Buffalo River Watershed Alliance * Center for Food Safety * Earthjustice * Food & Water Watch * The Humane Society of the United States * Institute for Agriculture and Trade Policy * Johns Hopkins Center for a Livable Future * Rural Advancement Foundation International-USA * Socially Responsible Agriculture Project

June 17, 2022

Via Electronic Submission

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

Re: File Number S7-10-22, The Enhancement and Standardization of Climate-Related Disclosures for Investors

Dear Secretary Countryman:

The undersigned organizations, representing millions of members and supporters across the country, submit these comments on File Number S-7-10-22, The Enhancement and Standardization of Climate-Related Disclosures for Investors ("Proposed Rule"). We appreciate the recognition by the Security and Exchange Commission ("SEC") of the growing significance of climate-related financial risk to investors and the critical need to increase data about and transparency of industry greenhouse gas ("GHG") emissions. While the Proposed Rule is very comprehensive and poses over 200 multi-part questions, we narrowly focus these comments on the appropriateness of and need to include the disclosure of Scope 3 emissions for large industrial agricultural firms.

Introduction

The current climate crisis is the greatest existential threat of our time, threatening far-reaching and devastating public health, environmental, and economic impacts. The severity of this crisis and the harms stemming from it permeate all aspects of our society, including the corporate sector. Financial risk to businesses from the warming planet is pervasive and will continue to grow absent substantial reductions in greenhouse gas ("GHG") emissions across all sectors. Given the very real climate-related financial risks associated with current and potential investments in various publicly traded companies, information about companies' own emissions and their exposure to such risk is material to investors' investment and voting decisions.

This is especially so for firms in the industrial agriculture sector, where climate change poses significant financial risk to the underlying business. Indeed, warming temperatures and the increasing frequency of extreme climate events such as floods and droughts, extreme heat, and dangerous storms, threaten overall productivity, the health of the labor force, production efficiency, and regulatory compliance. And given the complex and lengthy chain of upstream and downstream suppliers and consumers, there is currently little transparency into the true climate-related financial risk inherent in these industrial agriculture firms. Regulated disclosure

of climate-related emissions will provide investors with a measure of financial protection against climate-related risk and will help them make informed investment decisions.

I. Disclosure of Climate-Related Information is Necessary to Protect Investors.

The SEC's proposal to require disclosure of climate-related information falls well within the SEC's congressionally authorized mandate. The Securities Act and the Securities and Exchange Act expressly empower the SEC to require disclosures that are "necessary or appropriate in the public interest or for the protection of investors."[1] Climate-related disclosures are undoubtedly necessary and appropriate to protect investors from the financial risks associated with global warming.

There is now an overwhelming consensus among investors that climate-related information is essential to sound investment decisions. This is so because climate-related risks indisputably present financial risks for firms, and thus their investors, as companies confront the business impacts of a warming planet.[2] As one major U.S. investment firm recognizes, a company's climate-related information has direct bearing on how it will fare in the coming "transition to a low-carbon economy," as well as how its "profitability" will be impacted by "policy, technological innovation, changing consumer preferences, and liability or reputational concerns" prompted by climate change.[3] Accordingly, "[a]s an increasing number of institutional investors make commitments to align their portfolios with" international climate targets, "there is an even greater need for disclosures that allow investors to better understand the current and future emissions impact of their investments and mitigate exposure to climate risk."[4] Similarly, the United Nation's Principles for Responsible Investment, which require incorporation of climate change into investment analysis and decision-making processes, has garnered support from over 4,000 firms.[5] This includes three U.S. index fund managers—BlackRock, Vanguard, and State Street—that control approximately 15% of the S&P 500.

In addition, recent research suggests that consumer decisions are increasingly driven by reference to sustainability. For example, one study of 750 American consumers shows that 80%

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[1] 15 U.S.C. §§ 77g(a)(1), 78l, 78m, 78o.

[2] *See* Hana V. Vizcarra, *The Reasonable Investor and Climate-Related Information: Changing Expectations for Financial Disclosures*, 50 Env't. L. Rep. (ELI) 10106, 10109 (2020) ("A 2018 survey by Oxford and Harvard Business School professors Amir Amel-Zadeh and George Serafeim indicated that a large majority of investors consider [environmental, social, and governance (ESG)] information when making investment decisions and do so because they believe it is financially material to investment performance").

[3] Letter to Vanessa A. Countryman, Secretary, U.S. Securities & Exchange Comm'n, from Sandra Boss, Senior Managing Dir., BlackRock et al., at 4 (June 11, 2021) ("BlackRock Letter"), https://www.sec.gov/comments/climate-disclosure/cll12-8906794-244146.pdf.

[4] Ceres, *The Investor Guide to Climate Transition Plans in the U.S. Food Sector*, at 6 (2022) ("Ceres Report").

[5] *See* Vizcarra, *supra* note 2.

of those surveyed considered "sustainability [to be] an important factor when deciding what food and beverage to purchase from grocery stores."[6] Another study by the United States Department of Agriculture found that consumers are heavily influenced by sustainability claims on products, and that many are willing to pay a premium for goods produced sustainably.[7] Consumer preferences can drive company profitability, and thus have a direct impact on investor interest.[8]

Notwithstanding the national and international consensus on the critical need for climate disclosure information for investors to understand their financial risk, investors need SEC regulation to better protect their financial interests. This is so for at least three reasons.

First, recent studies suggest that investors are highly skeptical of the veracity of firms' voluntarily reported claims. For example, a 2021 survey of 700 institutional investors found that 86% of U.S. investors "believe that companies frequently overstate or exaggerate their ESG [Environmental, Sustainability, and Governance] progress when disclosing results," and that 92% are "concerned companies are not effectively executing" their "net zero" targets.[9] Unsurprisingly, given this skepticism of self-reported information, Americans for Financial Reform Education Fund and Public Citizen reported that investor trust in climate disclosures will improve dramatically if those disclosures are made pursuant to mandatory, agency-enforced requirements.[10] Thus, in the absence of regulation, investor skepticism of voluntarily provided climate-related claims will continue to cause friction in the securities market.

Second, even if investors trust voluntarily reported information, the current lack of uniform reporting standards hinders investors' ability to access "comparable and consistent information to assess [] long-term transition plans and near-term actions to mitigate sustainability risks, and to ultimately make better informed asset allocation decisions."[11] Because "[c]omparisons of financial information among peer firms, also known as cross section analysis,

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[6] *See* Sam Danley, *Consumer Interest in Sustainability is Still Growing*, Food Business News (Feb. 19, 2021), https://www.foodbusinessnews.net/articles/17988-consumer-interest-in-sustainability-is-still-growing.

[7] *See* Elizabeth Gardner, *Policy Opinions Revealed in Consumer Food Insights Report*, Purdue Univ. College of Agric. (Mar. 13, 2022), https://ag.purdue.edu/stories/policy-opinions-revealed-in-consumer-food-insights-report/.

[8] *See* Todd S. Aagaard, *Using Non-Environmental Law to Accomplish Environmental Objectives*, 30 J. Land Use & Env't L. 35, 43 (2014) ("A company that develops a negative reputation for its environmental practices may suffer decreased demand for its products or services. Accordingly, information about such exogenous trends would be relevant to the company's present and future financial performance and therefore material [to investors].").

[9] *See* Edelman, *EdelmanTrust Barometer 2021: Institutional Investor Trust Report* (2021), https://www.edelman.com/trust/2021-trust-barometer/investor-trust; *cf.* Paula J. Dalley, *The Use and Misuse of Disclosure As A Regulatory System*, 34 Fla. State Univ. L. Rev. 1089, 1094 (2007) (noting that one purpose of securities disclosure requirements is "remedying information asymmetries that exist[] between investors, on the one hand, and issuers and promoters of securities").

[10] *See* Pub. Citizen, *Survey Reveals Retail Investors Want SEC to Require Climate Disclosure* (Apr. 29, 2022), https://www.citizen.org/news/survey-reveals-retail-investors-want-sec-to-require-climate-disclosure/.

[11] BlackRock Letter at 3.

lie at the core of all securities analyses, and are vital to the efficiency of capital markets,"[12] uniform mandatory climate-related disclosure requirements will plainly further the SEC's mission of "promot[ing] efficiency, competition, and capital formation."[13]

Third, for some industries—such as agriculture—there is little transparency into the industries' true climate impact and thus into the true climate-related financial risk associated with investments in those industries. This is especially so where there is a long and complicated supply chain, and where the upstream and downstream emissions are the primary source of an industry's climate footprint. Requiring disclosure of GHG emissions—including scope 3 emissions—will therefore help provide critical information that investors can use to assess the climate-related financial risk associated with an investment in a particular industry.

Accordingly, SEC's Proposed Rule is necessary to ensure the veracity of the climate-related information firms disclose, to reduce investors' transaction costs necessary to allow for comparisons of this crucial information, and to provide information necessary to evaluate climate-related financial risk. These mandatory disclosures will enable investors to more efficiently reach sound investment decisions in the wake of disruptive climate-related events and policy interventions.

II. Climate Change Poses Significant Financial Risks to the Agriculture Industry.

Within the agriculture sector, financial risk and climate risk are inextricably intertwined. Climate change will continue to alter patterns of temperature and precipitation, the frequency and severity of storms, floods, droughts, wildfires, and other extreme weather events, and increase risks of pest and disease outbreaks.[14] Each of these compounding impacts poses an ongoing threat to agriculture. Many of these impacts—including increased pest, weed, and disease outbreaks, intense and variable weather events, and shifts in plant and animal migrations and ranges—are already underway and are expected to worsen.[15]

As a result of these impacts, climate change directly threatens crop productivity, with projections suggesting that it could reduce global crop production by 9% in the 2030s and by

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[12] Sharon Hannes, *Comparisons Among Firms: (When) Do They Justify Mandatory Disclosure?*, 29 J. Corp. L. 699, 702 (2004)

[13] 15 U.S.C. §§ 77b(b), 78c(f).

[14] *See* Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2013: The Physical Science Basis*, Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (2013), https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_all_final.pdf; *see also* IPCC, *Climate Change 2014: Impacts, Adaptation and Vulnerability. Part A: Global and Sectoral Aspects*, Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (2014), https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-PartA_FINAL.pdf.

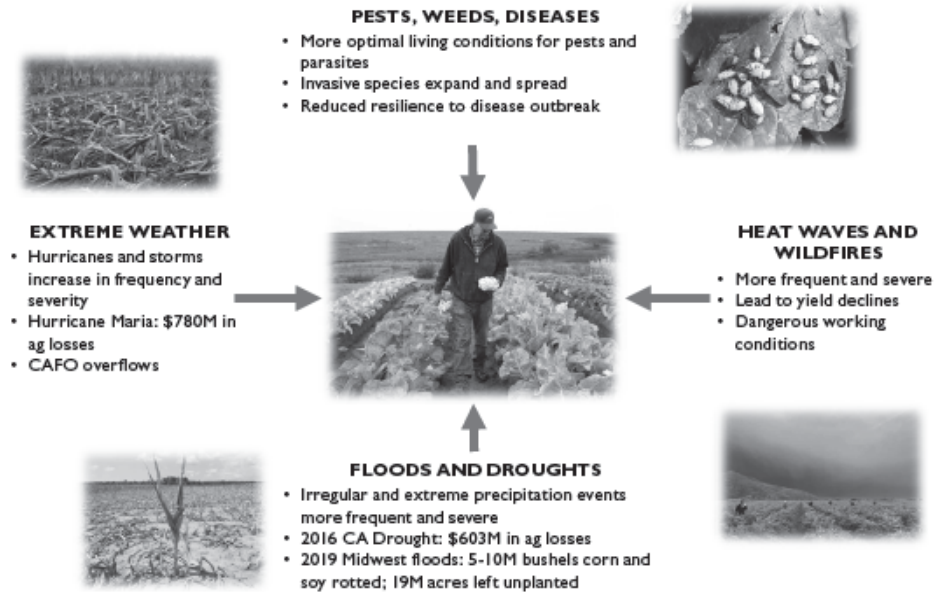
[15] *See* Peter Backlund et al., U.S. Climate Change Sci. Program & the Subcomm. on Global Change Rsch., *The Effects of Climate Change on Agriculture, Land Resources, Water Resources, and Biodiversity in the United States* (2008), https://www.usda.gov/sites/default/files/documents/CCSPFinalReport.pdf.

23% in the 2050s.[16] Higher temperatures are associated with declines in crop yields for many crops,[17] and increasingly frequent floods and droughts are predicted to result in additional crop damage and risks to livestock, including increased mortality at feedlots. Among other climate-related challenges, heat stress negatively affects livestock health, including cows' ability to gain weight, and it increases their susceptibility to disease. These impacts translate into reductions in livestock productivity and declines in feed efficiency and pose serious concerns for animal welfare.[18]

In addition to threatening crop and livestock productivity overall, climate change poses a direct threat to essential natural functions underlying production, including soil health, pollinators, and water quantity and quality. Increases in extreme weather, fires, and warming all jeopardize soil health and accelerate losses of stored carbon and nutrients in soil. Shifts in temperature impact pollinator ranges, migrations, and the synchronization of biological events such as the timing of pollinator activities and crop emergence.[19] Increasingly frequent droughts and extreme precipitation events threaten water quality and quantity. Furthermore, increases in disease and pest risks associated with climate change contribute to declines in pollinator health and abundance.

[16] *See* Mekbib G. Haile et al., *Impact of Climate Change, Weather Extremes, and Price Risk on Global Food Supply*, 1 Econ. Disasters & Climate Change 55 (2017).
[17] *See* A. J. Challinor et al., *A Meta-analysis of Crop Yield Under Climate Change and Adaptation*, 4 Nature Climate Change 287 (2014).
[18] *See* Umberto Bernabucci, *Climate Change: Impact on Livestock and How Can We Adapt*, 9 Animal Frontiers 3 (2019).
[19] *See* Adam J. Vanbergen & The Insect Pollinators Initiative, *Threats to an Ecosystem Service: Pressures on Pollinators*, 11 Frontiers Ecology & Env't 251 (2013).

Figure 1. Impacts of Climate Change on Agriculture



Source: EPA, *Climate Change Impacts on Agriculture and Food Supply*, https://19january2017snapshot.epa.gov/climate-impacts/climate-impacts-agriculture-and-food-supply_.html (last visited Jan. 23, 2021); GLOBAL CHANGE RESEARCH PROGRAM, IMPACTS, RISKS, AND ADAPTATION IN THE UNITED STATES: FOURTH NATIONAL CLIMATE ASSESSMENT, VOLUME II 391-437 50-174 (2018); JOSUÉ MEDELLÍN-AZUARA ET AL., CENTER FOR WATERSHED SCIENCES, ECONOMIC ANALYSIS OF THE 2016 CALIFORNIA DROUGHT ON AGRICULTURE (2016); Curtis A. Deutsch et al., *Increase In Crop Losses to Insect Pests In a Warming Climate*, 361 NATURE 916-19 (2018); Matthew R. Smith et al., *The Impact of Rising Carbon Dioxide Levels on Crop Nutrients and Human Health*, FEED THE FUTURE (2018) (GCAN Policy Note 10); Deepak Ray, *Climate Change Is Affecting Crop Yields and Reducing Global Food Supplies*, THE CONVERSATION, July 9, 2019, http://theconversation.com/climate-change-is-affecting-crop-yields-and-reducing-global-food-supplies-118897; Tom Polansek, *U.S. Disaster Aid Won't Cover Crops Drowned by Midwest Floods*, REUTERS, Apr. 2, 2019, https://www.reuters.com/article/us-usa-weather-iowa/u-s-disaster-aid-wont-cover-crops-drowned-by-midwest-floods-idUSKCN1RE0BU; John Schwartz, *A Wet Year Causes Farm Woes Far Beyond the Floodplains*, N.Y. TIMES, Nov. 21, 2019, https://www.nytimes.com/2019/11/21/climate/farms-climate-change-crops.html?smid=nytcore-ios-share.

Climate change also poses a grave threat to the health and safety of farmworkers, who are often on the frontlines of experiencing the impacts of climate change on agriculture. The Centers for Disease Control and Prevention estimates that the number and rate of deaths among crop workers due to heat stress dramatically increased from 1992 to 2006, with hundreds of farmworkers dying from heat-related causes over the study period.[20] Many more farmworkers experience health impacts from heat stress, including heat exhaustion, stroke, and other

[20] *See* Ctrs. for Disease Control & Prevention (CDC), *Heat-related Deaths among Crop Workers—United States, 1992—2006*, 57 Morbidity & Mortality Wkly. Rep. 649 (2008).

illnesses.[21] With projections of increased summer temperatures and heat waves, farmworkers are likely to experience more frequent heat stress with climate change.

For these reasons, in the agriculture sector, financial risk to investors flows directly from climate risk. Indeed, by imperiling crop production and farmworker health, and increasing animal mortality, climate change threatens the profitability of industries that rely on these inputs. Accordingly, sound investment decisions in the agriculture sector will depend on understanding firms' plans to remain viable in the face of multifaceted climate risks.

III. Agriculture's Climate Change Impact is Substantial and Misunderstood.

Not only does climate significantly affect agriculture, but agriculture significantly affects climate as well. Agriculture's climate footprint is vast. The United States Environmental Protection Agency ("EPA") estimates that U.S. agricultural activities—including crop and livestock production—totaled about 594.7 million metric tons of carbon dioxide equivalent in 2020 accounting for approximately 10% of all U.S. GHG emissions.[22] These emissions consist largely of nitrous oxide from soil and methane from livestock and manure.[23] Agriculture is responsible for approximately 80% of U.S. nitrous oxide emissions and nearly 40% of U.S. methane emissions[24]—more U.S. methane emissions than the entire oil and gas sector's production emissions or any other sector.[25]

A. Industrial Animal Agriculture's Climate Impact.

According to EPA, industrial animal agriculture is the country's largest source of anthropogenic methane emissions.[26] These emissions are primarily caused by enteric fermentation, a process by which ruminants (largely cows and sheep) release methane into the atmosphere through belches and exhalation. They also result from manure management. Animal feeding operations (where tens of thousands of livestock or millions of birds are kept in confined facilities with feed brought in) generate gargantuan amounts of livestock waste; for example, pork production facilities in Iowa alone generate "a volume of waste equivalent to nearly 84 million people, more than the population of California, Texas, and Illinois

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[21] *See* Pamela Rao, *Heat Related Illnesses: An Occupational Health Concern for Farmworkers*, Farmworker Just. & Migrant Clinicians Network (2007), https://www.migrantclinician.org/files/resourcebox/heat_monograph.pdf.

[22] *See* EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2020*, at 5-1 (2022), https://www.epa.gov/system/files/documents/2022-04/us-ghg-inventory-2022-main-text.pdf; *see also* EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2019* (2021), https://www.epa.gov/sites/production/files/2021-04/documents/us-ghg-inventory-2021-main-text.pdf.

[23] Additional sources of agriculture-related emissions come from on-farm energy and electricity use, the manufacturing of farm inputs like fertilizer and pesticides, and the annual flux of land that is converted to farm land from grassland, forests, and wetlands.

[24] *See Overview of Greenhouse Gases*, EPA, https://www.epa.gov/ghgemissions/overview-greenhouse-gases.

[25] *Id.*

[26] *See* EPA, *supra* note 22.

combined."[27] To manage this tremendous amount of waste, industrial livestock facilities generally store often large quantities of liquified manure in vast ponds known as "lagoons," where the anaerobic conditions accelerate methane emissions. This liquified manure is then applied as fertilizer to nearby fields, often in quantities far greater than is necessary to adequately fertilize crops and beyond what the crops can take in, thus leading to a host of environmental concerns, including nitrous oxide emissions.

EPA has concluded that these two processes—enteric fermentation and manure management—account for 36% of all U.S. methane emissions.[28] However, direct measurements of emissions from animal agriculture facilities indicate that actual emissions are up to nearly double EPA's model estimates.[29] Even assuming that EPA's figures are correct, these emissions are especially concerning due to methane's outsize global warming potential. Indeed, methane traps heat at approximately 84-86 times the rate of carbon dioxide during the first 20 years after it is emitted.[30] Accordingly, reducing methane emissions—which currently drive 25% of today's warming—will be key to slowing the rate of climate change.[31] For this reason, many researchers have concluded that reducing the climate impact from meat production will be essential to meeting global climate targets.[32] Major change is necessary, because "business-as-usual agricultural growth is likely incompatible with limiting warming below 1.5◦ C."[33]

Industrial animal agriculture also produces enormous amounts of nitrous oxide, a greenhouse gas which has a warming potential that eclipses that of carbon dioxide by nearly 300 times.[34] Nitrous oxide emissions occur not from physical land-use change, but rather from use of nitrogen fertilizer on newly converted cropland.[35] Native grasslands naturally recycle soil nutrients without requiring additional nitrogen inputs. By contrast, large-scale monoculture row crops, of which over half are used for animal feeds or biofuels and not direct human consumption, require fertilizer to replenish soil nutrients that are removed during harvest, and to

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[27] Charlie Mitchell & Austin Frerick, *The Hog Barons*, Vox (Apr. 19, 2021), https://www.vox.com/the-highlight/22344953/iowa-select-jeff-hansen-pork-farming.
[28] *See* EPA, *supra* note 22.
[29] *See* Matthew N. Hayek & Scot M. Miller, *Underestimates of Methane from Intensively Raised Animals Could Undermine Goals of Sustainable Development*, 16 Env't Rsch. Letters 063006 (2021) (comparing atmospheric measurements taken above and downwind from animal production regions to standard EPA models and finding that the measurements showed animal methane emissions were 39%–90% higher than model estimates)
[30] *See* Alexander J. Severinsky & Allen L. Sessoms, *Methane versus Carbon Dioxide: Mitigation Prospects*, 15 Int'l J. Env't & Ecological Eng'g 214, 215 (2021).
[31] *See* Env't Def. Fund, *Methane: A Crucial Opportunity in the Climate Fight*, https://www.edf.org/climate/methane-crucial-opportunity-climate-fight (last visited Oct. 1, 2021).
[32] *See* Marco Springmann et al., *Options for Keeping the Food System Within Environmental Limits*, 562 Nature 519, 521 (2018).
[33] Matthew N. Hayek & Scot M. Miller, *supra* note 29 at 1.
[34] *See* Susan Solomon et al., *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (2007).
[35] *See* Paul J. Crutzen et al., *N2O Release from Agro-biofuel Production Negates Global Warming Reduction by Replacing Fossil Fuels*, 8 Atmospheric Chemistry & Physics Discussions 389 (2007).

maintain productive yields. However, the crop only takes up about 40-50% of the nitrogen fertilizer applied to soil.[36] The remaining 50-60% of nitrogen fertilizer remains in the soil, where it either runs off with surface water or leaches into ground water, or is converted by soil bacteria into nitrous oxide, which is then emitted into the atmosphere.[37] Nitrous oxide gas may also be emitted indirectly when excess nitrogen from fertilizer is lost to the environment via run-off or leaching, and is later converted to nitrous oxide.[38]

Manure from livestock facilities also emits substantial quantities of nitrous oxide, both when it is stored and handled in industrial facilities and when it is spread on fields as fertilizer beyond agronomic rates (the amount of fertilizer the plants need and will take up), which is often the case.[39] In total, agriculture is the country's largest source of nitrous oxide emissions, contributing at least 75% of all U.S. nitrous oxide emissions.[40]

In addition to these harmful emissions, animal agriculture monopolizes tremendous quantities of land that would otherwise sequester and store carbon. Grazing and crop production for animal feed accounts for approximately 41% of land use in the contiguous United States—over *one billion* acres.[41] And this land use continues to rise: according to the poultry industry,

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[36] See United Nations Environment Programme ("UNEP"), *Drawing Down N2O to Protect Climate and the Ozone Layer: A UNEP Synthesis Report* (2013), https://wedocs.unep.org/bitstream/handle/20.500.11822/8489/-Drawing%20down%20N2O%20to%20protect%20climate%20and%20the%20ozone%20layer_%20a%20UNEP%20synthesis%20report- 2013UNEPN2Oreport.pdf?amp%3BisAllowed=&sequence=3; *see also* Kenneth G. Cassman et al., Agroecosystems, Nitrogen use, Efficiency, and, Nitrogen Management, 31 AMBIO: J. Human Env't 132, 133 (2002), http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1356&context=agronomyfacpub; Vaclav Smil, *Nitrogen in Crop Production: An Account of Global lows*, 13 Global Biogeochemical Cycles 647, 653 (1999), http://vaclavsmil.com/uploads/smil- article- global- biogeochemical- cycles.1999.pdf; James N. Galloway & Ellis B. Cowling, *Reactive Nitrogen and the World: 200 Years of Change*, 31 AMBIO: J. Human Env't 64, 65–66 (2002).

[37] If the soil contains ample oxygen content, nitrous oxide is generated as a byproduct when soil bacteria transform inorganic ammonium to nitrate (*nitrification*). If oxygen levels in the soil are too low, soil bacteria convert nitrate to dinitrogen (N_2), releasing nitrous oxide gas in the process (*denitrification*).

[38] Nitrogen from fertilizer not only impacts climate, but it also harms the environment. For example, run-off fertilizer in the form nitrate (NO3-) pollutes water supplies and leads to eutrophication, the process by which excessive nutrients in a body of water cause dense growth of plant life and death of animal life due to a lack of oxygen.

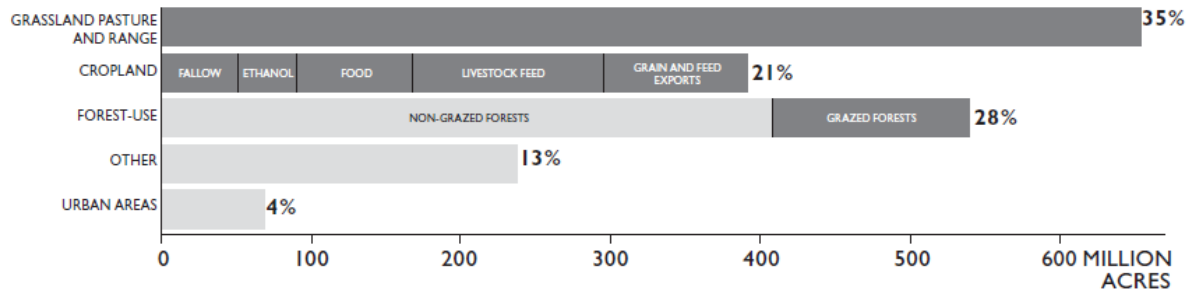
[39] *See* EPA, *supra* note 22; *see also* Ben Lilliston, *Latest Agriculture Emissions Data Show Rise of Factory Farms*, Inst. Agric. & Trade Pol'y (Mar. 26, 2019), https://www.iatp.org/blog/201904/latest-agriculture-emissions-data-show-rise-factory-farms.

[40] EPA, *supra* note 22.

[41] *See* Peter H. Lehner & Nathan A. Rosenberg, *Farming for our Future: The Science, Law, and Policy of Climate-Neutral Agriculture*, at 38 (2021); *see also* Daniel P. Bigelow & Allison Borchers, U.S. Dep't of Agric., *Major Uses of Land in the United States, 2012*, at 4, tbl.1 (2017), https://www.ers.usda.gov/webdocs/publications/84880/eib-178.pdf?v#:~:text=Major%20land%20uses%20in%202012,14%20percent)%2C%20miscellaneous%20uses%20.

land use for poultry production in the United States rose 5.4% over the last decade.[42] This conversion results in substantial carbon emissions: The conversion of nonagricultural land to croplands in 2019 released 54 million metric tons of carbon dioxide equivalent, making it the second largest anthropogenic land use change emissions flux in EPA's greenhouse gas inventory.[43] This is equivalent to annual emissions from 12 million cars on the road.[44]

Figure 2. Major Land Uses in the Contiguous United States



Sources: ECONOMIC RESEARCH SERVICE, USDA, MAJOR USES OF LAND IN THE UNITED STATES 4 tbl. 1 (2017) (EIB-178). Dave Merrill et al., *Here's How America Uses Its Land*, BLOOMBERG, July 31, 2018, at https://www.bloomberg.com/graphics/2018-us-land-use/. Percentages may not sum to 100 due to independent rounding. Darker shading indicates agricultural uses.

Moreover, agriculture's increasing land use comes at a growing lost opportunity to use the land currently used for animal agriculture (including feed) for ecological restoration or in other ways that sequester and store carbon instead.[45] Soil stores large quantities of carbon, which it retains as long as the carbon is not exposed to oxygen. Globally, soil and plant biomass can store 3.3 times more carbon than the atmosphere.[46] When grassland and pastures are cleared and tilled, oxygen in the air combines with the carbon in the soil (a process called "oxidation"), and carbon dioxide is released.[47] According to researchers, "the cumulative potential of carbon

[42] *See* Nat'l Chicken Council, *2020 U.S. Broiler Chicken Industry Sustainability Report*, at 20 (2021), https://www.nationalchickencouncil.org/wp-content/uploads/2021/09/NCC_2020_Broiler-Chicken-Industry-Sustainability-Report.pdf.
[43] EPA, *supra* note 22 at 6-3.
[44] *See Greenhouse Gas Equivalencies Calculator*, EPA (2018), https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator (last visited Sept. 26, 2018).
[45] *See* Matthew Hayek et al., *The Carbon Opportunity Cost of Animal-Sourced Food Production on Land*, 4 Nature Sustainability 21 (2021).
[46] *See* R. Lal, *Soil Carbon Sequestration Impacts on Global Climate Change and Food Security*, 304 Sci. 1623 (2004), http://sites.unice.fr/coquillard/UE36/Science%20-%20R%20Lal%202004.pdf.
[47] *See* A. Edward Johnston et al., *Chapter 1 Soil Organic Matter: Its Importance in Sustainable Agriculture and Carbon Dioxide Fluxes*, 101 Advances in Agronomy 1 (2009); *see also* Tristram O. West et al., *Carbon Management Response Curves: Estimates of Temporal Soil Carbon Dynamics*, 33 Env't Mgmt. 507–518 (2004).

dioxide removal on land currently occupied by animal agriculture is comparable in order of magnitude to the past decade of global fossil fuel emissions."[48]

Animal agriculture's tremendous land use is also a global driver of deforestation.[49] In fact, according to the Food and Agriculture Organization of the United Nations, "[i]n South America, almost three quarters of deforestation is due to livestock grazing."[50] Moreover, American firms are largely driving this crisis, as a recent expose in the Washington Post uncovered.[51]

Given the tremendous impact animal agriculture has on climate change, numerous scientific studies confirm that shifts in agricultural practices are critical for achieving international climate targets.[52] Recognizing this consensus, the United Nation's Intergovernmental Panel on Climate Change recently reiterated that meeting climate targets will "require[] change at all stages [of the food system] from producer to consumer," and emphasized that climate change mitigation depends on "a shift to diets with a higher share of plant protein"

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[48] *See* Hayek et al., *supra* note 45 (annualized, U.S. carbon opportunity cost of approximately 264 MMT shared through personal communication with author and supplementary materials); *see also* Lehner & Rosenberg, *supra* note 41.

[49] *See, e.g.*, *What's Driving Deforestation?*, Union of Concerned Scientists (Feb. 8, 2016), https://www.ucsusa.org/resources/whats-driving-deforestation (noting that beef production is one of the four major contributors to global deforestation).

[50] Food & Agric. Organization of the U.N., *COP26: Agricultural Expansion Drives almost 90 Percent of Global Deforestation* (June 11, 2021), https://www.fao.org/newsroom/detail/cop26-agricultural-expansion-drives-almost-90-percent-of-global-deforestation/en.

[51] *See* Terrence McCoy & Júlia Ledur, *Devouring the Rainforest*, Wash. Post (Apr. 29, 2022), https://www.washingtonpost.com/world/interactive/2022/amazon-beef-deforestation-brazil/ ("Between January 2018 and October 2020, records show, JBS factories [] made at least 1,673 cattle purchases from 114 ranchers who at the time owned at least one property cited for illegal deforestation. Several ranchers from whom JBS bought cattle were notorious — alleged by authorities to be among the Amazon's most destructive actors. The supply chain, the examination found, was infected with dozens of ranches where land had been deforested illegally. Satellite imagery showed that several of the operations had cattle on land where grazing was prohibited at the time — in what environmental regulators called a violation of Brazilian law.").

[52] *See* Francesco Tubiello et al., *Greenhouse Gas Emissions from Food Systems: Building the Evidence Base*, 16 Env't Rsch. Letters 065007 (2021) (food system emissions contribute a third of total global greenhouse gases and three quarters of these emissions were generated either within the farm gate or in pre- and post-production activities); *see also* Monica Crippa et al., *Food Systems Are Responsible for a Third of Global Anthropogenic GHG Emissions*, 2 Nature Food 198 (2021) (food system emissions amounted to 34% of total greenhouse gas emissions and agriculture and land use changes contributing 71% of that or 24% of total emissions); Cynthia Rosenzweig et al., *Climate Change Responses Benefit From a Global Food System Approach*, 1 Nature Food 94 (2020) (finding food system greenhouse gas emissions to contribute 21-37 percent of total emissions); J. Poore & T. Nemecek et al., *Reducing Food's Environmental Impacts through Producers and Consumers*, 360 Sci. 987 (2018) (based on over 1,500 studies, finding that "today's food supply chain creates—13.7 billion metric tons of carbon dioxide equivalents (CO2eq), 26% of anthropogenic GHG emissions").

and away from "animal-source foods," especially "ruminant meat" (given its "high[] GHG intensity").[53]

B. Ethanol Production's Climate Impact.

Within the agricultural sector, the biofuels industry is another significant contributor of GHG emissions, and another industry vulnerable to the impacts of climate change. Indeed, it has a tremendous carbon footprint associated with the cultivation of the crops used to produce the fuel, for example, corn for ethanol.

Ethanol accounts for the largest type of biofuel in the United States: in 2012, it accounted for 94 percent of all biofuel production. Ethanol production relies almost entirely on its upstream input, which it requires in tremendous quantities. Corn serves as the source for over 95 percent of all ethanol produced in the U.S. According to data from the U.S. Department of Agriculture, approximately 33 million acres of cropland in the U.S. are used to grow corn that is later converted to ethanol.[54] Much of this land was previously uncultivated and converted to cropland for the sole purpose of growing corn for ethanol. Thus, land use and corn cultivation are indispensable upstream sources for the ethanol industry.

According to recent research out of the University of Wisconsin-Madison, between 2008-2016, the Renewable Fuel Standard (RFS) increased demand for ethanol production which in turn led to a significant increase in land conversion and fertilizer use for cultivating corn.[55] Specifically, the demand for ethanol driven by the RFS led to the conversion of 26% more acres to cropland between 2008-2016 than would have occurred in the absence of the program.[56] In addition, during this same time period, cropland abandonment (the amount of cropland returned to grass or natural cover) was 6% less than what would be expected without the RFS.[57] Collectively, this produced "a net increase in cropland area of 2.1 Mha" compared to what would have occurred without the increased demand for ethanol production;[58] The increase in corn production driven by ethanol demand leads to increased fertilizer use to grow the corn, which in turn has increased nitrous oxide emissions by 8.3% compared to what would have occurred absent the RFS.[59] And the continued use of this land to grow corn for ethanol has prevented this land from recovering so that it could sequester and store carbon, further exacerbating the GHG impact of renewable fuel.[60]

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[53] *See* IPCC, *WG III contribution to the Sixth Assessment Report*, at TS-88 (2021), https://report.ipcc.ch/ar6wg3/pdf/IPCC_AR6_WGIII_FinalDraft_TechnicalSummary.pdf.
[54] *See* Ronald D. Sands et al., U.S. Dep't Agric., *Dedicated Energy Crops and Competition for Agricultural Land* (2017), https://www.ers.usda.gov/webdocs/publications/81903/err-223.pdf?v=4855.8.
[55] *See* Tyler Lark et al., *Environmental Outcomes of the US Renewable Fuel Standard*, 119 PNAS e2101084119 (2022).
[56] *Id*. at 2.
[57] *Id*.
[58] *Id*.
[59] *Id*. at 3.
[60] *Id*.

When these land use impacts are taken into account, "the carbon intensity of corn ethanol produced under the RFS is no less than gasoline and likely at least 24% higher."[61] Indeed, while according to the most optimistic models, ethanol produced from an acre of corn may reduce annual greenhouse gas emissions by 0.73 metric tons, emissions from grassland conversion release anywhere from 30 to 120 metric tons per acre upfront.[62,63] And of course there are also the downstream emissions associated with burning the ethanol, in particular, the carbon dioxide released when the fuel is combusted.

Given the tremendous GHG emissions associated with the production and combustion of biofuels—in particular, ethanol—biofuels are not the carbon-smart solution they are often held out to be. Yet few investors realize the true carbon footprint of the ethanol industry or its vulnerability to climate change, likely because the overwhelming majority of its emissions come from its upstream supply chain. Information about the industry's GHG emissions is material to those investors wanting to invest in sustainable industries. And it is material because it allows investors to protect themselves from climate-related financial risks associated with investing in an industry whose primary input is highly vulnerable to the impacts of climate change. The SEC's proposal to require disclosure of such emissions is thus critical to preserving investors' material interests and financial wellbeing.

C. The Wood Pellet Industry's Climate Impact.

The wood pellet industry is similarly responsible for substantial GHG emissions, significantly altering its perceived sustainability or "climate-friendliness." Thus, disclosure of its scope 3 emissions would be of great interest to investors, who are drawn to the sector in large part because of its claims of sustainability.

This industry has led to the destruction of over one million acres of forests in the United States.[64] The deforestation caused by the demand for the woody biomass used to make the pellets emits tremendous amounts of GHG from the harvesting of the trees and the significant

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[61] *Id*. at 1.

[62] *See* Timothy Searchinger et al., *Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land- Use Change*, 319 Sci. 1238 (2008).

[63] Several additional studies show consistent results. For example, a 2016 report estimated that 4.2 million acres of land have been converted to agriculture for biofuel production since the adoption of the RFS. *See* Christopher K. Wright, *Recent Grassland Losses Are Concentrated Around U.S. Ethanol Refineries*, 12 Env't Rsch. Letters 1 (2017). In a 2018 report, EPA found that there has been "an increase in actively managed cropland by roughly 4–7.8 million acres" since 2007, some amount of which is attributable to biofuel production. *See* EPA, Biofuels and the Environment: Second Triennial Report to Congress at 37 (EPA-HQ-OAR-2018-0167-1334) (June 2018).

[64] Though some wood pellet companies claim that they only use "leftover" parts of trees cut down for other purposes, that is far from the truth. *See, e.g.*, Jonathan Vigliotti, *Wood Pellets may not actually be Green Renewable Energy Source, Critics say*, CBS News (Apr. 22, 2022), https://www.cbsnews.com/video/wood-pellets-may-not-actually-be-green-renewable-energy-source-critics-say/#x.

loss of carbon sequestration potential from the lost forest.[65] As a recent study notes, "harvesting additional wood just for burning is likely to increase carbon in the atmosphere for decades to centuries."[66] These upstream emissions are an essential component of the wood pellet industry.

The same is true of the significant downstream emissions from burning wood pellets. Multiple studies have found that burning wood pellets produces more carbon dioxide emissions than burning coal per unit of energy.[67] A recent study "estimated that wood pellets produced in the U.S. and burned in the U.K. led to 13-16 million tonnes of carbon dioxide emissions in 2019 alone—equal to the emissions of up to 7 million cars. "Wood that reaches a power plant can displace fossil emissions but per KwH of electricity typically emits 1.5x the carbon dioxide of coal and 3x the carbon dioxide of natural gas because of wood's carbon bonds, water content . . . and lower burning temperature (and pelletizing wood provides no net advantages)."[68] These emissions are essential components of the wood pellet industry's carbon footprint,[69] and thus are material to investors' decisions to invest in this industry.

* * *

When considering agriculture's true contribution to climate change—inclusive of climate impacts of land used to grow food and biofuel crops—EPA's GHG emissions calculation significantly underestimates this sector's overall impact. When adjusting to take all factors into consideration including the lost opportunity to sequester carbon in the soil, the agriculture system is responsible for approximately one-third of all U.S. GHG emissions.[70] Given the industry's significant—and often misunderstood and underestimated—climate impact, disclosure of agriculture firms' GHG emissions is indisputably necessary for investors to assess transition risks and to make sound investment decisions. As discussed in greater detail below, this is especially true with respect to agriculture firms' Scope 3 emissions, which often constitute the vast majority of industrial agriculture firms' GHG footprint.

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[65] *See* Justin Catanoso, *Forest Biomass-burning Supply Chain is Producing Major Carbon Emissions: Studies* (Oct. 15, 2021), https://news.mongabay.com/2021/10/forest-biomass-burning-supply-chain-is-producing-major-carbon-emissions-studies/.

[66] Timothy D. Searchinger et al., *Europe's Renewable Energy Directive Poised to Harm Global Forests*, 9 Nature Commc'ns, at 1 (2018).

[67] *See* Catanoso, *supra* note 65.

[68] Searchinger et al., *supra* note 66 at 2.

[69] *See* Jonathan Vigliotti, *Wood Pellets may not actually be Green Renewable Energy Source, Critics say*, CBS News (Apr. 22, 2022), https://www.cbsnews.com/video/wood-pellets-may-not-actually-be-green-renewable-energy-source-critics-say/#x.

[70] *See also* Monica Crippa et al., *Food Systems Are Responsible for a Third of Global Anthropogenic GHG Emissions*, 2 Nature Food 198 (2021); *see also* Sonja J. Vermeulen et al., *Climate Change and Food Systems. Annual Review of Environment and Resources*, 37 Ann. Rev. Env't & Res. 195 (2012); Lehner & Rosenberg, *supra* note 41.

Indeed, notwithstanding the numerous climate impacts of the agriculture industry, the public and investors remain largely in the dark with respect to vital information about its carbon footprint.

According to a recent study, *none* of the 50 highest GHG-emitting North American food companies have published a climate transition plan that could inform investors as to the climate-change-related risks they face.[71] In the absence of voluntary disclosures, investors might ordinarily turn to publicly available documents to inform their decision-making; indeed, it has become common practice for investors to analyze such documents when contemplating the "risks that impact investments and corporate operating environments."[72] But given that investors are currently unable to access this information or analyze it in a reasonably usable format, the disclosures that SEC's Proposed Rule contemplates will serve an important function in providing much-needed data about agricultural-related industries. Thus, SEC's Proposed Rule, including its emphasis on Scope 3 disclosures, will help cure a critical information gap for investors as they seek to navigate rapid changes in climate policy and consumer preferences that are increasingly driven by concerns about the climate crisis.

IV. The Scope 3 Emissions of Agriculture Industries are Material to Investors.

SEC's Proposed Rule contemplates requiring firms to disclose Scope 3 emissions so long as those emissions are material to investors. With respect to industrial agriculture firms, there can be no doubt that Scope 3 emissions constitute material facts.

Under the GHG Protocol, Scope 3 emissions include all "cradle-to-gate emissions"—that is, "all emissions that occur in the life cycle of purchased products, up to the point of receipt by the reporting company."[73] In particular, the GHG Protocol provides that Scope 3 emissions include emissions from upstream "agricultural activities," "manufacturing, production, and processing" activities, "generation of electricity consumed by upstream activities," and "land use and land-use change," among other things.[74] In addition, the GHG Protocol includes "[e]missions from downstream transportation and distribution," as well as "emissions from the use of goods and services sold by the reporting company in the reporting year" in Scope 3 calculations.[75] As to certain high-polluting industries—including industries like animal agriculture and biofuels, where Scope 3 emissions "make up the majority of [firms'] full GHG emissions profile"[76]—Scope 3 emissions are undoubtedly material to investors. Indeed, where Scope 3 emissions constitute the overwhelming majority of a firm's total GHG emissions,

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[71] *See* Ceres Report at 6.
[72] Margaret B. Kwoka, *FOIA, Inc.*, 65 Duke L.J. 1361, 1407–08 (2016), https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=3846&context=dlj.
[73] Greenhouse Gas Protocol et al., *Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard*, at 38 (2011), https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf.
[74] *Id.*
[75] *Id.* at 47–48.
[76] Ceres Report at 14.

"disclosures that only cover scope 1 and 2 emissions are incomplete and may lead to an underestimation of the company's emissions profile."[77]

In the seminal case defining the contours of materiality, the Supreme Court held that a fact "is material if there is a substantial likelihood that a reasonable shareholder would consider it important in deciding how to vote."[78] This test contemplates "a showing of a substantial likelihood that, under all the circumstances, the omitted fact would have assumed actual significance in the deliberations of the reasonable shareholder. Put another way, there must be a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the 'total mix' of information made available."[79]

Courts have long held that there are degrees of materiality and that differing levels of materiality require commensurate levels of disclosure to investors. As the court explained in the influential *Kohn v. American Metal Climax* case, "[t]he Securities Exchange Act requires more than disclosure, it requires adequate disclosure. The more material the facts, the more they should be brought to the attention of the public. To view it otherwise would be to invite frustration of the policies underlying our disclosure laws."[80] Courts have also made clear that the "reasonable investor" referenced in the materiality standard need not be a scientific expert, but a person of "ordinary intelligence,"[81] who "takes into account the customs and practices of the relevant industry."[82]

Case law and SEC regulations strongly indicate that GHG emissions—and Scope 3 emissions in particular—will, in many instances, be material to investors. In *Meyer v. Jinkosolar Holdings Co.*, for example, the Second Circuit held that information about emissions was material because "a trier of fact could find that the existence of ongoing and substantial pollution problems . . . was of substantial importance to investors," given that such activity could "constitute a substantial threat to earnings."[83] And it is a firmly embedded theme throughout SEC disclosure regulations that "information" is "material" if it is "necessary to make [] required statements, in the light of the circumstances under which they are made, not misleading."[84] Thus, where Scope 3 emissions are a substantial portion of the firm's overall GHG footprint, these emissions will be of substantial importance to investors and, if omitted, will render the

[77] *Id.*
[78] *TSC Indus., Inc. v. Northway, Inc.*, 426 U.S. 438, 449 (1976).
[79] *Id.*
[80] *Kohn v. American Metal Climax*, 322 F. Supp. 1331, 1362 (E.D. Pa. 1971), *modified*, 458 F.2d 255 (3d Cir. 1972), *cert. denied*, 409 U.S. 874 (1972); *see also Kennedy v. Tallant*, 710 F.2d 711 (11th Cir. 1983); *Kas v. Financial General Bankshares*, Inc., 796 F.2d 508 (D.C. Cir. 1986); *Werner v. Werner*, 267 F.3d 288 (3d Cir. 2001).
[81] *Alaska Elec. Pension Fund v. Pharmacia Corp.*, 554 F.3d 342, 347 (3d Cir. 2009)
[82] *Omnicare, Inc. v. Laborers Dist. Council Const. Indus. Pension Fund*, 575 U.S. 175, 190 (2015).
[83] Meyer v. Jinkosolar Holdings Co., 761 F.3d 245, 252 (2d Cir. 2014).
[84] 17 C.F.R. § 230.408(a).

"total mix of information made available" to investors misleading.[85] And where these emissions also constitute potential grave risks to investors—given increasingly stringent climate policy, the potential risk of liability a company might face for emissions-related harms, and changing consumer preferences—case law suggests that they must "be brought to the attention of the public."[86]

This is especially true with respect to industrial animal agriculture firms' Scope 3 emissions. The "customs and practices of the [animal agriculture industry]"[87]—which are responsible for 80% of all U.S. agricultural GHG emissions[88]—entail significant Scope 3 emissions. Reports have shown that when the world's top five largest meat and dairy companies' Scope 3 emissions are accounted for (including, critically, the emissions from the animals themselves), these firms combine to emit more GHG than some of the most notoriously polluting oil and gas companies like Exxon-Mobil, Shell, and BP.[89] And recent reports suggest that Scope 3 emissions may account for as much as 97% of some industrial livestock firms' total GHG emissions.[90] Accordingly, omitting the disclosures of these firms' scope 3 emissions from reports on their total climate footprint will be grossly misleading.[91]

An example of one animal agriculture company's treatment of its GHG emissions is illustrative. JBS—one of the largest industrial livestock companies in the world—claims that it will achieve "net zero" GHG emissions by "reducing [the firm's] direct *and indirect* (scope 1, 2, *and 3*)" emissions and "provid[ing] [consumers and investors with] a roadmap consistent with the criteria set forth by the Science Based Targets Initiative (SBTi),"[92] which explicitly requires companies committing to "net zero" goals to make cuts across the "company's entire value chain emissions."[93] However, upon close review, JBS's net-zero target depends entirely on its omission of its scope 3 emissions. Indeed, buried in a webpage detailing how the company is actually measuring emissions, JBS admits that it "exclude[es] enteric and manure emissions from

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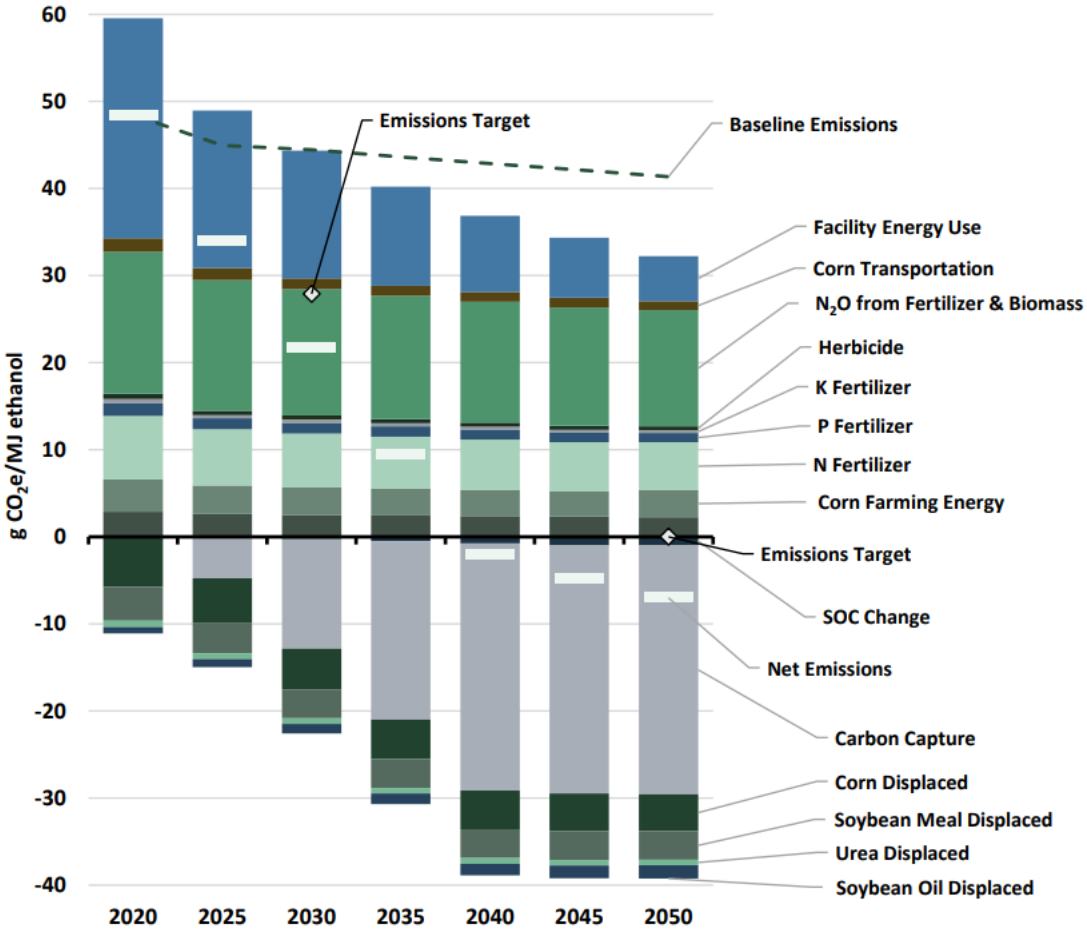
[85] *See Northway*, 426 U.S. at 449.
[86] Kohn, 322 F. Supp. at 1362.
[87] *Omnicare*, 575 U.S. at 190.
[88] *See* Lehner & Rosenberg, *supra* note 41 at 43.
[89] *See* Shefali Sharma & Ben Lilliston, *From Net Zero to Greenwash—Global Meat and Dairy Companies*, Inst. for Agric. & Trade Pol'y (Oct. 4, 2021), https://www.iatp.org/net-zero-greenwash-global-meat-and-dairy-companies.
[90] *See* Inst. for Agric. & Trade Pol'y et al., *World's Largest Meat Company, JBS, Increases Emissions by 51% in Five Years Despite Net Zero Climate Target, Continues to Greenwash its Huge Climate Footprint*, https://www.iatp.org/sites/default/files/2022-04/JBS%20media%20briefing%2021april22.pdf.
[91] *See* 17 C.F.R. § 230.408(a) (providing that "information" is "material" if it is "necessary to make [] required statements, in the light of the circumstances under which they are made, not misleading").
[92] *See JBS is Committing to be Net Zero by 2040*, JBS, https://jbs.com.br/netzero/en/#:~:text=JBS%20will%20achieve%20Net%20Zero,Based%20Targets%20initiative%20(SBTi) (last visited Jan. 11, 2022)
[93] *See The Net-Zero Standard*, Sci. Based Targets, https://sciencebasedtargets.org/net-zero (last visited Mar. 9, 2022).

[its] live animal operations."[94] JBS's failure to include these critical emissions in its net-zero target renders the target meaningless, demonstrating just how material these scope 3 emissions are to any accurate climate-related disclosures. SEC regulation is thus vital to protect investors who might otherwise be misled by the incomplete or inaccurate voluntary climate disclosures made by industrial animal agriculture firms.

This same is true with respect to biofuels. In fact, the ethanol industry itself considers upstream inputs as part of its carbon footprint. For example, in a recent study commissioned by the Renewable Fuels Association to plot a course to net zero emissions, ethanol industry emissions included GHGs associated with fertilizer use, herbicide application, on-farm energy, and release of soil organic carbon from corn production. *See* Figure 3.[95] (Notably, however, they do not include emissions from land use change or lost carbon sequestration.[96]) These Scope 3 emissions far exceed the Scope 1 and 2 emissions from the industry and are unquestionably material to the businesses and essential to understanding the true climate-related financial risk from ethanol production.

[94] *See Sustainability: Energy and Emissions*, JBS USA, https://sustainability.jbsfoodsgroup.com/chapters/environment/energy-emissions/ (last visited Mar. 30, 2022).
[95] *See* Isaac Emery et al., Informed Sustainability Consulting, *Report: Pathways to Net Zero Ethanol: Scenarios for Ethanol Producers to Achieve Carbon Neutrality by 2050* (Feb. 14, 2022), https://ethanolrfa.org/file/2146/Pathways%20to%20Net%20Zero%20Ethanol%20Feb%202022.pdf.
[96] *Id*. at 7–8.



Given the significant carbon footprint of the upstream inputs essential for ethanol production—namely land conversion and fertilizer use associated with corn cultivation—properly accounting for and disclosing these Scope 3 emissions is critical to providing investors with an accurate assessment of the climate-related financial risks that are central to the purpose of the Proposed Rule. Any consideration of the climate change impact of the ethanol industry that excludes these critical upstream inputs is essentially meaningless.

V. Calculating Scope 3 Emissions from Agricultural Industries Is Readily Achievable and Would Not Burden Farmers and Ranchers.

Requiring disclosure of GHG emissions, including scope 3 emissions, is not only necessary, but also readily achievable. Indeed, firms will have access to multiple internationally accepted methodologies for estimating scope 3 emissions, none of which requires onerous data collection from every part of firms' supply chains.

For example, the United Nations has an approved model for calculating agricultural emissions. Known as the Global Livestock Environmental Assessment Model (GLEAM), this model "uses a classification of farming systems based on the feed use and agro-ecological

conditions."[97] It "identifies three main groups of emissions along production chains. Upstream emissions include those related with feed production, processing and transportation. Animal production emissions comprises emissions from enteric fermentation, manure management and on-farm energy use. Downstream emissions are caused by the processing and post-farm transport of livestock commodities."[98] The model measures carbon dioxide, methane, and nitrous oxide.[99]

In addition, the World Resources Institute (WRI) has developed a peer-reviewed methodology for measuring the GHG emissions of food type over the lifecycle of foods.[100] The only input needed to utilize the WRI methodology is the volume of the following types of food purchased: meat, poultry, fish/seafood, eggs, liquid dairy, solid dairy, legumes/pulses, nuts and seeds, grains, and plant-based milk substitutes.[101] These inputs are then plugged into a calculator and multiplied by the life cycle analysis (LCA) factors from peer-reviewed studies on the life cycle emissions of food based on North American data for each type of food.[102] This then calculates direct emissions from: enteric methane emitted from the stomachs of ruminant animals; methane and nitrous oxide from manure management in confined animal facilities; nitrous oxide from animal waste left on pasture; nitrous oxide from crop and pasture fertilization; methane from rice production; carbon dioxide from energy use in on-farm activities and in the production and transport of agricultural inputs such as fertilizer; transport of food and animal feed; food processing; food packaging; and losses during harvest, transport, processing and packaging. While this model has been designed primarily for food purchasers, it can be adapted for firms to calculate the GHG emissions of their supply chains.

Moreover, despite unsupported claims from the agribusiness lobby,[103] compliance with the Proposed Rule's scope 3 emissions disclosure requirements would not burden farmers and ranchers in the slightest.[104] Given that the Proposed Rule applies *only* to publicly traded companies, it will not impose *any* regulatory obligations on farmers and ranchers. Rather, it will require large, publicly traded agriculture firms that rely on crop and animal production to

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[97] Food & Agric. Org. of the U.N., *Global Livestock Environmental Assessment Model (GLEAM)*, https://www.fao.org/gleam/model-description/en/.
[98] *Id*.
[99] *Id*.
[100] *See* Richard Waite et al., *Tracking Progress Toward the Cool Food Pledge*, World Res. Inst. (2019), https://www.wri.org/research/tracking-progress-toward-cool-food-pledge.
[101] GHG emissions from other foods (e.g. fruits, vegetables, and oils) are minor and do not need to be tracked.
[102] *See* J. Poore & T. Nemecek, Reducing Food's Environmental Impacts through Producers and Consumers, 360 Sci. 987 (2018); *see also* Timothy D. Searchinger et al., *Assessing the Efficiency of Changes in Land Use for Mitigating Climate Change*, 564 Nat. 249 (2018).
[103] *See* Farm Bureau, *Overreach of SEC Proposed Climate Rule Could Hurt Agriculture* (May 6, 2022), https://www.fb.org/market-intel/overreach-of-sec-proposed-climate-rule-could-hurt-agriculture.
[104] *See* Alexandra Thornton, *The SEC's Proposed Scope 3 Emissions Disclosure Will Not Affect Farms and Ranches*, Ctr. for Am. Progress (June 6, 2022), https://www.americanprogress.org/article/the-secs-proposed-scope-3-emissions-disclosure-will-not-affect-farms-and-ranches/.

disclose emissions associated with those production processes. As explained above, multiple methodologies exist for estimating these emissions, and the Proposed Rule would allow firms to avail themselves of those tools "as long as they disclose[] how they developed their estimates."[105] In fact, nothing in the Proposed Rule requires covered firms "to collect precise emissions data from the farms and ranches—or any other business—from which they source."[106] Accordingly, any suggestion that the Proposed Rule would "directly affect[] farmers' and ranchers' operations" *at all*—let alone create "significant financial and operational disruption and the risk of financially crippling legal liabilities"[107]—is completely inaccurate.

Thus, there are readily accessible models that can be used to measure GHG emissions. Firms therefore have tools available to comply with the disclosure requirements proposed by the SEC.

Conclusion

For all of these reasons, firms' disclosure of GHG emissions is not only feasible, but is necessary to ensure investors have the information they need to make sound investment decisions. Requiring disclosure of firms' GHG emissions—including the upstream and downstream scope 3 emissions—provides investors with critical protections from the growing climate-related financial risk stemming from the climate crisis.

Respectfully submitted,

Buffalo River Watershed Alliance
Center for Food Safety
Earthjustice
Food & Water Watch
The Humane Society of the United States
Institute for Agriculture and Trade Policy
Johns Hopkins Center for a Livable Future
Rural Advancement Foundation International-USA
Socially Responsible Agriculture Project

[105] *Id.*
[106] *Id.*
[107] Farm Bureau, *supra* note 103.