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CITY OF HOBOKEN,

Plaintiff,

-against-

EXXON MOBIL CORP., EXXONMOBIL OIL CORP., ROYAL DUTCH SHELL PLC, SHELL OIL COMPANY, BP P.L.C., BP AMERICA INC., CHEVRON CORP., CHEVRON U.S.A. INC., CONOCOPHILLIPS, CONOCOPHILLIPS COMPANY, PHILLIPS 66, PHILLIPS 66 COMPANY, AMERICAN PETROLEUM INSTITUTE,

Defendants.

SUPERIOR COURT OF NEW JERSEY
LAW DIVISION: HUDSON COUNTY
DOCKET NO.:

Civil Action

COMPLAINT AND JURY DEMAND

Plaintiff the City of Hoboken, with its principal place of business at 94 Washington Street, Hoboken, New Jersey, by its attorneys Emery Celli Brinckerhoff Abady Ward & Maazel LLP and Krovatin Nau LLC, for its Complaint alleges as follows:

STATEMENT OF THE CASE

1. Defendants have tried to deceive the world for decades.

> 1965: **"[T]here is still time to save the world's peoples from the catastrophic consequences of pollution, but the time is running out."**—Frank Ikard, President of the American Petroleum Institute, America's largest oil industry trade association.
>
> 1977: **"[C]urrent scientific opinion overwhelmingly favors attributing atmospheric carbon dioxide increase to fossil fuel combustion."**—Exxon scientist James Black, to Exxon's Corporate Management Committee.
>
> 1988: **"[B]y the time global warming becomes detectable it could be too late to take effective countermeasures to reduce the effects or even stabilise the situation."**—Confidential Shell report.
>
> 1998: **"Unless 'climate change' becomes a non-issue, . . . there may be no moment when we can declare victory for our efforts."**—Internal action plan of the American Petroleum Institute.
>
> 2006: **"Taken together, gaps in the scientific basis for theoretical climate models and the interplay of significant natural variability make it very difficult to determine objectively the extent to which recent climate change might be the result of human actions."**—Public report by ExxonMobil.

2. Defendants, some of the world's largest fossil fuel companies and their largest trade association, have known for more than a half-century that the fossil fuels they extract, produce, market, and sell on a massive scale are causing accelerating climate change that poses grave threats to society—sea level rise, extreme heat, and increasingly destructive storms, among many others.

3. Instead of addressing those threats, Defendants have spent the last fifty years deceiving the public about their central role in causing climate change in order to grease

the wheels of their ever-expanding production and sale of fossil fuels. Together, the fossil fuels produced by Defendants make up more than 12% of global emissions between 1965 and 2017. Putting profits over people and with a reckless disregard for the costs their actions have imposed on vulnerable communities, Defendants are today producing and selling more fossil fuels than at any point in history and are raking in billions of dollars in profits in the process.

4. Defendants' deceptions have taken many forms.

5. *First*, Defendants concealed the harms of fossil fuels from the public. From the 1950s through the 1980s, before climate change was widely understood, Defendants carefully studied fossil fuels' impact on the global climate. They received countless reports from their own scientists and trade groups stating with certainty that fossil fuels were causing climate change with likely dire impacts. For example, Shell projected "significant changes in sea level" and "precipitation patterns" that "could have major social, economic, and political consequences," and Exxon predicted "potentially catastrophic events" like the melting of the Antarctic ice sheet that "would cause flooding on much of the U.S. East Coast." Yet Defendants kept these findings secret as they pumped out more and more fossil fuels to be marketed and sold around the world.

6. *Second*, beginning in the late 1980s, as public consciousness that fossil fuels would cause devastating climate change began to grow, Defendants orchestrated massive campaigns to discredit the valid climate science their own scientists had developed over the previous thirty years. Defendants spent millions of dollars on advertisements that cast doubt on climate science; funded scientifically unsound research to do the same; and created expansive networks of front groups to "[r]eposition global warming as theory, not fact." These campaigns worked. In the 1990s and 2000s, the public's faith in the certainty of climate science declined

substantially. At the same time, Defendants took steps to insulate their own fossil fuel production from the expected effects of anthropogenic climate change.

7. *Third*, even to the present day, Defendants have launched "greenwashing" campaigns that feign concern about climate change and promote nonexistent commitments to sustainable energy. Exxon touts plant-based biofuels as "the future of energy" when biofuels constitute just 0.2% of its refinery capacity; BP advertises "more energy" with "less footprint" while expanding its total oil production; Shell advertises "a path to net-zero emissions" while at the same time planning a 37% *increase* in oil production in the next decade; Chevron advertises that "it's time oil companies get behind the development of renewable energy" while at the same time putting just 0.2% of its capital spending toward renewables; and ConocoPhillips announces goals like "[r]educing our GHG emissions" while at the same time remaining "solely focused on our core business of exploring for, developing and producing crude oil and natural gas globally." These campaigns purposefully conceal Defendants' extraction, marketing, and sale of fossil fuels at historically unmatched rates and their continued funding of climate disinformation behind closed doors.

8. The climate harms masked by Defendants' half-century of deception have now slammed into the shores of Hoboken, New Jersey, a coastal community of over 50,000 people that sits across the Hudson River from New York City.

9. The increasing concentration of atmospheric greenhouse gasses from fossil fuels has caused sea levels to rise by nearly a foot in and around Hoboken—much more than the average amount of sea level rise around the world. Multiple additional feet of sea level rise are projected in the coming decades as a result of fossil fuel use.

10. Hoboken is uniquely vulnerable to sea level rise. As America's fifth-densest city, its residents and infrastructure are integrally connected to its 1.5 miles of coastline. More than half of Hoboken's residents, half of its schools, and all of its hospitals, rail and ferry stations, and hazardous waste sites are within five feet of its high tide line. Sea level rise therefore threatens major sections of Hoboken with flooding at high tide. The number of high tide flood days has already more than doubled since 2000. It also threatens the entire City with more frequent and severe flooding from storm surge during coastal storms.

11. In 2011 and 2012, successive storms slammed Hoboken with an unprecedented one-two punch, casting the threat posed by climate change into stark relief. In 2011, Hurricane Irene inundated thousands of properties and spilled raw sewage into the streets. In 2012, Superstorm Sandy submerged Hoboken in 450 million gallons of storm surge, leaving 80% of the City underwater, stranding 20,000 Hoboken residents in their homes, and causing hundreds of millions of dollars in damage. Communities of color and those economically marginalized are at a particularly high risk; for instance, during Sandy, some of the most vulnerable citizens of Hoboken were trapped in the Hoboken Housing Authority as storm waters rose in the streets. Hoboken's then-mayor described how Sandy filled up the City "like a bathtub." Both storms were as intense as they were because of anthropogenic climate change.

12. The impacts of accelerating climate change continue to be felt in Hoboken today. In a four-week span in the summer of 2020, Hoboken was lashed by two tropical storms as well as a severe thunderstorm that dropped more than an inch of rain in ten minutes, an unprecedented rate of rainfall. Storms like this are becoming more frequent and severe because of anthropogenic climate change, requiring Hoboken to undertake extensive mitigation and

adaptation initiatives to protect itself from being regularly inundated by stormwater. Again, the harm is felt particularly acutely by populations that are already marginalized.

13. Following Hurricane Irene and Superstorm Sandy, Hoboken sprang into action. It developed a comprehensive "Resist, Delay, Store, Discharge" adaptation and mitigation plan to address rainfall and seawater flooding. It is building flood protection along Hoboken's waterfront; purchasing land to build parks and terraced wetlands; retrofitting buildings with green roofs; building underground cisterns to store excess water; and building pumps to expel stored water.

14. The plan's cumulative cost is north of $500 million. Meanwhile, Defendants have collected billions of dollars in profits from their mass extraction, production and marketing of fossil fuels, all while spewing decades of deceptions about fossil fuels' devastating climate impacts that continue through the present day.

15. The fossil fuels driving Defendants' billion-dollar profits, and Defendants' lies about the risks of fossil fuels, are the cause of both the escalating climate harms experienced by Hoboken and the enormous costs the City now must undertake to abate them.

16. Hoboken brings this action for public and private nuisance, trespass, negligence, and violation of the New Jersey Consumer Fraud Act to recover damages caused and abatement costs made necessary by Defendants' conduct.

PARTIES

Plaintiff

17. Plaintiff, the City of Hoboken, is organized under the Optional Municipal Charter Law. It brings this action as an exercise of its police power as a public entity, which includes, but is not limited to its power to prevent and abate nuisances, to protect its property and

the property of the residents and businesses of the City, to ensure compliance with the laws of New Jersey, and to prevent and abate hazards to public health, safety, welfare, and the environment. The City brings this action further in its capacity to sue under the Optional Municipal Charter Law, the Consumer Fraud Act, and New Jersey Common Law for recovery of damages and abatement of nuisances.

Defendants

18. Exxon Mobil Entities

a) Exxon Mobil Corporation is a multi-national, vertically integrated, energy and chemicals company incorporated in New Jersey at 830 Bear Tavern Road, West Trenton, New Jersey, with its headquarters and principal place of business in Irving, Texas. Exxon Mobil Corporation is among the largest publicly traded international oil and gas companies in the world. It was formerly known as, did or does business as, and/or is the successor in liability to ExxonMobil Refining and Supply Company; Exxon Chemical U.S.A.; ExxonMobil Chemical Corporation; ExxonMobil Chemical U.S.A.; ExxonMobil Refining & Supply Corporation; Exxon Company, U.S.A.; Exxon Corporation; and Mobil Corporation.

b) In 2018, Exxon Mobil reported nearly $21 billion in profits.

c) Exxon Mobil Corporation controls and has controlled companywide decisions about the quantity and extent of fossil fuel production and sales, including those of its subsidiaries.

d) Exxon Mobil Corporation controls and has controlled companywide decisions related to climate change and greenhouse gas

emissions from its fossil fuel products, including those of its subsidiaries. Exxon Mobil Corporation's Board of Directors holds the highest level of direct responsibility for climate change policy within the company. Exxon Mobil Corporation's Chairman of the Board and Chief Executive Officer, its President, and the other members of its Management Committee have been and are actively engaged in discussions relating to greenhouse gas emissions and the risks of climate change on an ongoing basis. Exxon Mobil Corporation recently represented that its success, including its "ability to mitigate risk and provide attractive returns to shareholders, depends on [its] ability to successfully manage [its] overall portfolio, including diversification among types and locations of [its] projects." Exxon Mobil Corporation requires its subsidiaries to provide an estimate of greenhouse gas-related emissions costs in their economic projections when seeking funding for capital investments.

e) Exxon Mobil Corporation controls and directs companywide advertising and messaging strategy, including, in particular, companywide advertising and messaging concerning climate change and the relationship between fossil fuel use and climate change, including among its subsidiaries.

f) ExxonMobil Oil Corporation is a wholly owned subsidiary of Exxon Mobil Corporation that acts on Exxon Mobil Corporation's behalf and subject to Exxon Mobil Corporation's control. ExxonMobil Oil Corporation is incorporated in the State of New York with its principal place of business in Irving, Texas. ExxonMobil Oil Corporation was formerly known as, did or

does business as, and/or is the successor in liability to Mobil Oil Corporation.

g) "Exxon" and "Exxon Mobil" as used hereafter, means collectively Defendants Exxon Mobil Corporation and ExxonMobil Oil Corporation, and their predecessors, successors, parents, subsidiaries, affiliates, and divisions.

h) Exxon consists of numerous divisions and affiliates in all areas of the fossil fuel industry, including exploration for and production of crude oil and natural gas; manufacture of petroleum products; and transportation, promotion, marketing, and sale of crude oil, natural gas, and petroleum products. Exxon is also a major manufacturer and marketer of commodity petrochemical products.

i) Exxon Mobil is a successor company to Standard Oil Company of New Jersey, a company created by John D. Rockefeller in New Jersey in 1885 in response to efforts in the United States to restrict anticompetitive monopolies. Almost immediately after it was created, Standard Oil Company of New Jersey was one of the largest corporations in the world, and remained so for decades.

j) Exxon Mobil, as Standard Oil, created the Bayway and Bayonne Refinies in New Jersey in the early 20th century and has owned and operated extensive refining and sale operations in New Jersey in the century since.

k) Exxon markets or has marketed gasoline and other fossil fuel products to New Jersey consumers, including through dozens of Exxon-

branded and Mobil-branded petroleum service stations, including at least six in and near Hoboken.

l) Exxon also markets and sells petroleum products to Hoboken consumers through local retailers. Such products sold to Hoboken consumers include, for example, engine lubricants and motor oils sold under the Mobil 1 brand name, which is owned by Exxon.

m) Exxon has directed its propaganda and advertising campaigns to consumers in and around New Jersey, including in Hoboken.

19. Shell Entities

a) Royal Dutch Shell PLC is a vertically integrated, multinational energy and petrochemical company. Royal Dutch Shell PLC is incorporated in England and Wales, with its headquarters and principal place of business in The Hague, Netherlands. Royal Dutch Shell PLC consists of over a thousand divisions, subsidiaries, and affiliates engaged in all aspects of the fossil fuel industry, including exploration, development, extraction, manufacturing, and energy production, transport, trading, marketing, and sales.

b) Royal Dutch Shell PLC controls and has controlled companywide decisions about the quantity and extent of fossil fuel production and sales, including those of its subsidiaries. Royal Dutch Shell PLC's Board of Directors determines whether and to what extent Shell subsidiary holdings around the globe produce Shell-branded fossil fuel products. For instance, in 2015, a Royal Dutch Shell PLC subsidiary employee admitted in a deposition that Royal Dutch Shell PLC's Board of Directors decided whether to drill a

particular oil deposit off the coast of Alaska.

c) Royal Dutch Shell PLC controls and has controlled companywide decisions related to climate change and greenhouse gas emissions from its fossil fuel products, including those of its subsidiaries. Overall accountability for climate change within the Shell group of companies lies with Royal Dutch Shell PLC's Chief Executive Officer and Executive Committee. Royal Dutch Shell PLC's effort is inclusive of all fossil fuel products produced under the Shell brand, including those of its subsidiaries.

d) Royal Dutch Shell PLC controls and directs companywide advertising and messaging strategy, including in particular companywide advertising and messaging concerning climate change and the relationship between fossil fuel use and climate change, including among its subsidiaries. Royal Dutch Shell PLC's control over companywide advertising and messaging includes control over positions taken in communications directed at consumers.

e) Shell Oil Company is a wholly owned subsidiary of Royal Dutch Shell PLC that acts on Royal Dutch Shell PLC's behalf and subject to Royal Dutch Shell PLC's control. Shell Oil Company is incorporated in Delaware with its principal place of business in Houston, Texas. Shell Oil Company was formerly known as, did or does business as, and/or is the successor in liability to Deer Park Refining LP; Shell Oil; Shell Oil Products; Shell Chemical; Shell Trading US; Shell Trading (US) Company; Shell

Energy Services; The Pennzoil Company; Shell Oil Products Company LLC; Shell Oil Products Company; Star Enterprise LLC; and Pennzoil-Quaker State Company. Shell Oil Company is registered to do business in New Jersey.

f) Defendants Royal Dutch Shell PLC, Shell Oil Company, and their predecessors, successors, parents, subsidiaries, affiliates, and divisions are collectively referred to as "Shell."

g) Shell transacts and has transacted substantial fossil fuel-related business in New Jersey. Its business includes the sale, marketing and promotion of gasoline and other fossil fuel products to consumers in New Jersey, including through dozens of Shell-branded petroleum service stations in the State. At least four stations in and around Hoboken currently operate under the Shell name, display and use Shell trademarks, and sell Shell-branded gasoline and other branded products.

h) Shell markets and sells other products including engine lubricant and motor oils to New Jersey consumers under its Pennzoil brand name at retail outlets in and around Hoboken.

n) Shell has directed its propaganda and advertising campaigns to consumers in and around New Jersey, including in Hoboken.

20. BP Entities

a) BP P.L.C. is a multinational, vertically integrated energy and petrochemical public limited company, registered in England and Wales with its principal place of business in London, England. BP P.L.C. is the ultimate parent company of numerous subsidiaries, which explore for and extract oil

and gas worldwide; refine oil into fossil fuel products such as gasoline; and market and sell oil, fuel, other refined petroleum products, and natural gas worldwide. BP P.L.C.'s subsidiaries explore for oil and natural gas under a wide range of licensing, joint arrangement, and other contractual agreements.

b) BP P.L.C. controls and has controlled companywide decisions about the quantity and extent of fossil fuel production and sales, including those of its subsidiaries (collectively referred to as the "BP Group"). BP P.L.C. is the ultimate decisionmaker on fundamental decisions about the BP Group's core business, i.e., the level of companywide fossil fuels to produce, including production among BP P.L.C.'s subsidiaries.

c) BP P.L.C. makes fossil fuel production decisions for the entire BP Group based on factors including climate change. BP P.L.C.'s Board of Directors is the highest decision-making body within the company, with direct responsibility for the BP Group's climate change policy. BP P.L.C.'s chief executive is responsible for maintaining the BP Group's system of internal control that governs the BP Group's business conduct.

d) BP P.L.C. controls and directs Group-wide advertising and messaging strategy, including, in particular, Group-wide advertising and messaging concerning climate change and the relationship between fossil fuel use and climate change. BP P.L.C.'s control over Group-wide advertising and messaging includes control over positions taken in communications directed at consumers.

e) BP America Inc. is a wholly owned subsidiary of BP P.L.C.

that acts on BP P.L.C.'s behalf and is subject to BP P.L.C.'s control. BP America Inc. is a vertically integrated energy and petrochemical company incorporated in the State of Delaware with its headquarters and principal place of business in Houston, Texas. BP America Inc. consists of numerous divisions and affiliates in all aspects of the fossil fuel industry, including exploration for and production of crude oil and natural gas; manufacture of petroleum products; and transportation, marketing, and sale of crude oil, natural gas, and petroleum products. BP America Inc. was formerly known as, did or does business as, and/or is the successor in liability to Amoco Corporation; Amoco Oil Company; ARCO Products Company; Atlantic Richfield Delaware Corporation; Atlantic Richfield Company (a Delaware Corporation); BP Exploration & Oil, Inc.; BP Products North America Inc.; BP Amoco Corporation; BP Amoco Plc; BP Oil, Inc.; BP Oil Company; Sohio Oil Company; Standard Oil of Ohio (SOHIO); Standard Oil (Indiana); The Atlantic Richfield Company (a Pennsylvania corporation), and the Arco Chemical Company. BP America Inc. is registered to do business in New Jersey.

f) Defendants BP P.L.C. and BP America Inc., and their predecessors, successors, parents, subsidiaries, affiliates, and divisions are collectively referred to herein as "BP."

g) BP transacts and has transacted substantial business in New Jersey. BP advertises that the "largest concentration of bp workers anywhere in the eastern United States" is in New Jersey and the company owns a

25 percent interest in New Jersey's Carteret terminal through a joint venture with Kinder Morgan, which operates the terminal. It operates over 200 service stations in New Jersey and advertises that "bp's Helios logo remains a familiar sight for New Jersey motorists."

h) BP's activities in New Jersey include the marketing and promotion of gasoline and other fossil fuel products to Hoboken consumers, including through at least six service stations in and around Hoboken that operate under the BP name, and sell BP-branded gasoline and related products pursuant to franchise agreements with BP.

i) BP markets and sells other products including engine lubricant and motor oils to New Jersey consumers under its Castrol brand name at retail outlets within and around Hoboken. Castrol Industrial North America Inc., which is owned by BP, is registered to do business in New Jersey.

o) BP has directed its propaganda and advertising campaigns to consumers in and around New Jersey, including in Hoboken.

21. Chevron Entities

a) Chevron Corporation is a multi-national, vertically integrated energy and chemicals company incorporated in the State of Delaware, with its global headquarters and principal place of business in San Ramon, California. Chevron Corporation is registered to do business in New Jersey.

b) Chevron Corporation operates through a web of United States and international subsidiaries at all levels of the fossil fuel supply chain. Chevron Corporation's and its subsidiaries' operations consist of:

(1) exploring for, developing, and producing crude oil and natural gas; (2) processing, liquefaction, transportation, and regasification associated with liquefied natural gas; (3) refining crude oil into petroleum products; (4) marketing of crude oil and refined products; (5) basic and applied research in multiple scientific fields including chemistry, geology, and engineering; and (6) manufacturing and marketing of commodity petrochemicals, plastics for industrial uses, and fuel and lubricant additives.

c) Chevron Corporation controls and has controlled companywide decisions about the quantity and extent of fossil fuel production and sales, including those of its subsidiaries.

d) Chevron Corporation controls and has controlled companywide decisions related to climate change and greenhouse gas emissions from its fossil fuel products, including those of its subsidiaries.

e) Chevron Corporation controls and directs companywide advertising and messaging strategy, including in particular companywide advertising and messaging concerning climate change and the relationship between fossil fuel use and climate change, including among its subsidiaries. Chevron Corporation's control over companywide advertising and messaging includes control over positions taken in communications directed at consumers.

f) Chevron U.S.A. Inc. is a Pennsylvania corporation with its principal place of business in San Ramon, California. Chevron U.S.A. Inc. is a wholly owned subsidiary of Chevron Corporation that acts on Chevron

Corporation's behalf and subject to Chevron Corporation's control. Chevron U.S.A. Inc. was formerly known as, and did or does business as, and/or is the successor in liability to: Gulf Oil Corporation; Gulf Oil Corporation of Pennsylvania; Chevron Products Company; and Chevron Chemical Company. Chevron U.S.A. Inc. is registered to do business in New Jersey.

g) "Chevron" as used hereafter, means collectively, Defendants Chevron Corporation and Chevron U.S.A. Inc., and their predecessors, successors, parents, subsidiaries, affiliates, and divisions.

h) Chevron transacts and has transacted substantial fossil fuel-related business in New Jersey. It acquired the Perth Amboy Refinery in New Jersey in 1945 and operated it until 2012, producing gasoline, heating oil, and asphalt throughout that period.

i) Chevron markets and/or has marketed gasoline and other fossil fuel products to New Jersey consumers, including through Chevron-branded petroleum services stations in the State. Currently at least five service stations in and around Hoboken operate under the Chevron name, and sell Chevron-branded gasoline and related products pursuant to franchise agreements with Chevron.

j) Chevron markets and sells other products including engine lubricant and motors oils to New Jersey consumers under its Delo and Techron brand names at retail outlets in and around Hoboken.

p) Chevron has directed its propaganda and advertising campaigns to consumers in and around New Jersey, including in Hoboken.

22. ConocoPhillips Entities

a) ConocoPhillips is a multinational energy company incorporated in Delaware and with its principal place of business in Houston, Texas. ConocoPhillips consists of numerous divisions, subsidiaries, and affiliates that carry out ConocoPhillips's fundamental decisions related to all aspects of the fossil fuel industry, including exploration, extraction, production, manufacture, transport, and marketing.

b) ConocoPhillips controls and has controlled companywide decisions about the quantity and extent of fossil fuel production and sales, including those of its subsidiaries. ConocoPhillips' recent annual reports subsume the operations of the entire ConocoPhillips group of subsidiaries under its name. ConocoPhillips represents that its value—for which ConocoPhillips maintains ultimate responsibility—is a function of its decisions to direct subsidiaries to explore for and produce fossil fuels: "Unless we successfully add to our existing proved reserves, our future crude oil, bitumen, natural gas and natural gas liquids production will decline, resulting in an adverse impact to our business."

c) ConocoPhillips optimizes the ConocoPhillips group's oil and gas portfolio to fit ConocoPhillips' strategic plan. For example, in November 2016, ConocoPhillips announced a plan to generate $5 billion to $8 billion of proceeds over two years by optimizing its business portfolio, including its fossil fuel product business, to focus on low cost-of-supply fossil fuel production projects that strategically fit its development plans.

d) ConocoPhillips controls and has controlled companywide decisions related to global warming and greenhouse gas emissions from its fossil fuel products, including those of its subsidiaries. For instance, ConocoPhillips' Board of Directors has the highest level of direct responsibility for climate change policy within the company. ConocoPhillips has developed and implements a corporate Climate Change Action Plan to govern climate change decision-making across all entities in the ConocoPhillips group.

e) ConocoPhillips Company is a wholly owned subsidiary of ConocoPhillips that acts on ConocoPhillips' behalf and subject to ConocoPhillips' control. ConocoPhillips Company is incorporated in Delaware and has its principal office in Bartlesville, Oklahoma. ConocoPhillips Company is registered to do business in New Jersey.

f) Phillips 66 is a multinational energy and petrochemical company incorporated in Delaware and with its principal place of business in Houston, Texas. It encompasses downstream fossil fuel processing, refining, transport, and marketing segments that were, until 2012, owned and/or controlled by ConocoPhillips.

g) Phillips 66 Company is a wholly owned subsidiary of Phillips 66 that acts on Phillips 66's behalf and subject to Phillips 66's control. Phillips 66 Company is incorporated in Delaware and has its principal office in Houston, Texas. Phillips 66 Company was formerly known as, did or does business as, and/or is the successor in liability to

Phillips Petroleum Company, Conoco, Inc., Tosco Corporation, Tosco Refining Co., and Associated Oil. Phillips 66 Company is registered to do business in New Jersey.

h) Defendants ConocoPhillips, ConocoPhillips Company, Phillips 66, Phillips 66 Company, and their predecessors, successors, parents, subsidiaries, affiliates, and divisions are collectively referred to herein as "ConocoPhillips."

k) ConocoPhillips transacts and has transacted substantial fossil fuel-related business in New Jersey. It acquired the Bayway Refinery in 2001 and, through various internal reallocations of assets and liabilities, transferred the Refinery to its subsidiary and then successor Phillips 66 in 2012. ConocoPhillips and its affiliates have continued to expand Bayway and it remains one of the largest refineries in operation on the East Coast.

l) ConocoPhillips markets and/or has marketed gasoline and other fossil fuel products to New Jersey consumers, including through dozens of Conoco and Phillips 66-branded petroleum services stations in and around Hoboken.

m) ConocoPhillips markets and sells other products including engine lubricant and motors oils to New Jersey consumers under the Kendall and Phillips 66 brands at retail outlets in and around Hoboken.

q) ConocoPhillips has directed its propaganda and advertising campaigns to consumers in and around New Jersey, including in Hoboken.

23. Exxon, Shell, BP, Chevron, and ConocoPhillips are collectively referred to herein as the "Fossil Fuel Company Defendants."

24. The American Petroleum Institute ("API")

a) API is a nonprofit corporation based in Washington, D.C., and is registered to do business in New Jersey. It was founded in 1919 to advocate for the interests of the petroleum industry. Today, API has nearly 600 members, making it the United States' largest oil trade industry association. API's members include Defendants Exxon Mobil, Chevron, Shell Oil Company, BP America Inc., ConocoPhillips, and Phillips 66.

b) API's mission is to promote "a strong, viable U.S. oil and natural gas industry," which includes increasing consumers' consumption of oil and gas. Among other functions, API coordinates with members of the petroleum industry to gather information of interest to the industry and disseminate that information to its members.

c) Member companies participate in API strategy, governance, and operation through membership dues and by contributing company officers and other personnel to API boards, committees, and task forces. Fossil Fuel Company Defendants have been core members of API at times relevant to this litigation. In 2020, API elected Phillips 66 Chairman and CEO Greg Garland to serve a two-year term as the President of its Board of Directors. Exxon President and CEO Darren Woods was Board President from 2018 to2020, and ConocoPhillips Chairman and CEO Ryan Lance was Board President from 2016 to2018. In 2017, senior executives from Defendants

Exxon, Chevron, BP America, Shell Oil Company, ConocoPhillips, and Phillips 66 served on API's Board of Directors.

d) The Fossil Fuel Company Defendants, through API Board membership, Executive Committee roles, and/or budgetary funding of API, have collectively steered the policies and trade practices of API. Defendants have worked closely with API to craft and disseminate misleading messaging regarding climate change to advance their shared goal of increasing consumer demand for Defendants' fossil fuels.

e) API has participated in and led several coalitions and front groups, often in collaboration with the Fossil Fuel Company Defendants, that have organized deceptive advertising and communications campaigns that promote climate disinformation and denialism. These campaigns have targeted their messages both to national audiences and specifically to consumers in New Jersey. API continues to participate and/or direct misleading campaigns about the dangers of fossil fuels intended to reach consumers in Hoboken and throughout the country.

JURISDICTION AND VENUE

25. Pursuant to R. 4:3-1, venue is proper in Hudson County, which is the county of Plaintiff's principal place of business.

26. This Court has personal jurisdiction over each Defendant pursuant to N.J.S.A. 2A:4-30.68, N.J.S.A. 14A:1–1 et seq., R. 4:4-4(a)(6), and because each Defendant is incorporated in New Jersey, transacts substantial business in or is otherwise "at home" in New Jersey, has consented to the jurisdiction of New Jersey courts, and/or has purposefully directed

its acts towards New Jersey and has caused substantial harm in New Jersey. Each Defendant could reasonably anticipate being haled into court in New Jersey on the basis of its acts and omissions.

GENERAL ALLEGATIONS APPLICABLE TO ALL COUNTS

A. Defendants Are Responsible for Causing Extensive and Accelerating Climate Change

27. The scientific consensus that human activities are warming the planet is now beyond debate. The Intergovernmental Panel on Climate Change ("IPCC"), an intergovernmental body under the auspices of the United Nations that is the world's clearing house for climate change work, laid out this consensus in the strongest possible terms in its Fifth Assessment Report published in 2014: "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen."[1]

28. The last five years, 2015-2019, are the five hottest years ever recorded. All ten of the hottest years on record have occurred since 2005.[2] 2016 was the hottest year on record, with global temperatures 1.02° Celsius (1.84° Fahrenheit) warmer than a 1951-1980 baseline, reflecting the greatest single-year temperature anomaly since the relevant records started to be kept in 1880. 2019 was the second hottest year ever recorded, with temperatures

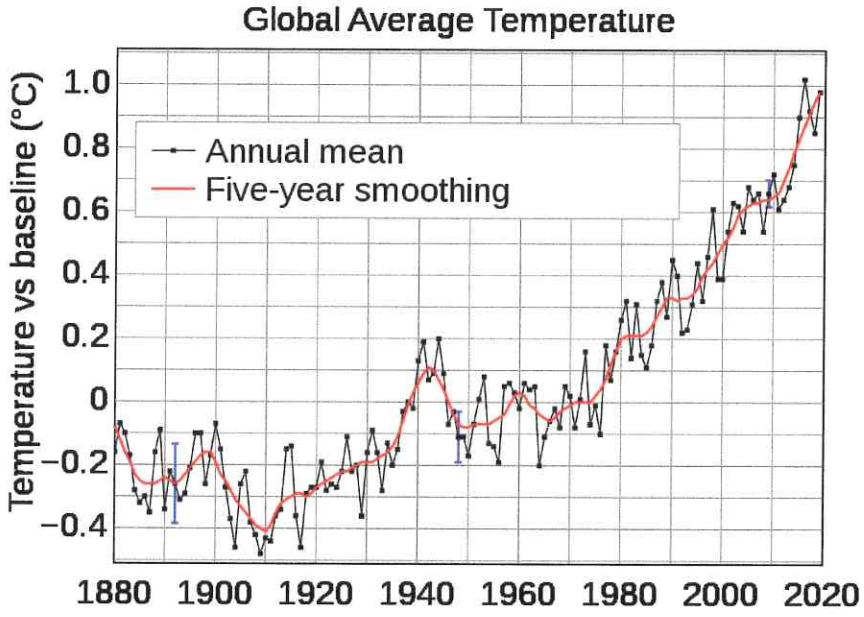
[1] Intergovernmental Panel On Climate Change, "Climate Change 2014 Synthesis Report" (2014) ("IPCC 2014 SYNTHESIS REPORT"), https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf. The IPCC is a group of 195 member countries who are members of the United Nations or World Meteorological Organization that has "the objective . . . to provide governments at all levels with scientific information they can use to develop climate policies." IPCC, About (last visited June 21, 2020), https://www.ipcc.ch/about/.

[2] "Top 10 Warmest Years on Record" CLIMATE CENTRAL (Jan. 15, 2020), https://www.climatecentral.org/gallery/graphics/top-10-warmest-years-on-record.

0.98° Celsius (1.76° Fahrenheit) warmer above the same baseline.[3] The period from 1983 to 2012 was likely the warmest 30-year period in the last 1,400 years in the northern hemisphere.[4]

29. The graph below shows the change in annual mean global temperature since 1880, reflecting a sharp and still steepening increase in global temperatures since approximately 1970.

Figure 1: Global Average Temperature Relative to 1951-1980 Baseline[5]



30. The leading driver of global warming in the last several decades is the dramatic increase in the atmospheric concentration of greenhouse gasses.

[3] NASA, "Global Temperature," NASA Global Climate Change (last visited June 18, 2020), https://climate.nasa.gov/vital-signs/global-temperature/.

[4] IPCC 2014 SYNTHESIS REPORT, *supra* note 1, at 2.

[5] NASA Goddard Institute for Space Studies, "GISS Surface Temperature Analysis (v4)", National Aeronautics and Space Administration (last visited June 18, 2020), https://data.giss.nasa.gov/gistemp/graphs_v4/.

31. The accumulation of greenhouse gasses increases land surface and ocean temperatures by preventing heat from escaping the Earth's atmosphere into space. Greenhouse gasses make the atmosphere more opaque at infrared wavelengths, reducing infrared radiation into space and creating a planetary energy imbalance in which absorbed solar energy, which remains trapped on Earth, exceeds infrared radiation to space.[6]

32. Global production and combustion of fossil fuels is the central reason why the atmospheric concentration of greenhouse gasses, prominently carbon dioxide ("CO_2"), has dramatically increased over the last fifty years and caused an accompanying spike in temperatures.[7]

33. The IPCC's Fifth Assessment Report makes plain that greenhouse gas emissions from fossil fuels are the main driver of global warming. It found that anthropogenic emissions have led to "atmospheric concentrations of carbon dioxide, methane, and nitrous oxide that are unprecedented in at least the last 800,000 years. Their effects . . . have been detected throughout the climate system and are *extremely likely* to have been the *dominant* cause of observed warming since the mid-20th century."[8]

34. In 2019, atmospheric concentrations of CO_2 reached levels not seen in the previous three million years.[9]

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[6] James Hansen et al., *Assessing "Dangerous Climate Change": Required Reduction of Carbon Emissions to Protect Young People, Future Generations, and Nature,* PLOS ONE, (Dec. 13, 2013), https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0081648.

[7] *Id.* ("Today, [] CO2 is under the control of humans as fossil fuel emissions overwhelm natural changes.").

[8] IPCC 2014 SYNTHESIS REPORT, *supra* note 1, at 4.

[9] More CO2 than ever before in 3 million years, shows unprecedented computer simulation, SCIENCE DAILY (April 3, 2019), https://www.sciencedaily.com/releases/2019/04/190403155436.htm.

35. Before World War II, most anthropogenic CO_2 emissions were the result of forestry, agriculture, and other land use practices. The impact of these practices on the global climate was relatively minor. The concentration of atmospheric CO_2 remained relatively stable, hovering in the range of 280 and 300 parts per million ("ppm") between 1750 and the early 20th century.[10]

36. In the second half of the 20th century, however, the global production, marketing, sale, and resultant combustion of fossil fuels began to accelerate rapidly. Total anthropogenic greenhouse gas emissions increased in every decade from 1970 through 2010. During this time period, 78% of anthropogenic emissions came from fossil fuel combustion and other industrial processes.[11] Indeed, more than half of global CO_2 emissions between 1751 and 2014 occurred after 1988.[12]

37. The rate of global annual fossil fuel emissions continues to accelerate today. In 2018, global CO_2 emissions reached a record high of 37 billion tons, growing at a faster rate than in any of the previous seven years.[13]

38. The graph below illustrates that fossil fuel emissions are the dominant source of increases in atmospheric CO_2 over the last fifty years.

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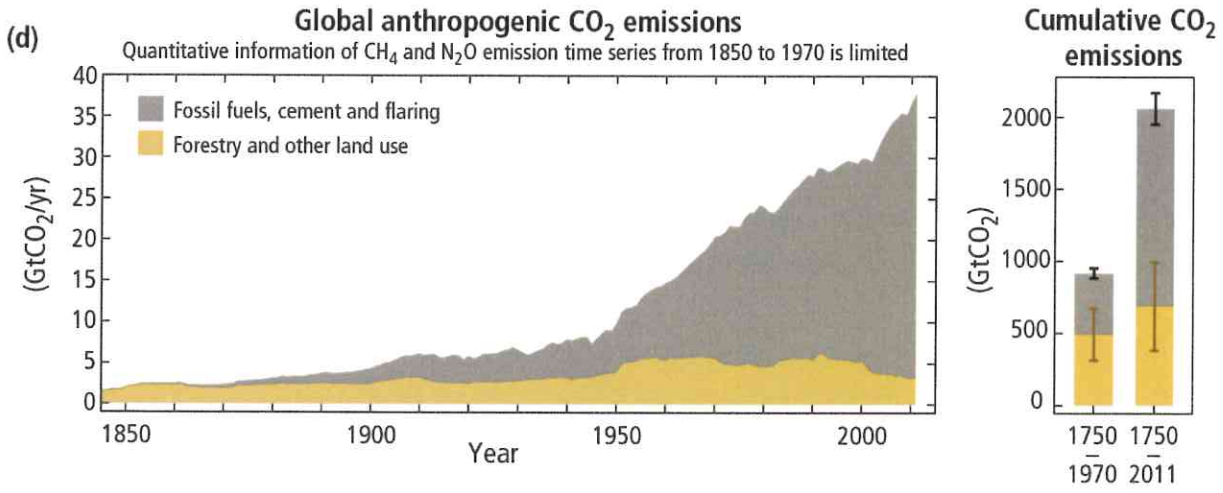
[10] Rebecca Lindsey, "Climate Change: Atmospheric Carbon Dioxide", NOAA (Aug. 14, 2020), https://www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide.

[11] IPCC 2014 SYNTHESIS REPORT, *supra* note 1, at 5.

[12] Peter C. Frumhoff et al., *The Climate Responsibilities of Industrial Carbon Producers,* 132 CLIMATE CHANGE 157, 164 (2015).

[13] Josie Garthwaite, "Global Fossil Fuel Emissions Have Climbed Upward for a Second Straight Year, Driven by Growing Energy Use", STANFORD NEWS SERVICE (Dec. 5, 2018), https://news.stanford.edu/press-releases/2018/12/05/global-carbon-dioxide-emissions-rise-even-coal-wanes-renewables-boom/.

Figure 2: Global Emissions by Year and Source[14]



39. The recent acceleration of fossil fuel emissions has led to a correspondingly sharp spike in atmospheric concentration of CO_2. Since 1960, the concentration of CO_2 in the atmosphere has gone from under 320 ppm to approximately 415 ppm.[15] The rate of growth of atmospheric CO_2 is also accelerating. From 1960 to 1970, atmospheric CO_2 increased by an average of approximately 1 ppm per year; in the last five years, it has increased by more than 2.5 ppm per year.[16]

40. The graph below displays the tight nexus between the sharp increase in emissions from the combustion of fossil fuels in the last 75 years and the steep rise of atmospheric concentrations of CO_2.

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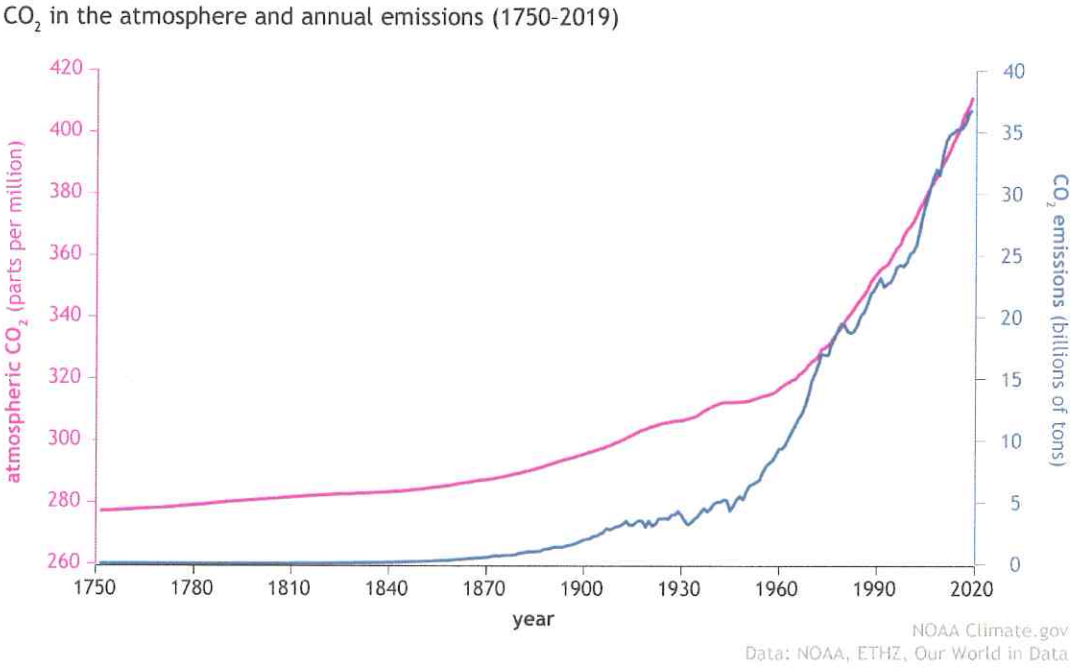
[14] IPCC 2014 SYNTHESIS REPORT, *supra* note 1, at 3.

[15] Global Monitoring Laboratory, "Trends in Atmospheric Carbon Dioxide", NOAA (last visited June 19, 2020), https://www.esrl.noaa.gov/gmd/ccgg/trends/.

[16] *Id.*

Figure 3: Atmospheric CO_2 Concentration and Annual Emissions[17]



41. Once emitted, carbon dioxide remains in the atmosphere for between 300 and 1,000 years.[18] Thus, the rising concentration of atmospheric CO_2 that is driving global warming and its attendant climate consequences is extremely durable.

42. Defendants' production, marketing, and sale of fossil fuels on a massive and unprecedented scale has been a a substantial factor in causing these skyrocketing emissions. The fossil fuels produced and distributed by Exxon, Chevron, Shell, BP, and ConocoPhillips alone account for more than 12% of *all* global CO_2 emissions between 1965 and 2017.[19]

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[17] Lindsey, *supra* note 10.

[18] Alan Buis, "The Atmosphere: Getting a Handle on Carbon Dioxide", NASA (Oct. 9, 2019), https://climate.nasa.gov/news/2915/the-atmosphere-getting-a-handle-on-carbon-dioxide/..

[19] Climate Accountability Institute, Carbon Majors (last visited June 18, 2020), https://climateaccountability.org/pdf/TopTwenty%20Rank%201965-2017.png.

43. Defendants' failure to curb the production of the sale of fossil fuels in the last fifteen years has made it exponentially more difficult to return to atmospheric CO_2 concentrations sufficient to avert disastrous climate consequences. Had emissions reductions begun in 2005, reducing emissions by 3.5% per year would have brought the world back to atmospheric concentrations of CO_2 at 350 ppm by 2100. Today, emissions reductions must occur at a rate of 15% per year to reach the same target.[20]

44. This currently accelerating global warming has caused major climate disruptions and portends more devastating climate disruptions in the near future.

45. Three types of climate disruption pose an especially urgent threat to Hoboken: sea level rise, extreme heat, and extreme rainfall events. All three types of climate disruption have already imposed substantial costs on the City, and it is now spending hundreds of millions of dollars to abate these harms. Sea level rise threatens Hoboken's very existence. *See* Section G *infra*. Defendants' production, marketing, and sale of fossil fuels on a gargantuan scale has been a substantial factor in causing all three types of climate disruption and resulting damage to Hoboken.

1. Defendants Have Contributed Substantially to Sea Level Rise

46. Sea level rise poses a grave threat to coastal communities around the globe, none more so than in dense, urban, and low-lying coastal cities like Hoboken. Sea level rise makes coastal flooding from storm surge during extreme weather events both more frequent

[20] Hansen, *supra* note 6.

and more severe.[21] It also leads to more frequent "nuisance" flooding—flooding of land and infrastructure that occurs at high tide as a result of sea level rise.[22]

47. Global warming causes sea levels to rise by two primary mechanisms. First, warmer temperatures cause glaciers and ice sheets to melt, adding water to the ocean. Second, global warming has increased the temperature of the Earth's oceans, causing the volume of water in the oceans to expand. These two causes have contributed roughly equally to sea level rise since the 1970s, although the accelerating melting of polar ice sheets has played an increasingly predominant and dangerous role in sea level rise in the last ten years and is expected to continue to do so in the future.[23]

48. Fossil fuel combustion is the dominant cause of sea level rise in recent decades. In total, greenhouse gas emissions from fossil fuel combustion are responsible for more than 70% of sea level rise between 1970 and 2000.[24] This is because fossil fuel combustion, leading to increased concentrations of atmospheric greenhouse gasses, precipitates sea level rise's two dominant causes—ice sheet and glacier melting, and ocean warming. The Earth's oceans have absorbed more than 93% of the heat trapped by greenhouse gas emissions since the 1970s, causing ocean temperature to increase by an average 0.13° Celsius (0.23° Fahrenheit) per

[21] Rebecca Lindsey, "Climate Change: Global Sea Level", NOAA (Aug. 14, 2020), https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level.

[22] NOAA, "What is High Tide Flooding?" (June 25, 2018), https://oceanservice.noaa.gov/facts/nuisance-flooding.html.

[23] Lindsey, *supra* note 211.

[24] Aimée B. Slangen, et al., *Anthropogenic Forcing Dominates Global Mean Sea-Level Rise Since 1970*, 6 NATURE CLIMATE CHANGE 701, 701 (2016).

decade for the last 100 years.[25] Meanwhile, rising land surface temperatures cause glaciers to melt, and warming land surface and ocean temperatures combine to cause ice sheets to melt.

49. From 1880 to 2009, these factors have caused sea levels around the globe to increase by an average of eight to nine inches.[26] The rate of sea level rise in the northeast United States is substantially higher than the rest of the globe.[27] By one estimate, sea levels are rising in the northeast at three times the rate of the rest of the world.[28]

50. Sea level rise is here to stay. Because of the durability of CO_2 in the atmosphere and the inertia of the climate system, nearly 100% of the sea level rise under any emissions scenario will remain for 10,000 years.[29]

51. Extant sea level rise has already caused the frequency and severity of storm surge flooding to increase. The IPCC's Fifth Assessment Report concludes that the incidence and magnitude of extreme sea level events has increased since 1970.[30] Higher sea levels inherently raise the baseline for the destructive impact of storms like hurricanes and nor'easters, both by requiring a smaller storm surge above the baseline to inundate coastal areas and by bringing higher water levels ashore than a storm otherwise would in the absence of sea

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[25] International Union for the Conservation of Nature, "Ocean Warming" (Nov. 2017), https://www.iucn.org/resources/issues-briefs/ocean-warming.

[26] Lindsey, *supra* note 21.

[27] William V. Sweet et. al, *Global and Regional Sea Level Rise Scenarios for the United States*, Technical Report NOS CO-OPS 083, at 9, NOAA (Jan. 2017), https://tidesandcurrents.noaa.gov/publications/techrpt83_Global_and_Regional_SLR_Scenarios_for_the_US_final.pdf.

[28] Colin Schultz, "Sea Level Rising Three Times Faster Than Average on Northeast US Coast", SMITHSONIAN MAGAZINE (June 25, 2012), https://www.smithsonianmag.com/smart-news/sea-level-rising-three-times-faster-than-average-on-northeast-us-coast-135983018/.

[29] Peter U. Clark et al., *Consequences of Twenty-First Century Policy for Multi-Millennial Climate and Sea-Level Change*, 6 NATURE CLIMATE CHANGE 360, 361 (2016).

[30] IPCC 2014 SYNTHESIS REPORT, *supra* note 1, at 53.

level rise. Superstorm Sandy is one dramatic example; sea level rise caused an additional $2 billion in flooding damage to New York City alone.[31]

52. Sea level rise has also caused an increase in nuisance flooding. Daily high tide flooding is estimated to be up by 300% to 900% in U.S. coastal communities compared to just 50 years ago.[32] Nationwide, 76% of all flood days caused by high water levels from sea level rise between 2005 and 2014 would not have occurred absent human-caused climate change.[33]

53. The chart below shows the large increase in coastal flood days in the United States in the last fifty years and the large percentage of such floods that are attributable to anthropogenic climate change as opposed to naturally occurring phenomena.

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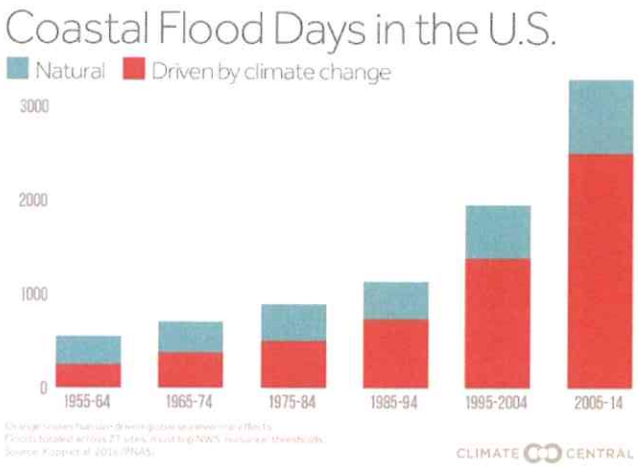
[31] Harvey Liefert, "Sea Level Rise Added $2 Billion to Sandy's Toll in New York City", EOS (Mar. 16, 2015), https://eos.org/articles/sea-level-rise-added-2-billion-to-sandys-toll-in-new-york-city.

[32] NOAA, "Is Sea Level Rising?", NOAA (Oct. 9, 2019), https://oceanservice.noaa.gov/facts/sealevel.html#:~:text=Global%20sea%20level%20has%20been,of%20an%20inch%20per%20year.

[33] Climate Central, "Sea Level Rise Upping Ante on 'Sunny Day' Floods", WX Shift by Climate Central (Oct. 17, 2016), https://wxshift.com/news/climate-change-increases-sunny-day-floods.

Figure 4: Causes of Coastal Floods in the U.S.[34]



54. Sea levels are now rising faster than at any point in the last 2,700 years.[35] The rate of sea level rise from 2006 to 2015 more than doubled the rate of sea level rise during the 20th century.[36]

55. The acceleration of sea level rise is expected to continue in the coming decades because the pace of both of the two main drivers of sea level rise is accelerating quickly. Ice loss in the Antarctic ice sheet, the largest ice sheet in the world, has quadrupled from 51 billion tons per year between 1992 and 2001, to 199 billion tons per year from 2012 to 2016. Ice loss from the Greenland Ice Sheet, the second largest ice sheet in the world, has increased

[34] John Upton, "Study Reveals Stunning Acceleration of Sea Level Rise", Climate Central (Feb. 22, 2016), https://www.climatecentral.org/news/study-reveals-acceleration-of-sea-level-rise-20055.

[35] Robert E. Kopp et al., *Temperature-Driven Global Sea-Level Variability in the Common Era*, PNAS (Mar. 15, 2016, udpdated Sept. 12, 2016), https://www.pnas.org/content/113/11/E1434.

[36] Lindsey, *supra* note 21.

seven-fold from 34 billion tons per year between 1992 and 2001, to 247 billion tons per year between 2012 and 2016.[37]

56. Similarly, and concurrently with the spike in CO_2 emissions in the last thirty years, the rate of ocean warming was 4.5 times faster from 1987 to 2019 than it was from 1955 to 1986. As a result, the last five years are the oceans' five hottest on record, and the last ten years are the oceans' ten hottest on record.[38] These trends show no signs of slowing as Defendants continue to increase the annual volume of fossil fuels they produce, market, and sell.

57. While the acceleration of sea level rise is nearly certain to continue in the coming decades, the extent and corresponding damage of future sea level rise depends on the extent of future emissions based on our "future energy choices"—the National Oceanic and Atmospheric Administration (NOAA), the leading federal agency in the field, projects that that sea level rise by 2100 could be anywhere from 12 inches to 8.2 feet under different emissions scenarios.[39]

58. The recent surge in anthropogenic emissions, a substantial portion of which is attributable to Defendants' extraction, production, and sale of fossil fuels, has therefore been a central force behind the accelerating pace of sea level rise today and will continue to have this effect in the future.

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[37] *Id.*

[38] Damian Carrington, "Ocean Temperatures Hit Record High as Rate of Heating Accelerates", The Guardian (Jan. 13, 2020), https://www.theguardian.com/environment/2020/jan/13/ocean-temperatures-hit-record-high-as-rate-of-heating-accelerates.

[39] Lindsey, *supra* note 21.

2. Defendants Have Substantially Contributed to Increases in Extreme Heat

59. Higher concentrations of atmospheric greenhouse gasses like CO_2, caused by Defendants' extraction, production, marketing, and sale of fossil fuels on an unprecedented scale that has driven the corresponding combustion of fossil fuels at record rates, make land surface temperatures warmer by preventing heat from escaping back into space.[40]

60. The IPCC's Fifth Assessment Report concludes with greater than 95% certainty that more than half of the observed increase in global temperatures from 1951 to 2010 was anthropogenic, primarily due to the increase in atmospheric concentrations of greenhouse gasses.[41]

61. Anthropogenic warming shifts the average temperature range in a given location such that average nightly low temperatures and average daytime high temperatures both become higher.[42]

62. Increasing temperatures have been observed in every part of the United States, with some regional variation. Temperatures are rising in the northeast United States at a faster rate than much of the rest of the country. The map below shows increases in temperatures from 1991 to 2012 as compared to 1901 to 1960.

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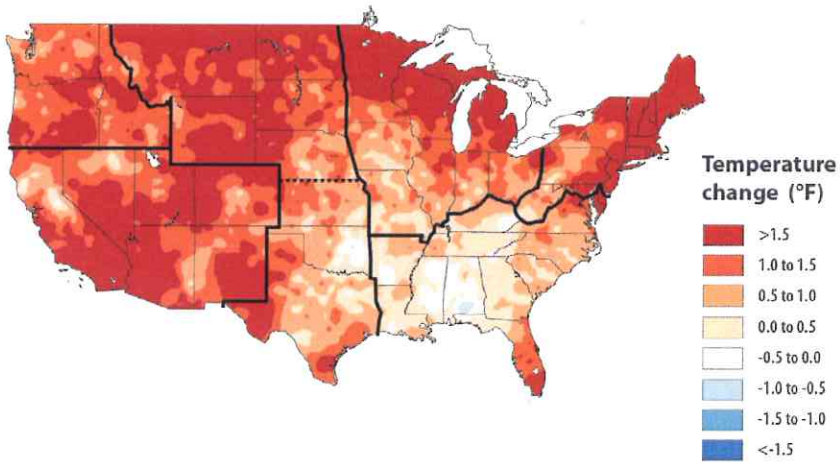
[40] U.S. Global Change Research Program, "Chapter 6: Temperature Changes in the United States", *Climate Science Special Report: Forth National Climate Assessment (NCA4)*, VOLUME I (2017), https://science2017.globalchange.gov/chapter/6/ ("[A] confident attribution of global temperature increases to anthropogenic forcing has now been made.").

[41] IPCC 2014 SYNTHESIS REPORT, *supra* note 1, at 5.

[42] U.S. Envtl. Prot. Agency, "Climate Change and Extreme Heat, What You Can Do to Prepare" (Oct. 2016), https://19january2017snapshot.epa.gov/sites/production/files/2016-10/documents/extreme-heat-guidebook.pdf.

Figure 5: Temperature Change: 1901-1960 to 1991-2012[43]



63. An increase in both average nightly lows and daytime highs leads to increases in observed record high temperatures. In the last decade, there have been twice as many record high temperatures in the United States as there have been record lows, compared to a ratio of approximately 1:1 as recently as 1950.[44] This difference could grow to 20:1 by midcentury and 50:1 by the end of the century.[45]

64. The increasing frequency of record high temperatures corresponds with increasingly frequent and severe extreme heat events, or heat waves. The average number of heat waves in major American cities tripled between the 1960s and 2010s.[46]

65. Because of Defendants' extraction, production, and sale of fossil fuels, these events are not only becoming more common, but also more severe and longer lasting.

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[43] *Id.*

[44] U.S. Global Change Research Program, *supra* note 40.

[45] Jeff Berardelli, *Heat Waves and Climate Change: Is There a Connection?*, YALE CLIMATE CONNECTIONS.

[46] U.S. Global Change Research Program, "U.S. Heat Wave Frequency and Length Are Increasing" (last visited June 21, 2020), https://www.globalchange.gov/browse/indicators/us-heat-waves.

66. Lengthier and more severe heat waves have caused an increase in heat-related deaths and illnesses, an increase that is expected to worsen as the climate continues to warm. By one estimate, northeast cities including New York and Philadelphia could see up to six times as many dangerously hot summer days by 2100 as they did between 1975 and 2010, causing an additional 29,000 heat-related deaths in America per year by the 2090s.[47]

67. Vulnerable populations like children, the elderly, economically disadvantaged and historically marginalized racial and ethnic groups, and those with chronic health conditions make up a disproportionately large share of heat-related deaths and illnesses.[48]

68. In short, Defendants' extraction, production, and sale of fossil fuels on an enormous scale is the driving force behind the unprecedented combustion of fossil fuels over the last thirty years that has caused the Earth to warm, increasing the frequency and severity of extreme heat events and causing a concomitant increase in heat-related deaths and illnesses, including in Hoboken.

3. Defendants Have Substantially Contributed to an Increase in Extreme Precipitation Events

69. Warmer temperatures caused by higher concentrations of greenhouse gasses in the atmosphere also disrupt what is known as the hydrologic cycle—the cycle in which water evaporates from the ocean and land surface, is carried over the Earth as water vapor, and then condenses to form clouds and eventually precipitates as rain or snow.[49] These disruptions have caused an increase in both extreme precipitation events and drought throughout the country.

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[47] Juanita Constible, "Killer Summer Heat: Paris Agreement Compliance Could Avert Hundreds of Thousands of Needless Deaths in America's Cities", NRDC (June 2017), https://www.nrdc.org/sites/default/files/killer-summer-heat-paris-agreement-compliance-ib.pdf.

[48] U.S. Envtl. Prot. Agency, *supra* note 422, at 8.

[49] IPCC 2014 SYNTHESIS REPORT, *supra* note 1, at 124.

The increase in extreme precipitation events is particularly pronounced in the northeastern United States.

70. Warmer land and ocean surface temperatures caused by increasing concentration of atmospheric greenhouse gasses speed the process of evapotranspiration—evaporation of water from land and water surfaces and transpiration of water from plants. As the pace of evapotranspiration quickens, Earth's atmosphere holds more water vapor. For every 1° Fahrenheit of temperature increase, the atmosphere holds 4% more water vapor.[50] This, in turn, leads to more extreme precipitation events in the form of torrential rain in some areas, while other areas suffer droughts. In addition, because of warmer temperatures, more precipitation is falling as rain rather than snow.[51]

71. Extreme precipitation events have become much more frequent in the northeast as anthropogenic climate change has begun to accelerate. Between 1958 and 2007, the amount of precipitation falling in extreme rainfall events (the top 1% of all precipitation events) increased by 71%, the greatest increase nationwide. Between 1979 and 2014, the frequency of extreme precipitation events in the northeast increased by 15 events per year, and the threshold for a 99th percentile precipitation event increased by more than four tenths of an inch of rain.[52]

72. Anthropogenic warming has also increased the intensity of hurricanes in the Atlantic Ocean. Modeling projects that, with 2° Celsius (3.6° Fahrenheit) of warming,

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[50] Climate Central, "Pouring It On: How Climate Change Intensifies Heavy Rain Events" (May 15, 2019), https://www.climatecentral.org/news/report-pouring-it-on-climate-change-intensifies-heavy-rain-events.

[51] NASA Earth Observatory, "The Water Cycle and Climate Change" (Oct. 1, 2010), https://earthobservatory.nasa.gov/features/Water/page3.php.

[52] Macy E. Howarth et al., "Changes in Extreme Precipitation in the Northeast United States: 1979-2014", *20 J. Hydrometeorology*, 673-689 (Apr. 22, 2019), https://journals.ametsoc.org/jhm/article/20/4/673/344213/Changes-in-Extreme-Precipitation-in-the-Northeast.

average rainfall within 100 kilometers of the center of a hurricane will increase by 10-15% due to the increase in atmospheric moisture content. The same modeling also projects a 1-10% increase in the intensity of hurricanes with the same amount of warming, a strengthening that would cause an even larger increase in the destructive potential of storms.[53]

73. The increasing frequency and severity of torrential rainfall events presents unique challenges for low-lying urban environments like Hoboken. Section G.1 *infra*. The City overwhelmingly consists of impervious surfaces like roads and buildings, leaving few natural mechanisms for runoff or absorption of large quantities of rainwater. These factors mean Hoboken must make substantial investments in rainfall drainage and abatement systems as extreme rainfall events become more common and more severe.

74. Thus, Defendants' extraction, production, and sale of fossil fuels has substantially contributed to a range of devastating climate impacts, requiring Hoboken to spend hundreds of millions of dollars on abatement to protect itself from these harms.

B. Defendants Have Known About the Harms of Fossil Fuels for More Than Fifty Years

75. Defendants have known about the enormous harms that fossil fuels have caused and will continue to cause to the climate and communities around the world for more than fifty years, dating back to when these harms were only vaguely understood by the general public. Since the 1950s, Defendants have studied the climate impacts of fossil fuels extensively, learned about the immense dangers posed by their products, and received repeated warnings from their own scientists of the need to take action to address these harms. They were told time and again by their scientists and those of industry trade groups that their continued large-scale production

[53] Princeton University Geophysical Fluid Dynamics Laboratory, "Global Warming and Hurricanes", NOAA (last revised June 12, 2020), https://www.gfdl.noaa.gov/global-warming-and-hurricanes/.

and sale of fossil fuels would lead to the exact harms Hoboken is now facing—sea level rise, more frequent and intense storms, extreme heat, and extreme precipitation events. Despite decades of warnings, Defendants did nothing to slow their aggressive production, marketing, and sale of fossil fuels, choosing to prioritize profits over averting monumental harm to communities like Hoboken.

76. In 1959, physicist Edward Teller delivered one of the earliest warnings of the dangers of global warming to the petroleum industry at a Columbia University symposium, organized in tandem with Defendant American Petroleum Institute ("API"), celebrating the oil industry's hundredth anniversary. Over 300 government officials, economists, historians, scientists, and industry executives attended Teller's speech.[54] Emphasizing the need to find non-fossil fuel energy sources to avert catastrophic climate consequences, he issued a stark warning:

> [A] temperature rise corresponding to a 10 percent increase in carbon dioxide will be sufficient to melt the icecaps and submerge New York. All the coastal cities would be covered, and since a considerable percentage of the human race lives in coastal regions, I think that this chemical contamination is more serious than most people tend to believe.[55]

77. In 1965, API President Frank Ikard delivered a presentation to the organization at which he warned industry leaders about the potentially dire impacts of CO_2 emissions on the planet: "[T]here is still time to save the world's peoples from the catastrophic consequence of pollution, but time is running out."[56]

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[54] Benjamin Franta, "On its 100th Birthday in 1959, Edward Teller Warned the Oil Industry About Global Warming", The Guardian (Jan. 1, 2018), https://www.theguardian.com/environment/climate-consensus-97-per-cent/2018/jan/01/on-its-hundredth-birthday-in-1959-edward-teller-warned-the-oil-industry-about-global-warming.

[55] Edward Teller et. al., *Energy Patterns of the Future*, Energy and Man: A Symposium, 53, 58 (New York, Appleton-Century-Crofts, Nov. 1959).

[56] Frank Ikard, "Meeting the challenges of 1966", *First General Session: Proceedings of the American Petroleum Institute*, Vol. 45[1], 12-15 (1965), http://www.climatefiles.com/trade-group/american-petroleuminstitute/1965-api-president-meeting-the-challenges-of-1966/.

78. In 1968, API commissioned a report from the Stanford Research Institute ("SRI") that examined "Sources, Abundance, and Fate of Gaseous Atmospheric Pollutants." The report warned that the global concentration of atmospheric CO_2 was already on the rise. It explained that a doubling in atmospheric CO_2 would lead to warming of the Earth's surface temperature of anywhere from 3° to 21° Fahrenheit. It also warned of dire effects to the climate that could result from significant temperature increases, "including the melting of the Antarctic ice cap, a rise in sea levels, warming of the oceans, and an increase in photosynthesis." It then attributed these harms to fossil fuels directly, explaining that "[a]lthough there are other possible sources for the additional CO_2 now being observed in the atmosphere, none seem to fit the presently observed situation as well as the fossil fuel emanation theory."[57]

79. The report concluded by calling on API's members to act. "Past and present studies . . . explain adequately the present state of CO_2 in the atmosphere. What is lacking, however, is an application of these atmospheric CO_2 data to air pollution technology and work toward systems in which CO_2 emissions would be brought under control."[58]

80. In 1969, API asked SRI to supplement its report with a more detailed assessment of carbon dioxide's impact on climate. The report found that atmospheric concentrations of CO_2 were steadily increasing and that 90% of this increase could be attributed to fossil fuel combustion. It also made stunningly precise predictions about future climate harms based on projected fossil use. It predicted that atmospheric CO_2 concentrations would reach

[57] Elmer Robinson & R.C. Robbins, "Sources, Abundance, and Fate of Gaseous Atmospheric Pollutants", Stanford Research Institute, at 108-09 (Feb. 1968), https://www.smokeandfumes.org/documents/document16.

[58] *Id.* at 112.

370 ppm by 2000, leading to global temperature increases of 0.5° Celsius.[59] In 2000, atmospheric CO_2 reached 369.64 ppm[60] and global temperature had increased by an average of 0.5° Celsius.[61] The report also explained that these outcomes were only the beginning of much more devastating climate consequences to come. It estimated that if atmospheric CO_2 reached 600 ppm, temperatures would rise by more than 2° Celsius, while also recognizing that combustion of all fossil fuels then recoverable would raise atmospheric CO_2 to 850 ppm.[62]

81. In 1972, API distributed summaries of extensive research on the environmental impacts of fossil fuels that included the 1968 and 1969 SRI reports to its members, including Defendants.[63] Defendants and/or their predecessors in interest that received this report include, but were not limited to: American Standard of Indiana (BP), Asiatic (Shell), Atlantic Richfield (BP), British Petroleum (BP), Chevron Standard of California (Chevron), Continental (ConocoPhillips), Dupont (former owner of Conoco), Esso Research (ExxonMobil), Ethyl (formerly affiliated with Esso, which was subsumed by ExxonMobil), Getty (ExxonMobil), Gulf (Chevron, among others), Humble Standard of New Jersey (ExxonMobil/Chevron/BP), Mobil (ExxonMobil), Pan American (BP), Phillips (ConocoPhillips), Shell, Standard of Ohio (BP), Texaco (Chevron), Union (Chevron), Skelly (ExxonMobil), Colonial Pipeline (ownership has included BP, ExxonMobil, ConocoPhillips, and

[59] Ctr. for Int'l Envtl. Law, "Smoke and Fumes: The Legal and Evidentiary Basis for Holding Big Oil Accountable for the Climate Crisis", at 12 (Nov. 2017), https://www.ciel.org/wp-content/uploads/2019/01/Smoke-Fumes.pdf.

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

[61] *See* Michael Carlowicz, "Global Temperatures", NASA EARTH OBSERVATORY (last visited June 15, 2020), https://earthobservatory.nasa.gov/world-of-change/global-temperatures.

[62] Ctr. for Int'l Envtl. Law, *supra* note 59, at 12-13.

[63] Committee for Air and Water Conservation, "Environmental Research, A Status Report", American Petroleum Institute (Jan. 1972), http://files.eric.ed.gov/fulltext/ED066339.pdf.

Chevron entities, among others), and Caltex (Chevron). Other members of the fossil fuel industry that received the report included Rock Island (Koch Industries), Signal (Honeywell), Great Northern, Edison Electric Institute (representing electric utilities), Bituminous Coal Research (coal industry research group), Mid-Continent Oil & Gas Association, National Petroleum Refiners Association (presently the American Fuel and Petrochemical Manufacturers Association, a national trade association), and Champlin (Anadarko), among others.[64]

82. In July 1977, Exxon scientist James Black gave a presentation to Exxon's Corporate Management Committee on the "Greenhouse Effect" that gave further clarity on the threats to climate caused by fossil fuels. During the presentation, which was memorialized in an internal memorandum the following year, Black explained that atmospheric CO_2 had already increased by 10-15%, and that slightly more than half of CO_2 from fossil fuel combustion remains in the atmosphere. He then shared the "best presently available climate model," which predicted that a doubling in CO_2 in the atmosphere would produce warming of 2° to 3° Celsius "over most of the earth" and temperature increases near the poles of "two to three times this value." He explained that such increases could lead to sea level rise of up to seven meters and, he was "fairly certain," to increase precipitation, affecting agriculture and industry worldwide.[65]

83. Black issued a clear warning to Exxon that the company's fossil fuels were driving these climatic changes. "[C]urrent scientific opinion overwhelmingly favors attributing atmospheric carbon dioxide increase to fossil fuel combustion . . . [T]here is a

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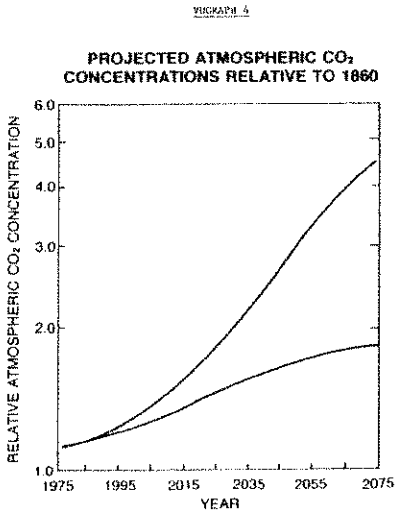
[64] *Id.* at 136.

[65] J.F. Black, "The Greenhouse Effect", Exxon Research and Engineering Company, Summary at 1 (June 6, 1978), https://insideclimatenews.org/documents/james-black-1977-presentation.

general scientific agreement that the most likely manner in which mankind is influencing the global climate is through carbon dioxide release from the burning of fossil fuels."[66]

84. Black produced a chart projecting increases in atmospheric CO_2 relative to an 1860 baseline in two scenarios. In the first scenario, reflected in the flatter curve on the chart, below, growth in annual fossil fuel use is limited to 2% per year, followed by a symmetrical decrease after 2025. Under this scenario, annual atmospheric CO_2 does not come close to doubling until 2075. In the second scenario, reflected in the chart's steeper curve, fossil fuel use grows by 4.3% per year, and atmospheric CO_2 doubles by approximately 2025 and more than quadruples by 2075.[67] Put simply, the chart showed that the scale of Exxon's future production and sale of fossil fuels would determine the extent of increases in atmospheric CO_2 and the resulting global warming.

Figure 6: Exxon's Atmospheric CO_2 Projections Based on Emissions[68]



[66] *Id.* at 4.

[67] *Id.* at 2, Vugraph 4.

[68] *Id.* at Vugraph 4.

85. Based on this data, Black told Exxon's Corporate Management Committee that "man has a time window of five to ten years before the need for hard decisions regarding changes in energy strategies might become critical."[69] Yet from the 1970s through today, Exxon's extraction, production, and sale of fossil fuels continued at an ever-increasing pace.

86. In the late 1970s, heeding Black's warnings, Exxon launched an ambitious research program to study the environmental effects of the company extraction, production, and sale of fossil fuels. Morrel Cohen, a senior scientist at Exxon during this time period, explained that "Exxon was trying to become a research power in the energy industry the way the Bell labs was in the communications industry."[70] A 1978 letter from Exxon research scientist Henry Shaw explains that:

> Exxon's involvement and commitment of funds and personnel is based on our need to assess the possible impact of the greenhouse effect on Exxon business. Exxon must develop a credible scientific team that can critically evaluate the information generated on the subject and be able to carry bad news, if any, to the corporation.[71]

87. A 1979 Exxon inter-office correspondence from Shaw revealed a potentially more nefarious purpose behind this research—to combat actions to address the harmful effects of fossil fuels:

> We should determine how Exxon can best participate in all these areas and influence possible legislation on environmental controls. It is important to begin to anticipate the strong intervention of environmental groups and be prepared to respond with reliable and credible data. . . . It behooves us to start a very aggressive defensive program in the indicated areas of atmospheric science and climate because there is a good probability that legislation affecting our business will be

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[69] *Id.*, Summary at 2.

[70] Amy Westervelt, *Drilled: A True Crime Podcast about Climate Change, Episode 1*, The Bell Labs of Energy at 06:21 (Nov. 14, 2018), https://www.criticalfrequency.org/drilled.

[71] Letter from Henry Shaw to Dr. Edward E. David Jr. (Dec. 7, 1978), Exxon Research and Engineering Company, http://insideclimatenews.org/sites/default/files/documents/Credible%20Scientific%20Team%201978%20Letter.pdf.

> passed. Clearly, it is in our best interest for such legislation to be based on hard scientific data.[72]

88. The "hard scientific data" produced by Exxon's research team continued to show that combustion of fossil fuels was likely to lead to devastating climate impacts. In 1979, an internal Exxon memorandum from Exxon's Research and Engineering Division reiterated the "most widely held theory" that the increase in atmospheric CO_2 "is due to fossil fuel combustion"; "[i]ncreasing CO_2 concentration will cause a warming of the earth's surface"; and "[t]he present trend of fossil fuel consumption will cause dramatic environmental effects before the year 2050." The memorandum also warned Exxon of the "possibility" that "an atmospheric CO_2 buildup will cause adverse environmental effects in enough areas of the world to consider limiting the future use of fossil fuels as major energy sources." Meanwhile, "the rate of CO_2 release from anthropogenic sources appears to be doubling every 15 years," a rate that would double atmospheric CO_2 by 2050.[73]

89. Armed with this information, Exxon did nothing. To this day, it continues to extract, produce, market, and sell ever-increasing quantities of fossil fuels, ensuring that the atmospheric concentrations of CO_2 continue to accelerate.

90. Looking back on this time period, Ed Garvey, another former Exxon scientist who worked for the company through the early 1980s, explained that "[b]y the late 1970s, global warming was no longer speculative. There was direct evidence it was not the same

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[72] Inter-Office Correspondence from H. Shaw to H.N. Weisberg (Nov. 19, 1979), "Research in Atmospheric Science", http://insideclimatenews.org/sites/default/files/documents/Probable%20Legislation%20Memo%20(1979).pdf.

[73] Exxon Research and Engineering Company, Ferrall, WL; Knisely, S. "Controlling the CO2 Concentration in the Atmosphere", *Climate Investigations Center Collection*, Climate Investigations Center, at 1 (Oct. 16, 1979) https://www.industrydocuments.ucsf.edu/docs/mqwl0228.

type of carbon that was in the atmosphere a hundred years ago."[74] He also believed that "[t]he scientists when I was there were making a genuine effort to understand the science."[75] That effort would disappear within a decade.

91. Also in 1979, API and industry scientists formed the "CO_2 and Climate Task Force" to monitor and share climate research. Later renamed the "Climate Energy Task Force," it operated from 1979 to 1983. James J. Nelson, its former Director, explained that "[i]t was a fact-finding task force . . . . We wanted to look at emerging science, the implications of it and where improvements could be made, if possible, to reduce emissions."[76]

92. Membership on the task force included senior scientists and engineers from nearly every major U.S. and multinational oil and gas company, including Exxon, Mobil (ExxonMobil), Amoco (BP), Gulf Oil (Chevron), Phillips (ConocoPhillips), Texaco (Chevron), Shell, Sunoco, Sohio (BP), and Standard Oil of California (BP), among others.[77]

93. The Task Force held a meeting in March 1980 at which Dr. John Laurman, an "expert on CO_2 and climate," delivered a presentation that drove home yet another stark message about fossil fuels' role in causing devastating climate change. Executives from API, Exxon, SOHIO (BP), and Texaco (Chevron) were present at the meeting, among others. The minutes of the meeting list "reasons for increased concern with the CO_2 problem," including "its correlation with global industrial CO_2 emissions, mostly from fossil fuel combustion" and

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[74] James Osborne, "INTERVIEW: Former Exxon scientist on oil giant's 1970s climate change research", Dallas Morning News (Oct. 2, 2015), https://www.dallasnews.com/business/2015/10/02/interview-former-exxon-scientist-on-oil-giant-s-1970s-climate-change-research/.

[75] *Id.*

[76] Exxon Research and Engineering Company, *supra* note 73.

[77] *Id.*

"scientific consensus on the potential for large future climatic response to increased CO_2 levels." The industry executives were informed that "likely impacts" included 1° Celsius global temperature increases by 2005, 2.5° Celsius of warming by 2038 causing "major economic consequences," and 5° Celsius of warming by 2067 causing "globally catastrophic consequences."[78]

94. In 1981, Henry Shaw wrote an internal memorandum to Exxon's President of Research and Engineering outlining Exxon's "Preliminary Statement of Exxon's Position on the Growth of Atmospheric Carbon Dioxide." The memorandum concurred with the company's and API's findings that a doubling in atmospheric CO_2, which was likely to occur within 100 years, would result in "3°C global average temperature rise and 10°C at poles," causing "[m]ajor shifts in rainfall/agriculture" and the potential that "[p]olar ice may melt."[79]

95. That same year, having digested these findings, Exxon's research manager Roger Cohen distributed an internal memorandum cautioning executives that calling the impacts of climate change "well short of catastrophic . . . may be too reassuring" because "it is distinctly possible that [Exxon's projected emissions] scenario will later produce effects which will indeed be catastrophic (at least for a substantial fraction of the earth's population)."[80]

96. Cohen built on this warning in a 1982 internal letter Exxon's Office of Science and Technology summarizing the findings of Exxon's research in climate modeling. In

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[78] Jimmie J. Nelson,, "The CO2 Problem; Addressing Reasearch Agenda Development", American Petroleum Institute, *Climate Investigations Center Collection,* (March 18, 1980), https://www.industrydocuments.ucsf.edu/docs/gffl0228.

[79] Memo from Henry Shaw to Dr. E.E. David, Jr. (May 15, 1981), "re CO2 Position Statement", Exxon Inter-Office Correspondence, at 2, http://www.climatefiles.com/exxonmobil/co2-research-program/1981-internal-exxon-co2-position-statement/.

[80] Memo from R.W. Cohen to W. Glass (Aug. 18, 1981), http://www.climatefiles.com/exxonmobil/1981-exxon-memo-on-possible-emission-consequences-of-fossil-fuel-consumption/.

this memorandum, Cohen writes of "unanimous agreement in the scientific community that a temperature increase" of the magnitude caused by a doubling of atmospheric CO_2 "would bring about significant changes in the earth's climate," and that "[t]he time required for doubling of atmospheric CO_2 depends on future world consumption of fossil fuels." Cohen also urged Exxon to "permit the publication of our research in scientific literature" because "to do otherwise would be a breach of Exxon's public position and ethical credo on honesty and integrity."[81]

97. Exxon flouted this "ethical credo" to be transparent about the known dangers of fossil fuels. In November 1982, shortly after Cohen urged Exxon to share its research findings publicly, M.B. Glaser, Exxon's Environmental Affairs Program Manager, issued a report titled "CO_2 'Greenhouse' Effect." Though the report was "given wide circulation to Exxon management . . . to familiarize Exxon personnel with the subject," Glaser warned that it "should be restricted to Exxon personnel and not distributed externally."[82]

98. Glaser's report noted "potentially catastrophic events that must be considered. For example, if the Antarctic ice sheet which is anchored on land should melt, then this could cause a rise in sea level on the order of five meters. Such a rise would cause flooding on much of the U.S. East Coast," where Hoboken is located. The report also highlighted a study from the Massachusetts Institute of Technology concluding that "vigorous development of non-

[81] Letter from Roger W. Cohen to A.M. Natkin, at 1-3 (Sept. 2, 1982), Exxon Research and Engineering Company, http://www.climatefiles.com/exxonmobil/1982-exxon-memo-summarizing-climate-modeling-and-co2-greenhouse-effect-research/.

[82] Memo from M.B. Glaser to Exxon Management (Nov. 12, 1982), "CO2 Greenhouse Effect", Exxon Research and Engineering Company, http://www.climatefiles.com/exxonmobil/1982-memo-to-exxon-management-about-co2-greenhouse-effect/.

fossil fuel energy sources be initiated as soon as possible" in light of the potential for "great irreversible harm to our planet."[83]

99. Also in 1982, the Lamont Doherty Geological Observatory at Columbia University prepared a report for API titled "Climate Models and CO_2 Warming." The report explained that atmospheric CO_2 had already risen from 290 ppm at the start of the industrial revolution to 340 ppm in 1981. While acknowledging some variability among climate models, it reported to API that "all predict some kind of increase in temperature within a global mean range of 4°C" based on the "assumption that atmospheric CO_2 will double," an outcome "expected some time in the next century." It warned that "[s]uch a warming can have serious consequences for man's comfort and survival since patterns of aridity and rainfall can change [and] the height of sea level can increase considerably"—the exact threats Hoboken now faces.[84]

100. In 1982, Dr. E.E. David Jr., President of the Exxon Research and Engineering Company, delivered a speech at the Fourth Annual Ewing Symposium, a gathering of fossil fuel industry leaders, titled "Inventing the Future Energy and the CO2 'Greenhouse' Effect." His speech concerned how the industry would evolve in light of the scientific consensus that CO_2 buildup in the atmosphere was bound to harm the planet. He concluded that a transition away from dependence on fossil fuels was necessary and inevitable. "Few people doubt that the world has entered an energy transition away from dependence on fossil fuels and toward some

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[83] *Id.* at 12-13, 18.

[84] Alan Oppenheis & William I. Donn, "Climate Models and CO2 Warming", Lamont-Doherty Geophysical Observatory (Columbia University), 4-5 (Mar. 16, 1982), http://assets.documentcloud.org/documents/2805626/1982-API-Climate-Models-and-CO2-Warming-a.pdf.

mix of renewable resources that will not pose problems of CO_2 accumulation."[85] Nonetheless, Exxon took no action to slow or transition away from its extraction, production, marketing, and sale of fossil fuels.

101. In 1983, Mobil issued similarly stark warnings about the potentially catastrophic impacts of climate change in a newsletter entitled "Atmospheric Greenhouse Effect: Is Burning of Fossil Fuels Affecting World Climate?" The newsletter explained, "[b]ased on future world energy demand, many scientists believe that carbon dioxide levels could double within the next century," a result which "some scientists predict" could lead to "melting of the arctic ice packs," causing "sea levels [to] rise 15 to 20 feet." The newsletter also noted the need for urgent action "because of the extremely long lead time for any conceivable corrective actions."[86]

102. In 1988, Shell issued an internal "Confidential" report on "The Greenhouse Effect" to the Shell Environmental Conservation Committee. The report reached analogously alarming conclusions as those circulated internally by API, Exxon, and Mobil. The report projected that atmospheric concentrations of CO_2 would double in the 21st century, causing an increase in global temperatures that

> could create significant changes in sea level, ocean currents, precipitation patterns, regional temperature and weather. These changes could be larger than any that have occurred over the last 12,000 years. Such relatively fast and dramatic changes would impact on the human environment, future living

[85] E.E. David Jr., "Inventing the Future: Energy and the CO_2 'Greenhouse' Effect", Exxon Research and Engineering Company, at 3 (Oct. 26,1982), http://www.documentcloud.org/documents/4412833-Inventing-the-Future-ER-amp-EC-1982.html.

[86] Mobil Oil Corp., "Atmospheric Greenhouse Effect: Is Burning Fossil fuels Affecting World Climate", Mobil Oil Corp., at 2-3 (June 1, 1983), http://www.climatefiles.com/exxonmobil/1983-mobil-memo-on-the-atmospheric-greenhouse-effect/.

> standards and food supplies, and could have major social, economic, and political consequences.[87]

103. The report also informed Shell of the "reasonable scientific agreement that increased levels of greenhouse gases would cause global warming" and confirmed that fossil fuel combustion was "the major source of CO_2 in the atmosphere." Although the report noted that global warming was not yet detectable, it warned that "by the time the global warming becomes detectable it could be too late to take effective countermeasures to reduce the effects or even to stabilise the situation," and "the energy industry needs to consider how it should play its part."[88]

104. In 1988, Richard Tucker, the President of Mobil Oil (Exxon), delivered a speech at the American Institute of Chemical Engineers national meeting that highlighted the importance of environmental stewardship in light of the threat posed by atmospheric accumulation of CO_2. He proposed an "environmental covenant" that demanded dramatic action, including the potential need for major reductions in global production and use of fossil fuels:

> [H]umanity, which has created the industrial system that has transformed civilization, is also responsible for the environment, which sometimes is at risk because of the unintended consequences of industrialization . . . . We all share in this responsibility; so we must *all* be environmentalists. . . .
>
> The environmental covenant requires action on many fronts—toxic waste disposal, the low-atmosphere ozone problem, the *upper*-atmosphere ozone problem, and the greenhouse effect, to name a few. . . .
>
> *Prevention on a global scale may even require a dramatic reduction in our dependence on fossil fuels*—and a shift toward solar, hydrogen, and safe nuclear

[87] Greenhouse Effect Working Group, "The Greenhouse Effect", Shell Internationale Petroleum, at 1 (May 1988), https://www.documentcloud.org/documents/4411090- Document3.html#document/p9/a411239 (accessed Feb. 21, 2020).

[88] *Id.*

> power. It may be possible—*just possible*—that the energy industry will transform itself so completely that observers will declare it a *new* industry.[89]

105. On information and belief, Defendants Chevron, BP, and ConocoPhillips also engaged similar studies, with similar findings.

106. Lofty rhetoric notwithstanding, Defendants did nothing to curb their production, marketing, and sale of fossil fuels across the globe from the 1950s through the late 1980s, despite receiving countless warnings from their own scientists that fossil fuels would have devastating impacts on the climate absent immediate efforts to decrease the emissions their fossil fuels facilitated. Instead, they were on the cusp of an acute shift in corporate strategy away from studying the climate impacts of fossil fuels and feigning concern about climate change. They were soon to embark on a massive marketing campaign to discredit the valid climate science developed by their own researchers and manipulate public opinion against the need to take action to curb their production and distribution of fossil fuels across the globe.

107. More than half of global CO_2 emissions since 1751 have been released since 1988; in other words, after Defendants knew about fossil fuels' catastrophic climate effects, they actively decided to suppress evidence of those effects.

C. Defendants Developed Marketing and Sales Practices to Deceive the Public about Fossil Fuels' Disastrous Climate Consequences for Decades

108. By the late 1980s and early 1990s, the public awareness of fossil fuels' potentially devastating climate consequences was on the rise. During this time, reputable scientific sources confirmed to the public that fossil fuel combustion was warming the planet, and governmental actors began to consider taking action to address the issue.

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[89] Richard F. Tucker, "High Tech Frontiers in the Energy Industry", Subcommittee on Economic Stablization of the Committee on Banking, Finance and Urban Affairs (Nov. 30, 1988), https://babel.hathitrust.org/cgi/pt?id=pur1.32754074119482&view=1up&seq=528&q1=the%20challenge%20ahead (second emphasis added).

109. In 1988, NASA scientist James Hanses testified to the U.S. Congress that climate change was caused by human activities. His testimony received front-page coverage in *The New York Times*.[90]

110. That same year, members of the U.S. Congress introduced The National Energy Policy Act of 1988, intended to "establish a national energy policy that will quickly reduce the generation of carbon dioxide and [other] trace gases as quickly as is feasible in order to slow the pace and degree of atmospheric warming . . . to protect the global environment."[91] George H.W. Bush, running for President of the United States that year, also pledged to combat the "greenhouse effect with the White House effect."[92]

111. Also in 1988, the world's nations joined together to create the IPCC to provide a scientific basis for policy action on climate change.[93] The IPCC released its First Assessment Report in 1990, concluding that "there is a natural greenhouse effect which already keeps the Earth warmer than it otherwise would be," and "emissions resulting from human activities are substantially increasing the atmospheric concentrations of greenhouse gases."[94]

112. By the time the IPCC issued its first report, Defendants had known about fossil fuels' deleterious effects on the climate for decades. Their research and public statements prior to 1988 suggested that they might have sought to join the budding efforts to address anthropogenic climate change. Yet just as fossil fuels' central role in warming the planet began

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[90] Frumhoff, *supra* note 122, at 161.

[91] *Id.* (alteration in original).

[92] *Id.*

[93] *Id.*

[94] IPCC, "Climate Change", *The IPCC Scientific Assessment*, IPCC (1990), https://www.ipcc.ch/site/assets/uploads/2018/03/ipcc_far_wg_I_full_report.pdf.

to achieve widespread scientific acceptance and become part of the mainstream public debate, Defendants withdrew all of their efforts to study the effects of fossil fuels on the climate and stopped acknowledging these harms in public.

113. They chose instead to wage a multifaceted and multimillion-dollar campaign against climate science. They created front groups to fund and promote misleading science to cast doubt on the reality of climate change; waged massive advertising campaigns to turn public opinion against efforts to address climate change; and rapidly accelerated their own production, marketing, and sale of fossil fuels on a scale they knew was likely to produce devastating climate consequences.

114. A 1988 internal Exxon memorandum titled "The Greenhouse Effect" from Joseph Carlson, an Exxon Public Affairs Manager, memorializes a shift in the company's corporate strategy regarding fossil fuels' role in causing climate change. The memorandum states that Exxon is "providing leadership through API in developing the petroleum industry position" on climate change.[95]

115. It begins by setting out the scientific consensus found by the company's previous research. It states that "[t]he Greenhouse effect may be one of the most significant environmental issues for the 1990s" and acknowledges that "[t]he principal Greenhouse gases are by-products of fossil fuel combustion." It then highlights climate models that "predict a 1.5°C to 4.5°C global temperature increase – depending on the projected growth of fossil fuels." The memorandum did not dispute the veracity of these findings.[96]

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[95] Joseph M. Carlson, "The Greenhouse Effect", ExxonMobil (Aug. 3, 1988), http://www.climatefiles.com/exxonmobil/566/.

[96] *Id.*

116. Despite reiterating the scientific consensus the company knew about for decades, the memorandum concludes by announcing Exxon's new "Position" on climate change—obfuscate and downplay: "Emphasize the uncertainty in scientific conclusions regarding the potential enhanced Greenhouse effect" and "[r]esist the overstatement and sensationalization of potential Greenhouse effect which could lead to noneconomic development of nonfossil fuel resources."[97] Exxon's strategy, channeled through API, thereby shifted from trying to understand the impact of fossil fuels on climate change to trying to dispute and conceal their impact. It has continued to employ this strategy through the present day.

117. Carlson's memo also makes clear that Exxon had abandoned its prior commitment to engage in research to understand fossil fuels' impacts on the planet, which it had characterized as "potentially catastrophic" just six years earlier: "Due to current scientific uncertainty, Exxon is not conducting specific impact studies with respect to particular company operations or geographic regions."[98]

118. In the late 1980s, Defendants began to form front groups to wage disinformation campaigns calling climate science into question. Using neutral, technical names to obscure both the entities behind the groups and their true purpose, they waged campaigns to turn public opinion against the scientific consensus that Defendants' extraction, production, and sale of fossil fuels was causing devastating climate impacts.

119. Between 1993 and 2013, at least 4,556 individuals associated with 164 organizations promoted climate science denial with backing from Defendants and others in the

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[97] *Id.*

[98] *Id.*

fossil fuel industry.[99] Below are examples of two of the many such front groups in which Defendants played a significant role—the "Global Climate Coalition" and "the Information Council on the Environment."

120. In 1989, fossil fuel companies and industry groups founded the Global Climate Coalition ("GCC") to provide an industry voice in the climate change debate. Defendants Exxon, Shell, and Phillips Petroleum Company (ConocoPhillips),[100] along with API, were founding members. Defendants BP and Chevron also served as members of the group.

121. The GCC identified itself as "an organization of business trade associations and private companies established . . . to coordinate business participation in the scientific and policy debate on the global climate change issue."[101] In reality, however, the group employed a host of methods to deceive the public about the impacts of fossil fuels on the climate and oppose greenhouse gas regulation, including by funding front groups and creating denial and misinformation campaigns.

122. The GCC stated its "Position" on fossil fuels' role in climate change in a 1996 "Overview Backgrounder" of the coalition's mission and activities. Its position, contradicting decades of internal scientific reports produced by its own members, was that fossil fuels have no role in climate change whatsoever:

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[99] Justin Farrell, "Corporate Funding and Ideological Polarization About Climate Change", Proceedings of the Nat'l Acad. Of Sciences, 113(1), 92-97 (Nov. 23, 2015), https://www.pnas.org/content/113/1/92.

[100] The EOP Group, Inc., "Progress Report on U.S. Industry Voluntary Actions to Curb Greenhouse Gas Emissions: Report to the Global Climate Coalition", Global Climate Coalition, (Mar. 1996), http://www.climatefiles.com/denial-groups/global-climate-coalition-collection/1996-u-s-industry-voluntary-actions-progress-report/; "Global Climate Coalition Membership", Global Climate Coalition (Nov. 16, 1989), http://www.climatefiles.com/denial-groups/global-climate-coalition-collection/1989-membership/.

[101] Global Climate Coalition, "Global Climate Coalition: An Overview", at 1 (Nov. 1996), http://www.climatefiles.com/denial-groups/global-climatecoalition-collection/1996-global-climate-coalition-overview/.

> The GCC believes that the preponderance of the evidence indicates that most, if not all, of the observed warming is part of [a] natural warming trend which began approximately 400 years ago. If there is an anthropogenic component to this observed warming, the GCC believes that it must be very small and must be superimposed on a much larger natural warming trend.[102]

123. The GCC reached this conclusion without addressing the IPCC's First Assessment Report or the prior findings of API, Exxon, and Shell of clear scientific agreement that fossil fuel combustion is the leading cause of climate change.

124. The GCC's unfounded conclusions about the role of its own members in causing climate change was used as a justification to oppose any regulation or restriction on Defendants' extraction, production, or sale of fossil fuels. Among its "Views," the GCC listed: "U.S. living standards and lifestyles would be seriously damaged by [proposals] that would stabilize or reduce carbon emissions by taxing fossil fuels"; "[a]ny program geared to near-term stabilization or reduction in carbon emissions . . . is likely to produce significant economic dislocations in the United States, including profound job losses and major economic restructuring"; and "[i]mposing near-term goals to stabilize or reduce carbon emissions would weaken the U.S. economy and cripple the nation's competitiveness in the global marketplace."[103]

125. The GCC did not merely seek to disparage credible climate science from the outside; it sought to do so from within the IPCC. A report by the Harvard Belfer Center for Science and International Affairs explained that the GCC "spent several years seeking acceptance as a reviewer of IPCC reports . . . rather than engaging directly in attacks on the science of the IPCC."[104] It became a reviewer of the IPCC's Second Assessment Report in 1996.

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[102] *Id.* at 2.

[103] *Id.*

[104] Wendy E. Franz, "Science, Skeptics and Non-State Actors in the Greenhouse," ENRP Discussion Paper E-98-18, Knenedy School of Government, Harvard University, at 14, (Sept. 1998),

126. The GCC prepared a primer on climate change in early 1996 in anticipation of its contribution to the IPCC's Second Assessment Report. The primer directly contradicted the GCC's statement in the "Overview Backgrounder"—published during the same year—that natural warming was the leading cause of observed global warming. Seeking to endear itself to the IPCC, it claimed in this primer that "[t]he scientific basis of the Greenhouse Effect and the potential impact of human emissions of greenhouse gases such as CO_2 on climate is well established and *cannot be denied.*"[105]

127. A draft of the primer included "contrarian theories" that factors other than the use of fossil fuels were driving global warming, but ultimately concluded that "they do not offer convincing arguments against the conventional model of greenhouse gas emission-induced climate change."[106] The GCC's Board was so unpersuaded by these theories that it decided to drop this section from its final version of the primer.

128. Having publicly presented to the IPCC that it was acting in good faith, the GCC used its perch as an IPCC reviewer to "initiate one of the most infamous attacks on the IPCC itself," claiming that the IPCC engaged in "scientific cleansing" that "understate[d] uncertainties about climate change causes and effect . . . to increase the apparent scientific support for attribution of changes to climate to human activities." This effort "was widely perceived to be an attempt on the part of the GCC to undermine the credibility of the IPCC."[107]

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https://www.belfercenter.org/sites/default/files/legacy/files/Science%20Skeptics%20and%20Non-State%20Actors%20in%20the%20Greenhouse%20-%20E-98-18.pdf.

[105] Global Climate Coalition, "Approval Draft: Predicting Future Climate Change: A Primer", at 1 (Jan. 18, 1996), http://www.webcitation.org/6FyqHawb9.

[106] *Id.* at 16.

[107] Franz, *supra* note 104, at 14-15.

129. At the same time, between 1989 and 1998, the GCC spent $13 million on advertisements as part of a campaign to cast doubt on climate science."[108]

130. In 1991, a group of coal companies, including Midway Coal Mining, owned by Chevron, formed the Information Council for the Environment ("ICE") to lead a campaign to promote an alternative set of facts suggesting that increased atmospheric CO_2 would be beneficial, not harmful, for the environment and humanity. Like the GCC, it chose its neutral-sounding name to misleadingly position itself "as a 'technical' source rather than an industry group."[109]

131. A 1991 report lays out ICE's "Strategies." The very first strategy on its list is to "Reposition global warming as theory (not fact)."[110]

132. ICE conducted polling that showed a large majority of people considered global warming to be a problem. In one poll, it found that 80% of respondents thought the problem was "somewhat serious" and 45% thought it was "very serious."[111] ICE sought to dismantle this consensus. A memorandum from Richard Lawson, the President of the National Coal Association, asked members to contribute to ICE's work because "[p]ublic opinion polls reveal that [a majority] of the American people already believe global warming is a serious environmental problem. Our industry cannot sit on the sidelines in this debate."[112]

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[108] *Id.* at 13.

[109] Naomi Oreskes, "My Facts Are Better Than Your Facts: Spreading Good News About Global Warming" (2010), *in* Peter Howlett et al., *How Well Do Facts Travel?: The Dissemination of Reliable Knowledge,* 136-66 (2011).

[110] Union of Concerned Scientists, "Climate Deception Dossier #5: Coal's 'Information Council on the Environment' Sham", Information Council for the Environment (1991), https://www.ucsusa.org/sites/default/files/attach/2015/07/Climate-Deception-Dossier-5_ICE.pdf.

[111] *Id.*

[112] Oreskes, *supra* note 109.

133. ICE's campaign included full-page newspaper advertisements, radio commercials, a public relations tour, and mailers. It targeted its advertisements at "older, less-educated males," among others, on the theory that members of this group are "not typically active information-seekers."[113]

134. One such advertisement compared concerns about climate change to "Chicken Little's hysteria about the sky falling," which "was based on a fact that got blown out of proportion. It is the same with climate change."[114]

Figure 7: ICE Advertisement

[113] Union of Concerned Scientists, *supra* note 110.

[114] *Id.*

135. In 1994, Shell, like Exxon before it, turned its back on its own internal scientific findings—made as recently as 1988—that unequivocally linked fossil fuel combustion to climate change. In an internal report titled "The Enhanced Greenhouse Effect," Shell rejected findings from the IPCC consistent with the company's prior scientific conclusions, and instead emphasized, without any scientific support, the "minority" view that "concerns over global warming [are] exaggerated and misguided."[115] It acknowledged that "none" of the explanations casting doubt on fossil fuels' central role in climate change "has so far achieved widespread acceptance in the IPCC scientific community."[116] Nonetheless, it concluded that "policies to curb greenhouse gas emissions beyond 'no regrets' measures could be premature" and touted its work with the "International Petroleum Industry Environmental Conservation Association," an "industry consortium," to "provide[] for research on key areas of scientific uncertainty."[117] Gone were Shell's warnings, made just six years earlier, that "by the time the global warming becomes detectable it could be too late to take effective countermeasures" and "the energy industry needs to consider how it should play its part."[118]

136. In 1996, more than thirty years after API's president warned that "time is running out" for the world to address the "catastrophic consequences of pollution," API published the book "Reinventing Energy: Making the Right Choices" to refute this very conclusion. Contradicting the scientific consensus known by its members for decades, the book claims: "Currently, no conclusive—or even strongly suggestive—scientific evidence exists that

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[115] P. Langcake, "The Enhanced Greenhouse Effect: A review of the Scientific Aspects", Shell Internationale, at 2 (Dec. 1994), https://www.documentcloud.org/documents/4411099- Document11.html#document/p15/a411511.

[116] *Id.* at 9.

[117] *Id.* at 14.

[118] Greenhouse Effect Working Group, *supra* note 87, at 1.

human activities are significantly affecting sea levels, rainfall, surface temperatures, or the intensity and frequency of storms."[119]

137. The book downplayed nearly every aspect of established climate science. API baldly claimed that scientists do not understand how carbon flows in and out of the atmosphere and whether fossil fuels are even responsible for increasing concentrations of atmospheric CO_2. It then explained that even if some warming does occur, such warming "would present few if any problems" because, for example, farmers could be "smart enough to change their crop plans" and low-lying areas would "likely adapt" to sea level rise.[120]

138. As Hoboken's vulnerability demonstrates, however, such adaptations, made necessary by Defendants' conduct, are enormously expensive—costing hundreds of millions of dollars for this 1.25-square-mile city alone. Defendants' strategy merely transferred the significant costs and externalities of their actions onto Plaintiff, and reaped billions of dollars in the process.

139. API published this book in service of one goal—ensuring its members could continue to produce and sell fossil fuels in massive quantities that it knew would devastate the planet. The book's final section reveals this purpose. API concluded: "[S]evere reduction in greenhouse gas emissions by the United States or even all developed countries would impose large costs on countries but yield little in the way of benefits—even under drastic climate change scenarios."[121]

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[119] Sally Brain Gentille et al., "Reinventing Energy: Making the Right Choices", American Petroleum Institute, at 79 (1996), http://www.climatefiles.com/trade-group/american-petroleuminstitute/1996-reinventing-energy.

[120] *Id.* at 86-87.

[121] *Id.* at 89.

140. Throughout the 1990s, Defendants fomented uncertainty about climate science and centered economic arguments to turn public opinion against taking action to address climate change. From 1972 to 2004, Mobil (Exxon) ran a series of advertorials (paid advertisements styled as editorials) in the *New York Times* to present its position on the issue. In one such advertorial from 1997, Mobil argued

> Let's face it: The science of climate change is too uncertain to mandate a plan of action that could plunge economies into turmoil . . . . Scientists cannot predict with certainty if temperatures will increase, by how much, and where changes will occur. We still don't know what role man-made greenhouse gases might play in warming the planet.[122]

141. Two Harvard University scholars found that 81% of Exxon's and Mobil's advertorials from 1989 through 2004 expressed doubt that climate change is real and caused by human activities. By comparison, they found that 80% of the companies' internal documents, as well as 83% of peer-reviewed publications, recognized the link between climate change and human activities. Based on "this discrepancy," they concluded that "ExxonMobil misled the public."[123]

142. In 1996, Exxon published a document titled "Global warming: Who's Right? Facts About a Debate That's Turned up More Questions than Answers." The publication included a preface from Exxon's Chairman and CEO, Lee R. Raymond, that contradicted his own company's earlier scientific at findings at every turn. First, he dismissed the need to act urgently to prevent climate change, stating that "[t]aking drastic action immediately is unnecessary since many scientists agree there's ample time to better understand the climate

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[122] "When Facts Don't Square with the Theory, Throw Out the Facts", N.Y. Times, at A31 (Aug.14, 1997), https://www.documentcloud.org/documents/705550-mob-nyt-1997-aug-14-whenfactsdontsquare.html.

[123] Geoffrey Supran & Naomi Oreskes, "Assessing ExxonMobil's climate change communications (1977–2014)", 12 Envtl. Research letters, IOP Publishing Ltd. (2017), at 12, https://iopscience.iop.org/article/10.1088/1748-9326/aa815f/pdf.

system." He then cast doubt fossil fuels' role in causing climate change, speciously contending that the rise in global temperatures since the late 19th century was the result of "natural fluctuations that occur over long periods of time" rather than anthropogenic emissions that Exxon's own scientists had confirmed were responsible.[124]

143. He also claimed that any future warming from his company's extraction, production, and sale of fossil fuels would have salutary effects. He stated that the greenhouse effect is "definitely a good thing" because it is "what makes the earth's atmosphere livable. . . . [T]he indications are that a warmer world would be far more benign than many imagine" because "moderate warming would reduce mortality rates in the US, so a slightly warmer climate would be more healthful." He concluded by attacking advocates calling for limiting the use of fossil fuels "as drawing on bad science"—the same scientific underpinnings that Exxon's scientists had played an important role in establishing just 20 years earlier.[125]

144. In 1997, Raymond gave a speech to the World Petroleum Congress in Beijing designed to mobilize the industry against aggressive action at the upcoming global summit on climate change in Kyoto, Japan. Again contradicting the company's earlier internal findings that "scientific opinion overwhelmingly favors attributing atmospheric carbon dioxide increase to fossil fuel combustion," he claimed that "most of the greenhouse effect comes from natural sources, like water vapor." Continuing Defendants' campaign of obfuscation, he

[124] Exxon Corp., "Global Warming: Who's Right?", at 3, 5 (1996), http://www.climatefiles.com/exxonmobil/global-warming-who-is-right-1996/.

[125] *Id.* at 5, 7.

asserted, "the case for global warming is far from air tight" and "the real secret to environmental improvement is economic growth."[126]

145. As the 1990s progressed, Defendants and the industry groups supporting them doubled down on their campaign to turn public opinion against the scientific consensus that the fossil fuels they produce, market, and sell are the leading cause of climate change.

146. In a 1998 article *A Cleaner Canada*, Robert Paterson, the Chairman of Imperial Oil (Exxon), echoed Raymond's dismissal of the scientific consensus found by the company's own scientists:

> Carbon dioxide is not a pollutant but an essential ingredient of life on this planet . . . . [T]he question of whether or not trapping of 'greenhouse gases will result in the planet's getting warmer . . . has no connection whatsoever with our day-to-day weather. . . .
>
> There is absolutely no agreement among climatologists on whether or not the planet is getting warmer or, if it is, on whether the warming is the result of man-made factors or natural variations in the climate. . . .
>
> I feel very safe in saying that the view that burning fossil fuels will result in global climate change remains an unproven hypothesis.[127]

147. In 1998, API formed the Global Climate Science Communications Team (GCSCT) to execute an "Action Plan" designed to ensure that "[a] majority of the American public, including industry leadership, recognizes that significant uncertainties exist in climate science, and therefore raises questions among those (e.g. Congress) who chart the future U.S. course on global climate change." Executives from Defendants Exxon and Chevron, API, and other fossil fuel companies were directly involved in the development of the Action Plan.

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[126] Lee R. Raymond, Energy—Key to Growth and a Better Environment for Asia-Pacific Nations, World Petroleum Congress, at 9-10 (Oct. 13, 1997), http://www.climatefiles.com/exxonmobil/1997-exxon-lee-raymond-speech-at-world-petroleum-congress/.

[127] Robert Peterson, "A Cleaner Canada", Imperial Oil Rev., at 29 (1998), https://www.documentcloud.org/documents/6555577-1998-Robert-PetersonA-Cleaner-Canada-Imperial.html.

Although it held itself out as the "Global Climate *Science* Communications Team," the team did not include a single scientist.[128]

148. The GCSCT's Action Plan states that "Victory Will Be Achieved When" doubts about climate science become mainstream, as measured by when:

- Average citizens "understand" (recognize) uncertainties in climate science; recognition of uncertainties becomes part of the "conventional wisdom."
- Media "understands" (recognizes) uncertainties in climate science. . . .
- Those promoting the Kyoto treaty on the basis of extant science appear to be out of touch with reality.[129]

149. The Action Plan also issued a stark warning to API's members: "Unless 'climate change' becomes a non-issue, . . . there may be no moment when we can declare victory for our efforts."[130] It then laid out a series of "Strategies and Tactics" to accomplish that objective. A pillar of the Plan was a $5 million "Global Climate Science Data Center," envisioned as an "alternative to the IPCC" that would "rais[e] questions about and undercut[] the 'prevailing scientific wisdom'" that combustion of fossil fuels causes climate change. The Action Plan also envisioned a $2 million fund to disburse to organizations that cast doubt on climate science, including the American Legislative Exchange Council (ALEC) and the Competitive Enterprise Institute (CEI).[131]

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[128] Email from Joe Walker to Global Climate Science Team (Apr. 3, 1998), "Draft Global Science Communications Action Plan", at 2-3, https://insideclimatenews.org/sites/default/files/documents/Global%20Climate%20Science%20Communications%20Plan%20%281998%29.pdf.

[129] *Id.* at 3.

[130] *Id.*

[131] *Id.* at 5-7.

150. The GCSCT borrowed directly from tobacco companies' denialist playbook. The GCSCT mirrored a front group created by the tobacco industry known as The Advancement of Sound Science Coalition ("TASSC"), whose purpose was to sow uncertainty about the fact that cigarette smoke is carcinogenic. Steve Milloy, a key player in TASSC, was also a member of the GCSCT and helped to draft its Action Plan.[132] Solidifying the ties between Defendants and Milloy, from 2000 to 2004, Exxon donated a total of $110,000 to a successor organization to TASSC and the Free Enterprise Education Institute, another organization registered to Milloy's home address in Maryland.[133]

151. A 1999 API budget document distributed to its members identifies the public's agreement on fossil fuels' role in causing climate change as its highest priority issue: "Climate is at the center of the industry's business interests. Policies limiting carbon emissions reduce petroleum product use. That is why it is API's highest priority issue and defined as strategic."[134] The document projected that $2 million of API's $3.8 million program budget would be dedicated to external expenditures on climate, including "climate science and science uncertainty research."[135]

152. Phillip Cooney, an attorney at API from 1996 to 2001, testified at a 2007 Congressional hearing that it was "typical" for API to fund think tanks and advocacy groups that

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[132] *Id.* at 2.

[133] Seth Shulman et al., "Smoke, Mirrors & Hot Air: How ExxonMobil Uses Big tobacco's Tactic to Manufacture Uncertainty on Climate Science", Union of Concerned Scientists, at 19 (Jan. 2007), https://www.ucsusa.org/sites/default/files/2019-09/exxon_report.pdf.

[134] Committee on Oversight and Government Reform, "Allegations of Political Interference with Government Climate Change Science", Allegations of Political Interference with Government Climate Change Science, at 52 (Mar. 19, 2007), http://ia601904.us.archive.org/25/items/gov.gpo.fdsys.CHRG-110hhrg37415/CHRG-110hhrg37415.pdf.

[135] *Id.* at 55.

minimized fossil fuels' role in climate change. Among the groups to which API provided funding were the Heartland Institute, CEI, and the American Council on Capital Formation, each of which issued publications challenging the scientific consensus that fossil fuels were causing climate change and opposed restrictions on Defendants' extraction, production, and sale of fossil fuels.

153. In 1998, Shell *predicted* lawsuits like this one, directly comparing the "social reaction" to fossil fuel companies' deceptions about climate science to tobacco companies' deceptions about the hazards of cigarettes. In a report published that year titled "Scenarios: 1998-2020," Shell predicted:

> [i]n 2010, a series of violent storms causes extensive damage to the eastern coast of the United States. . . . Following the storms, a coalition of environmental NGOs brings a class-action suit against the US government and fossil-fuel companies on the grounds of neglecting what scientists (including their own) have been saying for years: that something must be done. A social reaction to the use of fossil fuels grows, and individuals become "vigilante environmentalists" in the same way, a generation earlier, they had become fiercely anti-tobacco.[136]

154. Shell's prediction was a year or two off—Hurricane Irene hit Hoboken in 2011 and Superstorm Sandy hit the City in 2012.

155. In the 2000s, the scientific consensus that fossil fuels are the primary driver of climate change coalesced even more firmly. In 2007, the IPCC published its Fourth Assessment Report, concluding that "there is very high confidence that the net effect of human

[136] Royal Dutch/Shell Group, "The Group of the Future and the Group Scenarios 1998–2020", at 115 (1998), http://www.documentcloud.org/documents/4430277-27-1-Compiled.html.

activities since 1750 has been one of warming."[137] The IPCC defined "very high confidence" as at least a 9 out of 10 chance.[138]

156. At the same time that the scientific consensus on global warming grew stronger, however, Defendants' deceptive public communications and campaigns casting doubt on climate science had successfully eroded the public's faith in it. A 2007 poll conducted by Yale University and Gallup found that only 48% of Americans believed that there was a scientific consensus that global warming was occurring, and 40% believed that there was a lot of scientific disagreement on the subject.[139]

157. Meanwhile, Defendants continued their baseless attacks on the underpinnings of climate science. A 2006 report by ExxonMobil titled "Tomorrow's Energy: A Perspective on Energy Trends, Greenhouse Gas Emissions and Future Energy Options" asserts:

> While assessments such as those of the IPCC have expressed growing confidence that recent warming can be attributed to increases in greenhouse gases, these conclusions rely on expert judgment rather than objective, reproducible statistical methods. Taken together, gaps in the scientific basis for theoretical climate models and the interplay of significant natural variability make it very difficult to determine objectively the extent to which recent climate change might be the result of human actions. These gaps also make it difficult to predict the timing, extent and consequences of future climate change . . . . [A] causal linkage between the buildup of greenhouse gases in the atmosphere and the observed climate changes during the 20th century cannot be unequivocally established.[140]

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[137] 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, at 3 (2007), https://www.ipcc.ch/site/assets/uploads/2018/05/ar4_wg1_full_report-1.pdf.

[138] *Id.* at 3 n.7.

[139] Yale Program on Climate Change Communication, "American Opinions on Global Warming: A Yale/Gallup/Clearvision Poll" (July 31, 2007), https://climatecommunication.yale.edu/publications/american-opinions-on-global-warming/.

[140] Exxon Mobil Corp., "Tomorrow's Energy: A Perspective on Energy Trends, Greenhouse Gas Emissions and Future Energy Options", at 10 (2006).

158. In 2006, shortly after the release of this report, the Royal Society, the United Kingdom's national academy of sciences, issued a rare and stinging rebuke of ExxonMobil's public statements regarding climate change. The Royal Society asserted that Exxon's statements leave "an inaccurate and misleading impression of the evidence on the causes of climate change that is documented in the scientific literature. It is very difficult to reconcile the misrepresentations of climate change science in these documents with ExxonMobil's claim to be an industry leader."[141] It also castigated ExxonMobil for providing, in 2005, "more than $2.9 million to organizations in the United States which misinformed the public about climate change through their websites."[142]

159. Exxon's multimillion-dollar disbursement of cash to climate change denialists in 2005 was typical of its conduct in the late 1990s through the 2000s. From 1998 through 2007, ExxonMobil gave over $20 million to think tanks and organizations that published research and ran campaigns denying climate science.[143]

160. On information and belief, Defendants Chevron, BP, and ConocoPhillips made a similar shift away from acknowledging the reality of anthropogenic climate change, to actively working to undermine scientific consensus and public trust.

161. Starting in 1988, Defendants made a marked and coordinated shift in corporate strategy relating to climate change. After thirty years of careful, internal studies made

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[141] Letter from Bob Ward to Nick Thomas (Sept. 4, 2006), The Royal Society, at 2, https://royalsociety.org/-/media/Royal_Society_Content/policy/publications/2006/8257.pdf.

[142] *Id.*

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

plain to Defendants that large-scale extraction, production, and sale of fossil fuels would cause devastating climate consequences, the reality that fossil fuels were causing global warming began to enter the broader public consciousness. Rather than join efforts to address the urgent issue, Defendants spent millions of dollars funding think tanks and leading communications campaigns to deceive the public into discrediting the scientific consensus on climate change that their own scientists had helped to develop.

D. Defendants Protected Their Own Infrastructure from Climate Change While Lying to the Public About It

162. At the same time that Defendants waged a multifaceted campaign of climate disinformation, they designed and made modifications to their own infrastructure, often at significant expense, acknowledging the coming reality of melting ice caps, worsening storms, and rising sea levels.

163. In 1973, Esso Research and Engineering Company (Exxon) obtained a patent for a cargo ship capable of breaking through sea ice[144] and another for an oil tanker[145] designed for use in areas of the Arctic that would not be reachable until climate change had intensified.

164. In 1974, Chevron obtained a patent for a mobile arctic drilling platform designed to withstand significant interference from lateral ice masses,[146] allowing for drilling in areas with increased ice flow movement due to elevated temperatures. That same year, Texaco

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[144] U.S. Patent No. 3,727,571, *Icebreaking Cargo Vessel*, Esso Research and Engineering Co. (filed Apr. 17, 1973), https://patentimages.storage.googleapis.com/aa/05/5c/ba8a0dc55c08ef/US3727571.pdf.

[145] U.S. Patent No. 3,745,960, *Tanker Vessel*, Esso Research and Engineering Co. (filed July 17, 1973), https://patentimages.storage.googleapis.com/b9/7c/62/fc64d5de1f7192/US3745960.pdf.

[146] U.S. Patent No. 3,831,385, *Arctic Offshore Platform*, Chevron research Co. (filed Aug. 27, 1974), https://patentimages.storage.googleapis.com/87/5d/03/83f5da92318d67/US3831385.pdf.

(Chevron) obtained a patent for a mobile arctic drilling and production platform that allowed for drilling in previously unreachable areas of the Arctic that would become seasonally accessible due to polar ice melt.[147]

165. In 1984, Shell obtained a patent for an arctic offshore drilling platform similar to Chevron's.[148]

166. These actions were taken with the expectation that arctic exploration for oil and gas would become easier due to predicted anthropogenic warming.

167. In 1989, Shell initiated a $3 billion redesign of an offshore natural gas platform in the North Sea. Shell initially planned to construct the platform to reach a height of 30 meters above sea level—the standard height for platforms of this type. Shell was concerned, however, that this height would not be sufficient to make the platform operable at the end of its lifespan in 2065. Engineers found that anticipated sea level rise, caused by increases in atmospheric CO_2 from combustion of fossil fuels like the natural gas extracted at the platform, could lead the platform to be inundated during a bad storm. Accordingly, the engineers revised the plan to add one to two meters of height to the platform at a potential cost of over $30 million.[149]

168. Also in 1989, Esso Resources Canada (Exxon) commissioned a study on the impact of climate change on existing and proposed natural gas facilities in the Mackenzie River Valley and Delta, including extraction facilities on the Beaufort Sea and a pipeline

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[147] U.S. Patent No. 3,793,840, *Mobile, Arctic Drilling and Production Platform*, Texaco Inc. (filed Feb. 26, 1974), https://patentimages.storage.googleapis.com/52/d6/b3/9f23a65402d3a4/US3793840.pdf.

[148] U.S. Patent No. 4,427,320, *Arctic Offshore Platform*, Shell Oil Co. (filed Jan. 24, 1984), https://patentimages.storage.googleapis.com/a5/67/da/9c7d06b9e89d1c/US4427320.pdf.

[149] Amy Lieberman and Susanne Rust, "Big Oil braced for global warming while it fought regulations", L.A. Times (Dec. 31, 2015), http://graphics.latimes.com/oil-operations/.

crossing Canada's Northwest Territory.[150] The study found that "all climate scenarios indicate that significant increases in both temperature and precipitation will be experienced by the Mackenzie Valley," meaning "large zones of the Mackenzie Valley could be affected dramatically by climatic change."[151] The study concluded that increasing temperatures, greater precipitation, melting permafrost, rising sea levels, and erosion could all threaten the company's infrastructure in the region and recommended that the company factor these climatic changes into its future development plans.[152]

169. In 1994, the prospect of rising sea levels and increasingly severe storms played a major role in the construction of Europipe, a natural gas pipeline leading from a North Sea offshore platform to the German Coast. A joint venture of Shell, Exxon, and ConocoPhillips, among other fossil fuel companies, the project's engineers noted that sea levels had risen over the last century and that there could be a "considerable increase of the frequency of storms as a result of climate change." They concluded that the pipeline design needed to include protections against these future climate impacts.[153]

170. In 1996, Mobil, Shell, and Imperial Oil (Exxon) took the likelihood of rising temperatures and sea levels into account in the design of their Sable gas field project off the coast of Nova Scotia, Canada. Mobil engineers wrote in design specifications that "[a]n

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[150] Stephen Lonergan & Kathy Young, "An Assessment of the Effects of Climate Warming on Energy Developments in the Mackenzie River Valley and Delta, Canadian Arctic", Energy Exploration & Exploitation Vol. 7 Issue 5 (Oct. 1, 1989), 359-81.

[151] *Id.* at 369, 377.

[152] *Id.* at 375-77 ("The development of a natural gas plant at Taglu should receive many of the same considerations, particularly with respect to changes in permafrost. . . . A rise in sea level could cause increased flooding and erosion damage on Richards Island.").

[153] Amy Lieberman and Susanne Rust, *supra* note 149.

estimated rise in water level, due to global warming, of 0.5 meters may be assumed" for the project's 25-year lifespan.[154] 1996 was the same year that API—of which Exxon, Mobil, and Shell were all members—stated publicly in "Reinventing Energy: Making the Right Choices" that "[c]urrently, no conclusive—or even strongly suggestive—scientific evidence exists that human activities are significantly affecting sea levels . . . ."

171. On information and belief, Defendants Chevron, BP, and ConocoPhillips also took the reality of anthropogenic climate change into account in designing and manufacturing their durable infrastructure.

E. Defendants Have Engaged in a Continuing Pattern of Deception to The Present Day

172. In the last decade, the scientific certainty that Defendants' mass extraction, production, marketing, and sale of fossil fuels is driving global warming has led Defendants to publicly acknowledge the scientific reality of climate change. This public acknowledgment, however, merely marks another tactical shift in Defendants' decades-long campaign of deception. Instead of publicly denying climate science, Defendants have now embarked on "greenwashing" efforts to dupe consumers into believing that they are committed to addressing climate change. These campaigns do not reflect any meaningful investment in low carbon energy or a fundamental change in Defendants' core business in fossil fuels. They serve to mask Defendants' current extraction, production, marketing and sale of fossil fuels at record levels and continued funding of climate disinformation behind closed doors, all of which have harmed Plaintiff substantially.

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[154] *Id.*

1. Defendants Have Misled Consumers Through "Greenwashing" Campaigns that Feign Commitment to Addressing Climate Change

173. In 2004, BP changed its name from "British Petroleum" to BP as part of a larger rebranding to create the impression that it was committed to a clean energy future. It even adopted the moniker "Beyond Petroleum" and a green and yellow logo that it uses to this day. These cosmetic changes concealed the company's continuation of its core business in fossil fuels. For example, a $1.5 billion investment in "alternative" energy touted by the company in 2008 included natural gas fired power plants and comprised just 7% of the company's total energy investments, with the remaining 93% in coal and oil.[155] BP also abandoned its assets in wind and solar in 2011 and 2013, respectively, and dropped "Beyond Petroleum" in 2013.[156]

174. In 2019, BP redoubled its efforts to hold itself out as a clean energy company through its "Possibilities Everywhere" advertising campaign. These advertisements appeared on national television networks in the United States and digital and print media outlets widely available in Hoboken, including CNN, *Politico*, *The Economist*, and the New York City-based *Wall Street Journal*.

175. The Possibilities Everywhere campaign misleadingly claimed that BP was heavily invested in clean energy like solar and wind power. One advertisement touted BP's investment in "more energy" with "less footprint."[157] Another trumpeted BP's investment in windfarms in Indiana, noting that natural gas was a backup in the event that the wind power

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[155] Fred Pearce, "Greenwash: BP and the Myth of a World 'Beyond Petroleum'", The Guardian (Nov. 20, 2008), https://www.theguardian.com/environment/2008/nov/20/fossilfuels-energy.

[156] Javier E. David, "'Beyond Petroleum' No More? BP Goes Back to Basics", CNBC (Apr. 20, 2013), http://www.cnbc.com/id/100647034.

[157] BP America, "Possibilities Everywhere, More Energy with Less Footprint", Facebook (Mar. 6, 2019) https://www.facebook.com/watch/?v=804651883212210.

failed.[158] This advertisement omitted the fact that natural gas is itself a fossil fuel that emits large quantities of greenhouse gasses into the atmosphere when combusted.

176. More broadly, BP's advertised focus on clean energy is belied by its conduct. More than 95% of BP's energy portfolio at the time of the Possibilities Everywhere campaign remained in fossil fuels. Between 2010 and 2018, just 2.3% of BP's total capital expenditures were invested in low carbon energy sources, a significant *decrease* from the already paltry 7% in 2008.[159]

177. While investing negligible sums of money in the clean energy promoted by the Possibilities Everywhere campaign, a 2019 estimate placed BP's annual spending on "climate branding"—efforts to draw attention to low carbon sources, position the company as a climate expert, and acknowledge concern about climate change while ignoring the central role of the company's fossil fuels in causing it—at $30 million.[160]

178. In or around 2019, Exxon ran a series of advertorials and advertisements in the *New York Times*, *The Economist*, and on its YouTube channel, outlets widely available in Hoboken, touting the company's investment in alternative energy biofuels from algae and plant waste. One advertorial in the *Times*—reprising the advertorials Mobil ran in that paper from the

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[158] BP America, "Possibilities Everywhere, Fowler, Indiana", Facebook (May 20, 2019), https://www.facebook.com/watch/?v=2300863480160604.

[159] Jonathan Watts, Jillian Ambrose & Adam Vaughan, "Oil Firms To Pour Extra 7m Barrels Per Day Into Markets, Data Shows", The Guardian (Oct. 10, 2019), https://www.theguardian.com/environment/2019/oct/10/oil-firms-barrels-markets.

[160] InfluenceMap, Big Oil's Real Agenda on Climate Change 13 (March 2019), https://influencemap.org/report/How-Big-Oil-Continues-to-Oppose-the-Paris-Agreement-38212275958aa21196dae3b76220bddc.

1970s through the early 2000s that frontally attacked climate science—instead falsely promised "A Greener Energy Future. Literally."[161]

Figure 8: Exxon Biofuels Advertorial

179. Exxon's promise of a "literally" greener energy future is as illusory as its specious climate science denial. In reality, Exxon invested just 0.2% of its capital spending on low carbon energy between 2010 and 2018.[162] And the biofuels it promoted in the *Times* represent a similarly miniscule portion of Exxon's energy portfolio going forward. The company has set a goal of producing 10,000 barrels of biofuels per day by 2025; even if met, this would amount to just 0.2% of its total refinery capacity.[163] The transformative technology promised by

[161] ExxonMobil, "The Future of Energy? It May Come from Where You Least Expect It", N.Y. Times, https://www.nytimes.com/paidpost/exxonmobil/the-future-of-energy-it-may-come-from-where-you-least-expect.html.

[162] Watts et al., *supra* note 159.

[163] InfluenceMap, *supra* note 1600, at 3.

Exxon's campaign is therefore just a distraction from the climate harms caused by Exxon's extraction, production, marketing, and sale of fossil fuels at an enormous scale.

180. In fact, and in contrast to its meager investment in biofuels, a 2019 estimate placed Exxon's annual spending on climate branding like these advertorials at $56 million.[164]

181. In the late 2010s, Shell launched a similar "Make the Future" campaign designed to hold itself out as an environmentally conscious energy company. The campaign included advertisements targeted at Hoboken residents through the *New York Times*, other U.S. national media outlets, and the company's YouTube channel.

182. A paid video advertisement in the *New York Times* titled "Reimagining the Future of Transportation" suggested that Shell is committed to a cleaner energy future by, among other things, building ships to run on liquefied natural gas rather than oil, running trucks on hydrogen fuel cells, and running airplanes on biofuels.[165] Shell produced a similar advertorial in the *Times* positing "A Path to Net-Zero Emissions by 2070" by "changing how tomorrow's transport is fueled" and inviting readers to "explore the possibilities."[166]

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[164] *Id.* at 12.

[165] Shell, *Video: Reimagining the Future of Transportation*, N.Y. Times, https://www.nytimes.com/paidpost/shell/reimagining-the-future-of-transportation.html#100000006395029.

[166] Shell, "Moving Forward: A Path to Net-Zero Emissions by 2070", N.Y. Times, https://www.nytimes.com/paidpost/shell/ul/moving-forward-a-path-to-net-zero-emissions-by-2070.html.

Figure 9: Shell Advertorial

183. These advertisements attempt to obscure the fact that Shell's investments in sustainable energy sources remain inconsequential relative to its investment in fossil fuels. Between 2010 and 2018, Shell dedicated just 1% of its capital spending to low carbon energy sources.[167]

184. Shell partnered with the marketing firm MediaCom to develop and disseminate the "Make the Future" campaign. MediaCom's website explains that one of the campaign's goals was to change perceptions about Shell among "Energy Engaged Millennials." MediaCom touts success in this area, finding, among other things, an 8.3-point increase in millennials' belief that Shell is "setting trends in energy" following a seven-week advertising

[167] Anjli Raval & Leslie Hook, "Oil and gas advertising spree signals industry's dilemma", Financial Times (Mar. 6, 2019), https://www.ft.com/content/5ab7edb2-3366-11e9-bd3a-8b2a211d90d5.

push in 2016.[168] Thus, Shell's greenwashing campaign meaningfully increased consumers' belief that Shell is committed to low carbon energy, a commitment that is not borne out by Shell's actual business practices.

185. While Shell's commitment to low carbon energy remains minimal, Shell's investment in greenwashing campaigns has been significant. A 2019 estimate placed its annual spending on climate branding at $55 million.[169]

186. In 2010, Chevron launched an advertising campaign with the slogan "We Agree," highlighting the company's commitment to sustainable energy investments and environmental stewardship. The advertisements announced Chevron's agreement with statements like: "It's time oil companies get behind the development of renewable energy"; and "Protecting the Planet is Everyone's job."[170]

Figure 10: Chevron "We Agree" Advertisement

[168] "Shell: Make the Future", MediCom (Dec. 16, 2016), https://www.mediacom.com/uk/article/index?id=make-the-future.

[169] InfluenceMap, *supra* note 160, at 12.

[170] Elizabeth Douglass, "Exxon's Gamble: 25 Years of Rejecting Shareholder Concerns on Climate Change", Inside Climate News (Nov. 16, 2015), https://insideclimatenews.org/news/16112015/exxons-gamble-25-years-rejecting-shareholder-concerns-climate-change.

187. Chevron's agreement with these statements did not translate into any substantive action. In the decade since the campaign, Chevron has not invested any meaningful amount of money, profits or otherwise, toward renewable energy. In 2014, Chevron shut down its renewable and alternative energy projects altogether.[171] And from 2010 to 2018, the eight years after the launch of the "We Agree" campaign, it expended just 0.2% of its total capital on low carbon energy.[172]

188. In lockstep with its member companies, API has also shifted its messaging from climate denial to greenwashing in the last decade. API touts its members' purported commitments to reducing their carbon footprint while continuing its core mission of promoting its members' extraction, production, and sale of fossil fuels to consumers in New Jersey and throughout the United States at unprecedented rates.

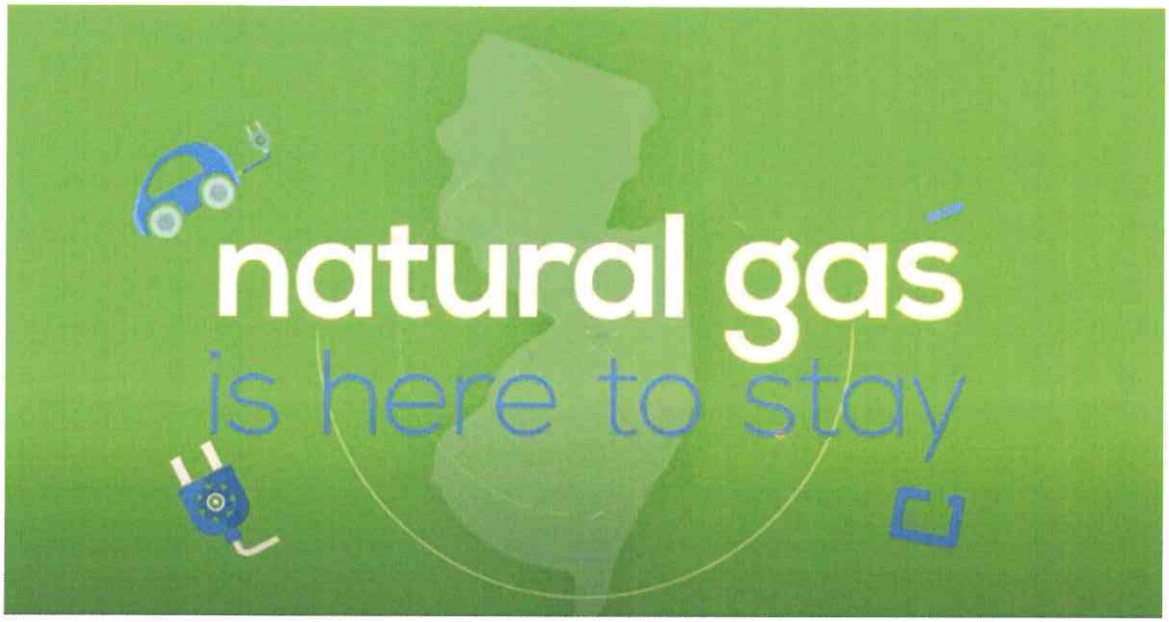
189. API has specifically targeted New Jersey consumers in its greenwashing campaigns. In 2017, API released a thirty-second advertisement entitled "Natural Gas Works for New Jersey." The advertisement claims that natural gas is "transforming the energy landscape" in New Jersey by providing "affordable *clean* energy to schools and businesses," even though combustion of natural gas emits large quantities greenhouse gasses and is a major contributor to global warming. The advertisement concludes by making this misleading contradiction explicit, proclaiming that "clean energy production is vital to the future of the Garden State" while

[171] Ben Elgin, "Chevron Dims the Lights on Green Power", Bloomberg (May 29, 2014), https://www.bloomberg.com/news/articles/2014-05-29/chevron-dims-the-lights-on-renewable-energy-projects.

[172] Raval & Hook, *supra* note 167.

simultaneously displaying a map of New Jersey with green imagery overlaid with text stating that "natural gas is here to stay."[173]

Figure 11: API New Jersey Natural Gas Advertisement



190. In addition, in 2016, API launched a "campaign in New Jersey focused on consumers" that sought to turn public opinion against stricter standards for ethanol content in gasoline. The campaign speciously claimed that such standards would "hurt consumers and threaten to reverse America's energy renaissance which has made [it] the number one producer of oil and natural gas in the world."[174]

191. API has also devoted considerable resources to deceiving consumers throughout the country about fossil fuels' role in climate change. During the 2017 Super Bowl,

[173] The American Petroleum Institute, *Natural Gas Works for New Jersey*, Youtube (Sept. 19, 2017), https://www.youtube.com/watch?v=rb9jQiGgdLQ.

[174] Reid Porter, "API Launches New RFS Advocacy Campaign in New Jersey Focused on Consumers", American Petroleum Institute (Aug. 9, 2016), https://www.api.org/news-policy-and-issues/misc/rfs-advocacy-campaign/rfs-advocacy-new-jersey.

the most-watched television program in the United States, API debuted its "Power Past Impossible" campaign, with advertisements that told Americans that the petroleum industry could help them "live better lives." A 2018 study of the advertisements by Kim Sheehan, a Professor at the University of Oregon, concluded that the "campaign provides evidence of greenwashing through both explicit communications (such as unsubstantiated claims that 'gas comes cleaner' and 'oil runs cleaner') and implicit communications (the use of green imagery)."[175]

192. Today, API continues its greenwashing campaigns through television, radio, and internet advertisements. Many of its advertisements and publications are housed on a website run by API entitled "America's Natural Gas and Oil: Energy for Progress." Among many articles and images promoting fossil fuel companies' claimed contributions to clean energy, the website advertises "5 Ways We're Helping to Cut Emissions" and "4 Ways We're Protecting Wildlife."[176] These messages are not meant to encourage consumers to transition to low carbon energy sources—just the opposite. By obfuscating the reality that fossil fuels are the driving force behind anthropogenic climate change, they are designed to increase consumers' use of fossil fuels in order to advance API's core mission of growing its member companies' oil and natural gas businesses.

193. In short, Defendants' greenwashing campaigns are the latest front in their decades-long efforts to deceive the public about climate change. No longer able to deny climate science with any credibility, they now hold themselves out as leaders in the fight against climate

[175] Kim Sheehan, "This Ain't Your Daddy's Greenwashing: An Assessment of the American Petroleum Institute's Power Past Impossible Campaign", *in* Matthew Rimmer, ed., Intellectual Property and Clean Energy, 301-21 (2018).

[176] *See* American Petroleum Institute, "5 Ways We're Using Energy for Progress", America's Natural Gas and Oil (last visited Aug. 5, 2020), https://energyforprogress.org/the-basics/.

change by touting inconsequential or nonexistent investments in sustainable energy. In the meantime, they continue to grow their core business in fossil fuels that is driving global warming and its attendant climate consequences.

2. Defendants Continue to Extract, Produce, Market, and Sell Fossil Fuels at All-Time Record Rates

194. Defendants' greenwashing campaigns are a cover for their accelerating extraction, production, marketing, and sale of fossil fuels—the actual cause of climate change.

195. BP's 2019 Statistical Review of World Energy tallies more than 94.7 million barrels of oil equivalents produced per day worldwide in 2018, up from 83.1 million barrels in 2008. Global production of natural gas has also increased from approximately 7 million barrels per day in 2008 to 11.5 million barrels per day in 2018.[177]

196. The amount of fossil fuels combusted on Earth closely tracks the amount extracted, produced, and sold in the global marketplace. Global consumption of oil increased from 86.5 million barrels per day in 2008 to 98.5 million barrels per day in 2018, mirroring the increase in production from 83.1 to 94.7 million barrels.[178]

197. Defendants make up a substantial percentage of the increasing total global production and distribution of fossil fuels. Defendants also forecast steep increases in production in the next decade.

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[177] BP America, "BP Statistical Review of World Energy", 16, 19 (68th ed. 2019), https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2019-full-report.pdf.

[178] *Id.* at 20.

198. Exxon produced 3.95 million oil-equivalent barrels per day in 2019, an almost identical number to the number of barrels it produced in 2014.[179] This enormous figure drives home the immateriality of the 10,000 barrels of biofuels the company *hopes* to produce by 2025, even though it placed this paltry production at the center of its marketing.

199. Despite its newfound branding, Exxon plans a steep increase in production of fossil fuels in the near future. Between 2018 and 2030, Exxon intends to increase its oil production by 35%, facilitating a continued acceleration of atmospheric CO_2 concentrations that will speed global climate change and its attendant consequences.[180]

200. BP's greenwashed logo and Possibilities Everywhere campaign likewise conceal its corporate strategy to continue growing its production and sale of fossil fuels. In 2016, BP "identified a future growth target of 900,000 barrels of oil equivalent per day of production from new major projects by 2021" and "remain[s] on track to deliver that, having started up 24 of the 35 major projects needed to reach this target by the end of 2019."[181] Between 2018 and 2030, the company plans a further 20.1% increase in oil and gas production, belying purported commitments to shift its focus to low carbon energy.[182]

201. In 2016, together with its "Make the Future" campaign, Shell published a report titled "A Better Life with a Healthy Planet: Pathways to Net-Zero Emissions." The

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[179] *See* ExxonMobil, "Summary Annual Report", ExxonMobil (2014), https://corporate.exxonmobil.com/-/media/Global/Files/investor-relations/annual-meeting-materials/annual-report-summaries/2014-Summary-Annual-Report.pdf.

[180] Watts et al., *supra* note 159.

[181] BP America, "Energy with Purpose, BP Annual report and Form 20-F 2019" (2019), https://www.bp.com/en/global/corporate/investors/results-and-reporting/annual-report.html.

[182] Watts et al., *supra* note 159.

report's ambitious title is betrayed by a fine-print disclaimer: "[W]e have no immediate plans to move to a net-zero emissions portfolio over our investment horizon of 10-20 years."

202. The fine print reveals Shell's true intent. The company's production of oil and gas has increased substantially over the last decade. In 2019, Shell produced 3.67 million barrels of oil and gas for sale,[183] compared with 3.31 million barrels in 2010.[184] Like Exxon, it plans a sharper increase in production in the coming decade. Between 2018 and 2030, Shell plans to increase oil production by over 37%.[185] Thus, Shell is contributing to a pathway to accelerating global CO_2 concentrations, not the net-zero emissions it advertises to the public.

203. Despite the promises in its "We Agree" campaign, Chevron has similarly done nothing to slow its production of crude oil and natural gas over the last ten years. In 2010, the company produced 2.76 million barrels of net oil-equivalents per day and just over 5 million cubic feet of natural gas per day.[186] In 2019, those numbers increased to 3.06 million barrels of net oil equivalents per day and over 7 million cubic feet of natural gas per day.[187]

204. Scientists have established a "carbon budget" that establishes a cap on global emissions to keep future temperature increases under 1.5° Celsius (2.7° Fahrenheit). Planned oil production by Exxon, BP, Chevron, and Shell by 2030—driven in part by their plans

[183] Shell, "Annual Report and Accounts 2019" (2019), https://reports.shell.com/annual-report/2019/.

[184] Watts et al., *supra* note 159.

[185] *Id.*

[186] Chevron Corp., "2010 Annual Report", at 5 (2010), http://www.annualreports.com/HostedData /AnnualReportArchive/c/NYSE_CVX_2010.pdf.

[187] Chevron Corp., "2019 Annual Report", at XII (2019), https://www.chevron.com/-/media/chevron/annual-report/2019/documents/2019-Annual-Report.pdf.

to substantially increase production in the coming decade—will alone use up more than 5% of that carbon budget.[188]

205. In 2012, ConocoPhillips released a Sustainable Development Report in which they "recognize[d] that human activity, including the burning of fossil fuels, is contributing to increased concentrations of greenhouse gases (GHG) in the atmosphere that can lead to adverse changes in global climate."[189] The report's goals included "[u]nderstanding our GHG footprint," "[r]educing our GHG emissions," and "evaluating and developing technologies for renewable energy."[190]

206. Conoco Phillips' 10-K filing with the SEC from 2012, however, reveals the company's sole focus on producing fossil fuels for global distribution: "As an independent E&P company, we are solely focused on our core business of exploring for, developing and producing crude oil and natural gas globally." It further highlighted the company's "growing North American shale and oil sands businesses . . . and a global exploration program,"[191] making clear it had no intent to honor the commitments in its Sustainable Development Report.

207. Indeed, in 2019, ConocoPhillips produced over 700,000 of barrels of crude oil per day and over 2.8 million cubic feet of natural gas per day.[192]

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[188] Watts et al., *supra* note 159.

[189] ConocoPhillips, "Sustainable Development; Climate Change Position", at 17 (2012), http://static.conocophillips.com/files/resources/2012-sd-report.pdf.

[190] *Id.* at 17, 20.

[191] ConocoPhillips, Annual Report (Form 10-K) at 32 (Dec. 31, 2012), https://www.sec.gov/Archives/edgar/data/1163165/000119312513065426/d452384d10k.htm.

[192] ConocoPhillips, "2019 Annual Report", at 168 (2019), https://static.conocophillips.com/files/resources/2019-conocophillips-annual-report-19-0895.pdf.

208. Defendants produce a substantial percentage of the fossil fuels produced and sold worldwide. Their production of fossil fuels is now at an all-time high. Defendants' greenwashing campaigns do not, therefore, reflect their conduct. Instead, they conceal Defendants' continuing acceleration of their extraction, production, marketing, and sale of fossil fuels that has caused and will continue to cause devastating climate consequences for Hoboken.

3. Defendants Continue to Fund Climate Denial

209. Defendants' greenwashing campaigns also conceal their continued funding of organizations and scientists that deny climate change behind closed doors.

210. In 2007, Exxon released a Corporate Citizenship Report that promised to "discontinue contributions to several public policy research groups whose position on climate change could divert attention from the important discussion on how the world will secure the energy required for economic growth in an environmentally responsible manner."[193] Despite this opaque promise to stop funding misleading climate science, Exxon contributed over $13 million to think tanks and advocacy organizations denying climate science in the decade after the pledge (2008-2017), including over $1.5 million in 2017.[194]

211. The extent of Defendants' funding of climate denial groups continues to be shrouded in secrecy. Two of the most prominent funders of climate denial in the last two decades are DonorsTrust and Donors Capital Fund. Because they are classified as "donor-advised funds," they are not required to disclose the source of their funding, meaning many of their funding sources are not known to the public.

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[193] ExxonMobil, "Corporate Citizenship Report", at 39 (2007), https://grist.files.wordpress.com/2009/07/community_ccr_2007.pdf.

[194] ExxonMobil Foundation & Corporate Giving, *supra* note 143.

212. As Exxon's contributions to climate denial have ticked downward over the last decade (though, as noted above, still remain over $1 million per year), contributions to climate denial by DonorsTrust and Donors Capital Fund have shot upward. Between 2002 and 2011, DonorsTrust and Donors Capital Fund provided $146 million to climate denial groups.[195] Between 2016 and 2018, DonorsTrust alone has disbursed over $180 million to a variety of advocacy groups, a significant portion of which are focused on climate denial.

213. While many of DonorsTrust's and Donors Capital Fund's funders have remained untraceable, much of their funding has been traced back to powerful fossil fuel interests. For example, Charles Koch, the CEO of the oil and gas company Koch Industries, the second largest privately-owned company in the United States, has funneled more than $8 million to DonorsTrust through two of his foundations.[196]

214. On information and belief, one or more of Defendants have provided funds to DonorsTrust, Donors Capital Fund, and/or entities that have provided funds to one or both of them in the last decade.

215. In addition to funding research institutions denying climate science, Defendants also funded individual scientists to promote climate misinformation. From 2001 to 2012, Exxon, API, and other industry groups gave $1.2 million to Harvard-Smithsonian astrophysicist Dr. Wei-Hock Soon to publish research contending that solar variability is a primary driver of climate change,[197] a widely discredited theory that even the GCC had

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[195] Aliya Haq, "REVEALED: Donors Trust is the Secret ATM Machine for Climate Denier", GreenPeace (Feb. 15, 2013), https://www.greenpeace.org/usa/revealed-donors-trust-is-the-secret-atm-machine-for-climate-deniers/.

[196] *Id.*

[197] Kathy Mulvey & Seth Shulman, "The Climate Deception Dossiers: Internal Fossil Fuel Industry Memos Reveal Decades of Corporate Disinformation", Union of Concerned Scientists, at 6 (July 2015), https://www.ucsusa.org/sites/default/files/attach/2015/07/The-Climate-Deception-Dossiers.pdf.

dismissed as a "contrarian" theory in its draft 1996 primer on climate science presented to the IPCC.[198]

F. Much of Defendants' Deception Came to Light Recently

216. Proof that Defendants knew about the devastating climate impacts of fossil fuels at the time that they spearheaded their campaigns of deception came to light largely during the last few years through investigations by journalists and non-governmental organizations.

217. In July 2015, the Union of Concerned Scientists published the "Climate Deception Dossiers," a collection of 85 internal fossil fuel company and trade association documents that revealed numerous plans to deceive the public about climate change, including contracts that showed that Exxon, API, and other members of the fossil fuel industry funded Dr. Soon's research to deny fossil fuels' role in causing climate change.[199]

218. Later that same year, separate reports from *Inside Climate News* and *The Los Angeles Times* (in collaboration with the Columbia University Graduate School of Journalism) revealed the extent of Exxon's knowledge about the central role of fossil fuels in causing climate change going back to the 1970s. These reports were the result of interviews with former Exxon researchers and archival research of internal company documents.

219. Among other documents relied on in this complaint, these reports revealed minutes of the API's 1980 task force meeting at which Exxon, BP, and Chevron executives were warned of "globally catastrophic consequences" of climate change caused by fossil fuels, *see supra* ¶ 93; Henry Shaw's 1981 memo to Exxon's President of Research and Engineering outlining the likely catastrophic consequences of the doubling of atmospheric CO_2, see *supra*

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[198] Global Climate Coalition, *supra* note 105, at 13.

[199] Mulvey & Seth Shulman, *supra* note 197, at 6.

¶ 94; and the 1988 internal Exxon memorandum titled "The Greenhouse Effect" that memorialized the company's shift in corporate strategy to obfuscate and downplay the effect of fossil fuels on the climate, *see supra* ¶¶ 114-17.[200]

220. In 2017, the Center for International and Environmental Law published a comprehensive report demonstrating how API, together with the Fossil Fuel Company Defendants, had superior knowledge about the harmful climate impacts of fossil fuels as early as the 1950s and played a central role in campaigns to deceive the public about climate science.[201]

221. These reports, which form the factual predicate for much of the campaign of deception that is at the heart of Defendants' unlawful conduct, shed light for the first time on the depth of Defendants' superior knowledge of the "globally catastrophic" climate impacts of fossil fuels in the decades before they systemically lied to the public about those impacts.

G. Defendants' Conduct Has Caused Devastating Damage to Hoboken and Threatens More Severe Damage in the Future Without Immediate and Expensive Remediation.

222. The acts and omissions of Defendants have, collectively, caused lasting and continuing harm to the City, its people, and its future.[202] These harms include, but are not limited to:

- Permanent inundation of City- and privately-owned property on account of sea-level rise caused by anthropogenic climate change, requiring large-scale and long-term engineering remediation;

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[200] *See* Katie Jennings et al., "How Exxon Went from Leader to Skeptic on Climate Change Research", L.A. Times (Oct. 23, 2015), https://graphics.latimes.com/exxon-research/; Neela Banerjee et al.,"Exxon's Own Research Confirmed Fossil Fuels' Role in Global Warming Decades Ago", Inside Climate News (Sept. 16, 2015), https://insideclimatenews.org/news/15092015/Exxons-own-research-confirmed-fossil-fuels-role-in-global-warming.

[201] Ctr. for Int'l Envtl. Law, *supra* note 59.

[202] This Complaint disclaims injuries arising on federal property and those that arose from Fossil Fuel Company Defendants' provision of fossil fuel products to the federal government for military and national defense purposes.

- Increased frequency of flooding of City- and privately-owned property due to increased incidents of high-tide flooding, requiring both ongoing remediation costs, as well as large-scale and long-term engineering remediation;

- Inundation of key public utilities, including sewage facilities, due to increased flooding and rising sea levels;

- Widespread destruction as a result of catastrophic storm events like Hurricane Irene and Superstorm Sandy, which are predicted to increase in severity and frequency due to anthropogenic climate change;

- Decreased property values and increased risks to health and safety of residents, with a disproportionate impact on minority and marginalized communities, with concomitant losses to the City's finances and public facilities;

- Increased long-term costs of flood insurance and related property costs to the City and City-provided public services due to increased frequency of flooding and above-normal water levels; and

- Increases in the frequency of vector-borne diseases, cardiovascular and nervous system illnesses, and asthma and allergies due to increased pollen and ground-level ozone, all caused by the increased frequency of high-heat days.

223. The City has already suffered devastating economic losses as a result of Defendants' conduct. Such economic losses include, but are by no means limited to:

- Hundreds of millions of dollars in damages when Hurricane Irene and Superstorm Sandy—whose emergence and intensity were correlated to anthropomorphic climate change—inundated over 80% of the City and destroyed both public and private infrastructure. These losses include a massive drop-off in business activity in the City and reduction in City tax revenue;

- Over $500 million to implement the "Resist, Delay, Store, Discharge" plan, put into place after Superstorm Sandy, to address and remediate ongoing and projected harm from anthropogenic sea-level rise;

- Hundreds of millions of dollars in costs associated with upgrading and re-fitting transit connections to cope with frequent flooding;

- Roughly $25 million in costs to upgrade and refit local electricity distribution systems with "microgrid" technology;

- An average of $8 million/year in current flood insurance costs, with a large and growing proportion directly related to the increased risks of flooding due to anthropogenic climate change;

- Millions of dollars in costs associated with studying various climate impacts and creating remediation plans to address future harm; and

- Millions of dollars of lost tax revenue and opportunity costs due to flooding events.

224. Without expensive long-term abatement efforts, the City would face an existential threat, since over 78% of the City's landmass is within a coastal high hazard area, including almost the entirety of housing and services for its most vulnerable residents, especially residents of color. Long-term abatement, which is required as a direct result of Defendants' conduct, would require at least the following costs:

- Full and immediate implementation of the "Resist, Delay, Store, Discharge" plan;

- Funding research into the long-term loss of efficacy of remediation plans due to progressive rise in mean sea level and temperatures caused by intensifying anthropogenic climate change;

- Creating systems of large-scale engineering works to prevent or delay inundation due to rising sea levels;

- Retrofitting local services and facilities to deal with increased heat and flooding events;

- Increasing City services to vulnerable communities in the City, especially communities of color, that bear the brunt of climate events; and

- Creating "trust funds" to address long-term and increased costs, as well as projected reductions in revenues, to maintain such remediation projects over the coming decades.

1. Hoboken Is Uniquely Vulnerable to Anthropogenic Climate Change

225. Hoboken lies on the west bank of the Hudson River, across the River from New York City, and within the larger Hudson River tidal system. The City has approximately

1.5 miles of coastline and covers 1.25 square miles of land area, 78% of which is within the coastal high hazard area.

226. Hoboken, and the northeast United States more generally, face higher-than-average anthropogenic sea level rise, putting the City at even greater risk of catastrophic damage.

227. Research by Climate Central has found that 56% of homes in Hoboken are likely to be chronically inundated[203] by seawater by 2100, placing Hoboken among the 50 most vulnerable cities in the country to sea level rise.[204]

a. Hoboken's Topography and Layout Make It Uniquely Vulnerable

228. Hoboken is the fifth-densest city in the country, and has the largest population exposed to flood risk among all New Jersey cities: 53% of its residents, over 26,000 people in 14,000 homes, live less than five feet above the local high tide line.[205] Large sections of Hoboken are either below the normal high tide elevation or the normal storm high tide elevation, and many of the City's stormwater extraction outlets are now also either below normal high tide levels or normal storm high tide levels.[206]

229. The map below displays Hoboken's vulnerability to flooding during severe storms. It demonstrates that the vast majority of the City would be inundated with water

[203] Chronic inundation is defined as flooding that occurs 26 times or more per year.

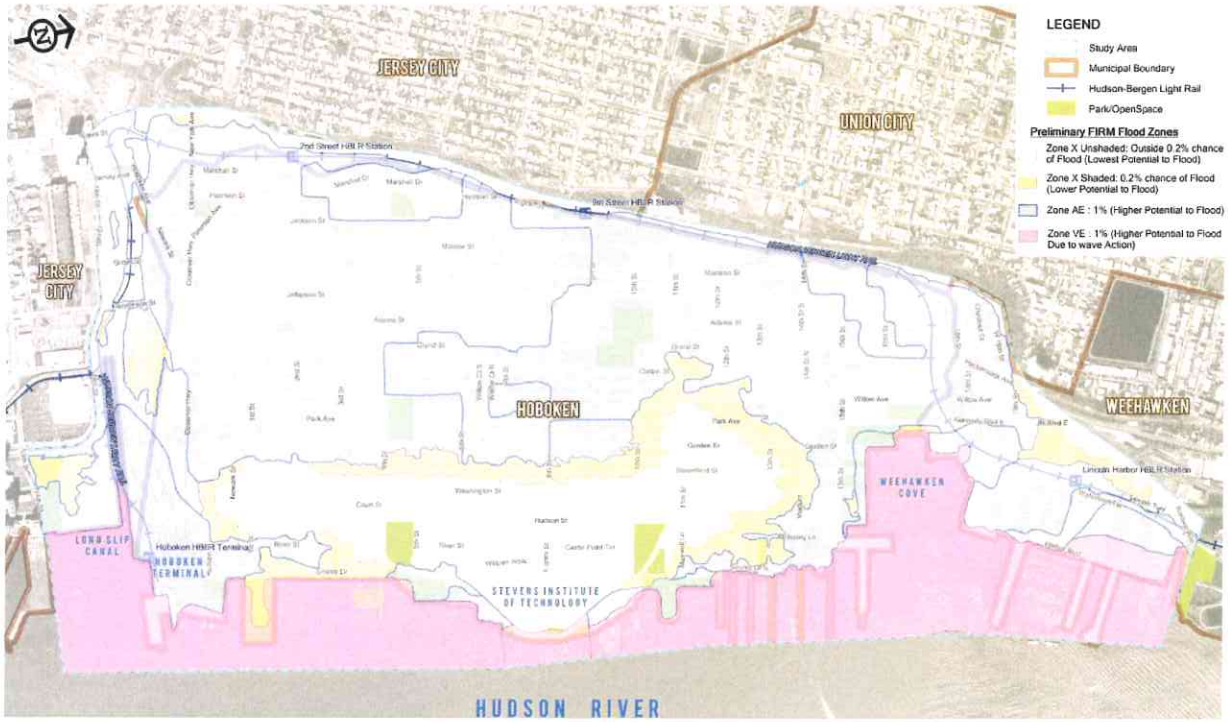
[204] Dahl, K., et al., "Underwater: Rising Seas, Chronic Floods, and the Implications for US Coastal Real Estate", Union of Concerned Scientists (2018), www.ucsusa.org/underwater.

[205] Center for Science and Democracy, "Fact Sheet: Hoboken's Post-Sandy Resiliency", at 3 (Feb. 2014), https://www.ucsusa.org/sites/default/files/2019-09/hoboken-post-sandy-resilience.pdf.

[206] OMA, "Resist, Delay, Store, Discharge: A Comprehensive Urban Water Strategy", at 8 (2014), http://www.rebuildbydesign.org/data/files/673.pdf.

in a "1% storm," one that has a 1% chance of occurring in an average year, and all but a small number of blocks would be inundated with water in a "0.2% storm," one that has a 0.2% chance of occurring in a given year.[207]

Figure 12: Areas of Hoboken Flooded in Different Flood Scenarios[208]



230. Unlike more sparsely populated communities along the Jersey Shore, Hoboken has a dense population and a high concentration of buildings and infrastructure, exposing more people and more property to flood risks. All but one of Hoboken's fire and EMS stations, hospitals, libraries, community centers, rail and ferry stations, sewage plants, and major hazardous waste sites are below the five-foot mark, along with 57% of its houses of worship,

[207] City of Hoboken, "Resilient Building Design Guidelines", N.J. Departmentof Community Affairs, at 44 (Oct. 19, 2015), https://betterwaterfront.org/wp-content/uploads/2016/05/Resilient-Buildings-Design-Guidelines.pdf.

[208] New Jersey Department of Environmental Protection, Rebuild By Design – Hudson River Final Environmental Impact Statement (FEIS), at 1-5 (2017), https://www.nj.gov/dep/floodresilience/docs/rbdh-feis/chapter-01-introduction-rbd-hr-feis.pdf.

57% of its roads, and 50% of its schools.[209] With 94% impervious coverage, Hoboken is particularly vulnerable to flooding.[210]

231. Hoboken's communities of color are disproportionately at risk: 52% of the City's white residents live below the five-foot mark, compared to 57% of non-white residents and 62% of black residents.[211] Almost all of the City's public housing facilities, Title IX facilities, senior facilities, and low/moderate income properties are within the 1% flood hazard area.[212] Nearly Hoboken's entire population is considered more socially vulnerable than that of other New Jersey communities and their ability to address and react to natural disasters may be hindered by such socioeconomic factors as Hoboken residents' income level, education, age, family structure, language, housing, and access to a vehicle.[213] As became clear during Supertorm Sandy, it was already marginalized communities who were left most vulnerable from climate change harm.

232. Due in large part to anthropogenic sea level rise, there is now over a one-in-six chance that storm surges of more than five feet will take place before 2030, potentially inundating at least the above listed areas of the City. Hoboken is likely to experience at least one

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[209] Center for Science and Democracy, *supra* note 205.

[210] City of Hoboken, *supra* note 207, at 4.

[211] Deborah Bailin, "Case Study: Hoboken's Post-Sandy Resilience: Learning from the Past, Rebuilding for the Future", Union of Concerned Scientists, at 4 (Jan. 2014), [hereinafter Hoboken Case Study], https://www.ucsusa.org /sites/default/files/2019-09/hoboken-case-study-final.pdf.

[212] Hudson County Hazard Mitigation Plan, at 9.6-19 to 9.6-21, 9.6-27 to 9.6-31 (Apr. 2020); City of Hoboken Proposed Stormwater Management Plan Health Impact Assessment, Draft Final Report, at 2 (2016).

[213] Center for Science and Democracy, *supra* note 205; Hoboken Health Impact Assessment, *supra* note 212, at 2-3.

flood over six feet before 2050.[214] Without expensive remediation and abatement measures, all of the areas listed above could be inundated in such a flood.

Figure 13: Areas of Hoboken Vulnerable to Five Feet of Flooding[215]

b. Hoboken Is Part of a Region at Higher Risk of Significant Sea Level Rise

233. The rate of sea level rise in New Jersey averaged 0.11 inches per year from 1850 to 2017, as confirmed by NOAA.[216] Since 1993, the rate of sea level rise in New

[214] Climate Central (Revised 2018). "Risk Finder: Hoboken, New Jersey, USA". Surging Seas. https://riskfinder.climatecentral.org/place/hoboken.nj.us?comparisonType=city-ward&forecastType=NCA_hi&level=6&unit=ft.

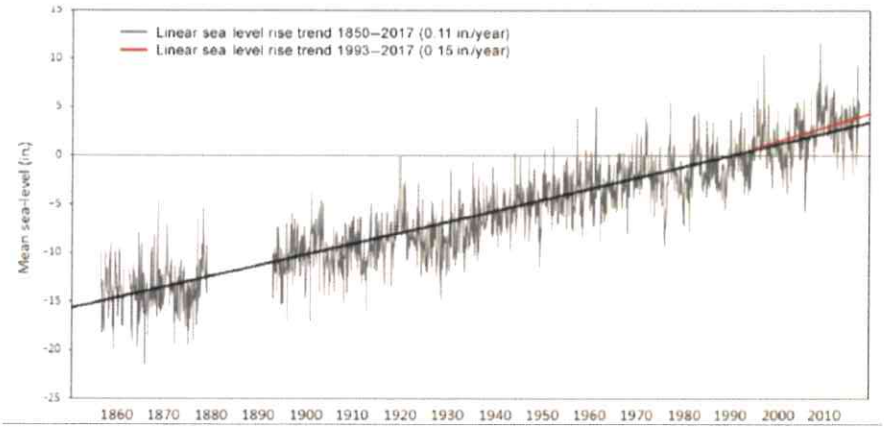
[215] Center for Science and Democracy, *supra* note 205.

[216] Hoboken's nearest NOAA-operated tide gauge is at The Battery in New York City (Station #8518750), which provides the most accurate historical measurements of sea-level changes across time. *See* NOAA,. "Tides & Currents, http:// www.tidesandcurrents/noaa.gov.

Jersey has increased to an average of 0.15 inches per year, more than twice the global rate.[217] The Rutgers Climate Institute estimates that sea level affecting the Hoboken coastline could rise between 13 and 28 inches by 2050.[218] New Jersey could see more than six feet of sea level rise by the end of the century. If destabilization of the Antarctic Ice Sheet occurs more rapidly than standard sea level rise models assume, New Jersey could see up to nine-and-a-half feet of sea level rise by the end of the century.

234. The graph below shows trends in sea level rise at the nearby New York City Battery. It shows two trendlines—one for 1850-2017 and the other for 1993-2017. The latter indicates the accelerating pace of sea level rise in and around Hoboken.

Figure 14: Sea Level Rise Trends at the Battery[219]



235. The rate of nuisance flooding, also known as high-tide or sunny-day flooding, is accelerating in New Jersey and the surrounding area. Prior to the year 2000, there

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[217] Vivien Gornitz, et al. (2019), "New York City Panel on Climate Change Chapter 3: Sea Level Rise" *Annals of the New York Academy of Sciences*, 71-94. https://nyaspubs.onlinelibrary.wiley.com/doi/epdf/10.1111/nyas.14006. [hereinafter Gornitz, V., et al. (2019). NYC Panel on Climate Change Chapter 3: Sea Level Rise.]

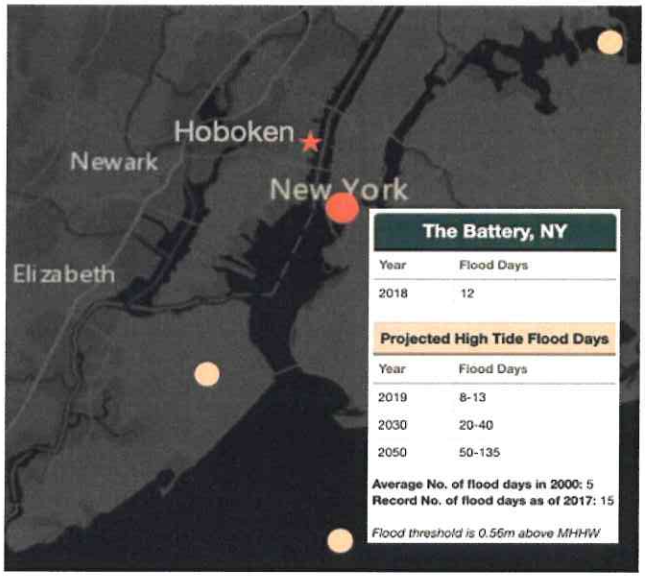
[218] City of Hoboken, "Hoboken Climate Action Plan & Greenhouse Gas Emission Inventories," at 11 (April 2019), https://assets-global.website-files.com/58407e2ebca0e34c30a2d39c/5cbdc6384d171d56298cda1e_Hoboken%20Climate%20Action%20Plan.pdf.

[219] Figure modified from NOAA (2017). *See* http:// www.tidesandcurrents/noaa.gov.

were an average of 5 annual nuisance floods recorded by The Battery tide gauge, which is the closest NOAA tide gauge to Hoboken. The recent increases in this rate of flooding—within the last three years—have been alarming. The region faced 12 flood days in 2018, and by 2050, NOAA estimates that nuisance flooding will occur between 50-135 days out of the year.[220]

236. The map below shows historic and high-tide projected flood days at The Battery tide gauge, marked by the red circle. Beige circles indicate the locations of the other regional tide gauges operated by NOAA. The red star indicates the location of Hoboken.

Figure 15: Expected Increases in High Tide Flood Days[221]



237. The First Street Foundation estimates that the number of properties at risk of flooding in Hoboken will increase by 91.3% over the next fifteen years, and by 182.7% over the next thirty years.

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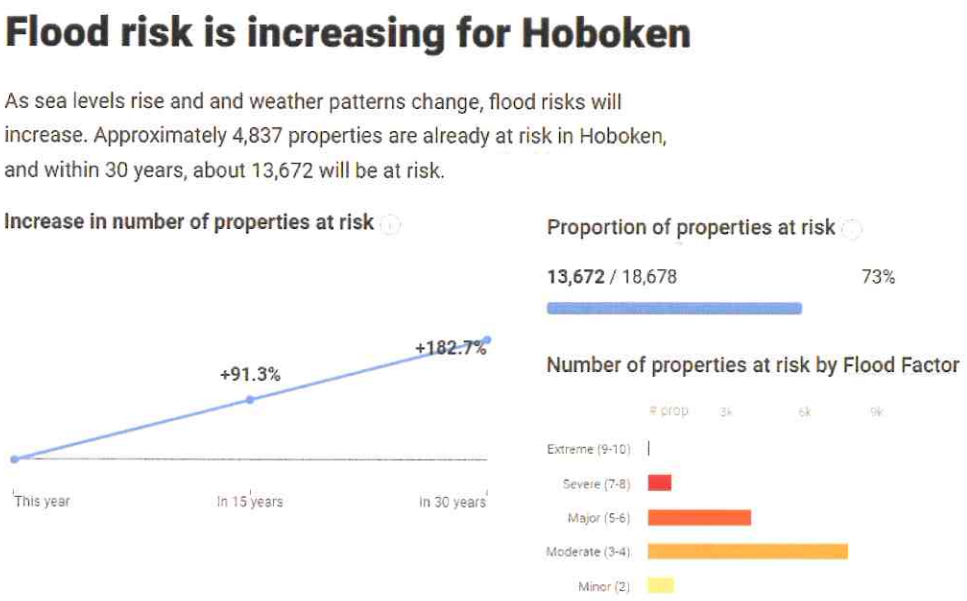
[220] William Sweet, et al. "2018 State of U.S. High Tide Flooding with a 2019 Outlook", NOAA Technical Report NOS CO-OPS 090. (June 2019), https://tidesandcurrents.noaa.gov/publications/Techrpt_090_2018_State_of_US_HighTideFlooding_with_a_2019_Outlook_Final.pdf.

[221] Figure modified from Sweet et al. (2019), *see* https://tidesandcurrents.noaa.gov/tideOutlook2019/.

Figure 16: Expected Increases in Properties at Risk of Flooding[222]



238. This increased flooding risk in the region, evident in the increased incidence of high tide flooding in the last three years, has made it clear that the City faces a unique and growing challenge from anthropogenic sea level rise.

c. Hoboken Has Suffered (and Will Continue to Suffer) Increased Temperatures and Extreme Precipitation Events

239. In addition to sea level rise and associated flooding risks, anthropogenic climate change poses specific risks to Hoboken from rising temperatures and disruptions in the hydrological cycle, which in turn result in extreme precipitation events.

240. Mean annual temperature in New Jersey has increased by over 3˚F over the past century, and those temperature increases are expected to continue to accelerate.[223] The

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[222] Figure modified from FloodFactor: Hoboken, https://floodfactor.com/city/hoboken-newjersey/3432250_fsid#score_map.

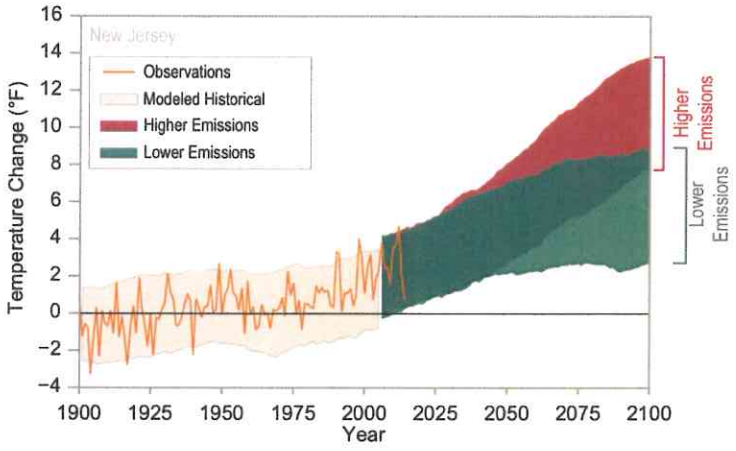
[223] Jennifer Runkle, et al., "New Jersey State Climate Summary", NOAA Technical Report NESDIS 149-NJ (2017), https://statesummaries.ncics.org/chapter/nj/.

New Jersey Climate Alliance predicts that by 2050, 70% of New Jersey summers will be warmer than the current record for warmest summer in the state.[224]

241. Hoboken is particularly vulnerable to rising temperatures because its urban infrastructure will add to the heat load of buildings and exacerbate urban heat islands—on some days, air in urban areas can be more than 20° Fahrenheit warmer than in other areas.[225]

242. The graph below shows temperature increases from 1990 to 2014 and projected increases from 2006 to 2100 under lower and higher emissions scenarios.

Figure 17: Projected New Jersey Temperature Increases[226]



243. Rising temperatures contribute to an increased risk of vector-borne disease, cardiovascular and nervous system illnesses, heat-related deaths, and asthma and allergies due to increased pollen and ground-level ozone.[227]

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[224] City of Hoboken, *supra* note 218.

[225] U.S. Environmental Protection Agency, "Reducing urban heat islands: Compendium of strategies" (2008), https://www.epa.gov/heat-islands/heat-island-compendium.

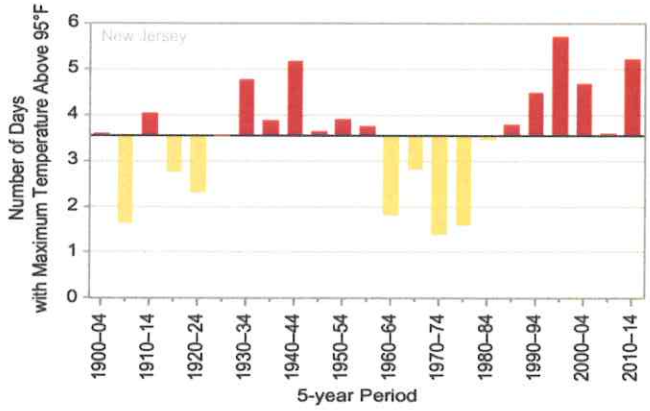
[226] Figure from Jennifer Runkle et al. (2017), *see supra* note 223.

[227] "What Climate Change Means for New Jersey", *U.S. Environmental Protection Agency*, EPA 430-F-16-032 (Aug. 2016); The City of Hoboken, *supra* note 218.

244. Rising mean temperatures also lead to more extreme-heat days (defined as days with temperatures above 95°F), which put pressure on human health and public infrastructure.[228] The number of extreme-heat days per year in New Jersey has been near or above the long-term average since the late 1980s and such days are projected to occur more frequently in the future.[229]

245. The graph below shows the number of days observed in New Jersey with a maximum temperature above 95° F. The dark horizontal line represents the long-term average (1900-2014).

Figure 18: Extreme Heat Days in New Jersey[230]



246. Such extreme heat days can cause severe health problems, including among children. Rates of hospitalization and death from heat-related illnesses are directly and non-linearly related to increases in temperature, with rates of deaths in cities in the northeast

[228] Kristina Dahl,, et al., "Killer Heat in the United States: Climate Choices and the Future of Dangerously Hot Days," Union of Concerned Scientists (July 2019), https://www.ucsusa.org/resources/killer-heat-united-states-0.

[229] Jennifer Runkle, et al. (2017), *supra* note 223.

[230] Figure from Jennifer Runkle et al. (2017), *supra* note 223.

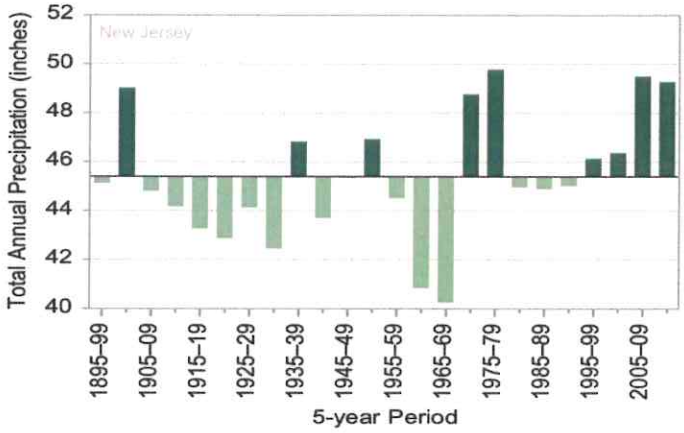
increasing dramatically as temperatures cross 70° F.[231] Climate change could cause a 55% increase in summer heat-related mortality in the 2020s alone, especially in urban areas.[232]

247. This increase in temperatures, associated with anthropogenic climate change, also has knock-on effects on the hydrological cycle, which leads to changes in rainfall patterns in Hoboken.

248. Observed average annual precipitation in New Jersey has increased 5-10% during the last century[233] and has been above average for the last two decades.[234]

249. The graph below shows five-year average observed annual precipitation in New Jersey, with the dark horizontal line representing the long-term (1895-2014) mean.

Figure 19: Observed Annual Precipitation in New Jersey[235]



[231] Frank C. Curriero, et. al, "Temperature and Mortality in 11 Cities of the Eastern United States," *American Journal of Epidemiology*, 155:1 (2002), 80–87.

[232] New Jersey Department of Environmental Protection, Scientific Report on Climate Change, at viii (2020), https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf.

[233] EPA, *supra* note 227.

[234] Jennifer Runkle, et al., *supra* note 223.

[235] *Id.*

250. Climate models predict that anthropogenic climatic changes could lead to intensified river flooding during the winter and spring, and drought during the summer and fall.[236] This would intensify the problems with flooding that Hoboken already faces due to rising sea levels.

251. Since 2005, the number of extreme precipitation events (days with more than two inches of rain) per year in New Jersey has also been above the long-term average, and the five-year period from 2010 to 2014 had the highest recorded number of extreme precipitation events since the beginning of the observed record.[237] Over the last 50 years, in New Jersey, storms that resulted in extreme rain increased by 71%, which is a faster rate than anywhere else in the United States.[238]

252. The amount of precipitation from extremely heavy storms has increased 70% in the northeast since 1958 and climate models predict that extreme precipitation events will occur more frequently as the climate warms.[239] This includes weather events like North Atlantic hurricanes (like Irene, Sandy, and Fay), which have increased in frequency due to higher sea temperatures, and are expected to become more intense.[240]

253. The graph below shows observed extreme precipitation events in New Jersey from 1895 to 2015, with the dark horizontal line representing the long-term mean over that period. The graph shows an increase in extreme precipitation events in the last two decades.

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[236] EPA, *supra* note 227.

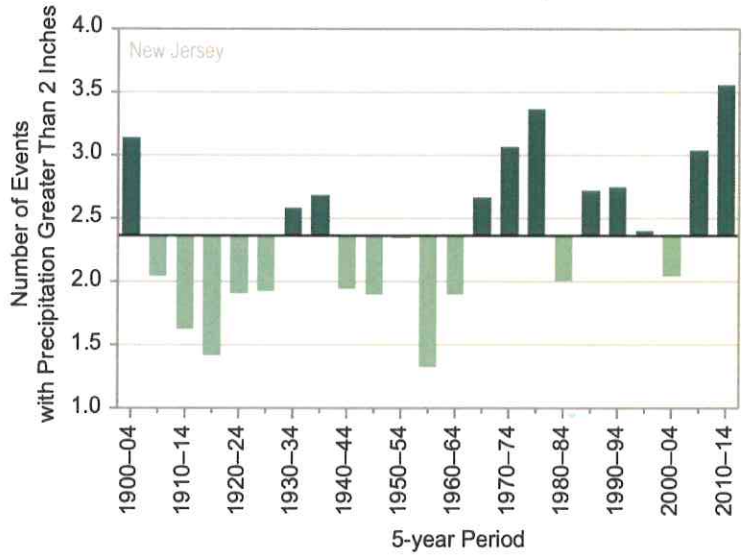
[237] Jennifer Runkle, et al. (2017), *supra* note 223.

[238] New Jersey Department of Environmental Protection, *supra* note 232, at ix.

[239] EPA, *supra* note 227.

[240] New Jersey Department of Environmental Protection, *supra* note 232, at viii-ix.

Figure 20: Observed Extreme Precipitation Events in New Jersey[241]



254. Notably, two extreme weather events—Hurricane Irene and Superstorm Sandy—recently devastated Hoboken and put the issue of anthropogenic climate change, and Defendants' complicity in causing these harms, in stark perspective.

2. Hurricane Irene and Superstorm Sandy Cast the Threat from Anthropogenic Climate Change into Stark Relief

255. The threat to Hoboken from climate change became concrete in the 2010s, with two major storms wreaking havoc on the City's infrastructure. First, on August 27 and 28, 2011, Hurricane Irene hit the New Jersey coast with unprecedented amounts of rainfall, causing flooding throughout Hoboken and leading to raw sewage flowing through the streets. Thousands of properties were inundated. It was the first time a hurricane had made landfall in New Jersey since 1903.[242]

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[241] Figure from Jennifer Runkle, et al. (2017), *supra* note 223.

[242] United States Geological Survey, "Summary of Flooding in New Jersey Caused by Hurricane Irene" (2011), https://www.usgs.gov/center-news/summary-flooding-new-jersey-caused-hurricane-irene-august-27-30-2011?qt-news_science_products=2#qt-news_science_products.

256. Irene was a high-precipitation event in Hoboken, with the storm dumping up to ten inches of rain in the region over the course of 18 hours.[243] The hurricane came in a month that had already set the record for the wettest month since 1895, and caused extensive flooding,[244] up to five feet in places in Hoboken.[245] The storm spurred efforts by the Public Service Electric and Gas, the local utilities provider, to review storm resiliency measures.

Figure 21: Areas of Hoboken Flooded During Irene[246]

[243] *Id.*

[244] *Id.*

[245] Katie Colaneri, "Amphibious truck delivering supplies to southwest Hoboken where flood waters are up to 5 feet deep," The Jersey Journal (Aug. 28, 2011), https://www.nj.com/hobokennow/2011/08/amphibious_truck_delivering_su.html.

[246] Modified from Flood Factor: Hoboken, *supra* note 222.

257. Luckily, Hurricane Irene did not arrive with a record-breaking storm surge in New Jersey. Just over a year later, on October 29, 2012, Superstorm Sandy swept across the Eastern Seaboard of the United States and inundated Hoboken with nearly 466 million gallons of storm surge,[247] causing over $250 million in direct damage,[248] and many tens of millions of dollars in additional downstream costs.

258. The storm's tidal surge left roughly 80% of the City underwater, stranded 20,000 residents, and left nearly 23,000 electricity customers without power.[249] Schools remained closed and businesses suffered catastrophic losses. Over 1,700 homes were flooded and the City's then-mayor stated that the City "filled up . . . like a bathtub."[250]

259. Major transit connections in the region were similarly shut. Of the thirteen stations on the PATH, the rapid rail transit system connecting northeastern New Jersey cities to Manhattan, Hoboken's was the hardest hit by Sandy and was the last to reopen, remaining closed for almost three months. Repairs so far have cost tens of millions of dollars to the City of Hoboken *alone*, and hundreds of millions of dollars across City and State agencies, and repairs and mitigation projects across the system are still being made.

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[247] City of Hoboken, "Hoboken: Sustainability and Resiliency", https://www.hobokennj.gov/resources/sustainability; New Jersey Department of Environmental Protection, *supra* note 208, at 1-8 (2017).

[248] OMA, *supra* note 206, at 20; City of Hoboken, *supra* note 218, at 1-10.

[249] Hoboken Case Study, *supra* note 211, at 6.

[250] Eric Jaffe, "The Water Next Time: How nature itself could become a city's best defense against extreme weather", The Atlantic (Dec. 2014), https://www.theatlantic.com/magazine/archive/2014/12/the-water-next-time/382242/.

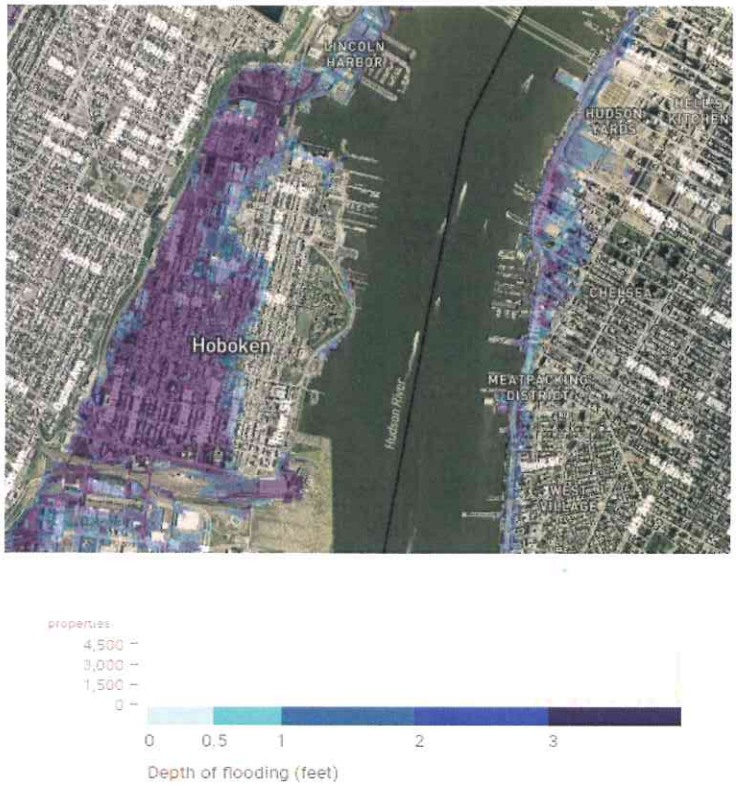
Figure 22: Photograph of Superstorm Sandy Street Flooding[251]

260. As noted earlier, Sandy was particularly devastating to lower-income and more vulnerable residents of Hoboken, many of whom lacked the means to evacuate or otherwise protect themselves. The Hoboken Housing Authority—located in the low-lying Western part of Hoboken—suffered hundreds of thousands of dollars of damage. Residents, many of whom were already vulnerable, were trapped without power and water as the flood waters rose.

261. The map below shows areas of Hoboken inundated by water during Superstorm Sandy. It shows that a majority of the City was inundated by upwards of three feet of water as a result of the storm, including practically the entirety of the Western sections of the City. Extant sea level rise added substantially to both the level of water inundating Hoboken's residents and the areas that were flooded.

[251] Michael Bocchieri/Getty Images

Figure 23: Areas of Hoboken Flooded During Sandy[252]



262. By the year 2030, storms that result in flooding on the scale of Superstorm Sandy could occur much more frequently.[253]

263. Since Sandy, and catalyzed in part by that storm and Hurricane Irene, Hoboken has become a world leader in sustainability and climate-conscious urban planning, developing a cutting-edge Climate Action Plan.[254] The City declared in 2017 that "[a] sustainable and resilient Hoboken will be an environmentally, socially, and economically healthy

[252] Modified from Flood Factor, *supra* note 246.

[253] Hoboken Climate Action Plan (April 2019), *supra* note 218, at 11.

[254] *Id.*

community that allows future generations of residents to meet and exceed our quality of life."[255] It is doing so with a particular eye to making sure its most vulnerable residents are protected from the devastating effects of climate change. The City has purchased only renewable electricity for municipal facilities since 2019 and has committed to making municipal government operations net-zero energy by 2025 and carbon neutral by 2035. The City, as a whole, will be net-zero energy by 2030 and will be carbon neutral by 2035.[256] Thanks to its efforts, Hoboken was named a Role Model City by the United Nations Office for Disaster Risk Reduction, only the second city in the United States to be granted that distinction.[257] It is also the only city in New Jersey to be granted a LEED Gold certificate.[258]

3. Hoboken Experiences Back-to-Back Deluges in July 2020

264. The effects of accelerating climate change continue to devastate Hoboken today. In July 2020, two intense rainstorms pounded the City in a span of less than two weeks. The rainfall in both storms was so severe that each had a less than 5% chance of occurring in a given year.

265. On July 10, Tropical Storm Fay dumped more than three inches of rain on Hoboken in just six hours, representing more than two-thirds of the City's average rainfall for the

[255] City of Hoboken, "City of Hoboken Master Plan: Green Building and Environmental Sustainability Element", at 13 (Dec. 2017), https://www.dropbox.com/s/faebxwf715vfaeo/GBES_Draft_Public_v3_lowres.pdf?dl=0.

[256] City of Hoboken, "City of Hoboken Climate Action Plan and Greenhouse Gas Inventories", https://www.hobokennj.gov/resources/greenhouse-gas-emissions-inventory-and-climate-action-plan; Hoboken Climate Action Plan (April 2019), *supra* note 218, at 14-18.

[257] UNDRR, "UN Recognizes Hoboken as a Role Model City" (3 Mar. 2015), https://www.undrr.org/news/un-recognizes-hoboken-role-model-city.

[258] City of Hoboken, "Hoboken Certified as LEED Gold City for Sustainability Efforts", https://www.hobokennj.gov/news/hoboken-certified-as-leed-gold-city-for-sustainability-efforts.

entire month. Fay was an atypical storm in that it developed off the mid-Atlantic, further north and west than tropical storms usually form.

266. On July 22, severe thunderstorms drenched Hoboken with rainfall so intense that, for a brief period, it fell at a rate too fast for Hoboken's rain gauges to measure. More than one inch of rain fell in just one ten-minute span, and more than two inches fell in the course of two hours.

267. Hoboken's adaptation measures, described in greater detail below, mitigated what would have been much worse flooding from both storms. Still, both storms flooded several city blocks, interrupting transit and forcing some residents to evacuate.

268. Hoboken also narrowly skirted severe damage from a third storm within a month when, on August 4, Tropical Storm Isaias raked the U.S. East Coast with heavy rain and strong winds. Wind gusts as high as 78 miles per hour were recorded in New York City and more than three inches of rain fell in parts of New Jersey, where 1.4 million customers lost power. While the worst of the damage stayed just to Hoboken's west, Isaias drives home the increasing severe weather threat facing the City and the region as a result of anthropogenic climate change.

4. The City Has Had to Expend Vast Sums to Protect Against Harm Caused by Anthropogenic Climate Change

269. After the devastation caused by Hurricane Irene and Superstorm Sandy, the City was forced to engage in a long-term remediation project to attempt to abate the harm caused by anthropogenic climate change to Hoboken and its residents. That effort has cost hundreds of millions of dollars already and will require hundreds of millions of dollars of further investment in the future. These costs are a direct and foreseeable effect of Defendants' acts and omissions, and were caused in substantial part by those acts and omissions.

270. The central pillar of the City's project to defend against rising sea levels is a plan titled "Resist, Delay, Store, Discharge: A Comprehensive Strategy for Hoboken," developed by the City in collaboration with international experts in the field.[259] That project itself cost over $10 million to plan.

271. The plan requires multiple interventions, including:

- Building flood protection along high-risk areas of the waterfront, to protect against higher storm surges caused by anthropogenic climate change;
- Purchasing acres of land to build parks and terraced wetlands that can absorb excess water in floods;
- Refitting buildings around the City with "green roofs" that are designed to reduce urban heat islands and to absorb precipitation;
- Building underground cisterns and retention basins to store excess water; and
- Building pumps to expel stored water once storm surges retreat.

272. While this plan has earned the City plaudits for being a "Role Model City" for resiliency, its cumulative costs total over $500 million.[260] These include projected spending of $140 million by the City solely under the "Delay" and "Store" portions of the water management plan.[261] Operating expenses are estimated at over a million dollars annually.

273. The City's total annual budget in 2019 was $112 million.

274. In parallel, the City has incurred further costs relating to adapting its water and sewage systems to cope with the flooding predicted to occur due to climate change.

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[259] OMA, *supra* note 209.

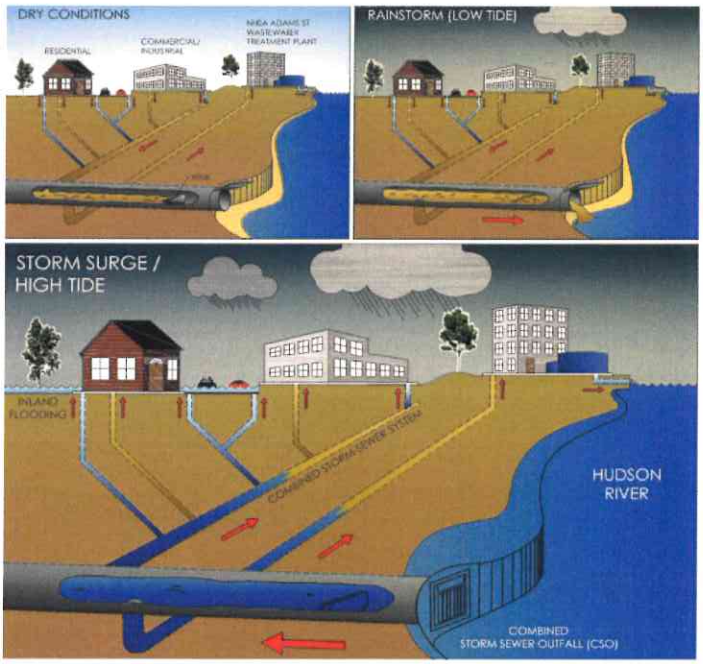
[260] Initial capital estimates were placed at $470 million, with an additional $7.8 million annually. *Id.*, at 20.

[261] Mary A. Williams, "Could Hoboken Become a National Model for Storm Resiliency?" NJTV News (June 28, 2019), https://www.njspotlight.com/2019/06/19-06-27-could-hoboken-become-a-national-model-for-storm-resiliency/.

275. During rainy days, precipitation in the City is drained through the wastewater system to water treatment facilities. During extreme precipitation events, the normal sewage system cannot process these increases and overflow pipes deliver this water into the Hudson River. During high tides, such drainage is impossible because the River level is above the level of the discharge pipes. Water and sewage then back up into the City and cause localized flooding, leading to extensive damage to City and private property, as well as significant health hazards.[262]

276. The depictions below show how Hoboken's water and sewage systems are rendered ineffective by high tides and storm surges.

Figure 24: Hoboken's Drainage System[263]



[262] City of Hoboken, "Rainfall Flood Mitigation", https://cityofhoboken.maps.arcgis.com/apps/Cascade/index.html?appid=65c107f7e6984c4ca988c84ae406d27f; Department of Environmental Protection, "Chapter 1: Rebuild By Design, Executive Summary", at ES-5, https://www.nj.gov/dep/floodresilience/docs/rbdh-feis/executive-summary-rbd-hr-feis.pdf.

[263] New Jersey Department of Environmental Protection, *supra* note 208, at 1-7 (2017).

277. As noted above, anthropogenic climate change has already caused increased precipitation and increased extreme precipitation days, as well as higher sea levels. Thus, Defendants' acts and omissions have made it imperative for the City to take steps to restructure its wastewater system.

278. The City has taken on substantial costs in coordination with the North Hudson Sewerage Authority to create a Long-Term Control Plan for water and sewage in the area.[264] This plan includes creating systems for capturing water runoff so as not to overwhelm the sewage system, protecting sewage treatment facilities from flooding, and returning excess water to the watershed when able. The cost of these interventions could be over $30 million in the short term, with expected costs in the hundreds of millions of dollars long term.

279. The City plans to construct tanks and filtering facilities around Hoboken to assist with this project, in addition to constructing storage structures below ground, creating permeable surfaces around the City to absorb water, replacing weirs, and installing pumping facilities in several neighborhoods.[265]

280. Further interventions are needed to protect Hoboken's electricity distribution system, which was shown to be incapable of handling extreme weather events like Irene and Sandy that are now far more likely to take place as a result of Defendants' acts and omissions, as is evident from the extreme rainfall events of July 2020.

281. The City has developed a plan to adapt to increasingly extreme weather using microgrid technology that would power a mix of public and private buildings in the case of

[264] "CSO Long Term Control Plan", North Hudson Sewage Authority, http://www.nhudsonsa.com/thrive/cso.html.

[265] City of Hoboken, Rainfall Flood Mitigation, *supra* note 262; Rebuild By Design, Executive Summary, *supra* note 262, at ES-5-11.

a storm-driven outage. The cost is $25 million for just 20 buildings.[266] The cost of installing emergency generators at critical municipal facilities is over $1.3 million, new conduits cost over $2 million, and other interventions have cost millions of dollars. Hundreds of millions of dollars have also been invested in energy security by electricity providers.[267] These costs are borne by the City and its residents in the form of higher utility rates and lost opportunity costs.

282. Transit systems that are key to sustaining Hoboken's economy have also required extensive remediation to address harms emerging directly from Defendants' acts and omissions. In particular, local transit agencies have had to create plans to reroute and elevate train tracks and modify canals—an effort that is estimated to cost over $500 million dollars. These costs will also be borne by the State of New Jersey, the City, and its residents in the form of higher rates, taxes, and lost opportunity costs.

283. Costs associated with anthropogenic climate change also include estimated increases in flood insurance premiums by $40 million annually.[268] Hoboken has had to take measures to abate the risks from anthropogenic climate change to protect against rising premiums.[269]

284. Without these interventions, Hoboken would face billions of dollars of future costs, as a direct result of the acts and omissions of Defendants.[270] This would be in

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[266] David Dudley, "To Storm-Proof Hoboken, a Microgrid", Bloomberg (Aug. 24, 2016), https://www.citylab.com/solutions/2016/08/to-storm-proof-hoboken-a-microgrid/497144/.

[267] Hoboken Climate Action Plan (April 2019), *supra* note 218, at 5.

[268] OMA, *supra* note 206, at 21.

[269] Rebuild By Design, Executive Summary, *supra* note 262, at ES-5.

[270] *See* Rebuild By Design, Appendix M – Benefit Cost Analysis, https://www.nj.gov/dep/floodresilience/docs/rbd-fs/feasibility-report-appendices-m.pdf at 19 ($263.2 million in 10-year storm; $2,421.4 million in 50 year storm, and $3,617.9 million in 100 year storm for no "resist"); ($198.2 million for five year storm $262.7 million for ten year

addition to the City losing more than $64 million in annual tax revenue were properties on the floodplain lost.

285. Despite this extensive work, however, the designers of the "Resist, Delay, Store, Discharge" plan acknowledged that the limited resources available to the City meant that "[a] fully comprehensive solution is beyond our means."[271]

286. One significant reason for such limitations is that Defendants' past and ongoing acts and omissions have created a continuing and accelerating climate crisis, which will require the City to upgrade all of its resiliency measures as sea levels continue to rise and climate effects worsen. The resiliency systems put into place now will either become less effective over time, or will have to be supplemented with waterfront infrastructure investment.

287. Defendants' acts and omissions, carried out in large part to boost their own profits, are the actual, substantial, and proximate cause of these significant and mounting costs to the City, and these externalities are properly placed on Defendants, rather than on the City of Hoboken and its residents.

288. Defendants' actions were committed with actual malice, or were accompanied by a wanton and willful disregard of persons, including the City and its residents, who foreseeably might be harmed by their acts and omission.

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storm, $404.8 million for 25 year storm, $498.8 million for 50 year storm; and $562.2 million for 100 year storm at high tide if no Delay, Store, Discharge).

[271] OMA, *supra* note 206, at 5.

COUNT ONE
(Public Nuisance)
(Against the Fossil Fuel Company Defendants)

289. Plaintiff repeats and realleges the foregoing paragraphs as if the same were fully set forth at length herein.

290. New Jersey law prohibits Defendants from causing "an unreasonable interference with a right common to the general public."

291. Each Fossil Fuel Company Defendant, acting individually and in concert, has, by its conduct in manufacturing, marketing, distributing, and profiting from the sale of fossil fuels, caused adverse effects on a common right in the State of New Jersey, in Hudson County, and in the City of Hoboken. This conduct includes, but is not limited to, the following:

a) Defendants control every step of the supply, production, and distribution chain for their fossil fuel products, including crude oil, coal, and natural gas reserves, extracting these fossil fuels from the Earth; refining and marketing the products for sale, and distributing them for sale across the globe;

b) Defendants have extracted, marketed, and sold fossil fuels for more than fifty years with knowledge that the use of these fossil fuels causes global warming and its attendant climate impacts, including but not limited to sea level rise and extreme heat and precipitation, each of which has harmed Hoboken and required it to spend hundreds of millions of dollars on abatement and remediation;

c) Defendants, individually, through trade associations like API, and through front groups like ICE and the GCC, coordinated campaigns to

deceive the public about the known and foreseeable threats their fossil fuels posed to the climate in order to mislead consumers and turn public opinion against actions to restrict their extraction, production, and sale of fossil fuels;

d) Defendants spent millions of dollars funding think tanks and other groups working to sow doubt about the veracity of the science linking fossil fuels to global warming that their own scientists had helped to develop;

e) Between 1965 and 2017, the Fossil Fuel Company Defendants produced more than 12% of the world's fossil fuels; they continue to extract, produce, and sell fossil fuels at record rates today;

f) Defendant Exxon produced 3.95 million oil-equivalent barrels per day for sale in 2019 and plans to increase this production by 35% in the coming decade, while dedicating just 0.2% of its capital spending to low carbon energy sources from 2010-2018;

g) Defendant Exxon further gave more than $13 million to organizations that cast doubt on climate science between 2008 and 2017;

h) Defendant BP is working toward adding production capacity of 900,000 oil-equivalent barrels per day for sale between 2016 and 2021; it plans a further 20.1% increase in oil production in the next decade and dedicated under 3% of its capital expenditures to low carbon energy sources from 2010 to 2018;

i) Defendant Shell produced 3.67 million barrels of oil and gas per day for sale in 2019, a more than 10% increase from its production in 2010; it plans a further 37% increase in oil production in the next decade and dedicated just 1% of capital spending low carbon energy sources from 2010 through 2018;

j) Defendant Chevron extracted more than 3 million barrels of net oil equivalents per day for sale in 2019 and spent less than 1% of its capital expenditures on low carbon energy sources from 2010 through 2018; and

k) Defendant ConocoPhillips extracted more than 1.3 million barrels of net oil equivalents per day for sale in 2018, and has predicted continued growth in production.

292. At all times, Defendants' conduct was performed in locations within Defendants' control:

a) On information and belief, all key decisions were taken at the Defendants' corporate headquarters and other offices, including in New Jersey;

b) On information and belief, further actions were taken at locations within the control of Defendants, including at oil fields, coal mines, refineries, etc.; and

c) On information and belief, further actions were taken at locations within the control of Defendants, including by advertising agencies, consulting firms, and similar agents and employees of Defendants.

293. The public nuisance is substantial and unreasonable and affects rights common to the public. These effects include, *inter alia*:

a) the destruction of hundreds of millions of dollars of City- and privately-owned property due to flooding precipitated by or exacerbated by sea level rise due to anthropogenic climate change;

b) material deprivation of and/or interference with the use and enjoyment of public and private property in the City due to more frequent and extreme drought, more frequent and extreme precipitation events, increased frequency and severity of heat waves and extreme temperatures, and the associated consequences of those physical and environmental changes as described above;

c) loss suffered by the City and its residents due to loss of access to cultural, historic, and economic resources; damage to public health, safety, and general welfare; and the diversion of tax dollars away from other public services to the mitigation of and/or adaptation to climate change effects;

d) higher prices and lost opportunity costs due to investments needed by third-party service providers to remediate infrastructure to address anthropogenic climate change risks; and

e) loss of tax revenue due to depressed property values and the slowdown of economic activity due to anthropogenic climate change.

294. Plaintiff has suffered special injuries, different from that suffered by other members of the public. These include, *inter alia*:

a) the City's loss, as the owner and manager of unique public property and resources, of vast amounts of land and property in Hoboken;

b) increased costs of providing public services such as ensuring access to safe water, reliable electricity services, sanitary sewage systems, and effective transit to residents due to the effects of anthropogenic climate change, as described above;

c) significant anticipated reductions in revenue from taxes due to depressed property values and increased expenses due to rising insurance rates; and

d) large outlays to mitigate, remediate, and abate future effects of anthropogenic climate change through, *inter alia*, implementing the "Resist, Delay, Store, Discharge" plan.

295. Plaintiff became aware of this nuisance, in particular its scope and severity, after the destruction caused by Hurricane Irene and Superstorm Sandy in 2011 and 2012. Plaintiff has been made aware, further, of Defendants' actions within the last three years in maintaining a policy of disinformation and obfuscation around the risks of anthropogenic climate change, as well as their plans to continue and expand their program of manufacturing and selling massive amounts of fossil fuels, despite their knowledge of the risks of anthropogenic climate change.

296. The public nuisance is continuing and is causing harm that requires costly abatement measures. Further recurrence of such harm and inconvenience can be abated, albeit at great cost. For instance:

a) As described in this Complaint, Defendants have continued their campaign of disinformation into the present and have continued to accelerate their production and sale of fossil fuels. They have thus contributed to an ongoing public nuisance.

b) Defendants have stated publicly their intention to continue to produce, and in fact increase, their production, sale, and marketing of fossil fuels.

c) Plaintiff has worked with experts in remediation and abatement to develop plans to make the City resilient to the expected effects of anthropogenic climate change, including through the "Resist, Delay, Store, Discharge" plan. Abating this nuisance is possible, but would require full implementation of the plan, in addition to further measures as described above.

297. Defendants have a duty to abate this nuisance and continue to fail to act to prevent or abate it.

298. As described in this Complaint, Defendants knew and should have known that their conduct would cause the public nuisance that in fact took place.

299. As early as 1972, Defendants' own scientists had come to the conclusion that anthropogenic climate change would take place due to the increased production, marketing, and sale of fossil fuels, that the consequences of climate change could be catastrophic, and that Defendants and the general public had to act quickly to mitigate the worst injuries from climate change, including injuries to Hoboken. In fact, through their joint participation in the American Petroleum Institute, Defendants knew of these dangers as early as 1959, well before any such

knowledge was widely available to the public. Defendants took affirmative steps to both benefit from the nuisance by investing in technology that would only be usable after anthropogenic climate change accelerated, and by taking steps to insulate their own installations from the nuisance they were creating.

300. Instead of acknowledging the overwhelming weight of the evidence that their own scientists had compiled in the 1960s, 1970s, and 1980s, and sharing those findings with the general public, Defendants hid their data, muzzled their scientists, abruptly stopped further research, and then waged an active campaign of disinformation to discredit this science.

301. Defendants actions were, at the very least, a substantial factor in the creation of the nuisance. Together, Defendants have produced more than 12% of the world's fossil fuels since 1965, the combustion of which has been the driving force behind sea level rise, increasingly frequent and severe extreme precipitation events, and increasingly frequent extreme heat.

302. Without Defendants' actions, climate change effects from fossil fuel manufacturing, sale, and marketing would not exist in the form they exist today or would be much less severe.

303. All Defendants' actions were a direct and foreseeable cause of the public nuisance and concurrent and subsequent causes and actors do not break the causal chain.

304. Defendants' actions, including but not limited to creating disinformation regarding the natural and foreseeable effects of fossil fuels, were not condoned by or validated by public authorities.

305. Plaintiff is a public entity and seeks an order compelling the abatement of the public nuisance that Defendants created or assisted in the creation of, as well as costs

sufficient to allow Plaintiff to take actions to abate the harm and inconvenience caused by the actions of Defendants.

306. Plaintiff, suing in its capacity as a private plaintiff, seeks an award of damages for the special injury already suffered by Plaintiff, including, *inter alia*:

a) costs and losses relating to damage caused by Superstorm Sandy and similar events attributable to anthropogenic climate change;

b) costs relating to commissioning studies into abatement measures for addressing this public nuisance; and

c) costs expended in taking abatement and remediation measures so far, including as described above.

COUNT TWO
(Private Nuisance)
(Against the Fossil Fuel Company Defendants)

307. Plaintiff repeats and realleges the foregoing paragraphs as if the same were fully set forth at length herein.

308. New Jersey law prohibits Defendants from causing an "invasion of another's interest in the private use and enjoyment of land" where "the invasion is either (a) intentional and unreasonable, or (b) unintentional and otherwise actionable under the rules controlling liability for negligent or reckless conduct."

309. Each Fossil Fuel Company Defendant, acting individually and in concert, has, by its intentional unreasonable conduct, and certainly by its reckless and wanton and willful conduct, in manufacturing, marketing, distributing, and profiting from the sale of fossil fuels, caused an invasion of the City of Hoboken's land, preventing Plaintiff from its use and enjoyment of such land. This conduct includes, but is not limited to, the following:

a) Defendants control every step of the supply, production, and distribution chain for their fossil fuel products, including crude oil, coal, and natural gas reserves, extracting these fossil fuels from the Earth; refining and marketing the products for sale, and distributing them for sale across the globe;

b) Defendants have extracted, marketed, and sold fossil fuels for more than fifty years with knowledge that the use of these fossil fuels causes global warming and its attendant climate impacts, including but not limited to sea level rise and extreme heat and precipitation, each of which has harmed Hoboken and required it to spend hundreds of millions of dollars on abatement and remediation;

c) Defendants, individually, through trade associations like API, and through front groups like ICE and the GCC, coordinated campaigns to deceive the public about the known and foreseeable threats their fossil fuels posed to the climate in order to mislead consumers and turn public opinion against actions to restrict their extraction, production, and sale of fossil fuels;

d) Defendants spent millions of dollars funding think tanks and other groups working to sow doubt about the veracity of the science linking fossil fuels to global warming that their own scientists had helped to develop;

e) Between 1965 and 2017, the Fossil Fuel Company Defendants produced more than 12% of the world's fossil fuels; they continue to extract, produce, and sell fossil fuels at record rates today;

f) Defendant Exxon produced 3.95 million oil-equivalent barrels per day for sale in 2019 and plans to increase this production by 35% in the coming decade, while dedicating just 0.2% of its capital spending to low carbon energy sources from 2010 to 2018;

g) Defendant Exxon further gave more than $13 million to organizations that cast doubt on climate science between 2008 and 2017;

h) Defendant BP is working toward adding production capacity of 900,000 oil-equivalent barrels per day for sale between 2016 and 2021; it plans a further 20.1% increase in oil production in the next decade and dedicated under 3% of its capital expenditures to low carbon energy sources from 2010 to 2018;

i) Defendant Shell produced 3.67 million barrels of oil and gas per day for sale in 2019, a more than 10% increase from its production in 2010; it plans a further 37% increase in oil production in the next decade and dedicated just 1% of capital spending low carbon energy sources from 2010 through 2018;

j) Defendant Chevron extracted more than 3 million barrels of net oil equivalents per day for sale in 2019 and spent less than 1% of its capital expenditures on low carbon energy sources from 2010 through 2018; and

k) Defendant ConocoPhillips extracted more than 1.3 million barrels of net oil equivalents per day for sale in 2018, and has predicted continued growth in production.

310. At all times, Defendants' conduct was performed in locations within Defendants' control:

a) On information and belief, all key decisions were taken at the Defendants' corporate headquarters and other offices, including in New Jersey;

b) On information and belief, further actions were taken at locations within the control of Defendants, including at oil fields, coal mines, refineries, etc; and

c) On information and belief, further actions were taken at locations within the control of Defendants, including by advertising agencies, consulting firms, and similar agents and employees of Defendants.

311. The private nuisance is substantial and unreasonable. It includes, but is not limited to, the destruction of hundreds of millions of dollars of City-owned property due to the invasion of flood waters onto such land precipitated by or exacerbated by sea level rise or extreme precipitation events due to anthropogenic climate change.

312. Plaintiff did not give permission to any Defendant to cause this invasion onto City-owned land.

313. Plaintiff became aware of this nuisance, in particular its scope and severity, after the destruction caused by Hurricane Irene and Superstorm Sandy in 2011 and 2012. Plaintiff has been made aware, further, of Defendants' actions within the last three years

in maintaining a policy of disinformation and obfuscation around the risks of anthropogenic climate change, as well as their plans to continue and expand their program of manufacturing and selling massive amounts of fossil fuels, despite their knowledge of the risks of anthropogenic climate change.

314. The private nuisance is continuing and is causing harm that requires costly abatement measures. This nuisance can be abated and further recurrence of such harm and inconvenience can be abated, albeit at great cost. For instance:

a) As described in this Complaint, Defendants have continued their campaign of disinformation into the present and have continued to accelerate their production and sale of fossil fuels. They have thus contributed to an ongoing private nuisance.

b) Plaintiff has worked with experts in remediation and abatement to develop plans to make the City resilient to the expected effects of anthropogenic climate change, including through the "Resist, Delay, Store, Discharge" plan. Abating this nuisance is possible, but would require full implementation of the plan, in addition to further measures as described above.

315. Defendants have a duty to abate this nuisance and continue to fail to act to prevent or abate it.

316. As described in this Complaint, Defendants knew and should have known that their conduct would cause the private nuisance that in fact took place.

317. As early as 1972, Defendants' own scientists had come to the conclusion that anthropogenic climate change would take place due to the increased production and sale of

fossil fuels, that the consequences of climate change could be catastrophic, and that Defendants and the general public had to act quickly to mitigate the worst injuries from climate change, including injuries to Hoboken. In fact, through their joint participation in the American Petroleum Institute, Defendants knew of these dangers as early as 1959, well before any such knowledge was widely available to the public. Defendants took affirmative steps to both benefit from the nuisance by investing in technology that would only be usable after anthropogenic climate change accelerated, and by taking steps to insulate their own institutions from the nuisance they were creating.

318. Instead of acknowledging the overwhelming weight of the evidence that their own scientists had compiled in the 1960s, 1970s, and 1980s, and sharing those findings with the general public, Defendants hid their data, muzzled their scientists, abruptly stopped further research, and then waged an active campaign of disinformation to discredit this science.

319. Defendants actions were, at the very least, a substantial factor in the creation of the nuisance. Together, Defendants are responsible for extracting, producing, and selling more than 12% of the world's fossil fuels since 1965, the combustion of which has been the driving force behind sea level rise, increasingly frequent and severe extreme precipitation events, and increasingly frequent extreme heat.

320. All Defendants' actions were a direct and foreseeable cause of the private nuisance and concurrent and subsequent causes and actors do not break the causal chain.

321. Without Defendants' actions, climate change effects from fossil fuel manufacturing and marketing would not exist in the form they exist today or would be much less severe.

322. Plaintiff seeks the entry of an order providing for abatement of the private nuisance that Defendants created or assisted in the creation of, as well as an award of damages sufficient to allow Plaintiff to take actions to abate the harm and inconvenience caused by the actions of Defendants and damages to compensate Plaintiff for the harm already caused by this private nuisance.

COUNT THREE
(Trespass)
(Against the Fossil Fuel Company Defendants)

323. Plaintiff repeats and realleges the foregoing paragraphs as if the same were fully set forth at length herein.

324. "A defendant is liable in trespass for an 'intentional[]' entry onto another's land, regardless of harm."

325. "A defendant is also liable if he 'recklessly or negligently, or as a result of an abnormally dangerous activity enters' onto another's land, and the entry causes harm."

326. Each Fossil Fuel Company Defendant, acting individually and in concert, has, by its intentional unreasonable conduct, and certainly by its reckless and wanton and willful conduct, in manufacturing, marketing, distributing, and profiting from the sale of fossil fuels, caused an entry on to the City of Hoboken's land, preventing Plaintiff from its use and enjoyment of such land. This conduct includes, but is not limited to, the following:

a) Defendants control every step of the supply, production, and distribution chain for their fossil fuel products—including crude oil, coal, and natural gas reserves—extracting these fossil fuels from the Earth, refining and marketing the products for sale, and distributing them for sale across the globe;

b) Defendants have extracted, marketed, and sold fossil fuels for more than fifty years with knowledge that the use of these fossil fuels causes global warming and its attendant climate impacts, including but not limited to sea level rise and extreme heat and precipitation, each of which has harmed Hoboken and required it to spend hundreds of millions of dollars on abatement and remediation;

c) Defendants, individually, through trade associations like API, and through front groups like ICE and the GCC, coordinated campaigns to deceive the public about the known and foreseeable threats their fossil fuels posed to the climate in order to mislead consumers and turn public opinion against actions to restrict their extraction, production, and sale of fossil fuels;

d) Defendants spent millions of dollars funding think tanks and other groups working to sow doubt about the veracity of the science linking fossil fuels to global warming that their own scientists had helped to develop;

e) Between 1965 and 2017, the Fossil Fuel Company Defendants produced more than 12% of the world's fossil fuels; they continue to extract, produce, and sell fossil fuels at record rates today;

f) Defendant Exxon produced 3.95 million oil-equivalent barrels per day for sale in 2019 and plans to increase this production by 35% in the coming decade, while dedicating just 0.2% of its capital spending to low carbon energy sources from 2010-2018;

g) Defendant Exxon further gave more than $13 million to organizations that cast doubt on climate science between 2008 and 2017;

h) Defendant BP is working toward adding production capacity of 900,000 oil-equivalent barrels per day for sale between 2016 and 2021; it plans a further 20.1% increase in oil production in the next decade and dedicated under 3% of its capital expenditures to low carbon energy sources from 2010 to 2018;

i) Defendant Shell produced 3.67 million barrels of oil and gas per day for sale in 2019, a more than 10% increase from its production in 2010; it plans a further 37% increase in oil production in the next decade and dedicated just 1% of capital spending low carbon energy sources from 2010 through 2018;

j) Defendant Chevron extracted more than 3 million barrels of net oil equivalents per day for sale in 2019 and spent less than 1% of its capital expenditures on low carbon energy sources from 2010 through 2018; and

k) Defendant ConocoPhillips extracted more than 1.3 million barrels of net oil equivalents per day for sale in 2018, and has predicted continued growth in production.

327. This entry onto land includes but is not limited to the encroachment of water onto City-owned property precipitated by or exacerbated by sea level rise or extreme precipitation events due to anthropogenic climate change.

328. Plaintiff did not give permission to any Defendant to cause any such entry onto such land.

329. Plaintiff became aware of this trespass, in particular its scope and severity, after the destruction caused by Hurricane Irene and Superstorm Sandy in 2011 and 2012. Plaintiff has been made aware, further, of Defendants' actions within the last three years in maintaining a policy of disinformation and obfuscation around the risks of anthropogenic climate change, as well as their plans to continue and expand their program of manufacturing and selling massive amounts of fossil fuels, despite their knowledge of the risks of anthropogenic climate change.

330. This trespass is continuing and can be enjoined to prevent further recurrence of such harm and inconvenience. For instance:

a) As described in this Complaint, Defendants have continued their campaign of disinformation into the present and have continued to accelerate their production and sale of fossil fuels. They have thus contributed to an ongoing trespass against Plaintiff's property.

b) Plaintiff has worked with experts in remediation and abatement to develop plans to make the City resilient to the expected effects of anthropogenic climate change, including through the "Resist, Delay, Store, Discharge" plan. Preventing further trespass is possible, but would require full implementation of the plan, in addition to further measures as described above.

331. Defendants have a duty to cease this trespass and prevent its recurrence, but have continued to engage in acts that cause trespass.

332. As described in this Complaint, Defendants knew and should have known that their conduct would cause the trespass that in fact took place.

333. As early as 1972, Defendants' own scientists had come to the conclusion that anthropogenic climate change would take place due to the increased production and sale of fossil fuels, that the consequences of climate change could be catastrophic, and that Defendants and the general public had to act quickly to mitigate the worst injuries from climate change, including injuries to Hoboken. In fact, through their joint participation in API, Defendants knew of these dangers as early as 1959, well before any such knowledge was widely available to the public.

334. Instead of acknowledging the overwhelming weight of the evidence that their own scientists had compiled in the 1960s, 1970s, and 1980s, and sharing those findings with the general public, Defendants hid their data, muzzled their scientists, abruptly stopped further research, and then waged an active campaign of disinformation to discredit this science.

335. Defendants' actions were, at the very least, a substantial factor in causing this trespass. Togther, Defendants are responsible for extracting, producing, and selling more than 12% of the world's fossil fuels since 1965, the combustion of which has been the driving force behind sea level rise, increasingly frequent and severe extreme precipitation events, and increasingly frequent extreme heat.

336. Without Defendants' actions, climate change effects from fossil fuel manufacturing and marketing would not exist in the form they exist today or would be much less severe.

337. All Defendants' actions were a direct and foreseeable cause of the trespass and concurrent and subsequent causes and actors do not break the causal chain.

338. Plaintiff seeks the entry of an order preliminarily and permanently enjoining Defendants from future acts of trespass as alleged, as well as an award of damages sufficient to compensate Plaintiff and allow Plaintiff to take actions to abate the harm and inconvenience caused by the Defendants' acts of trespass as alleged.

COUNT FOUR
(Negligence)
(Against All Defendants)

339. Plaintiff repeats and realleges the foregoing paragraphs as if the same were fully set forth at length herein.

340. Each Fossil Fuel Company Defendant has a duty to exercise reasonable care in manufacturing, marketing, and distributing fossil fuel products that inevitably cause harm to Plaintiff. All Defendants have a duty to exercise reasonable care in the production and dissemination of their public pronouncement on climate effects of fossil fuels.

341. The Fossil Fuel Company Defendants knew or should have known that their actions in accelerating their production and sale of fossil fuels, in stymying climate change research, and (with Defendant API) in creating an active system of disinformation around the climate effects of their industry would cause foreseeable harm to Plaintiff and others in its position.

342. The Fossil Fuel Company Defendants, while actively representing to the public—individually, in a conspiracy among themselves and others, and through various industry associations—that anthropogenic climate change was either not taking place or would not impose costs on the public, themselves invested in technology and infrastructure to prevent their own property from being encroached upon by rising sea levels.

343. It was entirely foreseeable that Defendants' ongoing disinformation campaign would slow and prevent action to address climate change and thereby injure Plaintiff.

344. The Fossil Fuel Company Defendants knew or should have known that increasing the rate of production and sale of fossil fuels, despite having specific knowledge of the dangers of causing anthropogenic climate change, would injure Plaintiff.

345. The public interest supports Defendants' duty to Plaintiff as Defendants profited significantly from their misinformation campaign and business model and thereby caused catastrophic losses to Plaintiff.

346. Defendants breached their duty to Plaintiff through their campaign of promoting false and misleading information regarding fossil fuels and their impact on climate change, as well as by continuing to increase production, marketing, and sale of fossil fuel products.

347. Defendants' actions were, at the very least, a substantial factor in the current uncontrolled process of anthropogenic climate change.

348. As described above, Defendants' breach proximately caused damages to Plaintiff.

349. Plaintiff became aware of the effects of Defendants' actions, in particular their scope and severity, after the destruction caused by Hurricane Irene and Superstorm Sandy in 2011 and 2012. Plaintiff has been made aware, further, of Defendants' actions within the last three years in maintaining a policy of disinformation and obfuscation around the risks of anthropogenic climate change, as well as their plans to continue and expand their program of manufacturing and selling massive amounts of fossil fuels, despite their knowledge of the risks of anthropogenic climate change.

COUNT FIVE
(Violations of New Jersey's Consumer Fraud Act, N.J. Stat. §§ 56:8-1, *et seq.*)
(Against All Defendants)

350. Plaintiff repeats and realleges the foregoing paragraphs as if the same were fully set forth at length herein.

351. The New Jersey Consumer Fraud Act ("CFA") prohibits the "act, use or employment by any person of any unconscionable commercial practice, deception, fraud, false pretense, false promise, misrepresentation, or the knowing, concealment, suppression, or omission of any material fact with intent that others rely upon such concealment, suppression or omission, in connection with the sale or advertisement of any merchandise."

352. The CFA is a remedial statute that is to be construed broadly.

353. Plaintiff has purchased products marketed and produced by some or all of Defendants.

354. All Defendants are "Persons" within the meaning of the CFA and are required to comply with the provisions of the CFA.

355. Fossil-fuel products are "merchandise" within the meaning of the CFA.

356. Defendants have sold, offered for sale, promoted the use of, and/or advertised such merchandise in New Jersey and in Hoboken.

357. Defendants' business practices in marketing and promoting fossil fuels, as described in this Complaint, are deceptive, unconscionable, and violate New Jersey law because the practices deceived consumers in New Jersey, led to the sale and consumption of fossil fuels that would otherwise not be consumed, led to the promotion of junk science to the detriment of long-running scientific consensus on climate change, and thereby caused Plaintiff to suffer catastrophic losses from, *inter alia*, rising sea levels, increased flooding, and extreme heat.

358. Defendants' wrongful actions include, but are not limited to, affirmative misrepresentations and knowing omission or concealment of material facts, knowing that others will be deceived by such omissions, such as the following:

a) Defendants deceptively worked to influence consumer demand for fossil fuel products through a long-term advertising and communications campaign centered on climate change denialism.

b) Defendants knew or should have known that the science of climate change was certain and that there was a scientific consensus about the role of fossil fuels as early as 1972, that Defendants' own scientists had come to that conclusion, that the consequences of climate change could be catastrophic, and that Defendants and the general public had to act quickly to mitigate the worst injuries from climate change, including injuries to Hoboken. In fact, through their joint participation in Defendant API, the Fossil Fuel Company Defendants knew of these dangers as early as 1959, well before any such knowledge was widely available to the public.

c) Instead of acknowledging the overwhelming weight of the evidence that their own scientists had compiled in the 1960s, 1970s, and 1980s, and sharing those findings with the general public, Defendants hid their data, muzzled their scientists, and abruptly stopped further research.

d) The Fossil Fuel Company Defendants, while actively representing to the public—individually, in a conspiracy among themselves and

others, and through various industry associations—that anthropogenic climate change was either not taking place or would not impose costs on the public, themselves invested in technology and infrastructure to insulate their operations from the deleterious effects of that same anthropogenic climate change. These included instances in which the Fossil Fuel Company Defendants took out patents for technologies that would only be usable after anthropogenic climate change had already accelerated and through preemptive abatement measures to make their infrastructure resilient against sea level rise.

e) Defendants then—individually, in a conspiracy among themselves and others, and through various industry associations—manufactured a public relations campaign starting in the late 1980s to sow doubt in the fact of anthropogenic climate change and funded junk science to undermine the findings that their own scientists had previously validated. This campaign included running "advertorials" and other forms of advertising in newspaper outlets and on broadcast media that were meant to be, and were, received by consumers and others in Hoboken and in New Jersey, including in such regionally important outlets as *The New York Times* and the *Wall Street Journal*. For instance, Defendant API targeted New Jersey customers directly, specifically, and expressly with misleading and false information. This campaign was waged with the intent to allow the continuation

(and acceleration) of Fossil Fuel Company Defendants' production and sale of fossil fuels in order to increase their profits.

f) Defendants—individually, in a conspiracy among themselves and others, and through various industry associations—infiltrated international bodies like the IPCC that were coordinating a worldwide response to anthropogenic climate change with the express purpose of sabotaging such efforts and sowing doubt about the scientific fact of anthropogenic climate change, all with the intent to continue (and accelerate) their production and sale of fossil fuels in order to increase their profits.

g) By concealing and misrepresenting the scientific understanding of the consequences of burning fossil fuels and increasing atmospheric concentrations of greenhouse gases, Defendants failed to state and/or misrepresented material facts, which had a tendency to mislead consumers.

h) As public concern over global warming mounted, each Fossil Fuel Company Defendant deceitfully represented itself as a leader in renewable energy and made misleading or incomplete claims about the steps it has taken to reduce its overall carbon footprint as well as misrepresented or made incomplete claims about its investment practices and expansion in fossil fuel production. In so doing, the Fossil Fuel Company Defendants failed to state and/or misrepresented material facts that tended to mislead consumers regarding the Fossil

Fuel Company Defendants' commitment to environmental sustainability.

i) The Fossil Fuel Company Defendants further worked to conceal their involvement in ongoing disinformation campaigns by working through and funding front organizations, deceptively named industry groups, and organizations peddling junk science, including Defendant API. By concealing their role in these organizations, the Fossil Fuel Company Defendants failed to state and/or misrepresented material facts that tended to mislead consumers regarding this merchandise.

j) Defendants' multifaceted and decades-long campaign to deceive consumers about the known consequences of the combustion of fossil fuels unduly inflated the market for fossil fuels and led more greenhouse gasses to be emitted into the environment than would have in the absence of their efforts.

k) The accelerated rate of climate change has caused severe and immediate harms to Hoboken. For example, the City has been forced to expend hundreds of millions of dollars to mitigate—including without limitation, sea level rise, extreme heat, and extreme precipitation events—the same harms that Defendants have orchestrated a campaign to deceive consumers about for decades and up through the present day.

359. Defendants knew or should have known at the time of making or disseminating these statements, or causing these statements to be made or disseminated, that

such statements were false, misleading, deceptive and unconscionable. Their omissions, which are deceptive and misleading in their own right, render even seemingly truthful statements about fossil fuel use false and misleading.

360. Consumers and the public are frequently deceived by the type of information disseminated by Defendants (either directly or through other organizations) when making decisions about purchasing of potentially harmful products.

361. All of this conduct, separately and collectively, was likely to deceive New Jersey consumers, including Plaintiff.

362. The product of this deception was that the Fossil Fuel Company Defendants were able to and did sell fossil fuels in quantities and at prices that they would otherwise have not been able to, had the true externalities of those goods been fully taken into account.

363. Defendants' fraudulent, unlawful, and/or deceptive activity alleged herein caused the uncontrolled use of fossil fuels that, in turn, caused significant increases in average mean global temperatures.

364. Plaintiff became aware of the effects of this campaign, in particular its scope and severity, after the destruction caused by Hurricane Irene and Superstorm Sandy in 2011 and 2012. Plaintiff has been made aware, further, of Defendants' actions within the last three years in maintaining a policy of disinformation and obfuscation around the risks of anthropogenic climate change, as well as their plans to continue and expand their program of marketing massive amounts of fossil fuels, despite their knowledge of the risks of anthropogenic climate change.

365. As a direct and proximate result of the foregoing acts and practices, Defendants have received, or will receive, income, profits, and other benefits, which they would not have received if they had not engaged in the violations described in this Complaint.

366. Plaintiff has suffered ascertainable losses which include, but are not limited to:

a) the destruction of millions of dollars of City-owned property due to flooding precipitated by or exacerbated by sea level rise due to anthropogenic climate change;

b) loss suffered by the City and its residents due to loss of access to cultural, historic, and economic resources; damage to public health, safety, and general welfare; and the diversion of tax dollars away from other public services to the mitigation of and/or adaptation to climate change effects; and

c) loss of tax revenue due to depressed property values and the slowdown of economic activity due to anthropogenic climate change.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff demands judgment against the Defendants jointly and severally as follows:

a. For compensatory, consequential and punitive damages;

b. For an award of treble damages pursuant to the New Jersey Consumer Fraud Act, N.J.S.A. 56:8-19;

c. For entry of an Order compelling Defendants to abate the nuisance alleged herein and to pay the costs of abatement;.

d. For entry of an Order preliminarily and permanently enjoining Defendants from engaging in future acts of trespass as alleged herein;

e. For an award of prejudgment interest, attorneys' fees and costs;

f. For such other and further relief as the Court may deem just.

Dated: September 2, 2020

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JURY DEMAND

Plaintiff demands trial by jury on all issues in this action.

* *Pro hac vice* application forthcoming.

CERTIFICATION PURSUANT TO R. 4:5-1

I hereby certify that the matter in controversy is not the subject of any other action pending in any court or of any pending arbitration proceedings. No other action or arbitration proceeding is contemplated at this time. I know of no other parties who should be joined in this action at this time.

Dated: September 2, 2020

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