The Fraudulent Misrepresentation of Climate Science

by James Parker-Flynn

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Summary

For over two decades, various think tanks, politicians, and scientists, among others, have spread misinformation about the causes of climate change and the integrity of climate scientists. Partly because this misinformation campaign has distorted the marketplace of ideas, the United States has not addressed climate change with significant new legislation. Existing causes of action provide no repercussions for climate science misrepresentation, despite the possibly catastrophic consequences that may result if the United States fails to take significant steps to address climate change. A narrow new cause of action for the fraudulent misrepresentation of climate science is necessary and appropriate.

The most stringent protection of free speech would not protect a man in falsely shouting fire in a theatre and causing a panic.

Almost one century before climate change strengthened Hurricane Sandy,[1] which subsequently devastated the coasts of New York and New Jersey, Justice Oliver Wendell Holmes Jr. wrote the above words in the seminal free-speech case *Schenck v. United States*.[2] Justice Holmes' hypothetical on the limits of the free speech protection guaranteed by the First Amendment is illustrative; there are certain categories of speech that—because of long-established beliefs about the nature and value of the content—do not receive the most taxing of constitutional protection.[3] Those categories of unprotected speech include, among others, speech designed to incite imminent lawless action, obscenity, defamation, fighting words, child pornography, true threats, and fraud.[4]

Justice Holmes likely could not have envisioned the grave threat the world would face from anthropogenic global warming when he issued his "clear and present danger" test.[5] In the decades that followed the *Schenck* opinion, scientific understanding of climate change, its causes, and its consequences grew from its infant stages into a mature field of study.[6] As the scientific understanding of climate change grew and solidified in the 1980s and 1990s, so too did the realization that climate change solutions pose an economic threat to certain companies; most importantly, companies that produce or rely on fossil fuels began to see climate change and its attendant political ramifications as a threat to the bottom line.[7] In response to this

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1. *See* Bob Corell et al., *Did Climate Change Contribute to Sandy? Yes*, Politico (Nov. 5, 2012), http://www.politico.com/news/stories/1112/83335.html (last visited Oct. 21, 2013).
2. Schenck v. United States, 249 U.S. 47, 52 (1919).
3. United States v. Alvarez, 132 S. Ct. 2537, 2544 (2012) (plurality opinion) (noting that "content-based restrictions on speech have been permitted, as a general matter, only when confined to the few 'historic and traditional categories [of expression] long familiar to the bar'").
4. *Id.* at 2544 (citations omitted).
5. *Schenck*, 249 U.S. at 52 ("The question in every case is whether the words used are used in such circumstances and are of such a nature as to create a clear and present danger that they will bring about the substantive evils that Congress has a right to prevent.").
6. For a thorough and detailed explanation of the phenomenon, and the history of scientific understanding on the topic, see *Intergovernmental Panel on Climate Change, Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* ch. 1 (2007); *The Discovery of Global Warming*, Am. Inst. of Physics, http://www.aip.org/history/climate/summary.htm (last visited Oct. 9, 2013).
7. *See* James Lawrence Powell, The Inquisition of Climate Scientists 110-16 (2011); *see generally* James Hoggan & Richard Littlemore, Climate Cover-Up: The Crusade to Deny Global Warming (2009); Nao-

perceived threat, many fossil fuel companies began to fund think tanks, front groups, scientists, political campaigns, and public policy organizations in order to create a debate about climate science.[8] The tactics used by these organizations include overstating scientific uncertainty to create doubt about climate change, attacking climate scientists as either corrupt or incompetent, denying entirely the science behind anthropogenic climate change, funding scientists to produce counterevidence, and insisting that climate change will be beneficial to society (collectively "misinformation").[9] Through various outlets, including the media, these groups have been very successful in spreading their message of doubt.[10]

Justice Holmes' hypothetical has thus been turned on its head. The world is a very large and very crowded theater, fires are beginning to smoke in the corners, and certain actors now scream through any medium possible, "there is no fire!" Whether because of the concerted misinformation campaign, or because of any number of other factors, the United States has not enacted comprehensive climate change legislation; instead, the U.S. Congress and the judiciary have only enacted half-measures[11] that will not be sufficient to curb climate change.[12] Global warming continues unabated, and some scientists now believe it is too late to stop dangerous climate change.[13] Yet, it seems clear from judicial decisions, or the lack thereof, that current causes of actions do not deter those who most vociferously and recklessly attempt to prevent patrons from leaving the theater; moreover, the First Amendment seemingly shields these distorters and misinformers.

This Article attempts to address why existing causes of action provide no repercussions for climate science misrepresentation, despite the possibly catastrophic consequences that may result if the United States fails to take significant steps to address climate change.[14] The Article then posits that, notwithstanding First Amendment concerns, the United States should adopt a narrowly tailored civil cause of action for the fraudulent misrepresentation of climate science. Part I briefly examines the history of climate science misrepresentation in the United States. The introduction is followed in Part II with an exploration of existing categories of unprotected speech that might be used to abate climate science misrepresentation. These causes of action include (1) fraud and fraudulent misrepresentation, (2) defamation, and (3) perjury. Most importantly, Part II examines why these causes of action inevitably fail to address the intentional or knowing distortion of climate science. Part III then proposes a civil cause of action for the fraudulent misrepresentation of climate science that is narrowly tailored and modeled after existing causes of action. This part also presents an argument for why the new cause of action should, theoretically, survive First Amendment challenges. Finally, Part IV details some potential vulnerabilities in the cause of action, and addresses potential reservations that readers may have about the fraudulent misrepresentation of climate science.

I. A History of Violence (to Science)

It is no secret that certain groups and actors have obfuscated the truth about climate science; indeed, dozens of books, articles, and websites document the concerted effort to distort climate science and to create doubt in the minds of the public and decisionmakers.[15] Accordingly, this part does

mi Oreskes & Erik M. Conway, Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues From Tobacco Smoke to Global Warming (2010).

8. *See generally* Hoggan & Littlemore, *supra* note 7; Oreskes & Conway, *supra* note 7; Powell, *supra* note 7.
9. *See* Oreskes & Conway, *supra* note 7, at 10-35 (discussing "manufactured" doubt about tobacco smoke and how the tobacco tactics were later imported to other scientific topics); Powell, *supra* note 7, at 54-72 (discussing the funding of scientists to dispel contrary "evidence"); Hoggan & Littlemore, *supra* note 7, at 88-133.
10. *See* Oreskes & Conway, *supra* note 7, at 213-15.
11. *See id.* at 215; Roberta F. Mann, *Federal, State, and Local Tax Policies for Climate Change: Coordination or Cross-Purpose?*, 15 Lewis & Clark L. Rev. 369, 370 (2011) (noting the lack of comprehensive climate change legislation); *see also* Lincoln L. Davies, *Power Forward: The Argument for a National RPS*, 42 Conn. L. Rev. 1339, 1341 (2010) (noting the failure of the U.S. Congress to pass a national renewable portfolio standard); Lesley K. McAllister, *Regional Climate Regulation: From State Competition to State Collaboration*, 1 San Diego J. Climate & Energy L. 81, 99 (2009) (noting the "federal vacuum of climate policy").
12. *See* Climate Change Research Centre, University of New South Wales, The Copenhagen Diagnosis: Updating the World on the Latest Climate Science 7 (2009) [hereinafter Copenhagen Diagnosis] (noting that global emissions must peak by 2020 and then rapidly decline in order to limit impacts of global warming).
13. *See* Lee Dye, *It May Be Too Late to Stop Global Warming*, ABC News (Oct. 26, 2012), http://abcnews.go.com/Technology/late-stop-global-warming/story?id=17557814#.UIwkgoXfjx.late-stop-global-warming/story?id=17557814#.UIwkgoXfjxQ (last visited Oct. 21, 2013) ("At present, governments' attempts to limit greenhouse-gas emissions through carbon cap-and-trade schemes and to promote renewable and sustainable energy sources are probably too late to arrest the inevitable trend of global warming.") (quoting Jasper Knight & Stephan Harrison, *The Impacts of Climate Change on Terrestrial Earth Surface Systems*, 3 Nature Climate Change 24, 27 (2012)).
14. The response to climate change must be global, and this Article does not argue that an American response, standing alone, would be sufficient to prevent dangerous climate change. Rather, it assumes that an effective solution to climate change is a political and practical impossibility without strong American cooperation and leadership.
15. *See generally* Ross Gelbspan, The Heat Is On: The Climate Crisis, The Cover-Up, The Prescription (1997) [hereinafter The Heat Is On]; Ross Gelbspan, Boiling Point: How Politicians, Big Oil and Coal, Journalists, and Activists Have Fueled a Climate Crisis—And What We Can Do to Avert Disaster (2005) [hereinafter Boiling Point]; Hoggan & Littlemore, *supra* note 7; Oreskes & Conway, *supra* note 7; Powell, *supra* note 7. It should be noted that the science underlying anthropogenic global warming originates from many disciplines—from physics and chemistry to biology and dendrochronology. *See, e.g.*, *Evidence for Global Warming*, Skeptical Science, http://www.skepticalscience.com/evidence-for-global-warming-intermediate.htm (last visited Oct. 21, 2013) (noting many of the different lines of evidence, stemming from many scientific disciplines, that form the foundation of global warming science). As such, there are

not discuss the misinformation campaign in great detail. Rather, it gives a brief background of the misinformation campaign in order to illustrate why such deception has not yet been subject to legal consequences, and how it might be subject to legal repercussions in the future. This part thus explores, generally, *who* is behind the misinformation campaign, and *how* those actors spread misinformation. The former will identify the types of entities and actors that could be defendants and witnesses in future lawsuits, while the latter will demonstrate that the distortion is intentionally or recklessly deceptive, which is critical for any finding of liability. Finally, there is a brief description of *where* the funding for misinformation originates.

A. Who Spreads Misinformation

While many authors, investigators, and scientists have exposed the concerted distortion of climate science, the campaign of doubt continues, mostly unabated.[16] The messengers of the misinformation campaign include think tanks,[17] politicians, professional communicators, and scientists, among others. The groups are not autonomous, and there is significant overlap between them. At the top of the chain are the think tanks that, at various times, coordinate with the individuals in the other groups.

1. Think Tanks

Think tanks have been involved in the climate change discussion since the late 1980s, beginning with the George C. Marshall Institute.[18] These groups are primarily conservative or libertarian organizations that oppose government regulation and taxation, and generally promote the free market.[19] Climate change presents a natural target of opposition for such ideologically motivated think tanks, as the solutions to such a massive problem[20] inherently implicate regulation, taxation, or both.

Over the years, dozens of think tanks have contributed to the distortion of climate science. Some of the more prominent think tanks in the misinformation campaign include the Heartland Institute, the Cato Institute, the American Enterprise Institute, the Competitive Enterprise Institute, the Heritage Foundation, the George C. Marshall Institute, the Global Climate Coalition, and the Scaife Foundation.[21] The organizations utilize a variety of methods to spread misinformation. For many, the deception begins with deceptive names, like the Frontiers of Freedom Institute, and Africa Fighting Malaria.[22] Fellows and members of these think tanks write articles in mainstream media outlets, or letters to the same outlets promoting their position.[23] Further, think tanks often position their members as "experts" that can provide balance on television news programs,[24] or offer their expertise to politicians and businesses.[25] Some go further: the Heartland Institute, for instance, also hosts an annual conference, the International Conference on Climate Change, where many of the most prominent climate change "skeptics" gather each year to denounce climate change as a hoax, unsettled science, or something in between.[26]

Further, some think tanks produce reports on climate change to counter the overwhelming weight of scientific evidence.[27] These contrarian reports in particular demonstrate that these organizations are not simply adding to the policy discussion, nor are they contributing to the scientific literature—they are, either intentionally or recklessly, distorting the science. For example, in 2009, the United States Global Change Research Program released a report

many uncertainties in the science, and disagreements by scientists within each field about various aspects of climate change. In short, there is no "absolute truth" that encompasses the entirety of climate change science. When discussing distortions of climate science, this Article does not refer to mere disagreements between scientists, nor does it refer to the demonstration of uncertainties that exist. Rather, it refers to the distortion of the science that is overwhelmingly accepted by the scientific community, cherry-picking of data to misrepresent scientific conclusions, and outright falsehoods.

16. For instance, the Heartland Institute still hosts its yearly International Conference on Climate. *See International Conference on Climate Change*, Heartland Inst., http://climateconference.heartland.org/ (last visited Oct. 21, 2013). Most of the actors and organizations discussed herein are still active participants in the misinformation campaign. Some of the original organizations that contributed to the campaign of doubt, like the Global Climate Coalition, no longer exist. *See* Andrew C. Revkin, *Industry Ignored Its Scientists on Climate*, N.Y Times (Apr. 23, 2009), http://www.nytimes.com/2009/04/24/science/earth/24deny.html?pagewanted=all (last visited Oct. 21, 2013). Further, many of the companies that funded the misinformation campaign have withdrawn their support. *See id.* ("Others, like Exxon Mobil, now recognize a human contribution to global warming and have largely dropped financial support to groups challenging the science."). It is not entirely clear, however, that Exxon has fulfilled its commitment to stop funding climate science misinformation. *See* Exxon Announces Cutoff for Warming Skeptics—Again, Integrity in Science, http://www.cspinet.org/integrity/watch/200806021.html (last visited Oct. 21, 2013) (noting that many groups that spread misinformation "continued to receive Exxon funding in 2007 after the company's first announcement").
17. For purposes of this Article, "think tank" will include actual think tanks, industry front groups masquerading as independent entities, certain conservative and libertarian foundations, and Astroturf groups.
18. *See* Powell, *supra* note 7, at 101-03.
19. *See id.* at 93.
20. *See generally* J.B. Ruhl & James Salzman, *Climate Change, Dead Zones, and Massive Problems in the Administrative State: A Guide for Whittling Away*, 98 Cal. L. Rev. 59, 73-93 (2010) (noting that massive problems, including climate change, have multiple causal sources and produce multiple and cumulative effects, the aggregation of which can be simple or spread across vast temporal and spatial boundaries, and can include multiple feedbacks).
21. *See* Powell, *supra* note 7, at 93-112.
22. *See id.* at 93; *see also* Union of Concerned Scientists, Smoke, Mirrors & Hot Air: How ExxonMobil Uses Big Tobacco's Tactics to Manufacture Uncertainty on Climate Science 31-33 (2007), *available at* http://www.ucsusa.org/global_warming/science/exxonmobil-smoke-mirrors-hot.html (listing the various think tanks and front groups funded by ExxonMobil).
23. *See* Hoggan & Littlemore, *supra* note 7, at 73-87; Powell, *supra* note 7, at 93-109.
24. *Id.*
25. *Id.*
26. Suzanne Goldenberg, *Heartland Institute Facing Uncertain Future as Staff Depart and Cash Dries Up*, The Guardian (May 20, 2012), http://www.guardian.co.uk/environment/2012/may/20/heartland-institute-future-staff-cash (last visited Oct. 21, 2013).
27. *See, e.g.*, Craig Idso & S. Fred Singer, Nongovernmental Int'l Panel on Climate Change (NIPCC), Climate Change Reconsidered (2009), *available at* http://www.nipccreport.org/reports/2009/pdf/CCR2009FullReport.pdf. Though the Heartland Institute published the report, it was compiled by the not-so-subtly titled NIPCC, which is primarily comprised of Heartland members, and notably, S. Fred Singer. *See About the NIPCC*, Nongovernmental Int'l Panel on Climate Change, http://www.nipccreport.org/about/about.html (last visited Oct. 8, 2013).

entitled, Global Climate Change Impacts in the United States (Climate Change Impacts Report).[28] This report was commissioned by the U.S. government, primarily researched and written during the Bush Administration, and released under the Obama Administration.[29] It reviews the scientific literature on climate and states, in no uncertain terms: "Global warming is unequivocal and primarily human-induced."[30] The report then goes on to discuss the projected impacts of climate change in the United States from both a regional and sector perspective.[31]

In 2012, the Cato Institute released an "addendum" to the Climate Change Impacts Report (Addendum).[32] The Addendum purports to correct the Climate Change Impacts Report and claims that the Addendum actually contains "more primary science citations than its 2009 predecessor."[33] At the outset, this appeal to authority is misleading: the Addendum "includes numerous citations of marginal relevance and excludes or misrepresents key publications that, in fact, contradict its interpretations."[34] Moreover, the Addendum did not undergo rigorous peer review and was not subject to public comment, as was the U.S. Climate Change Impacts Report.[35] The Addendum's conclusions are not supported by the vast weight of evidence, despite the number of footnotes.[36]

Most disturbing, however, is that the Addendum looks virtually identical to the Climate Change Impacts Report: the cover pictures are substantially the same, the table of contents list the same categories and use the same color combinations, and the entire Addendum is laid out in the same format and manner as the original.[37] To the unsuspecting eye, it appears that the publications are connected, and an unsuspecting reader might believe, based on the Addendum's appearance, that it was peer-reviewed and commissioned by the government, as was the original. The Cato Institute—under the guise of legitimate science, in contradiction to the overwhelming evidence, and with sleight of hand—is trying to convince the public and politicians that climate change impacts will be either benign or beneficial to the United States, that adaptation to climate change is easy, and that regardless of the impacts of climate change, American efforts to combat climate change will have no effect.[38] The Addendum is a masterwork of the campaign to distort climate science and to combat climate change mitigation.

28. U.S. Global Change Research Program, Global Climate Change Impacts in the United States (Thomas R. Karl et al. eds., 2009) [hereinafter U.S. Climate Change Impacts].
29. U.S. Climate Change Impacts, *supra* note 28, at 7.
30. *Id.* at 12.
31. *Id.*
32. Patrick J. Michaels et al., Addendum: Global Climate Change Impacts in the United States 2 (2012) [hereinafter Addendum].
33. *Id.* at 6.
34. *Statement on Cato Institute Addendum Report*, Univ. of Md. Ctr. for Envtl. Sci., http://www.umces.edu/Cato-Report (last visited Oct. 9, 2013).
35. *Id.*
36. *Id.*
37. *Compare* U.S. Climate Change Impacts, *supra* note 28, *with* Addendum, *supra* note 32.
38. Addendum, *supra* note 32, at 10.

2. Politicians

Think tanks are not alone in distorting climate science; a number of politicians also contribute to the misinformation. These politicians include U.S. House of Representatives leaders like Dana Rohrabacher (R-Cal.), Ralph Hall (R-Tex.), Lamar Smith (R-Tex.), and James Sensenbrenner (R-Wis.).[39] Representatives Sensenbrenner, Smith, Rohrabacher, and Smith all vied for the Chair position of the House Committee on Science, Space, and Technology in 2012.[40] Representative Smith won the chair, which had previously been held by Representative Sensenbrenner.[41] All share "skeptical" views of climate science. Representative Sensenbrenner, for instance, is a regular attendee and speaker at Heartland Institute's International Conference on Climate Change, and accused climate scientists of "scientific fascism" in the wake of the Climategate scandal.[42] Representative Smith awarded the Big Three Networks[43] the "Lap Dog" award for their coverage of Climategate, and helped spread the unsubstantiated claims that climate scientists "worked together to hide contradictory temperature data."[44] Representative Rohrabacher has long espoused his views on climate science and scientists, and famously tried to convince Dr. Richard Alley—a prominent climate researcher at the Pennsylvania State University—that the sun was responsible for the observed warming.[45] Dr. Alley politely reminded Representative Rohrabacher that climate scientists were aware of the sun and had even taken the shockingly scientific step of measuring its output and effect on the earth's temperature.[46] The sun, Dr. Alley noted, simply does not explain the warming that the planet is currently experiencing.[47]

While there are many members of the House that dismiss the threat of climate change, the most prominent politician in the misinformation campaign resides in the U.S. Senate. Sen. James Inhofe (R-Okla.) proudly notes that he has been called "the most conservative member of

39. John Timmer, *Three Climate Contrarians Vie to Lead House Science Committee*, Ars Technica (Nov. 20, 2012), http://arstechnica.com/science/2012/11/three-climate-contrarians-vie-to-lead-house-science-committee/ (last visited Oct. 21, 2013).
40. *Id.*
41. *Id.*
42. *Id.* For more information on the Climategate scandal, see Powell, *supra* note 7, at 159-69.
43. ABC, CBS, and NBC.
44. *See* http://lamarsmith.house.gov/news/documentsingle.aspx?DocumentID=196349. Several investigations into Climategate have shown that the scientists involved were not guilty of any scientific malfeasance, and at worst, demonstrated some bad judgment in the way they discussed other people. *See* Powell, *supra* note 7, at 159-69.
45. *See* Timmer, *supra* note 39; Climate Denial Crock of the Week, *Alley and Rohrabacher: Brain vs. Blowhard*, YouTube (Dec. 2, 2010), http://www.youtube.com/watch?v=L2m9SNzxJJA.
46. *See* Timmer, *supra* note 39; Climate Denial Crock of the Week, *supra* note 45.
47. Climate Denial Crock of the Week, *supra* note 45. For more on the sun's influence on the earth's climate, see *Intergovernmental Panel on Climate Change, Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* ch. 2, 188-93 (2007) [hereinafter IPCC AR4 ch. 2]; Copenhagen Diagnosis, *supra* note 12, at 15-16.

the Senate,"[48] and has been either the chairman or ranking minority member of the Senate Committee on Environment and Public Works since 2003.[49] He has called global warming "the greatest hoax ever perpetrated on the American people,"[50] and has authored a book entitled, *The Greatest Hoax: How the Global Warming Conspiracy Threatens Your Future*.[51] Senator Inhofe—through his former director of communications Marc Morano[52]—released a list of over 700 "prominent scientists" who purportedly disagreed with global warming claims.[53] The Center for Inquiry reviewed the list[54] of "prominent scientists" and found the following: approximately 10% "could be identified definitively as climate scientists"; that over 80% had never published any research "remotely related to climate science"; and that 4% actually agreed with the scientific consensus on climate change.[55] The list even includes at least one television weatherman with no scientific degree at all,[56] and several people who requested to be taken off the list.[57] Despite the evidence that the list is misleading at best, it is still available on the website for the Senate Committee on Environment and Public Works. Senator Inhofe is using his standing in the Senate Committee on Environment and Public Works to convince people that the theater is not on fire, even though his evidence is marginal at best, and fraudulent at worst. Senator Inhofe, as a politician, may not be able to tell the difference between his "prominent scientists" and those that actually study climate. Real scientists, however, can tell the difference.

3. Scientists

The misinformation machine likely would not have such a significant effect without the support of actual scientists. Fortunately for the campaign of doubt, and unfortunately for the rest of the planet, there are several prominent scientists that are willing to lend their names to the misrepresentation machine, and in doing so, create the appearance of a genuine scientific dispute.[58] These scientists include, among others, Patrick Michaels,[59] Richard Lindzen,[60] Willie Soon,[61] Sallie Baliunas,[62] Richard Idso,[63] and Timothy Ball.[64] They publish articles on climate change in mainstream newspapers—and occasionally in peer-reviewed journals—write books on climate change, circulate newsletters, and testify in front of Congress.[65] They appear as speakers at skeptic conferences like Heartland's International Conference on Climate Change, and are often members or fellows of the conservative think tanks.[66] And all have, at some point, received funding from fossil fuel interests.[67]

Few people, however—scientist or otherwise—have impacted the climate debate as significantly and for as long as Fred Singer.[68] Singer is a research professor at George Mason University and professor emeritus of environmental science at the University of Virginia.[69] Singer holds a Ph.D. in physics from Princeton University.[70] He is the founder and director of the Science and Environmental Policy Project, a conservative think tank, and an "expert" at the Heartland Institute.[71] Over the years, Singer has attacked climate scientists,[72] published non-peer-reviewed reports on climate,[73] and testified to Congress that there has been no warming of the climate.[74] He has written that the "atmospheric temperature record between 1978 and 2000 (both from satellites and, independently, from radiosondes)

48. *About Senator Inhofe—Biography*, U.S. Senate, http://www.inhofe.senate.gov/public/index.cfm?FuseAction=AboutSenatorInhofe.Biography (last visited Oct. 21, 2013).
49. *Committee History and Membership: History and Recent Membership of the Committee on Environment and Public Works*, U.S. Senate Comm. on Env't & Pub. Works, http://www.epw.senate.gov/public/index.cfm?FuseAction=CommitteeResources.CommitteeHistoryMembership (last visited Oct. 21, 2013).
50. *See* Press Release, Floor Speeches, Climate Change Update (Jan. 4, 2005), http://inhofe.senate.gov/pressreleases/climateupdate.htm (last visited Oct. 21, 2013).
51. Amazon.com, *The Greatest Hoax*, http://www.amazon.com/Greatest-Hoax-Warming-Conspiracy-Threatens/dp/1936488493 (last visited Oct. 21, 2013).
52. For more information on Morano's contribution to the misinformation campaign, see Hoggan & Littlemore, *supra* note 7, at 96-103.
53. *U.S. Senate Minority Report Update: More Than 700 International Scientists Dissent Over Man-Made Global Warming Claims*, U.S. Senate Comm. on Env't & Pub. Works, http://epw.senate.gov/public/index.cfm?FuseAction=Minority.Blogs&ContentRecord_id=2674e64f-802a-23ad-490b-bd9faf4dcdb7 (last visited Oct. 21, 2013).
54. At the time, the list was said to include over 650 signers. The list has grown from its initial size of over 400 signers to over 700 currently. *See id.*
55. Center for Inquiry Office for Public Policy, The Credibility Project: An Assessment of the "U.S. Senate Minority Report: More Than 650 International Scientists Dissent Over Man-Made Global Warming Claims" (2009), *available at* http://www.centerforinquiry.net/uploads/attachments/credibility__brochure.pdf.
56. Ed Brayton, *Inhofe's List of "Prominent Scientists,"* Science Blogs, http://scienceblogs.com/dispatches/2009/04/22/inhofes-list-of-prominent-scie/ (last visited Oct. 21, 2013).
57. *Scientific Inquiry Concludes: Inhofe List Not Credible*, GetEnergySmartNow.com, http://getenergysmartnow.com/2009/07/17/scientific-inquiry-concludes-inhofe-list-not-credible/ (last visited Oct. 21, 2013).
58. *See generally infra* notes 59-64, 77-79.
59. *See* The Heat Is On, *supra* note 15, at 40-44; Powell, *supra* note 7, at 59-60, 104, 106; Oreskes & Conway, *supra* note 7, at 202-03; Boiling Point, *supra* note 15, at 51-52.
60. *See* Oreskes & Conway, *supra* note 7, at 211; Powell, *supra* note 7, at 102, 149, 152-53.
61. *See* Powell, *supra* note 7, at 102-03.
62. *See id.*
63. *See* The Heat Is On, *supra* note 15, at 35-37; Powell, *supra* note 7, at 101, 103.
64. *See* Hoggan & Littlemore, *supra* note 7, at 49-60, 141-44; Powell, *supra* note 7, at 71-72.
65. *See generally supra* notes 59-64.
66. *Id.*
67. *Id.*
68. *See* Oreskes & Conway, *supra* note 7; Powell, *supra* note 7, at 54-58; Boiling Point, *supra* note 15, at 51-53.
69. *Experts: S. Fred Singer*, Heartland Institute, http://heartland.org/s-fred-singer (last visited Oct. 21, 2013).
70. *Id.*
71. *Id.*
72. *See* Oreskes & Conway, *supra* note 7 at 210.
73. *See generally* S. Fred Singer et al., Nongovernmental Int'l Panel on Climate Change, Nature, Not Human Activity, Rules the Climate (2008), *available at* http://scienceandpublicpolicy.org/images/stories/papers/other/Singer%20-%20NIPCC_final%202008.pdf.
74. *See Climate Change Impacts to the United States, Hearing Before the S. Comm. on Commerce, Sci., and Transp.*, 106th Cong. 25-27 (2000) (statement of S. Fred Singer).

doesn't show a warming. Neither does the ocean."[75] Additionally, Singer has said, "[h]igh levels of carbon dioxide should not concern us. They will make plants grow faster. They will make agriculture become more productive. They will encourage more diversity of animals, and they'll make for a better life for human beings."[76] There is a wealth of scientific information that demonstrates that Singer's statements are either extremely misleading or entirely false.[77]

What makes the misinformation of Singer and the other scientists mentioned above so troubling, and so revealing, is that it is not solely related to climate change. Indeed, Singer, Michaels, and many other "skeptic" scientists, have spread "contrarian" viewpoints on a number of topics, including acid rain and tobacco smoke.[78] Further, the disinformation is not constrained to the obscure writings, or even the peer-reviewed writings, of a few contrarian scientists; the men and women behind the misinformation campaign have exerted influence over Congress, the media, and even the White House.[79] Singer and the others have succeeded in convincing a large portion of the public, the media, and elected officials that climate change is either a hoax, or mostly inconsequential. The actions of these scientists demonstrate a willingness to distort science, even where there is a strong possibility their distortions will contribute to future human suffering.

4. Other Distortion Contributors

In addition to the think tanks, politicians, and scientists, a number of other individuals and institutions have helped spread misinformation. Briefly, these include some meteorologists like Joe Bastardi,[80] professional policy wonks like Lord Christopher Monckton,[81] and most disturbingly, the media.[82] Both the quantity and quality of media coverage of climate change science have varied over the years.[83] The media often focuses on the controversy surrounding climate science; moreover, the media often gives equal weight to contrarians, suggesting a balance that simply does not exist in the underlying scientific literature.[84] In other words, people are led to believe that there is a genuine debate between two equally valid "sides," instead of being told about the overwhelming evidence that demonstrates that climate change is a very real threat.[85] Some media outlets eschew the false balance seen in most media representation of climate change, and instead contribute to the distortion directly through misleading representations of the science and attacks on climate scientists.[86] The media thus provides a loud speaker to those who scream, "there is no fire in the theater."

B. Who Funds Misinformation

While the sources of climate science misinformation, and the methods used, are fairly clear, the intent behind the distortion is not always obvious. In order to understand why some groups and individuals are so vociferous in their denouncement of the climate science consensus, it is helpful to examine how those groups and individuals are funded. Financial support for the distortion of climate science comes, directly or indirectly, from a variety of sources that include individuals, businesses, and industry groups.[87] Fossil fuel and energy companies and organizations, like ExxonMobil[88] and the Western Fuels Association, have been and are the most visible funders of the misrepresentation of climate science.[89] Additionally, some funding

75. S. Fred Singer, *Climate Deniers Are Giving Us Skeptics a Bad Name*, Am. Thinker (Feb. 29, 2012), http://www.americanthinker.com/2012/02/climate_deniers_are_giving_us_skeptics_a_bad_name.html#ixzz1nn0SciyO (last visited Oct. 21, 2013).
76. *Interview: Dr. S. Fred Singer*, What's Up With the Weather, PBS, http://www.pbs.org/wgbh/warming/debate/singer.html (last visited Oct. 21, 2013).
77. *See, e.g.*, David B. Lobell et al., *Prioritizing Climate Change Adaptation Needs for Food Security in 2030*, 319 Sci. 607, 607-10 (2008) (discussing projected impacts of temperature and precipitation fluctuation on certain crops across various regions); U.S. Climate Change Impacts, *supra* note 28, at 72 ("Crop responses in a changing climate reflect the interplay among three factors: rising temperatures, changing water resources, and increasing carbon dioxide concentrations."). The scientific literature confirms that a changing climate may in fact be detrimental to agriculture in certain regions and on different temporal scales. *Id.* Singer need only look at Senator Inhofe's home state of Oklahoma to see how extreme heat and dryness can devastate crop production despite atmospheric carbon dioxide concentrations that have not been seen in thousands of years. *See Drought Losses in OK Top $400 Million for 2012*, Div. of Agric. Sci. and Natural Res., Okla. St. Univ., http://www.oces.okstate.edu/Members/trisha.gedon-40okstate.edu/drought-losses-in-ok-top-400-million-for-2012 (last visited Oct. 21, 2013). For further discussion of why the remarks about satellites are extremely misleading, see *infra* note 205.
78. Oreskes & Conway, *supra* note 7, at 6-7.
79. *Id.* at 7.
80. Jocelyn Fong & Shauna Theel, *Why Is Fox Going to Joe Bastardi for Climate Change Analysis*, Media Matters, http://mediamatters.org/research/2011/08/17/why-is-fox-going-to-joe-bastardi-for-climate-ch/183022 (last visited Oct. 21, 2013).
81. *Christopher Monckton*, Sourcewatch, http://www.sourcewatch.org/index.php?title=Christopher_Monckton#cite_note-CP2008-07-0 (last visited Oct. 21, 2013).
82. *See* Powell, *supra* note 7, 121-33; Oreskes & Conway, *supra* note 7, at 214-15; Hoggan & Littlemore, *supra* note 7, at 151-67.
83. *See* Maxwell T. Boykoff, *From Convergence to Contention: United States Mass Media Representations of Anthropogenic Climate Change Science*, 32 Transactions Inst. British Geographers 477, 480, 486-87 (2007).
84. *See id.* at 486-87.
85. *See* Matthew C. Nisbet, *Communicating Climate Change: Why Frames Matter for Public Engagement*, 51 Env't Mag. 12, 19 (2009).
86. *See* Aaron Huertas & Dena Adler, Union of Concerned Scientists, Is News Corp. Failing Science?: Representations of Climate Science on Fox News Channel and in the Wall Street Journal Opinion Pages 7 (2012), *available at* http://www.ucsusa.org/assets/documents/global_warming/Is-News-Corp-Failing-Science.pdf (finding "93 percent of 40 representations of climate science on Fox News Channel [over a six-month period] to be misleading"). The report found that Fox News mocked or disparaged climate science, undermined climate science, cherry-picked data, used totally misleading citations, and generally misled viewers about climate change. *Id.* at 8.
87. *See* Powell, *supra* note 7, at 93-116; The Heat Is On, *supra* note 15, at 33-105.
88. *See generally* Union of Concerned Scientists, *supra* note 22 (documenting ExxonMobil's history of funding climate science misinformation).
89. *See* Boiling Point, *supra* note 15, at 33-61; Powell, *supra* note 7, at 110-16; Hoggan & Littlemore, *supra* note 7, at 168-205; Jane Mayer, *Covert Operations*, The New Yorker, http://www.newyorker.com/reporting/2010/08/30/100830fa_fact_mayer?currentPage=10 (last visited Oct. 21, 2013) (describing how the Koch Brothers fund climate change misinformation).

comes directly from conservative and libertarian organizations that promote capitalism, like the Scaife Foundation, which view global warming as an ideological and economic threat—a means to more governmental control and higher taxes.[90] These companies and organizations directly fund scientists and front groups, or contribute to think tanks that either spread misinformation directly or subsequently spread the money to other organizations.[91] Finally, many of these groups contribute substantially to political campaigns. Companies like ExxonMobil and Koch Industries have contributed millions of dollars over the years to create doubt about climate science.[92] The reason appears fairly straightforward: climate change solutions, and the necessary corresponding reduction in greenhouse gas (GHG) emissions, invariably present a threat to the bottom lines of fossil fuel companies.

It is not surprising that free-market groups and fossil fuel companies, many of which are some of the most profitable business entities in history, would try to protect their interests.[93] Nor is it surprising that some groups and individuals are willing to spread misinformation for various reasons, including ideology and, in some cases, monetary incentives. In doing so, they threaten the future health, safety, and general welfare of all Americans. Further, they distort the marketplace of ideas upon which the government relies in making informed decisions. Yet, even though the actors are known, the deception is clear, the intent is discoverable, and the damages are potentially catastrophic, the current legal regime is simply not sufficient to combat the fraudulent misrepresentation of climate science.

II. The Failure of Existing Legal Remedies to Address Climate Science Misinformation

Although the campaign to deceive the public about climate science is well documented, to date, there have been few, if any, repercussions for those involved. The reason there have been no legal consequences for the misrepresentation of climate science seems intuitive: the First Amendment protects the rights of Americans to say what they want about climate, especially if they are simply expressing their opinion or offering contradictory scientific findings. Moreover, Americans do not want to chill the academic and scientific freedom of exploration and communication.[94] Indeed, the United States encourages a free and expansive "marketplace of ideas."[95] Certainly on an issue as important as climate change, Americans do not want to stifle innovative ideas or prevent the legitimate discourse of competing climate policies.[96]

Nevertheless, not all speech contributes to an efficient marketplace, and certain false speech may actually "interfere with the truth-seeking function of the marketplace of ideas."[97] In 2012, the U.S. Supreme Court in *United States v. Alvarez* explicitly held that false statements, standing alone, do not categorically lose First Amendment protection.[98] But, there are categories of false speech that historically have not been protected by the First Amendment; these categories include fraud, defamation, perjury, and lying to government officials.[99] Even among those categories of actionable false speech, falsity alone is not sufficient to render the speech unprotected; the speech must also touch upon a legally cognizable injury or protectable government interest.[100] In many instances, the false speech must also be made recklessly or knowingly.[101]

As argued in the introduction, much of the misinformation about climate change is made not to further an honest discussion about climate science and policy, but rather to mislead and deceive. Such misleading speech, when made intentionally or recklessly, distorts the political landscape: it alters public perception about a life-threatening situation and, consequently, expands the policy choices available to politicians. Instead of deciding how to respond to the threat, Congress is battling about the reality of climate change. In order to craft a new cause of action that sufficiently addresses the dangers of fraudulent misrepresentation of climate science, it is therefore necessary to examine the categories of currently unprotected false speech to see why they are not adequate remedies.

A. *Fraud*

Fraud and its subsets provide the best framework for understanding the failure of existing legal regimes to address the

90. Senator Inhofe inadvertently summed up this position during an interview on the *Rachel Maddow Show*, when he said, "I was actually on your side of this issue when I was chairing that committee and I first heard about this. I thought it must be true until I found out what it cost." *See Inhofe's Stunning Admission to Maddow on Global Warming: "I Thought It Must Be True Until I Found Out What It Cost,"* Think Progress, http://thinkprogress.org/climate/2012/03/16/446008/inhofe-maddow-global-warming/ (last visited Oct. 21, 2013) (noting that global warming solutions will lead to higher taxes and more governmental control).
91. *See* Boiling Point, *supra* note 15, at 52-53.
92. *See* Powell, *supra* note 7, at 110-16; Mayer, *supra* note 89.
93. *See* Powell, *supra* note 7, at 110-16.
94. *See generally* Natasha C. Lisman, *Freedom of Scientific Research: A Frontier Issue in First Amendment Law*, 35 Bos. B.J. 4, 6 (1991).
95. Knox v. Serv. Employees Int'l Union, Local 1000, 132 S. Ct. 2277, 2288 (2012) (citations omitted) ("The First Amendment creates "an open marketplace" in which differing ideas about political, economic, and social issues can compete freely for public acceptance without improper government interference.).
96. *Id.* (citations omitted) ("The government may not prohibit the dissemination of ideas that it disfavors, nor compel the endorsement of ideas that it approves.").
97. United States v. Alvarez, 132 S. Ct. 2537, 2545 (2012) (plurality opinion) (quoting Hustler Magazine Inc. v. Falwell, 485 U.S. 46, 52 (1988).
98. *Id.* at 2546 (citations omitted).
99. *Id.* at 2544 (noting that, inter alia, fraud, obscenity, defamation, fighting words, and speech designed to further criminal behavior or incite imminent lawless action are categories of speech that historically have not been afforded First Amendment protection).
100. *Id.* at 2545-47 (finding that fraud and defamation protect legally cognizable interests, while prohibitions against perjury, impersonating a government official, or lying to a governmental official interfere with the proper administration of justice or damage the reputation of the government).
101. *Id.* at 2545 ("[W]hen considering some instances of defamation and fraud . . . [t]he statement must be a knowing or reckless falsehood.").

misrepresentation of climate science.[102] In general terms, claims of fraud require (1) the misrepresentation or omission of a material fact, (2) scienter or some level of culpability beyond negligence, (3) intent to induce, (4) justifiable reliance, and (5) loss causation.[103] Courts may phrase the requirements in a number of different ways.[104] Normally, there must be pecuniary damages,[105] though there are instances where a misrepresentation may be actionable if it causes physical harm.[106] Fraud has both civil and criminal consequences, and causes of action may originate from the common law or statute.[107] Fraud may involve the use of the mail,[108] or the offer or sale of securities.[109] Yet, despite the prevalence and variety of fraud claims, the underlying elements of those claims prevent fraud from being a sufficiently useful tool in the fight against misrepresentations of climate science.

1. Falsity, Materiality, and Clarity

Whether the cause of action originates in common law or statute, fraud claims inevitably fail to sufficiently address misrepresentation of climate science for multiple reasons. First, falsity is debatable for a number of statements made by serial misinformers. For instance, the Cato Institute's Addendum, discussed above, proclaims "carbon dioxide itself is likely increasing crop yields and will continue to do so in increasing increments in the future."[110] The statement suggests that climate change will increase crop yields and thus will be beneficial to society. In contrast, the Climate Change Impacts Report states, "[m]any crops show positive responses to elevated carbon dioxide and low levels of warming, but higher levels of warming often negatively affect growth and yields."[111] Similarly, the International Panel on Climate Change (IPCC) concluded in 2007 that "moderate climate change is projected to increase aggregate yields of rain-fed agriculture by 5 to 20%, but with important variability among regions," and further, that "[m]ajor challenges are projected for crops that are near the warm end of their suitable range or which depend on highly utilized water resources."[112] Moreover, the IPCC found that "[d]rought-affected areas are projected to increase in extent, with the potential for adverse impacts on . . . agriculture."[113] The latter two reports demonstrate the nuance required in scientific analysis: increased carbon dioxide, in a vacuum, might benefit plant growth but, when combined with increased temperatures and strained water resources, might actually impair crop yields.[114] Further, rising temperatures affect agriculture asymmetrically. Consequently, different regions and plant species respond in different ways to the effects of climate change.[115] In short, it is far from certain that increased carbon dioxide will continually yield greater crop production in the United States, and many studies indicate that long-term crop production will suffer. Nevertheless, the Addendum proclamation is not necessarily false; it is, rather, misleading, and it is not obvious that such a misleading statement would satisfy the false requirement of a fraud claim.[116]

It seems clearer, however, that the Addendum statement about crop production and others like it would be considered material. In different contexts, the materiality requirement may rest on either an objective or subjective standard,[117] and there are several different tests for materiality.[118] Securities regulations, and the materiality tests used therein for statements about uncertain future events, may provide some context.[119] Would the statement about crops, for instance, be important to decisionmakers and voters?[120] Would it alter the "total mix" of information upon which a decisionmaker relies?[121] What is the probability of future crop failures, and what is the projected magnitude of damages?[122] These questions would likely require a factual determination,[123] yet even a cursory examination demonstrates the materiality of the statement. While the probability of occurrence is debatable, the potential magnitude of damages is immense. A reasonable politician, in making decisions that affect the future of the United States, would likely find possible catastrophic damage to America's breadbasket to be important in the total mix of information she uses in making a decision. The materiality requirement thus does not present a substantial barrier to a successful lawsuit, but the falsity requirement provides a significant hurdle to potential plaintiffs and prosecutors.

102. For purposes of this Article, I will ignore claims of negligent misrepresentation, and will operate under the precept that a higher level of culpability will be necessary to remove climate science misrepresentation from the protective arms of the First Amendment.
103. *See* Dan B. Dobbs et al., The Law of Torts §664 (2d ed.); Restatement (Second) of Torts §525 (1977); 3 Law Sec. Reg. §12.4 (2012) (noting that SEC §10b-5 actions require common-law elements of fraud in addition to securities-specific elements).
104. Peter A. Alces, Law of Fraudulent Transactions §2:3 (2012).
105. *See* Dan B. Dobbs et al., *supra* note 103, at §664, n.2.
106. Geelan Fahimy, *Liable for Your Lies: Misrepresentation Law as a Mechanism for Regulating Behavior on Social Networking Sites*, 39 Pepp. L. Rev. 367, 370-71 (2012).
107. *See, e.g.*, Alces, *supra* note 104, at §1:5.
108. *See, e.g.*, Frauds and Swindles, 18 U.S.C. §1341 (2012).
109. 17 C.F.R. §240.10b-5 (2012).
110. Addendum, *supra* note 32, at 8.
111. U.S. Climate Change Impacts, *supra* note 28, at 71.
112. *See* Intergovernmental Panel on Climate Change, Climate Change 2007: Synthesis Report 52 (2007) [hereinafter IPCC Synthesis Report].
113. *Id.* at 49.
114. U.S. Climate Change Impacts, *supra* note 28, at 71-78 (noting that "[c]limate change can have both beneficial and detrimental impacts on plants").
115. *Id.*
116. Under certain variants of fraud, like §10b-5 actions, the misstatement may still be misleading enough to be actionable. Virginia Bankshares, Inc. v. Sandberg, 501 U.S. 1083, 1090-98 (1991) (holding that even opinions may be actionable as materially misleading facts where opinions are based on verifiable underlying facts).
117. *See* 37 C.J.S. Fraud §38 (2012).
118. *See* 37 C.J.S. Fraud §37 (2012).
119. *See, e.g.*, Basic Inc. v. Levinson, 485 U.S. 224, 230-39 (1988).
120. *Id.*
121. *Id.* at 231 (expressly adopting the materiality standard from *TSC Industries, Inc. v. Northway, Inc.*, 426 U.S. 438 (1976)).
122. *Id.* at 238 (quoting *SEC v. Texas Gulf Sulphur Co.*, 401 F.2d 833, 849 (2d Cir. 1968) (en banc)).
123. *Id.* at 239.

2. Causation, Damages, and *Kivalina*

While falsity is an initial hurdle to a successful suit under the current fraud regimes, causation and damages are most likely insurmountable barriers. Initially, a plaintiff would have to prove existing damages, not future or speculative damages. The requirement of existing and tangible damages significantly limits possible plaintiffs and prosecutions. Moreover, it is difficult, if not impossible, to causally link damages to misrepresentations of climate science. Global warming is causing changes in the frequency, intensity, duration, and timing of extreme weather events.[124] Some extreme weather events, like extreme heat, are noticeably increasing already.[125] Traditionally, scientists have been hesitant to attribute any specific extreme weather or climate event to anthropogenic climate change.[126] Recently, however, new attribution studies are showing the link between specific events and climate change.[127] Nevertheless, a plaintiff or prosecutor would first need to establish that the damages stem from climate change, and not natural variability.[128]

The causal challenge is further compounded by the need to connect the damages to the misrepresentation. A case that does not involve fraud claims, *Native Village of Kivalina v. ExxonMobil*,[129] demonstrates the difficulty in connecting misrepresentations to damages. In 2009, the village of Kivalina brought suit in the Northern District of California for claims of nuisance—under both state and federal common law—and civil conspiracy[130] against 24 defendants, primarily domestic electric utilities and international oil companies like ExxonMobil and American Electric Power Company.[131] The complaint alleged, inter alia, that the defendants' GHG emissions contributed to global warming, which then led to diminished Arctic sea ice—which traditionally protected the village from winter storms—and as a result, the village would have to be relocated.[132] Further, the village alleged that a group of the defendants[133] engaged in conspiracies to contribute to global warming and to

> participate in an agreement to mislead the public with respect to the science of global warming and to delay public awareness of the issue—so that they could continue contributing to, maintaining and/or creating the nuisance without demands from the public that they change their behavior as a condition of further buying their products.[134]

The district court dismissed the claim, holding that the plaintiffs did not satisfy Article III standing requirements and that the suit raised nonjusticiable political questions.[135] The decision never mentioned the conspiracy claim, and instead focused on whether the nuisance claims could meet the standing and political question challenges.[136] On appeal, the U.S. Court of Appeals for the Ninth Circuit affirmed the decision,[137] and noted that the "civil conspir-

124. Intergovernmental Panel on Climate Change, Special Report, Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation 7 (2012).

125. *See* Press Release, Met Office, Extreme Heat Becoming More Likely Under Climate Change (July 10, 2012), http://www.metoffice.gov.uk/news/releases/archive/2012/bams-state-of-the-climate (last visited Oct. 21, 2013); *see also* Stefan Rahmstorf & Dim Coumou, *Increase of Extreme Events in a Warming World*, 108 Proc. Nat'l Acad. Sci. 17905, 17905 ("[T]he ratio of daily record highs to record lows is currently twice as large as what would be expected in a stationary climate in . . . the United States. . . .").

126. *See* Alister Doyle, *Climate Change, Extreme Weather Link Becoming More Apparent*, Huffington Post, http://www.huffingtonpost.com/2012/07/27/climate-change-extreme-weather_n_1709603.html (last visited Oct. 21, 2013).

127. *Id.*

128. Even if, for instance, a plaintiff can show that the damages stem from a hurricane that was affected by climate change, the question then becomes "was the hurricane caused by climate change, or merely strengthened?" If it was only strengthened, what portion of the damages are attributable to man's influence?

129. The Village of Kivalina is a "the governing body of an Inupiat Eskimo village of approximately 400 people who reside in the City of Kivalina" in Alaska. Native Vill. of Kivalina v. ExxonMobil Corp. (*Kivalina I*), 663 F. Supp. 2d 863, 868, 39 ELR 20236 (N.D. Cal. 2009), *aff'd*, No. 09-17490, 2012 WL 4215921 (9th Cir. 2012).

130. Complaint, Native Vill. of Kivalina v. ExxonMobil Corp., 663 F. Supp. 2d 863, 39 ELR 20236 (N.D. Cal. 2009), *aff'd*, No. 09-17490, 2012 WL 4215921 (9th Cir. 2012) (CV 08 1138).

131. *Kivalina I*, 663 F. Supp. 2d at 868 n.1 ("Defendants are: (1) ExxonMobil Corporation; (2) BP P.L.C.; (3) BP America, Inc.; (4) BP Products North America, Inc.; (5) Chevron Corporation; (6) Chevron U.S.A., Inc.; (7) ConocoPhilips Company; (8) Royal Dutch Shell P.L.C.; (9) Shell Oil Company; (10) Peabody Energy Corporation; (11) The AES Corporation; (12) American Electric Power Corporation; (13) American Electric Power Services Corporation; (14) DTE Energy Company; (15) Duke Energy Corporation; (16) Dynergy Holdings, Inc.; (17) Edison International; (18) MidAmerican Energy Holdings Company; (19) Mirant Corporation; (20) NRG Energy; (21) Pinnacle West Capital Corporation; (22) Reliant Energy, Inc.; (23) The Southern Company; and (24) Xcel Energy, Inc.").

132. *Id.* at 868. 2012 set many records for Arctic sea ice, including the record for lowest recorded minimum extent in the satellite record. *Arctic Sea Ice Extent Settles at Record Seasonal Minimum*, Nat'l Snow & Ice Data Center, http://nsidc.org/arcticseaicenews/2012/09/arctic-sea-ice-extent-settles-at-record-seasonal-minimum/ (last visited Oct. 21, 2013); *Arctic Sea Ice Hits Smallest Extent in Satellite Era*, NASA, http://www.nasa.gov/topics/earth/features/2012-seaicemin.html (last visited Oct. 21, 2013). Arctic sea ice volume decreased at an even faster pace than extent and also set a minimum record in September 2012. *See* Polar Sci. Ctr., Univ. of Wash., *Arctic Sea Ice Volume Anomaly*, *Version 2*, http://psc.apl.washington.edu/wordpress/research/projects/arctic-sea-ice-volume-anomaly/ (last visited Oct. 21, 2013); Ramez Naam, *Arctic Sea Ice: What, Why, and What Next*, Sci. Am. Blog (Sep. 21, 2012), http://blogs.scientificamerican.com/guest-blog/2012/09/21/arctic-sea-ice-what-why-and-what-next/ (last visited Oct. 21, 2013).

133. The "Conspiracy Defendants" were ExxonMobil, American Electric Power Company, BP America Inc., Chevron Corporation, ConocoPhillips Company, Duke Energy, Peabody, and the Southern Company. Complaint at ¶ 269, *supra* note 130.

134. *Id.*

135. *Kivalina I*, at 882. For more on this case and the reasoning behind the dismissal, see generally Randall S. Abate, *Public Nuisance Suits for the Climate Justice Movement: The Right Thing and the Right Time*, 85 Wash. L. Rev. 197, 223-40 (2010).

136. *Kivalina I*, 663 F. Supp. 2d at 870.

137. *Native Vill. of Kivalina v. ExxonMobil Corp.* (*Kivalina II*), 696 F.3d 849, 858 (9th Cir. 2012). The Ninth Circuit's decision did not explicitly affirm the standing and political question doctrine holdings of the district court, but rather relied on the Supreme Court's 2012 decision in *American Electric Power Co. v. Connecticut*, 131 S. Ct. 2527, 41 ELR 20210 (2011), which found public nuisance claims displaced by EPA's authority to regulate GHGs. *Id.* at 857. The *American Electric* decision itself relied on the Supreme Court's earlier holding in *Massachusetts v. EPA*, 549 U.S. 497, 37 ELR 20075 (2007). *Am. Elec.*, 131 S. Ct. at 2537-38. The *American Electric* decision expressly held that EPA's authority to regulate GHGs displaced federal nuisance suits seeking abatement of GHG emissions in fossil fuel power plants. *Am. Elec.*, 131 S. Ct. at 2537. The court did not expressly extend this climate change holding to either state-law claims of nuisance, *Am. Elec.*, 131 S. Ct. at 2540, or to federal nuisance claims seeking damages. Michael B. Gerrard, *What Litigation of a Climate Nuisance Suit Might Look Like*, 121

acy claim is dependent upon the success of the substantive claim," and thus must fail alongside the nuisance claims.[138]

Because neither court discussed the civil conspiracy claim in depth, it is difficult to know how such a claim would fare. The defendants in the case, however, provided compelling arguments against a successful claim, noting an "attenuated and remote" causal chain.[139] Indeed, establishing causation would theoretically require a plaintiff or prosecutor to prove a series of causal steps: first, that defendants' misrepresentations created doubt in the minds of the public or politicians; next, that the doubt prevented the public or politicians from demanding action on climate change; that had the public or politicians known the truth, they would have demanded action, or launched a mass boycott of defendant's products that would have spurred action; that if the boycott or demand for action had occurred, defendants would have released a lesser amount of GHG emissions; and finally, that if the defendants had released less GHG emissions, the resulting climate change would be less, and the damages would not have occurred, or would have been less severe.[140]

Kivalina demonstrates three key causal links that make traditional fraud an unlikely remedy for the knowing or reckless distortion of climate science. First, is the link between the misinformation and the failure of the United States to act. Second, is the link between the failure to act and increased global warming. Finally, there is the link between climate change and the specific damage at issue in the lawsuit. Each link in the causal chain is a weak link; collectively, the chain cannot withstand any resistance.

3. Reliance

A fraud plaintiff or prosecutor would also have the added burden of proving that the damages were not just caused by the misrepresentation, but also by the victim's reliance on the misrepresentation. For private plaintiffs, this is a philosophically impassible roadblock. How could a climate change victim show that he or she relied on the misrepresentations of a think tank or scientist? Would the victim first have to prove that he or she actually heard the misrepresentation, and then changed his or her actions accordingly? Moreover, what kind of changes in behavior would suffice to establish reliance? Would voting or purchasing habits suffice? What if the person had always voted for politicians that support action on climate change, and had never bought from the underlying source of emissions, but for completely unrelated reasons? Could the victim be said to have relied on the misrepresentation? Indeed, the challenge of establishing both causation and reliance would likely bar any possible recovery for fraudulent misrepresentation of climate science. Because fraud has stringent reliance, causation, damages, and falsity requirements, it simply does not provide a valuable framework in which to address climate science distortion.

B. Perjury

Like fraud, perjury is not a sufficient remedy for the knowing or reckless distortion of climate science. Perjury is unprotected speech because it "is at war with justice . . . ."[141] Perjured speech is not only false, it also " undermines the function and province of the law and threatens the integrity of judgments."[142] The elements of perjury are straightforward: (1) a person makes a statement of material fact that he or she does not believe to be true; (2) to a competent tribunal; (3) after taking an oath of truth administered by the United States.[143] It is immediately clear, however, why this cause of action will not suffice to address the misrepresentation of climate science. First and foremost, it only applies in situations where a person has taken an oath of truth. This requirement prevents the cause of action from being used against think tanks that issue misleading reports or statements made on television. Further, future speakers may simply refuse to appear before Congress—and instead constrain their misinformation to other outlets—if a successful perjury suit was brought against someone for testifying in front of Congress. And ironically, the *Daubert* standard that regulates complex scientific evidence in courts might actually prevent perjury in courtrooms by disallowing the testimony of serial misinformers during climate cases.

Additionally, perjury requires proof that the person did not believe the statement to be true.[144] The speaker must willfully and knowingly make the false statement.[145] Proving what a person actually believes, absent a smoking gun document, is nearly impossible. Moreover, an answer that is technically true, even if intended to mislead, is not perjury if the question asked was not sufficiently specific and clear.[146] In short, the falsity requirement for perjury is incredibly stringent; it allows speakers to couch their words in a manner that protects them from successful prosecutions. This is especially true in a scientific arena because uncertainties provide room for disagreement, even if it is specious, and complexities may prevent sufficiently specific and clear questions from prosecutors or congresspersons. The contours of perjury are most likely too malleable, and its application too narrow, to allow a successful perjury prosecution for the distortion of climate science.

Yale L.J. Online 135, 135 (2011) (suggesting that federal common-law claims for money damages may still survive). It is not yet clear whether the Ninth Circuit's extension of the *American Electric* holding will survive or be adopted by other circuits.

138. *Kivalina II*, 696 F.3d at 858.

139. *See* Motion of Certain Utility Defendants to Dismiss Plaintiffs' Civil Conspiracy Claim, Native Vill. of Kivalina v. ExxonMobil Corp., 663 F. Supp. 2d 863, 39 ELR 20236 (N.D. Cal. 2009) (No. C 08-1138 SBA), 2008 WL 2675877, *aff'd*, 696 F.3d 849, 854 (9th Cir. 2012).

140. *See id.*

141. In re Michael, 326 U.S. 224, 227 (1945).

142. United States v. Alvarez, 132 S. Ct. 2537, 2546 (2012) (plurality opinion).

143. 18 U.S.C.A. §1621 (West 2012).

144. *Id.*; United States v. Bronston, 453 F.2d 555, 557 (2d Cir. 1971), *rev'd*, 409 U.S. 352 (1973) (reversed on other grounds).

145. United States v. Dunnigan, 507 U.S. 87, 94 (1993).

146. *Bronston*, 453 F.2d at 557-58 ("In order to support a perjury conviction, the question asked must be of such clarity that it is capable of eliciting an answer which the defendant knows to be false; that is, it must adequately test the defendant's belief in the truthfulness of his answer.") (citation omitted).

C. Defamation

Unlike fraud and perjury, defamation focuses on attacks to a person's integrity.[147] Defamation includes both libel and slander. It requires (1) a false and defamatory statement, (2) an unprivileged publication, (3) culpability of at least negligence, and (4) either special harm or per se harm, dependent on the specific form of defamation.[148] Where the subject of the defamatory statement is a public official, the speaker must act with either knowledge or reckless disregard for the falsity of the statement.[149] Like fraud and perjury, defamation is proscribed in part because it has existed as a cause of action since before the First Amendment was adopted and protects a long-recognized interest in one's own reputation.[150]

In the climate change context, misinformers often undermine the science through attacks on the competence or integrity of climate scientists.[151] One subject of repeated attacks is Dr. Michael Mann, a researcher at Pennsylvania State University.[152] Dr. Mann's early work on climate reconstructions, which came to be known as the "Hockey Stick" graph, has been vigorously attacked for over a decade.[153] The attacks include allegations that Dr. Mann intentionally manipulated data to support his desired results, and were bolstered by the Climategate "scandal."[154] More recent climate reconstructions using a variety of climate proxies, however, have confirmed the basic findings of the original graph.[155] Moreover, several independent investigations—by Pennsylvania State University, the National Science Foundation, the U.S. Environmental Protection Agency (EPA), the U.K. House of Commons Science and Technology Committee, and elsewhere—have confirmed that there was no wrongdoing on the part of Dr. Mann and, despite some minor statistical flaws in the original research, the overall conclusions were sound.[156]

Despite the exoneration of Dr. Mann by the investigations and the confirmation of his work by subsequent research, the attacks continued.[157] Dr. Mann has been accused of academic fraud and was compared to convicted child molester and former Pennsylvania State football coach Jerry Sandusky.[158] Dr. Mann subsequently filed a libel suit against the Competitive Enterprise Institute and the *National Review*, both of which ran the article that claimed that Dr. Mann "molested data," among other things.[159] In 2013, a District of Columbia Superior Court denied the motions to dismiss by the defendants.[160] The court held that, at that early stage of the litigation, the defendants' various comments about Dr. Mann "are not pure opinion but statements based on provably false facts," "demonstrate[ ] something more and different than honest or even brutally honest commentary," and "were not simply rhetorical hyperbole."[161] Moreover, and more importantly, the court found that Dr. Mann presented "sufficient evidence to find that further discovery may uncover evidence of "actual malice" by the defendants.[162]

Nevertheless, the Mann lawsuit illustrates that despite the remedy of a libel suit, defamation will not significantly address the damage of the reckless or intentional distortion of climate science. First, his suit will be very difficult to prove,[163] even though accusations of criminal behavior (e.g., fraud) are libelous unless trivial.[164] It is likely that Dr. Mann will be found to be a public figure,[165] which raises the threshold of proof for plaintiffs, who must show that defendants acted with actual malice.[166] Moreover, it is unlikely that he will be able to show pecuniary damages stemming from the statements, and although he would likely be eligible for nominal reputational damages, quantifying such damages is difficult.[167] Indeed, the Supreme Court's decision in *Gertz v. Robert Welch, Inc.*[168] sought to limit "gratuitous awards of money damages far in excess of any actual injury" in defamation cases. It is not clear what effect the *Gertz* holding will have on purely nominal dam-

147. Rodney A. Smolla, 1 Law of Defamation §1:1 (2d ed.).
148. United States v. Alvarez, 132 S. Ct. 2537, 2553 (2012) (plurality opinion) (quoting N.Y. Times Co. v. Sullivan, 376 U.S. 254, 279-80 (1964)); Restatement (Second) of Torts §558 (1977).
149. *Alvarez*, 132 S. Ct. at 2563.
150. *Id.* at 2545, 2561.
151. *See* Oreskes & Conway, *supra* note 7, at 1-6, 197-213 (discussing the attacks on Ben Santer). Singer and Frederick Seitz accused Santer of fraud and spreading scientific misinformation, *see id.*, an irony not lost on the author of this Article.
152. *Michael E. Mann*, Real Climate, http://www.realclimate.org/index.php/archives/2004/12/michael-mann/ (last visited Dec. 5, 2012).
153. John Collins Rudolf, *The "Hockey Stick" Lives*, N.Y. Times Blog (Sept. 23, 2010), http://green.blogs.nytimes.com/2010/09/23/the-hockey-stick-lives/ (last visited Oct. 21, 2013).
154. *Id.*
155. *See generally* Eugene R. Wahl et al., *An Archive of High-Resolution Temperature Reconstructions Over the Past 2+ Millennia*, 11 Geochemistry, Geophysics, Geosystems (G^3) (2010); Michael E. Mann et al., *Proxy-Based Reconstructions of Hemispheric and Global Surface Temperature Variations Over the Past Two Millennia*, 105 Proc. Nat'l Acad. Sci. 13252 (2010); Intergovernmental Panel on Climate Change, Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change ch. 6, 466-74 (2007).
156. Sal Gentile, *Judge Denies Request for Records in UVA Climate Case*, PBS (Aug. 30, 2010), http://www.pbs.org/wnet/need-to-know/the-daily-need/virginia-attorney-general-vows-to-try-again-in-climategate-records-case/3200/ (last visited Oct. 21, 2013).
157. Rudolf, *supra* note 153.
158. *See* Suzanne Goldenberg, *Climate Scientist Michael Mann Sues Over Sex Offender Comparison*, The Guardian (Oct. 24, 2012), http://www.guardian.co.uk/environment/2012/oct/24/climate-scientist-michale-mann-sues (last visited Oct. 21, 2013) (discussing attacks by the *National Review* and Competitive Enterprise Institute); Gentile, *supra* note 156 (discussing the failed fraud investigation of Virginia Attorney General Ken Cuccinelli).
159. *See* Complaint at 10, Mann v. National Review, Super. Ct. D.C. (No. 0008263-12), *available at* http://legaltimes.typepad.com/files/michael-mann-complaint.pdf.
160. Mann v. National Review, Inc., No. 2012 CA 008263 B (Sup. Ct. D.C. 2013) (order denying motion to dismiss).
161. *Id.* at 15-17.
162. *Id.* at 21.
163. *See* Puneet Kollipara, *Climate Scientist Mann Faces Obstacles to Winning Libel Lawsuit, Legal Experts Say*, Sci. Mag. (Oct. 26, 2012), http://news.sciencemag.org/scienceinsider/2012/10/climate-scientist-mann-faces-obs.html?ref=hp (last visited Oct. 21, 2013).
164. *See* David A. Elder, Defamation: A Lawyer's Guide §1:10 (2012).
165. *Mann*, No. 2012 CA 008263 B, at 20 ("Plaintiff does not seriously challenge the assertion that he is a public figure and the Court finds that given his work and notoriety the characterization as a public figure (albeit arguably limited) is appropriate.").
166. United States v. Alvarez, 132 S. Ct. 2537, 2563 (2012) (plurality opinion).
167. *See* Dan B. Dobbs et al., *supra* note 103, at §574.
168. Gertz v. Robert Welch, Inc., 418 U.S. 323, 349 (1974).

ages in a libel suit,[169] but it is unlikely that a court would award overwhelming damages in this case. Furthermore, it is hard to see what reputational damages Dr. Mann has suffered from any of the attacks over the years. Dr. Mann is still employed at a prestigious institute for climate studies, the scientific community has awarded him numerous honors for his work, and he has repeatedly been vindicated in scientific investigations. His reputation amongst those who believe climate change is a hoax likely has not decreased based on these most recent attacks, as it was not well-regarded before the most recent attacks. Thus, even if Dr. Mann prevails in his suit, it is not clear that the award of damages would be large enough to discourage future attacks on climate scientists. Indeed, a minimal award in Dr. Mann's case may have an unintended consequence: perversely, it could chill future defamation lawsuits, as climate scientists, unlike well-funded think tanks, may not be able to afford to engage in litigation solely to vindicate their reputation.

More important, however, is that vindication for the scientist does not necessarily include vindication for the underlying science—conclusions of science cannot claim damage to reputation. Further, if Dr. Mann prevails, distorters could and likely would simply change tack and argue that his work is flawed due to incompetence, or that he unintentionally distorted his data due to unconscious political or ideological motivations. By changing the nature of the accusations, the misinformers would almost certainly survive defamation suits. As noted above, despite the many confirmations of Dr. Mann's conclusions, attacks on the Hockey Stick and Dr. Mann's integrity persist.[170] There is no reason to believe that a single victory in a defamation suit would stop future attacks on Dr. Mann, other scientists, or the science itself. Like fraud and perjury causes of action, defamation fails to address the knowing or reckless distortion of climate science. Because the consequences are so great, and because the current legal regime provides no means to abate the underlying offense, the United States should adopt a new cause of action to address the knowing or reckless distortion of climate science.

III. Misrepresentation Confrontation: A New Cause of Action

This part proposes a new civil claim, the fraudulent misrepresentation of climate science, that is narrowly tailored to address the knowing or reckless distortion of climate science. First, this part will present a justification for such a cause of action. Then, it will describe the cause of action and explain why the new claim will be sufficiently narrow to prevent abuse, but broad enough to provide some recourse for those damaged by the fraudulent misrepresentations.

A. *Justification for a New Cause of Action*

At the outset, I would like to acknowledge that even the thought of a new cause of action that restricts climate science misrepresentation offends, for many, traditional notions of free speech. Yet conceptually, the fraudulent misrepresentation of climate science is not so different from the other traditionally unprotected forms of false speech; indeed, it may be, as described by the Supreme Court in *Alvarez*, a form of speech that has "been historically unprotected, but ha[s] not yet been specifically identified or discussed as such in our case law."[171] Forms of false speech that infringe upon cognizable interests are often prohibited. When communicated lies damage a person's reputation and integrity, for instance, defamation suits provide a means of recourse. When a person or corporation makes material misrepresentations that lead to tangible economic damages, the law provides a mechanism to remedy the wrong. Few in the legal profession, however, would contend that traditional fraud and defamation should be protected speech. Yet, climate change portends damages—both physical and economic—that greatly exceed the damages that result from traditional fraud.[172] Millions of Americans will be at risk for devastating economic losses from extreme weather events and rising sea levels if climate change continues unabated. Moreover, millions will be at risk of direct physical damages, such as increased illnesses from extreme heat and the spread of infectious diseases, or death from extreme weather events.[173] Fraud causes of action protect victims from profiteering predators; because the potential damages are so great, the public deserves the same protection from those actors that profit from the reckless distortion of climate science.

In addition to touching upon the legally cognizable interests of private citizens, the fraudulent misrepresentation of climate science, like perjury, undermines the efficient operation of government. The *Alvarez* Court noted that perjury is unprotected because it "'is at war with justice' [and] can cause a court to render a 'judgment not resting on truth.'"[174] Likewise, lying to a government official does not merit First Amendment protection because it

169. Restatement (Second) of Torts §620 cmt. c (1977).
170. Rudolf, *supra* note 153.

171. United States v. Stevens, 130 S. Ct. 1577, 1586 (2010).
172. A 2012 report from the World Bank noted that, at the current pace of GHG emissions, the planet could warm by four degrees Celsius over pre-industrial levels as early as the 2060s. The World Bank, Turn Down the Heat: Why a 4°C Warmer World Must Be Avoided xiii (2012), *available at* http://climatechange.worldbank.org/sites/default/files/Turn_Down_the_heat_Why_a_4_degree_centrigrade_warmer_world_must_be_avoided.pdf. The report further notes:
> The 4°C scenarios are *devastating*: the inundation of coastal cities; increasing risks for food production potentially leading to higher malnutrition rates; many dry regions becoming dryer, wet regions wetter; unprecedented heat waves in many regions, especially in the tropics; substantially exacerbated water scarcity in many regions; increased frequency of high-intensity tropical cyclones; and irreversible loss of biodiversity, including coral reef systems.

Id. at ix (emphasis added).
173. U.S. Climate Change Impacts, *supra* note 28, at 89-98.
174. United States v. Alvarez, 132 S. Ct. 2537, 2546 (2012) (plurality opinion) (quoting In re Michael, 326 U.S. 224, 227 (1945)).

interferes with the function of government.[175] The intentional or knowing distortion of climate science is similarly at war with justice and impedes the efficient operation of government. In the context of climate justice, the danger is clear; the government enacts or fails to enact laws based on an incomplete or inaccurate picture of the underlying science. The laws, and decisions based on laws, will not rest on truth. Consequently, victims of climate change, like those in *Kivalina*, have no access to justice, through either legislation or the courts.

Further, the government cannot efficiently function when the total mix of information on climate science is sufficiently distorted.[176] Indeed, the prevalence of climate science misinformation, both generally and in congressional hearings, likely has contributed to the lack of a congressional response to climate change. As a result, governmental agencies and courts are not properly prepared to deal with the challenges of climate change. The U.S. Court of Appeals for the District of Columbia (D.C.) Circuit in 2012 held that EPA was rational in finding that climate change creates risks to agriculture, energy, and infrastructure and poses a threat to public health and welfare.[177] In so holding, the court concluded that "EPA is not required to re-prove the existence of the atom every time it approaches a scientific question."[178] Yet, in many courts, administrative proceedings, and in Congress, advocates of responsible measures to address climate change *are* required to reprove the existence and dangers of climate change simply because the misinformation machine continues to distort the science. Whenever the issue of climate change arises, the government must waste time and money reestablishing that it is a threat that must be addressed. Instead of accepting the absurdly broad consensus on a monumentally important issue and addressing the challenge, the members of Congress instead squabble over whether or not climate change is actually a massive, multinational, and multigenerational conspiracy. Thus, because of its similarity to prohibitions against fraud and perjury, the intentional or reckless distortion of climate science might constitute a category of speech that is already unprotected, but simply has not yet been identified by the courts.[179]

Even if the prohibition does not merit exemption from First Amendment protection, it still may survive the exacting scrutiny applied to content-based restrictions on speech. The government has compelling interests in prohibiting the intentional or reckless distortion of climate science. Climate change poses potentially catastrophic consequences, both economic and physical, to the American public; it threatens public health and welfare, infrastructure, global stability, agriculture, energy security, and even the geographic composition of the nation.[180] Intentional or reckless misinformation greatly increases the risk of those dangers because it slows or prevents a coordinated and appropriate response to climate change. The government interest could hardly be more compelling.

Yet, to remove targeted speech from the protective shadow of the First Amendment, the prohibition on the speech must also "be 'actually necessary' to achieve its interest."[181] Generally, the "remedy for speech that is false is speech that is true."[182] A brief look at the history of the climate change discussion demonstrates that true speech is not a sufficient remedy for the dangers posed by the reckless distortion of climate science. In 1988, James Hansen, director of the National Aeronautics and Space Administration's (NASA's) Goddard Institute for Space Studies, testified before Congress that, "global warming is now large enough that we can ascribe with a high degree of confidence a cause and effect relationship to the greenhouse effect."[183] In over two decades since, the scientific consensus on global warming has strengthened considerably. The Intergovernmental Panel on Climate Change concluded in its 2007 Fourth Assessment Report that the "[w]arming of the climate system is . . . unequivocal," and that "[m]ost of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations."[184] Similarly, the U.S. Global Change Research Program concluded that the warming is unequivocal and primarily caused by human-induced GHG emissions.[185] The national academies of science of most major industrial nations, including China, France, Germany, Japan, and the United States, endorse the consensus position that global warming is both real and primarily caused by anthropogenic forces.[186] Moreover, most major American scientific bodies support the con-

175. *Id.* at 2554 (Breyer, J., concurring).

176. An example of this governmental inefficiency is the disconnect between the military and Congress on the issue of climate change. The 2010 Quadrennial Defense Review Report compiled by the U.S. Department of Defense, noted that climate change will "shape the operating environment, roles, and missions" in which the armed forces engage and act as an "accelerant of instability or conflict." *See* Dep't of Defense, Quadrennial Defense Review Report 85 (2010), *available at* http://www.defense.gov/qdr/images/QDR_as_of_12Feb10_1000.pdf. Further, Rear Admiral David Titley, the former chief oceanographer and navigator for the U.S. Navy and current assistant deputy chief of Naval Operations for Information Dominance, has noted that the changing Arctic environment presents national security implications for the Navy and that climate change poses serious challenges to military infrastructure. *See Hearing on the Navy's Climate Change Interests Before the Subcomm. on Energy & Env't of the H. Comm. on Sci. & Tech.*, 111th Cong. 3-8 (2010) (statement of Rear Admiral David Titley, Oceanographer of the Navy Director, Task Force Climate Change). The military has made it clear that climate change is a very real and important consideration moving forward. Congress, through its failure to act on climate change, ensures that climate change will become a bigger burden for the military, and does not properly empower the military to deal with climate change.

177. *See* Coalition for Responsible Regulation, Inc. v. EPA, 684 F.3d 102, 121-22, 42 ELR 20141 (D.C. Cir. 2012).

178. *Id.* at 120.

179. United States v. Stevens, 130 S. Ct. 1577, 1586 (2010).

180. It is difficult to imagine a United States after New York City has relocated inland, for example.

181. United States v. Alvarez, 132 S. Ct. 2537, 2549 (2012) (plurality opinion).

182. *Id.* at 2550.

183. Oreskes & Conway, *supra* note 7, at 184.

184. IPCC Synthesis Report, *supra* note 112, at 30, 39.

185. U.S. Climate Change Impacts, *supra* note 28, at 9.

186. *See* G8+5 Academies' Joint Statement: Climate Change and The Transformation of Energy Technologies for a Low Carbon Future, *available at* http://www.nasonline.org/about-nas/leadership/president/statement-climate-change.pdf (last visited Oct. 21, 2013).

sensus.[187] In short, there are literally thousands of scientists and thousands of peer-reviewed articles that clearly and convincingly demonstrate the reality and danger of anthropogenic climate change.

There has thus been no shortage of "true" language, yet the federal government has taken no major action on climate change since Hansen's 1988 testimony.[188] Moreover, there is significant evidence of misinformation actually diluting or overwhelming the counterspeech. As noted above, several serial misinformers have testified in front of Congress, presenting a false balance on the issue. Scientists like Frederick Seitz, who previously contradicted the consensus on the dangers of tobacco smoke, have been invited to the Oval Office to share their views.[189] Under the second Bush Administration, the views of NASA climate scientists were at times "reduced, marginalized, and mischaracterized."[190] That same Bush Administration even invited Michael Crichton, the fiction writer, to the Oval Office to share his skeptical views on global warming.[191] Senator Inhofe made Crichton's *State of Fear*—a fiction novel that suggests that the science behind global warming is not robust and that the world's climate scientists are willing to lie to promote a radical agenda—required reading for the Senate Committee on Environment and Public Works.[192] Further, major media outlets have reported the climate story as though there were two equal sides to the debate.[193] Worse, some outlets, like Fox News, go farther than provide false balance and actually distort the science.[194] The false speech is simply too widespread to be defeated by true speech.

Moreover, true speech in the scientific arena is often difficult for the layperson to digest; it is technical, generally accompanied by measurements of uncertainty, and almost always considerably longer than false speech. For instance, it takes only a few words—"carbon dioxide is plant food"—to sow doubt about the dangers of increased atmospheric and oceanic carbon dioxide concentrations. On the other hand, it takes many more words to demonstrate why such a statement is misleading.[195] It is similarly difficult to accurately describe in a few words why the Climategate allegations were either completely false or incredibly misleading, but it only took a few out-of-context sentences to convey wrongdoing.[196] In short, misinformation is often digestible because it can be conveyed in short sound bytes, while true speech often takes caveats and detailed scientific nuance. Because true scientific speech is often difficult to broadly communicate, or has been successfully diluted or overwhelmed by fossil fuel-funded misinformation, it is not a sufficient remedy for the dangers posed by the false speech.

False statements are not, and should not be, per se unlawful.[197] But, where a prohibition on the utterance of false statements is sufficiently narrowed, the prohibition can safeguard against likely damages that result from the false statement, while the limitations guard against abuse of the prohibition by either the public or government actors.[198] A new cause of action for the fraudulent misrepresentation of climate science will be sufficiently narrow to prevent abuse yet still provide protection for legally cognizable rights, such as the right of citizens to be economically and physically protected from fraudulent statements, and the right of the government to base its decisions on an undistorted marketplace of ideas. As such, the cause of action is likely within a category of speech that has "been historically unprotected, but ha[s] not yet been specifically identified or discussed . . . ."[199] Even if it does not meet this exemption, however, the cause of action is compelled by the governmental interests of an undistorted marketplace, the welfare of the public, and the absence of sufficient remedies.

B. Fraudulent Misrepresentation of Climate Science

The fraudulent misrepresentation of climate science draws elements from both common law and statutory forms of fraud, and should be statutorily adopted by Congress. Ideally, both the government—acting through the U.S. Department of Justice (DOJ)—and private citizens will be able to initiate civil lawsuits. This Article does not propose any criminal penalties for the violation of the statute. If the cause of action is not adopted statutorily, however, it should be brought as a common-law claim. The elements

187. These scientific bodies include the American Association for the Advancement of Science, American Astronomical Society, American Chemical Society, American Geophysical Union, American Institute of Physics, American Meteorological Society, American Physical Society, the National Center for Atmospheric Research, and the National Oceanic and Atmospheric Administration. Skeptical Science, http://www.skepticalscience.com/global-warming--scientific-consensus-intermediate.htm (last visited Oct. 21, 2013).

188. EPA, essentially by default, has the duty to regulate carbon dioxide emissions through the Clean Air Act. *See* Massachusetts v. EPA, 549 U.S. 497, 533-34, 37 ELR 20075 (2007).

189. Oreskes & Conway, *supra* note 7, at 7.

190. Office of Inspector Gen., Nat'l Aeronautics and Space Admin., Investigative Summary Regarding Allegations That NASA Suppressed Climate Change Science and Denied Media Access to Dr. James E. Hansen, a NASA Scientist 47 (2008). The report also "conclude[d] that inappropriate political posturing or advantage was the proximate cause in at least some of these actions." *Id.*

191. Powell, *supra* note 7, at 81.

192. *Id.*

193. Oreskes & Conway, *supra* note 7, at 7.

194. *See* Huertas & Adler, *supra* note 86, at 7 (2012), *available at* http://www.ucsusa.org/assets/documents/global_warming/Is-News-Corp-Failing-Science.pdf (finding "93 percent of 40 representations of climate science on Fox News Channel [over a six-month period] to be misleading"). The report found that Fox News mocked or disparaged climate science, undermined climate science, cherry-picked data, used totally misleading citations, and generally misled viewers about climate change. *Id.* at 8.

195. See discussion at *supra* note 77, for an example of the amount of speech necessary to counter such a simple distortion of the science. Further, note 77 actually slights the amount of scientific explanation needed to properly rebut the claim that increased carbon dioxide concentrations will be increasingly beneficial for society.

196. *See, e.g.*, Powell, *supra* note 7, at 159-69.

197. Justice Anthony M. Kennedy noted in *Alvarez* that the United States does not want or need Oceania's Ministry of Truth, in reference to George Orwell's classic dystopian novel *1984*. United States v. Alvarez, 132 S. Ct. 2537, 2547 (2012) (plurality opinion).

198. *Id.* at 2554-55 (Breyer, J., concurring).

199. United States v. Stevens, 130 S. Ct. 1577, 1586 (2010).

are mostly familiar: (1) a false statement of material fact; (2) knowingly or recklessly made; and (3) with intent to delay climate change mitigation. The new claim diverges from traditional fraudulent misrepresentation in a number of material aspects that make the claim feasible to bring, yet also prevent its abuse. First, it is based only on actual misrepresentations, not on omissions. Second, reliance is presumed but rebuttable. Third, damages and causation may be presumed or actual, dependent on whether the claim is brought by a private party or a government actor. This part examines how the elements of this cause of action ensure a narrowly tailored claim that prevents abuse yet still provide legal consequences for the knowing or reckless distortion of climate science.

1. False Statement

Similar to the falsity requirement for perjury claims, the falsity requirement for this new cause of action prevents claims for simply deceptive, but technically true statements. Moreover, there is no allowance for claims based on omissions, as in §10b-5 actions; statements that carbon dioxide is plant food and thus good for the planet, for instance, would not be actionable, despite being very misleading. The statement would only become actionable if demonstrably false.[200] The burden to prove falsity rests with the plaintiff, and provides a substantial hurdle to a successful suit.[201] The *Daubert* standard, however, may actually help plaintiffs prove falsity, as defendants might have trouble getting their expert testimony past the judge as gatekeeper.[202] Moreover, certain scientific realities are presumed true because those realities are so well-established in the scientific literature. For instance, it will be presumed that the planet is warming, that anthropogenic sources represent some portion of the cause, and that the resulting change poses some threat to humanity. The burden is on the defendants to demonstrate that the overwhelming consensus is wrong on those issues. As the D.C. Circuit noted, it is not incumbent on the plaintiffs to reprove the atom, gravity, or the existence of the greenhouse effect in every lawsuit.

2. Intentionally or Recklessly Made

The stringent falsity standard protects the vast majority of people who spread misinformation. Even where a statement is demonstrably false, however, the plaintiff has the additional burden of proving the defendant made the statement with knowledge that it is false, or with reckless disregard for the truth. This requirement ensures that Americans will not be subject to lawsuits simply because they believe that climate change is not happening or that it is not caused by human activities, or because they believe climate change will be beneficial.[203] Indeed, only those people that either intentionally spread climate falsehoods or, because of their training or position, should know that the information they spread is inaccurate, would be susceptible to suit. For instance, Singer wrote that neither the satellite record nor radiosondes show an atmospheric warming between 1978 and 2000, and that the oceans also have not warmed in that time period.[204] The first part of the statement concerning radiosondes and satellites might be categorized as misleading, but not demonstrably false.[205] The latter part of the statement, however, would certainly meet the falsity requirement. It is possible that Singer definitively knows that the oceans have warmed significantly since 1978. Even if he does not know, however, Singer is an eminent scientist trained in physics and scientific research, and moreover, he feels comfortable publishing peer-reviewed articles on climate change. As such, Singer should know that the vast majority of the excess energy and warming from the greenhouse effect over that period went into the oceans.[206] In choosing to state something that goes against the vast majority of scientific evidence, Singer should know there

200. An example of this might be something like, "because CO_2 is plant food, increasing the amount of it in the atmosphere will inevitably increase agricultural production and always be beneficial to humans."

201. *See* Karl S. Coplan, *Climate Change, Political Truth, and the Marketplace of Ideas*, 2012 Utah L. Rev. 545, 570 (2012) (noting the difficulty of finding "incontrovertible truths" in climate science).

202. For a thorough discussion of how the *Daubert* standard could be used by plaintiffs in climate change lawsuits, see generally Ryan Hackney, *Flipping Daubert: Putting Climate Change Defendants in the Hot Seat*, 40 Envtl. L. 255, 258 (2010) (noting that *Daubert* standard would likely limit the ability of defendants to introduce contrary scientific evidence).

203. According to a Fall 2012 report, 12% of Americans do not believe global warming is happening, while another 30% do not believe it is caused by human activities. Anthony Leiserowitz et al., Yale Univ. & George Mason Univ., Climate Change in the American Mind: Americans' Global Warming Beliefs and Attitudes in September, 2012, at 4, 6 (2012), *available at* http://climatechangecommunication.org/sites/default/files/reports/Climate-Beliefs-September-2012.pdf.

204. Singer, *supra* note 75.

205. The statement about satellites is misleading for a number of reasons. The satellite data comes primarily from two sources. First, is Remote Sensing Systems, which is supported by NASA's Earth Science Enterprise. *See About Remote Sensing Systems*, http://www.ssmi.com/about_rss/about_rss.html (last visited Oct. 21, 2013). The second source is the University of Alabama at Huntsville (UAH), and the program is headed by Roy Spencer and John Christy, discussed in the introduction to this Article. *See Global Temperature Report*, Univ. of Ala. in Huntsville, http://nsstc.uah.edu/climate/ (last visited Oct. 21, 2013). Both show a warming trend since measurements began in 1979. *See* Intergovernmental Panel on Climate Change, Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change ch. 3, 267 (2007). Using carefully picked starting and end dates, however, Singer can claim that there was no warming between 1978 and 2000, as the trend for that specific period is statistically insignificant. The longer trend, however, clearly shows warming consistent with surface warming. *See* U.S. Climate Change Impacts, *supra* note 28, at 17. The statement is even more misleading, however, because the lower part of the atmosphere (the troposphere) is warming, but the upper part of the atmosphere (stratosphere) is cooling. IPCC AR4 ch. 3, *supra* note 47, at 267-69. This pattern of warming in the troposphere and cooling the atmosphere is actually an indicator that the warming is not caused by the sun, but rather by GHGs. *See* Intergovernmental Panel on Climate Change, Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change ch. 9, 674 (2007). In short, Singer is able to take a fact that actually demonstrates humanity's influence on the climate and turn it into a misleading statement to convince people that global warming is not a problem.

206. Dana Nucitelli et al., *Comment on "Ocean Heat Content and Earth's Radiation Imbalance. II. Relation to Climate Shifts*," 376 Physics Letters A 3466 (2012).

is a high likelihood that his statements are in fact false. Because he should know, Singer at least acted recklessly when he published those statements.

3. Intent to Delay

The new cause of action also requires that the speaker or writer of the false statement made the statement with the intent to delay government action to mitigate climate change. This scienter requirement again protects individuals who are simply contrarian, or who have other motives for spreading misinformation. More importantly, it protects scientists who pursue alternative hypotheses and explanations. Proving scienter will be difficult, and it is not clear exactly what it will require. Will it be enough, for instance, that the speaker intended to influence public perception of climate change to indirectly influence governmental actions, or must the speaker intend to directly influence governmental actors? While the scienter requirement is still unclear, there are some lines of evidence that may demonstrate such intent to delay. For instance, internal documents might show that a think tank spreads such distortion—despite internal knowledge of the overwhelming evidence that climate change is a real and growing danger to the American public—only because the solutions to climate change pose a threat to the organization's underlying ideology.[207] Or, documents might show that a fossil fuel company itself contributed to the misinformation campaign because climate solutions threatened the bottom line. Similarly, documents that show a link between fossil fuel funding and a scientist or organization may provide circumstantial evidence of the communicator's intent to spread doubt and thus delay action.[208] A funding source alone certainly does not prove that the recipient spread false information, or that the recipient should have known the information was false. But, when the elements of falsity and recklessness have already been established as required by the cause of action, funding from a company at risk of financial losses due to climate change solutions will suggest the reason *why* the speaker would recklessly or knowingly spread false information.

4. Presumed Reliance

In addition to the elements that make the claim difficult to prove, which in turn help guard against abuse, the cause of action incorporates some presumptions that make the claim feasible. First, the traditional fraud element of reliance is presumed. Reliance in the new cause of action imitates the fraud-on-the-market theory of 10b-5 actions[209]; in the climate change context, the fraud infects the marketplace of ideas, and not the marketplace for securities. It is thus presumed that the federal government has not taken significant action to combat climate change because misinformation permeates the marketplace of ideas upon which an efficiently functioning government relies.[210] This presumption is merited because—as the Supreme Court noted in *Basic v. Levinson*—providing direct proof of some things, like the government's reliance, is "for one reason or another . . . rendered difficult."[211] Because of this rebuttable presumption, a plaintiff or prosecutor is only required to prove reliance if the defendant offers sufficient evidence that the misinformation was not relied upon in any way by any member of the federal government in its decision not to take meaningful action on climate change.

5. Presumed or Actual Damages and Causation

As with reliance, the damages and causation elements of the new cause of action are somewhat attenuated to allow for successful claims. When the government brings the action, damages are presumed but rebuttable. This presumption stems from the injury; for the government, intentional or reckless misrepresentation of climate science threatens the integrity of the marketplace upon which governmental decisions rely. Because the government relies on the marketplace, and because it has taken no action to address climate change, it is presumed that the marketplace is damaged. Further, the government is tasked to provide for the general welfare of the American public.[212] Climate change will undoubtedly injure that citizenry—if it has not already—if significant steps to mitigate global warming are not taken. Because the government must make informed decisions to provide for the general welfare, the intentional distortion of the marketplace is per se injurious to the government.

For a private actor, however, damages and causation must be both proved and presumed. First, the plaintiff must prove that he or she has suffered actual damages, which will ensure that only ripe claims will be heard; a plaintiff does not state a prima facie case for future damages, unlike the government. Further, the private citizen has the significant

207. Such a document was revealed in the *Kivalina* litigation. *See* Complaint at ¶ 205, *supra* note 130:

> The contrarian theories raise interesting questions about our total understanding of climate processes, but they do not offer convincing arguments against the conventional model of greenhouse gas emission-induced climate change. [Robert] Jastrow's hypothesis about the role of solar variability and [Patrick] Michaels' questions about the temperature record are not convincing arguments against any conclusion that we are currently experiencing warming as the result of greenhouse gas emissions.

(quoting internal memo from the Global Climate Coalition).

208. Indeed, there is publicly available information, often willingly produced by think tanks, that demonstrates the fossil fuel industry's support. *See* Chris Mooney, *Some Like It Hot*, Mother Jones (May/June 2005), http://www.motherjones.com/environment/2005/05/some-it-hot (last visited Oct. 21, 2013).

209. *See* Basic v. Levinson, 485 U.S. 224, 243-47 (1988).

210. The irony of affording the government presumed reliance on misrepresentations when the government could simply change the laws is, again, not lost on the author. Changing laws, however, is extremely difficult in Congress. This cause of action, which could theoretically be implemented by a DOJ interpretation of another fraud statute, and thus would not require a new statute, would allow at least portions of the government to act while Congress dallies.

211. *Id.* at 245.

212. U.S. Const. art. I, §8, cl. 1.

burden of proving that he or she actually suffered a tangible injury that resulted, at least in part, from climate change. As in existing fraud claims, this causal link is daunting. While this element is a formidable obstacle for many individuals, it still provides an avenue of relief, particularly for large groups that have been harmed.[213] Moreover, new studies are emerging that more clearly attribute specific climatic events to climate change.[214] Moving forward, private plaintiffs in a fraudulent misrepresentation of climate science case likely will have better opportunities to demonstrate that their damages were caused by climate change.

The private plaintiff is not, however, required to prove that the damages from climate change were caused directly by the defendant's misrepresentations. It is presumed—once the plaintiff proves falsity, knowledge or recklessness, and intent—that the fraudulent misrepresentation contributed to climate change through the reliance of the government. This presumption, like the presumption of reliance, ensures that practical difficulties do not effectively bar this new cause of action as a remedy for those most injured by climate change. Thus, the three causal links that likely would have proved fatal for the *Kivalina* plaintiffs is reduced to one reasonably feasible link.

The elements and implicit presumptions of fraudulent misrepresentation of climate science ensure that it provides a realistic cause of action that is not subject to abuse. It allows the government to protect the general welfare, and its right to an undistorted marketplace of ideas, and provides private plaintiffs a remedy for the physical and economic damages that are partly the result of the concerted effort to distort climate science. Additionally, it may help stem the tide of misinformation that has contributed to the failure to implement significant mitigation efforts in the battle against climate change. Because fraudulent misrepresentation of climate science addresses those legally cognizable rights, is philosophically akin to existing prohibitions against false speech, provides the remedy for a currently unaddressed wrong, and is narrowly tailored to prevent abuse, it should survive First Amendment scrutiny.

213. For instance, it is likely easier for a member of a village like Kivalina to demonstrate that climate change is causing ever-decreasing summer sea ice than it is for a single, remote small business to prove that its office was destroyed by a climate change-induced hurricane.

214. *See, e.g.*, Kevin E. Trenberth, *Framing the Way to Relate Climate Extremes to Climate Change*, 115 Climatic Change 283, 283-89 (finding "the clustering of extremes occurs when natural variability creates anomalies that are in the same direction as global warming . . . [and] all weather events are affected by climate change because the environment in which they occur is warmer and moister than it used to be"); Markus G. Donat & Lisa V. Alexander, *The Shifting Probability Distribution of Global Daytime and Night-Time Temperatures*, 39 Geophysical Res. Letters L14707, 1 (2012) ("[T]he distribution of global daily temperatures has indeed become 'more extreme' since the middle of the 20th century."); James Hansen et al., *Perception of Climate Change*, 109 Proc. Nat'l Acad. Sci. E2415, E2415 ("[W]e can state, with a high degree of confidence, that extreme anomalies such as those in Texas and Oklahoma in 2011 and Moscow in 2010 were a consequence of global warming because their likelihood in the absence of global warming was exceedingly small.").

IV. Weaknesses of and Reservations About the New Cause of Action

This Article has proposed a new cause of action to address the fraudulent misrepresentation of climate science. The majority of the Article focuses on whether such a cause of action is feasible, and if so, whether justification for such a cause of action exists. Although both queries are answered in the affirmative, there are nevertheless lingering concerns about the cause of action. This part addresses two of those concerns. First, decisionmakers and, later, defendants may isolate and attack vulnerabilities in the structure of the claim, rendering it toothless. Accordingly, this part will identify weaknesses within the claim, weaknesses that might be addressed and improved upon in the future. Second, and despite the justifications presented above, the concept of the cause of action will likely trouble many readers. The part will thus conclude with an examination of some reservations that readers and decisionmakers may have about the proposed cause of action.

A. Weaknesses

The proposed cause of action would likely be subjected to blistering attacks from scholars, legislators, and free-speech advocates. Such attacks might focus simply on the implications of a new restriction on speech, implications implicitly and explicitly considered in Parts IV.A and IV.B. In addition to normative questions about the comparative value of any new cause of action vis-à-vis restrictions on speech, however, scholars, critics, and litigators are also likely to explore the cause of action for weaknesses that can be exploited, or that render it practically unfeasible. Without conceding to the validity or superiority of any such arguments, this section will briefly discuss the inherent weaknesses of the fraudulent misrepresentation of climate science, with the acknowledgment that more in-depth explorations of the topics are warranted, and that the cause of action is a work in progress.

1. Without "Truth," Can There Be Falsity?

The first and most glaring area of weakness in the cause of action is the falsity element. In noting the difficulties of regulating the climate change debate, Prof. Karl Coplan writes, "climate science is closer to being an idea than an objective fact."[215] Further, he argues that an attempt to "enshrine the climate consensus as an incontrovertible truth would be contrary to the foundational First Amendment principle that there is no orthodoxy in the U.S. polity and would violate the 'profound national commitment to the principle that debate on public issues should be uninhibited, robust, and wide-open.'"[216] Professor Coplan's concern raises two issues. The first is whether Congress, in proper deference to the value of public debate, should regu-

215. Coplan, *supra* note 201, at 570.

216. *Id.* (quoting N.Y. Times Co. v. Sullivan, 376 U.S. 254, 270 (1964)).

late the climate change debate in light of scientific uncertainty.[217] The second is whether, in the event that the cause of action is adopted, uncertainty precludes successful suits.

The first is a difficult issue. Despite Professor Coplan's concern that "climate science is closer to being an idea than an objective fact," Congress has frequently legislated in areas of scientific uncertainty,[218] likely in areas with greater uncertainty than climate change. Indeed, the underlying principles of climate change science are well understood, and supported by decades of research and many lines of evidence.[219] Further, basic risk-management principles are in fact designed to minimize potential damages where identified threats are accompanied with uncertainty.[220] That climate change is accompanied by uncertainty should not necessarily deter Congress from taking actions, particularly where the dangers from not acting are great. But Professor Coplan's point about public debate is quite legitimate. It is one thing to legislate actions based on somewhat uncertain science in order to mitigate risk; it is quite another to legislate speech about that uncertain science.

Additionally, it may be difficult to isolate statements that are capable of being proved false, and thus subject to the cause of action. Scientific theories in general, and more specifically the theory of anthropogenic climate change, are not subject to absolute proof.[221] Instead, science proceeds on evidence, with scientific ideas becoming more or less certain, but never with 100% certainty.[222] Indeed, the science of anthropogenic climate change rests on a massive foundation of scientific evidence gathered from varied and numerous fields of study, each of which has within it several areas of debate and uncertainty.[223] Commentators may argue that uncertainties within climate change science and the inability to prove a scientific theory absolutely "true" render the cause of action moot. Proving something to be "false," however, does not require the ability to prove something absolutely "true." The burden of proving a civil claim is, and would likely be for this cause of action, the preponderance-of-the-evidence standard. A private plaintiff or public prosecutor would therefore only have to prove by a preponderance of the evidence that a statement was false, and would not be required to prove definitively the converse.

Moreover, while it may not be possible to prove with 100% certainty the entire theory of climate change, specific lines of evidence can be proven. As such, the possibility of actionable statements exists, and some examples may prove illustrative. For instance, scientists can, and have, measured sea-level rise.[224] It would be false to say, for instance, that sea levels have not risen globally over the past 50 years. Conversely, it would not necessarily be false to say that sea levels will not rise at a greater rate because of human influences. The former would thus be actionable, while the latter might not. Similarly, it would be false to say that the extent and volume of Arctic summer sea ice has not shown a downward trend over the past 30 years, while it would not necessarily be false to say that Arctic summer sea ice recovered in 2009. A final example is that atmospheric carbon dioxide levels are demonstrably increasing, and that the isotopic signature of the carbon dioxide in the atmosphere points to anthropogenic sources.[225] It would be false, therefore, to proclaim that humans have not contributed to rising atmospheric concentrations of carbon dioxide, while it may not necessarily be false to say that the human-caused spike in atmospheric carbon dioxide

217. While I use the general term "scientific uncertainty" here, uncertainty in scientific topics, including the climate change debate, actually consists of many types of uncertainty. *See* Stephanie Tai, *Uncertainty About Uncertainty: The Impact of Judicial Decisions on Assessing Scientific Uncertainty*, 11 U. Pa. J. Const. L. 671, 675-83 (2009) (discussing various types of scientific and legislative uncertainty).

218. *See, e.g.*, *id.* at 685-87 (discussing the Partial Birth Abortion Act).

219. *See, e.g.*, Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Susan Solomon et al. eds., 2007); *see also, e.g.*, Spencer R. Weart, The Discovery of Global Warming (2003) (describing the many decades of scientific research and various scientific disciplines that established the strong foundation for climate change science); Cynthia Rosenzweig et al., *Attributing Physical and Biological Impacts to Anthropogenic Climate Change*, 452 Nature 353 (2008) (discussing trends in many natural systems due to anthropogenic climate change).

220. *See, e.g.*, Howard Kunreuther et al., *Risk Management and Climate Change*, 3 Nature Climate Change 447, 447 (2013) ("A principal purpose of risk management is to evaluate strategies for responding to an uncertain threat."); Roger N. Jones, *An Environmental Risk Assessment/Management Framework for Climate Change Impact Assessments*, 23 Nat. Hazards 197, 197 (2001) (noting "the process of identifying, evaluating, selecting, and implementing actions to reduce risk to human health and to ecosystems" in environmental risk management).

221. *See* Satoshi Kanazawa, *Common Misconceptions About Science I: "Scientific Proof,"* Psychol. Today (Nov. 16, 2008), http://www.psychologytoday.com/blog/the-scientific-fundamentalist/200811/common-misconceptions-about-science-i-scientific-proof (last visited Oct. 21, 2013) (noting that absolute "proof" is confined to mathematics and logic).

222. *Is the Science Settled?*, Skeptical Science, http://www.skepticalscience.com/settled-science.htm (last visited Oct. 21, 2013).

223. *See generally supra* note 219. Uncertainties and active debates within climate science include: the climate sensitivity of the planet, *see* Dana Nuccitelli & Michael Mann, *How the Economist Got It Wrong*, Opinion in *Environment*, Austl. Broad. Co. (Apr. 12, 2013), http://www.abc.net.au/environment/articles/2013/04/12/3735095.htm (last visited Oct. 21, 2013) (discussing disagreements in the climatological community about the planet's climate sensitivity); measurements of ocean heat content, *see* John P. Abraham et al., *A Review of Global Ocean Temperature Observations: Implications for Ocean Heat Content Estimates and Climate Change*, Revs. Geophysics (forthcoming) (manuscript at 6), *available at* http://onlinelibrary.wiley.com/doi/10.1002/rog.20022/pdf (discussing the "challenging problem" of measuring the thermal energy of the ocean); and the rate and severity of methane release from the Arctic permafrost, *see* Xiang Gao et al., *Permafrost Degradation and Methane: Low Risk of Biogeochemical Climate-Warming Feedback*, 8 Envtl. Res. Letters 035014, 2 (2013), http://iopscience.iop.org/1748-9326/8/3/035014/pdf/1748-9326_8_3_035014.pdf (describing the "uncertainty . . . in projections of permafrost degradation and estimates of current high latitude CH_4 flux and future methane emission in response to climate change"). Incidentally, vigorous debate within the climate science community strongly suggests that there is no coordinated "hoax" or conspiracy among climate scientists and, given the difficulty of obtaining agreement among scientists, lends credence to consensus statements about climate change.

224. *See, e.g.*, Nathaniel L. Bindoff & Jürgen Willebrand, *Observations: Oceanic Climate Change and Sea Level, in* Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change 387 & 410-14 (Susan Solomon et al. eds., 2007).

225. *See* Piers Forster & Venkatachalam Ramaswamy, *Changes in Atmospheric Constituents and in Radiative Force, in* Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change 137-40 (Susan Solomon et al. eds., 2007).

will lead to greater warming. It should be noted, however, that all of the "latter" statements mentioned above *might* be proven false under a preponderance standard, due to the overwhelming scientific evidence and, as mentioned in Part III.B.1., a *Daubert* standard that could provide a roadblock to opposing expert testimony. In short, there are observations of global warming that can be classified as "truth," and statements that may be classified as "falsehoods," assuming one accepts the idea that humans can indeed "know" anything.[226] Accordingly, there are certain statements that would be subject to the cause of action.

While some statements regarding climate change can be categorized as true or false, the conclusions and predictions of climatologists often will not be susceptible to such easy categorization.[227] The most egregious distortions of climate science are generally based on the warnings provided by climate science, or the broader conclusions drawn from the research, and not necessarily the individual pieces of evidence that form the basic understanding of climate change. It is again possible, therefore, that there simply is not enough verifiable evidence[228] of climate change projections and conclusions to warrant a cause of action that is reliant on false statements. Despite a possible paucity of actionable predictions of *future* impacts of climate change, there are nevertheless many predictions—made many years in the past—that can be verified by *current* conditions. The cause of action may still have value in protecting the work of scientists like Hansen and his associates, whose 1981 projections of possible temperature rise have thus far been remarkably accurate considering the vast amount of uncertainties with which Hansen and other scientists at the time were confronted.[229] By ensuring that past work is protected from willful distortion, the cause of action may therefore ensure that distortion of future projections is less-widely heeded by decisionmakers.

In sum, the falsity element of the fraudulent misrepresentation of climate science renders the cause of action quite difficult to enforce. In fact, that bar to enforcement is essential, as it provides protection against abuse. Further, courts and legislatures are quite capable of grappling with issues of uncertainty and falsity. Still, the stringent falsity element may hinder the effectiveness of the cause of action against the most egregious and dangerous misrepresentations of climate science. As such, the requirement of a false statement may require tweaking to make the cause of action more feasible to bring, and more importantly, more effective in combating the willful distortion of climate science.

2. Reliance and Causation

Another likely area of attack will be the causation requirement. As noted above, this cause of action would not be the first to allow plaintiffs or prosecutors to rely on distended theories of reliance and causation.[230] Nevertheless, commentators may be troubled by the idea of holding accountable persons who have not necessarily led directly to a specified harm. While this is a valid concern, it does not warrant abandonment of the cause of action. Indeed, many legally imposed limitations on behavior do not require causation of specific harm; rather, those restrictions are designed to curb behavior that society has deemed dangerous or undesirable. Indeed, where the probability that the behavior will lead to harm is great, restrictions on that behavior may be warranted. As this cause of action infringes on free speech, however, a relaxed attitude toward causation is unlikely to prevail. Even under a public prosecution, where the damage is to the government's interest in a representative marketplace of ideas, courts may be hesitant to allow for presumed causation. There is no easy answer to this dilemma, and it is likely the element of the cause of action that is most vulnerable to attack on constitutionality grounds.

3. Reality

While there are other vulnerabilities in the cause of action, the last discussed here is reality. Put simply, why waste time discussing something that has virtually no chance of happening? It is unlikely—given the current tenor of Congress, the unwillingness of courts to uphold restrictions on speech, and the radical nature of the cause of action—that any person will ever be successfully prosecuted under the fraudulent misrepresentation of climate science. To this attack, the author has no strong counter, save that, as discussed *infra*, it is always worthwhile to explore the outer edges of what is likely, if only to illuminate previously unforeseen possibilities, and that what seems an impossibility today may, due to changing circumstances, seem wholly reasonable in the future. As such, it is important to proactively lay the foundation now for a future in which the legal community and public at large may demand such a cause of action.

226. In his intriguing article, Professor Coplan discusses at length various tenets of epistemology and how "truth" is determined. *See* Coplan, *supra* note 201, at 573-96. While a philosophical discussion of the nature of truth and humans' ability to comprehend it is fascinating, it is far beyond the scope of this Article.

227. *See* Coplan, *supra* note 201, at 570 (noting that predictions of future occurrences must be verified by reality before those predictions can be accepted as truth).

228. "Verifiable" is used here to mean that the evidence may be unequivocally categorized as "truth" for the purposes of this cause of action.

229. *See* Geert Jan van Oldenborgh & Rein Haarsma, *Evaluating a 1981 Temperature Projection*, Real Climate (Apr. 2, 2012), http://www.realclimate.org/index.php/archives/2012/04/evaluating-a-1981-temperature-projection/ (last visited Oct. 21, 2013); *see also* Stefan Rahmstorf et al., *Comparing Climate Projections to Observations Up to 2011*, 7 Envtl. Res. Letters 044035, 2 (2012), http://iopscience.iop.org/1748-9326/7/4/044035 (last visited Oct. 21, 2013) ("[The upper limit of Hansen et al. (1981)] corresponds to the observed warming trend. They further correctly predicted that the global warming signal would emerge from the noise of natural variability before the end of the 20th century.").

230. *See* discussion *supra* notes 209-11 and accompanying text.

B. Reservations

In Part III.A., the fraudulent misrepresentation of climate science was justified under First Amendment grounds. That part argued that because of the grave danger presented by the willful distortion of climate science, and because of the similarity of the behavior to other forms of prohibited false speech, the cause of action is warranted and should be implemented. Despite that justification, however, the cause of action will no doubt continue to trouble some readers, precisely because of another question it raises: even with all of the justifications presented above, *should* such a cause of action be implemented? While the author has argued that it should, this question has no easy answer; indeed, questions of "should" require deeper analyses of things like policy, morals, worldviews, and belief structures. As such, this Article does not include a full analysis of this last, important question; rather, this section briefly addresses a couple of issues likely to worry readers and decisionmakers regarding the cause of action.

The issues are simple: will the cause of action be abused, or used to stymie legitimate science? Moreover, even if the cause of action is used properly and without abuse, are the restrictions on speech too great? Is this simply an attempt to silence all skeptics? Finally, with all of the uncertainties discussed above, should a court or legislature decide what is "false" in climate science? Indeed, these concerns will likely prevent the cause of action from gaining support among academics, even those whose work would find protection in the new claim. Robert Oppenheimer once said: "There must be no barriers to freedom of inquiry. . . . There is no place for dogma in science. The scientist is free, and must be free to ask any question, to doubt any assertion, to seek for any evidence, to correct any errors."[231] While the proposed cause of action is, hopefully, narrow enough to prevent abusers from prosecuting scientists performing actual science, or simply attempting to chill dissent, the mere threat of a lawsuit may be seen as an impediment to academic exploration. The concern, then, is that the new claim will be used improperly to stifle free speech and debate.

Indeed, it would not be the first time that a statutory cause of action was twisted in an attempt to chill scientific research. In 2010, Virginia Attorney General Ken Cuccinelli issued Civil Investigative Demands (CIDs) on the University of Virginia (UVA) under the theory that UVA, through its former employee Dr. Mann (discussed *supra*), violated the Virginia Fraud Against Taxpayers Act (FATA).[232] In short, the Attorney General was concerned that Dr. Mann falsified data to overstate the case for anthropogenic global warming in order to procure public grants to fund his research.[233] The circuit court noted that the CIDs did not make "clear what [Dr. Mann] did that was misleading, false or fraudulent in obtaining funds from the Commonwealth of Virginia."[234] Moreover, only one of the five grants included in the CIDs actually stemmed from Commonwealth funds.[235] Accordingly, the circuit held that the CIDs were "unlawful because they failed to comply with FATA's requirement that CIDs 'state the nature of the conduct constituting the alleged violation of [FATA] that is under investigation.'"[236] Two years later, the Supreme Court of Virginia affirmed on separate grounds.[237] Cuccinelli's pursuit against Dr. Mann and UVA has been labeled a "witch hunt,"[238] largely because Dr. Mann's work has, and had already, been so thoroughly vetted.[239]

Frivolous though the CIDs may have been, however, they touched off litigation that cost UVA over $600,000.[240] A motivated prosecutor converted a fairly benign statute, one designed to protect the state from fraudulent claims,[241] into a vehicle for pursuing a respected climate scientist based, seemingly,[242] on the unsubstantiated Climategate scandal. Cuccinelli's use of the CIDs certainly was not the first, only, or most egregious example of litigation used to intimidate or frustrate, nor was it the first time that the purposes of a statute were twisted to accommodate a prosecution. Nevertheless, it demonstrates that well-intentioned legislation can be used in an attempt to stifle free expression through the mere threat of a costly lawsuit.[243]

The fraudulent misrepresentation of climate science is not designed to hinder, chill, or even affect academic research. Neither is the cause of action constructed to stifle opinions, even those based on misinformation and passionately presented in opposition to climate scientists. The basic elements—which of course must be fleshed out in much greater detail—are explicitly crafted to prevent abuse and to ensure that scientists are free to pursue whatever avenue of research they deem valuable, to explore uncertainties and challenge established beliefs, and to share disagree-

231. Lincoln Barnett, *J. Robert Oppenheimer*, Life, Oct. 10, 1949, at 120, 136 (Oct. 10, 1949).
232. Rector & Visitors of Univ. of Virginia v. Cuccinelli, 80 Va. Cir. 657, 1-2 (Va. Cir. Ct. 2010), *aff'd but criticized*, 722 S.E.2d 626 (2012).
233. Cuccinelli v. Rector, Visitors of Univ. of Virginia, 722 S.E.2d 626, 628 (Va. 2012).
234. Rector & Visitors of Univ. of Virginia, 80 Va. Cir. at 1.
235. Cuccinelli, 722 S.E.2d at 629 (noting that four of the five grants were funded by the federal government).
236. *Id.* (quoting Fraud Against Taxpayers Act, Va. Code Ann. §8.01-216.11 (West 2013).
237. *Id.* at 633 (holding that under the FATA, UVA was not a "person," and thus not subject to CIDs).
238. Editorial Board, *Ken Cuccinelli's Climate-Change Witch Hunt*, Wash. Post (Mar. 11, 2012), http://articles.washingtonpost.com/2012-03-11/opinions/35448408_1_witch-hunt-legal-fees-michael-e-mann (last visited Oct. 21, 2013).
239. *See, e.g.*, Mann v. National Review, Inc., No. 2012 CA 008263 B (Sup. Ct. D.C. 2013) (order denying motion to dismiss) (noting that Dr. Mann has been "investigated by almost one dozen bodies due to accusations of fraud, and none of those investigations having found [his] work to be fraudulent . . .); *see also supra* note 156; James Fallows, *Michael Mann Cleared (Again)*, The Atlantic (Aug. 24, 2011), http://www.theatlantic.com/technology/archive/2011/08/michael-mann-cleared-again/244051/ (last visited Oct. 21, 2013).
240. Editorial Board, *Ken Cuccinelli's Climate-Change Witch Hunt*, Wash. Post (Mar. 11, 2012), http://articles.washingtonpost.com/2012-03-11/opinions/35448408_1_witch-hunt-legal-fees-michael-e-mann. (last visited Oct. 21, 2013).
241. *See* Fraud Against Taxpayers Act, Va. Code Ann. §8.01-216.3 (West 2013).
242. Editorial Board, *supra* note 240.
243. It does not appear that UVA has altered its research guidelines or prerogatives in response to the costs of the litigation.

ments fervently. The intent and scienter requirements, for instance, should provide absolute protection to any person or group who discuss climate change from any perspective or for *any reason other* than to mislead. Indeed, the cause of action is crafted to protect climate scientists—even those who conduct research that runs counter to the consensus on climate change—by preventing the willful distortion of their work by individuals and entities that are not concerned with truth or academic creativity, but rather with promoting the interests of certain ingrained industries to the detriment of the general welfare.

Further, the cause of action is not designed to determine or decide what is true or false in climate science. Indeed, science depends on continual progress, as ideas become more defined and theories gain more evidentiary support, and legislatures and courts are not the correct bodies to determine scientific merit. Accordingly, the fraudulent misrepresentation of climate science operates not as an arbiter of truth in climate science, but rather as clarifier of *what the science actually says*; it does not determine truth, but ensures that the public and decisionmakers are given a clear presentation of the science, including uncertainties. An actionable statement under the cause of action is therefore false not because of a court decision or legislative mandate declares it so, but because the statement distorts or misrepresents the overwhelmingly contradictory scientific evidence. Moreover, it does not become actionable unless it is made with the intent to mislead and with reckless disregard for the truth.

Yet, in seeking to advance the cause of climate science, the author certainly worries about providing another tool to those who would stifle true academic exploration and freedom. Dr. Spencer Weart, historian of science and author of the fascinating book, *The Discovery of Global Warming*, noted in that book that "[e]very great scientific paper is written at the outside edge of what can be known, and deserves to be remembered if there is a nugget of value amid the inevitable confusion."[244] Scientific progress is reliant on missteps, false starts, wrong turns, and even the vehement defense of ideas that eventually turn out to be wrong. As such, scientific and academic inquiry must be protected, and the new cause of action—if it is indeed created—must be implemented and monitored cautiously. For instance, the fraudulent misrepresentation of climate science, if adopted statutorily, might contain anti-SLAPP[245]-style protections that, in addition to the stringent elements discussed above, prevent abuse.

The words of Dr. Weart also provide further guidance. He wrote that "great scientific papers" have a tendency to push the envelope. Often, those papers make crucial mistakes, or provide only the faintest hint of an important new idea.[246] While this author is not so self-deluded as to imagine that this is a "great" legal paper, he nevertheless hopes that it may at least contain, within the confusion, a "nugget of value": that is, the willful distortion of climate science poses a serious risk to the long-term well-being of the United States, but through careful and wary construction of a new cause of action, the legal community can help to solve the problem without putting an undue burden on freedom of speech. In short, if the question is "yes, but what can you do," the answer should be "Something."

V. Conclusion

There may still be a chance to avoid catastrophic or dangerous climate change.[247] Such a chance requires a concerted and global effort to significantly reduce GHG emissions.[248] That effort must include the United States; it is unlikely, however, that the United States will join that effort without an informed public and political leaders that base their decisions on accurate and honest scientific information. Currently, decisionmakers in the United States view climate science through a distorted lens because certain parties intentionally or recklessly misrepresent the truth. Partly because of this distortion, the nation has not sufficiently addressed climate change at the federal level. As a result, the private and public sectors are and will be at risk of immense physical and economic damages from an escalating threat. Existing causes of action do not provide an adequate remedy for this great deception. These causes of action are either too stringent or remote, or fail to adequately address the underlying offense.

Congress or the courts should thus adopt a new cause of action for the fraudulent misrepresentation of climate science. The new cause of action is narrowly tailored to prevent vexatious litigation, yet also rests on rebuttable presumptions that make it a feasible remedy to climate science misrepresentation. Plaintiffs and prosecutors should survive First Amendment challenges because the fraudulent misrepresentation of climate change falls into a category of exempted speech that, while not yet discussed in American jurisprudence, touches on long understood and legally cognizable interests. Specifically, the cause of action safeguards the government's right to efficient operation based upon an undistorted marketplace of ideas. Further, it protects private plaintiffs from both economic and physical damages

244. Weart, *supra* note 219, at 49.

245. Anti-SLAPP laws are designed to prevent "sham" lawsuits that are used to chill free speech and expression. *See* Bringing and Defending Anti-SLAPP Motions to Strike or Dismiss, 22 Causes of Action 2d 317 (2013).

246. For example, in his book, Dr. Weart relates a story about famed researcher Roger Revelle, who at the last minute added a few sentences to the end of an already completed paper on the oceanic uptake of carbon dioxide. Those sentences in fact contradicted the conclusions of the paper. It was only after reflecting on the paper's conclusion and conducting more research that Revelle realized it was wrong. *See* Weart, *supra* note 219, at 28-29. It was the few last-minute lines that proved to be the "nugget of value" contained in the confusion. *Id.*

247. The World Bank, *supra* note 172, at xiii (noting that "with action, a 4°C world can be avoided and we can likely hold warming below 2°C"). *But see* Dye, *supra* note 13 ("At present, governments' attempts to limit greenhouse-gas emissions through carbon cap-and-trade schemes and to promote renewable and sustainable energy sources are probably too late to arrest the inevitable trend of global warming.") (quoting Jasper Knight & Stephan Harrison, *The Impacts of Climate Change on Terrestrial Earth Surface Systems*, 3 Nature Climate Change 24, 27 (2013)).

248. *See* Copenhagen Diagnosis, *supra* note 12, at 7 ("To stabilize climate, a decarbonized global society—with near-zero emissions of CO_2 and other long-lived greenhouse gases—needs to be reached well within this century.").

that result from knowing or intentional misrepresentations of climate science. Moreover, the new cause of action provides a remedy for a kind of destructive false speech that cannot be remedied with true speech.

When Justice Holmes issued his clear-and-present-danger test almost one century ago, his point was clear; there is some speech that is so dangerous that it does not merit the vigilant protection of the First Amendment. His hypothetical of a man falsely shouting fire in a crowded theater is no less relevant today than it was then, but now the converse is also at issue. The First Amendment should not protect a man falsely shouting "there is no fire" in a burning building. A new cause of action for the fraudulent misrepresentation of climate change will at least allow figurative firefighters to enter the theater and assure the patrons inside that the building is indeed ablaze. Whether those inside subsequently decide to put the fire out may prove to be one of the most important decisions in human history.