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Via Electronic Mail   June 15, 2022

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

> **Re: File No. S7-10-22; The Enhancement and Standardization of Climate-Related Disclosures for Investors; Release Nos. 33-11042 and 34-94478**

Dear Ms. Countryman,

Cervest Limited ("Cervest") welcomes the opportunity to respond to the Securities and Exchange Commission's ("Commission") proposed rule related to the enhancement and standardization of climate-related disclosures for investors (the "Proposal").[1] This landmark proposal seeks to elicit comparable, decision-useful information and data concerning the climate-related risks and opportunities that impact investors, the companies in which they invest, and the financial markets—recognizing in particular the need for information on the material impacts on a company's business, results of operations, or financial condition. We support the Commission's efforts to facilitate global consistency and comparability of climate-related financial disclosures.

Based on its scientific and climate risk expertise and experience, Cervest is pleased to provide climate data-driven insights on climate-related risks and the options the Commission might consider in advancing climate-related disclosure standardization, comparability and accuracy. Specifically, Cervest welcomes the opportunity to highlight the numerous advances in climate data science, measurement technologies, machine learning and climate risk analytics, all of which support companies' ability to understand and more effectively manage their climate-related risk. Sophisticated and reliable

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[1] *See* 87 Fed. Reg. 21,334 (Apr. 11, 2022), https://www.federalregister.gov/documents/2022/04/11/2022-06342/the-enhancement-and-standardization-of-climate-related-disclosures-for-investors.

analytical tools are already available and being used by companies to assist them in providing an accurate, detailed, and specific picture of their current and future climate risk profile—including the range of physical and transition climate risks they face and the possible impacts to their financial performance. In addition, such tools help to ensure the comparability and reliability of data that companies present to their investors, the public, and other stakeholders.

I.   Cervest Overview

Cervest is a climate risk intelligence company that uses state of the art technology to empower enterprises, non-governmental organizations ("NGOs"), governments, and financial markets with science-backed, granular insights in order to make informed decisions on climate risks and opportunities. We have assembled an extensive team of climate science, product, and data experts to build a unified platform to quantify climate risk across multiple hazards, timeframes, and emission scenarios at the level of individual assets. Conducting an analysis at the individual asset level requires understanding the core building blocks that generate financial, social, or environmental returns for built (e.g., infrastructure, real estate and manufacturing facilities) and ecological entities (e.g., national parks, watersheds, and public owned forests).

Using our proprietary methods, Cervest calculates, rates, and monitors historic, current, and forecasted risks and then digitally encodes this asset-level data in an immutable[2] manner for use in our continually-learning "system of record," or asset catalog. The asset catalog allows multiple parties to view and use asset-level climate analysis to assess their exposure to climate risk. We have encoded over 230 million physical asset records onto our digital platform.[3]

Cervest is a global operation with an interdisciplinary set of expert employees based across Europe and the US.[4] Cervest's mission is to affordably empower everyone to adapt to climate change and build a resilient future for our planet.[5]

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[2] In data science, immutable objects are those with values that cannot be changed once they have been created. Once something has been learned by a system, it becomes part of that immutable record.

[3] Cervest expects 500 million asset records to be encoded on its platform by the end of June 2022.

[4] Cervest has also assembled an external advisory board called the Cervest Climate Intelligent Council, which is made up of leading climate scientists, researchers, and industry and policy leaders. *See* Claire Huck, *Cervest Establishes Climate Intelligence Council With World-Leading Experts From Science, Policy, Finance, Technology and Business*, Cervest (Oct. 22, 2021), https://cervest.earth/news/cervest-establishes-climate-intelligence-council-with-world-leading-experts-from-science-policy-finance-technology-and-business.

[5] *See* B Lab, *Measuring a Company's Entire Social and Environmental Impact*, https://www.bcorporation.net/en-us/certification (describing the criteria for the B Corp certification, which includes, among other things, an assessment and rating of a company across a range of environmental and social practices).

II.   Background

The Proposal seeks greater transparency in disclosure and comparability in the reporting of companies' exposure to climate-related risks and companies' plans, if any, toward a transition to lower carbon and net zero futures within specified timeframes. Greater disclosure transparency and measurement of climate related risks have become necessary given the increased financial risks and impacts on businesses globally.[6] A variety of stakeholders, including governments, companies, NGOs, and investors with trillions of dollars of assets under management have voiced concern about the increased financial risk that is related to climate change.[7]

Cervest is a part of the scientific community that is creating climate-related analytical tools that help entities model, forecast and properly equip themselves with insights into the climate hazards uniquely affecting them. Such insight and intelligence is based on climate *science*— i.e., peer-reviewed, data-derived analysis of climate hazards. Such insight and climate science supports enhanced reporting and disclosure accuracy around climate-related risks and opportunities. Data-driven, peer-reviewed climate science is at the core of what is recognized as "climate intelligence" ("CI").[8] CI can provide science-backed, asset-level business intelligence for managing climate risk, assimilating and rendering complex climate science in ways that decision-makers can understand and action.

Climate intelligence is a quintessential component of how companies worldwide can more accurately and comparably report on climate-related risks and opportunities, thereby better informing themselves and their stakeholders and improving the quality of their strategic and operational decisions. CI analysis informs company actions to drive greater resilience and competitiveness across all markets and will facilitate entities' ability to more closely align their climate risk disclosures with science-based reporting standards that are developing globally. CI analysis is also being used to inform the paths companies take to adapt to climate risk, some of which is already locked into our system due to already high cumulative global greenhouse gas concentrations. CI analysis helps identify some of the impacts from physical climate risk including physical damage to buildings from flooding, storm damage, and wildfires that are non-reversible and which will intensify over time in frequency and severity. For example, companies use CI analysis to identify asset-level risk

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[6] *See* National Centers for Environmental Information, *Billion Dollar Weather and Climate Disasters*, https://www.ncei.noaa.gov/access/monitoring/billions/; Bank of England, *Climate change: What are the Risks to Financial Stability?*, https://www.bankofengland.co.uk/knowledgebank/climate-change-what-are-the-risks-to-financial-stability.

[7] *See* Exec. Order No. 14,008, *Tackling the Climate Crisis at Home and Abroad*, 86 Fed. Reg. 7,619 (Jan. 27, 2022), https://www.federalregister.gov/documents/2021/02/01/2021-02177/tackling-the-climate-crisis-at-home-and-abroad; *see also* Glasgow Alliance For Net-Zero ("GFANZ"), *Amount of Finance Committed to Achieving 1.5°C Now at Scale Needed to Deliver the Transition* (Nov. 3, 2021), https://www.gfanzero.com/press/amount-of-finance-committed-to-achieving-1-5c-now-at-scale-needed-to-deliver-the-transition/ (announcing in November 2021 the commitment of over $130 trillion of private capital by members of GFANZ, which will be committed to transforming the economy for net zero).

[8] Neil Yeoh, *What is Climate Intelligence – And How Can It Help Address Climate Change?*, World Economic Forum (Dec. 3, 2021), https://www.weforum.org/agenda/2021/12/climate-intelligence-climate-change/.

and the financial impacts of climate risk in order to target intervention and business strategies in the short-, medium-, and long-term. Use of CI analysis is therefore facilitating how companies and investors assess and mitigate or, where required, adapt their climate risk exposure.

Cervest encourages the Commission to consider incorporating CI analysis in the proposed rule's definitions and analytical disclosure framework. Cervest believes the use of CI analysis could help companies to provide decision-useful, comparable disclosures, while enhancing investor protection and improving the quality of the climate-related information provided to the financial markets. Climate science and climate risk analysis are active and evolving areas of scientific study. Accordingly, we also encourage the Commission to consider finalizing rules that would be flexible enough to allow for continued evolution of the relevant data and tools that support CI analysis.

Cervest's Recommendations: Executive Summary

The Proposal seeks to standardize climate-related disclosures, enhance disclosure quality and provide investors with decision-useful information regarding climate risk. We believe that the Proposal and its objectives could be enhanced by incorporating CI analysis. Disclosures that incorporate CI analysis and that require descriptions of the analytical tools companies are using, if any, to assess their climate related risk, will enhance companies' and investors' understanding of climate risk and the management of such risk in the short-, medium-, and long-term.

Cervest's principal comments with respect to the Proposal are listed below.

1. Analytical tools that facilitate measurement of physical and transitional climate risk analysis are currently available. Such tools are also accessible to companies and investors, provide meaningful risk insights about fundamental material impacts, and will enhance the accuracy and comparability of disclosure across companies and between reporting periods.

2. Companies that use climate data analytical tools should be encouraged to use tools that are science-backed and should be encouraged to disclose any methodology and thresholds used in order to facilitate scientific validation, comparability and quality-controlled data processes. Climate-related disclosure should embody sufficient transparency, data quality, comparability, depth of analysis and analytical rigor to ensure that investors and the public have access to meaningful and investment-relevant information, while not inhibiting the continued development and refinement of evolving areas of climate science and climate risk analyses.

3. The definitions in the Proposal should incorporate science-based metrics and consider emergent industry standards and best practice in CI analysis. Specifically, the final rules:

(i)   should require transparency around the analytical tools and data analysis a company may use, and

(ii)   define climate risks by including reference to climate intelligence, which is rooted in scientific evidence and which assesses the range of physical and transition risks, including their possible financial impact, on an asset and portfolio level.

We discuss each of these items in greater detail below.

III.   Analytical Tools, Scenario Analysis & Data Quality

The Commission may wish to consider bolstering requirements related to disclosures of the analytical tools used to assess physical and transition risks as well as the level of transparency associated with the use of these tools. In this section, we discuss analytical tools that can capture the full extent of climate-related physical and transition risks, opportunities for scenario analysis disclosures should that aspect of the Proposal remain in the final rules, and key ways that the Commission can promote transparency to help investors assess data and analytic quality.

Tools

Cervest believes climate data, quantitative methods, and earth science technologies are sufficiently advanced and available at reasonable cost[9] to companies to now use these tools when undertaking a materiality assessment related to their climate-related risks and opportunities.

Cervest recommends the Commission consider the range of existing climate intelligence methodologies that can facilitate more nuanced, accurate, and comparable identification and disclosure of physical climate-related risks. Improvements in climate data metrics and climate intelligence facilitate the aggregation of historical climate data points and the assessment of multivariate or combined risk.[10] Such tools are currently available to organizations and are used to assist them in comprehending and managing their climate-related risk strategies. For example, Cervest's products assess risk using climate intelligence at the singular asset level and across multiple assets within a portfolio.[11] Tools of this type incorporate a more nuanced and holistic approach to risk assessment. These tools help companies identify the range of physical risks, at both singular and multivariate

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[9] *See* Mark Lee, *Costs and Benefits of Climate-Related Disclosure Activities by Corporate Issuers and Institutional Investors*, Sustainability Institute at ERM (May 2022), https://www.sustainability.com/globalassets/sustainability.com/thinking/pdfs/2022/costs-and-benefits-of-climate-related-disclosure-activities-by-corporate-issuers-and-institutional-investors-17-may-22.pdf.

[10] *See* John T. Abatzoglou et al, *Multivariate Climate Departures Have Outpaced Univariate Changes across Global Lands*, Scientific Reports (Mar. 3, 2020), https://www.nature.com/articles/s41598-020-60270-5.

[11] For an explanation and example of how EarthScan® is used, see https://cervest.earth/earthscan.

climate risk levels, over measurable periods of time (i.e., short-, medium-, and long-term), as well as the probability, intensity, and severity of those risks.

Cervest and other service providers have created data-driven analytical tools that help capture the probability and magnitude of a range of climate hazards and risks to organizations—providing a more complete and nuanced picture of material risks. These tools are grounded in science, aggregate climate-related data points, and use machine learning to survey, comprehend, and predict the probability and magnitude of a range of outcomes. These tools are also able to statistically correlate and predict climate-related risks and interpret such data, which might include analysis at the zip code (or postal code) level or, in the case of Cervest's products, at the specific asset-level to provide more tailored risk-assessments.[12] As so often happens with climate-related disasters, correlated risks may greatly obfuscate climate impacts.[13] Nuanced identification and interpretation of climate risks enhances disclosure comparability and accuracy and will assist investors and other stakeholders' understanding of the financial impact and opportunities a company faces.

Cervest recommends the Commission encourage companies that seek to provide TCFD-aligned disclosures, such as those contemplated by the Proposal, to disclose if they use climate risk analytical tools and, if so, to describe such tools.

Scenario Analysis

Scenario analyses are often used to help investors assess how companies' business strategies help them to anticipate and respond to climate-related hazardous events, trends, and disturbances. Effective analysis of forward-looking climate data, as well as historical data, is a critical component of gleaning meaningful insights related to climate risk. If scenario analysis disclosure is included in a final rule, we recommend that the Commission support companies in distinguishing between scenario analyses assessing physical and transition risks.

As the Proposed Rule recognizes, physical and transition risks are fundamentally different and the implications of each type of risk might be material for companies and their investors. Understanding the integrated climate-related risks of a company involves understanding how different modeling approaches and scenarios are used to represent

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[12] *See* Katie Hill, *Beyond Net Zero?: Just add 'Climate Intelligence'*, (Nov. 5, 2021), https://www.mygreenpod.com/articles/beyond-net-zero/ (delineates the granularity of details and data Cervest uses in its analysis for companies).

[13] *See* Risk Management Solutions, *Hurricane Katrina: Profile of a Super Cat* (Aug. 2005), https://forms2.rms.com/rs/729-DJX-565/images/tc_2005_hurricane_katrina_lessons_implications.pdf; Jacques Leslie, *How Climate Change is Disrupting the Global Supply Chain*, Yale Environment 360 (Mar 10, 2022), https://e360.yale.edu/features/how-climate-change-is-disrupting-the-global-supply-chain#:~:text=Flooding%20in%20central%20China%20in,of%20a%20Nissan%20automobile%20plant.

physical and transition risk indicators.[14] Physical risks are assessed through scenarios generated by earth system models. Earth system models examine the interactions of the atmosphere, oceans, land, ice, and the biosphere to estimate the state of the climate on a global and regional level under a wide variety of conditions. For example, the Scenario Model Intercomparison Project[15] generates a commonly used open-access set of scenarios. On the other hand, transition risks use a different modeling framework, with inputs often including key aspects of the energy system, macroeconomic modeling, land use modeling, and a simplified climate model. In this regard, Integrated Assessment Models ("IAMs") are often used to model transition risks. Well known climate scenarios for transition risks include those developed by the International Energy Agency,[16] the Intergovernmental Panel on Climate Change,[17] and the Network for Greening the Financial System.[18] Key physical risk indicators include wildfires, heatwaves, droughts, and floods, while key transitional risk indicators might include mitigation costs, fuel share, raw material costs and availability, and the role of carbon pricing and carbon intensity.

Cervest supports the Proposal's requirement that companies that use scenario analysis provide a reasonable description of the modeling tools, scenarios, and the nature of the data used in such analysis. Such disclosure would assist investors in understanding key informational inputs underlying these climate-related disclosures. Cervest also recommends that disclosures provide certain basic information (if available), which would facilitate investors' ability to assess the credibility of the tools used and determine whether they can make reasonable comparisons across companies of interest. Importantly, however, we respectfully note that certain climate models or IAM data may not be available or accessible for verification. For instance, access to assumptions for parameters used in climate models or IAMs is limited at this time. Some of this underlying information is not usually made publicly available by many prominent organizations, partly because these complex models use a very large number of data points and making them open access can be costly. As a result, the Commission should encourage companies to disclose material information, while recognizing the constraints that limit the range and verifiability of some of the information that is accessible to companies for disclosure purposes. Cervest supports the consideration of an appropriate and flexible safe harbor that is tailored to the nuances of evolving climate science data.[19] Cervest also supports the Commission considering whether companies should furnish their scenario analysis in separate reports in order to encourage companies' use and disclosure of scenario analysis.

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[14] *See* Ajay Gambhir et al., *Near-term Transition and Longer-Term Physical Climate Risks of Greenhouse Gas Emissions Pathways*, 12 Nature Climate Change 88–96 (2022), https://doi.org/10.1038/s41558-021-01236-x.

[15] World Climate Research Programme, *ScenarioMIP – Scenario Model Intercomparison Project,* https://www.wcrp-climate.org/modelling-wgcm-mip-catalogue/cmip6-endorsed-mips-article/1070-modelling-cmip6-scenariomip (last updated May 2018).

[16] International Energy Agency, *World Energy Outlook 2021 Free Dataset*, https://www.iea.org/data-and-statistics/data-product/world-energy-outlook-2021-free-dataset (last updated Oct. 2021).

[17] International Institute for Applied Systems Analysis, *AR6 Scenario Explorer and Database Hosted by IIASA* (2022), https://data.ene.iiasa.ac.at/ar6.

[18] Network for Greening the Financial System, *NGFS Scenarios Portal*, https://www.ngfs.net/ngfs-scenarios-portal/.

[19] *See* Proposal at Section II.C.4 and Question 31.

Data Quality

Currently, entities, large and small, public and private are using a non-standardized set of climate data and analysis to identify the quantitative factors that contribute to a materiality assessment of their climate risk—and typically at an aggregated (non-asset) level. The SEC should continue to facilitate market efficiencies and transparency by encouraging more standardized, comparable and transparent disclosure.

To facilitate such comparability between companies and across time, the Commission should strengthen current disclosure requirements regarding the principal data sources as well as the methodologies companies use to identify their climate-related risks. That data should be current, based upon best practice and a transparent methodology that is widely accepted in the scientific community through peer review or other comparable means. While the content of certain data sets may at times be proprietary, the source and nature of the data, at a minimum, should be disclosed as a central feature of assuring the reliability and comparability of climate risk and strategy assessments. We also are mindful that, while these basic reliability and transparency criteria should be met for all data that forms the basis for climate risk and scenario analysis, the Commission should be careful to not prescribe which data should be considered, given the active and evolving nature of climate science.

An issue we have observed with voluntary reporting is the variability of data quality and the lack of information on data processes. Poor data quality and a lack of transparency around the methodologies used to assess climate risk hampers comparability. Even worse, these issues could lead to an underestimation of risk.

To build investor confidence and to ensure appropriate data governance, provenance, and traceability, Cervest recommends that the Commission consider outlining the basic criteria for the data underlying climate-related risk disclosure by including parameters for such data and analytical tools such as:

- the data being subject to peer-review;
- data transparency (i.e., via disclosure or reports);
- open access plus proprietary data; and
- data management including quality assurance and quality control ("QA/QC").

Verifiable data should exist to support disclosures on a wide range of physical risks such as, for example, assessments of flood hazard areas or water stress areas. Disclosure of recognized industry maps that companies use in their assessments of flood hazard areas such as the Federal Emergency Management Agency ("FEMA") map[20] would also facilitate

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[20] Federal Emergency Management Agency, *National Flood Hazard Layer*, https://www.fema.gov/flood-maps/national-flood-hazard-layer (last updated Aug. 26, 2021).

comparability of companies' disclosure of climate-related metrics and methodologies of assessment.

Cervest's climate risk measurement tool, for example, unifies and processes the latest climate data and combines it with earth science expertise, data modeling, and machine learning. This type of technology translates peer-reviewed climate science into decision-useful insights for companies, governments and other stakeholders, including investors. In short, climate intelligence data and machine learning technologies exist and are being used by organizations and governments to better inform disclosure, reporting and management of material climate-related risks. Climate intelligence can be used to assist organizations to identify and provide TCFD-aligned disclosures that are more accurate and comparable given their basis in climate science and reliable and transparent data.

IV.   Defining Climate Risks

Data-driven identification of material climate-related risks

Cervest respectfully submits that the Commission's definitions of material climate-related risks should incorporate, in part, climate *science*— i.e., data driven, peer reviewed measurement, evolving CI tools, and evolving best practices in climate-related risk measurement.

Cervest recommends the Commission consider including more precise definitions of the following risk categories:

- climate risks and opportunities

- physical risks

- transition risks

- climate value at risk

Definitions: Climate Risks and Opportunities

The Commission should consider revising the proposed definition of climate risk and opportunities to incorporate evolving climate-related science and technologies. For example, the proposed definition of climate risk in proposed Rule 1500(c) might be defined as "…the actual or potential negative impacts of climate-related conditions and events on a registrant's consolidated financial statements, business operations, or value chains, as a

whole" as informed by peer-reviewed climate science and reliable, data-driven climate intelligence.[21]

The Commission might consider supplementing the definitions to add a definition of CI, which could be defined as "science-backed, asset-level business intelligence for managing climate risk, assimilating and rendering complex climate science in ways that decision-makers can understand and action".

Further, as discussed below, to facilitate comparability of the climate intelligence data being used, the Commission might consider requiring entities to disclose whether or not they use:

- open access climate-related data sets that are commonly recognized or, if proprietary, that are "peer-reviewed" or otherwise subject to some kind of data quality assurance or verification; and
- climate-related data aggregation and analyses that aligns with TCFD concepts of climate risk, which incorporate material financial impacts.

Definitions: Physical risk

The Commission seeks comments on whether the proposed definitions of physical and transition risks capture the range of material climate-related risks and whether other definitions or metrics should be included. Cervest believes that climate intelligence and evolving climate data science provide quantifiable and verifiable information and analytical sources that may be material to companies' assessment of their climate-related risks. Definitions that are grounded in verifiable climate science can also facilitate comparability of risks and disclosure across companies and industries.

Physical risks can be both direct and indirect. Direct risks refer to the actual damage from an acute or chronic climate risk (e.g., the structural building damage caused by heat stress on a building), whereas indirect risks are generally those that impact an organization's value chain (e.g., loss of labor productivity due to heat stress). Understanding and preparing for physical risk can have a material impact on a business by reducing the amount of financial loss attributable to direct and indirect physical risk. This is of increasing importance to companies as climate events become more frequent.[22] A 2020 report from McKinsey

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[21] Proposed Rule 17 C.F.R. 229.1500(b), https://www.sec.gov/rules/proposed/2022/33-11042.pdf. A similar reference to climate science and climate intelligence could be added to the definition of climate-related opportunities. *See id.* at 457.

[22] *See, e.g.*, Colin Raymond et al., *Increasing Spatiotemporal Proximity of Heat and Precipitation Extremes in a Warming World Quantified by a Large Model Ensemble*, 17 Environ. Res. Letter 035005 (2022), https://iopscience.iop.org/article/10.1088/1748-9326/ac5712/pdf; Carol Rasmussen, *Clusters of Weather Extremes Will Increase Risks to Corn Crops, Society*, NASA (Apr. 26, 2022), https://climate.nasa.gov/news/3158/clusters-of-weather-extremes-will-increase-risks-to-corn-crops-society/. Physical risks impact businesses across industries. For example, some reports estimate that more than 60% of all credit unions and at least $1.2 trillion in credit union assets are at physical risk due to acute and chronic climate related weather events and hazards. *See* Ceres, *The Changing Climate for Credit Unions* (May 10, 2022), https://www.ceres.org/resources/reports/changing-climate-credit-unions.

estimated that preparedness for physical risks can substantially reduce supply chain disruption losses relating to extreme weather events from 35% loss of revenue to 5% loss of revenue.[23]

The Commission currently proposes that companies identify and disclose against acute and chronic climate risks. Below we provide a table that highlights examples of acute and chronic risks with regards to physical climate risk and how they relate to each other.

Examples of Physical Risk

Temporal Categorizations	Physical Risk Types			
	Temperature-related	Water-related	Wind-related	Other
Acute risks are climate shocks: climate-related events that have an immediate, destructive physical and financial impact on the property, infrastructure, health and well-being of a community.	Heat wave Wildfire	Drought Extreme precipitation Coastal flooding Riverine flooding	Cyclones and hurricanes Winter storms Dust and sand storms	Landslides Subsidence
Chronic risks are climate stresses: slow onset permanent or periodic shifts and changes in climate that undermine a community's social and economic stability and increase its vulnerability to shocks	Increase in average temperatures over time Increasing temperature variability over time Thawing permafrost	Water scarcity Changing rainfall patterns Sea-level rise Saltwater intrusion into freshwater Ocean acidification	Changes to wind patterns and mean speeds	Soil-degradation and erosion Loss of ecosystems and biodiversity Crop yield changes

[23] McKinsey Global Institute, *Could climate Become the Weak Link in Your Supply Chain?,* (Aug. 6, 2020), https://www.mckinsey.com/business-functions/sustainability/our-insights/could-climate-become-the-weak-link-in-your-supply-chain.

Definitions: Transition Risk

There are several different categories of transition risk, as illustrated in the table below. Failure to properly identify and measure a transition risk could result in the underestimation of material financial impacts to companies and their business strategy in the short-, medium- and long term. Cervest recommends the Commission further clarify its proposed definition of transition risk by providing examples of the types of transition risks companies should consider in their materiality assessments.

Examples of Transition Risk[24]

Transition Risk Types	Examples
Policy risk	Exposure to potential carbon-pricing or regulatory mechanisms to reduce GHG emissions, failure to shift energy use toward lower emission sources, failure to adopt energy-efficiency solutions, failure to encourage greater water efficiency measures.
Legal risk	Increases in climate related litigation claims being brought before the courts by property owners, municipalities, states, insurers, shareholders, and public interest organizations.
Reputational risk	Non-compliance and misconduct from an automaker's emissions scandal demonstrates how non-compliance and misconduct related to environmental disclosure can damage reputation and negatively impact stakeholder levels of trust and the firm's bottom line.
Market risk	Shifts in supply and demand for certain commodities, products, and services as climate-related risks and opportunities are increasingly taken into account.
Technology risk	Development and use of emerging technologies such as renewable energy, battery storage, energy efficiency, and carbon capture and storage will affect the competitiveness of certain organizations, their production and distribution costs, and ultimately the demand for their products and services from end users.

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[24] Task Force on Climate-Related Financial Disclosures, *Recommendations of the Task Force on Climate-related Financial Disclosures* at 5-6 (June 2017), https://www.tcfdhub.org/Downloads/pdfs/E06%20-%20Climate%20related%20risks%20and%20opportunities.pdf.

Cervest further recommends that the proposed definitions of material climate-related risks recognize the ongoing evolution of climate science and the need for technology and data analytical tools to assess the magnitude and probability of climate-related risks, including the severity and intensity of those risks. It will be important for finalized rules to include definitions that are flexible enough to accommodate such evolving climate science and CI analysis.

Definitions: Climate Value at Risk

Assessing the potential damage and financial impact of climate events is an important part of climate risk management. This assessment informs companies' forward-looking strategies. However, identification of material climate-related risks is often challenging for organizations and involves:

1. discovering the company's level of exposure to climate hazards across their geographically distributed assets;
2. translating that exposure into impacts (i.e., physical damage to assets, site-specific disruption to business continuity); and
3. translating impacts into a decision-useful metric on financial impact that is meaningful to investors (e.g., Climate Value-at-Risk ("CVaR")).

In addition, companies must incorporate into a comprehensive assessment of an asset the vulnerability associated with the asset. For example, each of a company's assets has a set of unique characteristics such as: (i) when the asset was built, (ii) the asset's principal function, (iii) the asset's location, and (iv) the soil on which the asset was built. These characteristics translate into an asset's "vulnerability," which also influences the level of impact and resulting financial loss and damages that will result from a climate-related risk. Identical adjacent buildings, for example, can experience the same level of exposure to a climate hazard, but have very different levels of vulnerability, and accordingly, different financial impacts. Tools that help companies assess their materiality must consider the impact at an asset level and assess such risks holistically in order to facilitate reporting that is decision-useful for investors.

Standardized impact metrics would facilitate such comparisons and reporting. A standardized metric with the most potential to estimate climate hazard exposure and potential damage and losses to properties or portfolios of properties across different future climate scenarios is CVaR.[25] CVaR can provide organizations with a value estimate of potential damage that also takes into account uncertainty. In climate risk management, this can be used to differentiate asset exposure and vulnerability across asset types, regions and time frames. Cervest encourages the Commission to consider incorporating a standardized metric such as CVaR into its proposed definitions and disclosure framework.

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[25] *See* Simon Dietz et al., *'Climate Value at Risk' of Global Financial Assets*, 6 Nat. Climate Change 676-679 (Apr. 2016), https://www.nature.com/articles/nclimate2972.

CVaR can be a cost-effective mechanism for providing information on the potential for physical damage and associated costs to investors.

V.   Conclusion

As outlined above, we support your effort to give investors quality information on how companies are measuring and managing climate risk to assist in their investment decisions and further enhance public confidence in those decisions. Analytical Tools that facilitate measurement of physical and transitional climate risk analysis are already currently available.

Specifically, we support enhancing the transparency and comparability of climate-related disclosures through the use of science-based metrics, analytical tools, and emerging industry standards and best practices, including the use of climate intelligence analysis. We encourage the Commission to incorporate such science-based climate intelligence analysis into any final rule to further the goal of delivering decision-useful information to investors. Furthermore, we see a need for asset-level climate disclosure to bring confidence to investors that risks and opportunities are being appropriately identified and managed.

We appreciate the opportunity to respond to the Proposal and we look forward to further engagement on this important issue.

Sincerely,

Iggy Bassi
Founder & Chief Executive Officer