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COUNTY OF HONOLULU

IN THE CIRCUIT COURT OF THE FIRST CIRCUIT  
STATE OF HAWAII

CITY AND COUNTY OF HONOLULU

Plaintiff,

vs.

SUNOCO LP; ALOHA PETROLEUM, LTD.;  
ALOHA PETROLEUM LLC; EXXON  
MOBIL CORP.; EXXONMOBIL OIL  
CORPORATION; ROYAL DUTCH SHELL  
PLC; SHELL OIL COMPANY; SHELL OIL  
PRODUCTS COMPANY LLC; CHEVRON  
CORP.; CHEVRON USA INC.; BHP GROUP  
LIMITED; BHP GROUP PLC; BHP

CIVIL NO.

(Other Non-Vehicle Tort)

COMPLAINT

Trial Date: None.

HAWAII INC.; BP PLC; BP AMERICA  
INC.; MARATHON PETROLEUM CORP.;  
CONOCOPHILLIPS; CONOCOPHILLIPS  
COMPANY; PHILLIPS 66; PHILLIPS 66  
COMPANY; AND DOES 1 through 100,  
inclusive,

Defendants.

## COMPLAINT

**TABLE OF CONTENTS**

**I. INTRODUCTION..... 1**

**II. PARTIES ..... 6**

A. Plaintiff ..... 6

B. Defendants ..... 7

C. Relevant Non-Parties: Fossil Fuel Industry Associations..... 27

**III. AGENCY ..... 30**

**IV. JURISDICTION AND VENUE..... 30**

**V. FACTUAL BACKGROUND..... 31**

A. Climate Disruption—Cause and Effects..... 31

B. Attribution..... 34

C. Defendants Went to Great Lengths to Understand, and Either Knew or Should Have Known About the Dangers Associated with Their Fossil Fuel Products. .... 35

D. Defendants Did Not Disclose Known Harms Associated with the Extraction, Promotion, and Consumption of Their Fossil Fuel Products, and Instead Affirmatively Acted to Obscure Those Harms and Engaged in a Concerted Campaign to Evade Regulation. .... 59

E. In Contrast to Their Public Statements, Defendants’ Internal Actions Demonstrate Their Awareness of and Intent to Profit from the Unabated Use of Fossil Fuel Products. .... 75

F. Defendants’ Actions Have Exacerbated the Costs of Adapting to and Mitigating the Adverse Impacts of the Climate Crisis..... 78

G. Defendants Continue to Mislead About the Impact of Their Fossil Fuel Products on Climate Change Through Greenwashing Campaigns and Other Misleading Advertisements. .... 85

H. Defendants Caused the City’s Injuries..... 88

**VI. CAUSES OF ACTION ..... 99**

**FIRST CAUSE OF ACTION  
(Public Nuisance) ..... 99**

**SECOND CAUSE OF ACTION  
(Private Nuisance)..... 103**

**THIRD CAUSE OF ACTION  
(Strict Liability Failure to Warn)..... 106**

**FOURTH CAUSE OF ACTION  
(Negligent Failure to Warn)..... 108**

<b>FIFTH CAUSE OF ACTION</b>	
<b>(Trespass).....</b>	<b>111</b>
<b>VII. PRAYER FOR RELIEF.....</b>	<b>112</b>
<b>REQUEST FOR JURY TRIAL .....</b>	<b>115</b>

## I. INTRODUCTION

1. Defendants, major corporate members of the fossil fuel industry, have known for nearly half a century that unrestricted production and use of their fossil fuel products create greenhouse gas pollution that warms the planet and changes our climate. They have known for decades that those impacts could be catastrophic and that only a narrow window existed to take action before the consequences would be irreversible. They have nevertheless engaged in a coordinated, multi-front effort to conceal and deny their own knowledge of those threats, discredit the growing body of publicly available scientific evidence, and persistently create doubt in the minds of customers, consumers, regulators, the media, journalists, teachers, and the public about the reality and consequences of the impacts of their fossil fuel pollution.

2. At the same time, Defendants have promoted and profited from a massive increase in the extraction and consumption of oil, coal, and natural gas, which has in turn caused an enormous, foreseeable, and avoidable increase in global greenhouse gas pollution and a concordant increase in the concentration of greenhouse gases,<sup>1</sup> particularly carbon dioxide (“CO<sub>2</sub>”) and methane, in the Earth’s atmosphere. Those disruptions of the Earth’s otherwise balanced carbon cycle have substantially contributed to a wide range of dire climate-related effects, including but not limited to global atmospheric and ocean warming, ocean acidification, melting polar ice caps and glaciers, more extreme and volatile weather, drought, and sea level rise.

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<sup>1</sup> As used in this Complaint, the term “greenhouse gases” refers collectively to carbon dioxide, methane, and nitrous oxide. Where a cited source refers to a specific gas or gases, or when a process relates only to a specific gas or gases, this Complaint refers to each gas by name.

3. Plaintiff, the City and County of Honolulu,<sup>2</sup> its departments and agencies, along with the City's residents, infrastructure, and natural resources, suffer the consequences of Defendants' campaign of deception.

4. Defendants are extractors, producers, refiners, manufacturers, distributors, promoters, marketers, and/or sellers of fossil fuel products, each of which contributed to deceiving the public about the role of their products in causing the global climate crisis. Decades of scientific research has shown that pollution from Defendants' fossil fuel products plays a direct and substantial role in the unprecedented rise in emissions of greenhouse gas pollution and increased atmospheric CO<sub>2</sub> concentrations that has occurred since the mid-20<sup>th</sup> century. This dramatic increase in atmospheric CO<sub>2</sub> and other greenhouse gases is the main driver of the gravely dangerous changes occurring to the global climate.

5. Anthropogenic greenhouse gas pollution, primarily in the form of CO<sub>2</sub>, is far and away the dominant cause of global warming, resulting in severe impacts including but not limited to sea level rise, disruption to the hydrologic cycle, more frequent and intense extreme precipitation events and associated flooding, more frequent and intense heatwaves, more frequent and intense droughts, and associated consequences of those physical and environmental changes.<sup>3</sup> The primary cause of this is the combustion of coal, oil, and natural gas, referred to collectively in this Complaint as "fossil fuel products."<sup>4</sup>

6. The rate at which Defendants have extracted and sold fossil fuel products has

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<sup>2</sup> In this Complaint, the term "City" refers to Plaintiff the City and County of Honolulu.

<sup>3</sup> See IPCC, *Climate Change 2014: Synthesis Report*, Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland (2014) 6, Figure SMP.3, <https://www.ipcc.ch/report/ar5/syr>.

<sup>4</sup> See Pierre Friedlingstein, et al., *Global Carbon Budget 2019*, 11 EARTH SYST. SCI. DATA 1783 (2019), <https://www.earth-syst-sci-data.net/11/1783/2019> (accessed Feb. 21, 2020).

exploded since the Second World War, as have emissions from those products. The substantial majority of all greenhouse gas emissions in history has occurred since the 1950s, a period known as the “Great Acceleration.”<sup>5</sup> About three quarters of all industrial CO<sub>2</sub> emissions in history have occurred since the 1960s,<sup>6</sup> and more than half have occurred since the late 1980s.<sup>7</sup> The annual rate of CO<sub>2</sub> emissions from extraction, production, and consumption of fossil fuels has increased substantially since 1990.<sup>8</sup>

7. Defendants have known for more than 50 years that greenhouse gas pollution from their fossil fuel products would have a significant adverse impact on the Earth’s climate and sea levels. Defendants’ awareness of the negative implications of their actions corresponds almost exactly with the Great Acceleration and with skyrocketing greenhouse gas emissions. With that knowledge, Defendants took steps to protect their own assets from those threats through immense internal investment in research, infrastructure improvements, and plans to exploit new opportunities in a warming world.

8. Instead of warning of those known consequences from the intended and foreseeable uses of their products and working to minimize the damage associated with the use and combustion of such products, Defendants concealed the dangers, promoted false and misleading information, sought to undermine public support for greenhouse gas regulation, and engaged in massive campaigns to promote the ever-increasing use of their products at ever-

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<sup>5</sup> Will Steffen et al., *The Trajectory of the Anthropocene: The Great Acceleration*, 2 THE ANTHROPOCENE REVIEW 81, 81 (2015).

<sup>6</sup> R. J. Andres et al., *A Synthesis of Carbon Dioxide Emissions from Fossil-Fuel Combustion*, 9 BIOGEOSCIENCES 1845, 1851 (2012).

<sup>7</sup> *Id.*

<sup>8</sup> Pierre Friedlingstein et al., *Global Carbon Budget 2019*, 11 EARTH SYST. SCI. DATA 1783 (2019), <https://www.earth-syst-sci-data.net/11/1783/2019> (accessed Feb. 21, 2020).

greater volumes. All Defendants' actions in concealing the dangers of, promoting false and misleading information about, and engaging in massive campaigns to promote increasing use of their fossil fuel products has contributed substantially to the buildup of CO<sub>2</sub> in the atmosphere that drives global warming and its physical, environmental, and socioeconomic consequences, including those on the City.

9. Defendants are directly responsible for the substantial increase in all CO<sub>2</sub> emissions between 1965 and the present. Defendants individually and collectively played leadership roles in denialist campaigns to misinform and confuse the public and obscure the role of Defendants' products in causing global warming and its associated impacts. But for such campaigns, climate crisis impacts in the City would have been substantially mitigated or eliminated altogether. Accordingly, Defendants are directly responsible for a substantial portion of the climate crisis-related impacts in the City.

10. As a direct and proximate consequence of Defendants' wrongful conduct, the average sea level will rise substantially along the City's coastline, causing flooding, erosion, and beach loss; extreme weather, including hurricanes and tropical storms, "rain bomb" events, drought, heatwaves, and other phenomena will become more frequent, longer-lasting, and more severe; ocean warming and acidification will reduce fish catch and injure or kill coral reefs that protect the island from increasingly intense storm surges; freshwater supplies will become increasingly scarce; endemic species will lose habitat, while invasive and disease carrying-pest species will thrive; and the cascading social, economic, and other consequences of those environmental changes—all due to anthropogenic global warming—will increase in the City.

11. As a direct result of those and other climate crisis-caused environmental changes, the City has suffered and will continue to suffer severe injuries, including but not limited to:



injury or destruction of City-owned or operated facilities critical for operations, utility services, and risk management, as well as other assets essential to community health, safety, and well-being; increased planning and preparation costs for community adaptation and resiliency to the effects of the climate crisis; decreased tax revenue due to impacts on the City's tourism and ocean-based economy and property tax base; and others.

12. Defendants' individual and collective conduct, including but not limited to their introduction of fossil fuel products into the stream of commerce knowing, but failing to warn of, the threats posed to the world's climate; their wrongful promotion of their fossil fuel products and concealment of known hazards associated with the use of those products; their public deception campaigns designed to obscure the connection between their products and global warming and the environmental, physical, social, and economic consequences flowing from it; and their failure to pursue less hazardous alternatives, actually and proximately caused the City's injuries.

13. Accordingly, the City brings this action against Defendants for Public Nuisance, Private Nuisance, Strict Liability for Failure to Warn, Negligent Failure to Warn, and Trespass.

14. The City hereby disclaims injuries arising on federal property and those that arose from Defendants' provision of fossil fuel products to the federal government for military and national defense purposes.

15. The City seeks to ensure that the parties who have profited from externalizing the consequences and costs of dealing with global warming and its physical, environmental, social, and economic consequences, bear the costs of those impacts, rather than the City, taxpayers, residents, or broader segments of the public.

## **II. PARTIES**

### **A. Plaintiff**

16. Plaintiff, the City and County of Honolulu, brings this action as an exercise of its police power, which includes but is not limited to its power to prevent injuries to and pollution of the City's property and waters, to prevent and abate nuisances, and to prevent and abate hazards to public health, safety, welfare, and the environment.<sup>9</sup>

17. The City consists of several Offices, Departments, and Divisions, each with purview over City operations, facilities, property, and/or programs that have been injured by Defendants' conduct as alleged herein and consequent global warming-related impacts. Among those agencies are the City's Office of Climate Change, Sustainability and Resiliency, which plans for and prepares the City, its subdivisions, and its constituents for environmental changes and associated injuries, including those caused by Defendants' conduct; the Department of Parks and Recreation, which operates and maintains the City's network of beach parks and other recreational resources; the Department of Facility Maintenance, which maintains the City's critical public infrastructure such as roads, bridges, flood control systems, City buildings, and others; the Department of Land Management which manages City-owned real property, including property lost to coastal erosion and flooding; the Department of Environmental Services, which operates the City's wastewater infrastructure and is undertaking expensive retrofit projects to protect that infrastructure from sea level rise; and the semi-autonomous Honolulu Board of Water Supply, which owns, operates, and maintains the City's drinking water system, and which must plan for drinking water shortages and must repair infrastructure

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<sup>9</sup> The City hereby disclaims relief for any injuries attributable to Defendants' conduct as described herein that occurred on federal land or property that lies within the City's geographic boundaries.

damaged as a result of Defendants' conduct.

**B. Defendants**

18. When reference in this Complaint is made to an act or omission of the Defendants, unless specifically attributed or otherwise stated, such references should be interpreted to mean that the officers, directors, agents, employees, or representatives of the Defendants committed or authorized such an act or omission, or failed to adequately supervise or properly control or direct their employees while engaged in the management, direction, operation, or control of the affairs of Defendants, and did so while acting within the scope of their employment or agency.

**19. Sunoco Entities**

a. Sunoco LP is a fossil fuel product distributor, marketer, and promoter. Sunoco LP is registered in Delaware and has its headquarters in Dallas, Texas. Sunoco LP consists of numerous divisions, subsidiaries and affiliates engaged in all aspects of the fossil fuel industry, including exploration, development, extraction, manufacturing and energy production, transport, trading, marketing, distribution, and/or sales.

b. Sunoco LP controls and has controlled companywide decisions about the quantity, nature, and extent of fossil fuel production, marketing, and sales, including those of its subsidiaries. Sunoco LP's managing partners determine whether and to what extent Sunoco subsidiary holdings around the globe—including Hawai'i—market, produce, and/or distribute fossil fuel products.

c. Sunoco LP controls and has controlled companywide decisions related to climate change and greenhouse gas emissions from its fossil fuel products, including those of its subsidiaries.

d. On information and belief, each of Sunoco LP's subsidiaries functions as an alter ego of Sunoco LP, including by conducting fossil fuel-related business in Hawai'i that Sunoco LP would otherwise conduct if it were present in Hawai'i, sharing directors and officers with supervisory roles over both Sunoco LP and the subsidiary, and employing the same people.

e. Aloha Petroleum LLC is a subsidiary of Sunoco LP. Aloha Petroleum LLC is registered in Delaware and has its principal place of business in Dallas, Texas. Aloha Petroleum LLC's principal line of business includes the marketing, terminaling, and distribution of gasoline, diesel, ethanol, lubricants, and other petroleum products in Hawai'i. Aloha Petroleum LLC purchased the assets of Shell Oil Company, Inc., in the State of Hawai'i in or about 2010.

f. Aloha Petroleum, Ltd. is a subsidiary of Sunoco LP. Aloha Petroleum, Ltd. is incorporated in Hawai'i with its principal place of business in Honolulu. Aloha Petroleum, Ltd.'s principal line of business includes the marketing, terminaling, and distribution of gasoline, diesel, biodiesel, ethanol, lubricants, and other petroleum and fossil fuel products. Aloha Petroleum, Ltd. was formerly known as Associated Oil, a division of Tidewater Oil. At times relevant to this litigation, Associated Oil, was a subsidiary of Phillips 66, a predecessor-in-interest to ConocoPhillips.

g. Defendants Sunoco LP, Aloha Petroleum LLC, Aloha Petroleum, Ltd., and their predecessors, successors, parents, subsidiaries, affiliates, and divisions are collectively referred to herein as "Sunoco."

h. Sunoco has and continues to tortiously market, advertise, and promote its products in Hawai'i, with knowledge that those products have caused and will continue to cause climate crisis-related injuries in Hawai'i, including to the City. A substantial portion of Sunoco's

fossil fuel products are or have been transported, traded, distributed, promoted, marketed, manufactured, sold, and/or consumed in Hawai‘i, from which Sunoco derives and has derived substantial revenue. Sunoco is one of the largest fossil fuel product marketers and sellers in Hawai‘i. Sunoco has a long history of marketing and selling fossil fuel products in Hawai‘i, including operating numerous gas stations going back to at least the mid-20th century. Sunoco acquired Shell Hawaii’s assets in 2010, which included 32 retail sites, five fuel distribution terminals, and associated assets on O‘ahu, Maui, the Big Island, and Kaua‘i. Sunoco was a member of the American Petroleum Institute’s CO<sub>2</sub> Task Force during the 1970s and 1980s, which played a key role in hiding the industry’s knowledge concerning climate change and disseminating misinformation. Sunoco retains the license for, and operates, Shell-branded gas stations across Hawai‘i, in addition to its own Aloha-branded stations. Sunoco maintains an interactive website by which it directs prospective customers to Aloha-branded service stations in Hawai‘i. Sunoco offers an Aloha-branded proprietary credit card known as the “Save-A-\$ Club Card,” which allows consumers in Hawai‘i to pay for gasoline and other products at Aloha-branded service stations, and which encourages consumers to use Aloha-branded gas stations by offering various rewards, including discounts on gasoline purchases.

**20. Exxon Entities**

a. Exxon Mobil Corporation is a multi-national, vertically integrated energy and chemicals company incorporated in the State of 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. Exxon Mobil Corporation 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. Exxon Mobil Corporation is registered to do business in Hawai'i and has a registered agent for service of process in Honolulu, Hawai'i.

b. 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. Exxon Mobil Corporation's 2017 Form 10-K filed with the United States Securities and Exchange Commission represents 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 our projects."

c. 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 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 are actively engaged in discussions relating to greenhouse gas emissions and the risks of climate change on an ongoing basis. 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.

d. On information and belief, each of Exxon Mobil Corporation's subsidiaries functions as an alter ego of Exxon Mobil Corporation, including by conducting fossil fuel-related business in Hawai'i that Exxon Mobil Corporation would otherwise conduct if it were present in Hawai'i, sharing directors and officers with supervisory roles over both Exxon Mobil Corporation and the subsidiary, and employing the same people.

e. Exxonmobil Oil Corporation is incorporated in the State of New York with its principal place of business in Irving, Texas. Exxonmobil Oil Corporation is registered to do business in Hawai'i and has a registered agent for service of process in Honolulu, Hawai'i. Exxonmobil Oil Corporation was formerly known as, did or does business as, and/or is the successor in liability to Mobil Oil Corporation.

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

g. 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.

h. Exxon has and continues to tortiously distribute, market, advertise, and promote its products in Hawai'i, with knowledge that those products have caused and will continue to cause climate crisis-related injuries in Hawai'i, including to the City. A substantial portion of Exxon's fossil fuel products are or have been transported, traded, supplied, distributed, promoted, marketed, sold, and/or consumed in Hawai'i, from which Exxon derives and has derived substantial revenue. For example, Exxon directly and through its subsidiaries and/or predecessors in interest supplied substantial quantities of fossil fuel products, including but not limited to crude oil, to Hawai'i during the period relevant to this litigation.

## 21. Shell Entities

a. Royal Dutch Shell PLC is a vertically integrated, multinational energy and petrochemical company. Royal Dutch Shell is incorporated in England and Wales, with its headquarters and principle place of business in the Hague, Netherlands. Royal Dutch Shell PLC consists of numerous 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 made the decision 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. For instance, at least as early as 1988, Royal Dutch Shell PLC, through its subsidiaries, was researching companywide CO<sub>2</sub> emissions and concluded that the Shell group of companies accounted for "4% of the CO<sub>2</sub> emitted worldwide from combustion," and that climatic changes could compel the Shell group, as controlled by Royal Dutch Shell PLC, to "examine the possibilities of expanding and contracting [its] business accordingly." Royal Dutch



Shell PLC's CEO has stated that Royal Dutch Shell PLC would reduce the carbon footprint of its products, including those of its subsidiaries "by reducing the net carbon footprint of the full range of Shell emissions, from our operations and from the consumption of our products." Additionally, in November 2017, Royal Dutch Shell PLC announced it would reduce the carbon footprint of "its energy products" by "around" half by 2050. Royal Dutch Shell PLC's effort is inclusive of all fossil fuel products produced under the Shell brand, including those of its subsidiaries.

d. On information and belief, each of Royal Dutch Shell PLC's subsidiaries functions as an alter ego of Royal Dutch Shell PLC, including by conducting fossil fuel-related business in Hawai'i that Royal Dutch Shell PLC would otherwise conduct if it were present in Hawai'i, sharing directors and officers with supervisory roles over both Royal Dutch Shell PLC and the subsidiary, and employing the same people.

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 and with its principal place of business in Houston, Texas. Shell Oil Company is registered to do business in Hawai'i and has a registered agent for service of process in Honolulu, Hawai'i. 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.

f. Shell Oil Products Company LLC is a wholly owned subsidiary of Royal Dutch Shell PLC. Shell Oil Products Company LLC is incorporated in the State of Delaware and

maintains its principal place of business in Houston, Texas. Shell Oil Products Company LLC is registered to do business in Hawai‘i and has a registered agent for service of process in Honolulu, Hawai‘i. Shell Oil Products Company LLC is an energy and petrochemical company involved in refining, transportation, distribution and marketing of Shell fossil fuel products.

g. Defendants Royal Dutch Shell PLC, Shell Oil Company, Shell Oil Products Company LLC, and their predecessors, successors, parents, subsidiaries, affiliates, and divisions are collectively referred to as “Shell.”

h. Shell has and continues to tortiously distribute, market, advertise, and promote its products in Hawai‘i, with knowledge that those products have caused and will continue to cause climate crisis-related injuries in Hawai‘i, including to the City. A substantial portion of Shell’s fossil fuel products are or have been supplied, traded, distributed, promoted, marketed, sold, and/or consumed in Hawai‘i, from which Shell derives and has derived substantial revenue. Among other endeavors, Shell has marketed and/or markets gasoline and other fossil fuel products to consumers in Hawai‘i, including through over thirty-five Shell-branded petroleum service stations located in Hawai‘i. Shell maintains an interactive website by which it directs prospective customers to Shell-branded service stations in Hawai‘i. Shell offers a proprietary credit card known as the “Shell Fuel Rewards Card,” which allows consumers in Hawai‘i to pay for gasoline and other products at Shell-branded service stations, and which encourages consumers to use Shell-branded gas stations by offering various rewards, including discounts on gasoline purchases. Shell further maintains a smartphone application known as the “Shell US App” that offers Hawai‘i consumers a cashless payment method for gasoline and other products at Shell-branded service stations. Hawai‘i consumers utilize the payment method by providing their credit card information through the application. Hawai‘i consumers can also

receive rewards including discounts on gasoline purchases by registering their personal identifying information into the Shell US App and using the application to identify and activate gas pumps at Shell service stations during a purchase. Shell continues to license the Shell fossil fuel product brand name to petroleum sellers in Hawai'i. During the period relevant to this litigation, Shell owned and operated five fossil fuel distribution terminals and associated assets on O'ahu, Maui, the Big Island, and Kaua'i.

## 22. **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.

b. Chevron Corporation operates through a web of United States and international subsidiaries at all levels of the fossil fuel supply chain. Chevron Corporation 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) transporting crude oil by major international oil export pipelines; (4) transporting, storing, and marketing natural gas; (5) refining crude oil into petroleum products; marketing of crude oil and refined products; (6) transporting crude oil and refined products by pipeline, marine vessel, motor equipment, and rail car; (7) basic and applied research in multiple scientific fields including chemistry, geology, and engineering; and (8) 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. On information and belief, each of Chevron Corporation's subsidiaries functions as an alter ego of Chevron Corporation, including by conducting fossil fuel-related business in Hawai'i that Chevron Corporation would otherwise conduct if it were present in Hawai'i, sharing directors and officers with supervisory roles over both Chevron Corporation and the subsidiary, and employing the same people.

f. Chevron U.S.A. Inc. is a Pennsylvania corporation with its principal place of business located in San Ramon, California. Chevron U.S.A. Inc. is registered to do business in and has a registered agent for service of process in Honolulu, Hawai'i. 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, Chevron Chemical Company, Texaco, Inc., and Unocal Corp.

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 has and continues to tortiously distribute, market, advertise, and promote its products in Hawai'i, with knowledge that those products have caused and will continue to cause climate crisis-related injuries in Hawai'i, including to the City. A substantial portion of Chevron's fossil fuel products are or have been refined, traded, distributed, promoted, marketed, sold, and/or consumed in Hawai'i, from which Chevron derives and has derived substantial revenue. For example, during the period relevant to this litigation, Chevron owned and operated a 58,000-barrel-per-day refinery on O'ahu. Chevron owns and operates four fossil fuel storage terminals on O'ahu, Maui, Kaua'i, and the Big Island. Additionally, Chevron markets and/or has marketed gasoline and other fossil fuel products to consumers, including through over eighty Chevron-branded petroleum services stations in Hawai'i. Chevron offers proprietary credit cards known as the "Chevron Techron Advantage Card," and "Texaco Techron Advantage Card," which allow consumers in Hawai'i to pay for gasoline and other products at Chevron- and/or Texaco-branded service stations, and which encourage consumers in Hawai'i to use Chevron- and/or Texaco-branded service stations by offering various rewards, including discounts on gasoline purchases at Chevron and/or Texaco service stations and cash rebates. Chevron maintains an interactive website by which it directs prospective customers to Chevron- and Texaco-branded service stations in Hawai'i. Chevron further maintains smartphone applications known as the "Chevron App" and "Texaco App" that offer Hawai'i consumers a cashless payment method for gasoline and other products at Chevron- and/or Texaco-branded service stations. Consumers in Hawai'i utilize the payment method by providing their credit card information through the application. Consumers in Hawai'i can also receive rewards including discount on gasoline purchases by registering their personal identifying information into the

Chevron App and Texaco App and using the application to identify and activate gas pumps at Chevron and/or Texaco service stations during a purchase.

**23. BHP Entities**

a. BHP is a dual-listed company consisting of two parent companies: BHP Group Limited, which is registered in Australia and maintains its headquarters in Melbourne, Victoria, Australia; and BHP Group plc, which is registered in England and Wales, and maintains its headquarters in London, England. Collectively, those entities are referred to herein as “BHP Group.”

b. BHP Group operates as a multinational, vertically-integrated, petroleum, natural gas, and coal company, consisting of multiple affiliates, subsidiaries, and segments. BHP Group’s fossil fuel products-related operations consist of exploration, evaluation, development, extraction, processing, transportation, marketing, and logistics.

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

d. BHP Group 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. On information and belief, each of BHP Group’s subsidiaries functions as an alter ego of BHP Group, including by conducting fossil fuel-related business in Hawai‘i that BHP Group would otherwise conduct if it were present in Hawai‘i, sharing directors and officers with supervisory roles over both BHP Group and the subsidiary, and employing the same people.

f. BHP Group owns several subsidiaries that do fossil fuel products-related business in the United States, including in Hawai'i, including, but not limited to, BHP Hawaii Inc. BHP Hawaii Inc. is incorporated in Hawai'i.

g. "BHP," as used hereafter, refers to BHP Group and BHP Hawaii Inc., together with their predecessors, successors, parents, subsidiaries, affiliates, and divisions.

h. BHP has tortiously distributed, marketed, advertised, and promoted its products in Hawai'i, with knowledge that those products have caused and will continue to cause climate crisis-related injuries in Hawai'i, including to the City. A substantial portion of BHP's fossil fuel products are or have been manufactured, refined, traded, distributed, promoted, marketed, sold, and/or consumed in Hawai'i, from which BHP derives and has derived substantial revenue. For example, BHP owned and operated a fossil fuel refinery in Kapolei on O'ahu during the time relevant to this litigation. Additionally, BHP marketed fossil fuel products to Hawai'i consumers through more than thirty BHP-branded retail petroleum service stations throughout Hawai'i.

#### 24. **BP Entities**

a. BP P.L.C. is a multi-national, 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. consists of three main operating segments: (1) exploration and production, (2) refining and marketing, and (3) gas power and renewables. BP P.L.C. is the ultimate parent company of numerous subsidiaries, referred to collectively as the "BP Group," 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. 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. For instance, BP P.L.C. reported that in 2016–17 it brought online thirteen major exploration and production projects. Those contributed to a 12-percent increase in the BP Group's overall fossil fuel product production. Those projects were carried out by BP P.L.C.'s subsidiaries. Based on those projects, BP P.L.C. expects the BP Group to deliver to customers 900,000 barrels of new product per day by 2021. BP P.L.C. further reported that in 2017 it sanctioned three new exploration projects in Trinidad, India, and the Gulf of Mexico.

c. BP P.L.C. controls and has controlled companywide decisions related to climate change and greenhouse gas emissions from its fossil fuel products, including those of its subsidiaries. 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 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. BP P.L.C. reviews climate change risks facing the BP Group through two executive committees as part of BP Group's established management structure, and directs Group-wide strategy and decisions regarding climate change.

d. On information and belief, each of BP P.L.C.'s subsidiaries functions as an alter ego of BP P.L.C., including by conducting fossil fuel-related business in Hawai'i that BP



P.L.C. would otherwise conduct if it were present in Hawai'i, sharing directors and officers with supervisory roles over both BP P.L.C. and the subsidiary, and employing the same people.

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. is registered to do business in Hawai'i and has a registered agent for service of process in Honolulu, Hawai'i. 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 its division, the Arco Chemical Company.

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

g. BP has and continues to tortiously distribute, market, advertise, and promote its products in Hawai'i, with knowledge that those products have caused and will continue to cause climate crisis-related injuries in Hawai'i, including to the City. A substantial

portion of BP's fossil fuel products are or have been supplied, transported, traded, distributed, promoted, marketed, sold, and/or consumed in Hawai'i, from which BP derives and has derived substantial revenue. For example, BP directly and through its subsidiaries and/or predecessors in interest supplied substantial quantities of fossil fuel products, including but not limited to crude oil, to Hawai'i during the period relevant to this litigation. At times relevant to this complaint, BP engaged in the production of crude oil in Alaska, a substantial portion of which is shipped to, shipped through, and sold to refinery customers in Hawai'i. BP maintains an interactive website by which it directs prospective customers to retail locations in Hawai'i offering BP's fossil fuel products for sale, including but not limited to its Castrol brand of lubricants. BP offers a proprietary credit card known as the "BP Credit Card," which allows consumers in Hawai'i to pay for gasoline and other products. Consumers who use the BP Credit Card receive various rewards, including discounts on gasoline purchases.

**25. Marathon Petroleum Corporation**

a. Marathon Petroleum Corporation is a multinational energy company incorporated in Delaware and with its principal place of business in Findlay, Ohio. Marathon Petroleum Corporation was spun off from the operations of Marathon Oil Corporation in 2011. It consists of multiple subsidiaries and affiliates involved in fossil fuel product refining, marketing, retail, and transport, including both petroleum and natural gas products. Marathon Petroleum Corporation merged in October 2018 with Andeavor Corporation, formerly known as Tesoro Corporation.

b. Marathon Petroleum Corporation is a successor-in-interest to Tesoro Corporation and Tesoro Hawaii Corporation.

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

d. Marathon Petroleum 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. On information and belief, each of Marathon Petroleum Corporation's subsidiaries functions as an alter ego of Marathon Petroleum Corporation, including by conducting fossil fuel-related business in Hawai'i that Marathon Petroleum Corporation would otherwise conduct if it were present in Hawai'i, sharing directors and officers with supervisory roles over both Marathon Petroleum Corporation and the subsidiary, and employing the same people.

f. Defendant Marathon Petroleum Corporation and its predecessors, successors, parents, subsidiaries, affiliates, and divisions, are collectively referred to as "Marathon."

g. Marathon has and continues to tortiously distribute, market, advertise, and promote its products in Hawai'i, with knowledge that those products have caused and will continue to cause climate crisis-related injuries in Hawai'i, including to the City. A substantial portion of Marathon's fossil fuel products are or have been refined, transported, traded, distributed, promoted, marketed, manufactured, sold, and/or consumed in Hawai'i, from which Marathon derives and has derived substantial revenue. For example, during the time relevant to this litigation, Marathon marketed gasoline and other fossil fuel products to consumers in Hawai'i, including through over thirty petroleum service stations it owned in Hawai'i and

operated under the “Tesoro” name. Additionally, during the time relevant to this litigation, Marathon owned and operated the largest petroleum refinery in Hawai‘i which was capable of refining 94,000 barrels of fossil fuel per day.

**26. ConocoPhillips Entities**

a. ConocoPhillips is a multinational energy company incorporated in the State of 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’ most recent annual report subsumes the operations of the entire ConocoPhillips group of subsidiaries under its name. Therein, 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.” 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.

c. 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 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.

d. On information and belief, each of ConocoPhillips's subsidiaries functions as an alter ego of ConocoPhillips, including by conducting fossil fuel-related business in Hawai'i that ConocoPhillips would otherwise conduct if it were present in Hawai'i, sharing directors and officers with supervisory roles over both ConocoPhillips and the subsidiary, and employing the same people.

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 qualified to do business in Hawai'i and has a registered agent for service of process in Honolulu, Hawai'i.

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 formerly 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 is qualified to

do business in Hawai'i and has a registered agent for service of process in Honolulu, Hawai'i. 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 (a predecessor-in-interest of defendant Aloha Petroleum, Ltd.).

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."

i. ConocoPhillips has and continues to tortiously distribute, market, advertise, and promote its products in Hawai'i, with knowledge that those products have caused and will continue to cause climate crisis-related injuries in Hawai'i, including to the City. A substantial portion of ConocoPhillips's fossil fuel products are or have been transported, traded, distributed, promoted, marketed, manufactured, sold, and/or consumed in Hawai'i, from which ConocoPhillips derives and has derived substantial revenue. For instance, ConocoPhillips transports and delivers crude oil to purchasers, refiners, and/or distributors in Hawai'i, including through its subsidiaries. ConocoPhillips has owned and/or operated a bulk fossil fuel terminal near Honolulu, at which it received imported fossil fuels for distribution and sale throughout Hawai'i. ConocoPhillips has marketed and/or markets gasoline and other fossil fuel products to consumers in Hawai'i, including through ConocoPhillips Phillips 66, and/or 76-branded petroleum service stations located in Hawai'i. ConocoPhillips maintains an interactive website by which it directs prospective customers to retail locations in Hawai'i offering ConocoPhillips' and Phillips 66's fossil fuel products for sale, including but not limited to 76-branded gasoline and service stations. ConocoPhillips also offers multiple proprietary credit cards, including the "Drive Savvy Rewards Credit Card" and the "76 Fleet Card," which allow consumers and

business customers in Hawai‘i to pay for gasoline and other products at Phillips 66, Conoco, and 76 branded service stations. Consumers who use ConocoPhillips’ proprietary credit cards receive various rewards, including discounts on gasoline purchases. ConocoPhillips further maintains smartphone applications, including the “My 76 App” and the “My Phillips 66 App,” which offer Hawai‘i consumers a cashless payment method for gasoline and other products at Phillips 66- and 76-branded service stations. Hawai‘i consumers utilize the payment method by providing their credit card information through the application. Hawai‘i consumers can also receive rewards including discounts on gasoline purchases by registering their personal identifying information into the My 76 App and My Phillips 66 App and using the application to identify and activate gas pumps at service stations during a purchase.

**C. Relevant Non-Parties: Fossil Fuel Industry Associations**

27. As set forth in greater detail below, each Defendant had actual knowledge that its fossil fuel products were hazardous. Defendants obtained knowledge of the hazards of their products independently and through their membership and involvement in trade associations.

28. Each Defendant’s fossil fuel promotion and marketing efforts were assisted by fossil fuel and manufacturing trade associations, including but not limited to those described below. Acting on behalf of the Defendants and others, the industry associations engaged in a long-term course of conduct on Defendants’ behalf to misrepresent, omit, and conceal the dangers of Defendants’ fossil fuel products.

a. **The American Petroleum Institute (API):** API is a national trade association formed in 1919 and based in the District of Columbia. API’s purpose is to advance the individual members’ collective business interests. Among other functions, API coordinates among members of the petroleum industry and gathers information of interest to the industry and

disseminates that information to its members. 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. The following Defendants and/or their predecessors in interest are and/or have been API members at times relevant to this litigation: Exxon, BP, Shell, Marathon, Chevron, BHP, ConocoPhillips, and Sunoco. Relevant information known to be held by API was also held by Defendants and their predecessors-in-interest through (a) distribution of information held by API to its members and (b) participation of officers and other personnel of Defendants and their predecessors-in-interest in API boards, committees, and task forces. API has been a member of at least five organizations that have promoted disinformation about fossil fuel products to consumers, including the Global Climate Coalition, Partnership for a Better Energy Future, Coalition for American Jobs, Alliance for Energy and Economic Growth, and Alliance for Climate Strategies.

b. **The Western States Petroleum Association (WSPA):** WSPA is a trade association representing oil producers in Arizona, California, Nevada, Oregon, and Washington.<sup>10</sup> The following Defendants and/or their predecessors in interest are and/or have been WSPA members at times relevant to this litigation: Exxon, BP, Chevron, Shell, and ConocoPhillips.<sup>11</sup>

c. **The American Fuel and Petrochemical Manufacturers (AFPM):** AFPM is a national association of petroleum and petrochemical companies. AFPM has promoted disinformation about fossil fuel products to consumers, through its membership in Partnership

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<sup>10</sup> Western States Petroleum Association, *About* (webpage), <https://www.wspa.org/about>. (accessed Jan. 23, 2020)

<sup>11</sup> Western States Petroleum Association, *Member Companies* (webpage) (accessed Jan. 23, 2020), <https://www.wspa.org/about>.



for a Better Energy Future. The following Defendants and/or their predecessors in interest are and/or have been AFPM members at times relevant to this litigation: Exxon, BP, Marathon, Chevron, and ConocoPhillips.<sup>12</sup>

d. **U.S. Oil & Gas Association (USOGA)** is a national trade association representing oil and gas producers, formerly known as the Mid-Continent Oil & Gas Association. The following Defendants and/or their predecessors in interest are and/or have been USOGA members at times relevant to this litigation: Exxon, BP, Chevron, BHP, and ConocoPhillips.<sup>13</sup>

e. **Western Oil & Gas Association** was a California nonprofit trade association representing the oil and gas industries, consisting of over 75 member companies. Its members included companies and individual responsible for more than 65 percent of petroleum production and 90 percent of petroleum refining and marketing in the Western United States.<sup>14</sup> The following Defendants and/or their predecessors in interest are and/or have been WOGA members at times relevant to this litigation: Exxon, Chevron, ConocoPhillips, and Shell.<sup>15</sup>

f. **The Information Council for the Environment (ICE)**: ICE was formed by coal companies and their allies, including Western Fuels Association and the National Coal Association. Associated companies included Pittsburg and Midway Coal Mining (Chevron).

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<sup>12</sup> American Fuel and Petrochemical Manufacturers, *Membership Directory* (webpage), <https://www.afpm.org/membership-directory>, (accessed Jan. 23, 2020).

<sup>13</sup> *See, e.g.*, Louisiana Mid-Continent Oil & Gas Association, *Member Companies* (webpage) <https://www.lmoga.com/membership/member-companies>, (accessed Jan. 23, 2020).

<sup>14</sup> *Am. Petroleum Inst. v. Knecht*, 456 F. Supp. 889, 894 (C.D. Cal. 1978), *aff'd*, 609 F.2d 1306 (9th Cir. 1979).

<sup>15</sup> *Id.* at 894 n.3.

g. **The Global Climate Coalition (GCC):** GCC was an industry group formed to oppose greenhouse gas emission reduction initiatives. GCC was founded in 1989, shortly after the first meeting of the Intergovernmental Panel on Climate Change (“IPCC”), the United Nations body for assessing the science related to climate change. GCC disbanded in or around 2001. Founding members included API. Over the course of its existence, GCC corporate members included Amoco (BP), API, Chevron, Exxon, Ford, Shell Oil, Texaco (Chevron) and Phillips Petroleum (ConocoPhillips). Over its existence other members and funders included ARCO (BP), and the Western Fuels Association.

### **III. AGENCY**

29. At all times herein mentioned, each of the Defendants was the agent, servant, partner, aider and abettor, co-conspirator, and/or joint venturer of each of the remaining Defendants herein and was at all times operating and acting within the purpose and scope of said agency, service, employment, partnership, conspiracy, and joint venture, and rendered substantial assistance and encouragement to the other Defendants, knowing that their conduct was wrongful and/or constituted a breach of duty.

### **IV. JURISDICTION AND VENUE**

30. This Court has subject matter jurisdiction over this civil action under Hawai‘i Revised Statutes section 603-21.5.

31. This Court has personal jurisdiction over Defendants because they either are domiciled in Hawai‘i; were served with process in Hawai‘i; are organized under the laws of Hawai‘i; maintain their principal place of business in Hawai‘i; transact business in Hawai‘i; perform work in Hawai‘i; contract to supply goods, manufactured products, or services in Hawai‘i; caused tortious injury in Hawai‘i; engage in persistent courses of conduct in Hawai‘i;

derive substantial revenue from manufactured goods, products, or services used or consumed in Hawai‘i; and/or have interests in, use, or possess real property in Hawai‘i.

32. Venue in this Court is proper under Hawai‘i Revised Statutes section 603-36(5) because the City’s claims for relief arose in the City and County of Honolulu.

## **V. FACTUAL BACKGROUND**

### **A. Climate Disruption—Cause and Effects**

33. Human-caused warming of the Earth is unequivocal. As a result, the atmosphere and oceans are warming, sea level is rising, snow and ice cover is diminishing, oceans are acidifying, and hydrologic systems have been altered, among other environmental changes.

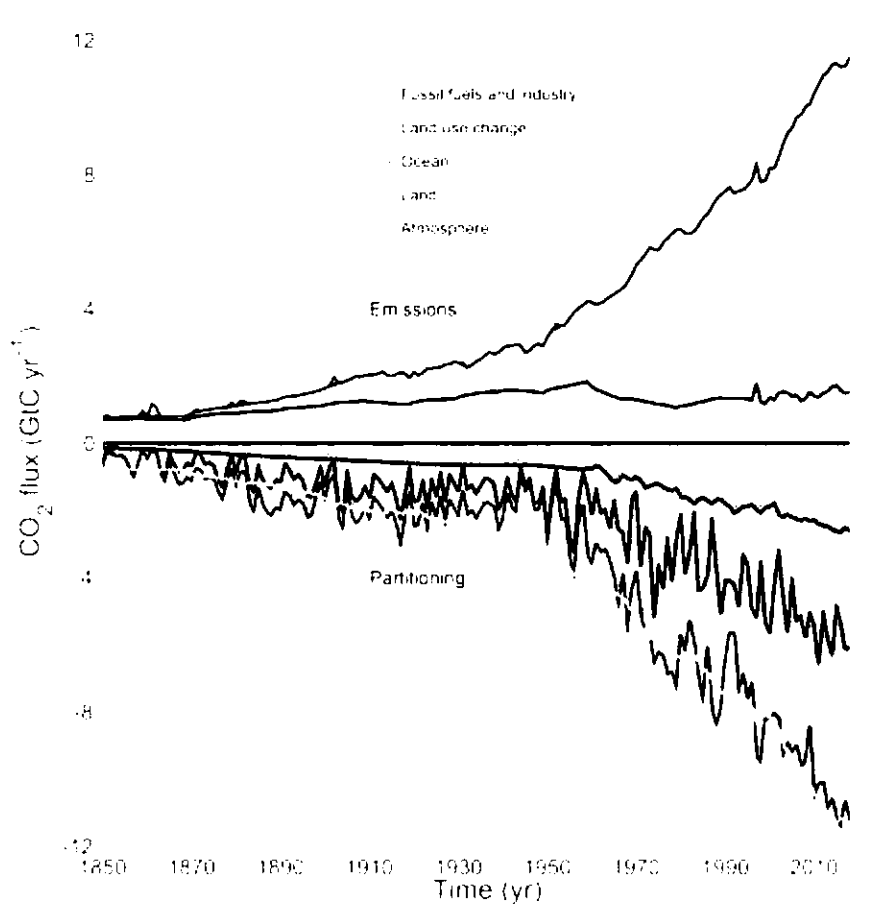
34. The mechanism by which human activity causes global warming and climate disruption is well-established: ocean and atmospheric warming is overwhelmingly caused by anthropogenic greenhouse gas emissions.

35. Greenhouse gases are largely byproducts of humans combusting fossil fuels to produce energy and using fossil fuels to create petrochemical products.

36. Prior to World War II, most anthropogenic CO<sub>2</sub> emissions were caused by land-use practices, such as forestry and agriculture, which altered the ability of the land and global biosphere to absorb CO<sub>2</sub> from the atmosphere; the impacts of such activities on Earth’s climate were relatively minor. Since that time, however, both the annual rate and total volume of anthropogenic CO<sub>2</sub> emissions have increased enormously following the advent of major uses of oil, gas, and coal.

37. The graph below illustrates the increasing annual rate of global CO<sub>2</sub> emissions since the 1850s, including those produced from combusting fossil fuel products, including

Defendants' products.<sup>16</sup>



**Figure 1: Annual Anthropogenic Carbon Dioxide Emissions and Partitioning in the Environment, 1850–2018**

38. Because of the increased burning of fossil fuel products, concentrations of greenhouse gases in the atmosphere are now at a level unprecedented in at least 3 million years.<sup>17</sup>

<sup>16</sup> P. Frumhoff et al. *The Climate Responsibilities of Industrial Carbon Producers*, 132 CLIMATIC CHANGE 157, 164 (2015), <https://link.springer.com/article/10.1007/s10584-015-1472-5>.

<sup>17</sup> *More CO<sub>2</sub> than ever before in 3 million years, shows unprecedented computer simulation*, SCIENCE DAILY (April 3, 2019), <https://www.sciencedaily.com/releases/2019/04/>

39. As greenhouse gases accumulate in the atmosphere, the Earth radiates less energy back to space. This accumulation and associated disruption of the Earth's energy balance have myriad environmental and physical consequences, including but not limited to the following:

- a. Warming of the Earth's average surface temperature both locally and globally, and increased frequency and intensity of heatwaves; to date, global average air temperatures have risen approximately 1 degree C (1.8 degrees F) above preindustrial temperatures; temperatures in particular locations have risen more;
- b. Sea level rise, due to the thermal expansion of warming ocean waters and runoff from melting glaciers and ice sheets;
- c. Flooding and inundation of land and infrastructure, increased erosion, higher wave run-up and tides, increased frequency and severity of storm surges, saltwater intrusion, and other impacts of higher sea levels;
- d. Changes to the global climate, and generally toward longer periods of drought interspersed with fewer and more severe periods of precipitation, and associated impacts on the quantity and quality of water resources available to both human and ecological systems;
- e. Ocean acidification, due to the increased uptake of atmospheric carbon dioxide by the oceans;
- f. Increased frequency and intensity of extreme weather events due to the increase in the atmosphere's ability to hold moisture and increased evaporation;
- g. Changes to terrestrial and marine ecosystems, and consequent impacts on the range of flora and fauna; and

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190403155436.htm; see also IPCC, 2014: *Climate Change 2014: Synthesis Report*, page 4, *supra* note 3.

- h. Adverse impacts on human health associated with extreme weather, extreme heat, decreased air quality, and vector-borne illnesses.

40. As discussed in Section H below, these consequences of Defendants' conduct and their exacerbation of the climate crisis are already impacting the City and will continue to increase in severity in the City.

41. Without Defendants' exacerbation of global warming caused by their conduct as alleged herein, the current physical and environmental changes caused by global warming would have been far less than those observed to date. Similarly, effects that will occur in the future would also be far less.<sup>18</sup>

## **B. Attribution**

42. Normal and intended use of Defendants' fossil fuel products released a substantial percentage of anthropogenic greenhouse gases to the atmosphere between 1965 and the present, with contributions currently continuing essentially unabated.

43. Defendants' contributions to the buildup of greenhouse gases via their fossil fuel products in the Earth's environment are quantifiable both individually and in the aggregate.

44. Defendants' efforts between 1965 and the present to deceive about the consequences of the normal use of their fossil fuel products; to conceal the hazards of those products from consumers; their promotion of their fossil fuel products despite knowing the dangers associated with those products; their dogged campaign against regulation of those products based on falsehoods, omissions, and deceptions; and their failure to pursue less hazardous alternative products available to them; unduly inflated the market for their fossil fuel

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<sup>18</sup> Peter U. Clark, et al., *Consequences of Twenty-First-Century Policy for Multi-Millennial Climate and Sea-Level Change*, NATURE CLIMATE CHANGE 6 at 365 ("Our modelling suggests that the human carbon footprint of about [470 billion tons] by 2000 . . . has already committed Earth to a [global mean sea level] rise of ~1.7m (range of 1.2 to 2.2 m).").

products. Consequently, substantially more anthropogenic greenhouse gases have been emitted to the environment than would have been absent that conduct.

45. By quantifying greenhouse gas pollution attributable to Defendants' products and conduct, climatic and environmental responses to those emissions are also calculable, and can be attributed to Defendants on an individual and aggregate basis.

46. Defendants' conduct caused a substantial portion of global atmospheric greenhouse gas concentrations, and the attendant historical, projected, and committed disruptions to the environment—and consequent injuries to the City—associated therewith.

47. Defendants, individually and together, have substantially and measurably contributed to the City's climate crisis-related injuries.

**C. Defendants Went to Great Lengths to Understand, and Either Knew or Should Have Known About the Dangers Associated with Their Fossil Fuel Products.**

48. The fossil fuel industry has known about the potential warming effects of greenhouse gas emissions since as early as the 1950s. In 1954, geochemist Harrison Brown and his colleagues at the California Institute of Technology wrote to the American Petroleum Institute, informing the trade association that preliminary measurements of natural archives of carbon in tree rings indicated that fossil fuels had caused atmospheric carbon dioxide levels to increase by about 5% since 1840.<sup>19</sup> The American Petroleum Institute funded the scientists for various research projects, and measurements of carbon dioxide continued for at least one year and possibly longer, although the results were never published or otherwise made available to the public.<sup>20</sup>

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<sup>19</sup> See Benjamin Franta, *Early oil industry knowledge of CO<sub>2</sub> and global warming*, NATURE CLIMATE CHANGE 8, 1024–25 (2018).

<sup>20</sup> *Id.*

49. In 1957, H. R. Brannon of Humble Oil (predecessor-in-interest to ExxonMobil) measured an increase in atmospheric carbon dioxide similar to that measured by Harrison Brown. Brannon communicated this information to the American Petroleum Institute. Brannon knew of Brown's measurements, compared them with his, and found they agreed. Brannon published his results in the scientific literature, which was available to Defendants and/or their predecessors-in-interest.<sup>21</sup>

50. In 1959, the American Petroleum Institute organized a centennial celebration of the American oil industry at Columbia University in New York City.<sup>22</sup> High-level representatives of Defendants were in attendance. One of the keynote speakers was the nuclear physicist Edward Teller. Teller warned the industry that "a temperature rise corresponding to a 10 per cent increase in carbon dioxide will be sufficient to melt the icecap and submerge . . . [a]ll the coastal cities." Teller added that 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."

51. Following his speech, Teller was asked to "summarize briefly the danger from increased carbon dioxide content in the atmosphere in this century." He responded that "there is a possibility the icecaps will start melting and the level of the oceans will begin to rise."

52. By 1965, concern over the potential for fossil fuel products to cause disastrous global warming reached the highest levels of the United States' scientific community. In that year, President Lyndon B. Johnson's Science Advisory Committee's Environmental Pollution Panel reported that a 25% increase in carbon dioxide concentrations could occur by the year

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<sup>21</sup> H. R. Brannon, Jr., A. C. Daughtry, D. Perry, W. W. Whitaker, and M. Williams, 1957. Radiocarbon evidence on the dilution of atmospheric and oceanic carbon by carbon from fossil fuels, AMERICAN GEOPHYSICAL UNION TRANSACTIONS 38, 643—650.

<sup>22</sup> See Allan Nevins & Robert G. Dunlop, Energy and Man: A Symposium (Appleton-Century-Crofts, New York) (1960); see also Franta, *supra* note 19, at 1024–25.



2000, that such an increase could cause significant global warming, that melting of the Antarctic ice cap and rapid sea level rise could result, and that fossil fuels were the clearest source of the pollution.<sup>23</sup> President Johnson announced in a special message to Congress that “[t]his generation has altered the composition of the atmosphere on a global scale through . . . a steady increase in carbon dioxide from the burning of fossil fuels.”<sup>24</sup>

53. Three days after President Johnson’s Science Advisory Committee report was published, the president of the American Petroleum Institute, Frank Ikard, addressed leaders of the petroleum industry in Chicago at the trade association’s annual meeting. Ikard relayed the findings of the report to industry leaders, saying,

The substance of the report is that there is still time to save the world’s peoples from the catastrophic consequence of pollution, but time is running out.<sup>25</sup>

Ikard also relayed that “by the year 2000 the heat balance will be so modified as possibly to cause marked changes in climate beyond local or even national efforts” and quoted the report’s finding that “the pollution from internal combustion engines is so serious, and is growing so fast, that an alternative nonpolluting means of powering automobiles, buses, and trucks is likely to become a national necessity.”

54. Thus, by 1965, Defendants and their predecessors-in-interest were aware that the scientific community had found that fossil fuel products, if used profligately, would cause global warming by the end of the century, and that such global warming would have wide-ranging and costly consequences.

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<sup>23</sup> President’s Science Advisory Committee, *Restoring the Quality of Our Environment: Report of the Environmental Pollution Panel*, 9 (Nov. 1965), <https://hdl.handle.net/2027/uc1.b4315678> (accessed Feb. 21, 2020)

<sup>24</sup> President Lyndon B. Johnson, *Special Message to Congress on Conservation and Restoration of Natural Beauty* (Feb. 8, 1965), <http://acsc.lib.udel.edu/items/show/292>.

<sup>25</sup> See Franta, *supra* note 19, at 1024–25.

55. In 1968, API received a report from the Stanford Research Institute, which it had hired to assess the state of research on environmental pollutants, including carbon dioxide.<sup>26</sup> The assessment endorsed the findings of President Johnson’s Scientific Advisory Council from three years prior, stating, “Significant temperature changes are almost certain to occur by the year 2000, and . . . there seems to be no doubt that the potential damage to our environment could be severe.” The scientists warned of “melting of the Antarctic ice cap” and informed API that [p]ast and present studies of CO<sub>2</sub> are detailed and seem to explain adequately the present state of CO<sub>2</sub> in the atmosphere.” What was missing, the scientists said, was work on “air pollution technology and . . . systems in which CO<sub>2</sub> emissions would be brought under control.”<sup>27</sup>

56. In 1969, the Stanford Research Institute delivered a supplemental report on air pollution to API, projecting with alarming particularity that atmospheric CO<sub>2</sub> concentrations would reach 370 ppm by 2000<sup>28</sup>—almost exactly what it turned out to be (369 ppm).<sup>29</sup> The report explicitly connected the rise in CO<sub>2</sub> levels to the combustion of fossil fuels, finding it “unlikely that the observed rise in atmospheric CO<sub>2</sub> has been due to changes in the biosphere.”

57. By virtue of their membership and participation in API at that time, Defendants received or should have received the Stanford Research Institute reports and were on notice of their conclusions.

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<sup>26</sup> Elmer Robinson & R.C. Robbins, *Sources, Abundance, and Fate of Gaseous Atmospheric Pollutants*, Stanford Research Institute (Feb. 1968), <https://www.smokeandfumes.org/documents/document16> (accessed Feb. 21, 2020).

<sup>27</sup> *Id.*

<sup>28</sup> Elmer Robinson & R.C. Robbins, *Sources, Abundance, and Fate of Gaseous Atmospheric Pollutants Supplement*, Stanford Research Institute (June 1969).

<sup>29</sup> NASA Goddard Institute for Space Studies, *Global Mean CO<sub>2</sub> Mixing Ratios (ppm): Observations*, <https://data.giss.nasa.gov/modelforce/ghgases/fig1A.ext.txt> (accessed Feb. 21, 2020).

58. In 1972, API members, including Defendants, received a status report on all environmental research projects funded by API. The report summarized the 1968 SRI report describing the impact of fossil fuel products, including Defendants', on the environment, including global warming and attendant consequences. Defendants and/or their predecessors-in-interest that received this report include, but were not limited to: American Standard of Indiana (BP), Asiatic (Shell), Ashland (Marathon), Atlantic Richfield (BP), British Petroleum (BP), Chevron Standard of California (Chevron), 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), Marathon, Mobil (ExxonMobil), Pan American (BP), Shell, Standard of Ohio (BP), Texaco (Chevron), Union (Chevron), Skelly (ExxonMobil), Colonial Pipeline (ownership has included BP, ExxonMobil, and Chevron entities, among others), Continental (ConocoPhillips), Dupont (former owner of Conoco), Phillips (ConocoPhillips), and Caltex (Chevron).<sup>30</sup>

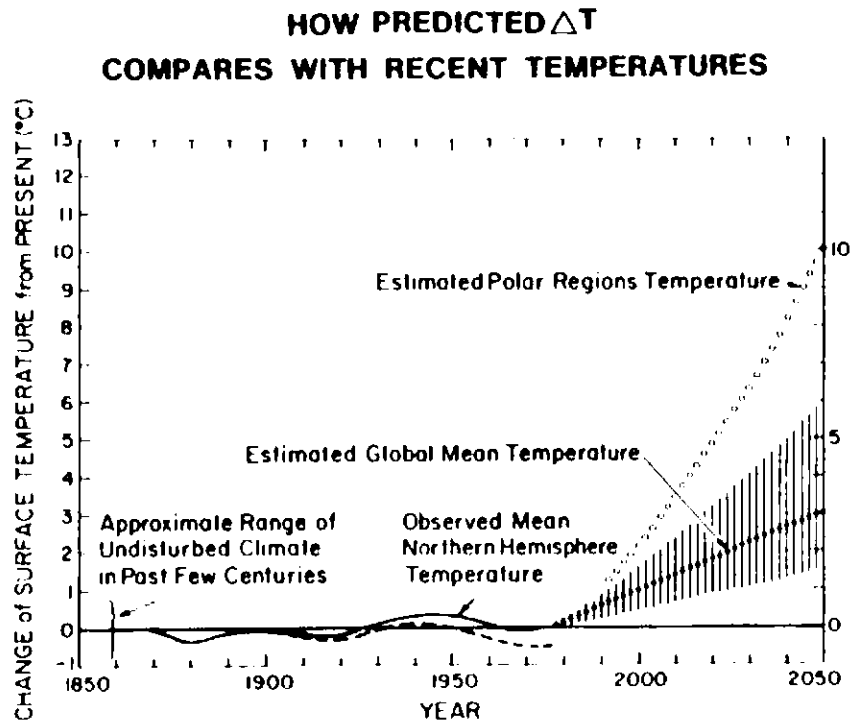
59. In 1977, James Black of Exxon's Products Research Division presented to the Exxon Corporation Management Committee on the greenhouse effect. The next year, in 1978, Black presented to another internal Exxon group, PERCC. In a memo to the Vice President of the Exxon Research and Engineering, Black summarized his presentations.<sup>31</sup> He reported that "current scientific opinion overwhelmingly favors attributing atmospheric carbon dioxide increase to fossil fuel consumption," and that doubling atmospheric carbon dioxide, according to the best climate model available, would "produce a mean temperature increase of about 2° C to

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<sup>30</sup> American Petroleum Institute, *Environmental Research, A Status Report*, Committee for Air and Water Conservation (Jan. 1972), <http://files.eric.ed.gov/fulltext/ED066339.pdf>.

<sup>31</sup> Memo from J.F. Black to F.G. Turpin, *The Greenhouse Effect*, Exxon Research and Engineering Company (June 6, 1978), <http://www.climatefiles.com/exxonmobil/1978-exxon-memo-on-greenhouse-effect-for-exxon-corporation-management-committee>.

3° C over most of the earth,” with double to triple as much warming at the poles. The figure below, reproduced from Black’s memo, illustrates Exxon’s understanding of the timescale and magnitude of global warming its products would cause.



**Figure 2: Future Global Warming Predicted Internally by Exxon in 1977<sup>32</sup>**

The impacts of such global warming, Black reported, would include “more rainfall,” which would “benefit some areas and would harm others.” “Some countries would benefit, but others could have their agricultural output reduced or destroyed. [...] Even those nations which are favored, however, would be damaged for a while since their agricultural and industrial patterns have been established on the basis of the present climate.” Black reported that “It is currently estimated that mankind has a 5–10 yr. time window to obtain the necessary information” and

<sup>32</sup> *Id.* The company predicted global warming of 3° C by 2050, with 10° C warming in polar regions. The difference between the dashed and solid curves prior to 1977 represents global warming that Exxon believed may already have been occurring.

“establish what must be done,” at which time, “hard decisions regarding changes in energy strategies might become critical.”

60. Also in 1977, Henry Shaw of the Exxon Research and Engineering Technology Feasibility Center attended a meeting of scientists and governmental officials in Atlanta, Georgia, on developing research programs to study carbon dioxide and global warming.<sup>33</sup> Shaw’s internal memo to Exxon’s John W. Harrison reported that “The climatic effects of carbon dioxide release may be the primary limiting factor on energy production from fossil fuels[.]”

61. In 1979, Exxon’s W. L. Ferrall distributed an internal memorandum.<sup>34</sup> The memo reported: “The most widely held theory [about global warming] is that: The increase [in carbon dioxide] is due to fossil fuel combustion; [i]ncreasing CO<sub>2</sub> 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 potential problem is great and urgent.” The memo stated that if limits were not placed on fossil fuel production:

Noticeable temperature changes would occur around 2010 as the [carbon dioxide] concentration reaches 400 ppm [parts per million]. Significant climatic changes occur around 2035 when the concentration approaches 500 ppm. A doubling of the pre-industrial concentration [*i.e.*, 580 ppm] occurs around 2050. The doubling would bring about dramatic changes in the world’s environment[.]

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<sup>33</sup> Henry Shaw, *Environmental Effects of Carbon Dioxide*. Oct. 31, 1977. Climate Investigations Center Collection. Climate Investigations Center. <https://www.industrydocuments.ucsf.edu/docs/tpwl0228> (accessed Feb. 21, 2020).

<sup>34</sup> Exxon Research and Engineering Company, Ferrall, WL; Knisely, S. Controlling the CO<sub>2</sub> Concentration in the Atmosphere (Oct. 16, 1979), Climate Investigations Center Collection. Climate Investigations Center. <https://www.industrydocuments.ucsf.edu/docs/mqwl0228> (accessed Feb. 21, 2020).

Those projections proved remarkably accurate: annual average atmospheric CO<sub>2</sub> concentrations surpassed 400 parts per million in 2015 for the first time in millions of years.<sup>35</sup> Limiting the carbon dioxide concentration in the atmosphere to 440 ppm, or a 50% increase over preindustrial levels, which the memo said was “assumed to be a relatively safe level for the environment,” would require fossil fuel emissions to peak in the 1990s and non-fossil energy systems to be rapidly deployed. Eighty percent of fossil fuel resources, the memo calculated, would have to be left in the ground to avoid doubling atmospheric carbon dioxide concentrations. Certain fossil fuels, such as shale oil, could not be substantially exploited at all.

62. In November 1979, Exxon’s Henry Shaw wrote to Exxon’s Harold Weinberg urging “a very aggressive defensive program in [...] atmospheric science and climate because there is a good probability that legislation affecting our business will be passed.”<sup>36</sup> Shaw stated that an expanded research effort was necessary to “influence possible legislation on environmental controls” and “respond” to environmental groups, which had already opposed synthetic fuels programs based on carbon dioxide emissions. Shaw suggested the formation of a “small task force” to evaluate a potential program in carbon dioxide and climate, acid rain, carcinogenic particulates, and other pollution issues caused by fossil fuels.

63. In 1979, the API and its members, including Defendants, convened a Task Force to monitor and share cutting edge climate research among the oil industry. The group was initially called the CO<sub>2</sub> and Climate Task Force, but in 1980 changed its name to the Climate and

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<sup>35</sup> Nicola Jones, *How the World Passed a Carbon Threshold and Why It Matters*, YALE ENVIRONMENT 360 (Jan. 26, 2017), <http://e360.yale.edu/features/how-the-world-passed-a-carbon-threshold-400ppm-and-why-it-matters> (accessed Feb. 21, 2020).

<sup>36</sup> Henry Shaw, Memo from H Shaw to HN Weinberg Regarding Research in Atmospheric Science (Nov. 19, 1979), Climate Investigations Center Collection. Climate Investigations Center. <https://www.industrydocuments.ucsf.edu/docs/yqwl0228> (accessed Feb. 21, 2020)

Energy Task Force (hereinafter referred to as “API CO<sub>2</sub> Task Force”). Membership included senior scientists and engineers from nearly every major U.S. and multinational oil and gas company, including Exxon, Mobil (ExxonMobil), Amoco (BP), Phillips (ConocoPhillips), Texaco (Chevron), Shell, Sunoco, Sohio (BP), as well as Standard Oil of California (BP) and Gulf Oil (Chevron), among others. The Task Force was charged with monitoring government and academic research, evaluating where the implications of emerging science for the petroleum and gas industries and identifying where reductions in greenhouse gas emissions from Defendants’ fossil fuel products could be made.<sup>37</sup>

64. In 1979, the API prepared a background paper on carbon dioxide and climate for the CO<sub>2</sub> and Climate Task Force, stating that CO<sub>2</sub> concentrations were rising steadily in the atmosphere, and predicting when the first clear effects of global warming might be detected.<sup>38</sup> The API reported to its members that although global warming would occur, it would likely go undetected until approximately the year 2000, because, the API believed, its effects were being temporarily masked by a natural cooling trend. However, this cooling trend, the API warned its members, would reverse around 1990, adding to the warming caused by carbon dioxide.

65. In 1980, the API’s CO<sub>2</sub> Task Force invited Dr. John Laurmann, “a recognized expert in the field of CO<sub>2</sub> and climate,” to present to its members.<sup>39</sup> The meeting lasted for seven

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<sup>37</sup> Neela Banerjee, *Exxon’s Oil Industry Peers Knew About Climate Dangers in the 1970s, Too*, INSIDE CLIMATE NEWS (Dec. 22, 2015), <https://insideclimatenews.org/news/22122015/exxon-mobil-oil-industry-peers-knew-about-climate-change-dangers-1970s-american-petroleum-institute-api-shell-chevron-texaco> (accessed Jan. 28, 2020).

<sup>38</sup> RJ Campion, *Memorandum from RJ Campion to JT Burgess Regarding the API’s Background Paper on CO<sub>2</sub> Effects* (Sept. 6, 1979), <https://www.industrydocuments.ucsf.edu/docs/lqwl0228>.

<sup>39</sup> American Petroleum Institute, Nelson, Jimmie J. *The CO<sub>2</sub> Problem; Addressing Research Agenda Development* (March 18, 1980), Climate Investigations Center Collection. Climate Investigations Center. <https://www.industrydocuments.ucsf.edu/docs/gfl10228> (accessed Feb. 21, 2020).

hours and included a “complete technical discussion” of global warming caused by fossil fuels, including “the scientific basis and technical evidence of CO<sub>2</sub> buildup, impact on society, methods of modeling and their consequences, uncertainties, policy implications, and conclusions that can be drawn from present knowledge.” Representatives from Standard Oil of Ohio (predecessor to BP), Texaco (now Chevron), Exxon, and the API were present, and the minutes of the meeting were distributed to the entire API CO<sub>2</sub> Task Force. Laurmann informed the Task Force of the “scientific consensus on the potential for large future climatic response to increased CO<sub>2</sub> levels” and that there was “strong empirical evidence that [the carbon dioxide] rise [was] caused by anthropogenic release of CO<sub>2</sub>, mainly from fossil fuel burning.” Unless fossil fuel production and use were controlled, atmospheric carbon dioxide would be twice preindustrial levels by 2038, with “likely impacts” along the following trajectory:

1° C RISE (2005): BARELY NOTICEABLE

2.5° C RISE (2038): MAJOR ECONOMIC CONSEQUENCES, STRONG REGIONAL DEPENDENCE

5° C RISE (2067): GLOBALLY CATASTROPHIC EFFECTS

Laurmann warned the API CO<sub>2</sub> Task Force that global warming of 2.5° C could “bring[] world economic growth to a halt[.]” Laurmann also suggested that action should be taken immediately, asking, “Time for action?” and noting that if achieving high market penetration for new energy sources would require a long time period (*e.g.*, decades), then there would be “no leeway” for delay. The minutes of the API CO<sub>2</sub> Task Force’s meeting show that one of the Task Force’s goals was “to help develop ground rules for [...] the cleanup of fuels as they relate to CO<sub>2</sub> creation,” and the Task Force discussed the requirements for a worldwide “energy source changeover” away from fossil fuels.



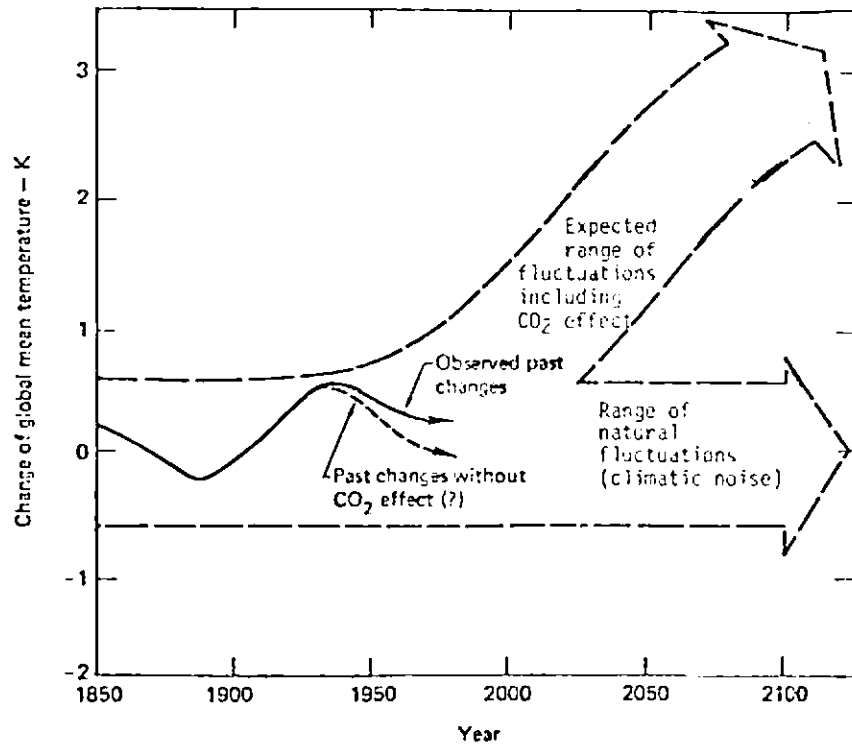
66. In 1980, Imperial Oil Limited (a Canadian ExxonMobil subsidiary) reported to managers and environmental staff at multiple affiliated Esso and Exxon companies that there was “no doubt” that fossil fuels were aggravating the build-up of CO<sub>2</sub> in the atmosphere.<sup>40</sup> Imperial noted that “Technology exists to remove CO<sub>2</sub> from stack gases but removal of only 50% of the CO<sub>2</sub> would double the cost of power generation.”

67. In December 1980, Exxon’s Henry Shaw distributed a memorandum on the “CO<sub>2</sub> Greenhouse Effect.”<sup>41</sup> Shaw stated that the future buildup of carbon dioxide was a function of fossil fuel use, and that internal calculations performed at Exxon indicated that atmospheric carbon dioxide would double around the year 2060. According to the “most widely accepted” climate models, Shaw reported, such a doubling of carbon dioxide would “most likely” result in global warming of approximately 3° C, with a greater effect in polar regions. Calculations predicting a lower temperature increase, such as 0.25° C, were “not held in high regard by the scientific community,” Shaw said. Shaw also noted that the ability of the oceans to absorb heat could delay (but not prevent) the temperature increase “by a few decades,” and that natural, random temperature fluctuations would hide global warming from CO<sub>2</sub> until around the year 2000. The memo included the Figure below, which illustrates global warming anticipated by Exxon, as well as the company’s understanding that significant global warming would occur before exceeding the range of natural variability and being detected.

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<sup>40</sup> Imperial Oil Ltd., *Review of Environmental Protection Activities for 1978–1979* (Aug. 6, 1980), <http://www.documentcloud.org/documents/2827784-1980-Imperial-Oil-Review-of-Environmental.html#document/p2> (accessed Feb. 21, 2020).

<sup>41</sup> Henry Shaw to T. K. Kett (memo), *Exxon Research and Engineering Company’s Technological Forecast: CO<sub>2</sub> Greenhouse Effect* (Dec. 18, 1980), <https://www.documentcloud.org/documents/2805573-1980-Exxon-Memo-Summarizing-Current-Models-And.html>.



**Figure 3: Future Global Warming Predicted Internally by Exxon in 1980<sup>42</sup>**

The memo reported that such global warming would cause “increased rainfall[] and increased evaporation,” which would have a “dramatic impact on soil moisture, and in turn, on agriculture.” Some areas would turn to desert, and the American Midwest would become “much drier.” “[W]eeds and pests,” the memo reported, “would tend to thrive with increasing global average temperature.” Other “serious global problems” could also arise, such as the melting of the West Antarctic ice sheet, which “could cause a rise in the sea level on the order of 5 meters.” The memo called for “society” to pay the bill, estimating that some adaptive measures would cost no more than “a few percent” of Gross National Product (*i.e.*, 400 billion USD in 2018).<sup>43</sup>

<sup>42</sup> The company anticipated a doubling of carbon dioxide by around 2060 and that the oceans would delay the warming effect by a few decades, leading to approximately 3° C warming by the end of the century.

<sup>43</sup> For 2018 Gross National Product, *see* Federal Reserve Bank of St. Louis, Gross National Product. <https://fred.stlouisfed.org/series/GNPA> (accessed Feb. 21, 2020).

Exxon predicted that national policy action would not occur until around 1989, when the Department of Energy would finish a ten-year study of carbon dioxide and global warming.<sup>44</sup> Shaw also reported that Exxon had studied various responses for avoiding or reducing a carbon dioxide build-up, including “stopping all fossil fuel combustion at the 1980 rate” and “investigat[ing] the market penetration of non-fossil fuel technologies.” The memo estimated that such non-fossil energy technologies “would need about 50 years to penetrate and achieve roughly half of the total [energy] market.”

68. In February 1981, Exxon’s Contract Research Office prepared and distributed a “Scoping Study on CO<sub>2</sub>” to the leadership of Exxon Research and Engineering Company.<sup>45</sup> The study reviewed Exxon’s current research on carbon dioxide and considered whether to expand Exxon’s research on carbon dioxide or global warming further at that time. The study recommended against expanding Exxon’s research activities in those areas, because its current research programs were sufficient for achieving the company’s goals of closely monitoring federal research, building credibility and public relations value, and developing in-house expertise with regard to carbon dioxide and global warming. However, the study recommended that Exxon centralize its activities in monitoring, analyzing, and disseminating outside research being done on carbon dioxide and global warming. The study stated that Exxon’s James Black was actively monitoring and keeping the company apprised of outside research developments, including those on climate modeling and “CO<sub>2</sub>-induced effects.” The study also noted that other companies in the fossil fuel industry were “auditing Government meetings on the subject.” In

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<sup>44</sup> Henry Shaw to T. K. Kett (memo) (Dec. 18, 1980), *supra* note 41.

<sup>45</sup> Exxon Research and Engineering Company, Long, GH. [Letter from GH Long to PJ Lucchesi and the Others Regarding the Attached Report on Atmospheric CO<sub>2</sub> Scoping Study]. Feb. 05, 1981. Climate Investigations Center Collection. Climate Investigations Center; Exxon Mobil. <https://www.industrydocuments.ucsf.edu/docs/yxfl0228> (accessed Feb. 21, 2020).

discussing “options for reducing CO<sub>2</sub> build-up in the atmosphere,” the study noted that although capturing CO<sub>2</sub> from flue gases was technologically possible, the cost was high, and “energy conservation or shifting to renewable energy sources[] represent the only options that might make sense.”

69. Thus, by 1981, Exxon and other fossil fuel companies were actively monitoring all aspects of carbon dioxide and global warming research both nationally and internationally, and Exxon had recognized that a shift to renewable energy sources would be necessary to avoid a large carbon dioxide build-up in the atmosphere and resultant global warming.

70. Exxon scientist Roger Cohen warned his colleagues in a 1981 internal memorandum that “future developments in global data gathering and analysis, along with advances in climate modeling, may provide strong evidence for a delayed CO<sub>2</sub> effect of a truly substantial magnitude,” and that under certain circumstances it would be “very likely that we will unambiguously recognize the threat by the year 2000.”<sup>46</sup> Cohen had expressed concern that the memorandum understated the potential effects of unabated CO<sub>2</sub> emissions from Defendants’ fossil fuel products, saying, “it is distinctly possible that [Exxon Planning Division’s] [...] scenario will produce effects which will indeed be catastrophic (at least for a substantial fraction of the world’s population).”<sup>47</sup>

71. In 1981, Exxon’s Henry Shaw, the company’s lead climate researcher at the time, prepared a summary of Exxon’s current position on the greenhouse effect for Edward David Jr., president of Exxon Research and Engineering, stating in relevant part:

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<sup>46</sup> Roger W. Cohen, *Exxon Memo to W. Glass about possible “catastrophic” effect of CO<sub>2</sub>*, Exxon Inter-Office Correspondence (Aug. 18, 1981), <http://www.climatefiles.com/exxonmobil/1981-exxon-memo-on-possible-emission-consequences-of-fossil-fuel-consumption> (accessed Feb. 21, 2020)

<sup>47</sup> *Id.*

- “Atmospheric CO<sub>2</sub> will double in 100 years if fossil fuels grow at 1.4%/a<sup>2</sup>.
- 3° C global average temperature rise and 10° C at poles if CO<sub>2</sub> doubles.
  - Major shifts in rainfall/agriculture
  - Polar ice may melt”<sup>48</sup>

72. In 1982, another report prepared for API by scientists at the Lamont-Doherty Geological Observatory at Columbia University recognized that atmospheric CO<sub>2</sub> concentration had risen significantly compared to the beginning of the industrial revolution from about 290 parts per million to about 340 parts per million in 1981 and acknowledged that despite differences in climate modelers’ predictions, there was scientific consensus that “a doubling of atmospheric CO<sub>2</sub> from [ ] pre-industrial revolution value would result in an average global temperature rise of (3.0 ± 1.5)° C [5.4 ± 2.7° F].” It went further, warning that “[s]uch a warming can have serious consequences for man’s comfort and survival since patterns of aridity and rainfall can change, the height of the sea level can increase considerably and the world food supply can be affected.”<sup>49</sup> Exxon’s own modeling research confirmed this, and the company’s results were later published in at least three peer-reviewed scientific papers.<sup>50</sup>

73. Also in 1982, Exxon’s Environmental Affairs Manager distributed a primer on climate change to a “wide circulation [of] Exxon management [...] intended to familiarize Exxon

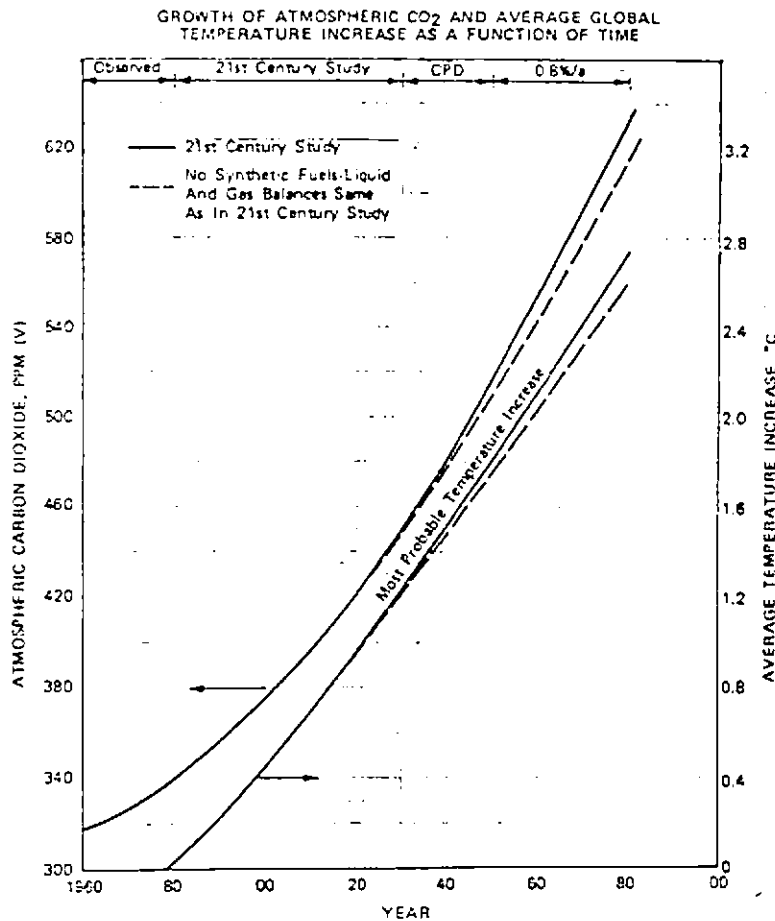
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<sup>48</sup> Henry Shaw, *Exxon Memo to E. E. David, Jr. regarding “CO<sub>2</sub> Position Statement”*, Exxon Inter-Office Correspondence (May 15, 1981), <https://insideclimatenews.org/documents/exxon-position-co2-1981> (accessed Feb. 21, 2020).

<sup>49</sup> American Petroleum Institute, *Climate Models and CO<sub>2</sub> Warming: A Selective Review and Summary*, Lamont-Doherty Geological Observatory (Columbia University) (Mar. 1982), <https://assets.documentcloud.org/documents/2805626/1982-API-Climate-Models-and-CO2-Warming-a.pdf> (accessed Feb. 21, 2020).

<sup>50</sup> See Roger W. Cohen, *Exxon Memo Summarizing Findings of Research in Climate Modeling*, Exxon Research and Engineering Company (Sept. 2, 1982), <https://insideclimatenews.org/documents/consensus-co2-impacts-1982> (discussing research articles) (accessed Feb. 21, 2020).

personnel with the subject.”<sup>51</sup> The primer was “restricted to Exxon personnel and not to be distributed externally.” The primer compiled science on climate change, confirmed fossil fuel combustion as a primary anthropogenic contributor to global warming, and estimated a CO<sub>2</sub> doubling [i.e., 580 ppm] by 2070 with a “Most Probable Temperature Increase” of more than 2° C over the 1979 level, as shown in the Figure below.



**Figure 4: Exxon’s Internal Prediction of Future Carbon Dioxide Increase and Global Warming from 1982<sup>52</sup>**

<sup>51</sup> M. B. Glaser, *Exxon Memo to Management Regarding “CO<sub>2</sub> ‘Greenhouse’ Effect”*, Exxon Research and Engineering Company (Nov. 12, 1982), [https://insideclimatenews.org/sites/default/files/documents/1982%20Exxon%20Primer%20on%20CO<sub>2</sub>%20Greenhouse%20Effect.pdf](https://insideclimatenews.org/sites/default/files/documents/1982%20Exxon%20Primer%20on%20CO2%20Greenhouse%20Effect.pdf) (accessed Feb. 21, 2020).

<sup>52</sup> *Id.* The company predicted a doubling of atmospheric carbon dioxide concentrations above pre-industrial levels by around 2070 (left curve), with a temperature increase of more than 2° C

The report also warned of “uneven global distribution of increased rainfall and increased evaporation,” that “disturbances in the existing global water distribution balance would have dramatic impact on soil moisture, and in turn, on agriculture,” and that the American Midwest would dry out. In addition to effects on global agriculture, the report stated, “there are some potentially catastrophic effects that must be considered.” Melting of the Antarctic ice sheet could result in global sea level rise of five meters, which would “cause flooding on much of the U.S. East Coast, including the State of Florida and Washington, D.C.” Weeds and pests would “tend to thrive with increasing global temperature.” The primer warned of “positive feedback mechanisms” in polar regions, which could accelerate global warming, such as deposits of peat “containing large reservoirs of organic carbon” becoming “exposed to oxidation” and releasing their carbon into the atmosphere. “Similarly,” the primer warned, “thawing might also release large quantities of carbon currently sequestered as methane hydrates” on the sea floor. “All biological systems would be affected,” and “the most severe economic effects could be on agriculture.” The report recommended studying “soil erosion, salinization, or the collapse of irrigation systems” in order to understand how society might be affected and might respond to global warming, as well as “[h]ealth effects” and “stress associated with climate related famine or migration[.]” The report estimated that undertaking “[s]ome adaptive measures” (not all of them) would cost “a few percent of the gross national product estimated in the middle of the next century”.<sup>53</sup> To avoid such impacts, the report discussed an analysis from the Massachusetts Institute of Technology and Oak Ridge National Laboratory, which studied energy alternatives

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over the 1979 level (right curve). The same document indicated that Exxon estimated that by 1979 a global warming effect of approximately 0.25° C may already have occurred.

<sup>53</sup> For 2018 Gross National Product, *see* Federal Reserve Bank of St. Louis, Gross National Product. <https://fred.stlouisfed.org/series/GNPA> (accessed Feb. 21, 2020).

and requirements for introducing them into widespread use, and which recommended that “vigorous development of non-fossil energy sources be initiated as soon as possible.”<sup>54</sup> The primer also noted that other greenhouse gases related to fossil fuel production, such as methane, could contribute significantly to global warming, and that concerns over carbon dioxide could be reduced if fossil fuel use were decreased due to “high price, scarcity, [or] unavailability.” “Mitigation of the ‘greenhouse effect’ would require major reductions in fossil fuel combustion,” the primer stated. The primer was widely distributed to Exxon leadership.

74. In September 1982, the Director of Exxon’s Theoretical and Mathematical Sciences Laboratory, Roger Cohen, wrote Alvin Natkin of Exxon’s Office of Science and Technology to summarize Exxon’s internal research on climate modeling.<sup>55</sup> Cohen reported:

[O]ver the past several years a clear scientific consensus has emerged regarding the expected climatic effects of increased atmospheric CO<sub>2</sub>. The consensus is that a doubling of atmospheric CO<sub>2</sub> from its pre-industrial revolution value would result in an average global temperature rise of  $(3.0 \pm 1.5)^{\circ}$  C. [...] The temperature rise is predicted to be distributed nonuniformly over the earth, with above-average temperature elevations in the polar regions and relatively small increases near the equator. There is unanimous agreement in the scientific community that a temperature increase of this magnitude would bring about significant changes in the earth’s climate, including rainfall distribution and alterations of the biosphere. The time required for doubling of atmospheric CO<sub>2</sub> depends on future world consumption of fossil fuels.

Cohen described Exxon’s own climate modeling experiments, reporting that they produced “a global average temperature increase that falls well within the range of the scientific consensus,” were “consistent with the published predictions of more complex climate models,” and were

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<sup>54</sup> M. B. Glaser, *Exxon Memo to Management regarding “CO<sub>2</sub> ‘Greenhouse’ Effect”*, Exxon Research and Engineering Company (Nov. 12, 1982). <https://insideclimatenews.org/sites/default/files/documents/1982%20Exxon%20Primer%20on%20CO2%20Greenhouse%20Effect.pdf> (accessed Feb. 21, 2020).

<sup>55</sup> Roger W. Cohen, *Exxon Memo Summarizing Findings of Research in Climate Modeling*, *supra* note 50.



“also in agreement with estimates of the global temperature distribution during a certain prehistoric period when the earth was much warmer than today.” “In summary,” Cohen wrote, “the results of our research are in accord with the scientific consensus on the effect of increased atmospheric CO<sub>2</sub> on climate.” Cohen noted that the results would be presented to the scientific community by Exxon’s collaborator Martin Hoffert at a Department of Energy meeting, as well as by Exxon’s Brian Flannery at the Exxon-supported Ewing Symposium, later that year.

75. In October 1982, the fourth biennial Maurice Ewing Symposium at the Lamont-Doherty Geophysical Observatory was attended by members of API and Exxon Research and Engineering Company. The Observatory’s president E.E. David delivered a speech titled: “Inventing the Future: Energy and the CO<sub>2</sub> ‘Greenhouse Effect.’”<sup>56</sup> His remarks included the following statement: “[F]ew people doubt that the world has entered an energy transition away from dependence upon fossil fuels and toward some mix of renewable resources that will not pose problems of CO<sub>2</sub> accumulation.” He went on, discussing the human opportunity to address anthropogenic climate change before the point of no return:

It is ironic that the biggest uncertainties about the CO<sub>2</sub> buildup are not in predicting what the climate will do, but in predicting what people will do. . . . [It] appears we still have time to generate the wealth and knowledge we will need to invent the transition to a stable energy system.

76. Throughout the early 1980s, at Exxon’s direction, Exxon climate scientist Henry Shaw forecasted emissions of CO<sub>2</sub> from fossil fuel use. Those estimates were incorporated into Exxon’s 21<sup>st</sup> century energy projections and were distributed among Exxon’s various divisions. Shaw’s conclusions included an expectation that atmospheric CO<sub>2</sub> concentrations would double in 2090 per the Exxon model, with an attendant 2.3–5.6° F average global temperature increase.

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<sup>56</sup> E. E. David, Jr., *Inventing the Future: Energy and the CO<sub>2</sub> Greenhouse Effect: Remarks at the Fourth Annual Ewing Symposium, Tenafly, NJ (1982)*, <http://sites.agu.org/publications/files/2015/09/ch1.pdf> (accessed Feb. 21, 2020).

Shaw compared his model results to those of the EPA, the National Academy of Sciences, and the Massachusetts Institute of Technology, indicating that the Exxon model predicted a longer delay than any of the other models, although its temperature increase prediction was in the mid-range of the four projections.<sup>57</sup>

77. During the 1980s, many Defendants formed their own research units focused on climate modeling. The API, including the API CO<sub>2</sub> Task Force, provided a forum for Defendants to share their research efforts and corroborate their findings related to anthropogenic greenhouse gas emissions.<sup>58</sup>

78. During this time, Defendants' statements expressed an understanding of their obligation to consider and mitigate the externalities of unabated promotion, marketing, and sale of their fossil fuel products. For example, in 1988, Richard Tucker, the president of Mobil Oil, presented at the American Institute of Chemical Engineers National Meeting, the premier educational forum for chemical engineers, where he stated:

[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 unintended consequences of industrialization. . . . Maintaining the health of this life-support system is emerging as one of the highest priorities. . . . [W]e must all be environmentalists.

The environmental covenant requires action on many fronts . . . the low-atmosphere ozone problem, the upper-atmosphere ozone problem and the greenhouse effect, to name a few. . . . Our strategy must be to reduce pollution before it is ever generated—to prevent problems at the source.

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<sup>57</sup> Neela Banerjee, *More Exxon Documents Show How Much It Knew About Climate 35 Years Ago*, INSIDE CLIMATE NEWS (Dec. 1, 2015), <https://insideclimatenews.org/news/01122015/documents-exxons-early-co2-position-senior-executives-engage-and-warming-forecast> (accessed Jan. 28, 2020).

<sup>58</sup> Neela Banerjee, *Exxon's Oil Industry Peers Knew About Climate Dangers in the 1970s, Too*, INSIDE CLIMATE NEWS (Dec. 22, 2015), <https://insideclimatenews.org/news/22122015/exxon-mobil-oil-industry-peers-knew-about-climate-change-dangers-1970s-american-petroleum-institute-api-shell-chevron-texaco> (accessed Jan. 28, 2020).

Prevention means engineering a new generation of fuels, lubricants and chemical products. . . . Prevention means designing catalysts and processes that minimize or eliminate the production of unwanted byproducts. . . . Prevention on a global scale may even require a dramatic reduction in our dependence on fossil fuels—and a shift towards solar, hydrogen, and safe nuclear power. It may be possible that—just possible—that the energy industry will transform itself so completely that observers will declare it a new industry. . . . Brute force, low-tech responses and money alone won't meet the challenges we face in the energy industry.<sup>59</sup>

79. Also in 1988, the Shell Greenhouse Effect Working Group issued a confidential internal report, “The Greenhouse Effect,” which acknowledged global warming’s anthropogenic nature: “Man-made carbon dioxide released into and accumulated in the atmosphere is believed to warm the earth through the so-called greenhouse effect.” The authors also noted the burning of fossil fuels as a primary driver of CO<sub>2</sub> buildup and warned that warming could “create significant changes in sea level, ocean currents, precipitation patterns, regional temperature and weather.” They further pointed to the potential for “direct operational consequences” of sea level rise on “offshore installations, coastal facilities and operations (e.g. platforms, harbors, refineries, depots).”<sup>60</sup>

80. Similar to early warnings by Exxon scientists, the Shell report notes 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.” The authors mention the need to consider policy changes on multiple occasions, noting that “the potential implications for the world are . . . so large that policy options need to be considered much earlier” and that

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<sup>59</sup> Richard E. Tucker, *High Tech Frontiers in the Energy Industry: The Challenge Ahead*, AIChE National Meeting (Nov. 30, 1988), <https://hdl.handle.net/2027/pur1.32754074119482> (accessed Feb. 21, 2020).

<sup>60</sup> Greenhouse Effect Working Group, *The Greenhouse Effect*, Shell Internationale Petroleum (May 1988), <https://www.documentcloud.org/documents/4411090-Documents3.html#document/p9/a411239> (accessed Feb. 21, 2020).

research should be “directed more to the analysis of policy and energy options than to studies of what we will be facing exactly.”<sup>61</sup>

81. In 1989, Esso Resources Canada (ExxonMobil) commissioned a report on the impacts 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 crossing Canada’s Northwest Territory.<sup>62</sup> It reported that “large zones of the Mackenzie Valley could be affected dramatically by climatic change” and that “the greatest concern in Norman Wells [oil town in North West Territories, Canada] should be the changes in permafrost that are likely to occur under conditions of climate warming.”<sup>63</sup> The report concluded that, in light of climate models showing a “general tendency towards warmer and wetter climate,” operation of those facilities would be compromised by increased precipitation, increase in air temperature, changes in permafrost conditions, and significantly, sea level rise and erosion damage.<sup>64</sup> The authors recommended factoring those eventualities into future development planning and also warned that “a rise in sea level could cause increased flooding and erosion damage on Richards Island.”

82. In 1991, Shell produced a film called “Climate of Concern.” The film advises that while “no two [climate change projection] scenarios fully agree, . . . [they] have each prompted the same serious warning. A warning endorsed by a uniquely broad consensus of scientists in their report to the UN at the end of 1990.” The warning was an increasing frequency of abnormal weather, and of sea level rise of about one meter over the coming century. Shell specifically

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<sup>61</sup> *Id.*

<sup>62</sup> See Stephen Lonergan & Kathy Young, *An Assessment of the Effects of Climate Warming on Energy Developments in the Mackenzie River Valley and Delta, Canadian Arctic*, 7 ENERGY EXPLORATION & EXPLOITATION 359–81 (1989).

<sup>63</sup> *Id.* at 369, 376.

<sup>64</sup> *Id.* at 360, 377–78.

described the impacts of anthropogenic sea level rise on tropical islands, “barely afloat even now, . . . [f]irst made uninhabitable and then obliterated beneath the waves. Wetland habitats destroyed by intruding salt. Coastal lowlands suffering pollution of precious groundwater.” It warned of “greenhouse refugees,” people who abandoned homelands inundated by the sea, or were displaced because of catastrophic changes to the environment. The video concludes with a stark admonition: “Global warming is not yet certain, but many think that the wait for final proof would be irresponsible. Action now is seen as the only safe insurance.”<sup>65</sup>

83. The fossil fuel industry was at the forefront of carbon dioxide research for much of the latter half of the 20<sup>th</sup> century. They developed cutting edge and innovative technology and worked with many of the field’s top researchers to produce exceptionally sophisticated studies and models. For instance, in the mid-nineties Shell began using scenarios to plan how the company could respond to various global forces in the future. In one scenario published in a 1998 internal report, Shell paints an eerily prescient scene:

In 2010, a series of violent storms causes extensive damage to the eastern coast of the U.S. Although it is not clear whether the storms are caused by climate change, people are not willing to take further chances. The insurance industry refuses to accept liability, setting off a fierce debate over who is liable: the insurance industry or the government. After all, two successive IPCC reports since 1993 have reinforced the human connection to climate change... 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

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<sup>65</sup>Jelmer Mommers, *Shell Made a Film About Climate Change in 1991 (Then Neglected To Heed Its Own Warning)*, DE CORRESPONDENT (Feb. 27, 2017), <https://thecorrespondent.com/6285/shell-made-a-film-about-climate-change-in-1991-then-neglected-to-heed-its-own-warning> (accessed Feb. 21, 2020).

had become fiercely anti-tobacco. Direct-action campaigns against companies escalate. Young consumers, especially, demand action.<sup>66</sup>

84. Fossil fuel companies did not just consider climate change impacts in scenarios. In the mid-1990s, ExxonMobil, Shell, and Imperial Oil (ExxonMobil) jointly undertook the Sable Offshore Energy Project in Nova Scotia. The project's own Environmental Impact Statement declared: "The impact of a global warming sea-level rise may be particularly significant in Nova Scotia. The long-term tide gauge records at a number of locations along the N.S. coast have shown sea level has been rising over the past century. . . . For the design of coastal and offshore structures, an estimated rise in water level, due to global warming, of 0.5 m [1.64 feet] may be assumed for the proposed project life (25 years)."<sup>67</sup>

85. Climate change research conducted by Defendants and their industry associations frequently acknowledged uncertainties in their climate modeling—those uncertainties, however, were merely with respect to the magnitude and timing of climate impacts resulting from fossil fuel consumption, not that significant changes would eventually occur. The Defendants' researchers and the researchers at their industry associations harbored little doubt that climate change was occurring and that fossil fuel products were, and are, the primary cause.

86. Despite the overwhelming information about the threats to people and the planet posed by continued unabated use of their fossil fuel products, Defendants failed to act as they reasonably should have to mitigate or avoid those dire adverse impacts. Defendants instead adopted the position, as described below, that they had a license to continue the unfettered

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<sup>66</sup> Royal Dutch/Shell Group, *Group Scenarios 1998–2020*, 115, 122 (1998), <http://www.documentcloud.org/documents/4430277-27-1-Compiled.html> (accessed Feb. 21, 2020)

<sup>67</sup> ExxonMobil, *Sable Project, Development Plan, Volume 3—Environmental Impact Statement*, Ch 4: Environmental Setting, 4-77, <http://soep.com/about-the-project/development-plan-application> (accessed Feb. 21, 2020).

pursuit of profits from those products. This position was an abdication of Defendants' responsibility to consumers and the public, including the City, to act on their unique knowledge of the reasonably foreseeable hazards of unabated production and consumption of their fossil fuel products.

**D. Defendants Did Not Disclose Known Harms Associated with the Extraction, Promotion, and Consumption of Their Fossil Fuel Products, and Instead Affirmatively Acted to Obscure Those Harms and Engaged in a Concerted Campaign to Evade Regulation.**

87. By 1988, Defendants had amassed a compelling body of knowledge about the role of anthropogenic greenhouse gases, and specifically those emitted from the normal use of Defendants' fossil fuel products, in causing global warming and its cascading impacts, including disruptions to the hydrologic cycle, extreme precipitation and drought, heatwaves, and associated consequences for human communities and the environment. On notice that their products were causing global climate change and dire effects on the planet, Defendants faced the decision whether or not to take steps to limit the damages their fossil fuel products were causing and would continue to cause Earth's inhabitants, including the people of the City.

88. Defendants at any time before or thereafter could and reasonably should have taken any number of steps to mitigate the damages caused by their fossil fuel products, and their own comments reveal an awareness of what some of those steps may have been. Defendants should have made reasonable warnings to consumers, the public, and regulators of the dangers known to Defendants of the unabated consumption of their fossil fuel products, and they could and should have taken reasonable steps to limit the potential greenhouse gas emissions arising out of their fossil fuel products.

89. But several key events during the period 1988–1992 appear to have prompted Defendants to change their tactics from general research and internal discussion on climate

change to a public campaign aimed at evading regulation of their fossil fuel products and/or emissions therefrom. They include:

- a. In 1988, National Aeronautics and Space Administration (NASA) scientists confirmed that human activities were actually contributing to global warming.<sup>68</sup> On June 23 of that year, NASA scientist James Hansen's presentation of this information to Congress engendered significant news coverage and publicity for the announcement, including coverage on the front page of the New York Times.
- b. On July 28, 1988, Senator Robert Stafford and four bipartisan co-sponsors introduced S. 2666, "The Global Environmental Protection Act," to regulate CO<sub>2</sub> and other greenhouse gases. Four more bipartisan bills to significantly reduce CO<sub>2</sub> pollution were introduced over the following ten weeks, and in August, U.S. presidential candidate George H.W. Bush pledged that his presidency would "combat the greenhouse effect with the White House effect."<sup>69</sup> Political will in the United States to reduce anthropogenic greenhouse gas emissions and mitigate the harms associated with Defendants' fossil fuel products was gaining momentum.
- c. In December 1988, the United Nations formed the Intergovernmental Panel on Climate Change (IPCC), a scientific panel dedicated to providing the world's governments with an objective, scientific analysis of climate change and its environmental, political, and economic impacts.

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<sup>68</sup> See Frumhoff et al., *supra* note 16.

<sup>69</sup> N.Y. TIMES, *The White House and the Greenhouse* (May 9, 1998), <http://www.nytimes.com/1989/05/09/opinion/the-white-house-and-the-greenhouse.html> (accessed Feb. 21, 2020).



- d. In 1990, the IPCC published its First Assessment Report on anthropogenic climate change,<sup>70</sup> in which it concluded that (1) “there is a natural greenhouse effect which already keeps the Earth warmer than it would otherwise be,” and (2) that

emissions resulting from human activities are substantially increasing the atmospheric concentrations of the greenhouse gases carbon dioxide, methane, chlorofluorocarbons (CFCs) and nitrous oxide. These increases will enhance the greenhouse effect, resulting on average in an additional warming of the Earth's surface. The main greenhouse gas, water vapour, will increase in response to global warming and further enhance it.<sup>71</sup>

The IPCC reconfirmed those conclusions in a 1992 supplement to the First Assessment report.<sup>72</sup>

- e. The United Nations began preparing for the 1992 Earth Summit in Rio de Janeiro, Brazil, a major, newsworthy gathering of 172 world governments, of which 116 sent their heads of state. The Summit resulted in the United Nations Framework Convention on Climate Change (UNFCCC), an international environmental treaty providing protocols for future negotiations aimed at “stabiliz[ing] greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”<sup>73</sup>

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<sup>70</sup> See IPCC, *Reports*, [http://www.ipcc.ch/publications\\_and\\_data/publications\\_and\\_data\\_reports.shtml](http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml).

<sup>71</sup> IPCC, *Climate Change: The IPCC Scientific Assessment*, “Policymakers Summary” (1990), [https://www.ipcc.ch/site/assets/uploads/2018/03/ipcc\\_far\\_wg\\_I\\_spm.pdf](https://www.ipcc.ch/site/assets/uploads/2018/03/ipcc_far_wg_I_spm.pdf) (accessed Feb. 21, 2020).

<sup>72</sup> IPCC, *1992 IPCC Supplement: Scientific Assessment* (1992), [https://www.ipcc.ch/site/assets/uploads/2018/05/ipcc\\_wg\\_I\\_1992\\_suppl\\_report\\_scientific\\_assessment.pdf](https://www.ipcc.ch/site/assets/uploads/2018/05/ipcc_wg_I_1992_suppl_report_scientific_assessment.pdf) (accessed Feb. 21, 2020).

<sup>73</sup> United Nations, *United Nations Framework Convention on Climate Change*, Article 2 (1992), <https://unfccc.int/resource/docs/convkp/conveng.pdf> (accessed Feb. 21, 2020).

90. Those world events marked a shift in public discussion of climate change, and the initiation of international efforts to curb anthropogenic greenhouse emissions—developments that had stark implications for, and would have diminished the profitability of, Defendants’ fossil fuel products.

91. But rather than collaborating with the international community by acting to forestall, or at least decrease, their fossil fuel products’ contributions to global warming and its impacts including, sea level rise, disruptions to the hydrologic cycle, and associated consequences to the City and other communities, Defendants embarked on a decades-long campaign designed to maximize continued dependence on their products and undermine national and international efforts to rein in greenhouse gas emissions.

92. Defendants’ campaign, which focused on concealing, discrediting, and/or misrepresenting information that tended to support restricting consumption of (and thereby decreasing demand for) Defendants’ fossil fuel products, took several forms. The campaign enabled Defendants to accelerate their business practice of exploiting fossil fuel reserves, and concurrently externalize the social and environmental costs of their fossil fuel products. Those activities stood in direct contradiction to Defendants’ own prior recognition that the science of anthropogenic climate change was clear and that action was needed to avoid or mitigate dire consequences to the planet and communities like the City.

93. Defendants took affirmative steps to conceal, from the City and the general public, the foreseeable impacts of the use of their fossil fuel products on the Earth’s climate and associated harms to people and communities. Defendants embarked on a concerted public relations campaign to cast doubt on the science connecting global climate change to fossil fuel products and greenhouse gas emissions, in order to influence public perception of the existence

of anthropogenic global warming and sea level rise, disruptions to weather cycles, extreme precipitation and drought, and other associated consequences. The effort included promoting their hazardous products through advertising campaigns that failed to warn of the existential risks associated with the use of those products, and the initiation and funding of climate change denialist organizations, designed to influence consumers to continue using Defendants' fossil fuel products irrespective of those products' damage to communities and the environment.

94. For example, in 1988, Joseph Carlson, an Exxon public affairs manager, described the "Exxon Position," which included, among others, two important messaging tenets: (1) "[e]mphasize the uncertainty in scientific conclusions regarding the potential enhanced Greenhouse Effect"; and (2) "[r]esist the overstatement and sensationalization [sic] of potential greenhouse effect which could lead to noneconomic development of non-fossil fuel resources."<sup>74</sup>

95. A 1994 Shell report entitled "The Enhanced Greenhouse Effect: A Review of the Scientific Aspects" by Royal Dutch Shell environmental advisor Peter Langcake stands in stark contrast to the company's 1988 report on the same topic. Whereas before, the authors recommended consideration of policy solutions early on, Langcake in 1994 warned of the potentially dramatic "economic effects of ill-advised policy measures." While the report recognized the IPCC conclusions as the mainstream view, Langcake still emphasized scientific uncertainty, noting, for example, that "the postulated link between any observed temperature rise and human activities has to be seen in relation to natural variability, which is still largely unpredictable." The Shell Group position is stated clearly in the report: "Scientific uncertainty and the evolution of energy systems indicate that policies to curb greenhouse gas emissions

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<sup>74</sup> Joseph M. Carlson, *Exxon Memo on "The Greenhouse Effect"* (Aug. 3, 1988), <https://assets.documentcloud.org/documents/3024180/1998-Exxon-Memo-on-the-Greenhouse-Effect.pdf> (accessed Feb. 21, 2020).

beyond 'no regrets' measures could be premature, divert resources from more pressing needs and further distort markets.”<sup>75</sup>

96. In 1991, for example, the Information Council for the Environment (ICE), whose members included affiliates, predecessors and/or subsidiaries of Defendants, launched a national climate change science denial campaign with full-page newspaper ads, radio commercials, a public relations tour schedule, “mailers,” and research tools to measure campaign success. Included among the campaign strategies was to “reposition global warming as theory (not fact).” Its target audience included older, less-educated males who are “predisposed to favor the ICE agenda, and likely to be even more supportive of that agenda following exposure to new info.”<sup>76</sup>

97. A goal of ICE’s advertising campaign was to change public opinion and avoid regulation. A memo from Richard Lawson, president of the National Coal Association asked members to contribute to the ICE campaign with the justification that “policymakers are prepared to act [on global warming]. Public opinion polls reveal that 60% of the American people already believe global warming is a serious environmental problem. Our industry cannot sit on the sidelines in this debate.”<sup>77</sup>

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<sup>75</sup> P. Langcake, *The Enhanced Greenhouse Effect: A review of the Scientific Aspects*, (Dec. 1994), <https://www.documentcloud.org/documents/4411099-Documents11.html#document/p15/a411511> (accessed in Feb. 21, 2020)

<sup>76</sup> Union of Concerned Scientists, *Deception Dossier #5: Coal’s “Information Council on the Environment” Sham* (1991), [http://www.ucsusa.org/sites/default/files/attach/2015/07/Climate-Deception-Dossier-5\\_ICE.pdf](http://www.ucsusa.org/sites/default/files/attach/2015/07/Climate-Deception-Dossier-5_ICE.pdf) (accessed Jan. 28, 2020).

<sup>77</sup> 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, Cambridge University Press (2011).

98. The following images are examples of ICE-funded print advertisements challenging the validity of climate science and intended to obscure the scientific consensus on anthropogenic climate change and induce political inertia to address it.<sup>78</sup>



**Figure 5: Information Council for the Environment Advertisements**

99. In 1996, Exxon released a publication called “Global Warming: Who’s Right? Facts about a debate that’s turned up more questions than answers.” In the publication’s preface, Exxon CEO Lee Raymond inaccurately stated that “taking drastic action immediately is unnecessary since many scientists agree there’s ample time to better understand the climate system.” The publication described the greenhouse effect as “unquestionably real and definitely a good thing,” while ignoring the severe consequences that would result from the influence of the increased CO<sub>2</sub> concentration on the Earth’s climate. Instead, it characterized the greenhouse effect as simply “what makes the earth’s atmosphere livable.” Directly contradicting Exxon’s

<sup>78</sup> Union of Concerned Scientists, *Deception Dossier #5: Coal’s “Information Council on the Environment”* Sham at 47-49 (1991), [http://www.ucsusa.org/sites/default/files/attach/2015/07/Climate-Deception-Dossier-5\\_ICE.pdf](http://www.ucsusa.org/sites/default/files/attach/2015/07/Climate-Deception-Dossier-5_ICE.pdf) (accessed Jan. 28, 2020).

own knowledge and peer-reviewed science, the publication ascribed the rise in temperature since the late 19<sup>th</sup> century to “natural fluctuations that occur over long periods of time” rather than to the anthropogenic emissions that Exxon itself and other scientists had confirmed were responsible. The publication also falsely challenged the computer models that projected the future impacts of unabated fossil fuel product consumption, including those developed by Exxon’s own employees, as having been “proved to be inaccurate.” The publication contradicted the numerous reports prepared by and circulated among Exxon’s staff, and by the API, stating that “the indications are that a warmer world would be far more benign than many imagine . . . moderate warming would reduce mortality rates in the US, so a slightly warmer climate would be more healthful.” Raymond concluded his preface by attacking advocates for limiting the use of his company’s fossil fuel products as “drawing on bad science, faulty logic, or unrealistic assumptions”—despite the important role that Exxon’s own scientists had played in compiling those same scientific underpinnings.<sup>79</sup>

100. API published an extensive report in the same year warning against concern over CO<sub>2</sub> buildup and any need to curb consumption or regulate the fossil fuel industry. The introduction stated that “there is no persuasive basis for forcing Americans to dramatically change their lifestyles to use less oil.” The authors discouraged the further development of certain alternative energy sources, writing that “government agencies have advocated the increased use of ethanol and the electric car, without the facts to support the assertion that either is superior to existing fuels and technologies” and that “policies that mandate replacing oil with specific alternative fuel technologies freeze progress at the current level of technology, and

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<sup>79</sup> Exxon Corp., *Global Warming: Who’s Right?* (1996), <https://www.documentcloud.org/documents/2805542-Exxon-Global-Warming-Whos-Right.html> (accessed Feb. 21, 2020).

reduce the chance that innovation will develop better solutions.” The paper also denied the human connection to climate change, by falsely stating that no “scientific evidence exists that human activities are significantly affecting sea levels, rainfall, surface temperatures or the intensity and frequency of storms.” The report’s message was false but clear: “Facts don’t support the arguments for restraining oil use.”<sup>80</sup>

101. In a speech presented at the World Petroleum Congress in Beijing in 1997 at which many of the Defendants were present, Exxon CEO Lee Raymond reiterated those views. This time, he presented a false dichotomy between stable energy markets and abatement of the marketing, promotion, and sale of fossil fuel products Defendants knew to be hazardous. He stated:

Some people who argue that we should drastically curtail our use of fossil fuels for environmental reasons . . . my belief [is] that such proposals are neither prudent nor practical. With no readily available economic alternatives on the horizon, fossil fuels will continue to supply most of the world’s and this region’s energy for the foreseeable future.

Governments also need to provide a stable investment climate...They should avoid the temptation to intervene in energy markets in ways that give advantage to one competitor over another or one fuel over another.

We also have to keep in mind that most of the greenhouse effects comes from natural sources . . . Leaping to radically cut this tiny sliver of the greenhouse pie on the premise that it will affect climate defies common sense and lacks foundation in our current understanding of the climate system.

Let’s agree there’s a lot we really don’t know about how climate will change in the 21st century and beyond . . . It is highly unlikely that the temperature in the middle of the next century will be significantly affected whether policies are enacted now or 20 years from now. It’s bad public policy to impose very costly regulations and restrictions when their need has yet to be proven.<sup>81</sup>

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<sup>80</sup> Sally Brain Gentile et al., *Reinventing Energy: Making the Right Choices*, American Petroleum Institute (1996), <http://www.climatefiles.com/trade-group/american-petroleum-institute/1996-reinventing-energy> (accessed March 5, 2020).

<sup>81</sup> Lee R. Raymond, *Energy—Key to Growth and a Better Environment for Asia-Pacific Nations*, World Petroleum Congress (Oct. 13, 1997),

102. Imperial Oil (ExxonMobil) CEO Robert Peterson falsely denied the established connection between Defendants' fossil fuel products and anthropogenic climate change in the Summer 1998 Imperial Oil Review, "A Cleaner Canada:"

[T]his issue [referring to climate change] has absolutely nothing to do with pollution and air quality. Carbon dioxide is not a pollutant but an essential ingredient of life on this planet . . . [T]he question of whether or not the 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 unproved hypothesis.<sup>82</sup>

103. Mobil (ExxonMobil) paid for a series of "advertorials," advertisements located in the editorial section of the New York Times and meant to look like editorials rather than paid ads. Those ads discussed various aspects of the public discussion of climate change and sought to undermine the justifications for tackling greenhouse gas emissions as unsettled science. The 1997 advertorial below<sup>83</sup> argued that economic analysis of emissions restrictions was faulty and inconclusive and therefore a justification for delaying action on climate change.

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<https://assets.documentcloud.org/documents/2840902/1997-Lee-Raymond-Speech-at-China-World-Petroleum.pdf> (accessed Feb. 21, 2020).

<sup>82</sup> Robert Peterson, *A Cleaner Canada* in *Imperial Oil Review* (1998), <https://www.documentcloud.org/documents/6555577-1998-Robert-PetersonA-Cleaner-Canada-Imperial.html> (accessed Feb. 21, 2020).

<sup>83</sup> Mobil, *When Facts Don't Square with the Theory, Throw Out the Facts*, N.Y. TIMES, A31 (Aug. 14, 1997), <https://www.documentcloud.org/documents/705550-mob-nyt-1997-aug-14-whenfactsdntsquare.html> (accessed Feb. 21, 2020).



... when we no longer allow these showings, both in reality and in form, it seems as if we will have been disappointed.

... who was dragged from his sister's car by police officers and shot in the face a point-blank range. The cops

... who have the power to do something about these officers, but choose not to.

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... a vector on a vector, as they say, is the vector. While they passed by, he was looking at the people in the crowd. He was looking at the people in the crowd. He was looking at the people in the crowd.

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## When facts don't square with the theory, throw out the facts



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**Mobil** The energy to make a difference

Figure 6: 1997 Mobil Advertorial

104. In 1998, API, on behalf of its members, developed a Global Climate Science Communications Plan that stated that unless “climate change becomes a non-issue . . . there may be no moment when we can declare victory for our efforts.” Rather, API proclaimed that “[v]ictory will be achieved when . . . average citizens ‘understand’ (recognize) uncertainties in climate science; [and when] recognition of uncertainties becomes part of the ‘conventional wisdom.’”<sup>84</sup> The multi-million-dollar, multi-year proposed budget included public outreach and the dissemination of educational materials to schools to “begin to erect a barrier against further efforts to impose Kyoto-like measures in the future”<sup>85</sup>—a blatant attempt to disrupt international efforts, pursuant to the UNFCCC, to negotiate a treaty that curbed greenhouse gas emissions.

105. Soon after, API distributed a memo to its members illuminating API’s and Defendants’ concern over the potential regulation of Defendants’ fossil fuel products: “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.’”<sup>86</sup> Further, the API memo stresses many of the strategies that Defendants individually and collectively utilized to combat the perception of their fossil fuel products as hazardous. They included:

- a. Influencing the tenor of the climate change “debate” as a means to establish that greenhouse gas reduction policies like the Kyoto Protocol were not necessary to responsibly address climate change;

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<sup>84</sup> Joe Walker, *E-mail to Global Climate Science Team, attaching the Draft Global Science Communications Plan* (Apr. 3, 1998), <https://assets.documentcloud.org/documents/784572/api-global-climate-science-communications-plan.pdf> (accessed Feb. 21, 2020).

<sup>85</sup> *Id.*

<sup>86</sup> *Id.*

- b. Maintaining strong working relationships between government regulators and communications-oriented organizations like the Global Climate Coalition, the Heartland Institute, and other groups carrying Defendants' message minimizing the hazards of the unabated use of their fossil fuel products and opposing regulation thereof;
- c. Building the case for (and falsely dichotomizing) Defendants' positive contributions to a "long-term approach" (ostensibly for regulation of their products) as a reason for society to reject short term fossil fuel emissions regulations, and engaging in climate change science uncertainty research; and
- d. Presenting Defendants' positions on climate change in domestic and international forums, including by preparing rebuttals to IPCC reports.

106. Additionally, Defendants mounted a deceptive public campaign against regulation of their business practices in order to continue wrongfully promoting and marketing their fossil fuel products, despite their own knowledge and the growing national and international scientific consensus about the hazards of doing so.

107. The Global Climate Coalition (GCC), on behalf of Defendants and other fossil fuel companies, funded deceptive advertising campaigns and distributed misleading material to generate public uncertainty around the climate debate, with the specific purpose of preventing U.S. adoption of the Kyoto Protocol, despite the leading role that the U.S. had played in the Protocol negotiations.<sup>87</sup> Despite an internal primer stating that various "contrarian theories" [*i.e.*, climate change skepticism] do not "offer convincing arguments against the conventional model of greenhouse gas emission-induced climate change," GCC excluded this section from the public

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<sup>87</sup> *Id.*

version of the backgrounder and instead funded efforts to promote some of those same contrarian theories over subsequent years.<sup>88</sup>

108. A key strategy in Defendants' efforts to discredit scientific consensus on climate change and the IPCC was to bankroll scientists who, although accredited, held fringe opinions that were even more questionable given the sources of their research funding. Those scientists obtained part or all of their research budget from Defendants directly or through Defendant-funded organizations like API,<sup>89</sup> but they frequently failed to disclose their fossil fuel industry underwriters.<sup>90</sup>

109. Creating a false sense of disagreement in the scientific community (despite the consensus that its own scientists, experts, and managers had previously acknowledged) has had an evident impact on public opinion. A 2007 Yale University-Gallup poll found that while 71 percent of Americans personally believed global warming was happening, only 48 percent believed that there was a consensus among the scientific community, and 40 percent believed there was a lot of disagreement among scientists over whether global warming was occurring.<sup>91</sup>

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<sup>88</sup> Gregory J. Dana, *Memo to AIAM Technical Committee Re: Global Climate Coalition (GCC)—Primer on Climate Change Science—Final Draft*, Association of International Automobile Manufacturers (Jan. 18, 1996), <http://www.webcitation.org/6FyqHawb9> (accessed Feb. 21, 2020).

<sup>89</sup> E.g., Willie Soon & Sallie Baliunas, *Proxy Climatic and Environmental Changes of the Past 1000 Years*, 23 CLIMATE RESEARCH 88, 105 (Jan. 31, 2003), <http://www.int-res.com/articles/cr2003/23/c023p089.pdf>.

<sup>90</sup> E.g., Newsdesk, *Smithsonian Statement: Dr. Wei-Hock (Willie) Soon*, SMITHSONIAN (Feb. 26, 2015), <http://newsdesk.si.edu/releases/smithsonian-statement-dr-wei-hock-willie-soon>.

<sup>91</sup> *American Opinions on Global Warming: A Yale/Gallup/Clearvision Poll*, Yale Program on Climate Change Communication (July 31, 2007), <http://climatecommunication.yale.edu/publications/american-opinions-on-global-warming> (accessed Feb. 21, 2020).

110. 2007 was the same year the IPCC published its Fourth Assessment Report, in which it concluded that “there is *very high confidence* that the net effect of human activities since 1750 has been one of warming.”<sup>92</sup> The IPCC defined “very high confidence” as at least a 9 out of 10 chance.<sup>93</sup>

111. Defendants borrowed pages out of the playbook of prior denialist campaigns. A “Global Climate Science Team” (“GCST”) was created that mirrored a front group created by the tobacco industry, known as The Advancement of Sound Science Coalition, whose purpose was to sow uncertainty about the fact that cigarette smoke is carcinogenic. The GCST’s membership included Steve Milloy (a key player on the tobacco industry’s front group), Exxon’s senior environmental lobbyist; an API public relations representative; and representatives from Chevron and Southern Company that drafted API’s 1998 Communications Plan. There were no scientists on the “Global Climate Science Team.” GCST developed a strategy to spend millions of dollars manufacturing climate change uncertainty. Between 2000 and 2004, Exxon donated \$110,000 to Milloy’s efforts and another organization, the Free Enterprise Education Institute and \$50,000 to the Free Enterprise Action Institute, both registered to Milloy’s home address.<sup>94</sup>

112. Defendants, through their trade association memberships, worked directly, and often in a deliberately obscured manner, to evade regulation of the emissions resulting from use of their fossil fuel products.

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<sup>92</sup> IPCC, *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (2007), <https://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf> (accessed Feb. 21, 2020).

<sup>93</sup> *Id.*

<sup>94</sup> Seth Shulman et al., *Smoke, Mirrors & Hot Air: How ExxonMobil Uses Big Tobacco’s Tactics to Manufacture Uncertainty on Climate Science*, Union of Concerned Scientists, 19 (Jan. 2007), [https://www.ucsusa.org/sites/default/files/2019-09/exxon\\_report.pdf](https://www.ucsusa.org/sites/default/files/2019-09/exxon_report.pdf) (accessed Feb. 21, 2020).

113. Defendants have funded dozens of think tanks, front groups, and dark money foundations pushing climate change denial. These include the Competitive Enterprise Institute, the Heartland Institute, Frontiers for Freedom, Committee for a Constructive Tomorrow, and Heritage Foundation. From 1998 to 2014 ExxonMobil spent almost \$31 million funding numerous organizations misrepresenting the scientific consensus that Defendants' fossil fuel products were causing climate change, sea level rise, and injuries to the City, among other communities.<sup>95</sup> Several Defendants have been linked to other groups that undermine the scientific basis linking Defendants' fossil fuel products to climate change and sea level rise, including the Frontiers of Freedom Institute and the George C. Marshall Institute.

114. Exxon acknowledged its own previous success in sowing uncertainty and slowing mitigation through funding of climate denial groups. In its 2007 Corporate Citizenship Report, Exxon declared: "In 2008, we will discontinue contributions to several public policy research groups whose position on climate change could divert attention from the important discussion on how the world will secure the energy required for economic growth in an environmentally responsible manner."<sup>96</sup> Despite this pronouncement, Exxon remained financially associated with several such groups after the report's publication.

115. Defendants could have contributed to the global effort to mitigate the impacts of greenhouse gas emissions by, for example delineating practical technical strategies, policy goals, and regulatory structures that would have allowed them to continue their business ventures while reducing greenhouse gas emissions and supporting a transition to a lower carbon future. Instead,

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<sup>95</sup> ExxonSecrets.org, *ExxonMobil Climate Denial Funding 1998–2014* (accessed June 27, 2018), <http://exxonsecrets.org/html/index.php> (accessed Feb. 21, 2020).

<sup>96</sup> ExxonMobil, *2007 Corporate Citizenship Report* (Dec. 31, 2007), <http://www.documentcloud.org/documents/2799777-ExxonMobil-2007-Corporate-Citizenship-Report.html> (accessed Feb. 21, 2020).

Defendants undertook a momentous effort to evade international and national regulation of greenhouse gas emissions to enable them to continue unabated fossil fuel production.

116. As a result of Defendants' tortious, false, and misleading conduct, reasonable consumers of Defendants' fossil fuel products and policy-makers have been deliberately and unnecessarily deceived about: the role of fossil fuel products in causing global warming, sea level rise, disruptions to the hydrologic cycle, and increased extreme precipitation, heatwaves, drought and other consequences of the climate crisis; the acceleration of global warming since the mid-20<sup>th</sup> century and the continuation thereof; and about the fact that the continued increase in fossil fuel product consumption that creates severe environmental threats and significant economic costs for communities, including the City. Reasonable consumers and policy makers have also been deceived about the depth and breadth of the state of the scientific evidence on anthropogenic climate change, and in particular, about the strength of the scientific consensus demonstrating the role of fossil fuels in causing both climate change and a wide range of potentially destructive impacts, including sea level rise, disruptions to the hydrologic cycle, extreme precipitation, heatwaves, drought, and associated consequences.

**E. In Contrast to Their Public Statements, Defendants' Internal Actions Demonstrate Their Awareness of and Intent to Profit from the Unabated Use of Fossil Fuel Products.**

117. In contrast to their public-facing efforts challenging the validity of the scientific consensus about anthropogenic climate change, Defendants' acts and omissions evidence their internal acknowledgement of the reality of climate change and its likely consequences. Those actions include, but are not limited to, making multi-billion-dollar infrastructure investments for their own operations that acknowledge the reality of coming anthropogenic climate-related change. Those investments included (among others), raising offshore oil platforms to protect against sea level rise; reinforcing offshore oil platforms to withstand increased wave strength and

storm severity; and developing and patenting designs for equipment intended to extract crude oil and/or natural gas in areas previously unreachable because of the presence of polar ice sheets.<sup>97</sup>

118. For example, in 1973 Exxon obtained a patent for a cargo ship capable of breaking through sea ice<sup>98</sup> and for an oil tanker<sup>99</sup> designed specifically for use in previously unreachable areas of the Arctic.

119. In 1974, Chevron obtained a patent for a mobile arctic drilling platform designed to withstand significant interference from lateral ice masses,<sup>100</sup> allowing for drilling in areas with increased ice flow movement due to elevated temperature.

120. That same year, Texaco (Chevron) worked toward obtaining a patent for a method and apparatus for reducing ice forces on a marine structure prone to being frozen in ice through natural weather conditions,<sup>101</sup> allowing for drilling in previously unreachable Arctic areas that would become seasonally accessible.

121. Shell obtained a patent similar to Texaco's (Chevron) in 1984.<sup>102</sup>

122. In 1989, Norske Shell, Royal Dutch Shell's Norwegian subsidiary, altered designs for a natural gas platform planned for construction in the North Sea to account for anticipated sea

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<sup>97</sup> Amy Lieberman & Suzanne Rust, *Big Oil Braced for Global Warming While it Fought Regulations*, L.A. TIMES (Dec. 31, 2015), <http://graphics.latimes.com/oil-operations> (accessed Jan. 28, 2020).

<sup>98</sup> Patents, *Icebreaking cargo vessel*, Exxon Research Engineering Co. (Apr. 17, 1973), <https://www.google.com/patents/US3727571>.

<sup>99</sup> Patents, *Tanker vessel*, Exxon Research Engineering Co. (July 17, 1973), <https://www.google.com/patents/US3745960>.

<sup>100</sup> Patents, *Arctic offshore platform*, Chevron Research & Technology Co. (Aug. 27, 1974), <https://www.google.com/patents/US3831385>.

<sup>101</sup> Patents, *Mobile, arctic drilling and production platform*, Texaco Inc. (Feb. 26, 1974), <https://www.google.com/patents/US3793840>.

<sup>102</sup> Patents, *Arctic offshore platform*, Shell Oil Co. (Jan. 24, 1984), <https://www.google.com/patents/US4427320>.



level rise. Those design changes were ultimately carried out by Shell's contractors, adding substantial costs to the project.<sup>103</sup>

- a. The Troll field, off the Norwegian coast in the North Sea, was proven to contain large natural oil and gas deposits in 1979, shortly after Norske Shell was approved by Norwegian oil and gas regulators to operate a portion of the field.
- b. In 1986, the Norwegian parliament granted Norske Shell authority to complete the first development phase of the Troll field gas deposits, and Norske Shell began designing the "Troll A" gas platform, with the intent to begin operation of the platform in approximately 1995. Based on the very large size of the gas deposits in the Troll field, the Troll A platform was projected to operate for approximately 70 years.
- c. The platform was originally designed to stand approximately 100 feet above sea level—the amount necessary to stay above waves in a once-in-a-century strength storm.
- d. In 1989, Shell engineers revised their plans to increase the above-water height of the platform by 3–6 feet, specifically to account for higher anticipated average sea levels and increased storm intensity due to global warming over the platform's 70-year operational life.<sup>104</sup>
- e. Shell projected that the additional 3–6 feet of above-water construction would increase the cost of the Troll A platform by as much as \$40 million.

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<sup>103</sup> *Greenhouse Effect: Shell Anticipates a Sea Change*, N.Y. TIMES (Dec. 20, 1989), <http://www.nytimes.com/1989/12/20/business/greenhouse-effect-shell-anticipates-a-sea-change.html>.

<sup>104</sup> *Id.*; Amy Lieberman & Suzanne Rust, *Big Oil braced for global warming while it fought regulations*, *supra* note 97.

**F. Defendants' Actions Have Exacerbated the Costs of Adapting to and Mitigating the Adverse Impacts of the Climate Crisis.**

123. As greenhouse gas pollution accumulates in the atmosphere, some of which does not dissipate for potentially thousands of years (namely CO<sub>2</sub>), climate changes and consequent adverse environmental changes compound, and their frequencies and magnitudes increase. As those adverse environmental changes compound and their frequencies and magnitudes increase, so too do the physical, environmental, economic, and social injuries resulting therefrom.

124. Delayed efforts to curb anthropogenic greenhouse gas emissions have therefore increased environmental harms and increased the magnitude and cost to address harms, including to the City, that have already occurred or are locked in by previous emissions.

125. Therefore, Defendants' campaign to obscure the science of climate change so as to protect and expand the use of fossil fuels greatly increased and continues to increase the harms and rate of harms suffered by the City and its residents.

126. The costs of inaction on anthropogenic climate change and its adverse environmental effects were not lost on Defendants. In a 1997 speech by John Browne, Group Executive for BP America, at Stanford University, Browne described Defendants' and the entire fossil fuel industry's responsibility and opportunities to reduce use of fossil fuel products, reduce global CO<sub>2</sub> emissions, and mitigate the harms associated with the use and consumption of such products:

A new age demands a fresh perspective of the nature of society and responsibility.

We need to go beyond analysis and to take action. It is a moment for change and for a rethinking of corporate responsibility. . . .

[T]here is now an effective consensus among the world's leading scientists and serious and well informed people outside the scientific community that there is a discernible human influence on the climate, and a link between the concentration of carbon dioxide and the increase in temperature.

The prediction of the IPCC is that over the next century temperatures might rise by a further 1 to 3.5 degrees centigrade [1.8°– 6.3° F], and that sea levels might rise by between 15 and 95 centimetres [5.9 and 37.4 inches]. Some of that impact is probably unavoidable, because it results from current emissions. . . .

[I]t would be unwise and potentially dangerous to ignore the mounting concern.

The time to consider the policy dimensions of climate change is not when the link between greenhouse gases and climate change is conclusively proven . . . but when the possibility cannot be discounted and is taken seriously by the society of which we are part. . . .

We [the fossil fuel industry] have a responsibility to act, and I hope that through our actions we can contribute to the much wider process which is desirable and necessary.

BP accepts that responsibility and we're therefore taking some specific steps.

To control our own emissions.

To fund continuing scientific research.

To take initiatives for joint implementation.

To develop alternative fuels for the long term.

And to contribute to the public policy debate in search of the wider global answers to the problem.<sup>105</sup>

127. Despite Defendants' knowledge of the foreseeable, measurable, and significant harms associated with the unabated consumption and use of their fossil fuel products, and despite Defendants' knowledge of technologies and practices that could have helped to reduce the foreseeable dangers associated with their fossil fuel products, Defendants continued to wrongfully market and promote heavy fossil fuel use and mounted a campaign to obscure the connection between their fossil fuel products and the climate crisis, dramatically increasing the cost of abatement. At all relevant times, Defendants were deeply familiar with opportunities to

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<sup>105</sup> John Browne, *BP Climate Change Speech to Stanford*, Climate Files (May 19, 1997), <http://www.climatefiles.com/bp/bp-climate-change-speech-to-stanford> (accessed Feb. 21, 2020).

reduce the use of their fossil fuel products, reduce global greenhouse gas emissions associated therewith, and mitigate the harms associated with the use and consumption of such products.

Examples of that recognition include, but are not limited to the following:

- a. In 1963, Esso (Exxon Mobil) obtained multiple patents on technologies for fuel cells, including on the design of a fuel cell and necessary electrodes,<sup>106</sup> and on a process for increasing the oxidation of a fuel, specifically methanol, to produce electricity in a fuel cell.<sup>107</sup>
- b. In 1970, Esso (Exxon Mobil) obtained a patent for a “low-polluting engine and drive system” that used an interburner and air compressor to reduce pollutant emissions, including CO<sub>2</sub> emissions, from gasoline combustion engines (the system also increased the efficiency of the fossil fuel products used in such engines, thereby lowering the amount of fossil fuel product necessary to operate engines equipped with this technology).<sup>108</sup>

128. Defendants could have made major inroads to mitigate the City’s injuries through technology by developing and employing technologies to capture and sequester greenhouse gases emissions associated with conventional use of their fossil fuel products. Defendants had knowledge dating at least back to the 1960s, and indeed, internally researched and perfected many such technologies. For instance:

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<sup>106</sup> Patents, *Fuel cell and fuel cell electrodes*, Exxon Research Engineering Co. (Dec. 31, 1963), <https://www.google.com/patents/US3116169> (accessed Feb. 21, 2020).

<sup>107</sup> Patents, *Direct production of electrical energy from liquid fuels*, Exxon Research Engineering Co. (Dec. 3, 1963), <https://www.google.com/patents/US3113049> (accessed Feb. 21, 2020).

<sup>108</sup> Patents, *Low-polluting engine and drive system*, Exxon Research Engineering Co. (May 16, 1970), <https://www.google.com/patents/US3513929> (accessed Feb. 21, 2020).

- a. Phillips Petroleum Company (ConocoPhillips) obtained a patent in 1966 for a “Method for recovering a purified component from a gas” outlining a process to remove carbon from natural gas and gasoline streams;<sup>109</sup> and
- b. In 1973, Shell was granted a patent for a process to remove acidic gases, including CO<sub>2</sub>, from gaseous mixtures.

129. Despite this knowledge, Defendants’ later forays into the alternative energy sector were largely pretenses. For instance, in 2001, Chevron developed and shared a sophisticated information management system to gather greenhouse gas emissions data from its explorations and production to help regulate and set reduction goals.<sup>110</sup> Beyond this technological breakthrough, Chevron touted “profitable renewable energy” as part of its business plan for several years and launched a 2010 advertising campaign promoting the company’s move towards renewable energy. Despite all this, Chevron rolled back its renewable and alternative energy projects in 2014.<sup>111</sup>

130. Similarly, ConocoPhillips’ 2012 Sustainable Development report declared developing renewable energy a priority in keeping with their position on sustainable development and climate change.<sup>112</sup> Their 10-K filing from the same year told a different story:

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<sup>109</sup> Patents, *Method for recovering a purified component from a gas*, Phillips Petroleum Co. (Jan. 11, 1966), <https://www.google.com/patents/US3228874> (accessed Feb. 21, 2020).

<sup>110</sup> Chevron, *Chevron Introduces New System to Manage Energy Use* (press release) (Sept. 25, 2001), <https://www.chevron.com/stories/chevron-introduces-new-system-to-manage-energy-use> (accessed Feb. 21, 2020).

<sup>111</sup> Benjamin 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> (accessed Feb. 21, 2020).

<sup>112</sup> ConocoPhillips, *Sustainable Development* (2013), <http://www.conocophillips.com/sustainable-development/Documents/2013.11.7%201200%20Our%20Approach%20Section%20Final.pdf> (accessed Feb. 21, 2020).

“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.”<sup>113</sup>

131. Likewise, while Shell orchestrated an entire public relations campaign around energy transitions towards net zero emissions, a fine-print disclaimer in its 2016 net-zero pathways report reads: “We have no immediate plans to move to a net-zero emissions portfolio over our investment horizon of 10–20 years.”<sup>114</sup>

132. BP, appearing to abide by the representations Lord Browne made in his speech described in paragraph 126, above, engaged in a rebranding campaign to convey an air of environmental stewardship and renewable energy to its consumers. This included renouncing its membership in the GCC in 2007, changing its name from “British Petroleum” to “BP” while adopting the slogan “Beyond Petroleum,” and adopting a conspicuously green corporate logo. However, BP’s self-touted “alternative energy” investments during this turnaround included investments in natural gas, a fossil fuel, and in 2007 the company reinvested in Canadian tar sands, a particularly high-carbon source of oil.<sup>115</sup> The company ultimately abandoned its wind and solar assets in 2011 and 2013, respectively, and even the “Beyond Petroleum” moniker in 2013.<sup>116</sup>

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<sup>113</sup> ConocoPhillips, Form 10-K, U.S. Securities and Exchange Commission (Dec. 31, 2012), <https://www.sec.gov/Archives/edgar/data/1163165/000119312513065426/d452384d10k.htm> (accessed Feb. 21, 2020).

<sup>114</sup> *Energy Transitions Towards Net Zero Emissions* (NZE), Shell (2016).

<sup>115</sup> 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> (accessed Feb. 21, 2020).

<sup>116</sup> Javier E. David, *‘Beyond Petroleum’ No More? BP Goes Back to Basics,* CNBC (Apr. 20, 2013), <http://www.cnbc.com/id/100647034> (accessed Feb. 21, 2020).

133. After posting a \$10 billion quarterly profit, Exxon in 2005 stated that “We’re an oil and gas company. In times past, when we tried to get into other businesses, we didn’t do it well. We’d rather re-invest in what we know.”<sup>117</sup>

134. Even if Defendants did not adopt technological or energy source alternatives that would have reduced use of fossil fuel products, reduced global greenhouse gas pollution, and/or mitigated the harms associated with the use and consumption of such products, Defendants could have taken other practical, cost-effective steps to reduce the use of their fossil fuel products, reduce global greenhouse gas pollution associated therewith, and mitigate the harms associated with the use and consumption of such products. Those alternatives could have included, among other measures:

- a. Accepting and sharing scientific evidence on the validity of anthropogenic climate change and the damages it will cause people, communities, including the City, and the environment. Mere acceptance of that information—and associated warnings and actions—would have altered the debate from *whether* to combat climate change and sea level rise to *how* to combat it; and avoided much of the public confusion that has ensued over more than 30 years, since at least 1988;
- b. Forthrightly communicating with Defendants’ shareholders, banks, insurers, the public, regulators and the City about the global warming and sea level rise hazards of Defendants’ fossil fuel products that were known to Defendants, would have enabled those groups to make material, informed decisions about whether

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<sup>117</sup> James R. Healy, *Alternate Energy Not in Cards at ExxonMobil*, USA TODAY (Oct. 28, 2005), [https://usatoday30.usatoday.com/money/industries/energy/2005-10-27-oil-invest-usat\\_x.htm](https://usatoday30.usatoday.com/money/industries/energy/2005-10-27-oil-invest-usat_x.htm) (accessed Feb. 21, 2020).

and how to address climate change and sea level rise vis-à-vis Defendants' products;

- c. Refraining from affirmative efforts, whether directly, through coalitions, or through front groups, to distort public debate, and to cause many consumers and business and political leaders to think the relevant science was far less certain than it actually was;
- d. Sharing their internal scientific research with the public, and with other scientists and business leaders, so as to increase public understanding of the scientific underpinnings of climate change and its relation to Defendants' fossil fuel products;
- e. Supporting and encouraging policies to avoid dangerous climate change, and demonstrating corporate leadership in addressing the challenges of transitioning to a low-carbon economy;
- f. Prioritizing alternative sources of energy through sustained investment and research on renewable energy sources to replace dependence on Defendants' inherently hazardous fossil fuel products;
- g. Adopting their shareholders' concerns about Defendants' need to protect their businesses from the inevitable consequences of profiting from their fossil fuel products. Over the period of 1990-2015, Defendants' shareholders proposed hundreds of resolutions to change Defendants' policies and business practices regarding climate change. Those included increasing renewable energy investment, cutting emissions, and performing carbon risk assessments, among others.



135. Despite their knowledge of the foreseeable harms associated with the consumption of Defendants' fossil fuel products, and despite the existence and fossil fuel industry knowledge of opportunities that would have reduced the foreseeable dangers associated with those products, Defendants wrongfully and falsely promoted, campaigned against regulation of, and concealed the hazards of use of their fossil fuel products.

**G. Defendants Continue to Mislead About the Impact of Their Fossil Fuel Products on Climate Change Through Greenwashing Campaigns and Other Misleading Advertisements.**

136. Defendants' coordinated campaign of disinformation and deception continues today, even as the scientific consensus about the cause and consequences of climate change has strengthened. Defendants have falsely claimed through advertising campaigns that their businesses are substantially invested in lower carbon technologies and renewable energy sources. In truth, each Defendant has invested minimally in renewable energy while continuing to expand its fossil fuel production. They have also claimed that certain of their fossil fuel products are "green" or "clean," and that using these products will sufficiently reduce or reverse the dangers of climate change. None of Defendants' fossil fuel products are "green" or "clean" because they all continue to pollute and ultimately warm the planet.

137. Instead of widely disseminating this information, reducing their pollution, and transitioning to non-polluting products, Defendants placed profits over people. In connection with selling gasoline and other fossil fuel products to consumers in the City, Defendants have failed to inform consumers about the effects of their fossil fuel products in causing and accelerating the climate crisis.

138. Defendants' advertising and promotional materials fail to disclose the extreme safety risk associated with the use of Defendants' dangerous fossil fuel products, which are

causing “catastrophic” climate change, as understood by Defendants’ and the industry’s own scientists decades ago and with the effects of global warming now being felt in the City. They continue to omit that important information to this day.

139. Moreover, Defendants have not just failed to disclose the catastrophic danger their products cause. After having engaged in a long campaign to deceive the public about the science behind climate change, Defendants are now engaging in “greenwashing” by employing false and misleading advertising campaigns promoting themselves as sustainable energy companies committed to finding solutions to climate change, including by investing in alternative energy.

140. These misleading “greenwashing” campaigns are intended to capitalize on consumers’ concerns for climate change and lead a reasonable consumer to believe that Defendants’ are actually substantially diversified energy companies making meaningful investments in low carbon energy compatible with avoiding catastrophic climate change.

141. Contrary to this messaging, however, Defendants’ spending on low carbon energy is substantially and materially less than Defendants indicate to consumers. According to a recent analysis, between 2010 and 2018, BP spent 2.3% of total capital spending on low carbon energy sources, Shell spent 1.2%, and Chevron and Exxon just 0.2% each.<sup>118</sup> Meanwhile, Defendants continue to expand fossil fuel production and typically do not even include non-fossil energy systems in their key performance indicators or reported annual production statistics.<sup>119</sup>

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<sup>118</sup> Anjali 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> (accessed Feb. 21, 2020).

<sup>119</sup> See, e.g., Reserves and production table (p. 24). A year of strong delivery and growth: BP Annual Report and Form 20-F 2017. <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/investors/bp-annual-report-and-form-20f-2017.pdf> (accessed Feb. 21, 2020).

142. Ultimately, Defendants currently claim to support reducing greenhouse gas emissions, but their conduct belies these statements. Defendants have continued to ramp up fossil fuel production globally, to invest in new fossil fuel development—including in tar sands crude and shale gas fracking, some of the most carbon-intensive extraction projects—and to plan for unabated oil and gas exploitation indefinitely into the future.

143. Exxon and Shell are projected to increase oil production by more than 35% between 2018 and 2030—a sharper rise than over the previous 12 years.<sup>120</sup>

144. Shell is forecast to increase output by 38% by 2030, by increasing its crude oil production by more than half and its gas production by over a quarter.<sup>121</sup>

145. This year, BP projected production of oil and gas is expected to increase just over 20% by 2030.<sup>122</sup>

146. Chevron set an oil production record in 2018 of 2.93 million barrels per day, and the company predicts further significant growth in oil production this year.<sup>123</sup> Like the other Defendants, it sees the next 20 years—the crucial window in which the world must reduce greenhouse gas emissions to avert the most catastrophic effects of climate change—as a time of increased investment and production in its fossil fuel operations. For example, a 2019 investor report touts the company’s “significant reserve additions in 2018” in the multiple regions in

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<sup>120</sup> 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> (accessed Feb. 21, 2020).

<sup>121</sup> *Id.*

<sup>122</sup> *Id.*

<sup>123</sup> Kevin Crowley & Eric Roston, *Chevron Aligns Strategy With Paris Deal But Won’t Cap Output*, BLOOMBERG (Feb. 7, 2019), <https://www.bloomberg.com/news/articles/2019-02-07/chevron-pledges-alignment-with-paris-accord-but-won-t-cap-output> (accessed Feb. 21, 2020).

North America and around the world, as well as significant capital projects involving construction of refineries worldwide.<sup>124</sup>

#### **H. Defendants Caused the City's Injuries.**

147. Defendants' individual and collective conduct, including, but not limited to, their failures to warn of the threats their fossil fuel products posed to the world's climate; their wrongful promotion of their fossil fuel products and concealment of known hazards associated with the use of those products; their public deception campaigns designed to obscure the connection between their products and global warming and its environmental, physical, social, and economic consequences; and their failure to pursue less hazardous alternatives available to them; is a substantial factor in causing global warming and consequent sea level rise and attendant flooding, erosion, and beach loss in the City; increased frequency and intensity of extreme weather events in the City, including hurricanes and tropical storms, "rain bomb" events, drought, heatwaves, and others; ocean warming and acidification that will injure or kill coral reefs in the City's waters; habitat loss of endemic species in the City, and range expansion of invasive and disease carrying-pest species; diminished availability of freshwater resources; and the cascading social, economic, and other consequences of those environmental changes. These adverse impacts will continue to increase in frequency and severity in the City.

148. As actual and proximate results of Defendants' conduct, which caused the aforementioned environmental changes, the City has suffered and will continue to suffer severe injuries, including but not limited to: injury or destruction of City-owned or operated facilities and property deemed critical for operations, utility services, and risk management, as well as other assets that are essential to community health, safety, and well-being; increased planning

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<sup>124</sup> Chevron, Chevron 2019 Investor Presentation (Feb. 2019), <https://chevroncorp.gcs-web.com/static-files/c3815b42-4deb-4604-8c51-bde9026f6e45> (accessed Feb. 21, 2020).

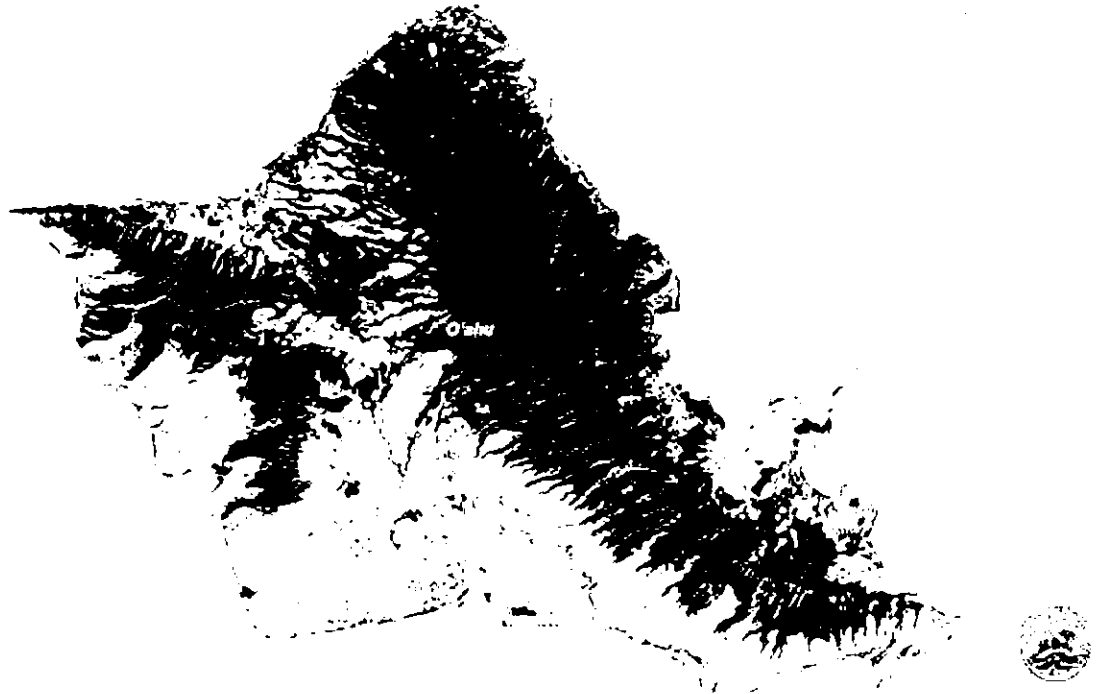
and preparation costs for community adaptation and resiliency to global warming's effects; decreased tax revenue due to impacts on the City's tourism- and ocean-based economy; increased costs associated with public health impacts; and others.

149. The City already has incurred, and will foreseeably continue to incur, injuries and damages due to Defendants' conduct, its contribution to the climate crisis, and the environmental, physical, social, and economic consequences of the climate crisis's impact on the environment. As a result of Defendants' wrongful conduct described in this Complaint, the City has, is, and will experience significant adverse impacts attributable to Defendants' conduct, including but not limited to:

- a. The average air temperature in the City is currently warming at a rate that is approximately four times faster than the warming rate fifty years ago. Warming air temperatures have led to heat waves, expanded pathogen and invasive species ranges, thermal stress for native flora and fauna, increased electricity demand, increased occurrence and intensity of wildfire, threats to human health such as from heat stroke and dehydration, and decreased water supply due to increased evaporation and demand. Rapid warming at the highest elevations has reduced precipitation—the main source of freshwater in the City. Extreme temperatures have stressed the City's electrical resources and induced the local electrical utility to issue emergency requests to curtail air conditioning use.
- b. The City is already experiencing sea level rise and associated impacts, and will experience significant additional sea level rise over the coming decades through at least the end of the century. The City is particularly vulnerable to the impacts of sea level rise because of its substantial developed coastline and substantial low-

lying areas, particularly along the south coast of O‘ahu. The figure below delineates the City’s sea level rise exposure area, a State of Hawai‘i-recognized sea level rise vulnerability zone that the City is using to formulate sea level rise adaptation strategies. More than \$19 billion in assets and 38 miles of roads are located within the Seal Level Rise Exposure area and are at risk of damage or destruction due to sea level rise estimated to occur by the year 2100, including but not limited to freshwater supply pipelines that are subject to higher levels of corrosion due to saltwater intrusion; and wastewater infrastructure, such as armoring the wastewater outfall and elevating water treatment infrastructure at the Sand Island Wastewater Treatment Plant that will cost hundreds of millions to retrofit against rising seas and coastal erosion, as well as eroded wastewater pipelines and related infrastructure along the highway in Wai‘anae that will cost additional millions of dollars to armor. High tide flooding in the City has substantially increased since the 1960s. The City is has already lost 25% of its beaches to the erosive force of rising seas, the increased frequency and power of storm surges, and aggravated wave run-up and impacts, and those losses continue to mount. Native Hawaiian cultural sites, built structures, natural resources, infrastructure including roads, sewerage, and beach parks, and other resources are more frequently flooded and, in some cases, inundated. As sea level continues to rise, low-lying, populated coastal communities such as Wai‘alua will experience increased frequency and severity of flooding ultimately leading to permanent inundation and making some areas of the coast impassable or uninhabitable. Even if all carbon emissions were to cease immediately, the City would continue to

experience sea level rise due to the “locked in” greenhouse gases already emitted and the lag time between emissions and sea level rise.



**Figure 7: The City’s Sea Level Rise Exposure Area**

- c. Freshwater is becoming scarcer in the City due to global warming.<sup>125</sup> Changes in wind patterns have caused a decline in rainfall over the last thirty years, and a shift to less frequent and more intense rainstorms interspersed with longer and more frequent drought. Declining precipitation trends have caused a decrease in stream base flow and warming temperatures cause increased surface water evaporation, which in turn reduces aquifer recharge. Saltwater intrusion and coastal erosion due to sea level rise has further reduced available freshwater resources and damages drinking water delivery infrastructure, including by corrosion and inundation. Loss of freshwater resources is a critical issue that the

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<sup>125</sup> See Water Research Foundation, *Impacts of Climate Change on Honolulu Water Supplies and Planning Strategies for Mitigation*, Project No. 4637 (2019).

City has taken planning and piloting steps to address given the absence of replacement freshwater sources in the City. The City has already expended significant resources preparing watershed-scale vulnerability assessments and modifying watershed management plans to mitigate the adverse impacts of global warming on freshwater availability. Reduced freshwater availability may require the City to undertake aggressive and expensive adaptation strategies, including sea water desalination, private water rights revocation, and stormwater capture coupled with installation of aquifer reinjection wells.

- d. The City's natural resources are in decline because of global warming. Many species endemic to the City and the Hawaiian Islands are already showing shifting habitats because of environmental changes attributable to global warming. Several native forest bird species are projected to lose over half of their ranges by 2100, and of those, some will lose their ranges entirely, putting them at severe risk of extinction. Increased atmospheric carbon has resulted in more CO<sub>2</sub> uptake in the ocean, which in turn drives ocean acidification. Ocean acidification prevents marine organisms, many at or near the bottom of the food chain, from forming shells, which threatens their survival. Increasing sea surface temperatures are shifting marine species' ranges and causing coral bleaching and death. In addition to the loss of the intrinsic value of those unique natural resources, those changes contribute to adverse effects on the City's tourism and fishing industries, which in turn impact economic activity within and revenue to the City. Ocean acidification and warming will reduce fish catch and injure or kill coral, which serves as a "bumper" that absorbs force of water as it moves toward land and comes ashore, also results in increased exposure to increasingly intense storm surge and hurricane wave runup.
- e. Public health impacts of Defendants' conduct have injured and will continue to cause injury to the City. Extreme heat-induced public health impacts in the City



will result in increased risk of heat-related illnesses (mild heat stress to fatal heat stroke) and the exacerbation of pre-existing conditions in the medically fragile, chronically ill, and vulnerable. Increased extreme temperatures and heat waves have and will contribute to and exacerbate, allergies, respiratory disease, and other health issues in children and adults. As pest species ranges expand, vector-borne illnesses will increase in the City's population.

150. Compounding those physical and environmental impacts are cascading social and economic impacts that cause injuries to the City that have and will continue to arise out of localized climate change-related conditions.

151. The City has already incurred damages as a direct and proximate result of Defendants' conduct, including but not limited to:

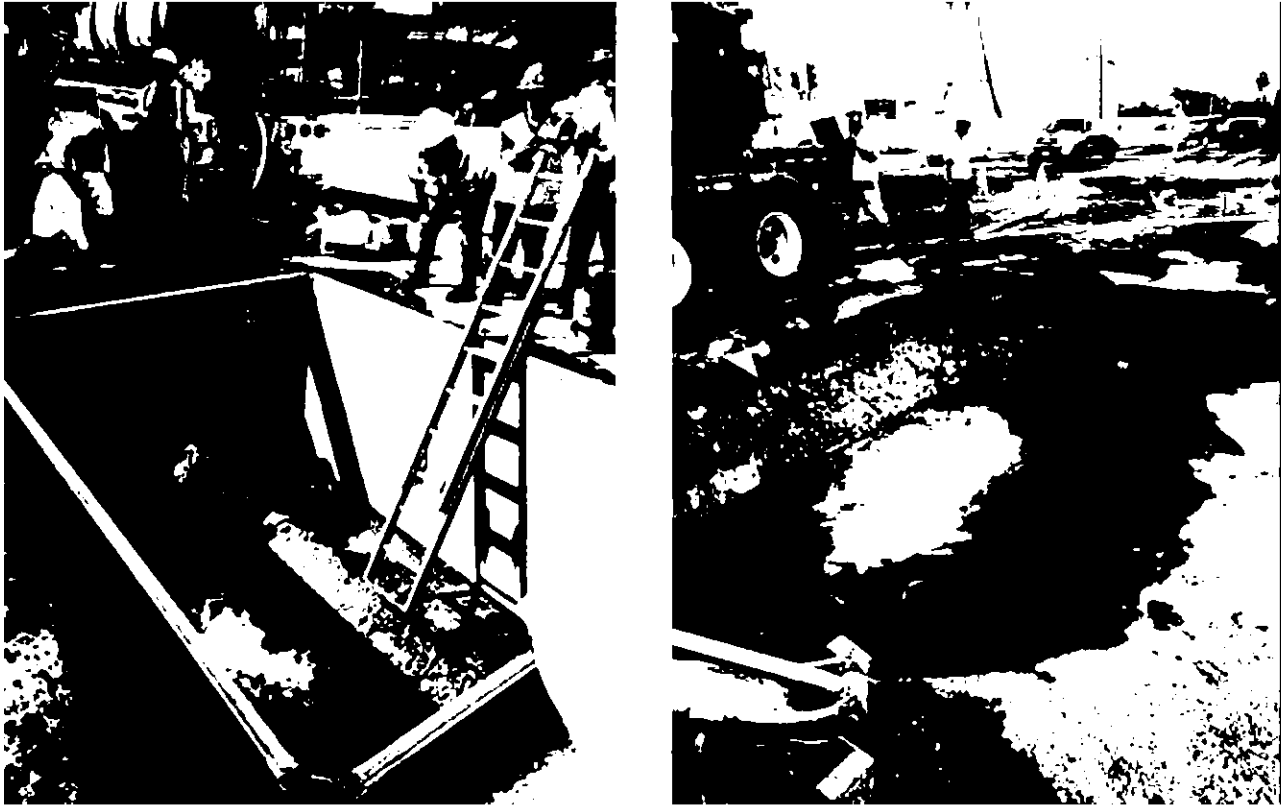
- a. Flooding and intense runoff during rain bomb events has destroyed sections of the City's drainways normally used to divert rainfall away from populated areas. The image below shows a section of the Hahaione Channel that was destroyed during a massive rain bomb in April 2018. The City incurred significant costs providing emergency response at the drainway to ensure that injuries to people and property were minimized; and in rebuilding the drainway, which was not designed to handle the increased extreme runoff under the new hydrological regime in the City.



**Figure 8: Destruction of the Hahaione Channel After Rainbomb Event, 2018**

- b. Water mains in the City’s drinking water system have been corroded due to subsurface saltwater intrusion, resulting in failure and breakage. The costs of necessary repairs to those mains have increased because of higher tides, which flood the subsurface work area excavated for main repairs. The combined image below shows a broken water main in the City in 2018. The image on the left, taken during the low tide, shows a broken water main that has been excavated for repair. The image on the right shows the same work site at high tide, at which time work on the broken main was impossible. Additionally, the oil slick in the excavated pit illustrates a further impact of Defendants’ conduct and associated

sea level rise: eventual oil spills from groundwater inundation as the water table rises.



**Figure 9: Water Main Repairs at Intersection of Nimitz and Alakawa, July 2018**

- c. Erosion, storm surges, flooding, and wave run-up at the City's network of beach parks have damaged infrastructure and facilities at those important public resources, which are also drivers of the City's ocean- and tourism-based economy. The image below shows damage at the City's parks associated with those adverse environmental impacts of Defendants' conduct.



**Figure 10: Destruction of Public Facilities, Maunalahilahi Beach Park, 2018**

- d. The City’s property and resources<sup>126</sup> have been and will continue to be inundated and/or flooded by sea water and extreme precipitation, among other climate-change related intrusions, causing injury and damages thereto and to improvements thereon, and preventing free passage on, use of, and normal enjoyment of that real property, or permanently destroying them. For instance, sunny day flooding associated with high tides exacerbated by sea level rise have caused flooding at Waikiki Beach and the City’s nearby beach parks, roads, and sidewalks; chronic tidal flooding in Mapunapuna persists despite that the City installed expensive “duckbill valves” on outfalls to mitigate that problem. Over

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<sup>126</sup> The City disclaims injuries arising on federal property in the City.

five miles of beaches in the City have already been lost due to sea level rise. Additionally, extreme precipitation and associated erosion, runoff, flooding, and mudslides, as well as sunny-day flooding associated with higher tides, have rendered City roads impassable. With 3.2 feet of sea level rise, more than 18 miles of coastal roads on O‘ahu will be impassable.



**Figure 11: Sunny Day Flooding in Mapunapuna, July 2019**

- e. The City has planned and is planning, at significant expense, adaptation and mitigation strategies to address climate change related impacts in order to preemptively mitigate and/or prevent injuries to itself and its citizens. Those efforts include, but are not limited to, development of a Resilience Strategy.<sup>127</sup> Additionally, the City has incurred and will incur significant expense in educating

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<sup>127</sup> City and County of Honolulu Office of Climate Change, Sustainability and Resiliency, *Ola: O‘ahu Resilience Strategy* (accessed Jan. 8, 2020) <https://www.resilientoahu.org/resilience-strategy>.

and engaging the public on climate change issues, and to promote and implement policies to mitigate and adapt to climate change impacts, including promoting energy and water efficiency and renewable energy. Implementation of those planning and outreach processes will come at a substantial cost to the City.

- f. The City, at significant expense, has initiated adaptation measures at many of its public resources to mitigate, and to the extent possible, prevent further injury to its property and facilities. For instance, the City has initiated a multi-million-dollar project to repair and stabilize the seawall at Hale'iwa Beach Park; conducted a massive effort to redistribute sand and restore Dunes at Sunset Beach North Shore to mitigate additional beach loss; and installed a sand mattress at Waikiki Beach to prevent the shoreline from moving landward by approximately 10-20 feet.

152. But for Defendants' conduct, the City would have suffered no or far fewer serious injuries and harms than it has endured, and foreseeably will endure, due to the climate crisis and its physical, environmental, social, and economic consequences.

153. Defendants' conduct as described herein is therefore an actual, substantial, and proximate cause of the City's climate crisis-related injuries.

**VI. CAUSES OF ACTION**

**FIRST CAUSE OF ACTION**

**(Public Nuisance)**

**(Against All Defendants)**

154. The City realleges each and every allegation contained above, as though set forth herein in full.

155. Defendants, individually and in concert with each other, by their affirmative acts and omissions, have unlawfully annoyed and/or done damage to the City; worked hurt, inconvenience, and damage upon the City; annoyed and disturbed the City's free use and enjoyment of its property and rendered its ordinary use uncomfortable; and injured the City in its enjoyment of its legal rights. The annoyance, harm, damage, and injury to the City's rights and property has occurred and will continue to occur on and in public places within the City such that members of the public are likely to come within the range of its influence, and has injured public infrastructure and appurtenances within the City, which therefore affect the public at large.

156. The nuisance created and contributed to by Defendants is substantial and unreasonable. It has caused, continues to cause, and will continue to cause far into the future, significant harm to the community as alleged herein, and that harm outweighs any offsetting benefit. City residents' health and safety are matters of great public interest and of legitimate concern to the City, and to the entire state.

157. Defendants specifically created, contributed to, and/or assisted, and/or were a substantial contributing factor in the creation of the public nuisance by, *inter alia*:

- a. Affirmatively and knowingly promoting the sale and use of fossil fuel products which Defendants knew to be hazardous and knew would cause or exacerbate global warming and related consequences, including, but not limited to, sea level

rise, drought, extreme precipitation events, extreme heat events, and ocean acidification;

- b. Affirmatively and knowingly concealing the hazards that Defendants knew would result from the normal use of their fossil fuel products by misrepresenting and casting doubt on the integrity of scientific information related to climate change;
- c. Disseminating and funding the dissemination of information intended to mislead customers, consumers, and regulators regarding the known and foreseeable risk of climate change and its consequences, which follow from the normal, intended use of Defendants' fossil fuel products;
- d. Affirmatively and knowingly campaigning against the regulation of their fossil fuel products, despite knowing the hazards associated with the normal use of those products, in order to continue profiting from use of those products by externalizing those known costs onto people, the environment, and communities, including the City; and failing to warn the public about the hazards associated with the use of fossil fuel products.

158. Because of their superior knowledge of fossil fuel products, Defendants were in the best position to prevent the nuisance, but failed to do so, including by failing to warn customers, retailers, and the City of the risks posed by their fossil fuel products, and failing to take any other precautionary measures to prevent or mitigate those known harms.

159. The public nuisance caused, contributed to, maintained, and/or participated in by Defendants has caused and/or imminently threatens to cause special injury to the City. The public nuisance has also caused and/or imminently threatens to cause substantial injury to real and personal property directly owned and/or operated by the City for the cultural, historic,



economic, and public health benefit of the City's residents, and for their health, safety, and general welfare.

160. The seriousness of rising sea levels, more frequent and extreme drought, more frequent and extreme precipitation events, increased frequency and severity of heat waves and extreme temperatures, restricted availability of fresh drinking water, and the associated consequences of those physical and environmental changes, is extremely grave and outweighs the social utility of Defendants' conduct because, *inter alia*,

- a. interference with the public's rights due to sea level rise, 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, is expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of the City's public and private property and property owned and operated by the Honolulu Board of Water Supply;
- b. the ultimate nature of the harm is the destruction of real and personal property, loss of public cultural, historic, natural, and economic resources, and damage to the public health, safety, and general welfare, rather than mere annoyance;
- c. the interference borne is the loss of property, infrastructure, and public resources owned and/or operated by the City, which will actually be borne by the City's residents and customers as loss of use of public and private property and infrastructure; loss of cultural, historic, and economic resources; damage to the public health, safety, and general welfare; diversion of tax dollars away from

other public services to the mitigation of and/or adaptation to climate change impacts; and other adverse impacts;

- d. the City's property, which serves myriad uses including residential, infrastructural, commercial, historic, cultural, and ecological, is not suitable for regular inundation, flooding, and/or other physical or environmental consequences of the climate crisis;
- e. Defendants, and each of them, knew of the external costs of placing their fossil fuel products into the stream of commerce, and rather than striving to mitigate those externalities, Defendants instead acted affirmatively to obscure them from public consciousness;
- f. it was practical for Defendants, and each of them, considering their extensive knowledge of the hazards of placing fossil fuel products into the stream of commerce and extensive scientific engineering expertise, to develop better technologies and to pursue and adopt known, practical, and available technologies, energy sources, and business practices that would have mitigated greenhouse gas pollution and eased the transition to a lower carbon economy.

161. Defendants' actions were a substantial contributing factor in the unreasonable violation of public rights enjoyed by the City and its residents as set forth above, because Defendants knew or should have known that their conduct would create a continuing problem with long-lasting significant negative effects on the rights of the public, and absent Defendants' conduct the violations of public rights described herein would not have occurred, or would have been less severe.

162. Defendants' wrongful conduct as set forth herein was committed with actual malice. Defendants had actual knowledge that their products were defective and dangerous and were and are causing and contributing to the nuisance complained of, and acted with conscious disregard for the probable dangerous consequences of their conduct's and products' foreseeable impact upon the rights of others, including the City and its residents. Therefore, the City requests an award of punitive damages in an amount reasonable, appropriate, and sufficient to punish those Defendants for the good of society and deter Defendants from ever committing the same or similar acts.

163. Wherefore, the City prays for relief as set forth below.

**SECOND CAUSE OF ACTION**

**(Private Nuisance)**

**(Against All Defendants)**

164. The City realleges each and every allegation contained above, as though set forth herein in full.

165. The City owns, occupies, and manages extensive real property within the City's borders that has been and will continue to be injured by rising sea levels, higher sea level, 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.

166. Defendants, individually and in concert with each other, by their affirmative acts and omissions, have unlawfully annoyed and/or done damage to the City; worked hurt, inconvenience, and damage upon the City; annoyed and disturbed the City's free use and enjoyment of its property and rendered its ordinary use uncomfortable; and injured the City in its enjoyment of its legal rights.

167. The City has not consented to Defendants' conduct in creating the unreasonably injurious conditions on its real property or to the associated harms of that conduct.

168. The seriousness of rising sea levels, higher sea level, 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, is extremely grave and outweighs the social utility of Defendants' conduct because, *inter alia*,

- a. interference with the public's rights due to sea level rise, 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, is expected to become so regular and severe that it will cause material deprivation of and/or interference with the use and enjoyment of public and private property in the City;
- b. the ultimate nature of the harm is the destruction of real and personal property, loss of public cultural, historic, natural, and economic resources, and damage to the public health, safety, and general welfare, rather than mere annoyance;
- c. the interference borne is the loss of property, infrastructure, and public resources within the City, which will actually be borne by the City's residents as loss of use of public and private property and infrastructure; loss of cultural, historic, and economic resources; damage to the public health, safety, and general welfare; reduction of fresh drinking water supply; diversion of tax dollars away from other

public services to the mitigation of and/or adaptation to climate change impacts;  
and other adverse impacts;

- d. the City's property, which serves myriad uses including residential, infrastructural, commercial, historic, cultural, and ecological, is not suitable for regular inundation, flooding, and/or other physical or environmental consequences of anthropogenic global warming;
- e. Defendants, and each of them, knew of the external costs of placing their fossil fuel products into the stream of commerce, and rather than striving to mitigate those externalities, Defendants instead acted affirmatively to obscure them from public consciousness;
- f. it was practical for Defendants, and each of them, considering their extensive knowledge of the hazards of placing fossil fuel products into the stream of commerce and extensive scientific engineering expertise, to develop better technologies and to pursue and adopt known, practical, and available technologies, energy sources, and business practices that would have mitigated greenhouse gas pollution and eased the transition to a lower carbon economy.

169. Defendants' conduct was a direct and proximate cause of the City's injuries, and a substantial factor in bringing about the harms suffered by the City as described in this Complaint.

170. Defendants' acts and omissions as alleged herein are indivisible causes of the City's injuries and damages as alleged herein, because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO<sub>2</sub> in the atmosphere attributable to anthropogenic sources because such greenhouse gas molecules do not bear markers that permit

tracing them to their source, and because greenhouse gasses quickly diffuse and comeingle in the atmosphere.

171. Wherefore, the City prays for relief as set forth below.

**THIRD CAUSE OF ACTION**  
**(Strict Liability Failure to Warn)**  
**(Against All Defendants)**

172. The City realleges each and every allegation contained above, as though set forth herein in full.

173. Defendants, and each of them, at all times had a duty to issue adequate warnings to the City, the public, consumers, and public officials of the reasonably foreseeable or knowable severe risks posed by their fossil fuel products.

174. Defendants, and each of them, are and were at all relevant times sellers engaged in the business of extracting and/or selling fossil fuel products, and their products were expected to and in fact did reach the end user without any substantial or relevant change in their condition.

175. Defendants knew or should have known, based on information passed to them from their internal research divisions and affiliates, from the non-party trade associations and entities, and/or from the international scientific community, of the climate effects inherently caused by the normal use and operation of their fossil fuel products, including the likelihood and likely severity of global warming, global and local sea level rise, 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, including the City's harms and injuries described herein.

176. Defendants knew or should have known, based on information passed to them from their internal research divisions and affiliates, from the non-party trade associations and

entities, and/or from the international scientific community, that the climatic effects described herein rendered their fossil fuel products dangerous, or likely to be dangerous, when used as intended or in a reasonably foreseeable manner.

177. Throughout the times at issue, Defendants breached their duty of care by failing to adequately warn any consumers or any other party of the climate effects that inevitably flow from the intended use and foreseeable misuse of their fossil fuel products.

178. Throughout the times at issue, Defendants individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, advanced and promoted pseudo-scientific theories of their own, and developed public relations materials that prevented reasonable consumers from recognizing or discovering the latent risk that Defendants' fossil fuel products would cause grave climate changes, undermining and rendering ineffective any warnings that Defendants may have also disseminated.

179. Given the grave dangers presented by the climate effects that inevitably flow from the normal and foreseeable use of fossil fuel products, a reasonable extractor, manufacturer, formulator, seller, or other participant responsible for introducing fossil fuel products into the stream of commerce, would have warned of those known, inevitable climate effects.

180. Defendants' conduct was a direct and proximate cause of the City's injuries and a substantial factor in bringing about the harms suffered by the City as alleged herein.

181. As a direct and proximate result of Defendants' and each of their acts and omissions, the City has sustained and will sustain substantial expenses and damages set forth in this Complaint, including damage to publicly owned infrastructure and real property, and injuries to public resources that interfere with the rights of the City, and of its residents.

182. Defendants' acts and omissions as alleged herein are indivisible causes of the City's injuries and damage as alleged herein, because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO<sub>2</sub> in the atmosphere attributable to anthropogenic sources because such greenhouse gas molecules do not bear markers that permit tracing them to their source, and because greenhouse gasses quickly diffuse and comeingle in the atmosphere.

183. Defendants' wrongful conduct as set forth herein was committed with actual malice. Defendants had actual knowledge that their products were defective and dangerous and that they had not provided reasonable and adequate warnings against those known dangers, and acted with conscious disregard for the probable dangerous consequences of their conduct's and products' foreseeable impact upon the rights of others, including the City. Therefore, the City requests an award of punitive damages in an amount reasonable, appropriate, and sufficient to punish those Defendants for the good of society and deter Defendants from ever committing the same or similar acts.

184. Wherefore, the City prays for relief as set forth below.

**FOURTH CAUSE OF ACTION**

**(Negligent Failure to Warn)**

**(Against All Defendants)**

185. The City realleges each and every allegation contained above, as though set forth herein in full.

186. Defendants, and each of them, at all times had a duty to issue adequate warnings to the City, the public, consumers, and public officials of the reasonably foreseeable or knowable severe risks posed by their fossil fuel products.



187. Defendants knew or should have known, based on information passed to them from their internal research divisions and affiliates and/or from the international scientific community, of the climate effects inherently caused by the normal use and operation of their fossil fuel products, including the likelihood and likely severity of global warming, global and local sea level rise, more frequent and extreme drought, more frequent and extreme precipitation events, increased frequency and severity of heat waves and extreme temperatures, other adverse environmental changes, and the associated consequences of those physical and environmental changes, including the City's harms and injuries described herein.

188. Defendants knew or should have known, based on information passed to them from their internal research divisions and affiliates and/or from the international scientific community, that the climate effects described herein rendered their fossil fuel products dangerous, or likely to be dangerous, when used as intended or in a reasonably foreseeable manner.

189. Throughout the times at issue, Defendants breached their duty of care by failing to adequately warn any consumers or any other party of the climate effects that inevitably flow from the intended or foreseeable use of their fossil fuel products.

190. Throughout the times at issue, Defendants individually and in concert widely disseminated marketing materials, refuted the scientific knowledge generally accepted at the time, advanced pseudo-scientific theories of their own, and developed public relations materials that prevented reasonable consumers from recognizing the risk that fossil fuel products would cause grave climate changes, undermining and rendering ineffective any warnings that Defendants may have also disseminated.

191. Given the grave dangers presented by the climate effects that inevitably flow from the normal or foreseeable use of fossil fuel products, a reasonable manufacturer, seller, or other participant responsible for introducing fossil fuel products into the stream of commerce, would have warned of those known, inevitable climate effects.

192. Defendants' conduct was a direct and proximate cause of the City's injuries and a substantial factor in bringing about the harms suffered by the City as alleged herein.

193. As a direct and proximate result of Defendants' and each of their acts and omissions, the City has sustained and will sustain substantial expenses and damages as set forth in this Complaint, including damage to publicly owned infrastructure and real property, and injuries to public resources that interfere with the rights of the City and its residents.

194. Defendants' acts and omissions as alleged herein are indivisible causes of the City's injuries and damage as alleged herein, because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO<sub>2</sub> in the atmosphere attributable to anthropogenic sources because such greenhouse gas molecules do not bear markers that permit tracing them to their source, and because greenhouse gasses quickly diffuse and comingle in the atmosphere.

195. Defendants' wrongful conduct as set forth herein was committed with actual malice. Defendants had actual knowledge that their products were defective and dangerous and that they had not provided reasonable and adequate warnings against those known dangers, and acted with conscious disregard for the probable dangerous consequences of their conduct's and products' foreseeable impact upon the rights of others, including the City's. Therefore, the City requests an award of punitive damages in an amount reasonable, appropriate, and sufficient to

punish these Defendants for the good of society and deter Defendants from ever committing the same or similar acts.

196. Wherefore, the City prays for relief as set forth below.

**FIFTH CAUSE OF ACTION**

**(Trespass)**

**(Against All Defendants)**

197. The City realleges each and every allegation contained above, as though set forth herein in full.

198. The City owns, leases, occupies, and/or controls real property throughout the City.

199. Defendants, and each of them, have intentionally, recklessly, or negligently caused flood waters, extreme precipitation, saltwater, and other materials, to enter the City's real property, by distributing, analyzing, recommending, merchandising, advertising, promoting, marketing, and/or selling fossil fuel products, knowing those products in their normal or foreseeable operation and use would cause global and local sea levels to rise and more frequent and extreme precipitation events to occur, among other adverse environmental changes, and the associated consequences of those physical and environmental changes.

200. The City did not give permission for Defendants, or any of them, to cause floodwaters, extreme precipitation, saltwater, and other materials to enter its property as a result of the use of Defendants' fossil fuel products.

201. The City has been and continues to be actually injured and continues to suffer damages as a result of Defendants and each of their having caused flood waters, extreme precipitation, saltwater, and other materials, to enter its real property, by *inter alia* submerging real property owned by the City, causing flooding and an increased water table which has

invaded and threatens to invade real property owned the City and rendered it unusable, causing storm surges and heightened waves which have invaded and threatened to invade real property owned by the City, and in so doing rendering the City's property unusable.

202. Defendants' and each Defendant's introduction of their fossil fuel products into the stream of commerce, coupled with their tortious conduct described herein, was a substantial factor in bringing about the harms and injuries to the City's public and private real property as alleged herein.

203. Defendants' acts and omissions, as alleged herein, are indivisible causes of the City's injuries and damage as alleged herein, because, *inter alia*, it is not possible to determine the source of any particular individual molecule of CO<sub>2</sub> in the atmosphere attributable to anthropogenic sources because such greenhouse gas molecules do not bear markers that permit tracing them to their source, and because greenhouse gasses quickly diffuse and comingle in the atmosphere.

204. Defendants' wrongful conduct as set forth herein was committed with actual malice. Defendants had actual knowledge that their products were defective and dangerous, and acted with conscious disregard for the probable dangerous consequences of their conduct's and products' foreseeable impact upon the rights of others, including the City and its residents. Therefore, the City requests an award of punitive damages in an amount reasonable, appropriate, and sufficient to punish these Defendants for the good of society and deter Defendants from ever committing the same or similar acts.

205. Wherefore, the City prays for relief as set forth below.

## **VII. PRAYER FOR RELIEF**

The City seeks judgment against those Defendants for:

1. Compensatory damages in an amount according to proof;
2. Equitable relief, including abatement of the nuisances complained of herein in and near the City;
3. Reasonable attorneys' fees as permitted by law;
4. Punitive damages;
5. Disgorgement of profits;
6. Costs of suit; and
7. For such and other relief as the court may deem proper.



