

No. 19-1644

United States Court Of Appeals
For the Fourth Circuit

Mayor and City Council of Baltimore,

Plaintiff-Appellee,

v.

BP P.L.C.; et al.,

Defendants-Appellants.

On Appeal From The United States District Court,
For The District of Maryland
Case No. 1:18-cv-02357-ELH
(Hon. Ellen L. Hollander)

**BRIEF OF AMICI CURIAE ROBERT BRULLE, CENTER FOR
CLIMATE INTEGRITY, THE CHESAPEAKE CLIMATE ACTION
NETWORK, JUSTIN FARRELL, BENJAMIN FRANTA,
STEPHAN LEWANDOWSKY, NAOMI ORESKES, GEOFFREY
SUPRAN, and the UNION OF CONCERNED SCIENTISTS
IN SUPPORT OF PLAINTIFF-APPELLEE AND AFFIRMANCE**

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CORPORATE DISCLOSURE STATEMENT

Under Federal Rule of Appellate Procedure 26.1, Amicus Center for Climate Integrity certifies that it is an initiative within the Institute for Governance and Sustainable Development, a non-profit organization. Neither the Center for Climate Integrity nor the Institute has a parent corporation, and no publicly held company has any ownership of either. Amicus Chesapeake Climate Action Network certifies that it is a non-profit organization. The Chesapeake Climate Action Network does not have a parent corporation, and no publicly held company has any ownership of the organization. Amicus Union of Concerned Scientists also certifies that it is a non-profit organization. The Union of Concerned Scientists does not have a parent corporation, and no publicly held company has any ownership of the organization. All other amici are private individuals and not corporations.

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IDENTITY AND INTEREST OF AMICI CURIAE

Individual Amici are scholars and scientists with strong interests, education, and experience in the environment and the science of climate change, with particular interest in public information and communication about climate change and how the public and public leaders learn about and understand climate change.

Dr. Naomi Oreskes is Professor of the History of Science and Affiliated Professor of Earth and Planetary Sciences at Harvard. Professor Oreskes's research focuses on the earth and environmental sciences, with a particular interest in understanding scientific consensus and dissent. Her 2010 book, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco to Global Warming*, co-authored with Erik M. Conway, was shortlisted for the Los Angeles Time Book Prize, and received the 2011 Watson-Davis Prize from the History of Science Society. She is a 2018-2019 Guggenheim Fellow. **Dr. Geoffrey Supran** is a Research Associate in the Department of the History of Science at Harvard University. Working alongside Prof. Naomi Oreskes, Dr. Supran investigates the history of climate communications and denial by fossil

fuel interests. **Dr. Robert Brulle** is a Visiting Professor of Environment and Society at Brown University in Providence, Rhode Island, and a Professor of Sociology and Environmental Science at Drexel University in Philadelphia. His research focuses on U.S. environmental politics, critical theory, and the political and cultural dynamics of climate change. **Dr. Justin Farrell** is an author and Professor in the School of Forestry and Environmental Science, the School of Management, and the Department of Sociology at Yale University. He studies environment, elites, misinformation, rural inequality, and social movements using a mixture of methods from large-scale computational text analysis, qualitative & ethnographic fieldwork, network science, and machine learning. **Dr. Benjamin Franta** is a J.D. Candidate at Stanford Law School and a Ph.D. Candidate in the Stanford University Department of History, where he studies the history of climate science and fossil fuel producers. He holds a separate Ph.D. in Applied Physics from Harvard University. **Stephan Lewandowsky** is a Professor and Chair in Cognitive Science at the University of Bristol. His research examines the potential conflict between human cognition and the physics of the global climate.

In 2016, he was appointed a fellow of the Committee for Skeptical Inquiry for his commitment to science, rational inquiry, and public education.

The Center for Climate Integrity (CCI) is an initiative within the Institute for Governance and Sustainable Development, a non-profit organization. CCI's central goal is to accelerate corporate and governmental policy changes that speed the energy transition from fossil fuels to clean energy sources and that otherwise contribute to a safe climate.

The Chesapeake Climate Action Network (CCAN) is a nonprofit organization dedicated to fighting climate change and addressing the harms caused by fossil-fuel infrastructure in Maryland, Virginia, and Washington, D.C., and to securing policies that will put the world on a path to climate stability.

The Union of Concerned Scientists (UCS) is a national non-profit organization that puts rigorous, independent science to work to solve our planet's most pressing problems. The organization combines technical analysis and effective advocacy to create innovative, practical solutions for a healthy, safe, and sustainable future.

Amici submit this brief because they understand that the conduct at the core of the Plaintiff-Appellee's Complaint is that the Defendants affirmatively and knowingly concealed and denied the hazards that they knew would result from the normal use of their fossil fuel products by misrepresenting those products and deliberately discrediting scientific information related to climate change. As such, it is critical to the ultimate outcome of this appeal that full documentation of these misrepresentations is available to the Court as it considers the arguments and claims made by Defendants-Appellants and their supporting amicus, the U.S. Chamber of Commerce.

All parties have consented to the filing of this brief. No party's counsel authored the brief in whole or in part, no party or party's counsel contributed money that was intended to fund preparing of submitting the brief, and no person other than amici or their counsel contributed money that was intended to fund preparing or submitting the brief.

I. INTRODUCTION

At least fifty years ago, Defendants-Appellants (hereinafter, “Defendants”) had information from their own internal research, as well as from the international scientific community, that the unabated extraction, production, promotion, and sale of their fossil fuel products would result in material dangers to the public. Defendants failed to disclose this information or take steps to protect the public. Instead, they acted to conceal their knowledge and discredit climate science, running misleading nationwide marketing campaigns and funding scientists and third-party organizations to exaggerate scientific uncertainty and promote contrarian theories, in direct contradiction to their own research and actions taken to protect their assets from climate change impacts.

Defendants’ coordinated, multi-front effort, demonstrated by their own documents and actions, justifies the state common-law claims Plaintiff-Appellee (hereinafter “Plaintiff”) has made. As early as the late 1950s and no later than 1968, Defendants had actual knowledge of the risks associated with their fossil fuel products. In the decades that followed, Defendants took affirmative steps to sow uncertainty, in part

by funding contrarian science that advanced alternative theories.

While they told the world there was no reason for concern, Defendants took climate risks into account in managing their infrastructure, for example, by raising the level of their oil rigs to account for rising sea levels. In doing so, Defendants created the nuisance Plaintiff alleges, and therefore should be held liable.

II. DEFENDANTS HAD ACTUAL KNOWLEDGE OF THE RISKS ASSOCIATED WITH THEIR FOSSIL FUEL PRODUCTS

A. Defendants had early knowledge that fossil fuel products were causing an increase in atmospheric CO₂ concentrations, and that this increase could result in “catastrophic” consequences.

Defendants knew decades ago of the potential risks associated with their products, independently and through their membership and involvement in trade associations such as American Petroleum Institute (API), American Fuel & Petrochemical Manufacturers, and Western States Petroleum Association.

API was aware of research on carbon dioxide as early as 1954. At that time, Harrison Brown and other scientists at the California Institute of Technology measured and assessed increased CO₂

concentrations in the atmosphere.¹ Although the results were not published, API and other researchers within the petroleum industry were aware of this research.² In 1957, Roger Revelle and Hans Suess at the Scripps Institute of Oceanography published a paper, in which they predicted large increases in atmospheric CO₂ if fossil fuel production continued unabated.³ Shortly after, H.R. Brannon of Humble Oil (now ExxonMobil) published research on the same question. His conclusions were in “excellent agreement” with Brown’s findings: fossil fuel combustion caused an increase in atmospheric CO₂.⁴

In 1959, physicist Edward Teller delivered the earliest known warning of the dangers of global warming to the petroleum industry, at a symposium held at Columbia University to celebrate the 100th

¹ Benjamin Franta, *Early oil industry knowledge of CO₂ and global warming*, 8 *Nature Climate Change* 1024 (Nov. 19, 2018), <https://www.nature.com/articles/s41558-018-0349-9>.

² *Id.*

³ Roger Revelle and Hans Suess, *Carbon Dioxide Exchange Between Atmosphere and Ocean and the Question of an Increase of Atmospheric CO₂ during the Past Decades*, 9 *Tellus* 18 (1957), <http://www.tandfonline.com/doi/pdf/10.3402/tellusa.v9i1.9075?needAccess=true>.

⁴ H.R. Brannon, A.C. Daughtry, D. Perry, W.W. Whitaker, and M. Williams, *Radiocarbon evidence on the dilution of atmospheric and oceanic carbon by carbon from fossil fuels*, 38 *Trans. Am. Geophys. Union* 643 (Oct. 1957).

anniversary of the industry. Teller described the need to find energy sources other than fossil fuels to mitigate these dangers, stating, “a temperature rise corresponding to a 10 per cent increase in carbon dioxide will be sufficient to melt the icecap and submerge New York. All the coastal cities would be covered, and since a considerable percentage of the human race lives in coastal regions, I think that this chemical contamination is more serious than most people tend to believe.”⁵

Then in 1965, API President Frank Ikard delivered a presentation at the organization’s annual meeting. Ikard informed API’s membership that President Johnson’s Science Advisory Committee had predicted that fossil fuels could cause significant climatic changes by the end of the century.⁶ He issued the following warning about the consequences of CO₂ pollution to industry leaders:

This report unquestionably will fan emotions, raise fears, and bring demands for action. The substance of the report is that there is still time to save the world’s peoples from the

⁵ Edward Teller, *Energy patterns of the future*, 38 *Energy and Man: A Symposium* 53, 58 (1960).

⁶ Frank Ikard, *Meeting the challenges of 1966*, Proceedings of the American Petroleum Institute 12-15 (1965), <http://www.climatefiles.com/trade-group/american-petroleum-institute/1965-api-president-meeting-the-challenges-of-1966/>.

catastrophic consequence of pollution, but time is running out.⁷

Over the next few years, scientific research continued to bolster the conclusion that the combustion of fossil fuels would be the primary driver of climate change. A 1968 Stanford Research Institute (SRI) report—commissioned by API and distributed to its board members and made available to API’s members—warned that “rising levels of CO₂ would likely result in rising global temperatures and that, if temperatures increased significantly, the result could be melting ice caps, rising sea levels, warming oceans, and serious environmental damage on a global scale.”⁸ The scientists acknowledged that burning of fossil fuels provided the best explanation for an increase in CO₂.⁹

In 1969, API commissioned a supplemental report by SRI that provided a more detailed assessment on CO₂. The report stated that atmospheric concentrations of CO₂ were steadily increasing, 90% of this

⁷ *Id.* at 13.

⁸ *Smoke and Fumes: The Legal and Evidentiary Basis for Holding Big Oil Accountable for the Climate Crisis*, Center for International Environmental Law 12 (Nov. 2017), <https://www.ciel.org/wp-content/uploads/2017/11/Smoke-Fumes-FINAL.pdf>.

⁹ Elmer Robinson and R.C. Robbins, *Sources, Abundance, and Fate of Gaseous Atmospheric Pollutants*, Stanford Research Institute 3 (1968), <https://www.smokeandfumes.org/documents/document16>.

increase could be attributed to fossil fuel combustion, and continued use of fossil fuels would result in further increases of CO₂ levels in the atmosphere.¹⁰ The report projected that based on current fuel usage, atmospheric CO₂ concentrations would reach 370 ppm by 2000—exactly what came to pass.¹¹ All of this research was summarized and shared with API members, including Defendants.¹²

A 1977 presentation and 1978 briefing by senior Exxon scientist James F. Black warned the Exxon Corporation Management Committee that CO₂ concentrations were building in the Earth's atmosphere at an increasing rate, that CO₂ emissions were attributable to fossil fuels, and that CO₂ would contribute to global warming.¹³ Speaking to the emerging scientific consensus on climate change at the time, Black acknowledged that there was general scientific agreement that carbon

¹⁰ *Smoke and Fumes*, *supra* note 8, at 12.

¹¹ *Global Mean CO₂ Mixing Ratios (ppm): Observations*, NASA Goddard Institute for Space Studies, <https://data.giss.nasa.gov/modelforce/ghgases/Fig1A.ext.txt> (last visited Jan. 25, 2019).

¹² *Environmental Research, A Status Report*, American Petroleum Institute (Jan. 1972), <http://files.eric.ed.gov/fulltext/ED066339.pdf>.

¹³ Memo from J.F. Black to F.G. Turpin re The Greenhouse Effect, Exxon Research and Engineering Company 3 (June 6, 1978), <http://www.climatefiles.com/exxonmobil/1978-exxon-memo-on-greenhouse-effect-for-exxon-corporation-management-committee/>.

dioxide released from the burning of fossil fuels was likely influencing global climate, and stated:

Present thinking holds that man has a time window of five to ten years before the need for hard decisions regarding changes in energy strategies might become critical.¹⁴

Black expressed no uncertainty as to whether the burning of fossil fuels would cause climate change. Former Exxon scientist, Ed Garvey, described the situation as follows: “By the late 1970s, global warming was no longer speculative.”¹⁵ In another interview, Garvey added: “The issue was not were we going to have a problem, the issue was simply how soon and how fast and how bad was it going to be. Not if.”¹⁶

In sum, through the 1950s and 1960s, there was agreement among industry, government, and academic scientists that the observed increase in CO₂ concentrations, caused by fossil fuel combustion, would likely cause an increase in average global temperatures, and

¹⁴ *Id.* at 3.

¹⁵ James Osborne, *INTERVIEW: Former Exxon scientist on oil giant's 1970s climate change research*, Dallas News (Oct. 2015), <https://www.dallasnews.com/business/business/2015/10/02/interview-former-exxon-scientist-on-oil-giants-1970s-climate-change-research>.

¹⁶ Amy Westervelt, *Drilled: A True Crime Podcast about Climate Change*, Episode 1, The Bell Labs of Energy (interview with Ed Garvey at 11:10) (Nov. 14, 2018), <https://www.criticalfrequency.org/drilled>.

therefore a variety of climate-related impacts. By the late 1970s, there was general consensus that this would occur.

B. Defendants conducted their own climate science research that confirmed fossil fuel combustion was increasing atmospheric carbon dioxide concentrations and that this would affect the climate.

From the late 1970s through early 1980s, Defendants repeatedly confirmed the findings of leading scientists and institutions studying climate change with their own research.¹⁷

Exxon, in particular, became active in the growing field of climate science. Following warnings by Black and others, Exxon launched an ambitious research program to study the environmental effects of greenhouse gases. The company assembled a team of scientists, modelers, and mathematicians to deepen the company's understanding of an environmental problem that posed an existential threat to its business interests.¹⁸ As Exxon senior scientist Morrel Cohen explained:

¹⁷ Between 1983-84, Exxon's researchers published their results in at least three peer-reviewed papers in the *Journal of the Atmospheric Sciences* and *American Geophysical Union*. A list of "Exxon Mobil Contributed Publications" from 1983-2014 is available at: https://cdn.exxonmobil.com/~media/global/files/energy-and-environment/climate_peer_reviewed_publications_1980s_forward.pdf.

¹⁸ Geoffrey Supran and Naomi Oreskes, *Assessing ExxonMobil's climate change communications (1977-2014)*, 12(8) Environmental Research

“Exxon was trying to become a research power in the energy industry the way the Bell Labs was in the communications industry.”¹⁹ By 1982, Exxon’s scientists, in collaboration with other industry scientists, had created climate models that confirmed the scientific consensus that the continued increase of CO₂ from fossil fuels would cause significant global warming by the middle of the 21st century with “potentially catastrophic” effects, and communicated these findings internally.²⁰

In 1979, W.L. Ferrall described the findings of an internal Exxon study, concluding that the “increase [in CO₂ concentration] is due to fossil fuel combustion,” “[i]ncreasing CO₂ concentration will cause a warming of the earth’s surface,” and the “present trend of fossil fuel consumption will cause dramatic environmental effects before the year

Letters 084019 (Aug. 23, 2017),

<http://iopscience.iop.org/article/10.1088/1748-9326/aa815f>.

¹⁹ Westervelt, *supra* note 16 (interview with Morrell Cohen at 6:21); see also John Walsh, *Exxon Builds on Basic Research*, 225 *Science* 1001 (1984), <https://www.documentcloud.org/documents/5690867-1984-Walsh-Exxon-Builds-on-Basic-Reseach.html>.

²⁰ See, e.g., Memo from M.B. Glaser to Exxon Management re CO₂ “Greenhouse” Effect, Exxon Research and Engineering Company 11 (Nov. 12, 1982), <http://insideclimatenews.org/sites/default/files/documents/1982%20Exxon%20Primer%20on%20CO2%20Greenhouse%20Effect.pdf>.

2050.”²¹ With a doubling of CO₂ concentration (using 1860 as a baseline), Ferrall predicted that “ocean levels would rise four feet” and the “Arctic Ocean would be ice free for at least six months each year, causing major shifts in weather patterns in the northern hemisphere.”²²

A 1980 presentation by Dr. John Laurman to the API Task Force on “The CO₂ Problem” identified the “scientific consensus on the potential for large future climatic response to increased CO₂ levels” as a reason for concern, and stated that there was “strong empirical evidence” that climate change was caused by fossil fuel combustion.²³ Laurman also warned the API Task Force that foreseeable temperature increases could have “major economic consequences” and “globally catastrophic effects.”²⁴

²¹ Memo from W.L. Ferrall to R.L. Hirsch re “Controlling Atmospheric CO₂”, Exxon Research and Engineering Company 1 (Oct. 16, 1979), <http://insideclimatenews.org/sites/default/files/documents/CO2%20and%20Fuel%20Use%20Projections.pdf>.

²² *Id.*, Appendix A at 1.

²³ *AQ-9 Task Force Meeting Minutes*, American Petroleum Institute, Attachment B at 1-2 (Mar. 18, 1980), <https://insideclimatenews.org/sites/default/files/documents/AQ-9%20Task%20Force%20Meeting%20%281980%29.pdf>.

²⁴ *Id.*, Attachment B at 5.

By 1981, Exxon had internally acknowledged the risks of climate change and the role fossil fuel combustion played in increasing CO₂ concentrations in the atmosphere. In an internal memorandum outlining Exxon's position on the CO₂ greenhouse effect, Exxon scientist Henry Shaw wrote that a doubling of CO₂ would result in 3°C increase in average global temperature and 10°C increase at the poles, causing major shifts in rainfall/agriculture and melting of polar ice.²⁵ Also in 1981, Roger Cohen, director of Exxon's Theoretical and Mathematical Sciences Laboratory, warned that "we will unambiguously recognize the threat by the year 2000 because of advances in climate modeling and the beginning of real experimental confirmation of the CO₂ effect."²⁶ He further stated, "it is distinctly possible that [Exxon Planning Division's] scenario will later produce effects which will indeed be catastrophic (at least for a substantial fraction of the earth's population)."²⁷

²⁵ Memo from Henry Shaw to Dr. E.E. David, Jr. re "CO₂ Position Statement", Exxon Inter-Office Correspondence 2 (May 15, 1981), <https://insideclimatenews.org/sites/default/files/documents/Exxon%20Position%20on%20CO2%20%281981%29.pdf>.

²⁶ Memo from R.W. Cohen to W. Glass re possible "catastrophic" effect of CO₂, Exxon Corporation 1 (Aug. 18, 1981), <http://www.climatefiles.com/exxonmobil/1981-exxon-memo-on-possible-emission-consequences-of-fossil-fuel-consumption>.

²⁷ *Id.*

In 1982, Cohen summarized the findings of Exxon’s research in climate modeling, stating that “over the past several years *a clear scientific consensus has emerged* regarding the expected climatic effects of increased atmospheric CO₂.” (emphasis added)²⁸ Cohen acknowledged that Exxon shared the views of the mainstream science community, stating that there is “unanimous agreement in the scientific community that a temperature increase of this magnitude would bring about significant changes in the earth’s climate,” and that Exxon’s findings were “consistent with the published predictions of more complex climate models” and “in accord with the scientific consensus on the effect of increased atmospheric CO₂ on climate.”²⁹

Industry documents from the 1980s provide further evidence that Exxon and other Defendants internally acknowledged that the threat of climate change was real, it was caused by fossil fuels, and it would have significant impacts on the environment and human health. Notably, a 1982 corporate primer—circulated internally to Exxon management—

²⁸ Memo from R. W. Cohen to A.M. Natkin, Exxon Research and Engineering Company 1 (Sept. 2, 1982), <http://www.climatefiles.com/exxonmobil/1982-exxon-memo-summarizing-climate-modeling-and-co2-greenhouse-effect-research/>.

²⁹ *Id.* at 2.

recognized the need for “major reductions in fossil fuel combustion” as a means to mitigate global warming. In the absence of such reductions, “there are some potentially catastrophic events that must be considered . . . [O]nce the effects are measurable, they might not be reversible . . .”³⁰

The 1982 Exxon primer predicted a doubling of CO₂ concentrations (above pre-industrial levels) by 2060 and increased temperatures of 2-4°C (above 1982 levels) by the end of the 21st century. It also provided a detailed assessment of the “potentially catastrophic” impacts of global warming, including primary impacts on physical and biological systems and secondary impacts (e.g. migration, famine).³¹

A 1988 report by Shell’s Greenhouse Effect Working Group issued similar internal warnings to those of Exxon. The report stated that “by the time the global warming becomes detectable it could be too late to take effective countermeasures to reduce the effects or even to stabilise the situation.”³² Acknowledging the need to consider policy changes,

³⁰ Memo from M.B. Glaser to Exxon Management re CO₂ “Greenhouse” Effect, *supra* note 20, at 2 and 11.

³¹ *Id.* at 12-14.

³² R.P.W.M Jacobs et al., *The Greenhouse Effect*, Shell Internationale Petroleum Maatschappij B.V., The Hague 1 (May 1988),

the report observed that “the potential implications for the world are . . . so large that policy options need to be considered much earlier” and that research should be “directed more to the analysis of policy and energy options than to studies of what we will be facing exactly.”³³

The Shell report made detailed projections of harmful impacts of global warming. It noted that warming could cause the melting of the West Antarctic Ice Sheet, which could result in sea level rise of 5-6 meters. It also predicted the “disappearance of specific ecosystems or habitat destruction” and an increase in “runoff, destructive floods, and inundation of low-lying farmland.”³⁴

In the 1970s and 1980s, Defendants pursued cutting-edge research and amassed considerable data on climate change. This body of research confirmed their earlier knowledge, and led to the undeniable conclusion that continued fossil fuel production and use would lead to

<https://www.documentcloud.org/documents/4411090-Documents3.html#document/p9/a411239>.

³³ *Id.*

³⁴ Benjamin Franta, *Shell and Exxon's secret 1980s climate change warnings*, *The Guardian* (Sept. 19, 2018), <https://www.theguardian.com/environment/climate-consensus-97-percent/2018/sep/19/shell-and-exxons-secret-1980s-climate-change-warnings> (citing *The Greenhouse Effect*, Shell International).

irreversible and catastrophic climate change. Armed with this information, Defendants were at a turning point in the early 1980s.

III. DEFENDANTS TOOK PROACTIVE STEPS TO CONCEAL THEIR KNOWLEDGE AND DISCREDIT CLIMATE SCIENCE

Despite acknowledging that an increasing level of atmospheric CO₂ due to fossil fuel burning posed a considerable threat to the planet, Defendants decided against taking steps to prevent climate change. Instead, they did the opposite—by ending funding for major climate research and launching campaigns to discredit climate science and delay actions perceived as contrary to their business interests.³⁵

Defendants engaged in multiple efforts to carry out these campaigns:

(1) developing public relations strategies that contradicted their own knowledge and scientific insights, (2) engaging in public communications campaigns to promote doubt and downplay the threats of climate change, and (3) funding individuals, organizations, and

³⁵ Memo from A.M. Natkin to H.N. Weinberg re CRL/CO₂ Greenhouse Program, Exxon Corporation 1 (June 18, 1982), [http://insideclimatenews.org/sites/default/files/documents/Budget%20Cutting%20Memo%20\(1982\).pdf](http://insideclimatenews.org/sites/default/files/documents/Budget%20Cutting%20Memo%20(1982).pdf).

research that sought to discredit the growing body of publicly available climate science.

A. Defendants developed sophisticated public relations strategies to deny the risks of climate change and create doubt about the scientific consensus of global warming.

Defendants responded to public policy efforts to address the dangers of their products by concealing and denying the known hazards, in contradiction to earlier internal acknowledgments and statements made by industry scientists and executives.

In a 1988 internal memo, Exxon acknowledged that atmospheric CO₂ concentrations were increasing and could double in 100 years, that the combustion of fossil fuels was emitting five billion gigatons of CO₂ per year, and that the “[g]reenhouse effect may be one of the most significant environmental issues for the 1990s.”³⁶ But in this same memo, Exxon identified that its position would be to “[e]mphasize the uncertainty in scientific conclusions regarding the potential enhanced Greenhouse effect[.]”³⁷

³⁶ Memo from Joseph Carlson to DGL re The Greenhouse Effect 2 (Aug. 3, 1988), <http://www.climatefiles.com/exxonmobil/566/>.

³⁷ *Id.* at 7.

Shell followed suit in emphasizing uncertainty in climate science. In contrast to Shell's 1988 report that recommended the prompt consideration of policy solutions, a 1994 internal report focused on scientific uncertainty, noting that "the postulated link between any observed temperature rise and human activities has to be seen in relation to natural variability, which is still largely unpredictable."³⁸ Shell asserted that "[s]cientific uncertainty and the evolution of energy systems indicate that policies to curb greenhouse gas emissions beyond 'no regrets' measures could be premature, divert resources from more pressing needs and further distort markets."³⁹

Industry associations and groups, such as the Global Climate Coalition (GCC), exerted significant influence on their members, inter alia, through communications strategies. Established in 1989, the GCC identified itself as "an organization of business trade associations and private companies . . . to coordinate business participation in the

³⁸ P. Langcake, *The Enhanced Greenhouse Effect: A Review of the Scientific Aspects*, Shell Internationale Petroleum Maatschappij B.V. (Dec. 1994), <https://www.documentcloud.org/documents/4411099-Document11.html#document/p15/a411511>.

³⁹ *Id.*

scientific and policy debate on the global climate change issue”⁴⁰—but in effect, the group opposed greenhouse gas regulation through lobbying, funding of front groups, denial and disinformation campaigns, and other tactics.

In 1993, the GCC hired the public relations firm E. Bruce Harrison to develop and execute a communications plan,⁴¹ which was implemented by the API, National Association of Manufacturers, Chamber of Commerce, and other trade associations/coalitions (of which Defendants were members). Some of the central elements of this plan were to accentuate the economic costs of mitigation and to cast uncertainty over the science.⁴²

In 1996, following publication of the Intergovernmental Panel on Climate Change’s Second Assessment Report, the GCC developed a

⁴⁰ *Global Climate Coalition: An Overview*, Global Climate Coalition 1 (Nov. 1996), <http://www.climatefiles.com/denial-groups/global-climate-coalition-collection/1996-global-climate-coalition-overview/>.

⁴¹ O’Dwyer’s Directory of Public Relations Firms, J.R. O’Dwyer Co., New York, NY (1995), at 85.

⁴² See, e.g., Benjamin Franta, *Trump pulled out the oil industry playbook and players for Paris*, The Guardian (July 26, 2017), <https://www.theguardian.com/environment/climate-consensus-97-percent/2017/jul/26/trump-pulled-out-the-oil-industry-playbook-and-players-for-paris>

primer that provided an overview of the group's position on climate change. While acknowledging that global warming was happening, the GCC claimed that there was significant uncertainty as to its cause:

The GCC believes that the preponderance of the evidence indicates that most, if not all, of the observed warming is part of a natural warming trend which began approximately 400 years ago. If there is an anthropogenic component to this observed warming, the GCC believes that it must be very small and must be superimposed on a much larger natural warming trend.⁴³

This statement not only stands in contradiction to the internal memos and peer-reviewed papers published by Defendants' own scientists but also to the final internal draft of the GCC primer itself, which stated that the "scientific basis for the Greenhouse Effect and the potential impacts of human emissions of greenhouse gases such as CO₂ on climate is well established and cannot be denied."⁴⁴ This language was removed before final publication. The final draft also included a section discussing how contrarian theories failed to "offer convincing

⁴³ *Global Climate Coalition: An Overview*, *supra* note 40, at 2.

⁴⁴ Memo from Gregory J. Dana to AIAM Technical Committee re Global Climate Coalition (GCC) – Primer on Climate Change Science – Final Draft, Association of International Automobile Manufacturers 5 (Jan. 18, 1996), <http://www.climatefiles.com/denial-groups/global-climate-coalition-collection/global-climate-coalition-draft-primer/>.

arguments against the conventional model of greenhouse gas emission-induced climate change.”⁴⁵ This section was also removed by the GCC before final publication.

As their memoranda and statements show, Defendants undertook a deliberate shift away from their prior research efforts to the strategy of uncertainty and delay.

B. Defendants engaged in public communications campaigns designed to manufacture doubt and downplay the threats of climate change.

Communications efforts aimed at the general public were a key part of Defendants’ strategy. Defendants, individually and through their membership in trade associations, launched campaigns that directly contradicted earlier statements recognizing a general consensus on climate change and the magnitude of its effects.

For example, in 1996, Exxon issued a publication titled “Global warming: who’s right? Facts about a debate that’s turned up more questions than answers,” in which Exxon CEO Lee Raymond stated that “taking drastic action immediately is unnecessary since many scientists agree there’s ample time to better understand climate

⁴⁵ *Id.*

systems . . .”⁴⁶ The publication characterized the greenhouse effect as “unquestionably real and definitely a good thing,” and as “what makes the earth’s atmosphere livable.” Directly contradicting the company’s internal reports and peer-reviewed science, the publication attributed the increase in global temperature to “natural fluctuations that occur over long periods of time” rather than to anthropogenic sources.⁴⁷

Also in 1996, API published a book titled “Reinventing Energy: Making the Right Choices,” which stated that “there is no persuasive basis for forcing Americans to dramatically change their lifestyles to use less oil.”⁴⁸ The book denied the human connection to climate change, stating that no “scientific evidence exists that human activities are significantly affecting sea levels, rainfall, surface temperatures or the intensity and frequency of storms.”⁴⁹ In 1997, Lee Raymond expressed

⁴⁶ *Global warming: who’s right? Facts about a debate that’s turned up more questions than answers*, Exxon Corporation 5 (1996), <http://www.climatefiles.com/exxonmobil/global-warming-who-is-right-1996/>.

⁴⁷ *Id.*

⁴⁸ Sally Brain Gentile et al., *Reinventing Energy: Making the Right Choices*, American Petroleum Institute 77 (1996), <http://www.climatefiles.com/trade-group/american-petroleum-institute/1996-reinventing-energy/>.

⁴⁹ *Id.*

support for these views. In a speech presented at the World Petroleum Congress at which many Defendants were present, Raymond presented a false dichotomy between stable energy markets and reduction in the marketing, promotion and sale of fossil fuel products known to Defendants to be hazardous.⁵⁰

In addition to these public statements, Defendants developed, implemented and/or funded public affairs programs, aiming to shift “America’s social consciousness” by targeting specific people or groups with messages designed for them.⁵¹ From 1972 through 2014, Mobil and ExxonMobil ran advertorials (paid advertisements styled like editorials) in *The New York Times* and other national newspapers.⁵² They bought these advertorials to allow the “public to know where

⁵⁰ Lee R. Raymond, *Energy – Key to growth and a better environment for Asia-Pacific nations*, World Petroleum Congress 5 (Oct. 13, 1997), <https://assets.documentcloud.org/documents/2840902/1997-Lee-Raymond-Speech-at-China-World-Petroleum.pdf>.

⁵¹ See, e.g., *Evolution of Mobil’s Public Affairs Programs 1970-81*, Mobil 2, <https://www.documentcloud.org/documents/5396414-Reduced-Evolution-of-Mobil-Public-Affairs-Program.html> (last visited Jan. 25, 2019).

⁵² *Exxon and Mobil Ads*, Polluter Watch, <http://polluterwatch.org/exxon-and-mobil-ads> (last visited Jan. 25, 2019).

[they] stand” on climate change and other issues.⁵³ In an internal assessment of its advertorial campaign, Mobil concluded that the *Times* had “altered or significantly softened its viewpoints on: conservation; monopoly and divestiture; decontrol; natural gas; coal; offshore drilling; and gasohol.”⁵⁴

In a peer-reviewed study, Dr. Supran and Dr. Oreskes compared ExxonMobil’s internal and peer-reviewed scientific papers to its non-peer-reviewed external public communications (including 36 *Times* advertorials from 1989 to 2004), finding a stark contrast between the way that the two sets of documents characterized climate change. Dr. Supran and Dr. Oreskes found that 83% of peer-reviewed papers and 80% of internal documents acknowledged that climate change is real and human-caused, yet only 12% of advertorials did so, with 81% instead expressing doubt.⁵⁵

⁵³ Mobil, *CNN and the value of instant replay*, New York Times (Oct. 16, 1997), <http://www.documentcloud.org/documents/705559-mob-nyt-1997-oct-16-cnnslam.html>.

⁵⁴ Mobil, *Op-Ed Impact Study: A Comparative Analysis of Energy Viewpoints in The Op-Ed Advertisements and The New York Times Editorials, 1970-1980* (on file).

⁵⁵ Supran and Oreskes, *supra* note 18, at 1.

Similarly, an industry-funded organization called the Information Council on the Environment (ICE)—formed and supported by affiliates, predecessors, and/or subsidiaries of Defendants—launched a national climate denial campaign.⁵⁶ ICE’s primary strategy was to “reposition global warming as theory (not fact),”⁵⁷ a clear acknowledgement that global warming had previously been positioned and accepted as fact within the scientific community.

In 1996, API created the Global Climate Science Communications Team (GCSCT), a small group of prominent representatives of fossil fuel companies, public relations firms, and industry front groups with the mission of undermining the global scientific consensus that climate change was real and human-caused. In 1998, after the Kyoto Protocol

⁵⁶ Among others, members included: Western Fuels Association, National Coal Association, Edison Electric Institute, Island Creek Coal Company (subsidiary of Occidental Petroleum), Peabody Coal Company, and Pittsburgh and Midway Coal Mining (subsidiary of Chevron). Kathy Mulvey and Seth Shulman, *The Climate Deception Dossiers: Internal Fossil Fuel Industry Memos Reveal Decades of Corporate Disinformation*, Union of Concerned Scientists 22 (July 2015), <https://www.ucsusa.org/sites/default/files/attach/2015/07/The-Climate-Deception-Dossiers.pdf>.

⁵⁷ Letter from Dr. Patrick Michaels, Information Council on the Environment 9 (May 15, 1991), http://www.ucsusa.org/sites/default/files/attach/2015/07/Climate-Deception-Dossier-5_ICE.pdf.

was signed, the GCSCCT developed a plan to launch a multi-million-dollar, multi-year “national media relations program to inform the media about uncertainties in climate science; to generate national, regional and local media on the scientific uncertainties, and thereby educate and inform the public, stimulating them to raise questions with policymakers.”⁵⁸

The largest budget item (\$5,000,000 over two years minimum) was for the Global Climate Science Data Center, which was intended to be a “one-stop resource on climate science for members of Congress, the media, industry and all others concerned.”⁵⁹ Although no group with this name was ever formed, the proposal likely prompted the creation of other groups, such as the Center for the Study of Carbon Dioxide and Global Change. As a means to influence public opinion, the GCSCCT aimed to “identify, recruit and train a team of five independent scientists to participate in media outreach”—and in doing so, the team

⁵⁸ *Global Climate Science Communications Team Action Plan*, American Petroleum Institute 4 (Apr. 3, 1998), <http://www.climatefiles.com/trade-group/american-petroleum-institute/1998-global-climate-science-communications-team-action-plan/>.

⁵⁹ *Id.* at 5-6.

recognized the need to conceal these financial ties to ensure the scientists' credibility with the public.⁶⁰

In contrast to what the industry's scientists had acknowledged internally and in peer-reviewed literature for more than two decades, the API strategy memo laying out details of this plan declared that "it not [sic] known for sure whether (a) climate change actually is occurring, or (b) if it is, whether humans really have any influence on it."⁶¹ The memo articulated the association's intent to undermine the scientific consensus on climate change, stating that "Victory Will Be Achieved When":

- Average citizens "understand" (recognize) uncertainties in climate science; recognition of uncertainties becomes part of the "conventional wisdom."
- Media "understands" (recognizes) uncertainties in climate science.⁶²

Exxon, Chevron, and API contributed to the development of the plan through their representatives Randy Randol, Sharon Kneiss, and Joseph Walker, respectively. Exxon, Chevron, and Occidental

⁶⁰ Mulvey and Shulman, *supra* note 56, at 10-11.

⁶¹ *Global Climate Science Communications Team Action Plan*, *supra* note 58, at 1.

⁶² *Id.* at 3.

Petroleum also exerted influence through Steve Milloy, the executive director of a front group called The Advancement of Sound Science Coalition, which was funded in part by these companies. The roadmap further identified an array of industry trade associations and front groups, fossil fuel companies, and think tanks that would underwrite and execute the plan, including API, Business Round Table, Edison Electric Institute, Independent Petroleum Association of America, National Mining Association, American Legislative Exchange Council, Committee for a Constructive Tomorrow, Competitive Enterprise Institute; Frontiers of Freedom, and the George C. Marshall Institute.

C. Defendants funded individuals, organizations, and research to discredit the growing body of publicly available climate science.

As Martin Hoffert, an author/co-author of several of Exxon's peer-reviewed papers on the CO₂ greenhouse effect, said, "Even though we were writing all these papers which were basically supporting the idea that climate change from CO₂ emissions was going to change the climate of the earth according to our best scientific understanding, the front office which was concerned with promoting the products of the company was also supporting people that we call climate change

deniers... they were giving millions of dollars to other entities to support the idea that the CO₂ greenhouse was a hoax.”⁶³

Defendants advanced these arguments and alternative theories as a means to manufacture public uncertainty and undermine climate science. For example, ExxonMobil, API, Southern Company, and other fossil fuel interests funded Harvard-Smithsonian astrophysicist Dr. Wei-Hock Soon to publish and aggressively promote research asserting that solar variability is the primary cause of global warming, even though the GCC had previously dismissed this theory as “unconvincing.” Between 2001 and 2012, Soon received more than \$1.2 million from the fossil fuel industry, including Defendants, to conduct research purported to be independent and to promote climate change theories that Defendants knew were not supported by peer-reviewed scientific literature, including publications by their own scientists.⁶⁴

In addition, Defendants funded industry front groups that denied and sought to discredit climate science. From 1998 through 2017, ExxonMobil alone spent at least \$36 million funding 69 organizations

⁶³ Westervelt, *supra* note 16, Episode 2, The Turn (interview with Martin Hoffert at 11:07) (Nov. 15, 2018).

⁶⁴ Mulvey and Shulman, *supra* note 56, at 6.

that misrepresented and persistently sought to discredit the scientific consensus that Defendants' fossil fuel products were causing climate change.⁶⁵

In 2007, in response to an unprecedented rebuke by the Royal Society, ExxonMobil pledged to stop funding climate denier groups: "In 2008, we will discontinue contributions to several public policy research groups whose position on climate change could divert attention from the important discussion on how the world will secure the energy required for economic growth in an environmentally responsible manner."⁶⁶

In direct contradiction to this commitment and more recent ones stating that ExxonMobil does "not fund or support those who deny the reality of climate change,"⁶⁷ the company continues to fund individuals

⁶⁵ *ExxonMobil Foundation & Corporate Giving to Climate Change Denier & Obstructionist Organizations*, UCS (2017), https://www.ucsusa.org/sites/default/files/attach/2019/ExxonMobil-Worldwide-Giving-1998-2017.pdf?_ga=2.84739161.1384563456.1548170682-1610477837.1510330963.

⁶⁶ *2007 Corporate Citizenship Report*, ExxonMobil 39 (2007), <http://www.documentcloud.org/documents/2799777-ExxonMobil-2007-Corporate-Citizenship-Report.html>.

⁶⁷ Suzanne Goldenberg, *Exxon knew of climate change in 1981, email says – but it funded deniers for 27 more years*, The Guardian (July 8, 2015), <https://www.theguardian.com/environment/2015/jul/08/exxon-climate-change-1981-climate-denier-funding>.

like Dr. Soon, as well as groups that spread misinformation on climate science.⁶⁸ From 2008 through 2017, ExxonMobil spent \$13 million funding think tanks and lobby groups that reject established climate science, spread misinformation, and openly oppose the company's public positions on climate policy,⁶⁹ a clear indication that ExxonMobil continues to fund climate science misinformation through third-party individuals and organizations.⁷⁰

IV. DEFENDANTS MOVED TO PROTECT THEIR OWN ASSETS FROM CLIMATE IMPACTS BASED ON THE SCIENCE THEY PUBLICLY DISCREDITED

While running campaigns to emphasize uncertainties in climate science and to block regulatory action on climate change, Defendants took affirmative steps to protect their own assets from climate risks through internal research, infrastructure improvements, and plans to exploit new reserves in a warming world.

⁶⁸ See Riley Dunlap and Aaron McCright, *Organized Climate Change Denial*, The Oxford Handbook of Climate Change and Society (2011).

⁶⁹ *ExxonMobil Foundation & Corporate Giving to Climate Change Denier & Obstructionist Organizations*, *supra* note 65.

⁷⁰ See Pattanun Achakulwisut et al., *Ending ExxonMobil Sponsorship of the American Geophysical Union* (Mar. 2016), <https://www.documentcloud.org/documents/2803702-AGU-Report-Final-20160325.html>

In 1989, Shell announced that its engineers were redesigning a \$3 billion North Sea natural gas offshore platform to protect against sea level rise.⁷¹ The company's Norwegian subsidiary, Norske Shell, had been planning to build a 1.5 million metric ton structure that would stand in more than 300 meters of water and rise 30 meters above the surface, but the engineers questioned what the effect of sea level rise might be. As a result, the engineers considered raising the height to 31 or 32 meters, with a one-meter increase estimated at an additional \$16 million and a two-meter increase roughly double that amount.⁷²

By the mid-1990s, efforts by Exxon and other Defendants to deny and discredit the scientific consensus on climate change, as described above, were reaching maturity, with millions of dollars per year being paid to scientists and front groups to assert that climate change was not real, that fossil fuels had nothing to do with any temperature increases

⁷¹ Amy Lieberman and Susanne Rust, *Big Oil braced for global warming while it fought regulations*, Los Angeles Times (Dec. 31, 2015), <http://graphics.latimes.com/oil-operations/>.

⁷² *Greenhouse Effect: Shell Anticipates A Sea Change*, New York Times (Dec. 20, 1989), <https://www.nytimes.com/1989/12/20/business/greenhouse-effect-shell-anticipates-a-sea-change.html>.

that were being observed, and that a variety of theories—which the Defendants knew were not valid—were responsible for global warming.

Yet in 1994, when planning the Europipe project jointly owned and operated by Shell, Exxon, Conoco, Total, and Statoil, the companies took sea level rise and other climate impacts into account in the design of the natural gas pipeline leading from a North Sea offshore platform to the German coast. In a document submitted to European authorities, the companies noted the impacts of sea level rise and the likely increase in frequency of storms as a result of climate change. While recognizing climate change as a “most uncertain parameter,” they determined that the pipeline should be designed to account for climate impacts.⁷³

In 1996, Mobil, Shell, and Imperial Oil (now majority owned by ExxonMobil) took similar steps to protect their investments in the Sable gas field project off the coast of Nova Scotia, Canada. Company engineers designed and built a “collection of exploration and production facilities along the Nova Scotia coast that made structural allowances for rising temperatures and sea levels.”⁷⁴ As described in the design

⁷³ Lieberman and Rust, *supra* note 71.

⁷⁴ *Id.*

specifications, “[a]n estimated rise in water level, due to global warming, of 0.5 meters may be assumed” for the 25-year life of the Sable gas field project.⁷⁵

V. CONCLUSION

Defendants had actual knowledge of the risks associated with their fossil fuel products as early as the late 1950s and no later than 1968. Despite their knowledge and expertise on climate science, Defendants affirmatively promoted the use of their products through various means. Defendants thus created the nuisance alleged by Plaintiff and should be held liable. Amici urge this Court to affirm the decision below.

RESPECTFULLY SUBMITTED this 3rd day of September, 2019.

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⁷⁵ *Id.*

CERTIFICATE OF COMPLIANCE

4th Cir. Case Number 19-1644

I am the attorney or self-represented party.

This brief contains **6,493 words**, excluding the items exempted by Fed. R. App. P. 32(f). The brief's type size and typeface comply with Fed. R. App. P. 32(a)(5) and (6).

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s/ Mark A. Griffin

Mark A. Griffin

CERTIFICATE OF SERVICE**4th Cir. Case Number 19-1644**

I hereby certify that I electronically filed the foregoing **Brief of Amici Curiae Robert Brulle, Center For Climate Integrity, The Chesapeake Climate Action Network, Justin Farrell, Benjamin Franta, Stephan Lewandowsky, Naomi Oreskes, Geoffrey Supran, And The Union Of Concerned Scientists in Support of Plaintiff-Appellee and Affirmance** on this date with the Clerk of the Court for the United States Court of Appeals for the Fourth Circuit using the Appellate Electronic Filing system.

s/ Mark A. Griffin

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