital to prove it," Hutson said.

Diversified is spending \$15 million over its budget on emission reductions initiatives, including aerial detection, increased asset retirement initiatives, and equipment conversions and replacements.

Hutson noted how his company's approach of acquiring noncore producing wells, investing in their production and retiring them "responsibly" checks all the ESG boxes.

"Our approach to acquire noncore—often ignored—producing assets, invest in those assets to modernize them, improve production and enhance environmental performance and then responsibly retire those assets at life's end touches all key aspects of E, S and G," Hutson explained.

"Environmentally, we're producing more energy from a smaller footprint and with fewer emissions. Socially, we're taking assets, improving production,





**“Oil and gas companies are finding themselves on the brink of ‘ESG 2.0’ where the line between purpose and profit is dissolving and companies look to identify the best ESG strategies to promote value creation.”**

—Nicole Robertson, Nokia

which means more revenue and royalties, and investing in communities. Governance, we’re responsibly operating and retiring assets that, in some situations, may have otherwise become abandoned,” he added.

According to Hutson, ESG reporting, investing and sustainability-linked financing is “absolutely here to stay—and for good reason,” adding that ESG action makes “good business and environmental sense,” because it makes the business stronger and grants access to new pools of capital.

“One thing that the industry is making abundantly clear is that ESG is not a separate aspect of our operating processes but is embedded in how we do business, and that’s especially true for Diversified,” Hutson said.

### Understanding the ESG story

Specific to the energy sector, understanding the social purpose of energy companies, which enables virtually all aspects of modern life, is critical to understanding their ESG story, Baker Botts’ Wofford explained.

“The energy industry must better articulate its social value so that policymakers and institutional investors can facilitate and enhance that benefit to the public and not create artificial constraints on energy production and innovation,” Wofford noted.

For example, recent trends show that ESG-led shifts of capital investment away from hydrocarbons led to unintended social consequences. Under-capitalized energy companies result in reduced hydrocarbon supplies, which in the face of growing demand leads to higher prices, fuel shortages, inflation and other unintended consequences.

“This is why traditional energy is a necessary part of large institutional investors’ portfolios in the current economy,” he noted.

In energy, minimizing risk and negative externalities, whether environmental, safety, social or other factors, while increasing profitable operations to meet demand has been core to “best in class” business operations for decades.

“But recent ESG primacy has led to improved safety records, reduced environmental externalities and better governance practices, among other benefits, all while striving to meet the world’s energy needs,” Wofford said.

### ‘No green without digital’

Although ESG and technology have had a long re-

lationship, experts say the role of the latter in ESG is relatively underexplored and has an enormous potential in achieving ESG goals, especially as ESG reporting continues to evolve.

“Oil and gas companies are finding themselves on the brink of ‘ESG 2.0’ where the line between purpose and profit is dissolving and companies look to identify the best ESG strategies to promote value creation,” said Nicole Robertson, vice president for sustainability and ESG at Nokia.

“At Nokia, we believe that there is no green without digital, and this is particularly true in the oil and gas industry, where a focused commitment to implementing digital technology across the production stream is essential to reaching ESG goals,” she added.


According to Robertson, this is an “exciting time” in both the technology and the energy industry, with an unprecedented opportunity to collaborate to fulfill global energy needs, while embracing digital transformation occurring across the sector.

“The adoption of ESG and the role of technology within the energy industry is only beginning and must accelerate if companies are to satisfy shareholders, maintain a social license to operate, fulfill questions from the SEC and ensure access to capital markets,” she noted, adding that ESG should remain a “key focus” of every energy company C-suite and board, calling for more investment in new technologies.

“The industry must embrace the technology-enabled Fourth Industrial Revolution, not simply as a test case but considering ESG goals and how technology can promulgate them across the enterprise,” Robertson noted.

She added, “This is particularly true in managing the efficiency, safety and sustainability of own operations but also enhancing supply chain transparency and increasing circular practices and processes—particularly closing the loop on manufacturing supply chains and Scope 3 emissions.”

Additionally, she explained how a long-term commitment to ESG requires the workforce to sustain it, where technology plays a critical role.

“Access to digitally savvy employees will remain incredibly competitive. The industry must upskill existing talent with digital skills and build partnerships with companies like Nokia, who can provide both the solutions and the knowledge to fully enable ESG and digitalization goals,” Robertson said. 





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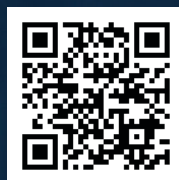


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# The Future Of ESG Investing

In the shadow of energy security concerns, ESG investments continue to grow and diversify across the industry.

ARTICLE BY  
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CONTRIBUTOR

**E**SG metrics have become a major priority for the oil and gas industry. It is shaping how investments are being made, and this trend is expected to continue. At the same time, though, especially in the wake of the war with Ukraine, concerns over energy security are also in the spotlight, and the industry will need to strike a balance between meeting rising demand—against the backdrop of a transformation in global oil and gas trade flows—and maintaining its focus on decarbonization efforts and the energy transition.

There is also significantly more clarity needed on ESG and how ESG metrics are measured and reported. Efforts to standardize ESG reporting are underway and are expected to make it easier for investors to assess industry performance. While this is being worked out, there are already steps oil and gas companies can take to attract more investment in the era of ESG.

## Under pressure

ESG has affected the oil and gas industry's access to capital like never before. Other significant developments of recent years, including the COVID-19 pandemic and, most currently, the war in Ukraine



**“A number of surveys of institutional investors show that other than climate, social and governance factors rank as the top ESG concerns.”**

—Nneka Chike-Obi, *Sustainable Fitch*

have not changed this, though they have complicated the dynamics at play.

“ESG investment strategies have developed beyond the traditional negative screening, where certain activities or sectors are broadly excluded due to their environmental, social or governance characteristics,” Sustainable Fitch’s head of APAC ESG research, Nneka Chike-Obi, told Hart Energy. “Currently we see a larger number of asset managers choosing engagement as an ESG strategy—that is using annual meetings with portfolio companies to press them on their ESG performance and identify the



most important areas for improvement,” she continued.

According to Chike-Obi, although oil and gas companies are no doubt affected by this, the pressures are more likely to be focused on strategy and operations first, before those companies face a significant drop in investment capital.

However, accurately assessing a company's ESG performance remains a challenge, given that the push to standardize the metrics is still ongoing.

“There are some major challenges regarding identifying which exact stocks within upstream are better on ESG,” Rystad Energy's head of ESG analysis, Alisa Lukash, told Hart Energy. “Data standardization and reporting transparency are the major challenges for GHG [greenhouse gases], water management and spills reporting,” she continued. “But in general, it is expected that institutional investors will continue to focus on balancing the portfolios toward sustainable businesses. And the regulations will bridge the data challenge.”

There are various types of investors that have emerged, including ESG funds, providers of sustainability-linked bonds and loans, and institutional investors that require their portfolio companies to perform at a certain standard. Lukash noted, however, that there are also other investors that are not bound to follow specific ESG metrics and are “strongly supporting upcycle” in the U.S. shale industry. Thus, operators are not necessarily required to perform well on ESG in order to attract investment yet, but this increasingly appears to be changing.

### Leading the way

There are also regional variations in the evolution of ESG investment and reporting, with Europe leading the way, while the U.S. is seen by some as lagging.

“Europe has driven the initial demand, without regard for the cost of, or sustainability in, the pace of such investments,” Opportune partner in charge of complex financial reporting, Josh Sherman, told Hart Energy. “I believe there is a floor to ESG demand in that a portion of the investing public will always push for an end to fossil fuels, regardless of the consequences.” He noted that other investors, however, viewed too rapid of a transition from fossil fuels as a detriment to society, especially in developing countries.

“The world needs energy addition (all forms), not subtraction,” Sherman said. “E&P operators understand and have accepted the responsibility of reducing their carbon footprint.”

European ESG investment trends can have an impact beyond that region, though, including in the U.S.

“The EU's SFDR [Sustainable Finance Disclosure Regulation] and the EBA's [European Banking



## “Data standardization and reporting transparency are the major challenges for GHG, water management and spills reporting.”

—Alisa Lukash, Rystad Energy

Authority] green asset ratio pilot program mean that financial institutions in Europe have more pressure to increase the volume of green investments and the quality of reporting and disclosures on investment products,” said Chike-Obi. “Given the global nature of the largest institutional investors, this is likely to have an impact beyond the EU's borders.”

The additional pressure in Europe to step up green investments has translated into some of the largest European-based oil and gas companies adopting more ambitious decarbonization goals over the past few years.

“This pressure from investors is certainly a factor in why European majors have been the first movers in terms of setting net-zero targets for their Scope 1 and 2 emissions,” Sustainable Fitch associate director William Attwell told Hart Energy. “Several have also gone beyond their U.S. counterparts in also setting targets for Scope 3 emissions, which includes ‘use of sold products,’ and accounts for the largest share of oil and gas companies’ carbon footprints, although methodological challenges persist,” he said.

Pressure on U.S.-based companies to also adopt Scope 3 targets is expected to grow, however, despite the challenges relating to establishing clear methodologies for measuring these emissions. Indeed, the U.S. Securities and Exchange Commission (SEC) is proposing that publicly listed companies disclose their Scope 3 emissions in cases where they are considered “material” or if the company in question has already set a decarbonization target that includes Scope 3. A final rule is expected to be introduced in December, but the proposal has received pushback from those concerned about how workable it would be.

“Many U.S. operators do think that it is impossible to report Scope 3 as suggested by the SEC as it is extremely difficult to have the same methodology of [calculation] across the industry, so the methodology framework should be set in place first,” said Lukash. She also sees differences in how European and U.S. super majors are approaching their energy transition targets.



"One strong trend is that in Europe super majors are targeting diversification (into renewables, hydrogen etc.) and decarbonization as energy transition strategy while in the U.S., it's predominantly decarbonization," she said.

### Social and governance

While the environmental aspect of ESG targets has overwhelmingly come to dominate discussions around ESG, the social and governance elements should not be discounted. For E&P companies that view sustainability as a whole as a core value, the social and governance elements become particularly important, and it is possible that they will be viewed more favorably by investors as a result.

"Environmental concerns will continue to take center stage because it's getting the most media attention," said Sherman. "Ultimately, ESG is about sustainability in total, not just the environment. Sustainability is the combined efficient and economic development of natural resources (environment), advancement of employees and investors (social) and protection of a company's business model and underlying economics (governance)."

Sherman noted that Laredo Petroleum Inc. and Encino Energy, among numerous other E&P firms, reference sustainability as a core value on their websites.

"They're thinking more broadly than just the environmental aspects and, as a result, are returning capital to their investors," he said.

Rystad and Sustainable Fitch both also see investors taking an interest in ESG metrics beyond the environmental.

"Governance is actually the most important aspect of ESG as it actually sets sustainability and social impact targets, which are linked to compensations for board and management, so that drives the overall sustainability strategy," said Lukash. She added that she believed social investments and safety/diversity were also "extremely important" and frequently asked about by investors.

Chike-Obi, for her part, sees the top ESG concerns as spread across the three elements.

"A number of surveys of institutional investors show that other than climate, social and governance factors rank as the top ESG concerns," she said. "These include gender and diversity, worker health and safety and board independence. In a recent set of analytical reports, Fitch has found that a number of social issues are credit-relevant for companies in the extractive sector, for example."

### Global shake-up

The evolution of ESG investing continues to play out despite the impact of Russia's war in Ukraine, which shook up energy markets and trade routes,



**"I believe there is a floor to ESG demand in that a portion of the investing public will always push for an end to fossil fuels, regardless of the consequences."**

—Josh Sherman, *Opportune LLP*

pushed commodity prices to multiyear highs and brought the question of energy security sharply into focus. But while the war has improved the prospects for oil and gas in the short-term as Europe scrambles to replace Russian energy imports, it does not appear to have affected long-term decarbonization targets. Indeed, it even makes development of domestic renewables and cleaner sources of energy more attractive to countries seeking to bolster their energy security.

"The war in Ukraine has reminded the world about the importance of energy security," said Sherman. "The expansion of renewable energy sources is great, but the world remains dependent on reliable, affordable and accessible fossil fuels. Again, sustainability is more than the environment and we need all forms of energy. Investors will come back to responsibly sourced oil and gas producers with the discipline to grow their asset base while distributing free cash flow."

In the short term, oil and gas companies, especially those that have not yet diversified away from their upstream operations, are benefiting from higher commodity prices and an increased appetite for fossil fuels.

"Many fear underinvestment in oil and gas. This gives strength to some of the operators who initially didn't choose to diversify out of upstream," said Lukash, citing Exxon Mobil Corp. as an example. Against the backdrop of the war in Ukraine, she currently sees a less negative response from investors and media to increased upstream investments.

Recent quarterly results also illustrate how oil and gas companies are benefiting from current price trends and geopolitical developments.

"The supply-side tightening that has accompanied the war in Ukraine has been a key driver supporting the elevated profitability of oil and gas companies, with several majors reporting record profits in recent months," said Attwell. "Although demand-side pressures may soften on the back of weak economic growth and recession fears on some markets, supply



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challenges should keep prices at historically high levels.”

However, Attwell also sees potential for an acceleration of the energy transition on both sides of the Atlantic over the long term thanks to the war.

“The war has also focused attention on energy security, which could accelerate the transition to renewables, as demonstrated in the European Commission’s REPowerEU plan, which proposes increasing the renewables target from 40% to 45% of the EU’s energy consumption by 2030,” he said.

This is playing out at the country level too, with Attwell noting that Germany had also approved a proposal to raise its country-level renewables target.

“This, alongside progress on the draft climate bill in the U.S., could further incentivize and bolster interest in clean energy projects by ESG-focused investors in the coming years,” he said.

### Next steps

It will take some time yet for ESG reporting to become more standardized, especially given some of the challenges involved in measuring Scope 3 emissions, for example. In the meantime, there are steps oil and gas companies can take to make themselves more attractive to ESG-focused investors.

“Some companies have spun off fossil fuel divisions as separate entities to attract investment into the less carbon-intensive areas of the business and allow the fossil fuel standalone to then raise capital at whatever cost the market sets for them,” said Chike-Obi. “They can also improve the non-emissions parts of their business. In most ESG ratings, such as Sustainable Fitch’s, environmental impact and policies are only a portion of the overall assessment,” she added.

Chike-Obi noted that oil and gas as a sector has high exposure to certain social risks, such as indigenous and community rights in proximity to pipelines.

“These are areas that companies can show progress in even if their core activities are highly emitting,” she said.

Attwell, meanwhile, anticipates that certain types of targets, including for emissions and interim targets on the path to net zero, could increasingly find themselves in the spotlight.

“ESG-focused asset managers and owners face rising scrutiny as the market becomes more sophisticated, and more jurisdictions roll out and enhance their disclosure requirements for sustainable investments,” he said. “They are therefore likely to value further detail and clarity on oil and gas companies’ progress on meeting their Scope 1 and 2 emissions reduction targets, particularly given how several majors have set interim targets,” he added. In most cases, these interim targets are for 2025 or 2030.

“Increasing attention is also likely to be paid to companies’ Scope 3 emissions, notably how they are defined and calculated, and to the credibility of companies’ transition plans,” Attwell said.

Rystad’s Lukash identified a variety of different actions oil and gas companies could take to continue attracting investment, starting with having a detailed sustainability strategy and energy transition plan that secures long-term cash flows. On top of this, Lukash views higher transparency on ESG reporting and initiatives to help standardize reporting as factors that can be viewed favorably by investors. In terms of decarbonization measures, she suggested steps such as investing in carbon capture and storage and clean forms of hydrogen as well as electrifying operations in order to lower emissions.

Finally, she suggested that oil and gas companies cooperate with third-party data providers to help identify areas of weakness and ways to improve their ESG rankings.


For Sherman, a focus on returns takes priority. “It starts with oil and gas companies returning capital to their investors,” he said. “Returns are happening through improved governance by management teams, their boards and capital providers. The luster of other industries will fade as the broader market pulls back into a likely recession. It may be a longer cycle, but investors will return to E&Ps and midstream if the industry remains disciplined,” he added.

**“Increasing attention is also likely to be paid to companies’ Scope 3 emissions, notably how they are defined and calculated, and to the credibility of companies’ transition plans.”**

—William Attwell, *Sustainable Fitch*

Sherman believes that this is the very early stage of a longer cycle of ESG investing.

“Like many cycles, there are ups and downs. I believe we’re at the peak of a current cycle, where only a handful of ESG investments (as a percentage of total such investments) are economic without government subsidies. Many ESG investments may languish until broader demand expands or consolidation occurs,” he said. And he does expect this to play out over time.

“ESG investments will continue to grow across every sector of the energy industry and are helping usher in a very exciting evolution of responsibly sourced fossil fuel development and emissions management,” Sherman said. 





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# Battling Climate Change Alongside Inflation

While establishing energy security is currently the main priority of oil and gas companies, they haven't forgotten the importance of allocating attention and funds to combat climate change.



ARTICLE BY  
**MADISON RATCLIFF**  
ASSOCIATE EDITOR

Recent geopolitical and economic issues throughout the world have forced oil and gas corporations to step back and examine their companies and the amount of attention they give to each aspect of their operations, from traditional production output to how much capital they invest toward ESG initiatives.

In Europe, Russia is threatening retaliation for EU-imposed sanctions that will limit the amount of energy products imported from the country, leaving many worried about energy shortages come winter and wondering how the U.S. will be affected.

Inflation is also on the rise in the U.S., with the Bureau of Labor Statistics reporting the consumer price index increasing 9.1% in June—the largest price hike since 1981—leading to higher oil prices as well as higher gasoline prices.

Taking these concerns into account, the first and foremost priority of global governments right now in regards to energy is securing affordable and reliable energy, as opposed to battling the industry's effect on climate change, Nick Volkmer, president of ESG and renewables at Enverus, told Hart Energy.

"In the realm of 90% of global GDP has some sort of net-zero target, and a lot of these are fairly high level," he said. "But it means it's a component in the decision process, and I think, on the opposite side of the same coin, what's being solidified over the last few months here is that the No. 1 priority of any government is going to be energy security, and the secondary priority is going to be energy sustainability."

However, the oil and gas industry has not found itself in an either-or situation. Though it will take adjustments, operators don't have to choose between increasing traditional oil and gas

production to combat inflation and ESG-focused sustainable operations to combat climate change.

According to analysts from consultancies Enverus and Rystad Energy, battling climate change is still an important goal, and there are ways to do so while strengthening traditional energy output.

## Investment criteria

Investors in the oil and gas space have been vocal about their ESG-related criteria for delegating funds in the past few years, but in light of socio-economic and geopolitical issues—skyrocketing inflation, Russia's invasion of Ukraine, energy insecurity—that might not be as big of an issue for companies in need of capital.



**“... What’s being solidified over the last few months here is that the No. 1 priority of any government is going to be energy security, and the secondary priority is going to be energy sustainability.”**

—Nick Volkmer, *Enverus*



In a report Rystad Energy conducted in June 2022 on how E&P sustainability strategies affected market performance, the study showed that the companies who ranked the lowest in ESG ranked higher in the market in the short term, but companies ranking higher in ESG performed better in the long term.

"Overall, it is fair to say that ESG performance does impact investor appetite, even though during the latest market recovery of 2021, ESG scores haven't been the lead indicator of stock growth," the report stated. "As such, ESG performance affects the ownership profile of the energy sector with sustainability focused investors diversifying into the other sectors."

According to Alisa Lukash, vice president of shale research at Rystad Energy, investors are more supportive of companies with lower ESG scores, not because they don't value ESG, but because companies with lower scores are usually the ones who are in need of more financial backing.

"Short-term ESG performance is actually not as important as the other fundamental aspects of the value for the companies, but looking long-term five years or so, then we'll see this fact that stronger financial aid companies still have stronger energy performance," she told Hart Energy.



**“Short-term ESG performance is actually not as important as the other fundamental aspects of the value for the companies ...”**

—Alisa Lukash, Rystad Energy

Additionally, investors have changed the way they invest in different energy companies and how they choose to allocate funds because of new government policies. Enverus' Volkmer explained how European governmental bodies have reclassified nuclear and natural gas investments as more environmentally friendly, qualifying them for different subsidies.

"That helps incentivize some different domestic industries, a good example being the LNG industry in the U.S.," he continued. "All of these things are interconnected, and at its heart, it's about trying to follow that carbon path to ultimately provide the most energy for the world in a relatively sustainable way."

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### What can be done?

While establishing energy security remains the primary focus for oil and gas companies for the foreseeable future, the progress they've made toward sustainable operations isn't simply going away.

According to Volkmer, the top three things E&Ps can focus on to fight climate change are eliminating flaring, getting better at monitoring and managing methane leaks and reducing combustion emissions where possible.

Reducing or removing the byproducts of hydrocarbon production are things that a majority of environmentally conscious operators were already doing anyway, so remaining vigilant in these practices can serve as an easy win.

"The environmentally conscious operators that we see are leaders in those three categories and are continuing to make strides to drive those down to zero because in the end, a lot of those aspects are just byproducts from developing the hydrocarbons, and they don't really necessarily provide a true net benefit to oil and gas companies or to the public," Volkmer continued.


Lukash echoed Volkmer's concerns about flaring, adding, "The easiest thing to do is, of course, to think a little bit about how to structure and what type of activity schedule to create to avoid those bottlenecks, what type of contracts to get with the pipelines, etc."

In addition to reducing flaring, Lukash recommended operators avoid traditional frac fleets to the best of their ability, instead suggesting electric frac fleets and other ways to electrify their operations as a short-term solution to reducing emissions.

In terms of long-term solutions, she noted that investing in water management infrastructure would be a beneficial means of boosting ESG scores, although it was the kind of solution that would require more funds.

"Water management is a bit more time consuming as operators would really have to invest in better infrastructure and thinking about the ways to reduce the fresh water use in the region," she said. "And it's very different in different states across the U.S., but there are ways, of course, to share the infrastructure with some of the nearby operators as well."

Overall, though, Lukash insisted that most midsize or smaller E&Ps focused on ESG would benefit from having "better planning in terms of output" to secure the environmentally friendly initiatives they want to implement.

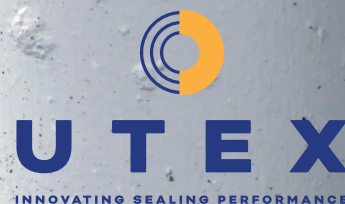
"That is kind of more linked to the strategy and planning and understanding the landscape where they're operating, and of course, that would require more of an investment into the infrastructure overall and figuring out the ways to further reduce emissions and residual flaring, etc.," she said. 

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# SEC Proposed Disclosure Rules An ESG Opportunity

PwC's Reid Morrison advises producers on how to prepare for the new ESG reporting requirements.

ARTICLE BY  
**JENNIFER MARTINEZ,**  
ASSOCIATE EDITOR

In March, the U.S. Securities and Exchange Commission (SEC) proposed new rules that would require registrants to include certain climate-related and ESG disclosures in their SEC statements and reports. According to the SEC, the proposed disclosed information would include, in addition to other things, information regarding registrant's direct greenhouse-gas (GHG) emissions (Scope 1) and indirect emissions from purchased electricity or other forms of energy (Scope 2). Additionally, a registrant would be required to disclose GHG emissions from upstream and downstream activities in its value chain (Scope 3), if material or if the registrant has set a GHG emissions target or goal that includes Scope 3 emissions.

"Investors are looking to companies to explain the meaning, relevance and effect of ESG issues on their business," said Reid Morrison, a principal with PwC. "In a fall 2021 PwC global survey of investors, only 19% believed current reporting of this information is of good quality. We believe

standardized climate disclosures would aid investors in better understanding the impact of climate on a company's operations and financial performance and support comparability."

The rule changes are a step toward standardizing that reporting.

"There is a long history of voluntary frameworks," Morrison said. "The recent activity focuses on potential required disclosures."

These potential standards are in the proposal stage, he explained. "The SEC has received over 14,000 comment letters, including almost 1,000 letters from investors, registrants, industry organizations, public policy groups and the like," he said. "The feedback loop is likely to result in changes to the proposals before final rules are issued."

## Investor needs

The recent push for increased ESG efforts in the industry have been market-driven.



**“Regardless of the final form of the rules, companies need to start preparing for more disclosure now as investors and other stakeholders continue to ask for more transparent disclosure in this area.”**

—Reid Morrison, PwC

“I think everyone is responding to the needs of investors,” Morrison said. “Investors believe ESG disclosures are decision-useful but in multiple surveys have commented that the information being provided on a voluntary basis may not be in sufficient detail or may not be consistent company to company.”

Whether or not the newly proposed rules will help to standardize the information provided to investors is yet to be seen. Regardless, those investors recognize the value of standardization, and the global debate has turned its spotlight on organizations’ ESG policies and disclosures, Morrison explained.

“There are growing calls from investors, regulators and other stakeholders for better information on how businesses are considering these issues, particularly climate change,” he said. “So, ESG issues are playing a more prominent role in how companies are valued.”

The proposed climate-related disclosures do not exclusively affect the oil and gas industry;

they could potentially affect all industries impacted by climate-related risks.

“We advise companies not to view the SEC’s proposal as a compliance exercise,” Morrison said. “This is a great opportunity for companies to challenge themselves. These disclosures provide an opportunity to share their unique story and point of view on climate-related matters, including how prominently these topics play in their overall business, strategy, risk management and governance practices.”

The proposed disclosure rules give producers a chance to control their ESG story, Morrison said.

“I think it’s a win-win if companies approach their disclosures this way,” he continued. “Companies can better control their own narrative, and investors will get the more fulsome information they’ve been asking for.”

**Start the prepping**

As of July, the SEC is still considering public input on the proposal. Once that is completed, the SEC will adopt a final rule before any new disclosures would be required, Morrison said.

“Regardless of the final form of the rules, companies need to start preparing for more disclosure now as investors and other stakeholders continue to ask for more transparent disclosure in this area,” he added.

Morrison provided advice for how companies can start preparing for disclosures before they go into effect.

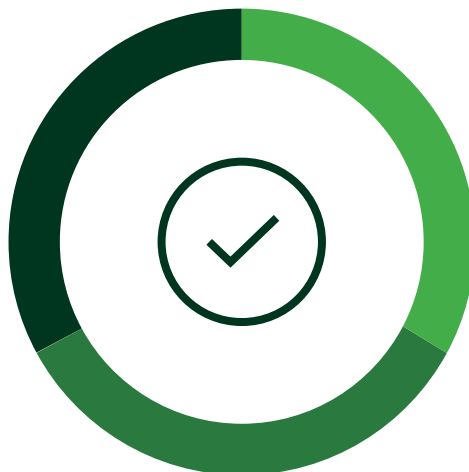
“We recommend starting with a gap analysis—understand what is in the proposal, what information the company may already be collecting or disclosing and the timing of those activities,” Morrison said. “Companies can then begin to understand where they have the most work to do and think about what controls and processes would need to be implemented to close any gaps.”

Regardless of what final form the SEC proposal takes and how it affects regulations and reporting, preparing standardized reporting ahead of time will provide producers and investors with a valuable toolset.

“Given strong investor interest in ESG information,” Morrison said, “efforts to understand and start to operationalize potential disclosures will not be wasted.”

**PwC Global Investor Survey:  
Quality Of ESG Reporting**

- Good 33%
- Neutral 33%
- Poor 34%



SOURCE: PWC'S 2021 GLOBAL INVESTOR SURVEY

*In a 2021 global investor survey by PwC, responses to questions regarding ESG reporting showed not only a lack of information regarding company plans for reaching environmental and social commitments being shared with investors, but also a lack of faith in the quality of the reporting they do receive.*





# A Litmus Test for Methane Certification

The time is now to set up the rules of the road for a certified gas market that will rapidly draw down methane emissions and give U.S. producers the leading advantage.

ARTICLE BY  
**LARA OWENS**  
MIQ

**W**ith certified gas based on methane performance taking off so fast, let's take a minute and think about the impact this could make. Methane is an extremely powerful greenhouse gas: 86 times more impactful than CO<sub>2</sub> on a 20-year time horizon.

If a global market were to develop and mandate no greater than 0.2% leakage of methane worldwide by the end of the decade, we could eliminate 5.7 Gtons of CO<sub>2</sub>e. This is the equivalent of all the yearly emissions generated by the U.S. and is arguably the most ambitious role that oil and gas producers can play this decade in meeting a 1.5 C future.

In moving forward with certification, U.S. operators would have the leading advantage at meeting international import standards, state and utility performance targets, as well as pave the way for new and improved forms of emissions and ESG disclosures using measurement.

A certified gas market based on methane emissions can play a major role in achieving these goals—and quickly—whereby buyers will have the opportunity to demand the lowest emissions from every basin in the world.

So, what do we need to do to create a certified

gas market that is both successful and impactful?

Effective and efficient markets must be transparent and credible. Given the rising opportunity for a certified gas market, it's time to establish basic principles for all programs participating in this space to work toward. And because details matter, we cannot rely on platitudes to get us very far.

As we've seen with attempts at market developments in other sectors, the risk of greenwashing is real and must be taken seriously, as the promise of a certified gas market can be undone as fast as it was created. Because corrections to deception or bogus instruments will lag behind market uptake, it is imperative to bake credible principles into the foundation and not try to retroactively bolt them on afterward.

## Key principles

With 2025 and 2030 emission reduction targets looming, we don't have time for corrections to take place organically. Let us all agree that it is our responsibility to live up to these common-sense principles and avoid the undoing of the market itself.

The following principles are a good starting point for a burgeoning environmental attribute



market. Producers, buyers, regulators, stakeholders only need to ask themselves, “Would I settle for lower standards in any other financial instrument? Would I put my investments at risk with anything less?”

A transparent and credible certified gas market can be achieved through the following principles and litmus tests:

### Principle 1: Transparent, robust standards

#### Litmus Test:

- Is the certification standard publicly available?
- Does the standard have clear metrics, and are they reproducible, auditable?
- Does the standard allow apples to apples comparison of natural gas methane intensity?
- Do the metrics allow quantification and uncertainty in methane emissions?
- Does it use the most up-to-date methane science and stakeholder feedback to build its framework?
- Are they calibrated over time to reflect impact and accuracy?

### Principle 2: Third-party audits

#### Litmus Test:

- Is the auditor a subject matter expert and accredited to the standards?
- Is the auditor independent from the data and data provider?
- Is the auditor independent from the operator?
- Is the auditor independent from the certifier?
- Is there a financial, contractual, and reputational separation between the above parties to avoid conflict of interest?

### Principle 3: Facility-wide certification

#### Litmus Test:

- Is the certification facility-wide, so as to avoid “cherry picking” only the best assets?
- Is the certification facility-wide, so as to include all assets—including those that are older, marginal producers with higher potential for emissions?
- Does the overall physical gas from the operator

continue to represent the environmental attributes of the certification?


- If a third-party investigation were to review the facility’s assets, would they find no major discrepancies?

### Principle 4: Marketable

#### Litmus Test:

- Is a Digital Registry used for all natural gas certifications and subsequent trades?
- Does it have policies and governance in place to avoid double counting?
- Is the certification standard technology neutral to enable scalability and innovation of the market to fulfill the need for methane mitigation tools?
- Does it support the entire natural gas supply chain?
- Is it adoptable by global natural gas markets and regulators?

For methane certification to have maximum impact, or to pave the way for smart regulation, a certified gas market must have robust, defensible standards and consist of a credible and transparent foundation. Civil society organizations, like EDF, are already taking a close look at certifications and the risks they pose for the gas industry if set up incorrectly.

This is the right time to set up the rules for a certified gas market that will be viewed as credible by participants, and that will rapidly draw down methane emissions in the process. Trying to bolt on market rules and principles after the fact will only yield continued methane emission releases and a dysfunctional market. Producers, regulators, buyers and other stakeholders need to adopt these basic principles as elemental to any certified gas market in order to launch it for all of its significant potential. 

*Lara Owens is MiQ’s director of science and technology. She works out of Boulder, Colo., for RMI, MiQ’s parent NGO, where she directs several initiatives promoting credible tracking and visibility of greenhouse-gas emissions from the oil and gas and landfill sectors.*





# Money Left On The Table

Companies that embrace diversity across all levels of their workforce also embrace wider profit margins. Why has the oil and gas sector been slow to adapt, and is it changing fast enough?

ARTICLE BY  
**JOSEPH MARKMAN**  
SENIOR EDITOR

**H**illary Holmes has heard it before and will hear it again. The reason there are so few women in C-suites and boardrooms across the oil and gas industry, a leading male industry executive explained to her recently, is that there aren't many qualified women to move into those positions.

"My response is always, if you can't find women to add to the leadership ranks, to your directors and to your C-suites in this industry, then you're not looking hard enough," Holmes, partner in the Gibson, Dunn & Crutcher law firm, told Hart Energy. "And you're not using forward-thinking and being innovative about where to find that talent."

The workplace diversity issue boils down to two salient points:

- A company will only achieve a diverse workforce across all levels, including the C-suite, when its CEO is committed to diversity; and
- Companies with diverse workforces make more money.

A STEM-energized education system nearly doubled the annual number of engineering degrees awarded from 1990 to 2018, according to data from the National Science Foundation and Engineering Workforce Commission, with the absolute number received by women soaring 172.5% during that time.

So, the talent is there, but the oil and gas industry struggles to attract and retain it.

The numbers are telling: Women account for 57% of all college graduates and 35% of graduates in STEM fields, according to the Brookings Institution. However, they only account for 13.9% of graduates in mechanical engineering and 17.1% in petroleum engineering.

"The industry's appeal is declining among younger people," said McKinsey & Co. in its "How women can help fill the oil and gas industry's talent gap" report. "A decade ago, oil and gas was the 14th most attractive employer among engineering and IT students; now it is 35th."

Why?

## Where did they go?

"Part of it is an image issue," Holmes said. "It's historically been a male-dominated industry and white-dominated industry. I think maybe some of the talent coming out of colleges or coming out of vocational schools makes this industry as strong as it is, they are just not putting oil and gas jobs on their list."

But the industry does succeed in hiring thousands of new grads each year. A survey by the World Petroleum Council of young oil and gas employees showed enthusiasm for participating in the energy transition. Working in a multicultural and high-tech environment were also high priorities for both men and women under 35.

These are ambitious, long-term goals. But we know what happens next. Women constitute more than one in four entry-level workers in the



**“If you can’t find women to add to the leadership ranks, to your directors and to your C-suites in this industry, then you’re not looking hard enough.”**

—Hillary Holmes, *Gibson, Dunn & Crutcher*

oil and gas industry, but only one in six managers, one in 10 vice presidents and one in 50 in C-suite roles. As the Conference Board found in 2021, the energy business was not just the worst among major sectors in the number of women CEOs but was trending downward.



**“An oil and gas company is not going to be successful if it can’t attract the top talent, and it’s not going to attract the top talent without an effective and clear diversity strategy.”**

—Katie Mehnert, *Ally Energy*



76,000 people, or 21% of its Texas workforce, according to data from the Bureau of Labor Statistics. It has since hired back about half of that total. Those who stayed witnessed how quickly a career can be upended in a cyclical industry. Others were simply poached by competing industries such as utilities, renewables and technology.

“There are tons of them that went to Apple, Meta or Google, and they’re not coming back,” Katie Mehnert, founder and CEO of Ally Energy, told Hart Energy. “And it’s because they’re getting the pay and they’re getting the flexibility, and this is where oil and gas and energy needs to become more competitive.”

“A lot of folks are leaving. A lot of people walking out the door, saying, ‘You know, I can get more down the road in the tech industry than working in energy.’”

Holmes has seen it too.

“It’s something oil and gas companies should pay attention to, but it’s also a playbook that we can learn from,” she said. “Let’s pull talent from tech companies. Let’s pull talent from ... an energy transition or energy expansion company. There are some carbon capture companies I work with now that you would consider innovative. Several of those leadership teams are former oil and gas executives.”

The talent drain is not necessarily a diversity issue, but it highlights the sector’s retention problems.

**Money follows the diversity**

“An oil and gas company is not going to be successful if it can’t attract the top talent, and it’s not going to attract the top talent without an effective and clear diversity strategy,” she said.

Empirical data support the notion that companies across all industries that are more diverse experience bigger profit margins. McKinsey & Co. found that companies in the top quartile for gender diversity on executive teams were 21% more likely to have above-average profitability than companies in the bottom quartile. Top-quartile companies in ethnic and cultural diversity were 33% more likely to outperform on profitability.

Harvard Business Review examined an industry that, like energy, is dominated by white males. The research revealed that performance in the “staggeringly homogeneous” venture capital (VC) industry—only 8% of VC investors are women, 2% are Hispanic and less than 1% are black—was improved by diversity. An investment’s comparative success rate was reduced by 26.4% to 32.2% when executed by a team of shared ethnicity.

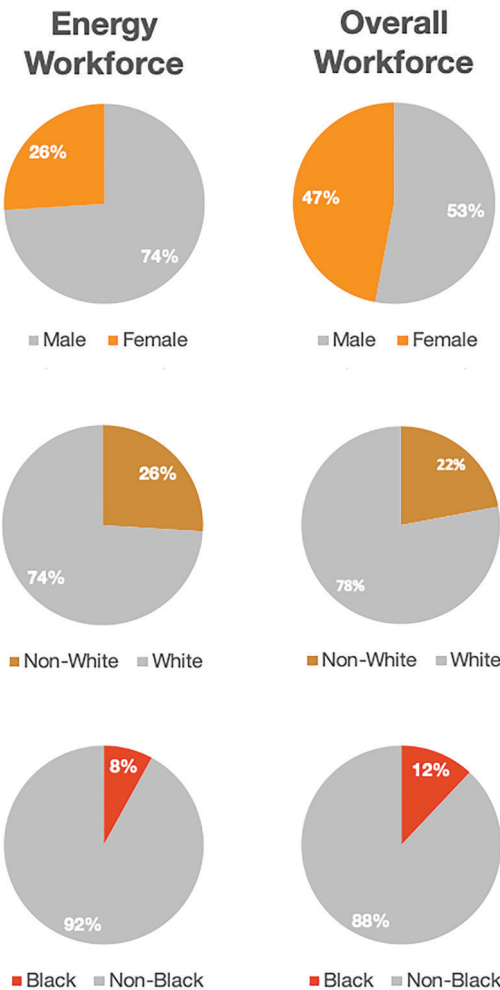
That success was echoed on the gender diversity side.

**Fending off poachers**

Where did the enthusiasm for bringing about the energy transition go among one of three young women working in the energy field? Where did the workers go?

Some were laid off. When the COVID-19 pandemic struck, the oil and gas industry let go

**Comparitive Demographics**

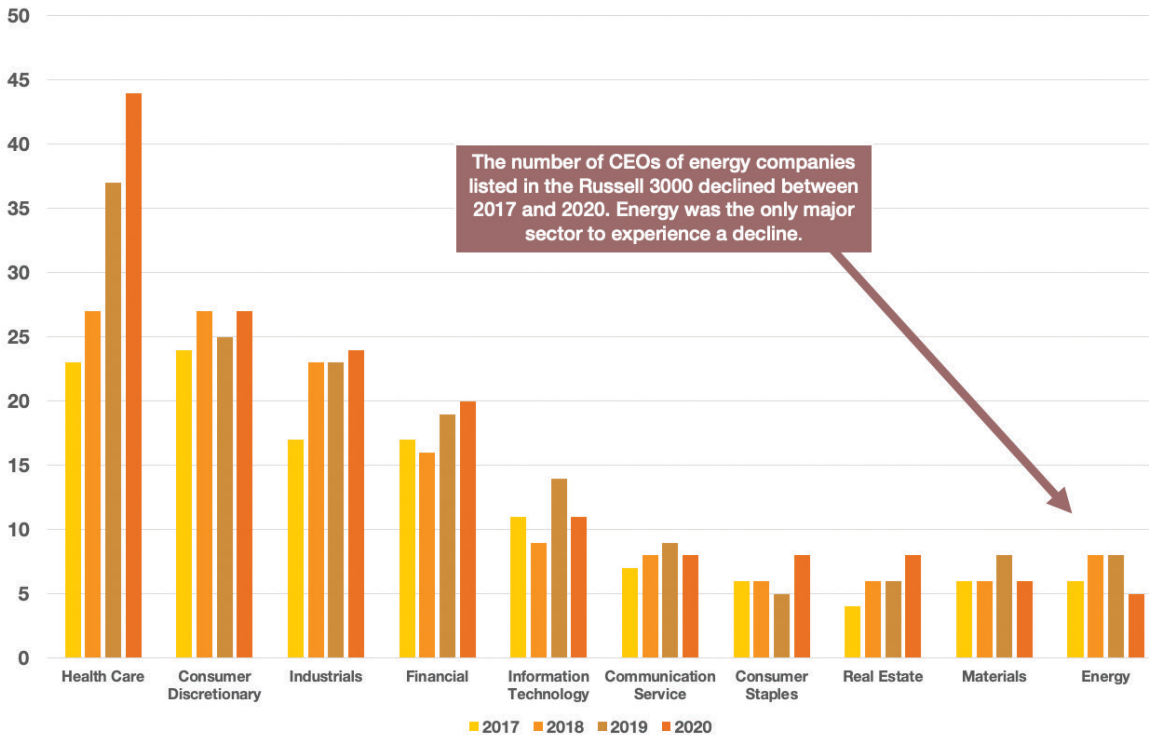


Source: U.S. Department of Energy



## Female CEOs By Business Sector

Russell 3000, 2017-2020



Source: ESGAUCE/The Conference Board 2021

“Venture capital firms that increased their proportion of female partner hires by 10% saw, on average, a 1.5% spike in overall fund returns each year and had 9.7% more profitable exits (an impressive figure given that only 28.8% of all VC investments have a profitable exit),” the authors wrote.

Fortunately, the oil and gas industry has made significant strides in that direction.

“The vast majority of the oil and gas companies I work with have taken affirmative steps to improve diversity, at least at the leadership level,” Holmes said. “At least in their boardroom—those that are publicly traded—at least in their C-suite to the extent possible.”

### Starts at the top

To reap the benefits, it's critical that a company's leadership reflects the characteristics they want from their broader workforce. If oil and gas CEOs commit to gender balance, the World Petroleum Council said in its report, the organizations will follow.

The comparison charts of surveys of male oil and gas employees conducted in 2017 and 2020 bear that out. When gender diversity was not important to the CEO, it was not important to 59% of the male employees, either, in the 2017 survey. When it was important to the CEO, that view was shared by 86% of male employees.

An interesting shift took place between 2017 and 2020 among those working for a CEO for whom gender diversity was not important. In 2017, 34% of the male workforce thought gender diversity was important, contrary to what the boss thought. After three more years of working for a CEO who did not consider it to be important, that percentage dropped sharply to 19%.

On the flip side, the share of men whose CEO saw gender diversity as important grew to 93%, with the percentage considering it unimportant or very unimportant diminished to 2%. Either way, the boss set the tone for the workforce.

“To provide effective leadership in this area, leaders must consistently and frequently reinforce the strategic importance of D&I [diversity and inclusion], through their actions and their words,” the report's authors wrote.

Holmes would like those who lead the oil and gas industry to think more broadly about the talent pool and make it a priority.

“A woman shouldn't get a job just because she's a woman,” she said. “But the board or the C-suite should always be thinking: Is our management team bringing diverse perspectives?”

That includes diversity of experience, age, gender, race and other characteristics on the matrix.

“If we do,” Holmes said, “then that will contribute to a more profitable company.”



# Technology Development Drives ESG Advances

Oilfield services companies are developing tools that help operators quantify ESG performance improvement.

ARTICLE BY  
JUDY MURRAY  
CONTRIBUTOR

Attitudes about ESG are changing. What began as a demand from investors and financial institutions has become an integral component of the business strategy for energy companies and is now a primary driver for technology development.

According to Attilio Pisoni, head of strategy and technology at Baker Hughes Oilfield Services, sustainability is essential, and emissions reduction in particular has become a moral and ethical obligation.

All new technologies being introduced by Baker Hughes must reduce emissions and allow more efficient operations, he said. "From a technical point of view, new tools that have a lower impact on our environment are also more efficient and will cost less to operate, and that strengthens the case for designing technologies that are more sustainable. Efficiency has a direct correlation with emissions."

Pisoni explained how that works in practice. "If we reduce our Scope 3 emissions, we are aligning with customers and helping them reduce Scope 1 and Scope 2 emissions. It's a very serious commitment."

## Digital tech

Pisoni pointed to several Baker Hughes offerings that help accomplish that goal, including LUMEN Sky, aerial drone-based digital methane monitoring, and LUMEN Terrain, continuous ground-based digital methane monitoring, which help operators identify and reduce fugitive methane emissions. Another product, flare.IQ, collects data from the flare meter along with gas composition from the gas analyzer and process pressure and temperature (P/T) readings using an asset's Distributed Control System. There is digital verification when the flare process stabilizes. Then, a proprietary, patented algorithm is applied to calculate theoretical sound speed based on gas composition and P/T and compare it with measured sound speed from the meter to digitally verify that the meter has passed inspection.

Digital technologies will be increasingly important for operators, Pisoni said, and Baker Hughes' new products and services will incorporate these technologies to enable quantifiable metrics to be captured to simplify ESG reporting.

"The biggest impact we can make as an industry to society as a whole in terms of climate change is also the biggest impact we can have for our customers," he said.



**"If we reduce our Scope 3 emissions, we are aligning with customers and helping them reduce Scope 1 and Scope 2 emissions. It's a very serious commitment."**

—Attilio Pisoni,  
Baker Hughes Oilfield Services

Wayne Richards, president and CEO of GR Energy Services, said for his company, reducing carbon emissions is always a part of how it delivers service at the well site.

"That's one thing we can control in the field," he said. "When you look at the development of our technologies—either internal development or those technologies we brought in externally—they are all geared around reducing our carbon footprint."

In practice, managing CO<sub>2</sub> output takes many forms. One of these is something Richards calls vehicle rationalization—promoting carpooling, encouraging employees to leave cars at the shop on days off and sharing vehicles on site. Through vehicle rationalization, "the company has cut vehicle use by more than 30%," he said.

GR Energy Services also has installed EKV Power Drive devices on its fleet, which allow vehicles to idle in a mode that uses less fuel and produces less exhaust. Together, these initiatives have made a significant difference, Richards said, resulting in fewer vehicles in use as well as less idling time at the well site.

"The development of all of our technologies for perforating and plug and perf operations are built with the goal of having fewer people at the well site," Richards said. "We also invested in our gun system to improve efficiency."

With those efficiency gains, the ZipFire perforating system saves 1,600 gallons of fuel, decreases water usage and reduces carbon emissions by 16





**“When you look at the development of our technologies—either internal development or those technologies we brought in externally—they are all geared around reducing our carbon footprint.”**

—Wayne Richards, GR Energy Services

metric tons per quarter, he said. “We are making 1,100 to 1,200 runs without failure.”

Electrification is another component of the carbon reduction program. GR Energy Services has four electric trucks in its fleet today, and more will be added soon. “In the next year, about half of our units will be electric,” Richards said, noting that the pace of adding units is constrained by supply chain limitations that preclude getting electrified units to the site more quickly. “Right now, it’s a seven- to nine-month process,” he said.

“Together, all the things we are doing help in our efforts to be good citizens,” Richards said. “We have to do more with less to be competitive. It’s a smart way to do business.”

### Data modeling

Andres Cabada, director of global stewardship and sustainability at Halliburton Co., said his company centers its ESG objectives on extracting oil and gas while reducing the environmental footprint by focusing on execution.

“We identify priorities and then change activities and behaviors to lower our and our customers’ impact,” he said.

“Emissions are top of mind, but we also recognize, as we engage with operators, that some issues are local in nature,” Cabada explained, noting that in areas such as the water-stressed Permian Basin, water preservation is critically important. “Marrying global priorities and local challenges pays off in all different ways,” he said.

***In third-quarter 2021, electric truck use reduced engine usage by 1,642 hours, saved 2,463 gallons of fuel and decreased the carbon footprint by 24.63 metric tons of CO<sub>2</sub> equivalent.***







**“We identify priorities and then change activities and behaviors to lower our and our customers’ impact.”**


—Andres Cabada, *Halliburton Co.*

“To drive this through our technology processes, we follow a well-structured lifecycle, stage-gate process. We’ve embedded sustainability as a swim lane in that process so we can identify opportunities where a product may have a favorable impact,” Cabada explained.

In his view, three things accelerate change: data modeling, improved equipment and automation and translating existing knowledge into new applications.

Cabada defines data modeling as everything from quantifying emissions across the life cycle to building subsurface models for CO<sub>2</sub> storage to managing disparate sources of data for quantifying emissions. Intelligent data modeling identifies a robust process that helps customers focus on strategy and change rather than simply tracking emissions.

He provided several examples to illustrate how Halliburton improves ESG performance via automation and equipment, including the Cognitus automated cementing platform that enables an onshore cement operator to manage the offshore process, and the Zeus electric pump, which is the industry’s first pumping unit capable of achieving sustained activity at 5,000 hydraulic horsepower. The unit’s electric-based powertrain enables pumping at higher rates with a smaller footprint and allows for seamless rate changes without lag times during rate transitions.

Combining the pump with an electric blender and electric wireline unit, the company is delivering value through expanded electrification, Cabada said. 



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# Putting Water To Work

The reuse of produced water is on the rise as water management evolves.

ARTICLE BY  
**ANNA KACHKOVA**  
CONTRIBUTOR

**T**he shale industry's approach to water management is evolving against the backdrop of increased water usage by operators and the recent focus on ESG performance.

One significant trend is the rise of produced water recycling, as operators minimize water disposal and step up reuse. The buildout of water infrastructure has taken place and attitudes toward sharing of recycled water in the Permian Basin have shifted. Some water companies are also exploring the possibility of treated and recycled water from shale operations being used by other industries too.

There is still scope for the industry to further improve its water management performance, but significant strides forward have been made, especially in recent years.

## On the up

"Water is essential, and the ability to have proven takeaway and reliable access to water when you're fracking becomes critically important, so everybody is focused on more effective water management," Aris Water Solutions' president and CEO, Amanda Brock, told Hart Energy.

Water requirements for shale producers have evolved alongside drilling practices. As the industry has sought to become more efficient, especially during the downturns of recent years, it increasingly pursued wells with longer laterals, as well as multiwell pad drilling, simultaneous fracking and other ways of maximizing output. All of this has driven up water demand.

According to water management company XRI's CEO, Matt Gabriel, less than a decade ago, well completions required on average one-fifth the amount of water that they do today.

"Almost exclusively back then, it was a freshwater solution that was provided," Gabriel told

Hart Energy. XRI, which focuses on the recycling of produced water, saw this as unsustainable. The company treats disposal of such water as a last resort.

"About 80% of the produced water we touch every day is recycled and reused," Gabriel said. "Our current average high-water mark is about a million barrels a day of recycled volumes that's going back into the system for reuse by customers."

Like XRI, Aris has also seen demand for recycled water rise.

"Being concerned about environmental impacts and their water footprint, you are seeing rapid adoption of the use of recycled produced water," Brock said.

Aris recycles around 400,000 bbl/d of water across eight locations in the Permian Basin and continues to expand its footprint.

"Our customers—being majors, large independents and privates—are all wanting as much access



**"Our customers—being majors, large independents and privates—are all wanting as much access to recycled water for use in their operations as they can get."**

—Amanda Brock, Aris Water Solutions

**XRI treats and recycles approximately 1 MMbbl/d of produced water throughout the Midland and Delaware basins.**



to recycled water for use in their operations as they can get,” said Brock.

Chevron Corp. recently provided an update on the agreement it had struck with Aris in May. The deal, Chevron noted, puts the company on a path to using 80% recycled produced wastewater for its fracking operations across most areas by the end of 2023. A Chevron spokesperson told Hart Energy that the company used no fresh water for fracking in 2021, and 99% of its Permian water needs that year were satisfied by brackish or recycled sources. The company’s next goal is to phase out brackish water, which accounted for 55% of its Permian water use last year, replacing it with treated produced water, even as it ramps up production in the basin and its water needs increase.

**Sharing water**

Notably, Chevron has said that the produced water not required for its own fracking operations can be transported to be used by other operators where possible. This illustrates an emerging willingness for Permian operators to share water resources that had not been there previously.

“There was a chain-of-custody concern that existed a few years ago that intellectually producers have overcome,” said Gabriel. “We went from, two years ago, a prohibition on using one super major’s produced water for another, to now an actual encouragement, to incentives. If we give them enough notice, they’ll be sure there’s more water available.”

This continued sharing of water and water infrastructure is one area where Gabriel sees

potential for improved performance when it comes to water management. Permian producers are now beginning to follow in the footsteps of Appalachian operators, who have a more established history of water sharing, according to Olympus Energy LLC’s chief operating officer, Mike Wahl.



**“About 80% of the produced water we touch every day is recycled and reused.”**

—Matt Gabriel, XRI

“That’s been part of the legacy in the history up here in Appalachia, so it’s a little bit different than the Permian,” Wahl told Hart Energy. “We’ve got active partnerships and relationships with most, if not all, of our major neighboring operators to do exactly that, to maximise the recycling and reuse across the system. It’s been a priority for a number of years up here, and it’s one that the operators in this region take very seriously,” he said.

Olympus has gone over three years without trucking fresh water to its completions, Wahl noted. The company recently received a certification from Project Canary that includes the highest available rating for its water recycling program.



**Exploring options**

A number of new ways for managing water are now being explored across the industry. Both Olympus on the operator side and Aris on the service provider side are involved in the U.S. Department of Energy’s Produced Water Application for Beneficial Reuse, Environmental Impact and Treatment Optimization (PARETO) initiative. Aris said it serves as a real-world case study for PARETO, while Olympus is collaborating on the development and testing of produced water optimization software through the initiative.

Aris is also involved in a study with Texas A&M University aimed at the utilization of treated produced water for nonconsumptive crop irrigation. This is part of Aris’ approach of treating produced water as waste-to-asset that can be repurposed to benefit other industries and stakeholders beyond oil and gas.

XRI is also exploring produced water’s potential to be beneficial beyond the oil and gas industry.

“Environmental discharge is something we’re excited about, with large-volume networks treating water to match the region’s groundwater quality



**“We’ve got active partnerships and relationships with most, if not all, of our major neighboring operators ... to maximise the recycling and reuse across the system.”**

—Mike Wahl, *Olympus Energy LLC*

and then extensively building intentional marshlands with grass, and reeds and things that would actually be a carbon consumer,” said Gabriel. This would require an environmental discharge permit and managing the water quality to be as clean as the local groundwater, which Gabriel said would not be cheap.

“But with scale, we’re able to get it to ostensibly match produced water disposal costs, close enough that we think this could be a major disrupter to traditional downhole disposal,” he said.

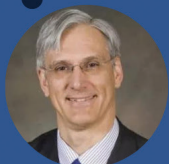
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