June 13, 2021

Submitted electronically

Vanessa A. Countryman
Secretary, Securities and Exchange Commission
100 F Street NE, Washington, DC 20549-1090.

CC: Chair Gary Gensler
Commissioner Allison Herren Lee
Commissioner Caroline Crenshaw
Commissioner Hester Peirce
Commissioner Elad Roisman

RE: REQUEST FOR PUBLIC INPUT ON CLIMATE CHANGE DISCLOSURES

Dear Secretary Countryman,

I am pleased to submit the following comment on behalf of the Publish What You Pay—United States coalition ("PWYP-US") in response to the March 15, 2021 request for input on climate change disclosures.

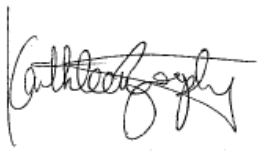
Publish What You Pay ("PWYP") is a global civil society coalition made up of over 800 member organizations operating in more than 70 countries. The US coalition was founded in 2004 and consists of 40 anti-corruption, financial transparency, anti-poverty, tax justice, environmental, faith-based and human rights organizations representing over five million constituents across the United States. PWYP-US members have over a decade of experiencing advocating for greater financial transparency in the oil, gas, and mining sectors including specific experiencing with SEC rulemaking.

We appreciate the SEC's leadership on this issue and are glad to provide input. This comment focuses on the disclosure of climate-related financial risks by fossil fuel issuers, namely fossil fuel companies with significant upstream investments. We believe this sector must be prioritized within future climate-risk rulemaking due to the fundamental relationship between fossil fuel extraction and climate change mitigation.

This comment is not comprehensive--we have chosen to discuss certain representative issues to draw attention to gaps in the SEC's current requirements. We hope to follow up with a more detailed and thorough evaluation of all relevant issues in the fossil-fuel sector reporting framework during a subsequent rulemaking or other opportunity for public input.

We appreciate the opportunity to comment and would welcome the chance to discuss our recommendations with you in further detail. Please do not hesitate to contact us with any questions.

Sincerely,



Kathleen Brophy
Director, Publish What You Pay—US

Introduction

It is hard to overstate the economic imperative to mitigate the impacts of climate change. While countries around the world begin to identify and navigate the path toward limiting global warming to 1.5-2° Celsius through a global energy transition, linked efforts to steward a managed economic transition are desperately required.

According to the Stern Review:

> *The investment that takes place in the next 10-20 years will have a profound effect on the climate in the second half of this century and in the next. Our actions now and over the coming decades could create risks of major disruption to economic and social activity, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century. And it will be difficult or impossible to reverse these changes.*[1]

As the SEC acknowledged in its 2010 Climate Change Disclosure Guidance, the task ahead is staggeringly complex and rife with risk.[2] Climate change presents a profound, systemic and diverse set of risks to global capital markets. Climate-related financial risk is ubiquitous and far reaching—the consequences will be felt by all market participants. As BlackRock's CEO Larry Fink has said, "There is no company whose business model won't be profoundly affected by the transition to a net zero economy."[3]

These risks are commonly broken into three categories including: (1) physical risk (2) liability risk and (3) transition risk. According to the Task Force on Climate-Related Financial Disclosures (TCFD), the concept of transition risk is based in the reality that "transitioning to a lower-carbon economy may entail extensive policy, legal, technology, and market changes to address mitigation and adaptation requirements related to climate change. Depending on the nature, speed, and focus of these changes, transition risks may pose varying levels of financial and reputational risk to organizations."[4]

Governments around the world are beginning to implement commitments to enhance economic resilience through transition to a lower-carbon economy. These commitments require intentional design to disrupt business models and shift capital flows away from carbon-intensive activities.

Any such attempts to guide these necessary market disruptions while mitigating a complicated universe of risk must begin with disclosure. According to the US Commodity Futures Trading Commission (CFTC)

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[1] Stern, N. H., 2007. *The economics of climate change: the Stern review*. Cambridge, UK: Cambridge University Press, http://mudancasclimaticas.cptec.inpe.br/~rmclima/pdfs/destaques/sternreview_report_complete.pdf, p. vi.

[2] Securities and Exchange Commission, Commission Guidance Regarding Disclosure Related to Climate Change, Release No. 33-9106 (Feb. 2, 2010) [75 Fed. Reg. 6290 (Feb 8, 2010)] (hereinafter "2010 Climate Change Guidance"), https://www.sec.gov/rules/interp/2010/33-9106.pdf.

[3] Clark, Pilita, 2021, Too many boardrooms are climate incompetent, *Financial Times*, January 31th, 2021, https://www.ft.com/content/611522b7-8cf6-4340-bc8a-f4e92782567c.

[4] Task Force on Climate-Related Financial Disclosures (TCFD), 2017, *Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures*, https://assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf, p.5.

"the disclosure by corporations on material, climate-related financial risks is an essential building block to ensure that climate risks are measured and managed effectively."[5]

A robust climate-related financial risk disclosure framework is needed to allow market participants to measure and manage these unprecedented risks. According to Commissioner Allison Herren Lee, disclosures will help improve the pricing of climate risk and help move capital in the right direction. "Dealing with and adapting to the coming calamities means we must price climate risk accurately and drive investment toward an orderly, sustainable transition to green portfolios – rather than panicked scrambles and stock sell-offs as we see more and more climate disasters."[6]

Global efforts progressing toward meeting investor requests for climate-risk disclosure

Policy makers and regulators worldwide are taking action to address climate-related financial risk.[7] To aid in this effort, several standards and coalitions such as Climate Action 100+, the Investor Agenda, the Partnership for Carbon Accounting Financials, TCFD and many other initiatives have been established to develop extensive governance, monitoring and measurement techniques that can and should be adapted into regulation in the public interest.[8] These initiatives outline general principles for navigating risk—these principles commonly recognize improved transparency as a necessary precursor to action. As a result of these initiatives, a strong standard is now emerging regarding the information that must be required from issuers to adequately inform investors of the risk inherent in a company's portfolio and facilitate the realignment of capital accordingly.

Along with these benefits to capital allocation, better climate disclosures would also enable regulators to more efficiently address macro and microprudential risks and take actions to prevent or address climate-related financial shocks that could ultimately affect issuers, investors and shareholders.

Investors have long acknowledged the benefits of expanded climate-risk disclosures and have repeatedly requested this information from companies.[9] Further, where companies have not provided

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[5] Task Force on Climate-Related Financial Disclosures (TCFD), *Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures*, p. iv (2017), https://assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf.

[6] Allison Herren Lee, *Big Business's Undisclosed Climate Crisis Plans*, New York Times, (Sep. 27, 2020), https://www.nytimes.com/2020/09/27/opinion/climate-change-us-companies.html?auth=link-dismiss-google1tap.

[7] For instance, in the European Union, "[r]ecent EU initiatives include a proposed Corporate Sustainability Reporting Directive, as released on 21 April 2021 and based on the review of the Non-Financial Reporting Directive, ongoing work on the EU taxonomy for sustainable activities including the EU Taxonomy Climate Delegated Act, and EBA initiatives on prudential disclosures of ESG risks." Alogoskoufis, Carbone, et.al., *Climate-related risks to financial stability*, European Central Bank, n.29 (May 2021), https://www.ecb.europa.eu/pub/financial-stability/fsr/special/html/ecb.fsrart202105_02~d05518fc6b.en.html.

[8] The Investor Agenda is a common leadership agenda on the climate crisis that is unifying, comprehensive, and focused on accelerating investor action for a net-zero emissions economy developed by seven major groups working with investors, including Ceres, the Asia Investor Group on Climate Change, CDP, the Institutional Investors Group on Climate Change, IIGCC, the United Nations Principles for Responsible Investment and the UN Environmental Programme Finance Initiative. The Partnership for Carbon Accounting Financials, comprising 115 financial institutions (and growing), has developed a rigorous approach to measuring and reporting on emissions associated with institutions' investments, loans and products.

[9] See, for example, Karen Savage, *Shareholders Demand More Climate Disclosures As SEC Moves to Restrict Them*, Climate Docket (Jan. 10, 2020), https://www.climatedocket.com/2020/01/10/shareholder-resolutions-sec-

sufficient information or taken climate risk seriously, investors have taken action at the board level. For example, Exxon shareholders voted to replace three of Exxon's 12 board members with nominees critical of the company's climate change strategy, arguing that Exxon needed to commit to become net emissions neutral, reduce its emissions, and diversify its investments. A large majority of shareholders also supported a proposal for Exxon to disclose more about its lobbying and how it aligns with the Paris climate agreement.[10] At Chevron, more than 61% of Chevron shareholders voted to force a reduction in Chevron's scope 3 emissions beyond what the company had proposed.[11]

Investors also have exhibited unquestionable interest in and need for climate-related financial information[12]—the associated materiality of this information is indisputable.[13] According to the TCFD, all types of market participants, including lenders, insurance underwriters, and other types of financial sector organizations, have articulated an urgent need for the "information needed to undertake robust and consistent analyses of the potential financial impacts of climate change."[14] According to the Swiss Finance Institute, for many institutional investors climate risk reporting is now as important as financial reporting.[15]

Today's investors and lenders seek to track emissions to measure and hold companies accountable for promised reductions, in order to arrest both specific and systemic collapses in asset values and businesses. They desire clarity as to whether management's capital expenditures are consistent with announced climate strategies, both in substance and magnitude. To do this, they want a standardized tool to compare how companies plan to contribute to and survive in a net-zero economy. And they want honesty about how claims about net-zero commitments are being met. Investors and lenders want this information to both protect their investments in (or loans to) individual companies as well as to protect their portfolios from the systemic risks of climate change.[16]

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climate/; Karen Savage, *Exxon Claims Climate Action Poses 'Little Risk' to Its Business*, Climate Docket (Feb. 5, 2018), https://www.climatedocket.com/2018/02/05/exxon-climate-action-stranded-assets/.

[10] Christopher M. Matthews, *Activist Likely to Gain Third Seat on Exxon Board*, Wall Street Journal (June 2, 2021), https://www.wsj.com/articles/activist-likely-to-gain-third-seat-on-exxon-board-11622664757.

[11] Jillian Ambrose, *Chevron, ExxonMobil and Chevron suffer shareholder rebellions over climate*, The Guardian (May 26, 2021), https://www.theguardian.com/business/2021/may/26/exxonmobil-and-chevron-braced-for-showdown-over-climate.

[12] For example, 630 investors managing more than $37 trillion in assets signed the Global Investor Statement to Governments on Climate Change calling on governments to improve climate-related financial reporting.

[13] As defined by the SEC, "information is material if there is a substantial likelihood that a reasonable investor would consider it important in deciding how to vote or make an investment decision." 2010 Climate Change Guidance, p. 11, https://www.sec.gov/rules/interp/2010/33-9106.pdf.

[14] Task Force on Climate-Related Financial Disclosures (TCFD), *Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures*, p.5 (2017), https://assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf.

[15] Ilhan, Krueger, Sautner, & Starks, *Climate Risk Disclosure and Institutional Investors* (June 29, 2020), Swiss Finance Institute Research Paper No. 19-66, European Corporate Governance Institute – Finance Working Paper No. 661/2020, https://ssrn.com/abstract=3437178.

[16] Lukomnik, Jon & Hawley, James P., *Moving Beyond Modern Portfolio Theory: Investing that Matters* (2021), Routledge, ISBN 9780367760823, https://www.routledge.com/Moving-Beyond-Modern-Portfolio-Theory-Investing-That-Matters/Lukomnik-Hawley/p/book/9780367760823.

US action desperately needed

According to estimates, as much as 93% of the US equity market is exposed to climate-related risk.[17] As will be discussed in more detail below, much of this exposure comes from risks generated from the fossil fuel sector, including the risk of early asset stranding. According to the Carbon Tracker Initiative, "If the 2 degree C target is rigorously applied, then up to 80% of declared reserves owned by the world's largest listed coal, oil and gas companies and their investors would be subject to impairment as these assets become stranded."[18] The US market is particularly vulnerable to this issue since, according to Carbon Tracker, the US has the world's second highest greenhouse gas potential in reserves on its stock exchange after Russia.[19]

Given this heavy over exposure, in its 2020 report on managing climate risk throughout the US financial system, the Subcommittee on Climate-Related Market Risk of the Market Risk Advisory Committee (MRAC) within the CFTC concluded that "climate change poses a major risk to the stability of the U.S. financial system and to its ability to sustain the American economy."[20] The MRAC subcommittee stressed the need for immediate action. "U.S. financial regulators must recognize that climate change poses serious emerging risks to the U.S. financial system, and they should move urgently and decisively to measure, understand, and address these risks."[21] This urgency was reiterated by the International Energy Agency (IEA) in its recent report charting a pathway for the global energy sector to reach net zero emissions by 2050. According to the IEA, "that pathway remains narrow and extremely challenging, requiring all stakeholders -- governments, businesses, investors and citizens -- to take action this year and every year after so that the goal does not slip out of reach."[22]

President Biden has prioritized this issue in his first 100 days. In addition to an executive order on climate that was issued days after his inauguration, the Administration recently released a stand-alone executive order on climate-related financial risk. This executive order outlines a "whole-government approach" to tackling the issue and puts particular emphasis on the role of US financial regulators.

> *The failure of financial institutions to appropriately and adequately account for and measure these physical and transition risks threatens the competitiveness of U.S.*

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[17] Allison Herren Lee, *Big Business's Undiclosed Climate Crisis Plans*, New York Times, (Sep. 27, 2020), https://www.nytimes.com/2020/09/27/opinion/climate-change-us-companies.html?auth=link-dismiss-google1tap.

[18] Carbon Tracker Initiative, *Unburnable Carbon: Are the world's financial markets carrying a carbon bubble?*, p. 2. (2011), https://www.banktrack.org/download/unburnable_carbon/unburnablecarbonfullrev2.pdf.

[19] *Id.*

[20] Climate-Related Market Risk Subcommittee (2020), *Managing Climate Risk in the U.S. Financial System*, U.S. Commodity Futures Trading Commission, Market Risk Advisory Committee, p. ii, https://www.cftc.gov/sites/default/files/2020-09/9-9-20%20Report%20of%20the%20Subcommittee%20on%20Climate-Related%20Market%20Risk%20-%20Managing%20Climate%20Risk%20in%20the%20U.S.%20Financial%20System%20for%20posting.pdf.

[21] *Id.*

[22] IEA, *Net Zero by 2050: A Roadmap for the Global Energy Sector*, p. 3 (May 2021), https://www.iea.org/reports/net-zero-by-2050.

companies and markets, the life savings and pensions of U.S. workers and families, and the ability of U.S. financial institutions to serve communities.[23]

Specifically, the order directs senior White House officials as well as the Secretary of the Treasury, Director of the Office of Management and Budget, and all members of the Financial Stability Oversight Council (FSOC), to promptly develop strategies to comprehensively mitigate this financial and economic risk through coordinated action within all relevant agencies. The order reiterates the importance of disclosure of climate-risk information as an important first step in this process: "It is therefore the policy of my Administration to advance consistent, clear, intelligible, comparable, and accurate disclosure of climate-related financial risk."[24]

The need for SEC leadership within this broader government approach is duly evident given the SEC can help deliver the most important tool of all: information. Disclosure is the first step in protecting investors, maintaining fair, orderly, and efficient markets, and facilitating capital formation during this unprecedented market transition. In fact, every aspect of the SEC's core mission is threatened by the economic and financial risks posed by climate change. Therefore, urgent prioritization of this issue by SEC leadership is critical.

Prioritizing fossil-fuel sector disclosure gaps as a necessary first step

This comment focuses on the disclosure of climate-related financial risks by fossil fuel issuers, namely fossil fuel companies with significant upstream investments. We believe this sector must be prioritized within future climate-risk rulemaking due to the fundamental relationship between fossil fuel extraction and climate change mitigation. The emissions resulting from fossil fuel extraction are a major driver of climate change.[25] Thus, the transition to a lower-carbon energy system and economy requires a wholesale transformation of the sector. This overhaul necessitates the disclosure of new kinds of information to help market participants navigate this rapidly changing landscape.

Additionally, fossil fuel sector climate-risk disclosure must be fast tracked precisely because this sector is a key generator of risk that reverberates throughout the market. Therefore, the disclosure and management of risk by all other market participants will be limited to the extent that these actors continue to receive inadequate information from fossil fuel issuers. For this reason, disclosure reform

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[23] Executive Order on Climate-Related Financial Risk, EO 14030 (May 20, 2021), 86 Fed. Reg. 27967, https://www.whitehouse.gov/briefing-room/presidential-actions/2021/05/20/executive-order-on-climate-related-financial-risk/.

[24] *Id.*

[25] U.S. Energy Information Administration (EIA), *Energy and the environment explained: Where greenhouse gases come from*, (in 2019, "fossil fuel combustion (burning) for energy accounted for 74% of total U.S. GHG emissions and for 92% of total U.S. anthropogenic CO2 emissions"), https://www.eia.gov/energyexplained/energy-and-the-environment/where-greenhouse-gases-come-from.php; B. Ekwurzel, et al., *The rise in global atmospheric CO2, surface temperature, and sea level from emissions traced to major carbon producers*, 144 Climatic Change 579-590 (2017) (tracing 57% of historic carbon dioxide and methane emissions to ninety major industrial carbon producers), https://link.springer.com/article/10.1007%2Fs10584-017-1978-0.

focused on the fossil fuel sector should be among the first actions taken by the SEC to address climate-related financial risk.

The SEC's 2010 Climate Guidance briefly alludes to the distinct and elevated risks posed by climate change to the fossil fuel industry—for instance, the guidance notes that the energy sector would be especially impacted by legislation related to greenhouse gas emissions, as compared to other industries. But the impacts of climate change and the energy transition on the fossil fuel sector are both more singular and fundamental than this characterization implies. No other industry will be impacted to the same extent. According to Carbon Tracker, "the energy transition represents an existential concern [for fossil fuel companies] that goes right to the heart of strategy."[26]

The carbon budget, fossil fuel asset stranding and the emergence of a "bubble"

It is generally accepted that to meet a 1.5-2° Celsius warming target the world must not exceed a finite limit on greenhouse gas emissions since cumulative CO2 emissions over time are "the key determinant of how much global warming occurs.[27] This then "gives us a finite carbon budget of how much may be emitted in total without surpassing dangerous temperature limits."[28] Carbon Tracker explained this concept in their 2019 report, "Balancing the Budget":

> *In order to stabilise global temperatures at any level of warming, be it 1.5°C, 2°C, 5°C or even more, the planet must at some point reach a state of net zero emissions. If the cumulative stock of atmospheric carbon is still being added to, the temperature is still going up. Given that the planet cannot keep increasing in temperature indefinitely, this is purely a matter of when rather than if. We can plan for net zero and pursue efforts towards that goal, or nature can impose it on us; the former would most likely be preferable.*[29]

To stay within the allowable 'carbon budget', global net anthropogenic CO2 emissions must decline by about 45% from 2010 levels by 2030, reaching net zero around 2050.[30] This will require a rapid phase out of the largest sources of emissions, namely fossil fuel-related emissions. A 2019 United Nations Environment Programme (UNEP) report states that global oil and gas production must drop by 40% over

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[26] Carbon Tracker Initiative, *Fault Lines: How diverging oil and gas company strategies link to stranded asset risk*, p. 4 (2020), https://carbontracker.org/reports/fault-lines-stranded-asset/.

[27] Muttitt, Greg, *The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production*, Oil Change International, p.6 (Sep. 2016), https://catalogue.unccd.int/775_OCI_the_skys_limit_2016_FINAL_2.pdf.

[28] *Id.*

[29] Carbon Tracker Initiative, *Balancing the Budget: Why deflating the carbon bubble requires oil & gas companies to shrink*, p.12 (2019), https://carbontracker.org/reports/balancing-the-budget/.

[30] Masson-Delmotte, et al., IPCC, 2018: Summary for Policymakers, In: *Global Warming of 1.5°C: An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, p.10 (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_HR.pdf.

the next decade to avoid the worst impacts of climate change.[31] Regrettably, neither the industry nor the market has reacted to this imperative. As noted in a 2016 report by several civil society organizations, "potential carbon emissions from the oil, gas and coal fields in the world's *currently operating fields and mines* would take us beyond 2° Celsius of warming."[32] According to UNEP, current plans for production include "an average annual increase of 2%, which by 2030 would result in more than double the production consistent with the 1.5°C limit."[33]

This discrepancy means that the market is currently carrying a significant amount of "unburnable carbon." According to Caldecott (2017), unburnable carbon quantifies "the disconnect between the current value of the listed equity of global fossil fuel producers and their potential commercialisation under a strict carbon budget constraint."[34] In other words, "[w]hen the amount of fossil fuels combusted, plus the amount of carbon accounted for in reserves yet to be burned, exceeded the carbon budget, either the climate or the value of the fossil fuel reserves would have to give."[35]

Due to the industry's continued plans for growth in the face of this reality, it is likely that the fossil fuel industry will be forcibly restructured as the world works toward aggressively limiting emissions to mitigate climate change. In other words, according to Mercure et. al., global efforts toward meeting the Paris Agreement goals "requires that a fraction of existing reserves of fossil fuels and production capacity remain unused, hence becoming stranded fossil-fuel assets."[36]

In this way, the fossil fuel industry perfectly demonstrates why some have called climate change "the greatest market failure the world has ever seen."[37] As explained by Comerford and Spiganti (2016),

> *"Despite climate-science based claims that not even all existing fossil fuel assets can be used, capital markets place a positive value on fossil fuel reserves. Investors use the reserves that companies claim to own as an indicator of future revenues, and the share price of fossil fuel companies is heavily influenced by the reserves on their books. Fossil fuel companies still have an incentive to invest to find new reserves, and to invest in new technology that will allow the exploitation of currently unprofitable resources, even*

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[31] Stockholm Environment Institute ("SEI"), International Institute for Sustainable Development ("IISD"), Overseas Development Institute ("ODI"), E3G and United Nations Environment Program ("UNEP"), *The Production Gap Report: 2020 Special Report*, p.11 (2020), http://productiongap.org/2020report.

[32] Muttitt, Greg, *The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production*, Oil Change International, p.6 (Sep. 2016), https://catalogue.unccd.int/775_OCI_the_skys_limit_2016_FINAL_2.pdf.

[33] SEI, IISD, ODI, E3G, and UNEP, *The Production Gap Report: 2020 Special Report*, p. 3 (2020), http://productiongap.org/2020report.

[34] Ben Caldecott, *Introduction to special issue: stranded assets and the environment*, Journal of Sustainable Finance & Investment, 7:1, 1-13, p.3 (2017), DOI: 10.1080/20430795.2016.1266748, https://www.tandfonline.com/doi/full/10.1080/20430795.2016.1266748.

[35] *Id.*

[36] Mercure, JF., Pollitt, H., Viñuales, J.E. et al., *Macroeconomic impact of stranded fossil fuel assets*, Nature Clim. Change 8, 588–593, pg.1 (2018), https://core.ac.uk/download/pdf/162913713.pdf.

[37] Arkush, David, et al., *Climate Roadmap for U.S. Financial Regulation*, Public Citizen and Americans for Financial Reform, p. ii (2018), https://www.citizen.org/wp-content/uploads/Climate-Financial-Reg-Report.pdf.

> *though the exploitation of these deposits is inconsistent with the climate change targets that the world's governments have signed up to. If policymakers enforce compliance with the 2°C target, markets will begin to recognise that the value of the reserves on these companies' books are untenable, and the value of the companies will fall considerably as a consequence of these stranded assets."*[38]

According to some estimates, the impact of loss from stranded fossil fuel assets may "amount to a discounted global wealth loss of $1-4 trillion."[39] This loss is not merely hypothetical. For instance, Carbon Tracker conducted a "Paris alignment test" of companies that analyzed the "economic competitiveness" of various fossil fuel projects to see if companies were "prepared to sanction projects which lie outside the cost limits implied by the Paris agreement."[40] According to Carbon Tracker, such a test is feasible given that "we know the cost curves of the projects needed to fit a Paris demand profile so, by definition, any project with costs above that curve is non-compliant."[41] Carbon Tracker found that while some companies are acknowledging and incorporating transition risk into their business strategy, most companies are completely ignoring it.

Of particular importance is the geographic spread of companies that fall into one of two different categories. Carbon Tracker found that European majors are taking a much more proactive approach to adapting to the reality of a carbon constrained future compared to their US counterparts who demonstrate increased vulnerability to risk due to a relative lack of attention to the issue.[42] This discrepancy demonstrates the heightened importance of SEC action on this issue, given that many US fossil fuel majors analyzed, including ConocoPhillips, ExxonMobil, and Chevron, are only listed in the US. This means that action or inaction by the SEC alone will dictate these companies' approach to this issue, and that the US market is especially exposed to risks posed by inadequate disclosure by these large companies and others.

Given that no fossil fuel major has adjusted its portfolio to be "Paris aligned," we must begin to transition in the way we view upstream portfolios: as not only revenue generators but also risk generators, depending on the likelihood of asset stranding for projects within a company's portfolio. At the individual upstream portfolio level, asset stranding is a significant problem for investors. This is due to the conventional cash flow spread over the lifetime of an upstream project. Most of the capital expenditure required for a project is front loaded during early stages of project development. Once production comes online, these investments are recouped and profit is realized. The International

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[38] Comerford, D. & Spiganti, A., *The Carbon Bubble: Climate Policy in a Fire-sale Model of Deleveraging*, Society for Economic Dynamics, 2017 Meeting Papers 734, p. 2-3 (2016), https://www.bankofengland.co.uk/-/media/boe/files/events/2016/november/the-carbon-bubble-climate-policy-in-a-fire-sale-model-of-deleveraging-speaker-paper.pdf?la=en&hash=F6FC6E38ED1334A006F9658A605E77946C8BDE83.

[39] Mercure, JF., Pollitt, H., Viñuales, J.E. et al., *Macroeconomic impact of stranded fossil fuel assets*, Nature Clim. Change 8, 588–593, pg.1 (2018), https://core.ac.uk/download/pdf/162913713.pdf.

[40] Carbon Tracker Initiative, *Fault Lines: How diverging oil and gas company strategies link to stranded asset risk*, p.6 (2020), https://carbontracker.org/reports/fault-lines-stranded-asset/.

[41] *Id.*

[42] *Id.* at p. 7.

Energy Agency defines stranded assets accordingly as "those investments which have already been made but which, at some time prior to the end of their economic life (as assumed at the investment decision point), are no longer able to earn an economic return."[43]

This means that companies are raising and spending capital for projects that will not provide the returns that investors expect. According to Carbon Tracker, "over a third of BAU [business as usual] level capex doesn't fit in a 1.6 degree C scenario" while "around two-thirds of BAU potential capex on unsanctioned oil and gas and around 90% on oil is likely to destroy value in a 1.6 degree C world."[44]

This loss potential introduces the concept of the "carbon bubble", which in essence is a problem of mispricing and mis valuation of assets. "Where investors assume that these reserves will be commercialised, the stocks of listed fossil-fuel companies may be over-valued."[45] According to Comerford and Spiganti (2016),

> *The Carbon Tracker Initiative's (2011) report warns that, analogously to the subprime mortgage problem that precipitated the 2008-09 Financial Crisis, the global economy is once again mis-pricing assets as markets overlook this 'unburnable carbon' problem. This issue is termed the 'carbon bubble' because the imposition of climate policy consistent with the Potsdam Climate Institute's calculations would mean that the fundamental value of many fossil fuel assets must be zero as they cannot be used. Their current market value must therefore be made up of a zero fundamental value, and a 'bubble' component: the Carbon Bubble.*[46]

Given this reality, we must urgently shift our approach to fossil fuel company valuation and, in essence, nearly reverse the way we evaluate financial health in the sector and align investment accordingly. Among other things, this shift can be facilitated through improved disclosure requirements for fossil fuel companies that provide more information about how a company's upstream investments will perform in a carbon constrained world. If this information is not disclosed, investors will face huge value loss that could have been prevented through, at least in part, expanded disclosure of risks regarding a company's reserves, resources, and CAPEX strategy. The scale of this mispricing problem demonstrates the need for immediate action by regulators to protect investors and ensure efficient capital allocation since

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[43] IEA, *Redrawing the Energy Climate Map: World Energy Outlook Special Report*, p. 134 (2013), https://www.iea.org/reports/redrawing-the-energy-climate-map.

[44] Carbon Tracker Initiative, *Fault Lines: How diverging oil and gas company strategies link to stranded asset risk*, p. 8 (2020), https://carbontracker.org/reports/fault-lines-stranded-asset/.

[45] Mercure, JF., Pollitt, H., Viñuales, J.E. et al., *Macroeconomic impact of stranded fossil fuel assets*, Nature Clim. Change 8, 588–593, pg. 2 (2018), https://core.ac.uk/download/pdf/162913713.pdf.

[46] Comerford, D. & Spiganti, A., *The Carbon Bubble: Climate Policy in a Fire-sale Model of Deleveraging*, Society for Economic Dynamics, 2017 Meeting Papers 734, p. 2 (2016), https://www.bankofengland.co.uk/-/media/boe/files/events/2016/november/the-carbon-bubble-climate-policy-in-a-fire-sale-model-of-deleveraging-speaker-paper.pdf?la=en&hash=F6FC6E38ED1334A006F9658A605E77946C8BDE83.

"governments and global markets are currently treating as assets reserves equivalent to nearly 5 times the carbon budget for the next 40 years."[47]

Market shifts and scenarios

The COVID-19 pandemic has caused the oil and gas sector and industry analysts to dramatically rethink previous economic models for when the world will reach peak oil, the point at which global oil production reaches its maximum rate before gradually declining. While there is significant debate around the specifics of the declining rate of oil production, there is growing consensus from both scientists and industry, that we have reached peak oil.

In Spring 2020, the pandemic caused global oil consumption to drop by more than one-third,[48] causing a corresponding, and shocking sudden decline in oil prices. While production and prices have rebounded, global oil demand is unlikely to recover to its pre-pandemic trajectory, forcing many countries and companies to rethink the economic viability of future projects and the role of oil in their energy matrices.[49] With global efforts to curb carbon emissions and the resultant economic impacts of the COVID-19 pandemic, many formerly viable oil projects are likely to become stranded assets.

While the COVID-19 pandemic has certainly caused the oil industry to confront the economically precarious future of oil, its decline has been evident for some time. Over the past decade, the cost of wind and solar electricity has fallen by up to 90 percent and rapid innovation is leading to ever-increasing ways of incorporating renewables into electricity systems.[50] If countries pursue sustainable energy policies and energy transition initiatives, the International Energy Agency predicts that oil demand may never return to pre-pandemic levels, meaning we have already hit peak oil.[51]

Industry largely agrees with this assessment. BP's 2020 Energy Outlook predicts that under three scenarios—rapid, net zero, and business-as-usual—the world's energy usage will increase, but renewables will play an increasing role. Even under the business-as-usual scenario—the most optimistic for oil producers—BP believes that oil demand will plateau at 2019 levels before declining in 2035.[52] However, under more aggressive scenarios, BP expects oil demand to fall by 10 percent by 2030 and by up to 50 percent by 2040.

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[47] Carbon Tracker Initiative, *Unburnable Carbon: Are the world's financial markets carrying a carbon bubble?*, p. 2. (2011), https://www.banktrack.org/download/unburnable_carbon/unburnablecarbonfullrev2.pdf.
[48] Khasawneh, Roslan; Browning, Noah; Kearney, Laila, *Oil industry paints grimmer picture of pandemic's harm to demand*, Reuters, (Sep. 15, 2020), https://www.reuters.com/article/us-oil-appec-vitol-idUSKBN2650DX.
[49] IEA, *Oil 2021, Analysis and forecast to 2026* (2021), https://www.iea.org/reports/oil-2021.
[50] Carbon Tracker Initiative, *The Energy Transition - The Time is Now* (Nov. 5, 2020), https://carbontracker.org/the-energy-transition-the-time-is-now/.
[51] IEA, *Oil 2021, Analysis and forecast to 2026* (2021), https://www.iea.org/reports/oil-2021.
[52] BP, *Energy Outlook: 2020 edition*, https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/energy-outlook/bp-energy-outlook-2020.pdf.

While slightly more conservative in its estimates, in September 2020, Total SE effectively echoed BP's statement that peak oil is coming.[53] Total's energy outlook predicts that oil demand growth will end by 2030, while electricity demand will grow to account for 30-40 percent of final energy demand by 2050.

Most recently (and so with greater insight into the economic fallout from the pandemic), in February 2021, Royal Dutch Shell stated that oil production peaked in 2019 and that it expects production to decline by 1-2 percent per year going forward.[54]

Other industry norm setters like the International Energy Agency have detailed this trajectory in scenario analyses charting the fossil fuel market in a climate constrained world. According to the IEA's "Net Zero by 2050" report, fossil fuels will decline from making up four-fifths of total current energy supply to one-fifth by 2050.[55] According to the report, there is no room for investment in new fossil fuel supply in the IEA's net zero pathway.

> *Beyond projects already committed as of 2021, there are no new oil and gas fields approved for development in our pathway, and no new coal mines or mine extensions are required. The unwavering policy focus on climate change in the net zero pathway results in a sharp decline in fossil fuel demand, meaning that the focus for oil and gas producers switches entirely to output -- and emissions reductions -- from the operation of existing assets.*[56]

According to Wood Mackenzie's accelerated energy transition scenario (AET-2), oil demand in 2050 is 70% lower than today's levels.[57] According to this analysis, oil prices will enter into terminal decline as soon as 2023. By 2030, this scenario projects Brent crude oil prices will average US $37-42/bbl. By 2040, the Brent price ranges between US $28-32/bbl and by 2050, the price ranges between US $10-18/bbl.

According to Wood Mackenzie, "no oil company is preparing for the scale of decline envisioned in this scenario."[58] As Carbon Tracker notes, fossil fuel company inaction means the market is rife with "risk of fossil fuel producers making poor investments that destroy value as they misread future demand."[59]

It is worth noting that both the IEA and Wood Mackenzie scenarios are based on assumptions regarding the large-scale development of carbon capture and storage. Given the risky and unproven nature of this

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[53] TotalEnergies, *2020 Strategy & Outlook Presentation, From Net Zero ambition to Total Strategy* (Sep. 30, 2020), https://www.totalenergies.com/media/news/news/2020-strategy-outlook-presentation.

[54] Shell Global, *Shell accelerates drive for net-zero emissions with customer-first strategy* (Feb. 11, 2021), https://www.she021/shell-accelerates-drive-for-net-zero-emissions-with-customer-first-strategy.htmlll.com/media/news-and-media-releases/2.

[55] IEA, *Net Zero by 2050: A Roadmap for the Global Energy Sector*, p. 18 (May 2021), https://www.iea.org/reports/net-zero-by-2050.

[56] *Id.* at p. 21.

[57] Wood Mackenzie, *Reversal of fortune: oil and gas prices in a 2-degree world*, p.5 (2021), https://www.woodmac.com/horizons/reversal-of-fortune-oil-and-gas-prices-in-a-2-degree-world/.

[58] *Id.*

[59] Carbon Tracker Initiative, *Fault Lines: How diverging oil and gas company strategies link to stranded asset risk*, p. 5 (2020), https://carbontracker.org/reports/fault-lines-stranded-asset/.

technology, we believe that scenarios built in part on this assumption should be viewed with caution. The SEC should consider that net-zero projections predicated on the rapid escalation of carbon capture and storage technology will likely need to be revised to reflect more rapid than predicted price declines if that technology proves to be a non-viable option for removing carbon from the atmosphere.

Current SEC fossil-fuel disclosure framework in need of reform

General deficiencies leading to inadequate disclosure of climate-related financial risk

Investment decisions around oil and gas companies rely on projections of expected future returns from projects across a company's portfolio. Due to the nature of fossil fuel projects, more than half of an oil and gas company's value "resides in the value of cash flows to be generated in year 11 onwards."[60] The long-term transition away from fossil fuels to cleaner energy sources affects company projections about the viability of current and future projects and their returns. In 2020, oil and gas firms in North America and Europe downgraded the value of their assets by more than $145 billion after a downward revision in their long-term oil price forecasts.[61] At the heart of these write-downs were reassessments indicating that projects previously considered to be viable—especially projects with high production costs or high carbon intensity—were no longer likely to generate positive returns.[62]

These impairments illustrate the dramatic challenges facing investors seeking to (a) understand the impact of climate-induced market changes on the viability of projects and overall company value; and (b) assess the climate impact of investment decisions being made by oil and gas companies. Today, little reliable, consistent information is available from most oil and gas companies for investors to make these determinations. This is due, in part, to a lack of mandate for companies to provide standard types of forward-looking information in their financial disclosures. Currently, disclosure relies heavily on historical information regarding past company performance. Furthermore, important elements of the disclosure, like reserve economic producibility that should necessarily incorporate information regarding future projections, are instead calculated under "existing economic conditions" according to the Commission's 2010 Modernization of Oil and Gas Reporting Rule ("2010 Rule").[63]

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[60] Carbon Tracker Initiative, *Unburnable Carbon: Are the world's financial markets carrying a carbon bubble?*, p. 19 (2011), https://www.banktrack.org/download/unburnable_carbon/unburnablecarbonfullrev2.pdf.

[61] *See* Collin Eaton and Sarah McFarlane, *2020 Was One of the Worst-Ever Years for Oil Write-Downs*, Wall Street Journal (Dec. 27, 2020), https://www.wsj.com/articles/2020-was-one-of-the-worst-ever-years-for-oil-write-downs-11609077600; Jillian Ambrose, 2020, *Seven Top Oil Firms Downgrade Assets by $87bn in Nine Months*, The Guardian (Aug. 14, 2020), https://www.theguardian.com/business/2020/aug/14/seven-top-oil-firms-downgrade-assets-by-87bn-in-nine-months; Robert Perkins, *'Oil Majors' Credit Ratings Under Threat from Growing Climate Risks*, S&P Global (Jan. 26, 2021), https://www.spglobal.com/platts/en/market-insights/latest-news/oil/012621-oil-majors-credit-ratings-under-threat-from-growing-climate-risks-sampp-global.

[62] See James Herron, *Total Writes Down $7 Billion in Canadian Oil Sands Assets in Decarbonization Push*, World Oil (July 29, 2020), https://www.worldoil.com/news/2020/7/29/total-writes-down-7-billion-of-canadian-oil-sands-assets-in-decarbonization-push; Ron Bousso, *Shell to Write Down Assets Again, Taking Cuts to More than $22 Billion*, Reuters (Dec. 21, 2020), https://www.reuters.com/article/shell-outlook/shell-to-write-down-assets-again-taking-cuts-to-more-than-22-billion-idUSKBN28V0MY.

[63] Securities and Exchange Commission, Modernization of Oil and Gas Reporting (Final Rule), p.11 (2010), 74 Fed. Reg. 2157, [17 C.F.R. Parts 210, 211, 229, and 249], https://www.sec.gov/rules/final/2008/33-8995.pdf.

Due to oil price volatility, it is logical in some ways that regulators would choose backward-looking metrics in requirements for standardized company disclosure. Choosing to measure reserve economic producibility, for instance, based on a 12-month average price from the past year, does allow for standardization and minimizes uncertainty. However, allowing companies to report under "existing economic conditions" can inadvertently deny investors of critically important information regarding the actual future of a project and the level of risk involved. This is particularly true in regards to climate-related financial risk. These issues are summarized in a report by World Resources Institute and the United Nations Environment Programme Finance Initiative:

> *[An] important consideration when assessing exposure indicators relates to the time boundaries inherent in various metrics. For example, current annual GHG emissions data are not necessarily representative of a company's future emissions profile; some companies will diversify or invest in lower-carbon assets over time, while others will not. For this reason, while it is important to assess a company's current profile, it is also critical to evaluate information that can provide insight into how that profile might evolve over time, including whether such changes could lead to higher or lower carbon risk.*[64]

According to Condon (2021), outdated risk metrics are one of the biggest causes of mispricing of climate risks throughout the market:

> *The traditional methods by which market actors assess risk may be particularly prone to failure in a climate-changed world. Financial models, including those impacting capital-allocation decisions within corporations, often rely on historical data to make future projections of risk. In the climate context, the future will look very different from the past in myriad ways. Historical data representing a relatively stable climate past cannot be relied upon to predict future risks.*[65]

As noted above, the oil market is in terminal decline. It is likely that the future of the oil market will look nothing like anything the market has experienced before. Thus, proxies like "existing economic conditions" and metrics based on historical price data are not fit for purpose. This becomes obvious if one compares the price projections in Wood Mackenzie's AET-2 scenario through 2050 with the way companies report on the economic viability of their projects through the same timeframe using historical price averages. Indeed, Condon attributes the mispricing of fossil fuel company assets to the fact that "market actors continue to rely on risk assessment methodologies that are outdated in a climate-changed world."[66]

As explained by Carbon Tracker Initiative in its 2019 report outlining a model disclosure for the upstream oil and gas sector: "A recent speech by the Chair of the International Accounting Standards

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[64] Weber, C. & Fulton, M., *Carbon Asset Risk: Discussion Framework*, World Resources Institute and UNEP Finance Initiative, p. 25 (Aug. 2015), https://www.wri.org/research/carbon-asset-risk-discussion-framework.
[65] Condon, Madison, *Market Myopia's Climate Bubble*, Boston University School of Law, p. 18 (2021), https://scholarship.law.bu.edu/cgi/viewcontent.cgi?article=2084&context=faculty_scholarship.
[66] *Id.* at p.5.

Board (IASB) outlined that, given that climate-related financial risks will likely only emerge in the long-term, and that financial statements are largely backwards-looking, climate-related risks will often 'escape' the financial statements."[67] If regulators do not require the use of more forward-looking metrics in financial reporting, (i.e. price projections, long term assumptions, etc.) then firm value will continue to be severely mispriced, which will result in further inefficient allocation of capital and preventable risks to investors.

Recommended reforms

PWYP-US has prepared this comment in response to the SEC's March 2021 request for input on climate change disclosure. In doing so, we hope to highlight certain top line issues in the SEC's current disclosure regime for fossil fuel companies that must be addressed in the SEC's approach to "facilitating the disclosure of consistent, comparable, and reliable information on climate change" by evaluating "whether climate change disclosures adequately inform investors about known material risks, uncertainties, impacts, and opportunities, and whether greater consistency could be achieved."[68]

This comment provides an explanation of specific deficiencies in the current disclosure regime in order to inform subsequent rulemakings and action by the SEC. This comment is not comprehensive--we have chosen to discuss certain representative issues to draw attention to gaps in the SEC's current requirements. We hope to follow up with a more detailed and thorough evaluation of all relevant issues in the fossil-fuel reporting framework during a subsequent rulemaking or other opportunity for public input.

As first steps in strengthening the fossil-fuel sector specific climate-related reporting requirements, we recommend the following:

- Amend the 2010 Modernization of Oil and Gas Reporting Rule (Regulation S-X Section §210.4-10) to require the inclusion of price sensitivity analyses for all types of reserves as well as contingent resources.
- Amend the 2010 Modernization of Oil and Gas Reporting Rule (Regulation S-X Section §210.4-10) to include the IPCC Default Tier 1 Effective CO2 Emission Factor calculation described below and in the comment submitted by WK Associates in standard proven and probable reserves disclosure.
- Amend the 2010 Modernization of Oil and Gas Reporting Rule (Regulation S-X Section §210.4-10) to identify reserves categories by the type of reserves extracted rather than by final product.

[67] Carbon Tracker Initiative, *Reporting for a secure climate: A model disclosure for upstream oil and gas*, p.3 (2019), https://carbontracker.org/reports/reporting-for-a-secure-climate-a-model-disclosure-for-upstream-oil-and-gas/.
[68] Acting Chair, Allison Herren Lee, *Public Input Welcomed on Climate Change Disclosures*, Securities and Exchange Commission (Mar. 15, 2021), https://www.sec.gov/news/public-statement/lee-climate-change-disclosures.

In addition, align reserves categories with those used with IPCC Default Tier 1 Effective CO2 Emissions Factors.[69]

- Issue updated guidance regarding climate-risk disclosure, specifically including updated requirements for Item 303 of Regulation S-K, Management's Discussion and Analysis of Financial Condition and Results of Operations mandating:
    - A transparent review of both portfolio and individual asset-level impacts on economic viability under various climate and energy scenarios in order to "stress test" the company's asset portfolio.
    - Disclosure of a company's "operator carbon strategy", including how risks will be managed and how the findings of different stress tests will be incorporated into upstream CAPEX strategy.

Responses to questions:

2. What information related to climate risks can be quantified and measured? How are markets currently using quantified information? Are there specific metrics on which all registrants should report (such as, for example, scopes 1, 2, and 3 greenhouse gas emissions, and greenhouse gas reduction goals)? What quantified and measured information or metrics should be disclosed because it may be material to an investment or voting decision? Should disclosures be tiered or scaled based on the size and/or type of registrant)? If so, how? Should disclosures be phased in over time? If so, how? How are markets evaluating and pricing externalities of contributions to climate change? Do climate change related impacts affect the cost of capital, and if so, how and in what ways? How have registrants or investors analyzed risks and costs associated with climate change? What are registrants doing internally to evaluate or project climate scenarios, and what information from or about such internal evaluations should be disclosed to investors to inform investment and voting decisions? How does the absence or presence of robust carbon markets impact firms' analysis of the risks and costs associated with climate change?

    a. *What information related to climate risks can be quantified and measured? Are there specific metrics on which all registrants should report (such as, for example, scopes 1, 2, and 3 greenhouse gas emissions, and greenhouse gas reduction goals)? What quantified and measured information or metrics should be disclosed because it may be material to an investment or voting decision?*

Because of the market's failure to adapt to the realities of a carbon constrained future, fossil fuel issuers have continued to operate under a business as usual framework. In the fossil fuel industry, pro-growth incentives are inherent in that framework. Growth, measured within a business as usual framework, in

[69] Garg, Amit; Kazunari,Kainou; and Pulles, Tinus, *2006 IPCC Guidelines for National Greenhouse Gas Inventories*, UN Intergovernmental Panel on Climate Change, p. 1.23 and 1.24 (2006). https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf.

part, by reserve replacement ratio, has long been a key performance metric in the sector indicating relative financial health of a firm. This now must change, since according to Condon, "these metrics may incentivize the wrong kind of long-term goals, reinforcing mispricing."[70] Condon concludes that these metrics are no longer fit for purpose given the reality of future asset stranding in the sector: "...these metrics are now out of sync in a world where long term capital would best be served by *not* adding to likely unprofitable reserves."[71] According to Condon:

> *Michael Jensen has argued that in order to live up to the expectations of an over-valued stock price, managers spend money on schemes that destroy long run value but 'mask the inherent uncertainty in their businesses.' In his model, executives sometimes spend money on investments that are not net-present-value justified, just to keep up the appearance of growth and the promise of future profits. This 'overvaluation trap,' it has been argued, describes the decisions of oil executives to spend hundreds of billions of dollars, each year, on prospecting for new reserves, despite there being a 53 year supply of oil contained in the world's existing 2 trillion barrels of reserves. Oil companies derive most of their net present value from the future promised profitability of their reserves. Any acknowledgement on the part of executives that these reserves may, in fact, not be worth bringing to the surface in a future world with stricter climate regulation and more competition from renewables, will lead to a decline in stock price...The practice of fossil fuel companies continuing to predict future cash flows from reserves that will likely be left undeveloped in a climate sensitive world, is consistent with these practices.*[72]

The SEC can address the mispricing of assets by requiring supplementary information from issuers to better articulate the economic resilience of reserves and resources on the company's balance sheet in a carbon constrained future.

Price sensitivity analysis

In the 2010 Modernization of Oil and Gas Reporting Final Rule, the SEC explained the parameters for defining "proved oil and gas reserves." According to the Rule,

> *The definition states that the economic producibility of a reservoir must be based on existing economic conditions. It specifies that, in calculating economic producibility, a company must use a 12-month average price, calculated as the unweighted arithmetic average of the first-day-of-the-month price for each month within the 12-month period prior to the end of the reporting period, unless prices are defined by contractual arrangements, excluding escalations based upon future conditions.*

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[70] Condon, Madison, *Market Myopia's Climate Bubble*, Boston University School of Law, p. 24 (2021), https://scholarship.law.bu.edu/cgi/viewcontent.cgi?article=2084&contextfaculty_scholarship.
[71] *Id.* at p. 25.
[72] *Id.* at p. 24.

To rectify the issues presented by use of this pricing mechanism, we recommend that the SEC mandate the disclosure of price sensitivity analysis for both reserves and resources to show the impacts of future changes to price on a company's asset base. The current pricing mechanism fails to address resiliency, or lack thereof, of reserve economic producibility under markedly different economic conditions. The SEC acknowledges this issue in the 2010 Rule but asserts that this is not a problem, given that the objective of reserve disclosure is not to provide fair value information.

> *Although oil and gas prices themselves are subject to market-based volatility, the estimation of reserves quantities based on any historical price assumption determines those reserve quantities as if the oil or gas already has been produced, even though they have not, and these measures do not attempt to portray a reflection of their fair value. If the objective of reserve disclosures were to provide fair value information, we believe a pricing system that incorporates assumptions about estimated future market prices and costs related to extraction could be a more appropriate basis for estimation.*[73]

With the oil market now in terminal decline, the use of historic price alone will lead to misvaluation. Reliance on this pricing mechanism alone will fail to deliver a key objective of reserve disclosure, according to the SEC's own characterization: "The reserve disclosures are intended to provide investors with an indication of the relative quantity of reserves that is likely to be extracted in the future using a methodology that minimizes the use of non-reserves-specific variables."[74]

Expert sources, including the International Energy Agency, now project a rapid oil price decline over the next thirty years. With this structural change to the market, assessment of reserves and resources under markedly different economic conditions is necessary to adequately indicate the relative quantity of reserves likely to be extracted in the future. According to Carbon Tracker's analysis of fossil fuel companies' portfolio economics, emissions ambition, and impairment price assumption, certain major US fossil fuel companies are likely using high future oil price assumptions compared to European peers, which may suggest "possible continuing investment in marginal assets that become stranded" indicating "the prospect of future write downs if reality doesn't live up to expectations."[75]

While the SEC commonly prefers to defer to the Petroleum Resources Management System (PRMS) as the standard setter for most upstream valuation issues, including methods for valuing reserves, the SEC can still help address this problem by requiring the disclosure of additional price sensitivity information to demonstrate the impact of different future price scenarios on upstream projects. Recognizing this issue, the SEC included an optional reserves sensitivity table in the 2010 Rule. According to the Rule, "This table would permit companies to disclose additional information to investors, such as the

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[73] Securities and Exchange Commission, Modernization of Oil and Gas Reporting, p. 14 (2010) [17 C.F.R. Parts 210, 211, 229, and 249], https://www.sec.gov/rules/final/2008/33-8995.pdf.
[74] *Id.* at p. 19.
[75] Carbon Tracker Initiative, *Fault Lines: How diverging oil and gas company strategies link to stranded asset risk*, p. 8 (2020), https://carbontracker.org/reports/fault-lines-stranded-asset/.

sensitivity that oil and gas reserves have to price fluctuations."[76] Given the drastic price projections for the next thirty years, we believe disclosure of this sensitivity analysis is now necessary to provide an essential measurement of climate risk at the asset level. This sensitivity analysis would be most useful against price projections in a 1.5 and 2° C scenario.

Expanded disclosure of asset classes

We recommend that the SEC requires this price sensitivity analysis for all proven, probable, and possible reserves as well as some categories of resources, notably contingent resources under the PRMS system. We note the SEC's decision in the 2010 Rule to permit disclosure of probable and possible reserves in addition to proven reserves while prohibiting the disclosure of estimates of oil or gas resources other than reserves.[77] According to the SEC's justification for this decision: "We continue to be concerned that such resources are too speculative and may lead investors to incorrect conclusions."[78]

In a context of inevitable asset stranding, information past the reserve level is critically important. Information regarding probable and possible reserves, as well as contingent resources, is vital given that these projects (1) are not yet developed, meaning that these projects will almost certainly face both stranding and impairment risk, and (2) require substantial capital expenditure to develop. In short, investors need to know that the assets a company is investing in can produce adequate returns. This information is especially important regarding the exploration and development of new projects where the risks of stranding or impairment are more likely *and* more CAPEX is at stake. Carbon Tracker summarizes this need in their recommendations with respect to the disclosure of information regarding contingent resources:

> *Carbon Tracker research has shown that, to the extent that contingent resources are approved for development into producing reserves, they are most at risk of becoming stranded in the future since these quantities of oil and gas may not be capable of being burned in a climate-constrained world. Users of the annual report require disclosures that allows them to assess the extent to which management are continuing to invest significant amounts of capital into exploration and development projects that may result in reserves and resources that become stranded. Disclosures should inform investors of the amount that is being invested, the assumptions that management are applying in setting their exploration and development plans, and the impact of changes in these assumptions.*[79]

Along with recommendations detailed below, the inclusion of price sensitivity analyses for proven, probable, and possible reserves as well as contingent resources in annual disclosures would help

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[76] Securities and Exchange Commission, Modernization of Oil and Gas Reporting, p. 65 (2010) [17 C.F.R. Parts 210, 211, 229, and 249], https://www.sec.gov/rules/final/2008/33-8995.pdf.
[77] *Id.* at p. 63.
[78] *Id.* at p. 64.
[79] Carbon Tracker Initiative, *Reporting for a secure climate: A model disclosure for upstream oil and gas*, p. 9 (2019), https://carbontracker.org/reports/reporting-for-a-secure-climate-a-model-disclosure-for-upstream-oil-and-gas/.

demonstrate the impact of changes in price assumptions on the viability of different asset classes and therefore, the relative level of risk within different CAPEX decisions. The SEC's sample sensitivity analysis table included in the 2010 Rule (Figure 1) can be used as a template to guide this disclosure.

Figure 1

Sensitivity of Reserves to Prices
By Principal Product Type and Price Scenario

Price Case	Proved Reserves			Probable Reserves			Possible Reserves		
	Oil	Gas	Product A	Oil	Gas	Product A	Oil	Gas	Product A
	Mbbls	mmcf	measure	mbbls	mmcf	measure	mbbls	mmcf	measure
Scenario 1									
Scenario 2									

Scope 3 emissions disclosure

Relatively minor changes to the reserves disclosure requirements outlined in the SEC's 2010 Modernization of Oil and Gas Reporting Rule could yield forward-looking climate risk data with various applications to conventional oil and gas securities analysis and other investor decision-making. The combination of reserves data sorted by type and effective CO2 emissions factors developed by the UN's Intergovernmental Panel on Climate Change (IPCC) could yield a very straightforward and useful measure of the Scope 3 emissions attributable to the sale and use of oil and gas issuers hydrocarbon reserves.

Disclosing the effective CO2 emissions of hydrocarbon reserves

An accurate and straight-forward calculation of the Scope 3 emission of oil and gas issuers can be created by multiplying the IPCC's Default CO2 Emissions Factors for Combustion[80] by the proven and probable reserves totals for each covered issuer. The result is a quantifiable and consistent metric of the potential greenhouse gas (GHG) emissions in hydrocarbon reserves by type.

[80] IPCC emissions factors are the international standard factor for effective emissions conversions. *See* IPCC, *2006 IPCC National Greenhouse Gas Inventories* (2006), https://www.ipcc-nggip.iges.or.jp/public/2006gl/. For example, they are the basis for the Emission Factors for Greenhouse Gas Inventories used by the US EPA Center for Corporate Climate Leadership, *see* EPA, *Emission Factors for Greenhouse Gas Inventories* (Mar. 2020), https://www.epa.gov/sites/production/files/2020-04/documents/ghg-emission-factors-hub.pdf, which has in turned been used by ExxonMobil and other fossil fuels companies to calculate their Scope Three emissions, *see, e.g.*, ExxonMobil, *Updated 2021 Energy & Carbon Summary*, p. 43 (Apr. 2021), https://corporate.exxonmobil.com/-/media/Global/Files/energy-and-carbon-summary/Energy-and-Carbon-Summary.pdf.

Figure 2

Summary of Oil and Gas Reserves as of Fiscal-Year End
Based on Average Fiscal-Year Prices

	Reserves				
	Oil	Natural Gas	Synthetic Oil	Synthetic Gas	Product A
Reserves category	(mbbls)	(mmcf)	(mbbls)	(mmcf)	(measure)
PROVED					
Developed					
Continent A					
Continent B					
Country A					
Country B					
Other Countries in Continent B					
Undeveloped					
Continent A					
Continent B					
Country A					
Country B					
Other Countries in Continent B					
TOTAL PROVED					
PROBABLE					
Developed					
Undeveloped					
POSSIBLE					
Developed					
Undeveloped					

Figure 3
IPCC default CO2 emissions factors for combustion

TABLE 1.4 DEFAULT CO_2 EMISSION FACTORS FOR COMBUSTION [1]						
Fuel type English description		**Default carbon content (kg/GJ)**	**Default carbon oxidation factor**	**Effective CO_2 emission factor (kg/TJ) [2]**		
				Default value [3]	**95% confidence interval**	
		A	**B**	**C=A*B*44/12*1000**	**Lower**	**Upper**
Crude Oil		20.0	1	73 300	71 100	75 500
Orimulsion		21.0	1	77 000	69 300	85 400
Natural Gas Liquids		17.5	1	64 200	58 300	70 400
Gasoline	Motor Gasoline	18.9	1	69 300	67 500	73 000
	Aviation Gasoline	19.1	1	70 000	67 500	73 000
	Jet Gasoline	19.1	1	70 000	67 500	73 000
Jet Kerosene		19.5	1	71 500	69 700	74 400
Other Kerosene		19.6	1	71 900	70 800	73 700
Shale Oil		20.0	1	73 300	67 800	79 200
Gas/Diesel Oil		20.2	1	74 100	72 600	74 800
Residual Fuel Oil		21.1	1	77 400	75 500	78 800
Liquefied Petroleum Gases		17.2	1	63 100	61 600	65 600
Ethane		16.8	1	61 600	56 500	68 600
Naphtha		20.0	1	73 300	69 300	76 300
Bitumen		22.0	1	80 700	73 000	89 900
Lubricants		20.0	1	73 300	71 900	75 200
Petroleum Coke		26.6	1	97 500	82 900	115 000
Refinery Feedstocks		20.0	1	73 300	68 900	76 600

The calculation of millions of barrels of oil equivalent [81] * effective CO2 emissions factor = expected CO2 emissions. The result is an effective CO2 emissions total or a Scope 3 emissions estimate expressed in kilograms per terajoule squared that has a wide variety of applications for securities analysis. Figure 4 reflects the Scope 3 emissions estimate of the proven U.S.-located oil reserves of ExxonMobil using reserves data disclosed in the company's Fiscal Year 2020 10-K filing.[82]

[81] Natural gas reserves are converted to an oil-equivalent basis at six billion cubic feet per one million barrels.
[82] ExxonMobil, Form 10-K, Securities Exchange Commission, p. 6 (2019), https://www.sec.gov/ix?doc=/Archives/edgar/data/34088/000003408820000016/xom10k2019.htm.

Figure 4
Scope 3 emissions estimate of ExxonMobil's U.S.-based proven oil reserves

	Oil (mmbls)	Effective CO2 emissions (kg/TJ)2
Proven		
Developed		
United States	1,029	75,425,700

The Scope 3 emissions estimate methodology summarized here and outlined in detail in a comment submitted by WK Associates is a streamlined and finance-specific variation of the approach outlined in the 2016 World Resources Institute (WRI) working paper titled *A Recommended Methodology for Estimating and Reporting the Potential Greenhouse Gas Emissions from Fossil Fuel Reserves.*[83] This methodology involves relatively simple calculations using IPCC emissions factors in a manner consistent with the Emission Factors for Greenhouse Gas Inventories[84] used by the US Environmental Protection Agency Center for Corporate Climate Leadership, which has in turn been used by ExxonMobil and other oil and gas companies to calculate their Scope 3 emissions. The methodology and use of IPCC effective CO2 emissions factors is also consistent with the disclosure recommendations of Task Force on Climate-Related Financial Disclosures (TCFD), Sustainability Accounting Standards Board (SASB) and the Greenhouse Gas Protocol. It also aligns perfectly with prominent climate risk disclosure policy proposals, such as the Climate Risk Disclosure Act introduced by Senator Elizabeth Warren[85] and Congressman Sean Casten.[86]

Improvement on SEC's 2010 climate guidance

In February 2010, the SEC issued Interpretive Guidance Regarding Disclosure Related to Climate Change.[87] In that guidance, the SEC identified four existing items in Regulation S-K that may require disclosure related to climate change: description of business, legal proceedings, risk factors, and management's discussion and analysis of financial condition and results of operations, or MD&A. All of these are backward-looking and non-quantifiable considerations.

[83] World Resources Institute, *A Recommended Methodology for Estimating and Reporting the Potential Greenhouse Gas Emissions from Fossil Fuel Reserves* (2016) https://www.wri.org/publication/methodology-calculating-potential-emissions-fossil-fuel-reserves.
[84] EPA, *Emission Factors for Greenhouse Gas Inventories* (Mar. 2020), https://www.epa.gov/sites/production/files/2020-04/documents/ghg-emission-factors-hub.pdf.
[85] Climate Risk Disclosure Act of 2019, S.2075, 116th Cong. (Introduced July 10, 2019), https://www.congress.gov/bill/116th-congress/senate-bill/2075.
[86] Climate Risk Disclosure Act of 2019, H.R.3623, 116th Cong. (Introduced July 16, 2019), https://www.congress.gov/bill/116th-congress/house-bill/3623.
[87] SEC 2010 Climate Change Guidance, https://www.sec.gov/rules/interp/2010/33-9106.pdf.

During its review of Regulation S-K completed in February 2020, the SEC passed on the opportunity to update this guidance.[88] At that time, SEC Commissioner Allison Lee expressed disappointment with this decision and pointed out "investors are overwhelmingly telling us, through comment letters and petitions for rulemaking, that they need consistent, reliable, and comparable disclosures of the risks and opportunities related to sustainability measures, particularly climate risk."[89]

In order for oil and gas reserves disclosures required by the SEC to reflect the CO2 emissions that they represent, the Commission must take the following actions.

- Amend the 2010 Modernization of Oil and Gas Reporting Rule (Regulation S-X Section §210.4-10) to include the IPCC Default Tier 1 Effective CO2 Emission Factor calculation
- Amend the 2010 Modernization of Oil and Gas Reporting Rule (Regulation S-X Section §210.4-10) to identify reserves categories by the type of reserves extracted rather than by final product. In addition, align reserves categories with those used with IPCC Default Tier 1 Effective CO2 Emissions Factors.[90]

<u>Application to securities analysis and investor decision-making</u>

A Scope 3 emissions estimate would have a variety of uses to investors, as it is a quantifiable and forward looking metric that captures the climate change mitigation risk faced by oil and gas issuers. One obvious application would be in the weighting of portfolios that include companies with hydrocarbon reserves on the basis of carbon intensity. For example, as indicated in Figure 3, a company with proven and probable reserves comprised entirely of bitumen (80,700 kg/tj2 effective CO2 emissions factor) would have estimated Scope 3 emissions ten percent greater than a company with reserves that were comprised entirely of crude oil (73,300 kg/tj2) and 30.7 percent higher than a company with only natural gas (56,1000 kg/tj2) reserves (assuming the total proven and probable reserves volumes were the same for each company). Of course, an issuer with great Scope 3 emissions could be expected to bear greater costs in the scenario where an economy-wide price on carbon is enacted or may have more difficulty realizing income through a bond issuance if the economics of its reserves are complicated by their high Scope 3 emissions.

b. How have registrants or investors analyzed risks and costs associated with climate change? What are registrants doing internally to evaluate or project climate scenarios, and what information from or about such internal evaluations should be disclosed to investors to inform investment and voting decisions?

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[88] The National Law Review, *SEC Indicates it Will Not Modify Climate Change Disclosure Criteria* (Feb. 18, 2020), https://www.natlawreview.com/article/sec-indicates-it-will-not-modify-climate-change-disclosure-criteria.

[89] Commissioner Allison Herren Lee, *"Modernizing" Regulation S-K: Ignoring the Elephant in the Room*, Securities and Exchange Commission (Jan. 30, 2020), https://www.sec.gov/news/public-statement/lee-mda-2020-01-30.

[90] Garg, Amit; Kazunari,Kainou; and Pulles, Tinus, 2006, IPCC Guidelines for National Greenhouse Gas Inventories, UN Intergovernmental Panel on Climate Change, https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf, p. 1.23 and 1.24.

Disclosure of operator carbon risk and carbon strategy to mitigate carbon asset risk

Fossil fuel issuers frequently report on forecasting, scenario planning, and risk modelling exercises that are undertaken internally. However, issuers provide little to no detail regarding the assumptions and methodologies used in these assessments. Chevron's recent *Climate Change Resilience* report demonstrates this trend:

> *"Chevron's strategic and business planning processes bring together the Company's views on long-term energy market fundamentals to guide decision making by executives and facilitate oversight by the Board of Directors. We use proprietary models to forecast demand, energy mix, supply, commodity prices, and carbon prices—all of which include assumptions about future policy and technology developments."*[91]

It is clear that companies are conducting long-term, forward-looking scenario planning using a variety of variables to inform strategy and business planning decisions. Investors should not be left to assume that they agree with a company's decisions regarding any one of the underlying assumptions that make up these risk models and projections. This is especially true, according to Condon (2021), given that managerial incentives are often in direct conflict with robust risk disclosure, particularly when those risks implicate firm value:

> *Corporate managers have access to their firms' operational data, and are likely better positioned, as compared to their shareholders, to assess their firms' resilience to climate change. They may, however, lack personal incentives for seeking out and assessing climate risk, let alone disclosing potential risk exposures to the market. The revelation that a firm is exposed to previously unaccounted for climate risks may lead to a fall in share price, which managers are trained, and incentivized, to avoid...The coal company Peabody Energy may already provide an example of such agency costs in the climate context. In 2016, the New York attorney general announced it had reached a settlement with Peabody after an investigation revealed the many ways the company had withheld information from investors regarding internal projections for future coal demand. While Peabody's 'disclosures denied its ability to reasonably predict the future impact of any climate change regulation on its business…the company and its consultants [internally] projected severe impacts from certain potential regulations that would materially affect Peabody.'*[92]

[91] Chevron, 2021, Climate change resilience: Advancing a lower-carbon future, https://www.chevron.com/-/media/chevron/sustainability/documents/climate-change-resilience-report.pdf, p. 3

[92] Condon, Madison, *Market Myopia's Climate Bubble*, Boston University School of Law, p. 23 (2021), https://scholarship.law.bu.edu/cgi/viewcontent.cgi?article=2084&contextfaculty_scholarship.

According to Carbon Tracker, "Conducting risk analysis to understand the implications of lower demand, price and emissions scenarios needs to be an open process. These stress tests can inform investor understanding and engagement on capex plans."[93]

According to a carbon risk assessment framework published by the World Resources Institute and the United Nations Environment Programme Finance Initiative, in a context of rapidly evolving risk, investors would benefit from, and are justified in requesting:

1. A transparent review of both portfolio and individual asset-level impacts on economic viability under various climate and energy scenarios in order to "stress test" the company's asset portfolio
2. Disclosure of a company's "operator carbon strategy" including how risks will be managed and how the findings of different stress tests will be incorporated into upstream CAPEX strategy.[94]

<u>Expanded disclosure of portfolio and asset-level risks and impacts on economic viability</u>

UNEP-FI and WRI use the term "operator carbon risk" to describe "risk of financial loss to an operator of a physical asset due to non-physical climate change related factors (predominantly policy, market, and technology" and recommend additional disclosure from companies regarding this risk.[95] To make decisions with a detailed understanding of the impact of climate-related financial risk on the economic producibility of reserves and the accounting impact of potential energy transition scenarios, investors need consistent and detailed information from oil and gas companies for projects across their portfolios on the impact that energy transition could have on economic viability, including:

- *Project break-even price*. Oil and gas prices are inherently unpredictable, and the prospect of terminal decline introduces new degrees of uncertainty. Investors would benefit from consistent disclosure of the long-term oil price that would be necessary for each project to generate a positive financial return, and the assumptions about production costs that underpin that break-even estimate. This will help investors make well-founded estimates of the financial health of oil and gas issuers in line with investors' own assumptions about long-term fossil fuel demand. While companies have often argued that cost information is commercially sensitive, the growing materiality of project viability factors in climate risk assessments means that investors have legitimate and prevailing interests in such information.
- *Compatibility of the project with a Paris-aligned course and impact of various transition scenarios on economic viability.* Major international institutions including the United Nations Environment Program and the International Energy Agency have estimated that large shares of discovered oil and gas resources will need to remain undeveloped if the

[93] Carbon Tracker Initiative, *Fault Lines: How diverging oil and gas company strategies link to stranded asset risk*, p. 4 (2020), https://carbontracker.org/reports/fault-lines-stranded-asset/.
[94] Weber, C. & Fulton, M., *Carbon Asset Risk: Discussion Framework*, World Resources Institute and UNEP Finance Initiative (Aug. 2015), https://www.wri.org/research/carbon-asset-risk-discussion-framework.
[95] *Id.* at p.16.

world is to meet the Paris Agreement.[96] Major investors have expressed the ambition to steer their dollars toward companies that are taking serious steps toward a Paris-compatible strategy.[97] Today, however, investors lack access to regulated disclosures by oil and gas companies of which projects in their portfolios are compatible with these ambitions. Similarly, investors concerned about the risk of stranded assets need information that helps them discern the effect of a rapid energy transition on the viability of projects across the company's portfolio, including details on the long-term price assumptions used in company decision-making, the timing of future investments and production and the company's assessment of the impact that lower-demand scenarios would have on the viability of projects, as well as information on whether the project aligns with the NDCs of the country where the project is located.[98]

- *Impact of existing or prospective carbon taxes or carbon pricing on project economics*. The growing number of jurisdictions that are implementing or considering carbon taxes or border adjustment mechanisms has the potential to fundamentally impact the economic viability of a range of oil and gas projects, either because they have high production costs or are particularly carbon-intensive.[99] Data sufficient to enable investors to assess the impact of carbon pricing on the viability of projects would enable investors to more effectively assess business risk amidst significant global climate policy uncertainty.

According to UNEP-FI and WRI, disclosure of this project-specific information can be supplemented by stronger and more consistent discussion of climate-related financial risk exposure at the portfolio level to show the impact of different variables and risk factors on overall cash flow and revenue projections.[100]

Operator carbon strategy disclosure

According to the WRI and UNEP-FI framework, in addition to the disclosure of the impact of potential risks to physical assets controlled by a company, companies should also report on their overall carbon strategy. According to WRI and UNEP-FI, an operator's carbon strategy includes "the strategy by which an operator of carbon assets minimizes its operator carbon risk by positioning itself to adapt to a carbon-constrained world." The disclosure of operator carbon strategy is crucial for investors. When paired with improved disclosure regarding carbon risk, these two sets of information can help mitigate

[96] SEI, IISD, ODI, E3G, and UNEP, *The Production Gap Report: 2020 Special Report* (2020), https://productiongap.org/2020report/#R1; IEA, *Net Zero by 2050* (2021), https://www.iea.org/reports/net-zero-by-2050.

[97] See, e.g., Blackrock, *Net Zero: A Fiduciary Approach* (2021) (highlighting commitments centered on achieving net-zero emissions by 2050, including by publishing "the proportion of our assets under management that are currently aligned to net zero" and "asking companies to disclose a business plan aligned with the goal of limiting global warming to well below 2ºC"), https://www.blackrock.com/corporate/investor-relations/blackrock-client-letter.

[98] Weber, C. & Fulton, M., *Carbon Asset Risk: Discussion Framework*, World Resources Institute and UNEP Finance Initiative, p. 16 (Aug. 2015), https://www.wri.org/research/carbon-asset-risk-discussion-framework.

[99] *Id.* at p. 23.

[100] *Id.* at p. 32.

carbon asset risk, defined as "potential for a financial intermediary or investor to experience financial loss due to unmanaged operator carbon risk in its clients or investee companies."[101]

Therefore, while investors need more information related to risk assessment itself, disclosure is also needed in regards to how the company plans to manage that risk, and how risk analysis will be incorporated into CAPEX strategy. As Carbon Tracker Initiative argues, investors are interested in knowing whether company managers are accounting for climate risks when making investment decisions, because "the more that a company is incorporating climate-related factors into their strategy and risk management processes, the better prepared it is likely to be for the transition to a low-carbon economy."[102] As such, in addition to the specific disclosures mentioned above, it is important for companies to disclose their mechanisms for incorporating risk factors into upstream CAPEX strategy including anticipated capital expenditure on exploration, appraisal and development activities. It is also critical for companies to explain the processes by which they come to investment decisions and factors that could lead them to reassess investments.[103]

3. What are the advantages and disadvantages of permitting investors, registrants, and other industry participants to develop disclosure standards mutually agreed by them? Should those standards satisfy minimum disclosure requirements established by the Commission? How should such a system work? What minimum disclosure requirements should the Commission establish if it were to allow industry-led disclosure standards? What level of granularity should be used to define industries (e.g., two-digit SIC, four-digit SIC, etc.)?
    a. *What are the advantages and disadvantages of permitting investors, registrants, and other industry participants to develop disclosure standards mutually agreed by them? What minimum disclosure requirements should the Commission establish if it were to allow industry-led disclosure standards?*

While investors have engaged in significant efforts to push for more information from fossil fuel companies, resulting in some measure of voluntary disclosures, that is no replacement for SEC action. SEC action is essential to ensure full compliance, to ensure comparability of information, and to ensure reliability of information disclosed.

While some companies have started producing some additional information, the reality is that without mandatory disclosures, many companies will simply decline to do so. This is especially true given the issue of conflicting managerial incentives outlined in our answer above. And even where companies are voluntarily disclosing, there is a lack of consistency in what they disclose and how they disclose it. Mandatory disclosures from the SEC will ensure the same information is disclosed by all such companies, simplifying the work for issuers as well as investors.

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[101] *Id.* at p. 16.
[102] Carbon Tracker Initiative, *Reporting for a secure climate: A model disclosure for upstream oil and gas*, p. 3 (2019), https://carbontracker.org/reports/reporting-for-a-secure-climate-a-model-disclosure-for-upstream-oil-and-gas/.
[103] *Id.* at p. 10 - 12.

Moreover, SEC action is essential to ensure the reliability of information disclosed. Likewise, investors need access to remedies for inaccurate or incomplete disclosures. Voluntary disclosure regimes do not provide such an option.

An industry led standard is also unlikely to garner sufficient trust or credibility. Substantial information has come out in recent years revealing the extent to which many major fossil fuel companies and other industry groups knew early on about the role fossil fuels were playing in contributing to climate change and actively sought to deceive the public about the impacts of climate change for decades. There are numerous pending lawsuits and other investigations into this deception.[104] Allowing those same actors to establish an industry led standard for disclosure of climate information will lack the credibility necessary for the protection of the public interest, investor trust, and to promote fair, orderly, and efficient markets and will therefore be of little utility.

4. What are the advantages and disadvantages of establishing different climate change reporting standards for different industries, such as the financial sector, oil and gas, transportation, etc.? How should any such industry-focused standards be developed and implemented?

As outlined in our other responses, fossil-fuel sector specific requirements are essential, given the central and unique role this sector plays in relation to climate change. Certain changes must be made to the 2010 Modernization of Oil and Gas Reporting Rule and through updates to Commission Guidance regarding Regulation S-K reporting requirements in order to rectify certain failures in the current fossil-fuel sector disclosure regime that continue to undermine efforts by other market participants to measure and mitigate climate-related financial risk.

5. What is the best approach for requiring climate-related disclosures? For example, should any such disclosures be incorporated into existing rules such as Regulation S-K or Regulation S-X, or

[104] A number of states and the District of Columbia have pending litigation against fossil fuel companies and industry groups for their role in deceiving consumers, the public, and investors about climate change. *See, e.g. District of Columbia v. ExxonMobil et al.* 1:20-cv-01932 (D.D.C.) (suit against Exxon, BP, Chevron and Shell for misleading consumers); *Commonwealth of Massachusetts v. ExxonMobil,* No. 1984CV03333 (Mass. Super. Ct) (suit against ExxonMobil for misleading consumers and investors); *State of Minnesota v. American Petroleum institute et al,* 0:20-cv-01636 (D. Minn) (suit against Exxon, Koch Industries and API for a "campaign of deception" to mislead consumers about the science of climate change and failing to disclose their knowledge about the role of fossil fuel products); *City of New York v. ExxonMobil et al,* No. 451071/2021 (N.Y. Sup. Ct) (consumer protection suit against ExxonMobil, Shell, BP, and API for engaging in deceptive trade practices); *State of Connecticut v. ExxonMobil,* No. 3:20-cv-01555 (D. Conn) (consumer protection suit against Exxon for "campaign of deception"). Numerous lawsuits filed by states and municipalities seeking damages, including the costs of preparing for and mitigating the impacts of climate change, likewise include allegations against fossil fuel companies for climate change deception. *See, e.g. County of Maui v. Sunoco,* 1:20-cv-00470 (D. Haw.) (suit against Sunoco, Exxon, Chevron, BP, Shell and others for decades of "disinformation" over the climate crisis); *City of Annapolis v. BP p.l.c., et al.* 1:21-cv-00772 (D. Md) (suit against fossil fuel companies seeking damages and other relief based on companies' alleged concealment of information about their products' contribution to climate change.); *City of Hoboken v. Exxon Mobil Corp et al,* No. 2:20-cv-14243 (D.N.J.) (suit for climate change-related damages and violations of NJ Consumer Fraud Act against fossil fuel companies and API resulting from the defendant companies' production of fossil fuels and concealment of harms); *Board of County Commissioners of Boulder et al. v. Suncor Energy et al*. 2018CV30349 (Boulder County Dist. Crt) (suit against Exxon and Suncor for role in knowingly contributing to climate change while concealing and misrepresenting the dangers associated with fossil fuels).

should a new regulation devoted entirely to climate risks, opportunities, and impacts be promulgated? Should any such disclosures be filed with or furnished to the Commission?

Many necessary fossil-fuel sector specific climate-related disclosure updates can be made largely through amendments to 2010 Modernization of Oil and Gas Reporting Rule and through improved guidance for reporting under regulation S-K. As such, the recommended disclosures would necessarily be filed to the SEC.

13. How should the Commission craft rules that elicit meaningful discussion of the registrant's views on its climate-related risks and opportunities? What are the advantages and disadvantages of requiring disclosed metrics to be accompanied with a sustainability disclosure and analysis section similar to the current Management's Discussion and Analysis of Financial Condition and Results of Operations?

In addition to the specific recommendations outlined in our answer to Question 2 above regarding operator carbon risk and the metrics that should be disclosed regarding upstream operations in order for investors to better understand the relative economic resilience or vulnerability present in a company's upstream asset portfolio, we also recommend that the SEC require more granular and standardized guidance for reporting on all types of climate-related risk. This can be achieved through updated guidance for reporting under Item 501c(3) of Regulation S-K.

Disclosure of risk as it relates to climate change is still inadequate, even after the SEC's issuance of the 2010 Guidance. Further action is needed to remedy the general under-assessment of climate risk that permeates throughout the market. According to Condon, studies indicate that,

> *"...the total value of aggregated financial risk reported through both voluntary and mandatory corporate disclosures amounted to mere tens of billions of dollars of potential negative impact—at least two orders of magnitude smaller than top-down projections of costs to financial assets. In the next 15 years alone, publicly traded corporations can expect to face about $3 trillion in climate-related losses according to a study conducted by the UN Finance Initiative in partnership with 20 large investment funds.*[105]

One such example that demonstrates deficiencies in the current regime is liability risk reporting. Existing disclosure requirements of environmental liabilities are insufficient to accurately reflect climate change risks. One illustrative example is disclosure of climate change related litigation. Disclosures currently required under Items 101 and 103 of Regulation S-K, Securities Act Rule 408, and Exchange Act Rule 12b-20 do not produce sufficient information for investors to make decisions and assess risk and fail to produce the kind of consistent, reliable data that would make meaningful comparisons between companies possible. Because Item 103 most specifically delineates the requirements for the disclosure

[105] Condon, Madison, *Market Myopia's Climate Bubble*, Boston University School of Law, p. 15 (2021), https://scholarship.law.bu.edu/cgi/viewcontent.cgi?article=2084&contextfaculty_scholarship.

of environmental legal proceedings, we recommend the SEC pay particular attention to this requirement as it crafts climate risk disclosure regulations.

Climate liability litigation presents a useful example given how widespread it has become and the large number of companies facing very similar risks as a result. Indeed, climate liability litigation of all kinds has proliferated both in the United States and globally, and the number, nature and scope of such cases continues to expand, with substantial potential implications for fossil fuel companies.[106] In its 2021 Environmental Risk Outlook, research firm Verisk Maplecroft categorizes the risk companies face from increased climate litigation in the United States as "Extreme."[107] The U.S. Climate Change Litigation database, a project of the Sabin Center for Climate Change Law and Arnold and Porter, currently includes more than 1,390 cases in the United States alone.[108]

We note that although the SEC updated its disclosure requirements last year, including Item 103, it failed to address climate change altogether. One result is that despite this rapidly increasing trend of litigation, there remains scant disclosure and high variability across companies that face virtually identical risks.

In the United States, a number of similar lawsuits have been filed in courts across the country by states, municipalities, and cities, seeking damages from fossil fuel companies for their role in contributing to climate change and in misleading consumers and the public about the dangers of climate change and the role of fossil fuels.[109] A comparison of the disclosures made by Chevron, BP, ExxonMobil, Shell, Total, Occidental Petroleum, and ConocoPhillips, a selection of the companies that have been named as defendants in such suits, illustrates just how sparse and varied disclosures can be under the existing rules. In their 2020 disclosures, none of the companies in this group described the cases or allegations and legal theories involved in any detail and most failed to even identify any specific jurisdiction in which they faced suit when discussing climate litigation.[110]

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[106] According to the 2020 UNEP Global Climate Litigation Report, for example, the number of climate cases worldwide increased from 884 across 24 countries in 2017 to at least 1,550 across 38 countries as of July 2020. United Nations Environment Programme, Global Climate Litigation Report 2020 Status Review 4 (2020), https://www.unep.org/resources/report/global-climate-litigation-report-2020-status-review (hereinafter "UNEP Global Climate Litigation Report 2020"). Research firm Verisk Maplecroft found in its 2021 Environmental Risk Outlook that not only was the climate litigation trend now spreading towards emerging economies, such as Argentina, South Africa, and India, but litigants were also expanding the legal bases for their lawsuits – these include, for example, non-fulfillment of green recovery promises, failure to protect communities from extreme weather events, fraud and consumer protection, or planning and permitting violations, among others. Verisk Maplecroft, Environmental Risk Outlook 2021 26 (2021), https://www.maplecroft.com/insights/analysis/carbon-heavy-corporates-in-crosshairs-as-risks-of-climate-lawsuits-grow/#report_form_container.

[107] Verisk Maplecroft, *Environmental Risk Outlook 2021*, p.28 (2021) (similarly designating the risk level in the UK, France, and Australia as "extreme"), https://www.maplecroft.com/insights/analysis/environmental-risk-outlook-2021-executive-summary/#report_form_container.

[108] Columbia Law School Sabin Center for Climate Change Law, Climate Change Litigation Databases, *About*, http://climatecasechart.com/climate-change-litigation/about/ (last visited Jun. 8, 2021).

[109] Carbon Tracker Initiative, *Reporting for a secure climate: A model disclosure for upstream oil and gas*, p.3 (2019), https://carbontracker.org/reports/reporting-for-a-secure-climate-a-model-disclosure-for-upstream-oil-and-gas/.

[110] The exceptions were Chevron, which noted litigation in California but did not specify any of the other jurisdictions in which it has been sued, *see* Chevron 2020 Annual Report, at 93, and Total, which noted litigation in California and

Disclosures that were made about such suits varied in level of detail provided, but not all companies even acknowledged the existence of such suits. Notably, ExxonMobil did not mention climate litigation explicitly at all – a significant omission, given Exxon has been named a defendant in nearly all of the liability suits (more than any other company) and has faced arguably greater scrutiny than many other companies both in these cases and in other related investigations given information that has come out about how early the company knew about the role of fossil fuels in causing climate change and the steps they took to deceive the public for decades.[111] Exxon merely stated generally that it:

> may be adversely affected by the outcome of litigation, especially in countries such as the United States in which very large and unpredictable punitive damage awards may occur; by government enforcement proceedings alleging non-compliance with applicable laws or regulations; or by state and local government actors as well as private plaintiffs acting in parallel that attempt to use the legal system to promote public policy agendas, gain political notoriety, or obtain monetary awards from the Company.[112]

Exxon further noted that "[a] variety of claims have been made against ExxonMobil and certain of its consolidated subsidiaries in a number of pending lawsuits," and that management does not believe any of these will have a material adverse effect on the company.[113]

Delaware, *see* Total SE, Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 108 (2020) (hereinafter "Total Annual Report").

[111] Suzanne Goldenberg, *Exxon knew of climate change in 1981, email says – but it funded deniers for 27 more years*, The Guardian (July 8, 2015), https://www.theguardian.com/environment/2015/jul/08/exxon-climate-change-1981-climate-denier-funding; Banerjee, N.; Song, L. and Hasemyer, D., *Exxon's Own Research Confirmed Fossil Fuels' Role in Global Warming Decades Ago,* Inside Climate News (Sept. 16, 2015), https://insideclimatenews.org/news/16092015/exxons-own-research-confirmed-fossil-fuels-role-in-global-warming/; Shannon Hall, *Exxon Knew about Climate Change almost 40 years ago*, Scientific America (Oct. 26, 2015), https://www.scientificamerican.com/article/exxon-knew-about-climate-change-almost-40-years-ago/; Dana Nuccitelli, *Harvard scientists took Exxon's challenge; found it using the tobacco playbook*, The Guardian (Aug. 23, 2017), https://www.theguardian.com/environment/climate-consensus-97-per-cent/2017/aug/23/harvard-scientists-took-exxons-challenge-found-it-using-the-tobacco-playbook; John Schwartz, *New York Sues Exxon Mobil, Saying It Deceived Shareholders on Climate Change*, New York Times (Oct. 24. 2018), https://www.nytimes.com/2018/10/24/climate/exxon-lawsuit-climate-change.html; Marianne Lavelle, *Former Exxon Scientists Tell Congress of Oil Giant's Climate Research Before Exxon Turned to Denial,* Inside Climate News, (Oct. 24, 2019), https://insideclimatenews.org/news/24102019/exxon-scientists-climate-research-testify-congess-denial/; Phoebe Keane, *How the oil industry made us doubt climate change*, BBC (Sep. 20, 2020), https://www.bbc.com/news/stories-53640382; *see generally*, Naomi Oreskes & Erik M. Conway, Merchants Of Doubt (2010).

[112] Exxon annual report at 3. By contrast, Shell mentioned "18 lawsuits" filed by "several municipalities and/or states against oil and gas companies, including Royal Dutch Shell plc.," seeking damages for "a variety of claims including harm to their public and private infrastructure from rising sea levels and other alleged impacts of climate change caused by the defendants' fossil fuel products." Shell Annual Report at 208. Occidental mentioned climate litigation as a general trend, noting that "increasing attention to climate change risks has resulted in an increased possibility of governmental investigations and additional private litigation against Occidental without regard to causation or our contribution to the asserted damage, which could increase our costs or otherwise adversely affect our business" and that "Occidental has been named in certain private litigation relating to these matters." Occidental Annual Report at 11. ConocoPhillips noted that "[b]eginning in 2017, cities, counties, governments, and other entities in several states in the U.S. have filed lawsuits against oil and gas companies, including ConocoPhillips, seeking compensatory damages and equitable relief to abate alleged climate change impacts. Additional lawsuits with similar allegations are expected to be filed." ConocoPhillips Annual Report at 68.

[113] Exxon annual report at 92.

Even those that do discuss the existence of climate litigation provided little in the way of meaningful information to shareholders, similarly dismissing the cases as meritless. As the number of such cases continues to grow both domestically and globally, that conclusion seems increasingly unrealistic and risks hiding enormous liabilities from shareholders and other market participants. Indeed, just last month a court in the Netherlands ordered Shell to cut its emissions 45% by 2030 compared to 2019 levels.[114]

Disclosures of other environmental liabilities and climate-related liabilities in particular remain insufficient and inconsistent. As with other climate-related risks, such cases appear poised to continue to proliferate both domestically and globally. Investors in oil and gas companies, particularly those facing multiple climate lawsuits, need more reliable and comparable data to make informed decisions in a changing market.

[114] *See, e.g.*, Diederik Baazil, et al., *Shell Loses Climate Case That May Set Precedent for Big Oil*, Bloomberg (May 26, 2021), https://www.bloomberg.com/news/articles/2021-05-26/shell-loses-climate-case-that-may-set-precedent-for-oil-industry. Shell's total greenhouse gas emissions in 2019 were 1.65 billion tons of carbon dioxide equivalent, roughly the same as Russia, the fourth-largest polluter worldwide. *Id.* Although Shell plans to appeal, this landmark decision has already prompted some analysts to predict that more courts will follow with similar decisions. *See, e.g.*, Jeff Brady, *In A Landmark Case, A Dutch Court Orders Shell To Cut Its Carbon Emissions Faster*, NPR (May 26, 2021) ("In a landmark case, dutch court order Shell to cut its carbon emissions faster"), https://www.npr.org/2021/05/26/1000475878/in-landmark-case-dutch-court-orders-shell-to-cut-its-carbon-emissions-faster.