

# ESG INVESTING AND THE US OIL AND GAS INDUSTRY: AN ANALYSIS OF CLIMATE DISCLOSURES

BY HON XING WONG, NAOMI ZIMMERMANN, ERIN BLANTON, AND  
TIM BOERSMA  
APRIL 2022



## ABOUT THE CENTER ON GLOBAL ENERGY POLICY

The Center on Global Energy Policy at Columbia University SIPA advances smart, actionable and evidence-based energy and climate solutions through research, education and dialogue. Based at one of the world's top research universities, what sets CGEP apart is our ability to communicate academic research, scholarship and insights in formats and on timescales that are useful to decision makers. We bridge the gap between academic research and policy — complementing and strengthening the world-class research already underway at Columbia University, while providing support, expertise, and policy recommendations to foster stronger, evidence-based policy. Recently, Columbia University President Lee Bollinger announced the creation of a new Climate School — the first in the nation — to tackle the most urgent environmental and public health challenges facing humanity.

Visit us at [www.energypolicy.columbia.edu](http://www.energypolicy.columbia.edu)

   @ColumbiaUEnergy

---

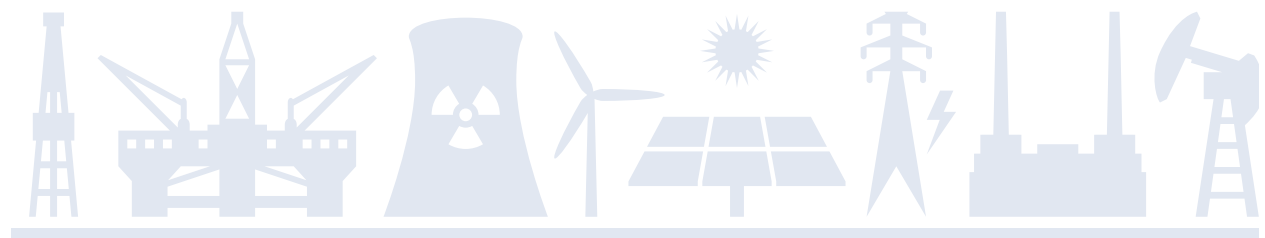
## ABOUT THE SCHOOL OF INTERNATIONAL AND PUBLIC AFFAIRS

SIPA's mission is to empower people to serve the global public interest. Our goal is to foster economic growth, sustainable development, social progress, and democratic governance by educating public policy professionals, producing policy-related research, and conveying the results to the world. Based in New York City, with a student body that is 50 percent international and educational partners in cities around the world, SIPA is the most global of public policy schools.

For more information, please visit [www.sipa.columbia.edu](http://www.sipa.columbia.edu)

# ESG INVESTING AND THE US OIL AND GAS INDUSTRY: AN ANALYSIS OF CLIMATE DISCLOSURES

BY HON XING WONG, NAOMI ZIMMERMANN, ERIN BLANTON, AND  
TIM BOERSMA  
MARCH 2022



Columbia University CGEP  
1255 Amsterdam Ave.  
New York, NY 10027  
[energypolicy.columbia.edu](http://energypolicy.columbia.edu)

   @ColumbiaUEnergy

# ACKNOWLEDGMENTS

For comments on earlier drafts of this paper, insightful conversations, and editorial guidance, we thank the 12 anonymous respondents from the financial sector who participated in our interview series, the editorial team at the Center on Global Energy Policy (especially Jeffrey Culang and Andrea Brody-Barre), and the two internal and four external anonymous reviewers. We are particularly grateful to the interviewees from financial market participants, who took precious time out of their schedules to give us insight into their thinking about the role of oil and natural gas in the energy transition in the United States and how the financial sector's increasing focus on sustainable investment may affect that thinking going forward. We want to emphasize that this paper and its findings in no way represent the views of these individuals or the organizations they work for. All errors remain the authors'.

This report represents the research and views of the authors. It does not necessarily represent the views of the Center on Global Energy Policy. The report may be subject to further revision.

Contributions to SIPA for the benefit of CGEP are general use gifts, which gives the Center discretion in how it allocates these funds. More information is available at <https://energypolicy.columbia.edu/about/partners>.



## ABOUT THE AUTHORS

**Hon Xing Wong** is a Research Associate at the Center on Global Energy Policy. His research areas of interests include climate and energy transition risks, and electrification of the transportation sector. He also supports the Natural Gas Research Initiative. Prior to joining the Center, he was an Environmental Defense Fund Climate Corps Fellow where he worked with New York City's Metropolitan Transportation Authority (MTA) on electric bus projects. Previously, he was a chartered engineer at BP in various engineering and site-operations roles across different geographical regions; namely, Angola, Egypt, and the North Sea. He holds a Master of Public Administration from Columbia University's School of International and Public Affairs and a Master of Engineering in chemical and environmental engineering from Nottingham University.

**Naomi Zimmermann** is an undergraduate student at Barnard College and a research assistant at the Center on Global Energy Policy at Columbia University's School of International and Public Affairs. At Barnard, she is majoring in environmental science and sustainability and is a staff writer for Consilience, Columbia's Journal of Sustainable Development. Her prior work experience includes working as an ESG analyst at an asset management firm as well as a climate change research fellow at Columbia Law School. She is particularly interested in sustainable finance and corporate social responsibility and will be working as an ESG analyst after graduation.

**Erin M. Blanton** is the executive director at GTI, where she leads the methane emissions mitigation solutions strategy and is building out a new program focused on the role of natural gas infrastructure in a net-zero future. She was formerly a senior research scholar at the Center on Global Energy Policy at Columbia University's School of International and Public Affairs, where she led the Natural Gas Research Initiative and spearheaded the center's ESG research. Her research focuses on the role of natural gas in the energy transition, energy markets and investment, and global energy access. Before joining the center, Blanton spent 16 years at Medley Global Advisors, an independent macro policy research firm, where she was a managing director and led natural gas and renewable coverage. Her clients consisted of the world's leading hedge funds, asset managers, and investment banks. She is currently an advisory board member for Kimmeridge Energy Management's Carbon Solutions Fund. Blanton holds a master's degree from Columbia University's School of International and Public Affairs and a bachelor of arts in economics from Cornell University.

**Dr. Tim Boersma** works at the Dutch bank ABN AMRO, where he leads the Sustainability & Strategy Advisory in North America, and is a Non-Resident Fellow at the Center on Global Energy Policy at Columbia University. He is also a Senior Advisor to Argentem Creek Partners LP. Previously, Boersma was a Senior Research Scholar and Natural Gas Program Director at Columbia University, a Fellow and Acting Director of the Energy Security and Climate Initiative at the Brookings Institution, and worked in the Dutch electricity sector. He (co-)authored three book manuscripts, and published in Energy Economics, Energy Policy, Foreign Affairs, and other leading journals. Boersma holds a PhD in International Relations from the University of Groningen.



# TABLE OF CONTENTS

<b>Executive Summary</b>	<b>6</b>
<b>Introduction</b>	<b>8</b>
<b>ESG in the US Upstream Oil and Gas Sector: A Survey of Emissions Reporting</b>	<b>10</b>
Reporting Frameworks	10
Alignment with TCFD Recommendations: Governance	10
Alignment with TCFD Recommendations: Strategy	11
Alignment with TCFD Recommendations: Risk Management	12
Alignment with TCFD Recommendations: Metrics and Targets	13
<b>Investors: What Do They Want?</b>	<b>15</b>
The Role of the Oil and Gas Sector in a Decarbonizing World	15
GHG Emissions Reductions and Reporting	16
Additional Themes	17
<b>Upcoming Regulations</b>	<b>19</b>
US ESG Regulations	19
Upcoming SEC Efforts	19
Regulations and Technology: Opportunities to Improve GHG Emissions Data Quality	20
EU Legislation and Implications for US Oil and Gas Companies and Their Financiers	21
<b>The Path Forward</b>	<b>24</b>
<b>Appendix</b>	<b>27</b>
<b>Notes</b>	<b>29</b>



# EXECUTIVE SUMMARY

As climate change continues to unfold around the globe, environmental, social, and governance (ESG) concerns are increasingly driving investment decisions. This is especially true for investors in the oil and gas sector, which accounts for an outsized share of global greenhouse gas (GHG) emissions. Although this sector's future is uncertain amid the decarbonization process, demand for oil and gas is unlikely to decline soon. However, given the proliferation of ESG investment strategies, if these companies wish to continue to attract capital, they will likely need to reduce their environmental footprint and show evidence of such in a way that is both transparent and uniform across the sector.

This report, part of Columbia University's Center on Global Energy Policy, analyzes how oil and gas companies involved in exploration and production (known as "upstream") are disclosing GHG emissions and climate change risks, the extent to which their disclosures align with existing reporting standards, and investor views on the future of the oil and gas sector and its role in the energy transition. The report's scope is limited to US oil and gas companies for two reasons: oil and gas production in the US is growing and the country seeks to be a global leader on climate issues. The analysis is based on the authors' survey of the ESG/sustainability reports of 15 different-sized upstream US oil and gas companies and the authors' interviews with influential investors in the US oil and gas sector. In addition, the report examines upcoming climate disclosure requirements from the Securities and Exchange Commission, in concert with other bodies, likely to take effect in the coming years.

The main findings of this report are as follows:

- Surveyed upstream US oil and gas companies rely on different methodologies for their reports, though nearly all of them use the Task Force on Climate-Related Financial Disclosures (TCFD) framework. However, amid a lack of guidance from governing bodies as well as the TCFD, companies are deciding on their own what to disclose and how to disclose that information. Moreover, each company sets GHG emissions-reduction targets using their own baseline years and timelines.
- These features of climate-related ESG reporting by US oil and gas companies translate into uneven disclosures across the sector, making it difficult for investors to measure and compare these companies' progress in meeting climate goals. Interviewed investors expressed a strong desire for greater transparency around the methodologies that oil and gas companies use to estimate emissions and for the development of interim emissions-reduction targets directly tied to executive compensation.
- Investors the authors spoke with were uncertain about the oil and gas sector's place within the global energy transition. However, all of them agreed that oil and gas companies must reduce the emissions they can control directly (Scope I and II), and most believed they should at least report their indirect emissions (Scope III).



- Broadly speaking, investors preferred a strategy of engagement rather than divestment in promoting change within the oil and gas sector. They also sought improved disclosure by oil and gas companies about their lobbying activities.

This study proposes six principles that could help oil and gas companies achieve greater alignment with the TCFD framework, and seven environment-related key performance indicators that oil and gas companies could implement and disclose to demonstrate their commitment to reducing their environmental footprint.





# INTRODUCTION

Amid rising public concern about climate change, investors are increasingly scrutinizing their portfolio using environmental, social, and corporate governance (ESG) frameworks and/or strategies. This scrutiny is particularly acute for the oil and gas sector, which directly accounts for 9 percent, and indirectly an additional 33 percent, of global greenhouse gas (GHG) emissions.<sup>1</sup> With current technologies, many of the companies producing oil and natural gas are incompatible in the medium and long term with a world seeking to reduce its dependence on fossil fuels and rapidly decarbonize. Nevertheless, there appears to be a growing disconnect between ambition and reality regarding decarbonization efforts, with decarbonization ambitions growing ever larger yet demand for fossil fuels continuing to be robust and, in many parts of the world, even expanding. *Net Zero by 2050*, published by the International Energy Agency (IEA) in May 2021, dominated news headlines with its statement that for the world to achieve net zero by 2050, “no new oil and gas fields [can be] approved for development from 2021.”<sup>2</sup> Yet, with the IEA’s call for increased natural gas shipments from Russia to the EU to abate high gas prices in Europe and with recent pleas by the US for OPEC (Organization of Petroleum Exporting Countries) to increase oil supply and alleviate rising domestic gasoline prices,<sup>3</sup> it is clear that hydrocarbons are still very much in demand and could remain at comparable levels for the foreseeable future. Taking continued and possibly even growing production of oil and gas as a working hypothesis, there is an even more urgent need to significantly improve the environmental footprint of its production, transportation, storage, and consumption.

The rise of oil and gas production in the US,<sup>4</sup> combined with that country’s desire to be a leader in furthering the global climate agenda,<sup>5</sup> makes decarbonizing its oil and gas sector critically important. The US financial sector and its regulators are just starting to grapple with what climate change and the energy transition may mean for their investments in and loans to the oil and gas sector. It was only in September 2020 that Morgan Stanley became the first US-based major financial services firm to commit to net-zero financed emissions by 2050.<sup>6</sup> In the US, there exist few, if any, disclosure regulations for companies regarding ESG issues (except for environmental disclosures mandated by the Environmental Protection Agency [EPA]) and climate risks. At the same time, investor demand for ESG performance reporting is significant and growing.<sup>7</sup> This situation has resulted in an ESG landscape that is complex, inconsistent, and awash with unsubstantiated claims of better sustainability/environmental/social performance. Although matters may improve with the expected SEC (Securities and Exchange Commission) proposal for new disclosure requirements on climate and ESG risks and opportunities, currently there is very little understanding of what *good* ESG means in general and for upstream oil and gas companies in particular. More specifically, there are few robust and consistent standards for how these companies should report GHG emissions and manage the risks related to them. Given the capital-intensive nature of the oil and gas sector, its future relies on its financiers determining what they want from producers in terms of climate performance. Some financiers have opted out of oil and gas altogether, even though



the net impact of such divestment on overall GHG emissions is debatable. Considering the robust demand for oil and gas, a case can be made that engagement with the sector can accomplish more to improve practices and meaningfully impact GHG emissions.

The literature on ESG has largely focused on the unstandardized nature of ESG reporting and ratings and studied how investor pressure around ESG—in its broader definitions—affects companies. Although there has been some discussion of investors' views of the future of the oil and gas sector and how it may (or may not) fit into net-zero scenarios,<sup>8</sup> there has been little attention to ESG reporting as it relates to the oil and gas sector. This study analyzes the disclosure and management of GHG emissions and climate change risks among US oil and gas companies. Within this narrow scope,<sup>9</sup> it closely examines how GHG emissions and the risks associated with climate change are being reported and scrutinizes what companies actually mean when they say they are aligned with reporting standards such as the Task Force on Climate-Related Financial Disclosures (TCFD) framework. The study also explores investors' views of the future of oil and gas and discusses the likely trajectory and implications of future regulations.

This paper begins with a critical review of present ESG reporting activity specific to managing GHG emissions and climate-related risks among US upstream oil and gas companies. This review is based on a comparative analysis of the sustainability/ESG reports recently published by a selection of US oil and gas companies. Next, the paper presents key themes drawn from the authors' interviews with a group of lenders, investors, and insurance companies active in the sector, who were asked how they view the sector and how companies should be disclosing and managing GHG emissions and climate-related risks. The discussion then turns to key, upcoming sustainability regulations and various ongoing efforts to better define sustainability and ESG. Finally, the paper presents a pragmatic path forward via a set of principles for the US oil and gas sector (both companies and investors) that aligns with investor expectations, societal pressures, and upcoming regulations.



# ESG IN THE US UPSTREAM OIL AND GAS SECTOR: A SURVEY OF EMISSIONS REPORTING

Amid mounting investor attention, upstream oil and gas companies have produced a flurry of reports that highlight their ESG/sustainability performance. In order to evaluate the management of GHG emissions and climate-related risks in this sector, the authors surveyed these reports for their climate-related disclosures. The authors initially surveyed 17 US oil and gas companies that in 2019 were responsible for 1,311 million barrels of oil, representing approximately 30 percent of total US oil production.<sup>10</sup> This selection was later pared down to 15 publicly listed companies.<sup>11</sup> In an attempt to provide a comprehensive analysis of the US upstream oil and gas sector, the sample includes companies of different sizes, from large, integrated oil and gas producers (including the top six in the US) to smaller, upstream-only companies.<sup>12</sup> Of these 15 companies, 14 published a sustainability report for 2020.<sup>13</sup>

Given that nearly all of the reports state that they use the TCFD framework disclosures to inform their sustainability/ESG reporting, the authors used the TCFD categories as a guide to record the presence and type of information disclosed. Drawing on this data, the authors assembled a table, available in the appendix, that reflects the disclosures most salient to climate-related risks and performance. This section presents the key themes that emerged from the surveys in relation to the disclosure and management of GHG emissions and climate-related risks.

## Reporting Frameworks

The surveyed upstream oil and gas companies use numerous reporting frameworks in their reports, each of which requires the disclosure of different information. Nearly all of the companies surveyed stated that they use the TCFD framework,<sup>14</sup> though many companies seem to use parts of the framework and do not adhere to the full scope of the reporting requirements. However, the authors' analysis of the reports revealed that disclosures lacked coverage across the TCFD categories and the detail solicited by the TCFD recommendations. This lack of detail can likely be attributed to a lack of guidance from the SEC (and other governing bodies) and the TCFD themselves on how companies should report this information. In the absence of such guidance, companies can independently decide what information to disclose from the TCFD and in which form to present it. Many of the reports contain an appendix that provides the page sections where compliance with the various requirements for different ESG disclosure frameworks (e.g., Sustainability Accounting Standards Board [SASB] or Principles for Responsible Investment [PRI]) is described—however, they often refer to large page ranges, making it difficult to locate specific information. Although the reports are rather lengthy and present an overwhelming amount of material, they contain only sparse hard data, making them tedious to sift through.

## Alignment with TCFD Recommendations: Governance

In analyzing a company's alignment with the TCFD's governance recommendations, the authors looked for where climate and ESG risks sat, if at all, within the board of directors



and whether executive management’s compensation was explicitly tied to the management of climate-related risks and/or GHG emissions-reduction targets. In terms of the former, Pioneer, for instance, has a specific Sustainability and Climate Oversight Committee that oversees ESG risk and opportunities as well as climate-related risk, and it is led by the board chair. Most companies either folded climate-related risks into EHS (environmental, health, and safety) committees or included a general comment about board oversight. For example, Range Resources’ board “incorporates climate risk into discussions and decision-making,” and ExxonMobil states that its climate risks are folded into “overall enterprise risk.”

Regarding executive compensation, 14 of the 15 surveyed companies explicitly disclosed that executive compensation was linked to climate-related targets.<sup>15</sup> Marathon Oil noted that its GHG emissions-intensity-reduction target was “hard-linked” to its annual cash bonus scorecard for employees and separated out from safety targets. More commonly, companies aggregated climate-related targets into broader ESG targets that include safety metrics such as VAALCO Energy’s disclosure that ESG metrics linked to executive compensation include total recordable incident rate, carbon footprint-reduction targets, and improved reporting of air, water, and waste metrics. By contrast, there was little evidence of climate-related incentives at the lower levels of governance, including among individuals responsible for detecting and repairing leaks. This lack of incentives presents challenges to lowering the emissions of producers if the boardroom level is spending a relatively modest amount of time in places where leaks will actually have to be detected and prevented.

## Alignment with TCFD Recommendations: Strategy

In examining how these companies are incorporating climate-related risks and opportunities into their business strategy, the authors looked for a range of specific disclosures, including the timeline of specific GHG emissions-reduction goals and strategies and whether these companies undertook scenario analyses to quantify the resiliency of their business in a carbon-constrained world. The authors also searched for details concerning how these risks and opportunities were impacting capital allocation. The emphasis was on exploring whether companies disclosed the amounts being directed specifically toward emissions-reduction efforts or alternative business opportunities in renewable energy.

### Time Frame

All the surveyed companies that committed to GHG emission-reduction targets had short-term goals set for 2025, with some including targets for 2030 or earlier. The companies provided scant detail on the strategy or targets beyond 2030, including those such as Hess and Chevron that support the 2015 Paris Accord and the global goal of achieving net-zero emissions by 2050. Occidental was an exception, as it is aiming for net zero for Scope 1 and 2 emissions by 2040 and for Scope 3 emissions by 2050. (Scope 1 and 2 emissions are those that fall within a company’s direct influence, whereas Scope 3 emissions are those linked to the use of their products.) Additionally, Hess disclosed that a chief operating officer-led task force had been set up to consider the company’s medium- and long-term climate strategy, including whether it can feasibly achieve net-zero GHG emissions by 2050. It is likely that other firms are similarly trying to figure out internally how to make good on promises made.



## Scenario Analyses

Of the reports analyzed, half included no mention of scenario analyses. Of those that did use scenario analyses, all employed the IEA *World Energy Outlook* scenarios, and many explicitly referenced the IEA's Sustainable Development Scenario. In commenting on the output of these scenario analyses, companies made vague and affirmative statements. For instance, ExxonMobil remarked that "significant use of oil and gas through 2050" means that their reserves "face little risk from declining demand,"<sup>16</sup> and Diamondback claimed that the company will still be "positioned to succeed" in a carbon-constrained world.<sup>17</sup> Apache referenced the IEA scenario in its report but only to make the point that oil and gas will continue to play important roles in the global energy mix, even in a carbon-constrained future.<sup>18</sup>

While the IEA projects continued demand for oil and gas even under scenarios consistent with meeting the Paris Agreement goals, this demand will be significantly lower as the global share of energy demand shifts to renewable sources and more stringent regulation is put in place. Therefore, claims of continued profitability cannot be true for all suppliers. Although no oil and gas company would willingly disclose that its business model is unsustainable and that its reserves are at risk of being stranded in a carbon-constrained world, companies in the sector currently do not convincingly demonstrate why they anticipate their barrels to be among the last ones produced. If the goal is to continue to attract investors, they will need to provide information that allows investors to evaluate differences in performance between them and reward the top performers.

## Capital Allocation

Companies have so far missed the chance to provide details on the relative amounts of and long-term thinking around the capital allocated to emissions-reduction and alternative lower-carbon business opportunities. Exceptions are Chevron's goals of \$2 billion toward carbon-reduction projects and \$750 million toward renewable energy and offset projects by 2028, and Marathon Oil's allocation of \$100 million over the period 2021–25 toward high-impact emissions-reduction strategies and technologies. These efforts are good examples of disclosures that help investors understand the impact of climate-related risks and GHG emissions-reduction efforts. Many companies did provide some level of detail regarding the various emissions-reduction efforts underway, but few set out the financial details and timeline of these campaigns.

## Alignment with TCFD Recommendations: Risk Management

Virtually all the sustainability reports stated that climate-related risks would be integrated into the risk-management process but did not go into further detail regarding the frameworks for identifying those risks and how they were integrating them. The climate risk disclosures from Diamondback illustrate this point well: in its sustainability report, the company listed various climate-related risks, including "current and emerging regulation, technology, legal, market, reputation, and acute and chronic physical risks," as well as a description of how it



is mitigating them.<sup>19</sup> However, the language used for its mitigation response is vague (e.g., “Diamondback always monitors and manages potential legal risks”<sup>20</sup>) and does not provide enough detail for investors and regulators to understand the degree to which the company integrates climate risks into its overall risk-management process. In fact, it only states that the company evaluates those risks internally.

By contrast, ConocoPhillips’s disclosures concerning their processes for identifying and assessing climate-related risks were among the most detailed of those analyzed. The company discloses that climate-related risk assessments are conducted on large future projects (defined as greater than \$50 million net price and expected to emit more than 25,000 metric tons of CO<sub>2</sub>). These assessments include forecasts of GHG emissions over the life of the project and an evaluation of physical and transition climate risks. The projects are also required to have anticipated future GHG prices incorporated into their financial evaluation prior to approval.<sup>21</sup>

It was often difficult to grasp how integrated these companies’ climate-related risk-management processes are into the overall organization (TCFD Risk Management Recommendation C).<sup>22</sup> In some instances, companies disclosed where their ESG and sustainability teams sat within the organization’s structure and which executive leader these teams reported to. For example, Chevron’s Energy Transition and ESG and Sustainability teams sit under the Strategy and Sustainability Organization, whose vice president is on the executive committee.<sup>23</sup>

## Alignment with TCFD Recommendations: Metrics and Targets

As displayed in Table 1 in the appendix, companies report their GHG emissions differently across numerous metrics, including scope, methodology, baseline years, and emissions-reduction targets. For example, Chevron and Hess report Scope 1, 2, and 3 emissions, whereas ExxonMobil and Marathon report only Scope 1 and 2 emissions.<sup>24</sup> Most of the oil and gas companies surveyed use benchmarks and estimation factors to estimate their emissions rather than measuring their emissions directly. Absolute emissions-reduction targets, which aim to reduce emissions by a set amount, were notably absent across all companies surveyed. However, most companies in the sample, except VAALCO Energy and Apache, have committed to a GHG emissions-intensity target relative to the company’s economic output, such as revenue. It is worth noting, however, that many companies do not use third-party verifiers in reporting their emissions. Similarly, most of the surveyed companies have committed to zero routine flaring by 2030 and methane-emissions intensity-reduction targets. Apache even announced that it would end routine flaring for its US operations by the end of last year.<sup>25</sup>

Voluntary ESG disclosures and commitments to concrete targets by specific dates may expose companies to legal challenges, possibly disincentivizing companies to report them.<sup>26</sup> There is an ongoing debate over whether oil and gas companies are responsible for Scope 3 emissions and whether by reporting them they are making themselves liable for those emissions. The American Petroleum Institute (API), in its proposal for uniform GHG emissions reporting by its members, focuses solely on Scope 1 and 2 emissions.<sup>27</sup> Of



the companies surveyed, only five (Chevron, Hess, ConocoPhillips, EQT, and Occidental) reported Scope 3 emissions. However, the announcement by Apache it they would cease routine flaring in 2021 and the successful completion of that goal three months ahead of schedule<sup>28</sup> demonstrate that legal concerns need not hold companies back from setting ambitious ESG targets.

The use of different frameworks to estimate GHG emissions, coupled with lack of verification, makes it difficult to compare the carbon footprints of different companies on an absolute basis. Further, each company has set GHG emissions-reductions targets with different baseline years and timelines, making it difficult to gauge their progress in meeting their climate goals and compare them with their peers. Some reports contained questionable claims. For example, EQT disclosed zero emissions from flaring, but in the footnotes it defined flaring based on the American Exploration Petroleum Council's definition, which includes only the flaring of wellhead gas from the primary separator at company-operated assets.<sup>29</sup> This narrow definition omits gas flared from other sources, such as separation and storage vessels downstream of the primary separator and from nonroutine safety-related incidents. The point here is not to minimize EQT's achievement in eliminating routine flaring from the primary separator or question its use of flaring to prevent safety-related incidents but rather to highlight the difficulty in comparing emissions-related data across companies when the definitions and scope of what is reported are inconsistent.





# INVESTORS: WHAT DO THEY WANT?

As previously mentioned, investors have primarily driven this demand for increased reporting of and transparency around ESG and climate-related risk. To gain a sense of how the investment community is thinking about the role of oil and gas companies in the energy transition, the authors interviewed a dozen investors active in the oil and gas sector. These investors were selected based on their influence (they collectively represent institutions that manage and/or supervise close to \$8 trillion in assets) and because they are actively grappling with the question of what it means to invest in oil and gas while attempting to manage climate risks. These interviews were conducted in August and September 2021 via a questionnaire and, where time and availability permitted, over the phone. These investors represented major banks, insurers, asset managers, and private equity funds, and their views are presented here based on the Chatham House Rule.<sup>30</sup> Investors were asked to provide their thoughts on the future demand for hydrocarbons, the role that oil and gas companies can and should play in the energy transition, and the GHG emissions-reductions and reporting responsibilities of these companies. Although the investors offered disparate views on the future of oil and gas demand, almost all aligned on the need for companies to reduce the emissions under their direct influence and to improve transparency and verifiability in their GHG emissions reporting. This section summarizes the key themes that emerged from the interviews.

## The Role of the Oil and Gas Sector in a Decarbonizing World

Investors expressed uncertainty regarding oil and gas demand in the future. This uncertainty translated into disparate perceptions of the role that oil and gas companies can play in the energy transition. Some believed that oil and gas companies should invest in alternative sources of energy and move away from hydrocarbons, while others believed it was more efficient for these companies to cycle free cash flow back to investors. Many investors referenced the more progressive strategies and actions of European companies (e.g., Shell, Total, BP) but expressed caution about advocating a similar path for US companies, given the different regulatory environment in which they operate and the different political pressures they face.

These progressive strategies also do not necessarily translate into better environmental performance. The nonprofit Environmental Defense Fund (EDF) commissioned an aerial surveillance emissions analysis over the Permian Basin from July to August 2021 and found ExxonMobil and Chevron produced lower methane emissions per barrel of oil equivalent than BP and Shell.<sup>31</sup> Admittedly, this example portrays a snapshot constrained by time and geography, and it would be more reasonable to compare these companies on a global basis and over a longer period of time. However, it is challenging to obtain a direct comparison of these companies' emissions performance, given both the lack of data and the uneven nature of the existing disclosures.





## GHG Emissions Reductions and Reporting

Despite these difference in opinion, all investors were aligned on the need for oil and gas companies to reduce their Scope 1 and 2 emissions. However, they did not share a consensus on whether companies should be reporting Scope 3 emissions and whether such emissions come under an oil and gas company's responsibility.

### Scope 1 and 2 Emissions

All investors were emphatic that in the immediate term oil and gas companies must focus on reducing the emissions that they can directly control: methane emissions, flaring and on-site power generation (i.e., Scope 1), and, to the extent possible, off-site power generation (i.e., Scope 2). They believed that increasingly stringent regulations on these emissions sources would be the focus of a climate-ambitious Biden administration—a prescient outlook, given the announcements made by the US and other countries at the 26th UN Climate Change Conference of the Parties in Glasgow on limiting methane emissions and the proposed EPA Clean Air regulations on stronger methane-emissions controls to be finalized by the end of 2022. One investor noted that it was disingenuous for companies to merely focus on operated emissions and that companies should seek to take responsibility for their Scope 1 and 2 emissions on an equity basis (i.e., including investments in nonoperated joint ventures).

### Scope 3 Emissions

The interviews produced a variety of views on whether oil and gas companies were responsible for Scope 3 emissions. Most investors believed that oil and gas companies should report their Scope 3 emissions to provide more transparency and information. One investor pointed out that if these companies have a net-zero target, then Scope 3 emissions should arguably be the company's responsibility. A minority of investors believed that oil and gas companies should not take responsibility for Scope 3 emissions because, in their view, doing so would imply that these companies are responsible for the combustion of their products. These investors felt that the responsibility of these emissions should instead fall on consumers (i.e., the general public) and governments.

### Performance Reporting and Targets

Overall, investors wanted actual measurements of GHG emissions or, failing that, better disclosure of the methodologies for estimating emissions. They noted with frustration the difficulty in trusting numbers self-reported by companies and rarely verified by independent third parties, even though the way US oil and gas companies report emissions is in line with existing EPA regulations. Some investors have concluded that the data being reported by companies themselves and from ratings agencies is of insufficient quality, and instead bilaterally engage with portfolio companies to extract the data they think is relevant to assess ESG performance. Additionally, investors emphasized that an oil and gas company's willingness to support the Paris Agreement is insufficient and that companies must develop interim targets at a maximum of five-year intervals directly tied to executive compensation to demonstrate credible steps toward improving their GHG emission footprint.



Investors found that company disclosures that follow the TCFD framework were the most helpful in evaluating a company's climate-related ESG risks, followed by the SASB framework. They were most concerned with evaluating how companies are identifying and managing risks associated with climate change, with an emphasis on transition rather than physical risks. However, even here, investors acknowledged that understanding how to manage climate change risks is a work in progress. Many investors are still in the process of evaluating and determining key metrics for benchmarking companies on climate performance. One proposed using whether a company undertakes scenario analysis of their portfolio against credible pathways such as the IEA's Sustainable Development Scenario, while another proposed using proof of board oversight and the rigor of a company's sustainability report and/or presentation.

The impression here was that investors were relying on qualitative rather than quantitative assessments for evaluating the ESG performance (itself an ambiguous term) of oil and gas companies. Investors lacked granularity in their understanding of key questions such as, What does it mean to align one's strategy with the TCFD recommendations? or, What does good ESG implementation look like? One investor raised an additional question of whether companies should be benchmarked against their sector. Many investors said it is important to understand the specific context of oil and gas companies when evaluating their performance. In contrast, one investor said that being median in a poorly performing sector was simply not good enough. In this investor's opinion, evaluating against sector peers, which is how many main ESG ratings agencies assess the ESG performance of companies, is poor practice.

## Additional Themes

### Engagement over Divestment

The investors interviewed had a clear preference for an engagement strategy over a divestment strategy. These investors believe in a collaborative approach to effecting change in a company and felt it is important to continue to engage with the management team of oil and gas companies on ESG issues to support better disclosure and performance. Many believed that divesting was ineffective and meant giving up a key source of leverage: access to the management and board of directors of these companies. They also highlighted the importance of bringing subject matter experts to the table to start a constructive dialogue with the company about what they want it to do and in what time frame. A few suggested more aggressive tactics, such as voting against the board of directors, as available options, though ones that should be used only as a last resort in the event investors felt the company was not being receptive to their views. The most well-known example of investors employing these more aggressive tactics is Engine No. 1's successful attempt earlier this year to install three directors at ExxonMobil. The move, which was opposed by the company, was supported by BlackRock, Vanguard, and State Street and reflects an increasing willingness on the part of large institutional investors to assert their views on climate issues.<sup>32</sup> These intentions notwithstanding, there are examples of organizations, such as the Dutch pension fund ABP, announcing an inclusive strategy<sup>33</sup> and then reversing course by divesting from the sector altogether.<sup>34</sup> These examples illustrate that an inclusive strategy may be attractive in theory



but in fact requires dedication and a clear articulation of a company's objectives, how those are to be achieved, and how progress can be measured.

### **Better Lobbying Disclosure**

Across the interviews, investors expressed significant frustration and disappointment with oil and gas companies for their lobbying policies and lack of disclosure around lobbying activities. Investors felt strongly that lobbying is one area where their goals and those of oil and gas companies were particularly misaligned. Many cited the incongruence between the stance of trade associations and companies' stated policy advocacy goals, which allowed them to lobby for less aggressive policies. Even the investors who argued against Scope 3 emissions being an oil and gas company's responsibility described the lobbying practices of oil and gas companies, which frequently come to light only after the fact, as a major obstacle to more expansive climate policy action. In a sign of growing dissatisfaction with (some) trade organizations, various international oil companies have withdrawn from the API over its inability to formulate a more constructive stance on issues related to climate change.<sup>35</sup>



# UPCOMING REGULATIONS

The fragmented nature of ESG reporting and the plethora of information reported by companies inhibits rather than helps investors in making meaningful comparisons between different oil and gas producers. At the root of this challenge is a lack of regulation surrounding ESG disclosure and sustainability reporting.

## US ESG Regulations

Currently, companies that disclose ESG or climate-related information do so on a voluntary basis. Many decide to disclose because not outlining some form of ESG strategy or framework might negatively impact their ability to attract public and/or private capital. What a company chooses to report is also influenced by investor pressure. For example, in 2020 Chevron published a climate lobbying report in response to an investor's proposal that the company disclose more information about its lobbying activities.<sup>36</sup>

In the absence of regulations regarding ESG-related disclosure, numerous international reporting tools such as the Global Reporting Initiative, SASB, and TCFD have been developed. In addition, a coalition comprising the API, IPIECA (International Petroleum Industry Environmental Conservation Association), and the International Association of Oil and Gas Producers have produced sustainability-reporting guidance for the oil and gas industry. Although efforts to merge and standardize these voluntary frameworks are gaining momentum, there is a noteworthy gap between what companies can and must report. The overwhelmingly noncommittal nature of ESG reporting to date has produced a wide range of interpretations of what constitutes "good" ESG. This situation allows some "lagging" companies to use ESG disclosure to meet stakeholder expectations and as a marketing tool to legitimize their operations and feign compliance with nonbinding rules.<sup>37</sup> This tendency, in turn, makes it more difficult for investors to identify "leading" companies.

## Upcoming SEC Efforts

Earlier this month, the SEC proposed climate disclosure requirements for companies in 2022. The proposed rules mandate companies to report both qualitative and quantitative climate-related disclosures in 10-Ks and other public filings. Although undoubtedly welcome, the SEC's efforts are likely to proceed cautiously, given the lack of unanimity within the financial sector around what the SEC should regulate in terms of climate disclosures. Some expect that the initial rollout will likely focus on large companies, with a different set of rules and a longer compliance timeline for smaller companies, similar to the approach that the EU has taken.<sup>38</sup>

Given the complexity of measuring, and the lack of consensus on responsibility for, indirect emissions, some observers believe the SEC rules will mandate disclosure of only Scope 1 and possibly Scope 2 emissions. It is also unlikely that the SEC will mandate rules above and beyond the TCFD recommendations for how companies should disclose their strategies and management plans to address the risks associated with climate change.<sup>39</sup> In addition, any



SEC ruling will not come into effect until several years after 2022, so as to afford time for corporations to adapt, or even later, in the likely event the rules are challenged in court.

In combination with SEC financial disclosure rules, other regulatory measures can have indirect effects on the standardization of ESG disclosure. The recent raft of national and international efforts to reduce methane emissions is a strong signal to industry and investors alike of the need to improve disclosures of methane emissions and targets for reducing them. These efforts range from nonbinding political commitments at the highest levels of government, like the Global Methane Pledge led by the US and EU, to regulatory enforcement measures, such as the methane fee in the draft Build Back Better Act and the proposed EPA New Source Performance Standards and emissions guidelines for the oil and gas industry, that strengthen federal regulation of methane emissions.<sup>40</sup>

## Regulations and Technology: Opportunities to Improve GHG Emissions Data Quality

Financial institutions increasingly express frustration about the lack of high-quality GHG emissions data in the oil and gas sector. Any meaningful conversation with an operator about materially reducing their GHG emissions and local air pollutants in the future requires an understanding of what their current footprint is. Improved data quality will also be key to increasing the effectiveness of the regulatory movements discussed in the previous section. The GHG emissions associated with oil and gas production are poorly understood, which can be attributed to several factors, including historical design, a lack of significant incentives to improve performance, and the novelty of emerging technology that can be used to more accurately measure emissions.

For decades, oil and gas companies have reported assumed GHG emissions linked to their operations, though novel emissions detection technology has revealed that emissions are often significantly higher than previous estimates. Historically, per regulatory guidance from the EPA, producers have estimated emissions using desktop exercises (rather than actual measurement methodologies) that rely on emission factors. The emergence of more sophisticated measurement technologies, such as aerial surveys, drones, satellite imaging, and continuous monitoring, suggests that real GHG emissions (most of the literature has focused on fugitive methane) may be up to 60 percent higher than previously believed and reported.<sup>41</sup> The latest IEA Global Methane Tracker report found that emissions from the energy sector are about 70 percent greater than official figures from national governments globally.<sup>42</sup>

Technological innovation notwithstanding, it is evident that a regulatory push is likewise necessary to incentivize all operators in the US oil and gas sector to apply these innovations and better measure and reduce GHG emissions. Most operators are hesitant to embrace emissions-reduction efforts if they will increase operational costs—costs that may not always be recoverable. Additional captured methane can be resold on the market, but the extent to which the costs and benefits balance out depends chiefly on natural gas prices. In recent years, the IEA has estimated that between 10 and 40 percent of fugitive methane emissions can be captured at net-zero cost, with the exact number depending on the price of natural gas at a given point in time.<sup>43</sup> An alternative to direct regulatory incentives would be to more adequately price GHG emissions, but in many jurisdictions, including the US, this appears to be a longer-term scenario.



Opportunities for swifter action have been evidenced at the state level. In 2019, Colorado adopted more stringent rules pertaining to local air pollutants and GHGs.<sup>44</sup> In some instances, oil and gas producers in the state operate very close to local residences, causing significant air pollution and posing significant health risks. The new rules incentivized entrepreneurs to offer various technological services that will help producers to identify emissions, and potential leaks, more quickly, with the aim that operators will more rapidly address them and avoid pollution. In 2021, the Colorado School of Mines, which works with these data companies and oil and gas producers in the state, produced some initial results of two projects in which these companies and the university measured and verified emissions collaboratively.<sup>45</sup>

Oil and gas companies are also increasingly working with data companies to help them better understand their GHG footprint, which can also benefit their operational and safety performance. For example, Pioneer Natural Resources has worked for several years with independent data companies to help them improve their understanding of fugitive methane emissions.<sup>46</sup> The company conducted aerial methane surveys over a multiyear period using light aircraft mounted with methane imaging technology. Pioneer attributes an approximate 41 percent reduction in methane intensity to this campaign, in addition to increased operational efficiency and safety as a result of associated cost reductions.<sup>47</sup> Another example is Crestone Peak Resources, an independent oil and gas producer from Colorado, which initiated a partnership with an independent data company and the Colorado School of Mines to measure and validate local air pollutant data associated with their producing wells.<sup>48</sup>

The types of collaborative efforts mentioned previously help investors gain clarity on the materiality of methane emissions and incentivize improved transparency and data quality in what companies report. Additionally, more stringent regulation accelerates the use of innovative technology in measuring GHG emissions and local air pollutants at oil and gas sites. Such regulation could stimulate market demand for “greener” hydrocarbon products, such as responsibly sourced gas (RSG)—natural gas that has been certified by a third party to ensure it is sourced through environmentally responsible procurement practices<sup>49</sup>—and support initiatives that promote science-based, data-driven strategies for emissions data capture. Operators that adhere to these standards may do so because they believe it is the right thing to do or in hopes of selling their product at a premium. Though there have been individual transactions where an offtaker proved willing to pay that premium,<sup>50</sup> a scaled, multiregion market for RSG has yet to emerge. Investors and lenders could design more attractive financing schemes for companies that meaningfully invest in GHG emissions curtailment, but there is little evidence that they have done so as yet, with a couple of noteworthy exceptions, including the Sustainability-Linked Bond Framework announced by the Canadian firm Tamarack in February 2022.<sup>51</sup>

## EU Legislation and Implications for US Oil and Gas Companies and Their Financiers

Compared to the US, the EU is further along in developing and implementing a suite of regulations aimed at standardizing and increasing ESG-related disclosures. Given the growth of seaborne natural gas trade from the US to the EU, regulatory efforts originating from Brussels are directly relevant to US oil and gas producers. Since 2014, the Non-Financial Reporting Directive (NFRD) has required large public interest companies<sup>52</sup> to disclose



nonfinancial information. This category includes an estimated 11,700 companies, including listed companies, banks, insurance companies, and others designated by national authorities as serving the public interest.<sup>53</sup>

In 2017, the European Commission (EC) published nonbinding guidelines for companies to disclose social and environmental information.<sup>54</sup> In 2019, the EC published a supplement to this publication with nonbinding guidelines on climate change–related disclosure.<sup>55</sup> In this supplement, the EC illustrates both the opportunities for companies to contribute to climate change mitigation and/or adaptation, and the risks of influencing the climate in a negative way.

Building on the NFRD and these guidelines, in April 2021 the EC adopted a proposal for a Corporate Sustainability Reporting Directive (CSRD) that amended the reporting requirements under the NFRD.<sup>56</sup> The CSRD is set to be implemented in 2024.<sup>57</sup> Among others, this directive extends the scope of previous legislation to all large companies and all companies listed on regulated markets (with the exception of listed microenterprises), requires an audit of reported information, introduces more detailed reporting requirements (and mandatory reporting standards<sup>58</sup>), and requires companies to digitally “tag” information so that it is easily accessible and comparable.

Alongside these rules, and underpinning the EU’s climate strategy, is the European Taxonomy Regulation, the first part of which entered into force in July 2020.<sup>59</sup> This regulation is essentially a classification system that defines what constitutes environmentally sustainable activity and financial instruments. It is intended to provide clarity to investors, financial institutions, companies, and issuers, and to help drive investment toward more sustainable assets. The regulation was not published in full because EU member states are still discussing whether certain energy sources, specifically natural gas and nuclear energy, should be included in it. Toward the end of 2021, the EC proposed including both natural gas and nuclear energy in the regulation, arguing that these energy sources are likely to play a role in the energy transition.<sup>60</sup> In early 2022, the matter has not been settled, and EU member state Austria has even threatened to sue the EC over its plans.<sup>61</sup>

Taken together, the impact of EU sustainability regulation is likely to extend beyond the EU’s borders (dubbed the “Brussels effect” by Columbia law professor Anu Bradford).<sup>62</sup> For example, global firms may apply these rules across their businesses to reduce the burden of reporting under different regulatory regimes. To a lesser extent, US companies may voluntarily align with EU ESG regulations to continue to attract capital from EU investors, even though it is not a given that future US rules, as currently being drafted by the SEC, will align with the European framework.

More specific to the oil and gas sector, EU legislators are likely to introduce measures that will have a substantial impact on oil and gas imports, including those from the United States. Hovering around 400 billion cubic meters per year, the EU’s natural gas market is among the largest in the world, and a growing share of its natural gas is imported.<sup>63</sup> EU legislators are aware that Europe’s position as a major natural gas import market provides it with substantial clout.<sup>64</sup> This clout is evidenced by some US operators’ actively engaging in policy discussions with Brussels bureaucrats over possible future regulation,<sup>65</sup> in a sign that they recognize the importance of the EU policy for their future business.





In recent years, the focus of European policymakers has expanded beyond carbon emissions reductions to include fugitive methane emissions. As reported extensively, the oil and gas sector is a major source of fugitive methane emissions, though these emissions have historically been poorly measured and quantified. With new technologies emerging to help producers better measure and detect leaks, Brussels bureaucrats have recognized an opportunity to spur their suppliers to improve their environmental footprint as they seek to sell their product in the EU. In November 2020, this ambition culminated in the adoption of the EU methane strategy.<sup>66</sup> In it, the EC lays out its plans to curtail methane emissions in various sectors of the economy, including the energy sector, over the years and decades to come. The priorities of this strategy include improving the measurement and reporting of methane emissions as well as leak detection and repair in natural gas infrastructure and prohibiting routine venting and flaring. More detailed legislation to this effect is under development. In addition, the EC will support the establishment of an international methane emission observatory in partnership with the UN Environment Program, the Climate and Clean Air Coalition, and the IEA.

Many details of the implementation of the EU methane strategy still require fleshing out, and the development of coherent and pragmatic industry standards around methane emissions that can be applied and verified in third countries will take time. In December 2021, the European Commission published a set of legislative proposals to reduce methane emissions in the energy sector in Europe and the global supply chain.<sup>67</sup> Nevertheless, it is clear that developments in measuring and eliminating fugitive methane emissions not only will have a profound impact on the environmental footprint of oil and gas producers beyond the EU borders but also will align with US efforts to curtail methane emissions and will improve the standardization of what constitutes material, climate-related ESG disclosures.





## THE PATH FORWARD

The lack of standardization in ESG reporting specific to GHG emissions and managing climate-related risks by these companies makes it exceedingly challenging to gauge or compare the sustainability performance of oil and gas companies. Investors increasingly appear to be running out of patience with oil and gas companies' lack of transparent and clear reporting on ESG metrics and climate-related risk disclosures. The voluntary and unstandardized nature of this reporting mostly hinders rather than helps investors to differentiate between leaders and laggards in this sector and to make efficient capital allocation decisions accordingly. It also makes it difficult for companies to reap the benefits (e.g., more attractive conditions for accessing capital) of having better sustainability performance as more financial institutions start to make such performance a condition of lending and investment. While regulatory requirements for better disclosures are anticipated, they may not be put into effect for another three to four years.

The window for investors and lenders to justify engaging with oil and gas companies that refuse to align with the financial sector's own net-zero targets seems to be closing. While demand for oil and gas products continues to be robust despite mounting concerns about climate change and environmental degradation, the solutions for this quagmire cannot be found solely on the supply side of the equation. In order to cut through the confusion and lack of consistency, this section identifies key principles on emissions reporting across the US oil and gas sector that emerged through the surveys conducted for this paper. These principles offer both investors and companies a starting point to improve the data quality and comparability of ESG reporting across the industry, specifically in terms of GHG emissions.

While the EU taxonomy rules and SEC disclosures may contribute to more robust reporting standards that allow for comparisons across the sector, this study suggests that companies need to start acting now to bridge the gap between industry's voluntary disclosures and what financial institutions indicate they need to make proper risk assessments. The emergence and deployment of new emissions-measurement technology such as satellite surveillance data will also put the industry under increased scrutiny, especially if observed emissions are considerably higher than what has been self-reported.<sup>68</sup>

The research for this study suggests that companies tend to use TCFD guidelines selectively (in part by design because of the broad nature of the guidelines). In addition, the investors interviewed as part of the research expressed a clear need for improved reporting of GHG measurement and performance. On these grounds, this study proposes the following set of recommendations.

There are six immediate principles that oil and gas companies could adhere to and that would offer greater alignment with the TCFD framework, in addition to principles being called for from NGOs such as EDF and organizations such as the Oil and Gas Climate Initiative (OGCI), the Carbon Tracker Initiative, and the Net Zero Asset Managers initiative:



1. Account for all Scope 1 and 2 emissions of operated and nonoperated assets on an equity basis.<sup>69</sup>
2. Report Scope 3 emissions to improve transparency regarding the industry's emissions impact and to ensure that end users have a role to play in reducing emissions.<sup>70</sup>
3. Have an independent third party verify emissions data and deploy emerging technology to measure GHG emissions.<sup>71</sup>
4. Set a standard baseline year across the industry for measuring emissions reductions. (OGCI has set a baseline of 2017 in its reporting framework.<sup>72</sup> While the Paris Agreement is effective from 2016, the OGCI standard offers a consistent starting point.)
5. Undertake a scenario analysis of the portfolio against credible pathways such as the IEA's Sustainable Development Scenarios with a realistic assessment of downside risks.<sup>73</sup>
6. Explicitly link not just executive compensation but all levels of governance to managing climate-related risks and GHG emissions-reduction targets to ensure that those with responsibility to fix the leaks are compensated for doing so.<sup>74</sup>

In addition, seven environment-related key performance indicators (KPIs) that oil and gas companies could be implementing and disclosing annually in sustainability reports are as follows:

1. Net-zero goal by 2050 and a pathway to net zero for Scope 1 and 2 emissions on operated and equity assets with interim targets at a maximum of five-year intervals.<sup>75</sup>
2. Flaring elimination target of 2030 for all assets and 2025 for the US Permian Basin.<sup>76</sup>
3. Methane intensity target of 0.20 percent by 2025 for upstream players.<sup>77</sup>
4. GHG intensity targets reducing intensity by 13 percent by 2025.<sup>78</sup>
5. Real (or absolute) emissions reductions.<sup>79</sup>
6. Reduction of local air pollutants such as NO<sub>x</sub>, SO<sub>x</sub>, and particulate matter.<sup>80</sup>
7. Implementation of specific GHG reduction measures and allocation of capital expenditures to such efforts.<sup>81</sup>

These recommendations are intended for US oil and gas companies but can also be used by investors, regulators, and oil and gas companies elsewhere as a starting point for improved climate-related risk and GHG emissions disclosures. Investors could communicate to oil and gas companies that these are the standard disclosures required as part of an inclusive ESG investment strategy for the sector. The year 2021 demonstrated that investors have the potential to enact transformative change at the board level if companies are believed to be lagging behind (as evidenced by BlackRock, which withheld support from 10 percent of



the board directors on company shareholder ballots, or more than 6,500 director election proposals, in fiscal year 2020).

With a consensus among investors on the information they want to see from producers, converging regulations that will mandate standardized disclosures, and improvements in technology to improve climate performance, producers have an opportunity to improve their ESG performance and be rewarded for it. If the goal is to achieve a net-zero world where the lowest-carbon-intensity fossil fuels will be produced, US oil and gas companies will need to demonstrate how they can remain competitive in the future.



# APPENDIX

**Table A1:** Comparison of ESG information published by select oil and gas companies

	Chevron	Hess	ExxonMobil	EOG Resources	Talos Energy	Marathon Oil	VAALCO Energy	ConocoPhillips	EQT	Occidental	Range	Diamondback	Apache	Pioneer	Chesapeake
<b>ESG frameworks referenced</b>															
Sustainability Accounting Standards Board	X	X		X		X	X	X	X	X	X	X	X	X	X
Task Force on Climate-Related Financial Disclosures	X	X	X	X		X	X	X	X			X	X	X	X
International Petroleum Industry Environmental Conservation Association, Sustainability Reporting Guidance for Oil and Gas Industry	X	X	X			X		X		X	X	X	X	X	X
Global Reporting Initiative, G4 Guidelines, Oil and Gas Sector Supplement		X			X	X		X	X		X	X	X	X	X
American Exploration and Production Council									X			X		X	X
UN Sustainable Development Goals						X	X						X	X	
UN Global Compact		X						X							
Other	World Economic Forum Stakeholder Capitalism								Disclosing the Facts				American Petroleum Institute; International Association of Oil and Gas Producers	Carbon Disclosures Standards Board	
<b>Emissions reductions targets</b>															
Baseline year	2016	2017	2016	2017	2018	2019	NA	2016	2018	NA	2019	2019	2016	2019	NA
Goal year	2028	2025	2025	2025	2025	2021, 2025	NA	2025, 2030	2025	2025	2025	2024	2025	2030	2025
GHG emissions target	Reduce oil emissions intensity by 40% (24 kg CO <sub>2</sub> e/boe); reduce gas emissions intensity by 26% (24 kg CO <sub>2</sub> e/boe)	Reduce Scope 1 and 2 GHG emissions intensity by 44%	Reduce GHG emissions intensity by 15-20%	Reduce GHG intensity rate to 13.5%	Reduce GHG emissions by 30% ("stretch target" of 40%)	Reduce GHG emissions intensity by 30% by 2021 and 50% by 2025	Generic statement of goals to reduce Scope 1 GHG emissions and increase use of renewable sources (Scope 2)	Reduce GHG emissions intensity by 35-45% by 2030	Reduce Scope 1 GHG emissions intensity by 70%	Total direct and indirect GHG emissions intensity of 0.02 mt CO <sub>2</sub> e/boe by 2025	Reduce GHG emissions intensity by 15%	Reduce Scope 1 GHG emissions intensity by 50%	NA	Reduce GHG emissions intensity by 50%	Reduce GHG emissions intensity to 5.5 t CO <sub>2</sub> e/gross mboe produced
Methane emissions target	Reduce methane emissions intensity by 53% (24 kg CO <sub>2</sub> e/boe)	Reduce methane emissions intensity by 52%	Reduce methane intensity by 40-50%	Reduce methane emissions percentage to 0.06%	NA	NA	NA	Methane emissions intensity reduction target of 10% by 2025	Reduce Scope 1 methane emissions intensity by 65%	Reduce methane emissions intensity to <0.25% of marketed gas by 2025	NA	Reduce methane intensity by 70%	Reduce methane emissions intensity to 0.37%	Reduce methane emissions intensity by 75%	Reduce methane intensity to 0.09%
Flaring target	Reduce flaring by 66% (absolute target)	NA	Reduce flaring intensity by 35-45%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Flaring elimination targets</b>	Zero routine flaring by 2030	NA	Zero routine flaring by 2030	Zero routine flaring by 2025	NA	NA	NA	Zero routine flaring by 2030	NA	Zero routine flaring by 2030	Zero routine flaring by 2030	Zero routine flaring by 2025	NA	Zero routine flaring by 2030	Zero routine flaring by 2025
<b>Net-zero goals</b>	Supports Paris Agreement goal of net zero by 2050	Supports Paris Agreement goal of net zero by 2050	Supports Paris Agreement goal of net zero by 2050; net-zero emissions for operations in the Permian Basin by 2030	Net-zero Scope 1 and 2 emissions by 2040	NA	NA	NA	Net-zero Scope 1 and 2 emissions by 2050	Net-zero Scope 1 and 2 emissions by or before 2025	Net-zero Scope 1 and 2 emissions by 2040; net-zero Scope 1, 2, and 3 emissions by 2050	Net-zero emissions by 2025	Net-zero Scope 1 emissions by 2021	NA	Net-zero Scope 1 and 2 emissions by 2050	Net-zero Scope 1 emissions by 2035
<b>Reported emissions (Scope 1, 2, or 3)</b>	1, 2, 3	1, 2, 3	1, 2	1	1	1, 2	1,2	1, 2, 3	1, 2, 3	1, 2, 3	1, 2	1	1, 2	1, 2	1, 2, 3
<b>Third-party verification of reported GHG emissions</b>	ERM CVS	ERM CVS	NA	NA	NA	NA	NA	ERM CVS	NA	NA	NA	References limited third-party assurance but no provider specified	NA	NA	NA



Continued from previous page

	Chevron	Hess	ExxonMobil	EOG Resources	Talos Energy	Marathon Oil	VAALCO Energy	ConocoPhillips	EQT	Occidental	Range	Diamondback	Apache	Pioneer	Chesapeake
<b>Scenario analysis</b>	IEA (SDS)	IEA (STEPS, SDS)	IEA (SDS)	IEA (SDS)	NA	Proprietary scenario analysis that references IEA (SDS)	NA	IEA (SDS)	NA	Proprietary scenario analysis that references IEA (SDS)	IEA (Current Policy, STEPS, SDS)	IEA (STEPS, Delayed Recovery Scenario, SDS, NZE2050)	Scenario analysis noted but framework unspecified	NA	IEA (STEPS, SDS)
<b>Capital expenditures on GHG reduction measures</b>															
Expenditures (in \$)	\$2 billion by 2028	NA	Not specified	Not specified	NA	\$100 million in 2021-2025	NA	\$380 million in 2017-2020, none stated for future projects	Not specified	Not specified	Not specified	\$60 million to meet GHG and methane intensity reduction targets by 2024	Not specified	Not specified	Not specified
Energy efficiency			X					X							X
Renewables and carbon offsets	X									X	X			X	
Reducing and capturing fugitive emissions			Natural gas; methane	LDAR; natural gas				Methane		Noted but unspecified	LDAR; monitoring program	LDAR; natural gas	LDAR; monitoring program	Natural gas; methane	LDAR; methane
Other				Vapor recovery for oil tanks				Innovation Fund (a \$75 million pool for developing, investing in, partnering with, and acquiring new ventures or otherwise pursuing initiatives aligned with the ESG strategy through 2025)		Oxy Low Carbon Ventures (business unit dedicated to advancing cutting-edge, low-carbon technology solutions)			Replacing or retrofitting pneumatic devices with low- or zero-emitting devices	Electrification of drilling, completions, and field compression	
<b>Sources</b>	<a href="#">2020 Corporate Sustainability Report</a>	<a href="#">2020 Sustainability Report</a>	<a href="#">Sustainability Report</a> <a href="#">Updated 2021 Energy and Carbon Sustainability Summary</a>	<a href="#">2020 Sustainability Report</a>	<a href="#">2020 ESG Report</a> <a href="#">2021 Annual ESG Report</a>	<a href="#">"Sustainability" webpage</a>	<a href="#">2020 Environmental, Social and Governance Report</a>	<a href="#">2020 Sustainability Report</a>	<a href="#">ESG Report: Calendar Year 2020</a>	<a href="#">2020 Climate Report</a>	<a href="#">2020 Corporate Sustainability Report</a> <a href="#">Zero Routine Flaring by 2030 Initiative</a>	<a href="#">2021 Corporate Sustainability Report</a>	<a href="#">2020 Sustainability Report</a>	<a href="#">2021 Sustainability Report</a>	<a href="#">"Leading a Responsible Energy Future" webpage</a>

Note: This table refers to barrels of oil equivalent (boe), leak detection and repair (LDAR), and IEA scenarios, including the Sustainable Development Scenario (SDS), Stated Policies Scenario (STEPS), and Net Zero Emissions by 2050 Scenario (NZE2050). Hilcorp, Earthstone, and Noble Energy were included in the initial survey but later excluded: Noble Energy was acquired by Chevron, and Earthstone and Hilcorp did not publish sustainability reports in 2020. All surveyed companies except for ExxonMobil disclosed that they link executive compensation to GHG emissions; Talos energy did not include executive compensation in its 2020 ESG report but has since announced that executive compensation is linked to ESG performance. Excluding Diamondback, all companies reported real (or absolute) emissions reductions for the company and its operations. However, none of the companies included goals for absolute emissions reductions in their climate reporting. Additionally, none of the companies disclosed targets to reduce local air pollution, such as NOx, SOx, or particulate matter. Data and sources are accurate as of March 23, 2022.



# NOTES

1. Chantal Beck, Sahar Rashidbeigi, Occo Roelofsen, and Eveline Speelman, “The Future Is Now: How Oil and Gas Companies Can Decarbonize,” McKinsey & Company, January 7, 2020, <https://www.mckinsey.com/industries/oil-and-gas/our-insights/the-future-is-now-how-oil-and-gas-companies-can-decarbonize>.
2. IEA, *Net Zero By 2050*, May 2021, <https://www.iea.org/reports/net-zero-by-2050>; Fatih Birol, “Europe and the World Need to Draw the Right Lessons from Today’s Natural Gas Crisis,” IEA, January 13, 2022, <https://www.iea.org/commentaries/europe-and-the-world-need-to-draw-the-right-lessons-from-today-s-natural-gas-crisis>.
3. Birol, “Europe and the World,” IEA, January 13, 2022, <https://www.iea.org/commentaries/europe-and-the-world-need-to-draw-the-right-lessons-from-today-s-natural-gas-crisis>; White House, “Statement by National Security Advisor Jake Sullivan on the Need for Reliable and Stable Global Energy Markets,” August 11, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/08/11/statement-by-national-security-advisor-jake-sullivan-on-the-need-for-reliable-and-stable-global-energy-markets/>.
4. Trevor Houser and Shashank Mohan, “Fueling Up: The Economic Implications of America’s Oil and Gas Boom,” Peterson Institute for International Economics, January 2014, <https://www.piie.com/bookstore/fueling-economic-implications-americas-oil-and-gas-boom>.
5. White House, “Fact Sheet: President Biden Renews U.S. Leadership on World Stage at U.N. Climate Conference (COP26),” November 1, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/11/01/fact-sheet-president-biden-renews-u-s-leadership-on-world-stage-at-u-n-climate-conference-cop26/>.
6. Morgan Stanley, “Morgan Stanley Announces Commitment to Reach Net-Zero Financed Emissions by 2050,” September 21, 2020, <https://www.morganstanley.com/press-releases/morgan-stanley-announces-commitment-to-reach-net-zero-financed-e>.
7. In fact, the growth in ESG may be attributable to the lack of regulations, though this point requires further analysis.
8. Maurice Berns, Rebecca Fitz, Lars Holm, Jamie Webster, and Betsy Winnike, “How Institutional Investors See the Future of Oil and Gas,” Boston Consulting Group, January 6, 2022, <https://www.bcg.com/publications/2022/how-investors-see-future-of-oil-gas>.
9. The climate-focused nature of this paper is not intended to minimize the significance of other environmental risks or the S and G part of ESG, which are equally important. Further research is needed to explore social and governance issues within the oil and gas sector, in particular the need for a *just* transition.
10. US Energy Information Administration, “Crude Oil Production”, January 31, 2022, [https://www.eia.gov/dnav/pet/pet\\_crd\\_crpdn\\_adc\\_mbb1\\_a.htm](https://www.eia.gov/dnav/pet/pet_crd_crpdn_adc_mbb1_a.htm); companies surveyed: Chevron,



Hess, ExxonMobil, EOG Resources, Talos Energy, Marathon Oil, VAALCO Energy, ConocoPhillips, Chesapeake, Range, Diamondback, Apache, Hilcorp, Pioneer, Earthstone, EQT, Occidental Petroleum. Oil and gas production numbers obtained from M. J. Bradley & Associates, except for production values for Talos Energy, VAALCO, and Earthstone, which were obtained from full year 2019 financial disclosures; M. J. Bradley & Associates, “Hydrocarbon Production and GHG Emissions (2019 data),” 2019, <https://www.mjbradley.com/content/oil-natural-gas-production-greenhouse-gas-benchmarking-report>.

11. Earthstone and Hilcorp, two of the companies included in the original selection, were excluded in the final survey. Earthstone was acquired by Chevron in 2020, after which its performance was accounted for by Chevron, and Hilcorp is a privately held company and thus not subject to the same ESG pressures as a public company. Additionally, Hilcorp did not publish a sustainability report in 2020.
12. Top six producers (ExxonMobil, EOG Resources, Chesapeake Energy, EQT, ConocoPhillips, Occidental Petroleum) as estimated by M. J. Bradley & Associates. Our final analysis excludes companies like BP, which is primarily headquartered in the UK, and Hilcorp, which is a private oil and gas company and not subject to the same ESG pressures as public companies; M. J. Bradley, “Hydrocarbon Production,” 2019, <https://www.mjbradley.com/content/oil-natural-gas-production-greenhouse-gas-benchmarking-report>.
13. Earthstone did not have a recent sustainability report. Chesapeake did not publish a 2020 sustainability report but on December 1, 2021, launched a new ESG website that includes an online sustainability report and 2020 ESG metrics; Chesapeake Energy, “Chesapeake Energy Corporation Launches New ESG Site; Enhances Reporting Transparency and Outlines Path for Achieving Climate Goals,” December 1, 2021, <http://investors.chk.com/2021-12-01-Chesapeake-Energy-Corporation-Launches-New-ESG-Site-Enhances-Reporting-Transparency-And-Outlines-Path-For-Achieving-Climate-Goals>.
14. The TCFD was set up by the Financial Stability Board, an international body that monitors and makes recommendations about the global financial ecosystem, to develop climate disclosures that can promote informed investment decisions and provide an improved understanding of the exposure to climate-related risks in the financial system.
15. ExxonMobil did not link executive compensation with climate targets.
16. ExxonMobil, *Sustainability Report Highlights*, January 2021, <https://corporate.exxonmobil.com/-/media/Global/Files/sustainability-report/publication/Sustainability-Report.pdf>.
17. Diamondback Energy, *2021 Corporate Sustainability Report*, September 23, 2021, <https://www.diamondbackenergy.com/static-files/faf5ab25-5ab5-4404-8c04-c7bd387ae418>.
18. Apache Corporation, *2020 Sustainability Report*, September 20, 2021, [https://apacorp.com/wp-content/uploads/2020/10/APA\\_2020SustainabilityReport.pdf](https://apacorp.com/wp-content/uploads/2020/10/APA_2020SustainabilityReport.pdf).
19. Diamondback Energy, *2021 Corporate Sustainability Report*, September 23, 2021, <https://www.diamondbackenergy.com/static-files/faf5ab25-5ab5-4404-8c04-c7bd387ae418>.



20. Ibid.
21. ConocoPhillips, *2020 Sustainability Report*, June 2021, <https://static.conocophillips.com/files/resources/conocophillips-2020-sustainability-report.pdf>.
22. TCFD, “TCFD Recommendations,” February 12, 2022, <https://www.fsb-tcf.org/recommendations/>.
23. Chevron, *2020 Corporate Sustainability Report*, May 2021, <https://www.chevron.com/-/media/shared-media/documents/chevron-sustainability-report-2020.pdf>.
24. See appendix.
25. APA Corporation, “Minimizing Emissions,” October 2021, <https://apacorp.com/sustainability/environment/emissions/>.
26. David Woodcock, Amisha Kotte, and Jonathan Guynn, Jones Day, “Managing Legal Risks from ESG Disclosures,” Harvard Law School Forum on Corporate Governance, August 12, 2019, <https://corpgov.law.harvard.edu/2019/08/12/managing-legal-risks-from-esg-disclosures/>.
27. Kevin Dobbs, “Ahead of Regulators, API Proposes Way for Oil and Gas Companies to Uniformly Report Emissions,” Natural Gas Intelligence, June 24, 2021, <https://www.naturalgasintel.com/ahead-of-regulators-api-proposes-way-for-oil-and-gas-companies-to-uniformly-report-emissions/>.
28. APA Corporation, “APA Corporation Achieves Goal to Eliminate Routine Flaring Onshore US,” October 11, 2021, <https://investor.apacorp.com/news-releases/news-release-details/apa-corporation-achieves-goal-eliminate-routine-flaring-onshore>.
29. EQT Corporation, “Climate and GHG Emissions,” 2020, <https://esg.eqt.com/environmental/climate-and-ghg-emissions/#ghg-emissions-and-targets>.
30. Coauthor Tim Boersma did not participate in these interviews.
31. Zachary Mider and Rachel Adams-Heard, “BP Looks Dirtier Than Exxon in New Data from Giant U.S. Oil Field,” Bloomberg Green, November 2, 2021, <https://www.bloomberg.com/graphics/2021-methane-permian-basin/>.
32. Dawn Lim and Justin Baer, “BlackRock, Other Investors Target Climate Issues, Covid-19 Response and Board Seats in Shareholder Votes,” *Wall Street Journal*, August 12, 2021, <https://www.wsj.com/articles/blackrock-other-investors-wield-growing-board-shareholder-vote-clout-11628766001>.
33. APG, *APG Responsible Investment Report 2019*, July 2020, [https://apg.nl/media/z0pduvmd/en-apg-responsible-investment-report-2019-2020\\_1.pdf](https://apg.nl/media/z0pduvmd/en-apg-responsible-investment-report-2019-2020_1.pdf).
34. ABP, “ABP Stops Investing in Fossil Fuel Producers,” ABP, October 26, 2021, <https://www.abp.nl/english/press-releases/abp-stops-investing-in-fossil-fuel-producers>.





[aspx#:~:text=ABP%20will%20divest%20from%20the,impact%20on%20long%2Dterm%20returns.](#)

35. TotalEnergies, “Total Withdraws from the American Petroleum Institute,” January 15, 2021, <https://totalenergies.com/media/news/press-releases/total-withdraws-from-the-american-petroleum-institute>.
36. Reuters, “Chevron Shareholders to Vote on Climate Change Proposals—Filing,” April 8, 2021, <https://www.reuters.com/article/us-chevron-proxy-shareholders-idUSKBN2BV2GI>.
37. Andrea Cardoni, Evgeniia Kiseleva, and Simone Terzani, “Evaluating the Intra-Industry Comparability,” MDPI, February 19, 2019, <https://www.mdpi.com/2071-1050/11/4/1093>.
38. Securities and Exchange Commission, “The Enhancement and Standardization of Climate-Related Disclosures for Investors,” March 21, 2022 <https://www.sec.gov/rules/proposed/2022/33-11042.pdf>; Coco Zhang, “What to Expect from the US SEC’s Proposed Climate Disclosure Requirements,” ING Think, October 15, 2021, <https://think.ing.com/downloads/pdf/article/what-to-expect-from-the-us-secs-proposed-climate-disclosure-requirements>.
39. Zhang, “What to Expect from the US SEC,” ING Think, October 15, 2021, <https://think.ing.com/downloads/pdf/article/what-to-expect-from-the-us-secs-proposed-climate-disclosure-requirements>.
40. EPA, “EPA Proposes New Source Performance Standards Updates, Emissions Guidelines to Reduce Methane and Other Harmful Pollution from the Oil and Natural Gas Industry,” November 2, 2021, <https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry/epa-proposes-new-source-performance>; Ramón Alvarez et al., “Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain,” *Science*, June 21, 2018, <https://www.science.org/doi/10.1126/science.aar7204>.
41. Alvarez et al., “Assessment of Methane,” *Science*, June 21, 2018, <https://www.science.org/doi/10.1126/science.aar7204>.
42. IEA, “Methane Emissions from the Energy Sector Are 70% Higher Than Official Figures,” February 23, 2022, <https://www.iea.org/news/methane-emissions-from-the-energy-sector-are-70-higher-than-official-figures>.
43. IEA, “Curtailing Methane Emissions from Fossil Fuel Operations,” October 2021, <https://www.iea.org/reports/curtailing-methane-emissions-from-fossil-fuel-operations>; Colorado General Assembly, “HB19-1261: Climate Action Plan to Reduce Pollution,” 2019, <https://leg.colorado.gov/bills/hb19-1261>.
44. Colorado General Assembly, “HB19-1261: Climate Action Plan to Reduce Pollution,” 2019, <https://leg.colorado.gov/bills/hb19-1261>.
45. William Daniels et al., “Initial Findings from Continuous Monitoring of Oil and Gas Operations,” Payne Institute for Public Policy, January 13, 2021, <https://payneinstitute.mines>.



[edu/wp-content/uploads/sites/149/2021/01/Payne-Institute-Commentary-Initial-Findings-from-Continuous-Monitoring-1.pdf](https://www.payneinstitute.com/wp-content/uploads/sites/149/2021/01/Payne-Institute-Commentary-Initial-Findings-from-Continuous-Monitoring-1.pdf).

46. Sri Sridharan et al., *Long Term, Periodic Aerial Surveys Cost Effectively Mitigate Methane Emissions*, Society of Petroleum Engineers, October 2020, <https://kairos aerospace.com/wp-content/uploads/2021/01/SPE-201312-MS-10212020-1.pdf>.
47. Ibid.
48. Project Canary, “Crestone Peak Resources Announces New Partnership for Real-Time Well Site Air Quality Monitoring,” January 16, 2020, <https://www.projectcanary.com/crestone-peak-resources-announces-new-partnership-for-real-time-well-site-air-quality-monitoring/>.
49. Eunji Oh and Eugene Kim, “Responsibly Sourced Gas (RSG): A Primer,” Wood Mackenzie, October 18, 2021, <https://www.woodmac.com/news/opinion/responsibly-sourced-gas-rsg-aprimer/#:~:text=RSG%20is%20gas%20that%20has,land%20use%20and%20community%20impacts>.
50. Jamison Cocklin, “More Buyers Stepping Forward to Pay Premium for ‘Responsibly’ Produced Natural Gas,” Natural Gas Intelligence, April 8, 2019, <https://www.naturalgasintel.com/more-buyers-stepping-forward-to-pay-premium-for-responsibly-produced-natural-gas/>.
51. Yahoo! Finance, “Tamarack Valley Energy Announces Issuance and Pricing of \$200 Million Senior Unsecured Sustainability-Linked Notes,” February 2, 2022, <https://finance.yahoo.com/news/tamarack-valley-energy-announces-issuance-003900829.html?guccounter=1>.
52. Defined as entities with greater than 500 employees and those with a significant public interest because of the nature of their business, size or number of employees, or corporate status; includes listed companies, banks, and insurance companies. This definition can vary across EU member states.
53. European Parliament and Council of the European Union, “Directive 2014/95/eu of the European Parliament and of the Council,” *Official Journal of the European Union*, November 15, 2014, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0095&from=EN>.
54. EC, “Communication from the Commission—Guidelines on Non-financial Reporting (Methodology for Reporting Non-financial Information),” *Official Journal of the European Union*, July 5, 2017, [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017XC0705\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017XC0705(01)&from=EN).
55. EC, “Communication from the Commission—Guidelines on Non-financial Reporting: Supplement on Reporting Climate-related Information,” *Official Journal of the European Union*, June 20, 2019, [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019XC0620\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019XC0620(01)&from=EN).
56. EC, “Directive of the European Parliament and of the Council Amending Directive 2013/34/



- EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as Regards Corporate Sustainability Reporting,” April 21, 2021, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021PC0189&from=EN>.
57. Zhang, “What to Expect from the US SEC,” ING Think, October 15, 2021, <https://think.ing.com/downloads/pdf/article/what-to-expect-from-the-us-secs-proposed-climate-disclosure-requirements>.
  58. To be developed by the European Financial Reporting Advisory Group; Directorate General for Financial Stability, Financial Services and Capital Markets Union, “Reports on Development of EU Sustainability Reporting Standards,” EC, March 8, 2021, [https://ec.europa.eu/info/publications/210308-efrag-reports\\_en](https://ec.europa.eu/info/publications/210308-efrag-reports_en).
  59. EC, “Commission Delegated Regulation (EU) . . . / . . . of 4.6.2021,” June 4, 2021, [https://eur-lex.europa.eu/resource.html?uri=cellar:d84ec73c-c773-11eb-a925-01aa75ed71a1.0021.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:d84ec73c-c773-11eb-a925-01aa75ed71a1.0021.02/DOC_1&format=PDF).
  60. Frédéric Simon and Kira Taylor, “LEAK: EU Drafts Plan to Label Gas and Nuclear Investments as Green,” Euractiv, January 1, 2022, <https://www.euractiv.com/section/energy-environment/news/leak-eu-drafts-plan-to-label-gas-and-nuclear-investments-as-green/>.
  61. Oliver Noyan, “Austria Threatens to Sue Commission over EU Taxonomy Rules,” Euractiv, January 3, 2022, [https://www.euractiv.com/section/politics/short\\_news/austria-threatens-to-sue-commission-over-eu-taxonomy-rules/](https://www.euractiv.com/section/politics/short_news/austria-threatens-to-sue-commission-over-eu-taxonomy-rules/).
  62. Anu Bradford, “The Brussels Effect: How the European Union Rules the World,” Columbia Law School, March 2022, <https://scholarship.law.columbia.edu/books/232/>.
  63. EC, *Quarterly Report on European Gas Markets*, 2021, [https://ec.europa.eu/energy/sites/default/files/quarterly\\_report\\_on\\_european\\_gas\\_markets\\_q2\\_2021\\_final.pdf](https://ec.europa.eu/energy/sites/default/files/quarterly_report_on_european_gas_markets_q2_2021_final.pdf).
  64. Andreas Goldthau and Nick Sitter, *A Liberal Actor in a Realist World*, Oxford University Press, October 13, 2015, <https://global.oup.com/academic/product/a-liberal-actor-in-a-realist-world-9780198719595?cc=us&lang=en&>.
  65. Cheniere Energy, “Political Engagement,” June 29, 2021, <https://www.cheniere.com/pdf/Political-engagement.pdf>.
  66. EC, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions*, October 14, 2020, [https://ec.europa.eu/energy/sites/ener/files/eu\\_methane\\_strategy.pdf](https://ec.europa.eu/energy/sites/ener/files/eu_methane_strategy.pdf).
  67. European Commission, “Commission proposes new EU framework to decarbonise gas markets, promote hydrogen and reduce methane emissions,” December 15, 2021, [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_21\\_6682](https://ec.europa.eu/commission/presscorner/detail/en/IP_21_6682).
  68. Jonathan Elkind et al., “Nowhere to Hide: Implications for Policy, Industry, and Finance of Satellite-Based Methane Detection,” Center on Global Energy Policy, Columbia University, October 14, 2020, <https://www.energypolicy.columbia.edu/research/commentary/nowhere->



[hide-implications-policy-industry-and-finance-satellite-based-methane-detection.](#)

69. Under the GHG Protocol, the equity approach involves “the reporting company account[ing] for GHG emissions that are wholly or partially owned according to its share of equity in that operation, regardless of whether operational or financial control is exerted.” Given the large share of oil and gas assets that are owned but not operated, the equity approach results in a much more accurate measure of emissions.
70. With the vast majority of oil and gas emissions coming from combustion, Scope 3 reporting pressure from investors as well as courts has been increasing. Oil majors are forced to reckon with climate impacts. It is also essential to meet the global carbon budget; Mike Coffin, “Absolute Impact 2021: Why Oil and Gas ‘Net Zero’ Ambitions Are Not Enough,” Carbon Tracker, May 27, 2021, <https://carbontracker.org/reports/absolute-impact-2021/>; Amena Saiyid, “Oil Majors Forced to Reckon with Climate Impacts,” IHS Markit, May 26, 2021, <https://cleanenergynews.ihsmarkit.com/research-analysis/oil-majors-forced-to-reckon-with-climate-impacts-.html>; Methodology for Calculating Scope 3 Emissions Has Been Laid by IPIECA; IPIECA, “Estimating Petroleum Industry Value Chain (Scope 3) Greenhouse Gas Emissions: Overview of Methodologies,” June 2016, <https://www.ipieca.org/resources/good-practice/estimating-petroleum-industry-value-chain-scope-3-greenhouse-gas-emissions-overview-of-methodologies/>.
71. Robert Kleinberg, “Methane Emission Controls: Redesigning EPA Regulations for Greater Efficacy,” Columbia Center on Global Energy Policy, October 4, 2021, <https://www.energypolicy.columbia.edu/research/commentary/methane-emission-controls-redesigning-epa-regulations-greater-efficacy>; GHG Protocol, February 14, 2022, <https://ghgprotocol.org/>.
72. OGCI, “Oil and Gas Climate Initiative Reporting Framework,” October 2020, <https://www.ogci.com/wp-content/uploads/2020/10/OGCI-Reporting-Framework-3.3-October-2020.pdf>.
73. Sven Heiligtag, Susanne Maurenbrecher, and Niklas Niemann, “From Scenario Planning to Stress Testing: The Next Step for Energy Companies,” McKinsey & Company, February 9, 2017, <https://www.mckinsey.com/business-functions/risk-and-resilience/our-insights/from-scenario-planning-to-stress-testing-the-next-step-for-energy-companies>; as outlined in the TCFD recommendations; TCFD, “TCFD Recommendations,” February 12, 2022, <https://www.fsb-tcf.org/recommendations/>.
74. As outlined in the TCFD recommendations; TCFD, “TCFD Recommendations,” February 12, 2022, <https://www.fsb-tcf.org/recommendations/>.
75. This is the principal of the Net Zero Asset Managers initiative with \$57 trillion in assets under management. The five-year targets were a key takeaway of our investor interviews; Net Zero Asset Managers, “The Net Zero Asset Managers Initiative,” February 14, 2022, <https://www.netzeroassetmanagers.org/>.
76. EDF has been at the forefront of calls for zero routine flaring by 2030 and 2025 for the US Permian Basin. Eliminating routine flaring by 2030 is also in line with World Bank’s Zero Routine Flaring by 2030 Initiative; EDF+Business, “The Burning Question: How To Fix



Flaring,” October 21, 2021, <https://business.edf.org/files/ESG-by-EDF-Flaring-Report-Book-V2-Reduced.pdf>; World Bank, “Zero Routine Flaring by 2030,” February 14, 2022, <https://www.worldbank.org/en/programs/zero-routine-flaring-by-2030>.

77. This reduction is in line with OGCI’s GHG intensity target by 2025; OGCI, “OGCI’s Upstream Carbon Intensity Target,” February 14, 2022, <https://www.ogci.com/action-and-engagement/ogcis-upstream-carbon-intensity-target/#:~:text=OGCI%27s%20target%20aims%20to%20reduce,support%20the%20Paris%20Agreement%20goals>.
78. This reduction is in line with OGCI’s GHG intensity target by 2025; <https://www.ogci.com/action-and-engagement/ogcis-upstream-carbon-intensity-target/#:~:text=OGCI's%20target%20aims%20to%20reduce,support%20the%20Paris%20Agreement%20goals>.
79. According to the Carbon Tracker Initiative, “for interim goals to make the desired change, they also need to be on an absolute basis, rather than just measuring emissions intensity reductions”; Mike Coffin, “Absolute Impact 2021: Why Oil and Gas ‘Net Zero’ Ambitions Are Not Enough,” Carbon Tracker, May 27, 2021, <https://carbontracker.org/reports/absolute-impact-2021/>.
80. Reporting requirements under IPIECA; IPIECA, “Sustainability Reporting Guidance for the Oil and Gas Industry,” March 2020, [https://www.ipieca.org/media/5111/ipieca\\_sustainability-guide\\_2020\\_mod4-env.pdf](https://www.ipieca.org/media/5111/ipieca_sustainability-guide_2020_mod4-env.pdf).
81. Outlined in Climate Action 100 decarbonization strategy; Climate Action 100, “Climate Action 100+ Net Zero Company Benchmark,” March 2021, <https://www.climateaction100.org/wp-content/uploads/2021/03/Climate-Action-100-Benchmark-Indicators-FINAL-3.12.pdf>; according to the IEA, “Investment by oil and gas companies outside their core business areas has been less than 1% of total capital expenditure . . . For those companies looking to diversify their energy operations, redeploying capital towards low-carbon businesses requires attractive investment opportunities in the new energy markets as well as new capabilities within the companies. As things stand, leading individual companies spend around 5% on average on projects outside core oil and gas supply, with the largest outlays in solar PV and wind. A much more significant change in overall capital allocation would be required to accelerate energy transitions”; IEA, “The Oil and Gas Industry in Energy Transitions,” January 2020, <https://www.iea.org/reports/the-oil-and-gas-industry-in-energy-transitions>.



 COLUMBIA | SIPA  
Center on Global Energy Policy

