

June 17, 2022

Via Electronic Mail

to rule-comments@sec.gov

Secretary Vanessa Countryman
U.S. Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549

Re: Carbon Tracker Initiative's response to the Public Input on Climate Change Disclosures, File Number S7-10-22

Dear Ms. Countryman:

The Carbon Tracker Initiative (Carbon Tracker) would like to thank the Securities and Exchange Commission ("SEC" or "Commission") for the opportunity to provide comments on its proposed rulemaking, *The Enhancement and Standardization of Climate-Related Disclosures for Investors* (the "Proposal").

Carbon Tracker is an independent financial think-tank that carries out in-depth analysis on the impact of the energy transition on both capital markets and investments in high-cost, carbon intensive fossil fuels. For the past decade we have published research on how climate and carbon constraints could materially impact companies in the fossil-fuel intensive sectors of upstream oil and gas, coal mining, and power generation and utilities.

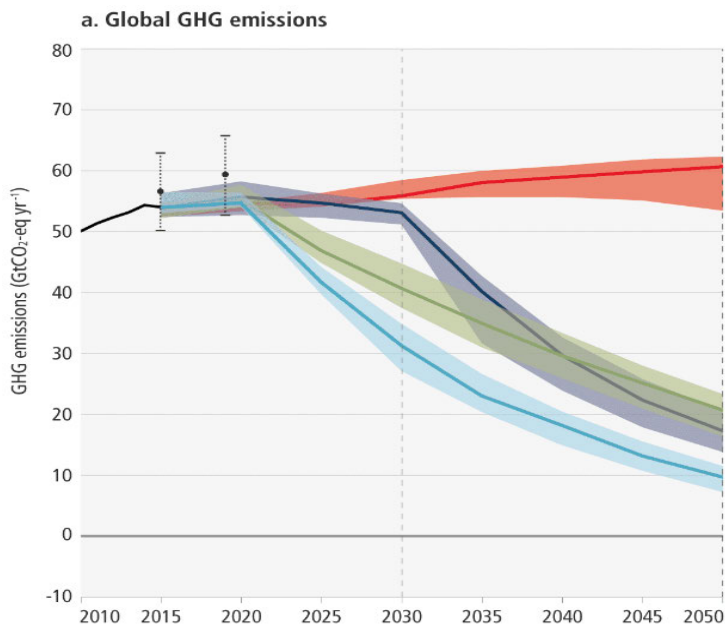
We commend the Commission for seeking to make climate-related financial risks more transparent to market participants. The Commission is rightly focused on the quality, utility, and integrity of issuer-provided information that reasonable investors would use to inform investment allocation and voting decisions which this rule does.

Energy transition risks are substantial and warrant the SEC acting to protect market integrity

We welcome and value the SEC's efforts to bring greater transparency and uniformity in the reporting of registrants' climate-related governance, risk management, strategies, and metrics and targets. At present, investors and other market participants must contend with a patchwork of information about climate related risks and strategies—including different types of standalone reports, with varying levels of reliability, transparency, and usefulness. This hinders the market's effectiveness and efficiency and reduces the potential of using private capital to drive the energy transition. The Proposal should make a significant contribution to overcoming this issue.

The Proposal is long overdue; evidence for the significance of climate change is all around us and has been well-documented. It requires nothing less than completely decarbonizing every sector of the economy:

Figure 1: IPCC emissions trajectory – BAU vs. 1.5 pathway



Modelled pathways:

- Trend from implemented policies
- Limit warming to 2°C (>67%) or return warming to 1.5°C (>50%) after a high overshoot, NDCs until 2030
- Limit warming to 2°C (>67%)
- Limit warming to 1.5°C (>50%) with no or limited overshoot

Source: IPCC 6th Assessment Report – Climate Change 2022: Mitigation on Climate Change

The financial and infrastructural changes needed are tremendous. One recent estimate is that it would require expenditures of approximately \$100 trillion just to deploy carbon-free processes and assets.¹ But the transition also requires accelerating the wind-down and depreciation of carbon-intensive assets and related processes, resulting in a significant amount of asset impairments.

While the pace and scale of change needed to mitigate climate-related risks is well known, the impact that such transformations will have on individual registrants and whether and how those registrants are mitigating these risks, is largely unknown.

The connection to the SEC’s remit is clear: to maintain fair, orderly, and efficient markets. Corporate financial reporting is foundational to valuation, and financial reporting is based on estimates and assumptions that will be impacted by climate-mitigation and adaptation efforts.²

¹ See: <https://financialpost.com/pmn/business-pmn/how-to-push-wall-street-to-ditch-fossil-fuels-for-clean-energy>

² Carbon Tracker, Carbon Tracker Initiative’s Response to the Public Input on Climate Change, 2021. Available at: <https://carbontracker.org/reports/letter-to-the-sec-on-climate-change-disclosures/>

Transition risks are relevant to current financial reports

The Proposal recognizes that “transition risk” encompasses a range of transformative dynamics, including principally policy, regulation, consumer preferences, shifting markets, and technological developments.³

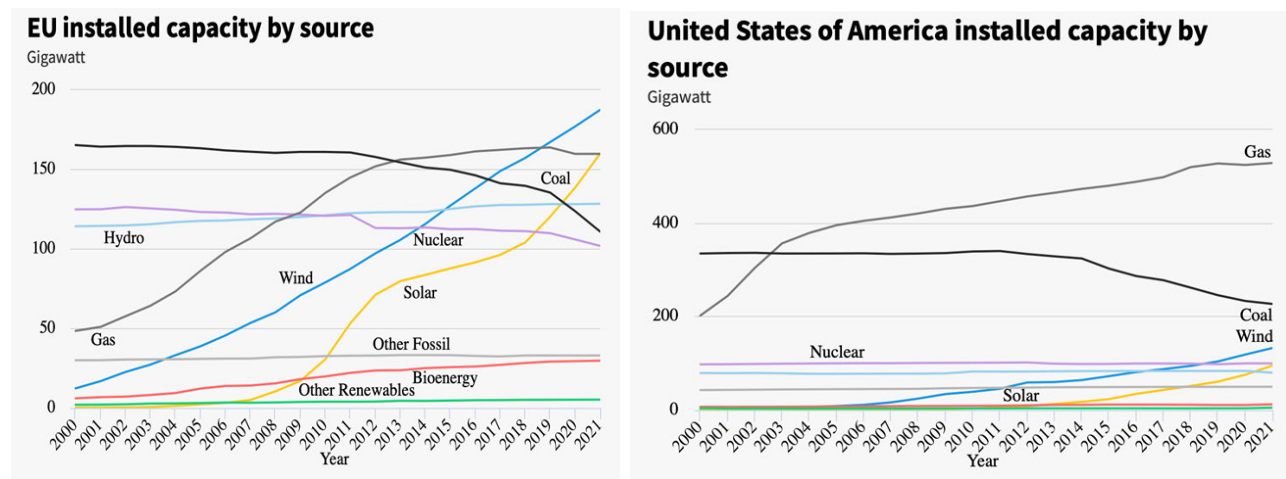
Some argue that “energy realities” make achieving the world’s government’s stated climate ambitions impossible. However, these transition dynamics are already evident in the growing installed capacity of renewables, falling costs of renewable energy and storage, and growing sales of electric vehicles. Notably, these changes are driven as much as or more by changes in technology costs rather than by policy interventions.

For example, installed capacity of fossil and renewable energy sources is already shifting dramatically. The reason for these changes is not simply the policy targets, or concerns for rapid, unmitigated, and irreversible climate change that have driven those policy changes, but the radical changing cost structures that present an economic challenge to continued use of fossil fuels.

The energy transition poses financial threats to incumbent firms. That risk can materialize long before they have ceded market share; it begins when the market outlook turns from one of growth to one of decline. That moment has already arrived for the internal combustion engine.

Figure 2: 1 Installed power generation capacity EU and US, by source

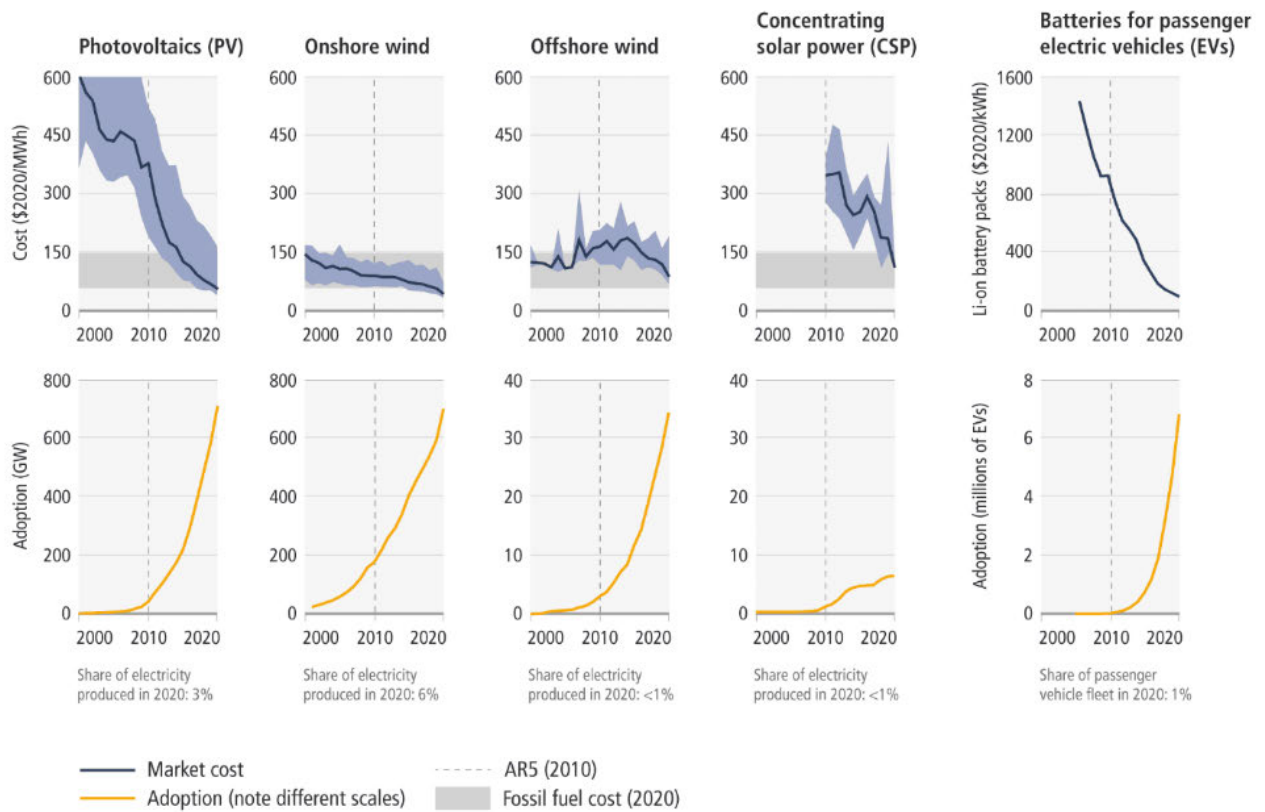
Figure 2: 2 Coal and gas capacity, EU (left) and US (right)



Source: Ember - <https://ember-climate.org/data/data-explorer/>

³ Proposal, pp. 62-3.

Figure 3: 3 Declining costs of wind, solar and batteries



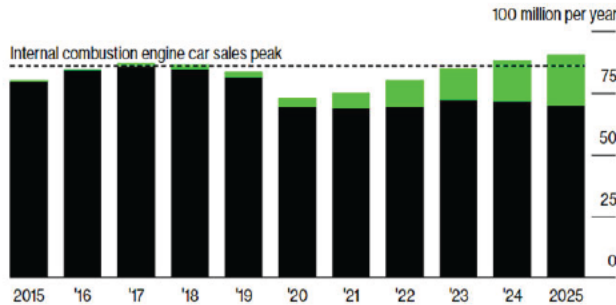
Source: IPCC 6th Assessment Report - Climate Change 2022: Mitigation of Climate Change

Figure 4: Internal Combustion Engines vs. Electric Vehicles

Peak ICE Is Behind Us

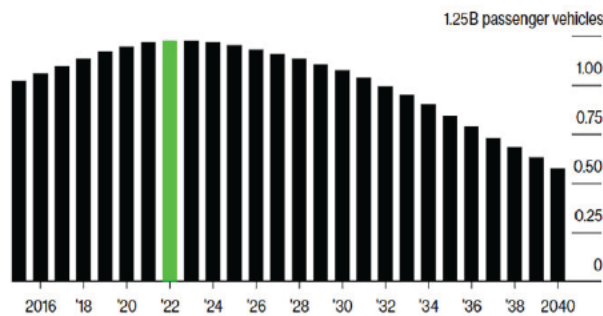
Global passenger vehicle sales by powertrain

■ Internal combustion ■ Electric



Peaking This Year

Global fleet of passenger vehicles running only on ICE stops growing



Source: BloombergNEF Long-Term Electric Vehicle Outlook 2022

5

Given these developments, it is rational for investors to want to understand how they may impact firms and what those firms are doing to mitigate risk. To assess this, investors need to understand how the transition might impact financial line items. This, in turn, requires transparency as to the assumptions and estimates underlying such financial reporting.

So far, current financial reporting has not provided this clarity.⁴ Most registrants fail to provide estimates or assumptions, even if auditors identify those estimates and assumptions as critical matters for the audit. Current reports found in annual SEC filings typically contain climate-related risk factor disclosures, but no discussion of how they impact financial statement estimates and assumptions. Companies use a range of privately ordered disclosure frameworks to present their climate targets and strategies in separate sustainability reports, which often appear disconnected from their financial reporting. The Regulation S-K disclosures help address this veritable Tower of Babel.

None of this is to say whether the world will meet its climate goals. The SEC’s role is to make the actions, assumptions, and implications of managerial decision-making transparent so that investors,

⁴ Carbon Tracker, *Flying Blind: The glaring absence of climate risks in financial reporting*, 2021. Available at: <https://carbontracker.org/reports/flying-blind-the-glaring-absence-of-climate-risks-in-financial-reporting/>. Carbon Tracker will be updating this analysis in the Fall of 2022.

based on whatever their beliefs are about climate change, can assess (or ignore) climate-related risks.

The Proposal will facilitate investors factoring climate-related risks into investment decisions and engagements

We believe this Proposal largely fulfills this role of making the relevant risks transparent.

GHG Emissions Disclosures are an Essential Building Block

While the remainder of this comment letter will focus almost exclusively on the Regulation S-X amendments, we believe there are many other useful changes, among them the emissions disclosures, discussed briefly here.

The proposed disclosure of greenhouse gas (GHG) emissions establishes an essential building block for financial analysis of transition risks. Whether emissions flow from a firm's operations or its supply chain, their regulation or abatement can impose costs on the firm. Carbon taxes imposed on shipping impact consumer goods, regardless of whether the ships are owned by the manufacturer. An automaker would be impacted by taxes on internal combustion vehicles to the extent it impacts demand and regardless of whether it bears legal responsibility for its consumers' emissions.

The point is that GHG emissions are a useful proxy for the risk that those emissions will be taxed, banned, or substituted by emissions-free alternatives - regardless of whether the entity is legally or uniquely responsible for those emissions. Moreover, without credible, comparable GHG emission disclosure data it is difficult for investors to assess and monitor a registrant's progress towards an announced decarbonization strategy or targets and assess it against its peers.

Reported and audited financial data already provides the grist for financial analysts to generate non-GAAP financial ratios and measures that help those analysts assess companies and discern value. This includes well-known non-GAAP financial measures like earnings before interest, taxes, deductions, and amortization (EBITDA) or return on capital employed (ROCE). GHG emissions would provide a similar building block for analogous measures that look at the risk associated with emissions.

Such ratios are already being developed. Formulas like Carbon Quotient,⁵ financial ratios and analytics that use emissions data and assets on the balance sheet to estimate companies' unrealized carbon expense, are being used to understand how future carbon costs are embedded in today's asset base. Schroders has developed a "Carbon VaR" measure that similarly utilizes carbon as a key input.⁶ Other ratios will be developed; whatever they are they will likely integrate emissions data, making that a critical building block to analyzing companies.

Some contend that emissions disclosures should only include those items for which the registrant bears formal legal responsibility, or that somehow requiring disclosures in a company's value chain, whether upstream or downstream, is a form of impermissible double counting. But financial risk doesn't flow from legal liability alone, and the purpose here is to identify a firm's exposure to climate-related financial risk, not create an unduplicated tally of corporate emissions.

Regulation S-X Disclosure Requirements Identify How Climate Risks Impact Current Financial Reporting

New GHG emissions disclosures are critical; of equal or greater importance are the Regulation S-X proposals. They demonstrate both why and how climate-related events and transition risks

⁵ See: <https://www.carbonquotient.com>

⁶ <https://www.schroders.com/en/ch/asset-management/themes/climate-change-dashboard/carbon-var/>

(collectively, climate risks) are financial in nature, and will offer the clearest insight into whether the long tail of climate risk is being considered in current financial statements.

The Commission is right to focus on accounting assumptions, estimates and financial statement line items

We believe the true value of the Regulation S-X elements of the Proposal is that, despite existing requirements for registrants to consider all potential risks, including climate-related ones, very few provide any evidence that they have done so. However, whether through deliberation or default, registrants already make climate-related assumptions about the future in their current financial statements—these assumptions are not transparently disclosed today.

The Proposal's three critical qualities are that: (1) it builds upon existing forward-looking accounting and disclosure requirements, minimizing the burden to issuers and maximizing comparability for investors, (2) it helps correct inconsistencies between a registrants' own accounting and its climate-related disclosures, where registrants might use one set of assumptions in one part of the financial statements but disclose a different set elsewhere, and (3) it delivers greater transparency, allowing markets to assess and potentially adjust company reported figures.

For issuers, the challenge of considering climate-related events and transition risks does not meaningfully differ from what those businesses must do as they estimate expected future cash flows to produce financial statements today. This also applies to the auditability of the proposed disclosures; registrants already provide information in audited financial statements that is subject to complex projections and forward-looking estimates. The disclosures required for pension obligations, or determinations of insurance contract liabilities, may be equal to if not more complex than determining the impacts of some climate risks.

The Proposal also recognizes and extends another long-standing element of market disclosure: consistency. Issuers should not use assumptions that benefit them in one context (e.g., assurances that expected future carbon prices are considered when making capital allocation decisions or declines in production to meet climate targets) but then utilize different assumptions to benefit themselves in another context (e.g., when testing assets for impairment and forecasting the timing of asset retirements).⁷ For issuers that have committed to a decarbonization pathway, the question is whether this commitment is reflected in their accounts.

Finally, the Proposal recognizes that the SEC's primary role is to make markets transparent so that investors can evaluate those issues. Management is free to chart company strategy, but it should be clear what that strategy entails.

The Regulation S-X disclosures build upon the existing requirements to incorporate climate risks into the financial statements

Before responding to specific questions on Regulation S-X, we believe it is helpful to discuss our understanding of relevant generally accepted accounting principles (GAAP) and SEC guidance now in place. We specifically address existing guidance as applied to the oil and gas sector, which is most exposed to transition risks, but the discussion is relevant to the coal and gas power

⁷ See, Carbon Tracker, *No Rhyme or Reason: Unreasonable projections in a world confronting climate change*. Available at: <https://carbontracker.org/reports/no-rhyme-or-reason-eia-energy-outlook-coal-companies-risk-disclosure/>

sector and other sectors that are dependent on fossil fuel through interconnected economic and financial systems.

In short, current standards and guidance already require registrants to do much of what is specified in the Regulation S-X proposals, even if, in many cases, they are falling short of those requirements today.

We focus here on impairment testing (section 360-10-35 of the Accounting Standards Codification (ASC)), though we provide other more detailed examples in Appendix A.

Impairment testing

As the Proposal notes, some registrants already assume or estimate internal carbon prices to quantify potential costs and guide capital investment decisions; some of this is disclosed today, even if not in the financial statements. Separately, registrants must make a range of assumptions which may or may not include these carbon prices, in testing for impairment, analyzing asset retirement obligations, and disclosing risks and uncertainties.

The assumptions and estimates made therein should be reasonable in relation to similar assumptions made for business purposes—that means that registrants who are factoring carbon prices into their planning should already be doing so in the accounts (see ASC 360-10-35-30). The consistency requirement is reiterated in SEC [Staff Accounting Bulletin No. 114](#) (March 2011), which provides that, “...forecasts made for purposes of applying FASB ASC Topic 360 be consistent with other forward-looking information prepared by the company, such as that used for internal budgets, incentive compensation plans, discussions with lenders or third parties, and/or reporting to management or the board of directors.” SAB No. 114 further states the requirement for registrants to disclose both key assumptions and their implications in the MD&A, including cash flow projections from those assumptions. This information must be disclosed even if not quantitatively material since it made be material from a qualitative standpoint.⁸

Similar issues arise with respect to significant risks and uncertainties, as detailed in Appendix A.

We believe the existence of these requirements has significant implications for registrants, auditors, litigants, the SEC, and this Proposal.

First, registrants and auditors need to be incorporating internal planning assumptions around climate-related risks into their financial statements today; failing to do so deprives investors of information that is already required to be disclosed, it exposes those entities to potential legal liability. These risks will only grow as registrants seek to respond to the upswell of demand from investors for a better understanding of transition risks and as registrants respond with a range of details about their internal efforts to mitigate climate-related risks.

Second, the Proposal’s Regulation S-X requirements do not create qualitatively new requirements as much as provide bright line rules that help registrants and issuers navigate the current principals-based framework. This additional clarity should be welcomed by registrants and auditors, and the SEC should calculate the added costs of the rule against the backdrop of what registrants and auditors should already be doing in addressing climate-related risks.

⁸ *Staff Accounting Bulletin No. 99—Materiality*

Responses to selected Commission's enumerated questions

For each section, our key recommendations are included in a box at the top with more detailed answers below.

Disclosure Regarding Climate-Related Impacts on Strategy, Business Model, And Outlook

Key recommendation:

- The Commission should require registrants to disclose information about the carbon prices used in planning, investment decision-making and preparation of the financial statements. We have also recommended additional disclosures to aid investors in formulating their long-term investment strategies.

Question 26 - Should we require registrants to disclose information about an internal carbon price if they maintain one, as proposed? If so, should we require that the registrant disclose:

- a. The price in units of the registrant's reporting currency per metric ton of CO₂e;*
- b. The total price;*
- c. The boundaries for measurement of overall CO₂e on which the total price is based if different from the GHG emission organizational boundary required pursuant to 17 CFR 210.14-03(d)(4); and*
- d. The rationale for selecting the internal or shadow carbon price applied, as proposed.*

Should we also require registrants to describe the methodology used to calculate its internal carbon price?

We support the proposed rule that would require registrants to disclose information about internal carbon price(s) used. This information can help investors better assess the extent to which the firm is internalizing the costs of high-carbon activities.

In line with reporting the quantitative internal carbon price used, we recommend that the SEC require companies to explain the source and/or, methodology determining the internal carbon price adopted.

Question 27. Should we also require a registrant to disclose how it uses the described internal carbon price to evaluate and manage climate-related risks, as proposed? Should we further require a registrant that uses more than one internal carbon price to provide the above disclosures for each internal carbon price, and disclose its reasons for using different prices, as proposed? Are there other aspects regarding the use of an internal carbon price that we should require to be disclosed? Would disclosure regarding any internal carbon price maintained by a registrant elicit important or material information for investors? Would requiring the disclosure of the registrant's use of an internal carbon price raise competitive harm concerns that would act as a disincentive from the use of an internal carbon price? If so, should the Commission provide an accommodation that would mitigate those concerns? For example, are there exceptions or exemptions to an internal carbon price disclosure requirement that we should consider?

We believe that the SEC should expand the disclosure requirements to also encompass strategic discussions about how registrants are using the internal carbon price, and the sensitivities of the carbon price to different scenarios, in order to understand and manage the strategic and financial impacts of climate change. This could include, for example:

- how the internal carbon price is used to evaluate identified regulatory risks;
- a discussion about how the internal carbon price is incorporated into investment decisions;
- the sensitivity of the registrant’s investment plans to the price of carbon used;
- whether the internal carbon price is also used in the preparation of its financial statements; and/or
- the sensitivity of the values and useful lives of the company’s assets to a range of carbon prices.

Expanding the requirement to include this information would assist investors in assessing the internal consistency of climate-related reporting, particularly between the various elements of the MD&A, sustainability reporting, and the financial statements.

Our research finds that internal consistency between regulatory reporting and other information produced by registrants is sometimes lacking.

In 2021 we analyzed the reported climate-related risks, targets, and strategies of 107 carbon exposed companies and compared this with the information disclosed in their financial statements. As well as a lack of transparency about the consideration of climate risks, we have found internal inconsistencies in registrants’ climate-related reporting for most of the companies analyzed.⁹

For example, companies did not appear to consider the costs of their publicly stated emissions targets, the effects of internal carbon pricing, or the potential impacts of the energy transition when valuing assets or estimating such assets’ remaining useful lives. Without this connection between the financial statements and “other reporting”, investors have little means of determining the adequacy of a company’s financial reporting and the extent to which it may be exaggerating its sustainability story.

The Proposal could go further highlight the consistency issue here, and other areas. To give two examples, consistency will be a key consideration with regards to ensuring companies discuss how their transition plans respond to identified climate-related risks (Question 48) and how they plan to meet their climate targets through strategic, operational, and financial decisions (Question 171).

Governance Disclosure

Key recommendations:

- The Commission should require registrants to disclose information about board and management climate-related oversight and responsibilities.
- The Commission should require disclosure of the audit or equivalent committee’s oversight of and interaction with the external auditor as relates to climate risks.
- The Commission should require disclosure about the connection, if any, between executive remuneration and climate matters.

The following is in response to Questions 34 – 41.

⁹ Carbon Tracker, *Flying Blind: The glaring absence of climate risks in financial reporting, 2021*. Available at: <https://carbontracker.org/reports/flying-blind-the-glaring-absence-of-climate-risks-in-financial-reporting/>.

We support the SEC’s proposed rules that would require registrants to report on board- and management-level oversight and responsibilities related to climate-related risks, strategies, and targets; to disclose the climate risk expertise of its board and management; and to indicate how these bodies are informed on climate-related matters. This information will better enable investors to understand and assess registrants’ governance over, and ability to assess, the level and depth of the registrant’s climate-related expertise. As part of this, we believe that registrants should also disclose the climate-related activities undertaken by the board and management over the reporting period.

The audit or equivalent committee has a central role in ensuring the effectiveness of the registrant’s risk management systems and the reliability of its financial reporting. We therefore believe that the SEC should require the registrant to disclose information about the audit or equivalent committee’s responsibilities with respect to oversight of climate risks, as well as the activities performed during the reporting period, including interaction with the external auditor, to ensure adequacy of financial reporting of such risks.

It is often said that “you only manage what you measure”. Accordingly, we believe the SEC should also require disclosure of any connection between executive remuneration and the achievement of climate-related targets and goals. Such disclosure would increase investors’ abilities to assess and compare the financial incentives provided to management with the companies’ announced climate-related targets and goals.

Questions from Financial Statement Metrics: Overview

Key recommendations:

- The Commission should require registrants to provide a description of significant inputs, assumptions and policy decisions made as part of calculating the relevant financial statement metrics.
- The Commission should require a disaggregation of metrics at a segmental and geographical level.
- The Commission should require that initial registrants provide similar climate-related financial statement metrics.

Question 52. Should we require a registrant to provide contextual information, including a description of significant inputs and assumptions used, and if applicable, policy decisions made by the registrant to calculate the specified metrics, as proposed? Should we revise the proposed requirement to provide contextual information to require specific information instead? We provide some examples of contextual information disclosure in Sections II.F.2 and II.F.3 below. Would providing additional examples or guidance assist registrants in preparing this disclosure?

Yes, registrants should be required to provide a description of the significant inputs and assumptions and the relevant policy decisions. These descriptions will complement the quantitative information that the registrant is required to disclose, inform investors of the key variables underlying reported information, and allow investors to assess the reasonableness of the inputs provided.

Question 54. Should we also require such metrics to be calculated at a reportable segment level when a registrant has more than one reportable segment (as defined by the FASB ASC Topic 280

Segment Reporting)? In addition, should we require such metrics to be presented by geographic areas that are consistent with the registrant's reporting pursuant to FASB ASC Topic 280-10-50- 41? How would investors use such information?

The usefulness of segmental reporting is based on providing a sufficient level disaggregated information. We note that the overall impacts of climate on a registrant's financial position and result of operations is a product of the varying (and different) effects of climate-related events and transition activities on its different business activities. For example, in the case of integrated oil and gas companies, upstream and downstream activities will face different climate risks. Policies and regulations will often be set at the country or regional level. Accordingly, disaggregation of metrics at a segmental and geographic level should be required, as it would help investors: 1. identify the primary balance sheet areas /capital at risk from climate matters, (from both transition and physical climate-related items, as relevant) and so the material issues to consider in their analyses of registrants; 2. assess and estimate the potential quantitative impacts of relevant regional or sectoral policy and regulations; and 3. understand concentrations of risk. This would provide investors with the information required for their own valuations and projections and enable comparison of these risks across investee companies.

Question 56. Should information for all periods in the consolidated financial statements be required for registrants that are filing an initial registration statement or providing climate-related financial statement metrics disclosure for historical periods prior to the effective date or compliance date of the rules? Would the existing accommodation in Rules 409 and 12b-21 be sufficient to address any potential difficulties in providing the proposed disclosures in such situations?

We agree that initial registration statements should provide similar disclosures; we have seen new registrants in recent years acknowledge in risk factor disclosures that climate related risks could be material, but then completely ignore them in considering the risks to the financial statements.

Take the case of Foresight Energy Partners LP ("Foresight"), a mining company, which filed an S-1 registration statement in 2012 to be listed on the New York Stock Exchange, even as coal mining was becoming an increasingly challenged business. By 2020, Foresight was in bankruptcy proceedings.

In Foresight's 2012 Form S-1, it noted that, "[n]ew developments in the regulation of GHG emissions and coal ash could materially adversely affect our customers' demand for coal and our results of operations, cash flows and financial condition."¹⁰ Despite this expressed concern, its discussion of the coal market overview (in the MD&A) painted a positive picture for coal, suggesting that "coal-powered electricity expected to grow by 11% during [the 2010-2025 period]..."¹¹

In the MD&A, Foresight also made similarly optimistic statements about coal as a low-cost source of energy relative to renewable sources ("Coal also has a lower all-in cost relative to other alternative energy sources, such as nuclear, hydroelectric, wind and solar power."¹²). Nowhere in the financial statements did it provide information on the assumptions underpinned existing

¹⁰ *Foresight Energy Partners LP Form S-1 Registration Statement, Feb. 12, 2012 (p. 34.)*

¹¹ *Id.*, at 100.

¹² *Id.*

valuations or how the existing valuations would differ under a scenario in which customer demand for coal was materially, adversely impacted, as it warned in the risk factor disclosures.

Had the Proposal been in effect and applied to Foresight, it would have had to reveal the assumptions, estimates and inputs underlying the financial statements and assess the increasingly competitive nature of renewable energy which has made coal uneconomic. If the Proposal was not required for new registrants, they would hold a competitive advantage over peers who will have to disclose these climate-related risks.

Questions on Financial Impact Metrics

Key recommendations:

- The Commission should ensure that transition-related financial impacts are disclosed. For most registrants, the potential financial impacts of the energy transition are greater than just physical impacts.
- While there may be difficulties in disaggregating the impact of climate-related events under certain circumstances, this will be less true of financial impacts driven by forward-looking assumptions.
- Transition-related financial impacts will be of greater interest to investors and present less concerns with respect to causal attribution.
- There are many third-party services providers that can provide inputs that will enable registrants to make both physical and transition related assessments.

Question 60. Would the impact from climate-related events and transition activities yield decision-useful information for investors? Would the climate-related events (including the examples provided) and transition activities result in impacts that are easier to quantify or disaggregate than climate-related risks more generally? Would a registrant be able to quantify and provide the proposed disclosure when the impact may be the result of a mixture of factors (e.g., a factory shutdown due to an employee strike that occurs simultaneously with a severe weather event)? If there are situations where disaggregation would not be practicable, should we require a registrant to disclose that it was unable to make the required determination and why, or to make a reasonable estimate and provide disclosure about the assumptions and information that resulted in the estimate?

Yes, this would yield decision-useful information.

The Proposal's key insight is that climate risks can impact current reporting. Registrants that do not explicitly consider climate-related impacts today are still making assumptions: specifically, that the business environment will remain unaffected. The thrust of the Proposal is to make those implicit assumptions transparent.

The example provided in the question relates to an *ex-post* explanation of the cause of a particular event, and there may be instances in which it is difficult to quantify what portion of the event was caused by climate-related factors. But far more useful to investors will be the quantification of *ex ante* assumptions and estimates and the impact that different estimates and assumptions would have on line-items that rely on future valuations and cash flows. In this case, the issue of attributing causation will be far less significant.

For example, it should be relatively easier for a firm that makes parts for internal combustion engines (ICE) to model the financial impact on its factories from a multi-decade phase out of ICE. Such modelling can be based on a range of available scenarios, including ones which model the changes required under global climate commitments. This can be done even when the specific policy measures and other factors are not known.

While the obligation to consider the external environment and the impact that it may have on reporting obligations is not new¹³, registrants who have so far not considered these issues will likely need inputs from external sources.

Fortunately, there are already a range of offerings already available in the market. Registrants seeking information on localized physical impact analysis can obtain it from various third-party sources.¹⁴ There are also providers, some free¹⁵, others from mainstream service providers¹⁶, that can provide the climate-related data that registrants can use to inform their assessments.

Question 64. Are the proposed requirements for calculating and presenting the financial impact metrics clear? Should the analysis be performed and disclosed in a manner other than on a line-by-line basis referring to the line items of the registrant's consolidated financial statements?

The proposed requirements are clear; performance and disclosure on a line-by-line basis appears to be the most practical approach to providing the relevant information to investors in a comparable way.

Question 66. The proposed financial impact metrics would not require disclosure if the absolute value of the total impact is less than one percent of the total line item for the relevant fiscal year. Is the proposed threshold appropriate? Should we use a different percentage threshold (e.g., three percent, five percent) or use a dollar threshold (e.g., less than or greater than \$1 million)? Should we use a combination of a percentage threshold and a dollar threshold? Should we only require disclosure when the financial impact exceeds the threshold, as proposed, or should we also require a determination of whether an impact that falls below the proposed quantitative threshold would be material and should be disclosed?

We agree that the 1% threshold is well within the Commission's authority.¹⁷ Our assessment of annual report filings suggests that for many companies, there is little evidence that they are considering these issues. An analysis at the level of financial statement line items would dispel that.

¹³ The Commission made clear more than a decade ago that issuers may need to consider external developments and sources in assessing climate risks to understand whether disclosure requirements are triggered. See, SEC Commission Guidance Regarding Disclosure Related to Climate Change, SEC Release Nos: 33-9106; 34-61469; FR-82 (Feb. 8, 2010).

¹⁴ See, e.g., Four Twenty Seven, now part of Moody's ESG Solutions (<https://esg.moody's.io/climate-solutions>); and Jupiter (<https://jupiterintel.com/>)

¹⁵ See, e.g., Paris Agreement Capital Transition Assessment (PACTA) (<https://www.transitionmonitor.com/>); Oasis Hub (<https://oasishub.co/>); EasyXDI (<https://easyxdi.com/>); and Climate Impact Lab (<https://impactlab.org/>).

¹⁶ See, e.g., MSCI (<https://www.msci.com/our-solutions/climate-investing>); Moody's (<https://esg.moody's.io/climate-solutions>); and S&P Global (<https://www.spglobal.com/marketintelligence/en/solutions/climate-credit-analytics>)

¹⁷ Proposal, at p. 127-28, n. 347.

That said, we could imagine a higher percentage threshold, since the review is set at the financial statement line-item level, and, due to the requirements to report comparative line items over more than one reporting period, some line-items could be exceedingly small.

Overall, we believe the value in setting a threshold is that it gives registrants and auditors bright-line guidance.

Question 68. Instead of including a quantitative threshold, as proposed, should we require disaggregated disclosure of any impact of climate-related risks on a particular line item of the registrant's consolidated financial statements? Alternatively, should we just use a materiality standard?

As noted in our response to Question 66, there are benefits to requiring a percentage threshold. However, if the Commission is unable to implement this, we would support using materiality as a basis for disclosure.

Question 69. Should we require a registrant to disclose changes to the cost of capital resulting from the climate-related events? If so, should we require a registrant to disclose its weighted average cost of capital or any internal cost of capital metrics? Would such disclosure elicit decision-useful or material information for investors?

Yes. Changes in the cost of capital resulting from climate-related events (or transition activities) are an important item that investors would include in the evaluation and financial modelling of a registrant and incorporate into their mainstream investment processes.

We recommend the SEC include the following disclosures in its final requirements:

- Disclosure of cost of capital (being that weighted average cost of capital (WACC) or another cost of capital metric) used when estimating asset impairments, and any changes from the last three years, including changes resulting from climate-related events and transition activities.
- Disclosure of cost of capital (being that WACC or another cost of capital metric) used by the company for their internal capital budgeting decisions (i.e., as part of deciding to invest in a particular project or fixed asset), and any changes over in the last three years, including changes resulting from climate-related events and transition activities.
- Disclosure of cost of capital (being that WACC or another cost of capital metric) used for both impairments and capital budgeting, and any changes over the last three years, differentiating between the following two subsets: hydrocarbon assets/investments and low carbon assets/investments (such as renewables, etc.), including changes resulting from climate-related events and transition activities.
- Disclosure of the major components of WACC (and any changes from the previous three years, including those resulting from climate-related events and transition activities for the cost of capital metrics listed above (impairments, capital budgeting, and relevant subsets), when WACC is used by the company as a cost of capital. Include the: a) equity risk premium, b) beta, c) risk free rate, d) cost of debt for the company (or credit spread as an alternative), e) tax rate, and f) gearing.

Question 71. Are the proposed examples in the financial impact metrics helpful for understanding the types of disclosure that would be required? Should we provide different or additional examples or guidance?

The proposed examples are helpful; the following additional examples would also be useful:

- changes in insurance premiums due to climate-related events;
- changes in the carrying amounts of assets should include asset impairments because of changes in expected cash flows due to projected impacts of transition activities;
- changes in the amount of asset retirement obligations due to an acceleration of the expected timing of the obligation resulting from changes in an asset's useful life because of transition activities; and
- changes in the carrying amounts of deferred tax assets from operating loss carry forwards because of a reduction in expected future profits.

Questions on Expenditure Metrics

Key recommendations:

- The Commission should require registrants to disclose the expenditure metrics, as proposed. The same information should apply to the expenditure metrics as applies to the financial metric disclosures.
- If information is clearly labelled, registrants should not be required to repeat disclosures of any overlapping metrics.
- We recommend that having the same thresholds for expenditure metrics as for the financial metrics would be the most effective way for registrants and auditors to navigate the new requirements.

Question 72. Should we require registrants to disclose the expenditure metrics, as proposed? Would presenting the expenditure metrics separately in one location provide decision-useful information to investors? Is there a different type of metric that would result in more useful disclosure of the expense or capitalized costs incurred toward climate-related events and transition activities or toward climate-related risks more generally?

We believe that disclosure of expenditure-related metrics is decision-useful and should be required. As many registrants will frequently update their climate-related strategies and so estimated spending such as projected research and development expenses and capital expenditures, this provides investors with clear year-on-year comparisons of these discussions with the actual amounts incurred. Disclosures of expenditures expensed are particularly helpful as they may not be otherwise subject to the same scrutiny or disclosure requirements as capitalized costs. Compilation and disclosure of this information in a separate location in the financial statements is ideal but not required; what is most important is that this information is clearly labeled and available to investors.

Question 73. Would the disclosure required by the expenditure metrics overlap with the disclosure required by the financial impact metrics? If so, should we require the disclosure to be provided pursuant to only one of these types of metrics?

If there is any overlap in disclosure, registrants should only be required to disclose this information once in their financial statements (if it is clearly labelled).

Question 74. Should the same climate-related events (including severe weather events and other natural conditions and identified physical risks) and transition activities (including identified transition risks) that we are proposing to use for the financial impact metrics apply to the expenditure metrics, as proposed? Alternatively, should we not require a registrant to disclose expenditure incurred towards identified climate-related risks and only require disclosure of expenditure relating to severe weather events and other natural conditions? Should we require a registrant to disclose the expenditure incurred toward only certain examples of severe weather events and other natural conditions? If so, should we specify which severe weather events and other natural conditions the registrant must include? Would requiring disclosure of the expenditure relating to a smaller subset of climate-related risks be easier for a registrant to quantify without sacrificing information that would be material to investors?

We believe that this information should be treated the same as the financial impact metrics disclosures. Please refer to our answers to the relevant financial impact metrics questions above.

Question 76. Should we apply the same disclosure threshold to the expenditure metrics and the financial impact metrics? Is the proposed threshold for expenditure metrics appropriate? Should we use a different percentage threshold (e.g., three percent, five percent) or use a dollar threshold (e.g., less than or greater than \$1 million)? Should we use a combination of a percentage threshold and a dollar threshold? Should we only require disclosure when the amount of climate-related expenditure exceeds the threshold, as proposed, or should we also require a determination of whether an amount of expenditure that falls below the proposed quantitative threshold would be material and should be disclosed? Should we require separate aggregation of the amount of expense and capitalized costs for purposes of the threshold, as proposed? Should we require separate aggregation of expenditure relating to the climate-related events and transition activities, as proposed?

See our response to Question 66.

Question 77. Instead of including a quantitative threshold, as proposed, should we require disaggregated disclosure of any amount of expense and capitalized costs incurred toward the climate-related events and transition activities, during the periods presented? Alternatively, should we just use a materiality standard?

As noted in our response to Question 66, there are benefits to requiring a percentage threshold. However, if the Commission is unable to implement this, we would support using materiality as a basis for disclosure.

Questions on Estimates and Assumptions

Key recommendations:

- We note that the Commission already requires the disclosure of material estimates and assumptions. Accordingly, it should use the new requirements to clarify that this includes the disclosure of the financial estimates and assumptions impacted by climate change and the energy transition (e.g., climate risks). This should not be optional.

- The Commission should not select a subset of climate events or transition activities for the reporting of estimates and assumptions. Issuers should be reporting all the material estimates and assumptions impacted by climate change and the energy transition, as specific to their businesses.
- The Commission should require issuers to disclose material changes to their climate-impacted estimates, assumptions, and methodologies, with an explanation provided for these changes.

Question 81. Should we require disclosure of financial estimates and assumptions impacted by the climate-related events and transition activities (including disclosed targets), as proposed? How would investors use this information?

As noted, the disclosure of material estimates and assumptions is already required by the SEC today,¹⁸ though current reporting often fails to provide these estimates and assumptions. For example, our analyses of numerous annual filings (of both US domiciled companies and foreign private issuers) have found that even where auditors have identified commodity prices as critical, they were not disclosed.¹⁹ The SEC should be ensuring that estimates and assumptions that underpin the financial statements and which the registrant believes might be impacted by climate-related risks should be disclosed, as required. This provides investors with an immediate understanding of whether the financial statements are based upon inputs that the registrant deems prudent, and whether the registrant has considered the impacts of disclosed targets on the estimates and assumptions that it used to prepare the financial statements.

Question 83. Should we instead require disclosure of financial estimates and assumptions impacts by a subset of climate-related events and transition activities, such as not requiring disclosure related to identified climate-related risks or only requiring disclosure with respect to a subset of severe weather events and natural conditions? If so, how should the subset be defined?

In principle, the focus should be on the significant accounting estimates and assumptions that would be materially impacted by an energy transition (e.g., climate-related events and transition activities). Practically, this will require issuers to assess the implications of various scenarios²⁰ for its supply chains, inputs, capital and operating costs, and markets and pricing.

¹⁸ Proposal, p. 148. (“Although current accounting standards require registrants to consider how climate-related matters may intersect with and affect the financial statements, including their impact on estimates and assumptions, the nature of the climate-related events and transition activities discussed in the proposed rules, which may manifest over a longer time horizon, necessitate targeted disclosure requirements to elicit decision-useful information for investors in a consistent manner.”)

¹⁹ When KPMG tested Cabot’s audit matter on proved oil and gas reserves in FY2020, it noted “As disclosed by management, the Company’s rate of recording DD&A expense is dependent upon the estimate of proved and proved developed reserves, which are utilized in the unit-of-production calculation. In estimating oil and gas reserves, management relies on interpretations and judgment of available geological, geophysical, engineering and production data, as well as the use of certain economic assumptions such as natural gas prices.” PwC used hired specialists by management and assessed data related to price differentials. While Cabot noted that commodity prices were used in the notes to the FY 2020 financial statements, these were not quantitatively disclosed. This is despite the issuer’s auditor indicating they were critical audit matters. Cabot 2020 10-K.

²⁰ There are already numerous scenarios in the public domain that companies could use, including those produced by the International Energy Agency (including its Net Zero Emissions by 2050 Scenario), International Renewable Energy

Registrants should focus on scenarios that would shift underlying estimates and assumptions. This process is one that prudent registrants might undertake in evaluating those assumptions on a periodic basis. Where registrants are using their own models, the disclosure of key assumptions and estimates, and changes to them, is critical.

The Commission should not endeavor to identify which weather events are relevant; registrants should be making these assessments.

As for guidance on making such an assessment, the Commission could refer, by analogy, to the existing guidance on assessing known risks and uncertainties in the context of MD&A disclosure.²¹ Where a firm has determined that a risk is “reasonably likely”²² to occur, it must then assess the materiality of the impact, assuming it would occur. By analogy, issuers could identify “reasonably likely” changes in an energy transition and then, assuming those changes will occur, identify the impact that they would have on assumptions and estimates. These processes should be familiar to registrants that report to SEC standards.

Question 84. Should we instead utilize terminology and thresholds consistent with the critical accounting estimate disclosure requirement in 17 CFR 229.303(b)(3), such as “estimates made in accordance with generally accepted accounting principles that involve a significant level of estimation uncertainty and have had or are reasonably likely to have a material impact on the financial condition or results of operations of the registrant”? If so, should we only require disclosures of whether and how the climate-related events and transition activities impacted such critical accounting estimates? Should we require only a qualitative description of how the estimates and assumptions were impacted by the climate-related events and transition activities, as proposed? Should we require quantitative disclosures as well? If so, should we require such disclosure only if practicable or subject to another qualifier?

The Commission should go beyond a disclosure of whether and how climate-related transition activities will impact accounting estimates. Quantitative disclosures are essential. A statement that a firm has considered climate-related events and adjusted an estimate upwards, or downwards, may give a direction of travel but nothing that would allow users of that information to form their own opinion on whether that adjustment was sufficient. That requires the quantitative input data.

Some registrants have asserted that these inputs are commercially sensitive and might prefer an approach that only provided a qualitative description of the estimates. It is important to distinguish, however, between the range of proprietary business plans that companies develop, which are commercially sensitive, from the ultimate single-point estimates and assumptions that are

Agency, and Network for Greening the Financial System. There are additionally providers offering bespoke modelling services that registrants have relied upon to report to investors, such as Carbone 4, ERM, South Pole and Vivid Economics.

²¹ Commission Statement About Management’s Discussion and Analysis of Financial Condition and Results of Operations, Release Nos. 33-8056 and 34-45321 (January 25, 2002). See also, Carbon Tracker, *No Rhyme or Reason: Unreasonable projections in a world confronting climate change*, 2016. Available at:

<https://carbontracker.org/reports/no-rhyme-or-reason-eia-energy-outlook-coal-companies-risk-disclosure/>

²² The Commission has explained that “reasonably likely” is a lower disclosure threshold than “more likely than not” but more likely than “remote.” Commission Statement About Management’s Discussion and Analysis of Financial Condition and Results of Operations, Release Nos. 33-8056 and 34-45321 (January 25, 2002).

used to construct the financial statements. The latter should not always carry a presumption of commercial sensitivity.

Additionally, in the context of the Proposal, many climate-related estimates and assumptions may be derived from publicly available third-party sources, benchmarks, and indices. Where the question is whether investors understand the inputs upon which the accounts are based, the use of such public sources by issuers cuts against the argument that the information is commercially sensitive.

Question 86. For the proposed financial statement metrics, should we require a registrant to disclose material changes in estimates, assumptions, or methodology among fiscal years and the reasons for those changes? If so, should we require the material changes disclosure to occur on a quarterly, or some other, basis? Should we require disclosure beyond a discussion of the material changes in assumptions or methodology and the reasons for those changes? Do existing required disclosures already elicit such information? What other approaches should we consider?

Yes, we believe these should be disclosed. Our view is that current regulations require such disclosure, but do not already elicit it.

Absent a change that might require a prompt disclosure to the market, these disclosures could be made on an annual basis, with prior year changes and adjustments noted, so investors can review and assess management's thinking.

At a minimum, registrants should have to (a) disclose the actual quantitative estimates and assumptions made, (b) identify how those estimates and assumptions would be impacted by physical or transition risks, (c) state whether and how those estimates and assumptions would impact the affected financial metrics. Given the applicability of existing safe harbor protections for forward-looking information, registrants should provide reasonable estimates or assumptions based on changed physical or transition circumstances.

Questions from GHG Emissions Metrics Disclosure

Key recommendation: The Commission should require a breakdown of annual changes in Scope 1, 2 and 3 emissions (detail specified below), matched to the related expenditures and changes in asset accounts.

Question 97. Should we require a registrant to disclose its total Scope 1 emissions and total Scope 2 emissions separately for its most recently completed fiscal year, as proposed? Are there other approaches that we should consider?

To assess registrants' abilities to implement climate transition plans and meet stated emissions targets, investors need information explaining year-over-year changes in direct and indirect emissions. Registrants should disclose a separate reconciliation of annual changes in Scope 1, Scope 2, and Scope 3 emissions showing separately (as applicable) the changes attributable to: (1) asset acquisitions and construction, (2) asset disposals and retirements, (3) energy efficiency, (4) venting/flaring, (5) fugitive emissions, (6) indirect emissions from use of electricity, (7) upstream indirect emissions, (8) downstream indirect emissions, (9) negative emissions, and (10) revisions to prior estimates.

Registrants should separately address changes in direct emissions resulting from other activities.

The line items in this tabular roll forward disclosure should be matched to related expenditures and changes in asset accounts (e.g., property, plant, and equipment), whether they result in an increase or decrease in GHG emissions. See proposed 17 CFR 210.14-02(f).

Building upon existing disclosure requirements, we believe the Proposal can facilitate substantial improvements in market integrity via climate-related risks.

We remain at your disposal for further discussions on this important matter. Please do not hesitate to contact me directly [REDACTED] or Barbara Davidson, Head of Accounting, Audit and Disclosure [REDACTED].



Rob Schuwerk, Executive Director, Carbon Tracker Initiative North America

Appendix A

Existing Accounting Principles and SEC Guidance

Climate change intersects with oil company financial statements under GAAP in three principal areas. The first is impairment of hydrocarbon reserves and exploration and production (E&P) assets under section 360-10-35 of the Accounting Standards Codification (ASC). The second is asset retirement obligations associated with E&P assets under ASC 410-20. The third is disclosure of significant risks and uncertainties under ASC 275-10-50.

Asset Impairment

As noted in the proposal, some registrants may use an internal carbon pricing as a planning tool to help identify climate-related risks and opportunities, as an incentive to drive energy efficiencies to reduce costs, to quantify the potential costs the company would incur should a carbon price be put into effect, and to guide capital investment decisions. See proposed 17 CFR 229.1500(j) and 229.1500(e)(1).

The following excerpts from the [District Court's opinion denying Exxon's motion to dismiss in *Ramirez V. Exxon*](#) provide a roadmap on how internal carbon pricing intersects with impairment testing under ASC 360-10-35:

The Amended Complaint alleges ExxonMobil failed to disclose the actual proxy cost of carbon it used — and at times allegedly failed to use — when calculating capital expenditures and making business and investment decisions.

This proxy cost of carbon allegedly allows ExxonMobil to consider governmental policies associated with climate change that may result in higher production costs, fees, or restrictions.

The Amended Complaint and the attached ExxonMobil documents sufficiently allege ExxonMobil stated a different proxy cost value in public statements than was applied in internal calculations. This disparity in proxy cost values sufficiently alleges material misrepresentations arising from statements made referencing these proxy costs. A reasonable investor would likely find it significant that ExxonMobil allegedly applied a lower proxy cost of carbon than it publicly disclosed.

The Amended Complaint alleges ExxonMobil's statements that it properly conducted impairment determinations according to GAAP were false because it failed to include its proxy cost of carbon in the impairment analysis.

The following GAAP and SEC guidance supports plaintiffs' assertion in *Ramirez* that internal carbon pricing used for internal financial planning must be consistently applied for external financial reporting.

GAAP

ASC 360-10-35-30 provides that “the assumptions used in developing estimates of future cash flows used to test the recoverability of a long-lived asset shall be reasonable in relation to the assumptions used in developing other information used by the entity for comparable periods (e.g., internal budgets and projections, accruals related to incentive compensation plans, and information communicated to others).”

SEC guidance

SEC [Staff Accounting Bulletin No. 114](#) (March 2011), which reflects the interpretations and practices followed by the Division of Corporation Finance and the Office of the Chief Accountant in administering the disclosure requirements of the Federal securities laws, states:

In providing guidance on the development of cash flows for purposes of applying the provisions of that Topic, FASB ASC paragraph 360–10–35–30 indicates that “estimates of future cash flows used to test the recoverability of a long-lived asset (asset group) shall incorporate the entity’s own assumptions about its use of the asset (asset group) and shall consider all available evidence. The assumptions used in developing those estimates shall be reasonable in relation to the assumptions used in developing other information used by the entity for comparable periods, such as internal budgets and projections, accruals related to incentive compensation plans, or information communicated to others.

The staff recognizes that various factors, including management’s judgments and assumptions about the business plans and strategies, affect the development of future cash flow projections for purposes of applying FASB ASC Topic 360. The staff, however, cautions registrants that the judgments and assumptions made for purposes of applying FASB ASC Topic 360 must be consistent with other financial statement calculations and disclosures and disclosures in MD&A. **The staff also expects that forecasts made for purposes of applying FASB ASC Topic 360 be consistent with other forward-looking information prepared by the company, such as that used for internal budgets, incentive compensation plans, discussions with lenders or third parties, and/or reporting to management or the board of directors [emphasis added].**

For example, the staff has reviewed a fact pattern where a registrant developed cash flow projections for purposes of applying the provisions of FASB ASC Topic 360 using one set of assumptions and utilized a second, more conservative set of assumptions for purposes of determining whether deferred tax valuation allowances were necessary when applying the provisions of FASB ASC Topic 740, Income Taxes. In this case, the staff objected to the use of inconsistent assumptions.

In addition to disclosure of key assumptions used in the development of cash flow projections, the staff also has required discussion in MD&A of the implications of assumptions [emphasis added]. For example, do the projections indicate that a company is likely to violate debt covenants in the future? What are the ramifications to the cash flow projections used in the impairment analysis? If growth rates used in the impairment analysis are lower than those used by outside analysts, has the company had discussions with the analysts regarding their overly optimistic projections? Has the company appropriately informed the market and its shareholders of its reduced expectations for the future that are sufficient to cause an impairment charge? **The staff believes that cash flow projections used in the impairment analysis must be both internally consistent with the company’s other projections and externally consistent with financial statement and other public disclosures [emphasis added].**

Read together, ASC 360-10-35-30 and SAB 114 provide strong evidence that a reasonable investor should assume that oil companies use consistent carbon pricing assumptions for both internal financial planning and external financial reporting.

This has been endorsed in a recent district court opinion denying Exxon's motion to dismiss in *Ramirez v. Exxon*. The opinion explains how internal carbon pricing intersects with impairment testing under ASC 360-10-35:

The Amended Complaint alleges ExxonMobil failed to disclose the actual proxy cost of carbon it used — and at times allegedly failed to use — when calculating capital expenditures and making business and investment decisions.

This proxy cost of carbon allegedly allows ExxonMobil to consider governmental policies associated with climate change that may result in higher production costs, fees, or restrictions.

The Amended Complaint and the attached ExxonMobil documents sufficiently allege ExxonMobil stated a different proxy cost value in public statements than was actually applied in internal calculations. This disparity in proxy cost values sufficiently alleges material misrepresentations arising from statements made referencing these proxy costs. A reasonable investor would likely find it significant that ExxonMobil allegedly applied a lower proxy cost of carbon than it publicly disclosed.

The Amended Complaint alleges ExxonMobil's statements that it properly conducted impairment determinations according to GAAP were false because it failed to include its proxy cost of carbon in the impairment analysis.

The following GAAP and SEC guidance supports plaintiffs' assertion in *Ramirez* that internal carbon pricing used for internal financial planning must be consistently applied for external financial reporting.

A company's failure to consistently apply internal carbon pricing assumptions might or might not have a material quantitative impact on the company's financial statements as a whole. However, the federal district judge in *Ramirez* found that the alleged misstatement likely would have had a qualitative influence on investors' decisions, without regard to the quantitative impact on the financial statements: "A reasonable investor would likely find it significant that ExxonMobil allegedly applied a lower proxy cost of carbon than it publicly disclosed." This is consistent with SEC guidance on materiality in [Staff Accounting Bulletin No. 99—Materiality](#):

Under the governing principles, an assessment of materiality requires that one views the facts in the context of the "surrounding circumstances," as the accounting literature puts it, or the "total mix" of information, in the words of the Supreme Court. In the context of a misstatement of a financial statement item, while the "total mix" includes the size in numerical or percentage terms of the misstatement, it also includes the factual context in which the user of financial statements would view the financial statement item. The shorthand in the accounting and auditing literature for this analysis is that financial management and the auditor must consider both "quantitative" and "qualitative" factors in assessing an item's materiality. Court decisions, Commission rules and enforcement actions, and accounting and auditing literature have all considered "qualitative" factors in various contexts.

Asset Retirement Obligations

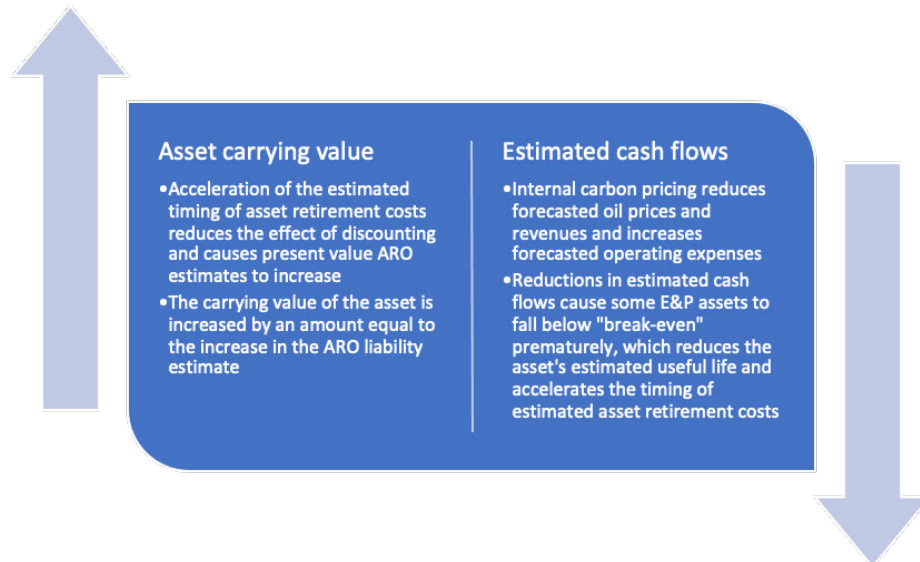
An additional point that has yet to be explored in securities litigation is the impact that revised assumptions — such as carbon prices — may have on asset retirement schedules and the accurate financial reporting of asset retirement obligations (AROs).

Consideration of AROs in the context of internal carbon pricing is important because AROs make asset impairment more likely. Asset impairments occur when the carrying (book) value of hydrocarbon assets exceed estimates of future undiscounted cash flows (cash inflows less

associated cash outflows) expected to result from the use and eventual disposition of the asset. Increases in the carrying value of the asset and (or) decreases in estimated future cash flows make impairment more likely.

The diagram below illustrates the effect of internal carbon pricing on the two parts of the impairment calculation.

Figure 1: Effect of internal carbon pricing on AROs and asset impairment



Significant Estimates

ASC 275-10-50-6 (Disclosure of certain significant estimates) requires disclosures regarding significant estimates, including asset impairments and AROs when:

based on known information, it is reasonably possible that the estimate will change in the near term (next 12 months) and the effect of the change will be material. The estimate of the effect of a change in a condition, situation, or set of circumstances shall be disclosed and the evaluation shall be based on known information.

As explained above, changes in a company's estimated future cash flows can affect estimates of hydrocarbon assets and related AROs. Assumptions about the impact of climate-related transition risks on estimated future cash flows are subject to change based on new information. If it is reasonably possible that an oil company's estimated future cash flows will change within the next year, based on new information, it is almost certainly reasonably possible also that this will result in a material change in the valuation of hydrocarbon assets and related AROs.

Arguably, oil companies should provide cautionary disclosures under ASC 275 every year. SEC guidance on "critical accounting estimates" in [Release No. 33-8350](#) calls for additional MD&A disclosures to complement those required by ASC 275.