

THE ORIGINS AND EVOLUTION OF CLIMATE DISINFORMATION

PAPER I



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The following publication is the first of a three-part series on climate change disinformation. These papers analyze the origins of climate disinformation, expose the international and domestic sources of climate disinformation, and calculate climate disinformation's impact.

I. Origins and Evolution of Climate Disinformation

Despite scientific consensus that climate change is both real and anthropogenic, climate policy around the world is insufficient and constantly contested. Internationally, several countries have shown some success in reaching emission goals, while many others—including the United States—have put forth minimal effort.¹ Climate policy in the United States is paralyzed by partisan division, with salient legislation repeatedly failing due to gridlock. While these political issues may transpire domestically, the impacts are global. The United States alone is responsible for emitting more than 15% of the world's CO₂ emissions.² Atmospheric emissions know no borders; so long as the United States and other serious contributors fail to significantly reduce CO₂ emissions, the entire planet is at risk.

Domestic polling about how many citizens believe in climate change occurs constantly. A survey conducted among about 2,000 people in early 2021 indicated that only 50% of United States citizens believe that climate change poses a “critical threat.”³ Conversely, 19% of respondents said climate change is “not an important threat at all.” The sample size includes a representative number of eligible voters with a wide range of demographics. These statistics are likely the result of decades of false claims promoted by energy corporations which contributed to the widespread climate debate in U.S. society. Driven by profit maximization, fossil fuel industries have undertaken a decades-long disinformation campaign to obstruct meaningful climate

¹ Mulvaney, Kieran. "Climate Change Report Card: These Countries are Reaching Targets." National Geographic., last modified Sept 19, accessed July 10, 2021, <https://www.nationalgeographic.com/environment/article/climate-change-report-card-co2-emissions>.

² "How Much Carbon Dioxide does the United States and the World Emit each Year from Energy Sources?" U.S. Geological Survey, accessed July 10, 2021, https://www.usgs.gov/faqs/how-much-carbon-dioxide-does-united-states-and-world-emit-each-year-energy-sources?qt-news_science_products=0#qt-news_science_products.

³ Jenkins, Lisa Martine. 2021. "Half of U.S. Voters Now Characterize Climate Change as a 'Critical Threat.'" Morning Consult. <https://morningconsult.com/2021/04/27/paris-agreement-climate-change-threat-poll/>

legislation. In this paper, we discuss the origins and evolutions of climate disinformation in the United States.

Exxon and The Origins of Climate Denial

Exxon hired scientists to conduct extensive research on climate change beginning as early as the 1950s. They found evidence that climate change was caused by humans.⁴ As Exxon's and other companies' climate research programs continued into the 1980s and 1990s, a concrete scientific consensus emerged: climate change is anthropogenic and largely caused by the burning of fossil fuels.⁵ Armed with this early knowledge of human-caused climate change and the severe ramifications it posed for the future of the planet, Exxon opted to muddy the waters by releasing a slew of publications designed to cast doubt on the realities of human-caused climate change.⁶

In October 2019, a hearing titled "Examining the Oil Industry's Efforts to Suppress the Truth about Climate Change" was held by a subcommittee of the House of Representatives Oversight and Reform Committee. During the hearing, former Exxon climate scientist Dr. Ed Garvey provided a written testimony stating, "Exxon knew of the anthropogenic climate change issue and considered it a sufficiently important problem to the company, and perhaps to society, that it funded and undertook a major research

⁴ Cook, John, Geoffrey Supran, Stephan Lewandowsky, Naomi Oreskes, and Ed Maibach. 2019. "America Mislead: How the Fossil Fuel Industry Deliberately Misled Americans about Climate Change." *George Mason University Center for Climate Change Communication* (October); Franta, Benjamin. 2018. "Early Oil Industry Knowledge of CO₂ and Global Warming." *Nature Climate Change* 8 (Nov 19): 1024–1025.

⁵ Cook, John, Geoffrey Supran, Stephan Lewandowsky, Naomi Oreskes, and Ed Maibach. 2019. "America Mislead: How the Fossil Fuel Industry Deliberately Misled Americans about Climate Change." *George Mason University Center for Climate Change Communication* (October); Oreskes, Naomi. 2004. "The Scientific Consensus on Climate Change." *Science* 306 (5702) (Dec 3): 1686; Shwed, Uri and Peter S. Bearman. 2010. "The Temporal Structure of Scientific Consensus Formation." *American Sociological Review* 75 (6): 817–840; Cook, John, Dana Nuccitelli, Sarah A. Green, Mark Richardson, Bärbel Winkler, Rob Painting, Robert Way, Peter Jacobs, and Andrew Skuce. 2013. "Quantifying the Consensus on Anthropogenic Global Warming in the Scientific Literature." *Environmental Research Letters* 8 (2) (May 15).

⁶ Cook, John, Geoffrey Supran, Stephan Lewandowsky, Naomi Oreskes, and Ed Maibach. 2019. "America Mislead: How the Fossil Fuel Industry Deliberately Misled Americans about Climate Change." *George Mason University Center for Climate Change Communication* (October); Franta, Benjamin. 2018. "Early Oil Industry Knowledge of CO₂ and Global Warming." *Nature Climate Change* 8 (Nov 19): 1024–1025; Supran, Geoffrey and Naomi Oreskes. 2017. "Assessing ExxonMobil's Climate Change Communications (1977–2014)." *Environmental Research Letters* 12.

investigation of the world's atmospheric and oceanic CO2 levels. ... The corporation was well aware of the potential problem caused by rising CO2 levels."⁷ Despite this awareness, Exxon spent decades employing various tactics as a part of a disinformation campaign designed to cast doubt on the very same science they had funded.⁸

Most notably, *Exxon communications presented human-caused climate change as an ongoing debate between two equal sides rather than a scientific consensus, under the guise of promoting "a balanced scientific approach."*⁹ Exxon's misrepresentation of the scientific community's consensus set a precedent for future media coverage of climate science, resulting in a disproportionate amount of media coverage focused on climate change skepticism in the United States.¹⁰ The media landscape was primed to advocate for "both sides" of the story in order to remain unbiased. This was because the credibility of the media had diminished: "After years of yellow journalism tanking the credibility of the media, the number one concern of reporters during the 1950s was to be as objective as possible so they could not be accused of bias."¹¹ In taking advantage of objective media, it caused Americans to question the integrity of the scientific community's overwhelming 97% consensus.¹²

⁷ Committee on Oversight and Reform. 2019. *Examining the Oil Industry's Efforts to Suppress the Truth about Climate Change*. October; Garvey, Edward A. 2019. *Written Statement to the Congressional Oversight Committee by Dr. Edward A. Garvey*; Holden, Emily. "Exxon Sowed Doubt about Climate Crisis, House Democrats Hear in Testimony." *The Guardian*, last modified October 23, 2019, accessed July 10, 2021.

⁸ Cook, John, Geoffrey Supran, Stephan Lewandowsky, Naomi Oreskes, and Ed Maibach. 2019. "America Misperceives: How the Fossil Fuel Industry Deliberately Misperceives Americans about Climate Change." *George Mason University Center for Climate Change Communication* (October).

⁹ *Ibid.*

¹⁰ Petersen, Michael Alexander, Emmanuel M. Vincent, and Anthony LeRoy Westerling. 2019. "Discrepancy in Scientific Authority and Media Visibility of Climate Change Scientists and Contrarians." *Nature Communications* 10 (3502) (August 13).

¹¹ Otis, Cindy L. *True or False: A CIA Analyst's Guide to Spotting Fake News*. Feiwel & Friends, 2020.

¹² Oreskes, Naomi. 2004. "The Scientific Consensus on Climate Change." *Science* 306 (5702) (Dec 3): 1686; Cook, John, Dana Nuccitelli, Sarah A. Green, Mark Richardson, Bärbel Winkler, Rob Painting, Robert Way, Peter Jacobs, and Andrew Skuce. 2013. "Quantifying the Consensus on Anthropogenic Global Warming in the Scientific Literature." *Environmental Research Letters* 8 (2) (May 15)

Tactics Exxon used in its messaging on climate change closely mirrors that of the tobacco industry during the mid-60s and late 80s.¹³ An analysis of Exxon's climate change publications conducted in May 2021 found that the rhetoric employed in its advertorials "downplays the reality and seriousness of climate change, normalizes fossil fuel lock-in, and individualizes responsibility" tactics which "mimic the tobacco industry's documented strategy of shifting responsibility away from corporations."¹⁴ *Big Tobacco downplayed the effects of smoking and questioned the connections to cancer. ExxonMobil borrowed from Big Tobacco's playbook by questioning the science and the specific connection to fossil fuels. They both pushed an agenda of delayed action.* "Unsettled Science," a paper published by ExxonMobil in the year 2000, argued that the scientific community did not yet have enough evidence to reach a solid consensus on the science of human-caused climate change, and furthermore employed "the same delay argument as the tobacco industry: 'Let's wait before we act.'"¹⁵

Several specific instances of Exxon disseminating false information appear in former Exxon consultant Dr. Martin Hoffert's written testimony from the 2019 House hearing. Many are highlighted in the next section of this paper, where we examine cases of players in the fossil fuel industry misrepresenting research findings on climate change.¹⁶

The Fossil Fuel Industry and Climate Denial: Who Knew What and When?

The following is an overview of when scientific information was published and presented to fossil fuel companies combined with what those companies did to mislead the public.

[View the interactive version here.](#)

¹³ Bate, Clive and Andy Rowell. "Tobacco Explained: The truth about the tobacco industry... in its own words." *Action on Smoking and Health (AHS)*.

<https://www.who.int/tobacco/media/en/TobaccoExplained.pdf>

¹⁴ Supran, Geoffrey and Naomi Oreskes. 2021. "Rhetoric and Frame Analysis of ExxonMobil's Climate Change Communications." *One Earth* 4 (5) (May 21,): 696-719.

¹⁵ Cook, John, Geoffrey Supran, Stephan Lewandowsky, Naomi Oreskes, and Ed Maibach. 2019. "America Mislead: How the Fossil Fuel Industry Deliberately Misled Americans about Climate Change." *George Mason University Center for Climate Change Communication* (October).

¹⁶ Hoffert, Martin. 2019. *Civil Rights and Civil Liberties Subcommittee Hearing on: "Examining the Oil Industry's Efforts to Suppress the Truth about Climate Change" Written Testimony Submitted by Martin Hoffert, Professor Emeritus of Physics (Earth Systems Group) New York University.*

THE HISTORY OF CLIMATE [DIS]INFORMATION

SCIENTIFIC FINDINGS AND
IMPORTANT STUDIES

WHAT FOSSIL FUEL COMPANIES
KNEW AND WHEN...

"Scientists working for the fossil fuel industry knew about the potential warming effects of CO2 emissions as early as the 1950s" (from the American Petroleum Institute, API)

"By the 1950s, scientists knew that climate change could present significant risks to people and places (Weart 2015; Craig 1957; Revelle and Seuss 1957)."

Daily CO2 measurements begin, **1958**
key to recognizing change

Charles Keeling started making daily measurements of CO2 in Hawaii.
March 1958 = 313 ppm
May 2013 = 400 ppm

Ice core uncovered in helps **1966**
measure 8,200 years of climate

At Camp Century, Greenland, an ice core was extracted that showed 8,200 years of annual snow accumulation as thin layers in the ice. The thin layers of ice allowed scientists to reconstruct ancient climate using an ice core for the first time.



1950
The fossil fuel industry knew about warming impacts

1938 Scientists recognize the global temperature and CO2 increasing: "heat-trapping"

Guy Callendar - British steam engineer - compiled carbon dioxide measurements around the world and suggested warming was related to human based fuel combustion. He also found that temperatures / CO2 levels were rising.

1957 "An unrepeatable human-being geophysical experiment"

"Even now, [we] may be unwittingly changing the world's climate through the waste products... Due to our release from factories and automobiles every year... our atmosphere seems to be getting warmer." (Bell Telephone Science Hour)

1965 First Presidential Warning

President Lyndon Johnson warned about the potential dangers of a changing climate: "This generation has altered the composition of the atmosphere on a global scale through radioactive materials and a steady increase in carbon dioxide from the burning of fossil fuels"

1969 Scientific Consensus?

Charles Keeling, a scientist whose careful measurements of carbon dioxide in the atmosphere are still considered among the most respected sources of climate science data, reported: "I believe that no atmospheric scientist doubts that a sufficiently large change in atmospheric CO2 would change the climate."

Fossil fuel industry heard detrimental information 1977

"The major fossil fuel companies were likely aware of all of these developments."
BP/Chevron/ConocoPhillips/ExxonMobil/Peabody Energy/Shell representatives were present for congressional hearings where carbon emissions greatly contributing to the greenhouse effect and other aspects of climate science were discussed.

1979-1983

API-led task force shares climate research

- Included senior scientists and engineers from almost every major US and multinational oil and gas company (Exxon Mobil, Amoco, Phillips, Texaco, Shell, Sunoco, Sohio)
- Industries worried about overregulation
- Knew the potential effects
- Prof John A Laurmann of Stanford University lectured at Feb 1980 New York meeting



"Inconclusive Evidence" 1996

"In a 1996 speech at the Economic Club of Detroit, Exxon CEO Lee Raymond stated: "Proponents of the global warming theory say that higher levels of greenhouse gases - especially carbon dioxide - are causing or will cause global temperatures to rise... Currently, the scientific evidence is inconclusive as to whether human activities are having a significant effect on the global climate."
This is false. Exxon's own scientists knew climate change was real and serious when he made this statement. -Dr. Martin Hoffert

1978 EXXON Internal Memo

Exxon Internal Memo on the Greenhouse Effect

- "CO2 release most likely source of inadvertent climate modification;"
- "Prevailing opinion attributes CO2 increase to fossil fuel combustion;"
- "Doubling CO2 could increase average global temperature 1-3 degrees Celsius by 2050 A.D. (10 degrees C predicted at poles)"



1988 Congressional Hearings/IPCC

- NASA climate scientist James Hansen testified before the Senate Energy and Natural Resources Committee stating that climate was warming, greenhouse gases are responsible for the warming
- Intergovernmental Panel on Climate Change (IPCC) formed to review climate science every few years and help governments understand its impacts/efforts to adapt and mitigate
- Richard F. Tucker (then president of Mobil Oil) acknowledged in a speech to the American Institute of Chemical Engineers that environmental protection and pollution prevention, including action to address the greenhouse effect, might require "a dramatic reduction in our dependence on fossil fuels" (Tucker 1988)."



"Unsettled Science" by ExxonMobil

2000

"[The book] is full of statements that were contradicted by the work of Exxon's scientists, such as: the statement that 'it is impossible for scientists to attribute the recent small surface temperature increase to human causes.' This is nonsense. The impact of humans on climate and environmental change today is so massive that earth scientists call the present era 'The Anthropocene,' meaning humans are the dominant factor."

Initial Investigations

2015

- "The investigation focuses on whether statements the company made to investors about climate risks as recently as this year were consistent with the company's own long-running scientific research."
- Media investigations

Misleading Advertising

2020

"The lawsuit claims that the four oil majors violated the District's Consumer Protection Procedures Act by engaging in misleading acts and practices around the marketing, promotion, and sale of fossil fuel products, which produce globe-warming pollution."

1998 "Natural trends" = lies

In a 1998 ExxonMobil pamphlet, Exxon stated, "This recent warming trend falls well within the range of natural changes in Earth's temperature over the past 250,000 years." However, scientists knew that the recent warming trend was not natural. The rate of temperature increase from fossil fuel burning is far higher than any in the past million years."

2011 American Electric Power Co. V Connecticut

The Supreme Court found that corporations could not be sued for GHGs under federal law because of the Clean Air Act (CAA). This spurred further investigations and more lawsuits.

2017 Lawsuit buildup

"Since 2017, five states and more than a dozen municipalities have sued fossil fuel companies over their contribution to – and alleged deception about – the dangers of global warming."

2021 Exxon sued for "green-washing"

"The complaint targets Exxon for bragging on Instagram about its commitment to capturing carbon dioxide, a potent planet-warming gas."

Methods of Denial

Initially, as public knowledge of climate change was limited, fossil fuel companies faced few obstacles in diverting national attention away from global warming: not many people had heard of climate change, few

researchers were studying it, and long-term impacts were virtually unknown.¹⁷ *However, the last several decades of extensive and accurate research show an alarming climate projection that casts doubt on the companies' claims by diminishing their denial credibility, thereby forcing companies to change their disinformation tactics.*

Denial arguments—reasons or *evidence* as to why climate change *does not exist*—were foundational for fossil fuel companies. These arguments have proven to be contradictory due to faulty logic. For example, someone cannot say “Snowfall means that climate change doesn’t exist” in the same breath as “Fires burning on the ocean can’t prove climate change.” It uses the same logic to justify adverse weather conditions.¹⁸ The following are the most common denial arguments in climate literature:

A. Milankovitch Cycles

The argument for Milankovitch Cycles, theorized in 1941, contends that global temperature change is a part of the Earth’s natural process. These cycles, also known as the Ice Age cycles, theorize Earth’s relative position to the sun impacts Earth’s long-term climate. The eccentricity (orbit), obliquity (angle of the axis) and precession (direction of rotation) of the Earth all impact the temperature.

The foundational problem with Milankovitch Cycles is *timing*. The cycles described happen over *thousands of years*, so the argument cannot account for the current period of exponential change in climate that the Earth has undergone since the Industrial Revolution.¹⁹ Additionally, the Earth’s eccentricity, obliquity, and precession have not changed rapidly enough to explain the drastic global climate changes in the past several decades. Earth is currently in the interglacial period in the cycle, where there is a milder climate, but it should be cooling.²⁰ The pre-industrial period global

¹⁷ Franta, Benjamin. 2018. "Early Oil Industry Knowledge of CO2 and Global Warming." *Nature Climate Change* 8 (Nov 19): 1024–1025

¹⁸ Cook, John, Geoffrey Supran, Stephan Lewandowsky, Naomi Oreskes, and Ed Maibach. 2019. "America Misperceives: How the Fossil Fuel Industry Deliberately Misperceived Americans about Climate Change." *George Mason University Center for Climate Change Communication* (October).

¹⁹ Buis, Alan. "Why Milankovitch (Orbital) Cycles can't Explain Earth's Current Warming." NASA., last modified February 27, 2020, accessed July 10, 2021.

²⁰ Puetz, Stephen J., Andreas Prokoph, and Glenn Borhardt. 2016. "Evaluating Alternatives to the Milankovitch Theory." *Journal of Statistical Planning and Inference* 170 (March): 158-165.

temperature, often defined as “before human activities,” ranges from 1850 to 1900 since few instrumental temperature recording devices existed before then.²¹ The Intergovernmental Panel on Climate Change (IPCC) details overall global temperature rises at a 0.2 degree Celsius increase per decade with high confidence.²² There has been an overall 1 degree Celsius increase in global temperature since pre-industrial times, according to the IPCC. The report details a litany of problems in the status quo from those temperature variations and elaborates on the dangers of reaching the 1.5 degree range. The rapid temperature changes do not align with the Milankovitch Cycle timing.

The American Petroleum Institute (API) detailed this argument in their 1979 “corrections to background paper” on effects of carbon dioxide:

“We are now in a cooling phase, due to normal cyclic climatic behavior, and will not revert to a warming trend until 1990. It is not likely that any ‘warming’ effects of CO₂ will be apparent until at least the year 2000, and probably beyond this time...Therefore, it is unlikely this effect will be ‘noticeable within the next twenty years.’”²³

This quote justifies changes in the climate by saying the Earth will “balance it out in the cooling phase.” It’s clear that they are using Milankovitch Cycles to justify how abnormalities will “even out” mixing in a delay argument as well.

B. Inaccurate Data

Exxon and other petroleum companies faced concrete evidence of climate change in a 1980 meeting featuring Dr. J. A. Laurman, expert on CO₂ and climate.²⁴ That previous year, API had already set a standard for questioning the integrity of scientific information: they labeled the data as misleading,

²¹ Hawkins, Ed et al. 2017. “Estimating Changes in Global Temperature since the Preindustrial Period.” *Bulletin of the American Meteorological Society*. 98 (9): 1841-1856. <https://doi.org/10.1175/BAMS-D-16-0007.1>

²² Allen, M.R., et al. 2018. “Framing and Context.” In “Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.” https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_Chapter1_Low_Res.pdf

²³ Campion, R. J. 1979. *Memorandum from RJ Campion to JT Burgess regarding the API's Background Paper on CO₂ Effects* Climate Investigations Center Collection.

²⁴ American Petroleum Institute, Jimmie J. Nelson, and J. J. Nelson. 1980. *The CO₂ Problem; Addressing Research Agenda Development* Climate Investigations Center Collection.

using jargon about “absolute percentages” without any evidence of their own. Absolutes are unrealistic standards of proof in science; the 97% consensus on human-caused climate change should be more than enough to motivate companies and politicians to work to reduce emissions. However, by demanding concrete, unrealistic standards of proof, fossil fuel companies were able to cast doubt onto the scientific consensus of climate change without any real scientific basis. This same tactic was used by tobacco companies to sow doubt on the science of nicotine carcinogens.

C. Cold Weather

The cold weather argument cherry-picks instances of snowfall or freezing temperatures and uses them to justify that global climate change doesn't exist. That logic can be boiled down to the idea that no place can be cold if there is global warming. The cold-weather argument is futile because the same logic works in reverse: general weather trends show that there is an increasing number of adverse conditions around the world. Not all weather around the world is the same and this argument becomes persuasive because individuals tend to analyze only their immediate surroundings.²⁵ Donald Trump used this argument frequently when talking about climate change especially in this tweet saying:

“In the beautiful Midwest, windchill temperatures are reaching minus 60 degrees, the coldest ever recorded. In coming days, expected to get even colder. People can't last outside even for minutes. What the hell is going on with Global Warming? Please come back fast, we need you!”²⁶

A global and comprehensive perspective on available data is key when talking about climate. Pinpointing certain areas and instances of cold weather does not mean overall CO₂ levels and *global* temperatures are static or decreasing.

²⁵ Johnson, Dominic and Simon Levin. 2009. "The Tragedy of Cognition: Psychological Biases and Environmental Inaction." *Current Science* 97 (11) (December 10,): 1593-1603.

²⁶ Paul, Deanna. 2019. "What President Trump keeps getting wrong about 'Global Warming'." *Washington Post*.
<https://www.washingtonpost.com/weather/2019/01/20/dear-mr-president-thats-not-how-global-warming-works/>

The patchwork of arguments climate deniers created over the years is unraveling as disinformation tactics are exposed and contradictions emerge.²⁷ Therefore, deniers along with fossil fuel companies have been encouraged to alter disinformation tactics. Arguments have transitioned from outright denial into “deception, distraction, and delay.”²⁸

Status Quo Tactics

Currently, it’s easier for fossil fuel companies to focus on lobbying because of the impact the internet has on sharing disinformation. Conspiracy theories are easily promoted and shared by politicians and biased websites.²⁹ Misinformation is also using more individualized logic. People have become interested in the weather that’s happening in their backyards to justify that climate change doesn’t exist, thereby creating a magnified version of the “Cold Weather” argument.

Additionally, companies are promoting “going green” and are “looking into renewable energy.” Those advertising claims are futile and efforts are insufficient. Fossil fuel companies have been sued for that rhetoric.³⁰ Early documents of Exxon and other fossil fuel industries already showed the necessity of looking into different forms of energy decades ago. Others also critique that they aren’t doing enough.³¹ This “green” campaign tactic is a mix of distraction and delay.

Furthermore, companies have been promoting solution misinformation. This method pushes that solutions to climate change can result from individual

²⁷ Another climate change denial argument is that increasing CO₂ is good for plants. However, an overbearing amount of CO₂ doesn’t help plants and combined with deforestation and an altering composition of other necessary nutrients, any potential impact is negligible.

Sneed, Annie. 2018. “Ask the Experts: Does Rising CO₂ Benefit Plants?” *Scientific American*. <https://www.scientificamerican.com/article/ask-the-experts-does-rising-co2-benefit-plants/>

²⁸ Gramling, Carolyn. “‘The New Climate War’ Exposes Tactics of Climate Change ‘inactivists’.” *Science News*, last modified Jan 15, 2021, accessed July 10, 2021.

²⁹ Klepper, David. “As Extreme Weather Increases, Climate Misinformation Adapts.” *Associated Press*, last modified April 21, 2021, accessed July 10, 2021.

³⁰ Joselow, Maxine. 2021. “Lawsuits target Exxon’s social media ‘green washing’” *Climate Wire*. <https://www.eenews.net/articles/lawsuits-target-exxons-social-media-green-washing/>

³¹ Green, Jessica, Jennifer Haden, Thomas Hale and Paasha Mahdavi. 2020. “Oil companies aren’t actually going green - but some are heading faster than others.” *The Washington Post*. <https://www.washingtonpost.com/politics/2020/09/18/oil-companies-arent-actually-going-green-some-are-heading-there-faster-than-others/>

changes like going vegan or not using straws.³² By shifting the burden from producers to consumers, it forces people to look at their individual actions while fossil fuel producers avoid the climate change burden.³³

Summary

Climate change disinformation is not new: it was promoted by fossil fuel companies since scientists began researching climate effects in the mid 1900s. By questioning the validity of the scientific data and by using the denial methods, companies like ExxonMobil have gotten away with preventing climate regulations. It is important for these fossil fuel companies to be held accountable and to recognize that disinformation tactics are not going away.

Throughout these disinformation campaigns, fossil fuel companies maintain an intense motivation to prevent government regulations and deny climate change: the appeasement of shareholders. Parts 2-4 of this publication describe disinformation sources, its impact and potential solutions for climate disinformation.

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³² Gramling, Carolyn. "Climate Change Disinformation is Evolving. so are Efforts to Fight Back." Science News., last modified May 18, 2021, accessed July 10, 2021.

³³ Gramling, Carolyn. "'The New Climate War' Exposes Tactics of Climate Change 'inactivists'." Science News., last modified Jan 15, 2021, accessed July 10, 2021.

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