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DISTRICT COURT, COUNTY OF BOULDER STATE OF COLORADO Boulder County Combined Court 1777 Sixth Street Boulder, CO 80302	
Plaintiffs: BOARD OF COUNTY COMMISSIONERS OF BOULDER COUNTY; BOARD OF COUNTY COMMISSIONERS OF SAN MIGUEL COUNTY; CITY OF BOULDER v. **Defendant**: SUNCOR ENERGY (U.S.A.), INC.; SUNCOR ENERGY SALES, INC.; SUNCOR ENERGY, INC.; EXXON MOBIL CORPORATION	▲COURT USE ONLY▲ Case Number: Division:
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COMPLAINT AND JURY DEMAND

Plaintiffs Board of County Commissioners of Boulder County, Board of County Commissioners of San Miguel County and the City of Boulder, through counsel, allege the following against Defendants Suncor Energy (U.S.A), Inc., Suncor Energy Sales, Inc., Suncor Energy, Inc., and Exxon Mobil Corporation.

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INTRODUCTION

1. The Plaintiffs in this case are three local governmental entities in the State of Colorado that face substantial and rising costs to lessen the impacts of human alteration of the climate ("climate change") on their property and to protect the health, safety and welfare of their residents.

2. They bring this lawsuit against Exxon Mobil Corporation ("Exxon") and companies affiliated with Suncor Energy Inc. (collectively, the "Suncor Defendants," more specifically defined in Paragraphs 45-64 below) for the substantial role they played and continue to play in causing, contributing to and exacerbating climate change.

3. As recognized by both Colorado's Governor and General Assembly, climate change will bring more (and more serious) heat waves, wildfires, droughts, and floods to the State, as well as myriad other consequences caused by rapidly rising temperatures.

4. These impacts have already harmed Plaintiffs' property and impacted the health, safety and welfare their residents. The damages will only multiply as climate change worsens. Plaintiffs are taking reasonable (and necessary) measures to address and abate these impacts within their respective jurisdictions. As the impacts of climate change grow more severe, they will do more harm to Plaintiffs and cause greater expense.

5. Alone, Plaintiffs and their taxpayers cannot pay the full costs of all that is needed, nor should they. The costs should be shared by the Suncor and Exxon Defendants because they *knowingly* and *substantially* contributed to the climate crisis by producing, promoting and selling a substantial portion of the fossil fuels that are causing and exacerbating climate change, while concealing and misrepresenting the dangers associated with their intended use.

6. Plaintiffs are not asking this Court to stop or regulate the production of fossil fuels in Colorado or elsewhere and they are not asking this Court to stop or regulate emissions in Colorado or elsewhere; they ask only that Defendants help remediate the nuisance caused by their intentional, reckless and negligent conduct, specifically by paying their share of the Plaintiffs' abatement costs.

7. **Changes to the climate were caused by, and continue to be exacerbated by, unabated fossil fuel use**. Since the 1960s, unchecked fossil fuel combustion has caused an unprecedentedly rapid rise in the concentration of greenhouse gases (GHGs) in the atmosphere. Indeed, fossil fuel combustion accounts for nearly 80 percent of all GHG emissions between 1970 and 2010. As a result, more heat has been, is being, and will continue to be trapped by the atmosphere, triggering changes to the climate.

8. **The hazards created by climate change are real, recognized by every level of the government in the United States, and pose a clear and present threat to property and public health in Colorado**. Climate change impacts in Colorado are and will continue to be severe. For example, in 2017, the federal government reported that "[t]he frequency and intensity of extreme high temperature events are *virtually certain* to increase" and "[t]he incidence of large forest fires in the western United States [which has already increased on account of climate change] . . . is projected to further increase in those regions as the climate changes, with profound changes to regional ecosystems." These and other changes, moreover, "are particularly important for human safety, infrastructure, agriculture, water quality and quantity, and natural ecosystems."

9. **Plaintiffs have taken substantial steps to prevent climate change, but have been harmed, and will continue to suffer harms regardless**. Climate change has already injured people and damaged property. Recognizing this, Plaintiffs have taken substantial steps to reduce their own GHG emissions. They have taxed their residents to fund emission reduction efforts, limited their own fossil fuel use, and tried to prohibit or reduce the environmental impacts of fossil fuel production within their borders.

10. In spite of these efforts, and in light of the hazards that are here and worsening, Plaintiffs are spending, and must continue to spend, millions of dollars to protect their property and residents from the impacts of climate change.

11. **Defendants cannot contest the reasonableness or necessity of Plaintiffs' climate response.** While Defendants publicly fought against climate science – to protect their profits from the impacts of regulation and informed public choice – they privately relied on the same established science to protect their business from climate change impacts. Now that Plaintiffs are also forced to grapple with and respond to climate change, Defendants cannot contest the necessity of a response.

12. **While Plaintiffs have acted reasonably, Defendants have acted recklessly.** Decades ago, Defendants learned: that fossil fuel combustion was causing a dramatic rise in the concentration of GHGs in the atmosphere; that "significant temperature changes" were likely to result, which would, in turn, "bring about climatic changes"; that "there [was] <u>no</u> leeway" time for remedial action; and that "[w]e can either adapt our civilization to a warmer planet or avoid the problem by sharply curtailing the use of fossil fuels." They were specifically warned that inaction would likely cause "dramatic climatic changes," including a temperature rise of 9°F,

complete snow loss "in the contiguous states, except on higher mountains," and "major shifts in weather patterns in the northern hemisphere."

13. Despite receiving the warning that "fossil fuel use should not be encouraged," Defendants spent decades selling and promoting fossil fuels without disclosing the dangers that continued fossil fuel over-use posed.

14. **Defendants have substantially contributed to and exacerbated the impacts of human-caused climate change, thereby substantially contributing to Plaintiffs' injuries.** Defendants are responsible for billions of tons of the excess greenhouse gas emissions in the atmosphere. They have sold a substantial percentage of all the fossil fuels whose intended and foreseeable use – i.e., combustion – contributed to and exacerbated the impacts of climate change. Moreover, long after they became aware of the dangers of climate change, Defendants chose to develop dirtier fuel sources and sell dirtier fuels that create substantially more GHGs than traditional fossil fuels when burned, notably those developed from the Canadian tar sands[1] and refined in Colorado.

15. **Defendants' present and planned fossil fuel activities will accelerate and exacerbate climate change and its impacts.** Defendants' ongoing actions continue to significantly contribute to climate change. While they may now acknowledge the reality of climate change, they nevertheless plan to produce and sell even more fossil fuels in the future. Plaintiffs' costs of adapting to climate change will only increase if this happens.

16. **Defendants acted to prevent and forestall changes in energy use and supply, which they knew were needed, exacerbating the harms suffered by Plaintiffs and their**

[1] Tar sands are also known as oil sands.

residents. By hiding what they knew about, and affirmatively misrepresenting the dangers of unabated fossil fuel use, the Defendants protected fossil fuel demand, and obstructed the changes needed to prevent or at least minimize the impacts of climate change.

I. PARTIES

A. Plaintiffs

17. The Plaintiffs in this case are the Board of County Commissioners of Boulder County ("Boulder County"), the Board of County Commissioners of San Miguel County ("San Miguel County"), and the City of Boulder (occasionally referenced hereafter as the "City").[2]

BOULDER COUNTY

18. Plaintiff Boulder County, a subdivision of the State of Colorado, is a body corporate and politic in the State of Colorado empowered to sue and be sued. It lies in north central Colorado, on the eastern slopes of the Rocky Mountains in the Front Range Urban Corridor, encompassing 753 square miles.

19. Land within the County contains sub-alpine and alpine ecosystems and a shrinking glacier. The County's west contains forests, slopes, mountain communities and canyons, which hold creeks that bring water to the cities, high plains, grasslands and farmlands of the County's east.

20. The County is home to roughly 319,000 people, and includes both unincorporated areas – the rural, mountainous and plains communities – and incorporated towns and cities,

[2] References in the Complaint to "Boulder," or the "Boulder area," refer to the geographic area of Boulder County, which includes both the incorporated towns and cities, including the City of Boulder, in addition to the unincorporated areas of the County.

including Plaintiff City of Boulder.

21. Boulder County has long held a commitment to stewardship of the land, environment, and community. The eastern plains are rich in agricultural farmland, lakes and rolling pastures filled with distinctly defined cities and communities, while the foothills and mountains to the west feature prominent rock formations, forests and high-altitude valleys and sweeping vistas. Preserving the County's future in a way that maintains its agricultural landscape, character and unique way of life is a top priority for County residents.

22. As a governmental entity, Boulder County takes its stewardship responsibilities to heart and works daily to further the County's long-term vision for well-planned urban development, economic vitality and the preservation of its rural and mountain communities.

23. In its unincorporated areas, Boulder County maintains hundreds of miles of paved and unpaved roads, over 80 major bridges, hundreds of large culverts and smaller bridges/access points, as well as thousands of small culverts.

24. The County provides a wide range of services to residents in unincorporated areas, including health and human services, emergency services, wildfire mitigation, and other necessary governmental functions. It also provides services to residents living in the incorporated areas of Boulder County, including housing and human health programs, as well as emergency services.

25. Boulder County owns or holds conservation easements over a substantial amount of real and other property for its own benefit and for that of its residents. This includes 65,316 acres of publicly owned "open space", i.e., County-owned public land preserved for recreation, conservation, and agricultural purposes. The County has a duty to preserve and maintain this

open space for future generations. The County also holds conservation easements over roughly 40,000 acres of privately owned land, which protect agricultural land, wildlife habitat and scenic open space from development.

26. The County leases 25,000 acres of its open space to sixty-seven agricultural tenants, generating approximately $125,000 in annual net income. In addition, the County also owns, leases, and maintains and/or operates more than 45 public buildings, and the County housing authority owns more than 800 units of affordable or subsidized housing.

27. People and property (including County-owned property) and infrastructure within Boulder County have been and will continue to be damaged on account of human-caused climate change. Boulder County has taken substantial steps to abate these hazards, and will and must continue to do so.

SAN MIGUEL COUNTY

28. Plaintiff San Miguel County is a body corporate and politic of the State of Colorado empowered to sue and be sued. It lies in southwest Colorado, on the western slopes of the Rocky Mountains, encompassing 1,289 square miles. The County encompasses the high mountain communities of Telluride (the County seat) and Mountain Village at the eastern end of the County and arid ranching communities in the County's western end. In 2017, San Miguel County had an estimated population of 7,967. Telluride, the County's largest town, had an estimated population of approximately 2,500.

29. San Miguel County has historically valued preservation of natural resources and land stewardship, starting with the land ethic of the early ranching pioneers who established the Town of Norwood, and continuing through its commitment to preserving wild lands for

recreational opportunities and ecosystem services. The San Miguel River connects the communities of the County from the high alpine headwater towns dependent on consistent snow pack, forested landscapes and a healthy river system to the agricultural communities dependent on healthy spring run-off and summer flows.

30. In 2001, voters approved a mill levy for open space and historic preservation. In 2005, San Miguel County partnered with local governments to establish a regional sustainability program whose mission was to reduce GHG emissions through an inventory and education program. The mission of the San Miguel County Board of Commissioners is to "ensure our residents are healthy and flourishing and that our communities are safe and vibrant by: providing essential community services, practicing responsible stewardship of our environment, prioritizing long-term fiscal stability, and partnering with others to enhance the quality of life in San Miguel County and the region."

31. San Miguel County provides emergency response services in the event of wildfires, floods, road washouts and other threats to public health and safety. In addition, the County is responsible for maintaining hundreds of miles of roads, including paved and gravel roads, dozens of bridges, numerous culverts, and public buildings.

32. People, property (including County-owned property) and infrastructure within San Miguel County have been and will continue to be damaged on account of human-caused climate change. San Miguel County has taken substantial steps to abate these hazards, and will and must continue to do so.

THE CITY OF BOULDER

33. The City of Boulder is a home rule municipality in the State of Colorado

empowered to sue and be sued. It lies in Boulder Valley at the foothills of the Rocky Mountains, 25 miles northwest of Denver. The City's 25.8 square miles is surrounded by over 70 square miles of preserved City public land and parks space. It is bordered on one side by the iconic Flatirons rock formations and on the other side by the Great Plains.

34. The City of Boulder sits 5,430 feet above sea level and is surrounded by a greenbelt of City trails and open spaces. It is known for its natural beauty, outdoor recreation, natural product retailers and restaurants, outstanding alternative transportation options, diverse businesses, and technological and academic resources.

35. The City is home to roughly 108,000 people. It serves as both the seat and the most populous municipality in Boulder County and is home to approximately one-third of the County's residents. The City is also home to the main campus of the University of Colorado and boasts a high concentration of employment in STEM fields. In addition to the well-renowned researchers at the University of Colorado Boulder, the City hosts a number of science and environmental organizations, including research facilities for the National Center for Atmospheric Research and the National Oceanic and Atmospheric Administration.

36. The City and its residents have a long history of planning for the challenges of tomorrow and fostering sustainability. For decades, the City has taken, and the community has supported, some of the most progressive sustainability activities in the country, including a 40-plus year legacy of open space preservation and pioneering commitments to climate action goals. Stewardship and sustainability are part of the Boulder community DNA. The City not only protects the health, security and livelihoods of its residents, it is a steward that protects the fabric of the community, its ecosystems and way of life, including for future generations.

37. The City of Boulder owns and/or maintains hundreds of miles of paved roads, over 40 major bridges, fourteen reservoirs, two water treatment plants, sewage and stormwater drainage systems, and other critical infrastructure.

38. The City provides myriad services that are essential to the health, safety and welfare of its residents, including: emergency services; public utilities, such as water supply and treatment; transportation infrastructure; fire protection; flood controls; and parks and public outdoor space.

39. The City also owns a substantial amount of real and other property for its own benefit and for the benefit of its residents. This includes over 45,000 acres of "open space." The City leases 15,000 acres of that open space to 26 agricultural tenants. In addition to its open space holdings, the City owns, leases, maintains, and/or operates many buildings and other structures.

40. Plaintiff City of Boulder also owns substantial and senior water rights, which it uses to supply water to its residents and businesses, as well as to others outside the City limits, from which it derives revenue.[3]

41. The City's water supply comes from both the East and West Slopes of the Continental Divide of the Rocky Mountains. The City's East Slope sources are diverted from North Boulder Creek and Middle Boulder Creek through City infrastructure; its West Slope

[3] Over the course of a year, the majority of the water supplied by the City goes towards indoor uses, i.e., drinking and sanitation, with a smaller share going towards irrigation. The balance shifts based on seasons and water availability: a greater portion of the water goes towards irrigation in the warmer and drier summer months though water for irrigation purposes is curtailed when water is in shorter supply. The City also leases some of the water for agricultural purposes, when supplies permit.

sources are conveyed from the upper Colorado River and delivered to the City for treatment through Northern Colorado Water Conservancy District facilities.

42. The City stores its water in fourteen different City-owned and -operated reservoirs. The City treats its water at two City-owned and -maintained facilities and the City transports its water – including, ultimately to residents – through City-owned and -operated infrastructure.

43. Populations, property and transportation infrastructure within the City of Boulder (including City owned property) has been and will continue to be damaged on account of climate change. The City of Boulder has taken substantial steps to abate the hazards facing its residents, public property and infrastructure, and will and must continue to do so.

B. Defendants

44. The Defendants in this case are Suncor Energy, Inc. ("Suncor Energy"), Suncor Energy (U.S.A.) Inc. ("Suncor USA"), Suncor Energy Sales, Inc. ("Suncor Energy Sales"), and Exxon Mobil Corporation ("Exxon"). Hereafter, Suncor Energy, Suncor USA, and Suncor Energy Sales are referred to collectively the "Suncor Defendants."

SUNCOR

45. Defendant Suncor Energy is a Canadian corporation with its registered and head office located in Calgary, Alberta. Suncor Energy does business in Colorado through its numerous subsidiaries.

46. Suncor Energy began as the Sun Company of Canada, a subsidiary of Sun Oil, an American company. Suncor Energy was later known as Suncor Inc., an entity formed in 1979 by the amalgamation under the *Canada Business Corporations Act* of Sun Oil Company Limited,

incorporated in 1923, and Great Canadian Oil Sands Limited, incorporated in 1953. In 1997, Suncor Energy adopted its current name, Suncor Energy, Inc. In 2009, Suncor Energy amalgamated with Petro-Canada to form a single corporation continuing the same name, which has to date operated as an independent company. Suncor Energy benefited from, continues to benefit from and is responsible for the actions of its predecessor entities.

47. Suncor Energy is the parent company of a multinational, integrated oil and gas enterprise that explores for, produces, refines, markets and sells fossil fuels (including oil, natural gas, petroleum coke and other products). Suncor Energy publicly has stressed the "integrated" nature of its operations stating that "the integration of our business, both financially and physically, creates the conditions for our success." Suncor Energy files consolidated regulatory filings on behalf of the family, claiming profit and responsibility for the production, refining and fossil fuel sales of its subsidiaries.

48. Suncor Energy controls and directs those fossil fuel activities – including the production, refining, promotion, marketing and selling of fossil fuels, particularly Canadian tar sands – across its corporate family, which include many other subsidiaries and joint ventures, and which act as its agents.

49. Suncor Energy refers to and directs its subsidiaries as a single enterprise:

- Suncor Energy refers to the refinery, operated by Suncor USA in Colorado, as "our Commerce City refinery";
- Suncor's CEO describes the Commerce City, Colorado refinery as "giv[ing] us increased control of our product from production straight through to the consumer";
- Suncor Energy publicly describes its "U.S. businesses" as a "vital link between the company's large scale oil sands resource base and the growing U.S. energy market;"

- Suncor Energy further notes that "[t]he various parts of Suncor's businesses are tightly connected";
- Suncor Energy "100% guarantee[s]" its crude oil marketing and trading business under Suncor Energy Marketing Inc.; and
- Suncor Energy describes its "Supply & Trading" function in a consolidated unified way that is directed by Suncor Energy: "We are Suncor Energy Inc.'s commercial centre of excellence for sales and marketing of selected energy products and services. With offices in Calgary, Alta., Denver, Colo., and London, England . . . ."

50. Defendant Suncor USA, a subsidiary of Suncor Energy, is a citizen and resident of Colorado, headquartered in Denver, and incorporated in Delaware. Suncor USA operates a refinery in Commerce City, Colorado, which produces 98,000 barrels per day of gasoline and diesel fuel. The Commerce City refinery processes Canadian tar sands crude from Suncor Energy's mining operations in Canada, and products from fractured oil and gas production in Colorado.

51. Defendant Suncor Energy Sales, a subsidiary of Suncor Energy, is a Colorado corporation with its principal place of business in Denver. Suncor Energy Sales operates 47 retail gasoline and/or diesel fuel stations in Colorado under the following trade names: Coastal Mart, Exxon and Phillips 66.

52. References to Suncor, unless otherwise specified, will be to the collective Suncor corporate enterprise, including the Suncor Defendants.

53. Suncor conducts activities – including the production, refining, promotion, marketing and selling of fossil fuels, particularly Canadian tar sands – according to a common design across the corporate family, which is set by Suncor Energy. On information and belief, the other members of the Suncor corporate family – subsidiaries, affiliates and other agents – do

not have the ability to deviate from the common design and cannot refuse to produce, promote, refine, sell and/or transport Suncor fossil fuels.

54. Suncor claims it is "the fifth largest North American energy company and has a place on the global stage as one of the largest independent energy companies in the world." In 2017, Suncor produced approximately 685,000 barrels of oil per day and refined approximately 441,000.

55. As a result of their fossil fuel activities, the Suncor Defendants are responsible for billions of tons of excess GHG emissions. Based on the GHG emissions that can be traced solely to fossil fuels produced by Suncor and its subsidiaries between 1988 and 2015, the Suncor Defendants are responsible for the emission of approximately 2 billion tons of CO_2 into the atmosphere. Based on the fossil fuels it has brought to market, Suncor is one of the largest sources of historic and present-day GHG emissions.

56. A substantial amount of Suncor's fossil fuel products are derived from its Canadian tar sands operations. Approximately 20 percent of the products produced at the Commerce City refinery are derived from Suncor's Canadian tar sands operations. Suncor trumpets its plans to increase tar sands development over the coming decades.

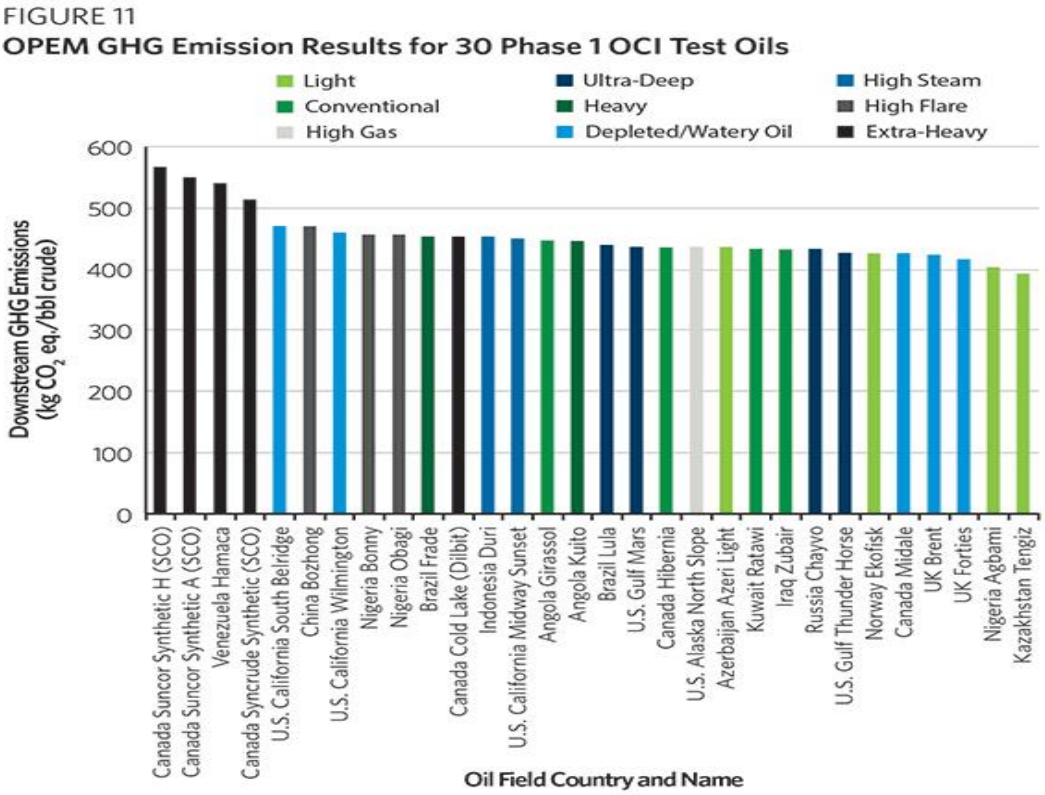
57. Suncor Energy publicly states that it has around 8 billion barrels of recoverable oil, the majority of which comes from the Canadian tar sands.

58. With its focus on tar sands, Suncor's fossil fuel products produce a proportionally greater amount of GHG emissions than most fossil fuel companies do.

59. Tar sands are deposits of a petroleum-like substance known as bitumen. Mining and developing bitumen requires a huge amount of energy and releases enormous amounts of

GHGs.[4] Barrels of converted bitumen also have a higher concentration of carbon, as compared to typical petroleum.

60. The chart below, which was produced by the Carnegie Institute as part of a report, "Know Your Oil: Creating a Global Oil-Climate Index," shows the number of downstream emissions – those created by combustion of the fuels – for different companies' oil products.



Source: Authors' calculations

Note: Unlike the other OCI test oils, Cold Lake dilbit is not composed of a full barrel of oil.

61. Additionally, the process of turning tar sands deposits into useable fuel produces huge amounts of petroleum coke ("petcoke"), a coal-like substance. When combusted, petcoke

[4] In 2014, Suncor's production and refining operations emitted more than 20 million tons of GHGs, a number which they now expect to increase to more than 25 million tons by 2019, as its tar sands operations continue to grow.

produces substantially greater GHG emissions per unit of energy produced, as compared to other fossil fuels (including coal). Suncor is one of the largest sources of petcoke and has sold millions of tons of it.

62. Suncor is a very profitable fossil fuel company, deriving profits – in the tens of billions of dollars since the late 1980s – primarily from the production and sale of fossil fuels.

63. From no later than the late 1960s, Suncor knew that its fossil fuel products would, when burned, release CO_2 and other GHGs into the atmosphere, resulting in and exacerbating changes in the planet's climate.

64. On information and belief, through at least 2016, Suncor was a member of, had access to information held by, participated in, directed, benefited from, agreed with, consented to, and ratified and/or adopted positions and actions taken by the American Petroleum Institute (API).[5]

EXXON

65. Exxon is a New Jersey corporation headquartered in Texas. Exxon has done business in Colorado since at least the 1930s.

66. Exxon is a multinational, vertically integrated, fossil fuel company. While Exxon has many predecessor companies, its current incarnation was formed in 1999 with the merger of Exxon Corp. (originally the Standard Oil Company of New Jersey) and Mobil Corp. (originally the Standard Oil Company of New York). Exxon has benefited from, and is responsible for, the

[5] For example, in its 2016 "Sustainability Report" Defendant Suncor stated that it was "a participant in the development of policy positions and contributes to the outcomes of [API] meetings" and that API's and Suncor's positions on climate change were "consistent."

actions of its many predecessor entities.

67. Exxon controls and profits from fossil fuel activities – including the production, refining, promotion, marketing and selling of fossil fuels – across its corporate family, which includes many subsidiaries and joint ventures.

68. On information and belief, the fossil fuel activities across Exxon's entire corporate family are pursued according to a common design set and controlled by Exxon. According to that common design, the members of the corporate family – subsidiaries, affiliates and other agents – do not have the ability to deviate from the common design and cannot refuse to produce, promote, refine, and sell and/or transport Exxon's fossil fuels.

69. Exxon's filings with the U.S. Securities and Exchange Commission and other public statements consolidate production, refining and fossil fuel sales figures across the corporate family. (Further references to "Exxon" will be references to the entire corporate enterprise, unless otherwise specified).

70. Exxon has provided a substantial portion of all fossil fuels used worldwide. Since the 1960s, it has sold billions of barrels of oil, trillions of cubic feet of natural gas and millions of tons of coal. Historically, Exxon supplied nearly 10 percent of global oil demand.[6]

71. As a result of these activities, Exxon is responsible for billions of tons of GHG emissions. For example, based on the GHG emissions that can be traced solely to fossil fuels *produced* by Exxon *between 1988 and 2015*, it is responsible for nearly 16 billion tons of carbon

[6] For example, in 2001, Exxon sold nearly 8 million barrels of oil per day, more than 10 percent of the approximately 75-million-barrel global demand.

dioxide (CO_2).[7] Based on the fossil fuel products it brought to market, Exxon is one of the largest sources of historic and present-day GHG emissions.

72. Exxon now publicly purports to accept some of the truth of climate change – i.e., that it is largely caused by human activity, primarily fossil fuel use, and that increasing atmospheric temperatures will harm public health and property. Nonetheless, Exxon's business plans include increased sales of fossil fuels and the development of more carbon-intensive fossil fuels, such as shale oil and tar sands. Its reported fossil fuel reserves exceed 20 billion barrels of oil equivalent ("BOE").

73. Exxon is one of the world's most profitable companies, deriving profits – in the hundreds of billions of dollars since the late 1980s – primarily from the production and sale of fossil fuels.

74. From no later than the late 1960s, Exxon knew that its fossil fuel products would, when burned, release CO_2 and other GHGs into the atmosphere, resulting in and exacerbating changes in the planet's climate.

75. On information and belief, at all relevant times, Exxon was a member of, had access to information held by, participated in, directed, benefited from, agreed with, consented to, and ratified and/or adopted positions and actions taken by the American Petroleum Institute.

II. JURISDICTION AND VENUE

76. Venue is proper in this Court pursuant to Colorado Revised Statutes § 16-13-307(2) and Colorado Rule of Civil Procedure 98 because the nuisance and trespass to which

[7] Exxon is responsible for far more than 16 billion tons of CO_2 because it sells far more than it produces, and because it sold billions more barrels of fossil fuels before 1988. The precise amount will be revealed during discovery and trial.

Defendants significantly contributed to exists in Boulder County and because Defendants have committed a tort in Boulder County, including carrying out deceptive practices.

77. Each Defendant is subject to personal jurisdiction in Colorado pursuant to Colorado Revised Statutes § 13-1-124 because it transacts business, committed and continues to commit tortious acts, and has caused substantial injury to Plaintiffs in Colorado.

78. Each ton of CO_2 that can be traced to the Defendants' fossil fuel operations in and contacts with Colorado, including production, refining, and sale, contributed to bringing about climate change, and exacerbates the impacts of climate change and Plaintiffs' injuries.

SUNCOR ENERGY

79. Personal jurisdiction is proper over Suncor Energy because it has substantial contacts and affiliations with Colorado, which make it essentially at home in the state. Personal jurisdiction is also proper over Suncor Energy because it has substantial contacts with Colorado by and through its fossil fuel business operations in the state – including through the sale, promotion, transportation, and/or refining of fossil fuels in Colorado – and because Plaintiffs' injuries arose out of, were caused and/or exacerbated in part by, and/or relate to those activities.

80. Throughout the time period relevant to this litigation, Suncor Energy has operated and done business in Colorado through several agents. These agents include, but are not limited to: Defendants Suncor USA, a Delaware corporation headquartered in Colorado, and Suncor Energy Sales, a Colorado corporation with its principal offices in the state; Suncor Energy (U.S.A.) Pipeline Co., a Colorado corporation with its principal offices in the state; Suncor Marketing Inc., a Delaware corporation, headquartered in Colorado; and Suncor Energy Services, a Canadian corporation doing business in Colorado.

81. Suncor Energy does not just do business in Colorado; it is actually at home in the state. Suncor Energy's affiliations with Colorado are more substantial than with any other state in the United States.

82. Suncor Energy – through its own direct actions and through the activities of its subsidiaries and agents acting pursuant to a common design coordinated and directed by Suncor Energy – has substantial contacts with Colorado relating to the claims in this case, including activities that give rise to the claims in this case.

83. With the knowledge that fossil fuel use caused climate change and is exacerbating the impacts of climate change in Colorado, Suncor Energy has engaged in the following activities in Colorado:

- promoted and continues to promote fossil fuel use in Colorado with the intent that its fossil fuels be used and combusted;
- sold, sells and plans to continue selling fossil fuels to customers in Colorado through a network of gas stations and other suppliers – by its own admission, Suncor's products account for "35% of Colorado's gasoline and diesel fuel demand," half of Colorado's diesel, and a third of the jet fuel supplies for Denver International Airport;
- operated, and continues to operate, "Colorado's only petroleum refinery" in Commerce City, Colorado, which produces over 100,000 barrels per day – approximately 20 percent of the products produced at the Commerce City refinery are derived from Suncor's Canadian tar sands operations; and
- operates pipeline systems that transport crude oil from Cheyenne, Wyoming, to Commerce City.

84. Suncor has also directly emitted substantial amounts of GHGs in Colorado from its fossil fuel operations, including refining and transportation activities. Suncor's operations in Colorado emitted approximately one million metric tons of GHGs in 2016 alone.

85. On its own, and/or through agents – including API and the company's affiliates –

Suncor Energy has conspired to, funded and participated in efforts to mislead people and consumers in Colorado about, among other things, climate change and the risks of fossil fuel use.

SUNCOR USA

86. Defendant Suncor USA, a subsidiary of Suncor Energy, is a citizen and resident of Colorado with its principal place of business located in Denver, and incorporated in Delaware. Suncor USA is registered with the Office of the Colorado Secretary of State and does business in Colorado. As a citizen of the state, Suncor USA is subject to general jurisdiction in Colorado.

SUNCOR ENERGY SALES

87. Defendant Suncor Energy Sales, a subsidiary of Suncor Energy, is a Colorado corporation, with its principal office located in Denver. Suncor Energy Sales is registered with the Office of the Colorado Secretary of State and does business in Colorado. As a citizen of the state, Suncor Energy Sales is subject to general jurisdiction in Colorado.

EXXON

88. Exxon is a New Jersey corporation with its principal place of business in Irving, Texas. Exxon has a registered agent for service of process in Colorado and has done business in Colorado since at least the 1930s.[8]

89. Personal jurisdiction is proper over Exxon because it has substantial contacts with Colorado by and through its fossil fuel business operations in the state – including through the sale, promotion, extraction, and/or refining of fossil fuels in Colorado – and because Plaintiffs' injuries arose out of, were caused and/or exacerbated in part by, and/or relate to those activities.

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[8] Its registered agent is Corporation Service Company, 1900 W. Littleton Boulevard, Littleton, Colorado.

90. Throughout the time period relevant to this litigation, Exxon has operated and done business in Colorado through several agents. Those agents include, but are not limited to, XTO Energy Inc., an Exxon subsidiary that has developed and continues to develop fossil fuels in Colorado, and which has registered an agent for service of process in Colorado. XTO purports to be an expert "in developing tight gas, shale gas, coal bed methane and unconventional oil resources," and its western division is headquartered in Denver, Colorado.

91. Those agents also include, but are not limited to, ExxonMobil Coal USA Inc., a subsidiary that developed fossil fuels in Colorado between 1979 and 2002, and which registered an agent for service of process in Colorado. The company's purpose was to "acquire, mine, and sell coal; maintain shale, water, oil and gas interests, [and to] [d]evelop [the] capability to produce synthetic liquids and gas, including research and development programs."

92. Exxon has substantial contacts with Colorado relating to the claims in this case, including activities that give rise to the claims in this case. With knowledge that fossil fuel use would cause, has caused, and is exacerbating climate change impacts, including the impacts in Colorado, Exxon has engaged in the following activities:

- promoted, promotes and plans to continue promoting fossil fuel use with the public and customers in Colorado;
- sold, sells and plans to continue selling its fossil fuels in Colorado through its own gas stations, and through agreements with other retail distributors[9] – there are approximately 50 Exxon-branded gas stations in Colorado;
- produced a substantial amount of natural gas in Colorado through its agent, XTO, in three Colorado counties, which produce 130 million cubic feet of gas per day,

[9] The quantity of Exxon's product, which is sold in this state is information that is uniquely in Exxon's possession.

making XTO – on information and belief – the state's seventh largest gas producer;

- produced approximately a million barrels of crude oil in Colorado;
- produced a significant amount of coal in Colorado; and
- caused a substantial amount of GHG emissions derived from the use of these fuels produced in Colorado, when burned.

93. Exxon has sought to develop and has continuing plans to develop unconventional fossil fuels in Colorado, such as oil shale (i.e., kerogen), and coal-to-liquid and coal-to-gas synthetics.

94. Exxon has also directly emitted substantial amounts of GHGs in Colorado from its production and transportation activities. The company emitted more than 420,000 metric tons of GHGs in Colorado between 2011 and 2015 alone.

95. On its own, and/or through agents – including API – Exxon has also conspired to, funded and participated in efforts to mislead people and consumers in Colorado about, among other things, the existence of climate change and the risks of fossil fuel use.

SHARED CONTACTS WITH COLORADO

96. Exxon and Suncor's contacts with Colorado also substantially overlap. Exxon and Suncor jointly own Syncrude Canada Ltd. – a large, if not the largest, tar sands developer in Canada – which promotes and sells in Colorado synthetic crude derived from Canadian tar sands. Suncor Energy Sales also has agreements with Exxon, through which it markets and sells Exxon fuels at wholesale and retail sites across Colorado.

III. STATEMENT OF FACTS

A. Defendants' actions have altered the climate in Colorado.

97. Climate change is real and its cause is not in doubt: the emission of GHGs into the atmosphere, primarily from the combustion of fossil fuels, has increased the concentration of those gases in the atmosphere, trapping heat in the climate system, and warming the planet.[10] As the U.S. Government reports, "there is no convincing alternative explanation" for the observed warming trends. As a result of climate change – and as evidence of the reality of the climate crisis – all five of the warmest years on record have occurred since 2010; 2016 and 2017 were the warmest.

1. *The climate has been altered because of fossil fuel use.*

98. Earth has a natural "greenhouse" effect: solar energy, primarily in the form of light, passes through the atmosphere; the Earth re-radiates some of that energy back into space as thermal radiation – essentially, heat; and GHGs in the atmosphere, like carbon dioxide, trap some of that heat inside the Earth's climate system, thereby warming the atmosphere and oceans.

99. The natural greenhouse effect has been altered and exacerbated by human greenhouse gas emissions. Abnormally high concentrations of atmospheric GHGs, primarily CO_2 but also methane and other trace gases, are trapping more heat, artificially intensifying the greenhouse effect.

100. GHGs have rapidly accumulated in the atmosphere because of the increasing use and combustion of fossil fuels. Fossil fuels produce GHGs, primarily CO_2, when they are

[10] According to the U.S. Environmental Protection Agency, "almost all of the increase is due to anthropogenic emissions."

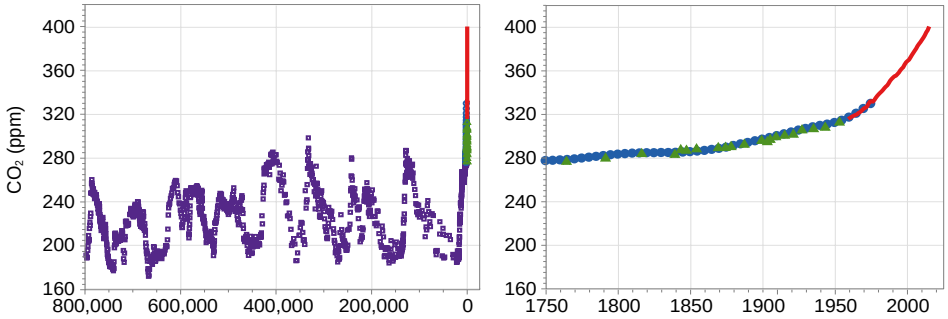
combusted. In addition, as fossil fuel use has grown, GHG emissions have risen at an unparalleled rate. The normal processes by which GHGs are re-absorbed by the Earth's plants, land and oceans cannot keep up with this rapid emission rate, and the concentration of GHGs in the atmosphere has therefore increased.

101. Fossil fuel combustion is responsible for the majority of emissions that have caused GHG concentrations to reach hazardous and unprecedented levels. For example, CO_2 emissions – by far the most prevalent and problematic GHG because of its long-lived warming impact – have increased roughly 90 percent since 1970, with fossil fuel combustion and industrial processes contributing to roughly 78 percent of total GHG emission increases from 1970 to 2011.

102. As a result of those emissions, atmospheric CO_2 now stands at 408 parts per million (ppm), a level which is unprecedented in human history. The last time atmospheric CO_2 reached this level was approximately 3 million years ago, when average temperatures were considerably warmer (3.6 to 6.3°F, or 2 to 3.5°C) than today's temperatures, and sea levels were at least 30 feet higher.

103. Atmospheric CO_2 levels continue to rise. Defendants' activities contributed to a rise in energy-related carbon emissions of around 32 billion tons in 2017, as emissions increased by 1.4 percent. Each year more CO_2 is being pumped into the atmosphere.

104. The graph on the left depicts atmospheric CO_2 concentrations over the last 800,000 years. The spike on the far right side of the graphs shows the trend in the past few centuries. The graph on the right has the same scale of CO_2 concentration, but focuses only on atmospheric concentrations from 1750-2015.



105. The Intergovernmental Panel on Climate Change (IPCC) is widely recognized (including by the Defendants) as a leading scientific authority on climate change. According to the IPCC, as a result of rising CO_2 and other GHGs, "[w]arming of the climate system is unequivocal." The IPCC also reports that "[t]he atmosphere and oceans have warmed, the amounts of snow and ice have diminished, and sea levels have risen."

106. According to the best available science, annual average temperatures over the contiguous United States have increased by 1.8°F (1.0°C) since 1895, with the majority of the increase occurring since the 1980s. The western parts of the United States have been harder hit; Colorado has seen average temperatures rise by 2.5°F over the last 50 years alone.

107. Not only have temperatures increased, but also Defendants' actions have increased the rate of warming. While global average temperatures rose at an average rate of 0.13°F (0.07°C) per decade since 1880, they have risen at an average rate of 0.31°F (0.17°C) per decade since 1970.

108. Once CO_2 enters the atmosphere, a significant portion of it remains there, with a warming influence that lasts for hundreds (if not thousands) of years. It also cannot feasibly be removed from the atmosphere with existing technology, "commit[ting] the world to some degree of irreversible warming and associated climate change resulting from emissions to date."

109. According to the most recent report from the U.S. Government, "under all

plausible future climate scenarios" – regardless of the trajectory of future fossil fuel emission rates in the near-term[11] – annual average temperatures are expected to rise by at least an additional 2.5°F (1.4°C) by 2050. These projections[12] apply to Colorado, where temperatures are expected to rise an additional 2.5° to 5°F by 2050.

110. While the floor for warming has been established, the ceiling – how bad it can get – will grow depending on future emissions. Under a lower-intermediate emissions scenario,[13] global temperatures are projected to rise by approximately 5.0°F (2.8°C) over pre-industrial averages by the end of the century. Under a high-emissions scenario, temperatures are projected to rise by 8.7°F (4.8°C) by the end of the century. Defendants' current conduct and planned increases in production of fossil fuels are consistent with at least the higher emission scenario, and may well be outside of any projected scenario.

111. A 5.0°F (2.8°C) warming would have devastating impacts on people, property, the economy and the environment. An 8.7°F (4.8°C) warming would be catastrophic, leading, according to the IPCC, to "substantial species extinction, global and regional food insecurity, consequential constraints on common human activities and limited potential for adaptation in some cases."

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[11] Even if *all* emissions from human sources suddenly *stopped*, there would still be another 0.5°F increase expected over the next few decades.

[12] "Projections" in this Complaint are based on and supported by data generated by General Circulation Models, which are approved by the IPCC, and which are the best available scientific representation of future climate scenarios, including their physical impacts.

[13] Emissions scenarios are often categorized into four different types—or Representative Concentration Pathways (RCP)—by the IPCC: RCP2.6, RCP4.5, RCP6, and RCP8.5. The scenarios are used to compute and predict different climate futures based on a possible range of anthropogenic GHG emissions. RCP4.5 represents a lower-intermediate emissions scenario, while RCP8.5 represents a high emissions scenario.

2. *The impacts of a climate altered by Defendants' conduct are being felt in Plaintiffs' communities*.

112. The seriousness of human-caused climate change is not in question. In a 2013 Executive Order, the President of the United States recognized that "[t]he impacts of climate change – including an increase in prolonged periods of excessively high temperatures, more heavy downpours, an increase in wildfires, more severe droughts, permafrost thawing, ocean acidification, and sea-level rise – are already affecting communities, natural resources, ecosystems, economies, and public health across the Nation." As the Governor of Colorado recently reaffirmed, "climate change presents a broad range of challenges" that "will affect everyone" in the state.

113. Colorado is experiencing and is extremely vulnerable to the impacts of climate change, including increases in extreme hot summer days and minimum nighttime temperatures, precipitation changes, larger and more frequent wildfires, increased concentrations of ground-level ozone, higher transmission of viruses and disease from insects, altered stream-flows, bark beetle outbreaks, ecosystem damage, forest die-off, reduced snowpack, and drought.

114. The U.S. Environmental Protection Agency (EPA) has noted "[t]hroughout the western United States heat waves are becoming more common, snow is melting earlier in spring, and less water flows through the Colorado River."

115. The consequences of these changes are enormous. As the EPA found, "[r]ising temperatures and recent droughts in the region have killed many trees by drying out soils, increasing the risk of forest fires, or enabling outbreaks of forest insects. In the coming decades, the changing climate is likely to decrease water availability and agriculture yields in Colorado, and further increase the risk of wildfires." These changes have already begun, and they have

injured and will continue to injure people, property and the economy of Colorado, including in the Plaintiffs' jurisdictions.

116. Colorado's economy depends on snow, water, and cool weather. For example, the state's $41 billion agriculture industry is imperiled by rising temperatures and drought, while the $5 billion ski industry is in jeopardy as a result of "low-snow" winters and shorter seasons.

Plaintiffs are experiencing rising temperatures and extreme heat.

117. Defendants' actions have already caused or contributed to rising temperatures in Colorado. Colorado has seen average temperatures rise by 2.5^{o}F over the last 50 years, with over a 2° F rise since 1983. Daily minimum temperatures and nighttime lows have also risen, limiting relief for humans and plant life subjected to heat waves, especially in the summer months.

118. The rise in temperature is occurring across all seasons. Specifically, Colorado is experiencing some of the fastest warming summers in the United States.

119. Temperatures in Colorado are projected to increase substantially by 2050 under all emission scenarios. According to research by the University of Colorado and others, under even an increasingly unlikely lower-intermediate emission scenarios, annual temperatures are projected to rise an additional 2.5 to 5° F (above a 1971-2000 baseline) by mid-century; "the typical year by 2050" is projected to be "warmer [than] the very warmest years of the past century."

120. A high emissions scenario is now far more likely, where annual temperatures in Colorado are projected to warm another 3.5 to 6.5^{o} F by 2050. A 6°F temperature rise would turn future Denver into the temperature equivalent of today's Albuquerque, New Mexico.

121. In addition to increasing average temperatures, there has already been a notable

increase in the frequency of heat waves across the U.S. These are projected to become more frequent and more severe. Across the southwestern U.S., and Colorado, *a five- to ten-fold increase in heat waves* is projected by mid-century. All Plaintiff communities will suffer comparable temperature rises.

122. Under an intermediate emissions scenario, average August maximum temperatures are expected to increase in San Miguel County. The traditional cooling buffer months of March and October are projected to see increases in minimum temperatures, meaning that nighttime lows will offer less relief from heat and less of the cooler temperatures needed to preserve spring snowpack.

123. The remote, western edge of San Miguel County is predicted to see a significant increase in extreme heat days. Climate change is projected to increase average temperatures in southwest Colorado an additional 1.5 to 2.5^{o} F by 2025, and 2.5 to 5.5^{o} F by 2050. The desert climate of the western portions of the County are projected to migrate up into the valleys.

124. The average temperature in the Boulder area is anticipated to rise an additional 1.5 to 4° F by 2040, and 4.3 to 9.6^{o} F by 2100 under intermediate-emissions models. The number of extreme heat days and daily minimum temperatures – which have *already* increased in Boulder – are projected to rise dramatically, particularly and dangerously in summer months. Specifically, while Boulder averaged 5 days per year with temperatures of 95° F or above across the 20th century, it is expected to see at least 25 days a year above that mark by the mid-21st century, and 49 days by the end of the 21st century, *even under a lower-intermediate emissions scenario*.

125. Warming temperatures and heat waves are a threat to health, property, and

infrastructure.

Plaintiffs are experiencing shifts in precipitation patterns and water availability.

126. Rising temperatures also leads to changes in precipitation patterns, rainfall intensity and water availability. These changes all have substantial implications for the people, property and infrastructure within Plaintiffs' jurisdictions.

127. Colorado has already started to see a greater proportion of its precipitation falling as rain rather than snow, a trend that will continue as temperatures rise further. This has caused a decline in snowpack, particularly at lower elevations, and further decline is projected due to warming.

128. Any snowpack loss has significant consequences in Colorado, where snowpack is the largest reservoir and the source of 70 percent of the state's surface water; many areas depend on mountain glaciers and snowpack for their water supply, including for irrigation purposes.

129. Earlier snowpack melt is also a serious concern; as EPA has recognized, "with increased runoff in the winter and early spring," there are "increase[d] flood concerns" and "substantially decreased summer flows." This risk is compounded by projected precipitation changes, including the time of year for peak precipitation, and the intensity with which that precipitation falls.[14]

130. San Miguel County faces increasing intensity of rainfall events. Climate change is projected to increase the rainfall intensity of 5-year storm events, with the greatest intensity increases, in terms of inches of rainfall per hour, predicted for 15-minute storm levels. This

[14] A warmer atmosphere holds more moisture than a cooler one, which can mean heavier precipitation during rainfall events, causing more intense flooding.

means that the County is projected to see increases in the intensity of short-duration rain events.

131. The Boulder area is expected see an increase in winter precipitation and a decrease in spring precipitation. An increase in heavy precipitation events is expected during both seasons. Climate change is projected to increase the rainfall intensity of 5-year storm events and 100-year storm events. While storms under one-quarter inch of rainfall per day are projected to stay the same or decrease in frequency under future scenarios in Boulder, storms of one-quarter to one-half inch, and one-half to one inch are projected to increase on average, under all future emissions scenarios.

132. The greatest intensity increases in Boulder, in terms of inches of rainfall per hour, are predicted for 15-minute storms. This means that Boulder is projected to see an increase in the intensity of short duration rain events.

133. Increases in high-intensity, short-duration rainfall events in excess of current infrastructure capacity are likely to have substantial impacts on drainage systems and other infrastructure, and creates an increased risk of flooding, which threatens people, property and infrastructure in all Plaintiff communities.[15]

Plaintiffs are experiencing an increased risk of drought.

134. Rising temperatures and shifting precipitation patterns exacerbate the risk of drought.

135. Total summer rainfall is more likely to decrease than increase in Colorado, with longer rainless periods also expected. The higher temperatures will also lead to more

[15] Built in the mouth of canyons, the City of Boulder already rates as the number one flash flood risk community of Colorado's Front Range.

evaporation, intensifying droughts when they occur. The frequency and severity of droughts are projected to increase in many parts of Colorado.

136. Because of climate change, over the next three decades, San Miguel County and the Boulder area are projected to see a significant increase in the expected number of months of drought and a shift away from mild droughts, towards more moderate, severe and extreme droughts. Droughts that were once mild will become more severe.

137. The Plaintiffs are already experiencing these trends. Increasing drought months and drought severity, in turn, has substantial implications for agriculture, wildfires, and water availability.

Plaintiffs are experiencing an increased risk of wildfires.

138. More rain in winter, less snowpack, earlier snowmelt, drier spring soils and summers, and increasing occurrence and intensity of drought all increase wildfire risk by setting the table for longer, more severe wildfire seasons and a general increase in wildfire vulnerability.

139. Increasing temperatures and drought have already led to increased wildfires in recent decades. A recent study estimated that climate change has doubled the area of forest burned in the western United States since 1984.

140. There has been a significant rise in the number of large fires in Colorado. While there were only six fires larger than 1,000 acres in the 1970s, there were 35 in the 2000s, and 19 in just the three years between 2010 and 2012 – a five-fold increase over 40 years. This trend is expected to continue, with projections of a substantial increase in wildfire occurrence, duration, and acres burned, as well as a longer fire season.

141. Increased wildfire risk and occurrence is perilous in a state where over 2 million

homes exist in the "Wildland-Urban Interface" (WUI) – where homes and other structures exist in and adjacent to wildfire-prone wildland.

142. In San Miguel County, where many communities live in the WUI, the number of wildfire occurrences, as well as the acres of area burned, is expected to increase over the next three decades, and the wildfire threat will extend to higher elevations where historically there was a much lower wildfire risk, and where mitigation has not been as high a priority.

143. Almost 20 years ago, over 170,000 acres of San Miguel qualified as moderate to high hazard for wildfire. Even under an intermediate-low emissions scenario, San Miguel County is projected to see more than 300 additional wildfires (over a historic average) between 2020 and 2049, with the burn area projected to increase by over 40 percent.

144. In the Boulder area, wildfires over the last three decades have destroyed over 260 structures and burned over 16,000 acres, much of it on public lands that the County and the City manage.

145. Indeed, the majority of Boulder County already qualifies as a high-risk fire area, and is described as an "environment prone to extreme wildfire behavior." Based on some metrics, the Boulder area has the highest wildfire risk in the state, and has the tenth highest risk in the entire West.

146. In recent years, the Boulder area has seen trends towards a decrease in shoulder seasons that traditionally provided a buffer from the May-September fire season. Now, major fires are occurring nearly every month of the year.

147. Boulder's wildfire risk is also projected to spread to areas that previously experienced low incidence of wildfire, such as higher elevation areas of the County. Boulder is

already seeing trends towards these higher altitude fires, which are particularly worrisome as they present a new threat to water reservoirs that provide water to the City, and runoff that travels into the Boulder watershed.

148. Fires are already occurring dangerously close to Boulder's water supplies, and it is predicted that a wildfire of a large scale could seriously impact higher-elevation water supplies. For example, the Fourmile Fire of 2010 almost forced the closure of a water treatment plant for the City of Boulder that provides a substantial portion of the City's drinking water.

149. The number of wildfire occurrences in the Boulder area, as well as acres of area burned, is expected to increase over the next three decades. Under even the increasingly unlikely intermediate-low emissions scenario, an additional 150 wildfires (over a historic average) on average are predicted between 2020 and 2049, with the burn area projected to increase by nearly 40 percent on average in the Boulder area.

Plaintiffs are experiencing increased risks to forest health.

150. Beyond fire, increasing temperatures and drought conditions pose other risks to forest health. Across the Southwest, trees are dying because of increasing temperatures and drought as a result of climate change. This trend will continue.

151. Trees generally die faster when drought is accompanied by higher temperatures, so short droughts, which occur more frequently than long droughts, can trigger mortality if temperatures are higher. Even without an increase in drought frequency, rising temperatures alone lead to substantially greater tree mortality. This not only affects forested land, but urban tree canopies that serve to improve air quality, promote stormwater management, decrease runoff into watersheds, and reduce the effects of rising temperatures.

152. These conditions can also lead to more severe insect outbreaks, such as the bark beetle epidemics seen across Colorado. As the U.S. Forest Service reports, climate change has *already* led to an increase in bark beetle-induced damage. In the last two decades, the mountain pine beetle affected trees across 4 million acres of forested watersheds in Colorado. These recent outbreaks "have exceeded the frequencies, impacts, and ranges documented" in the last century, and the most recent outbreak in Colorado's Rocky Mountain National Park was the most severe ever seen.

153. A growth in native beetle populations, and the resulting devastation, is directly linked to climate change, and an increase in both summer and winter temperatures. Warmer temperatures result in higher survival rates and faster development; beetles can now thrive where they were previously constrained by cold temperatures. Under temperature increases of 4 to 5°F, certain bark beetle species have doubled both their reproductive and tree consumption rates.

154. With rising temperatures, increased drought predictions, and heavily forested lands, climate conditions in San Miguel County and the Boulder area will increasingly favor larger mountain pine and spruce beetle populations and outbreaks.

155. Boulder has already experienced mountain pine beetle impacts in a recent epidemic linked to a warmer and drier climate. Between 1996 and 2010, 122,455 acres of forest within Boulder County saw some level of damage related to mountain pine beetle.

Plaintiffs are experiencing increased threats to public health.

156. From an emergency management perspective, climate change impacts threaten human life as a result of the projected increase in extreme weather events, floods and wildfires.

157. The rising temperatures also jeopardize human health in several other ways. For

example, according to a 2015 report commissioned by the State of Colorado, there are "[m]ajor public health areas of concern related to the effect of current . . . and future clim[a]te change . . . ," including heat-related illnesses, negative air quality effects, and changes in the occurrence and incidence of infectious and vector-borne diseases.

158. Higher temperatures are problematic in a high-elevation, low-humidity state that is historically accustomed to cool nights, which provide relief during heat waves. Buildings throughout Colorado – including in the San Miguel County and Boulder area – which were built based on historic climate patterns, often lack air-conditioning. As temperatures rise and extreme events increase, operating without air conditioning may no longer be feasible, which would make new cooling systems necessary to protect vulnerable populations, or provide alternative sources of respite, such as central cooling centers where people could go for relief.

159. Higher temperatures and the presence of sunlight are also associated with increased formation of ozone, which at the ground level is a pollutant that can cause respiratory damage. According to the Colorado Climate Plan, "climate change is likely to result in higher ozone concentrations."

160. Even short-term exposure to ozone is associated with severe health consequences such as respiratory inflammation, pulmonary function decrements, increased emergency department visits, and premature mortality. These consequences are all the more severe for already-vulnerable populations, including children and the elderly.

161. Ground-level ozone is at its highest levels during summer days that reach the upper 80s and mid-90s. More warm summer days, plus warming spring and fall seasons, will extend the ozone season.

162. Ground-level ozone concentrations are already a serious problem in Boulder. Climate change is making the problem worse. Boulder is already within the EPA's ozone nonattainment area. In addition, the ability to come within the necessary federal ozone attainment goals will become more difficult under new climate realities.

163. As stated in a report to the Colorado Energy Office, "[c]limate [also] plays a role in outbreaks of vector-borne and zoonotic infectious diseases and in the transmission of these diseases to humans." For example, warmer weather and drought conditions may lead to animal migrations, an increase in mosquito populations, mosquito-borne illnesses and the need for increased mosquito control. In addition, multiple cases of the mosquito-borne West Nile Virus have occurred in Boulder County. While San Miguel County has not yet seen cases of West Nile Virus, County officials recognize that all areas of the County can be affected by the virus, especially with warmer temperatures.

164. The threat of an increase in such harmful diseases creates the need for additional monitoring and surveillance. For example, Boulder County public health staff expressed concerns, in the County's Climate Change Preparedness Plan, that increases in plague and tularemia (spread by ticks and deer flies) are expected if winters become warmer and rainier, as projected.

165. Prevention, monitoring, and reporting costs associated with the spread of such illnesses will likely increase due to increased surveillance and treatment of mosquito-infested and other areas where humans have likelihood of contact with infected animals.

B. Plaintiffs have acted to prevent climate change, but are still being harmed by, and must act to mitigate, its impacts on their property and residents.

1. *Plaintiffs have made substantial efforts to reduce their own GHG emissions.*

166. Plaintiffs have been national leaders in environmental sustainability and mitigating GHG emissions. For example, "[r]ecognizing that local governments are the first responders in the fight against climate change, Boulder County has taken numerous steps to reduce its own heat-trapping emissions and to assist its residents and businesses to do the same."

167. Boulder County, San Miguel County, and the City of Boulder are all members of Colorado Communities for Climate Action, which advocates for state and federal actions to protect Colorado's climate for current and future generations. Sustainability is at the very core of the Plaintiffs' identities, each of which takes seriously its responsibility for stewardship of the natural environment.

Boulder County has made efforts to reduce GHG emissions.

168. Boulder County's guiding values include "sustainability" which includes a commitment to environmental sustainability. "Environmental protection and sustainability" is listed as one of the County's priority areas. General environmental sustainability and management of public lands and natural resources for the future are listed as guiding principles of the County's 2017 State Legislative Agenda; supporting climate change preparedness and resiliency efforts, wildfire mitigation, and protection of public lands served as legislative priorities.

169. These are principles and ideals that Boulder County aggressively puts into place financially and through incentive programs.

170. In 2017 the County budgeted for funds such as the Clean Energy Options Local

Improvement District Fund, and the Qualified Energy Conservation Bonds Fund, which was earmarked "for the creation of cost-effective programs aimed at reducing energy use and preventing climate change." Conservation and sustainability expenditures under the 2017 adopted budget amounted to $38,787,781.

171. As part of a larger effort toward achieving Kyoto Protocol targets, the Boulder County Sustainable Energy Plan sets forth recommendations to achieve a reduction of greenhouse gas emissions 40 percent below the County's 2005 levels by the year 2020.

172. In order to meet this goal, Boulder County has carried out numerous programs and initiatives. EnergySmart assists families and businesses in increasing their energy efficiency, offering discounted energy efficiency evaluations to homeowners; over 15,000 homes and over 4,000 businesses have participated. BuildSmart is Boulder County's residential green building code, which promotes the building of energy efficient structures and requires zero net energy for certain new homes. Benefits Boulder County facilitates discounts on rooftop solar installations and electric vehicles.

173. The Transportation Department works to help Boulder County residents and visitors with alternative modes of travel such as biking, walking, and transit, and it is a County objective to "[f]oster a transportation system that reduces demand for and reliance upon petroleum."

San Miguel County has made efforts to reduce GHG emissions.

174. San Miguel County produced its first Sustainability Inventory in 2006, its first Greenhouse Gas Inventory in 2010, and issues an Annual County Energy Report which tracks the County's energy use and CO_2 emissions.

175. In 2007, San Miguel County joined with its towns and other groups to create the New Community Coalition (TNCC), which developed a 2007 baseline of CO_2 emissions for San Miguel County. Since 2007, San Miguel County has spent approximately $560,000 on this effort.

176. In 2012, TNCC changed its name to EcoAction Partners, which continues to be funded by San Miguel County and its towns. It implements several programs to reduce GHG emissions, including providing free energy assessments to low- and middle-income households in order to prioritize and implement cost effective energy efficiency improvements; school programs that teach saving energy and reducing waste by establishing sustainable life habits; and the Greenlights LED lightbulb rebate program to encourage energy efficiency and save businesses and residents money. EcoAction Partners also runs a Green Business Certification program, to help businesses realize the financial benefits of energy efficiency.

177. In 2009, San Miguel County adopted Colorado's Climate Action Plan, setting CO_2 emissions reduction targets of 20 percent below 2005 levels by 2020. Also in 2009, San Miguel County signed on to the Cool Counties Initiative, setting a goal to reduce county GHG emissions 80 percent below 2009 levels by 2050.

178. As part of the 2018 Board of County Commissioner goals, San Miguel County "will work towards becoming a carbon neutral organization." In 2015, the Board of Commissioners approved $10,000 to hire an independent contractor to establish test sites in San Miguel County for a carbon sequestration project.

179. San Miguel County works with numerous partners to reduce private sector energy consumption and CO_2 emissions as well.

180. San Miguel County is initiating a Payments for Ecosystem Services pilot program that provides incentives to landowners in exchange for managing their land to provide an ecological service, including carbon sequestration to support cleaner air; it participated in the C-PACE program, which provides low-cost financing for renewable energy and energy efficient installations in commercial developments; and it has used County-owned land for a solar power installation.

181. San Miguel County was a partner in the 2017 Upper San Miguel Basin Forest Health Landscape Assessment (which deals with, among other things, the effects of climate change on forest health and wildfire risks), and is a member of the West Region Wildfire Council, a consortium of local, county, state and federal agencies that addresses wildfire risks in six counties in southwestern Colorado.

The City of Boulder has made efforts to reduce GHG emissions.

182. In addition to collaborating with Boulder County on joint climate initiatives, the City of Boulder minimizes its own contributions to global climate change.

183. The City established policies to reduce its GHG emissions to align itself with the goals of Kyoto as early as 2002. The City was the first community in the United States to tax itself to preserve open space, and the first to establish a carbon tax. In 2006, Boulder residents voted to authorize the City Council to level a tax to fund a climate action plan with the goal of GHG reduction.

184. In 2016, the Boulder City Council adopted the City's Climate Commitment, which includes commitments to transition to 100 percent renewable energy by 2030 and reduce the City's GHG emissions to 80 percent below 2005 levels by 2050.

185. In order to meet its goal, the City is investing in a number of ongoing energy and climate efforts, including the 2017 Energy Conservation Code that guides the effort to achieve net zero energy for the City's residential and commercial buildings, SmartRegs ordinances that require certain housing in Boulder to meet energy efficiency standards by the year's end, and solar rebate and grant programs that support businesses and individuals in financing solar installations.

186. The City's transportation department focuses extensive efforts on reducing single-occupancy vehicle use and building miles of bikeways and pedestrian-friendly routes. These and other efforts kept over 50,000 metric tons of emissions out of the atmosphere by 2015.

187. The City is also exploring its own locally owned municipal electric utility in an effort to achieve its GHG and clean energy goals.

188. Boulder County and the City of Boulder's Open Space Department have also begun to study the ability of carbon sequestration on agricultural lands and in forests to absorb extra carbon from the atmosphere. In the words of a County Commissioner, "inaction is not an option."

189. Nonetheless, "Boulder County and the City of Boulder have also realized that despite their best efforts to reduce GHG emissions, climate change impacts are inevitable and have the potential to exacerbate many of the challenges faced by Boulder County and its municipalities."

2. *Plaintiffs and their residents have already been injured because of climate change. They are mitigating current climate impacts, and will be forced to continue mitigating and adapting to climate change for the foreseeable future.*

190. Plaintiffs and their communities have already suffered the impacts of Defendants'

actions altering their climate. Recent events have highlighted the costs to Plaintiffs of responding to extreme events, which will become more frequent with climate change.

191. For example, in 2010, the Fourmile Canyon Fire swept through parts of Boulder County near Boulder, destroying 162 homes within the first 12 hours, and 6,181 acres in total. Fighting the fire required 900 firefighters and first responders. In spite of those efforts, the losses totaled hundreds of millions of dollars, making it the most expensive fire in Colorado's history at the time. In 2013, Boulder received nearly a year's worth of rain in 8 days, which caused over $2 billion in property damage across the Front Range, and in Boulder County alone destroyed or damaged more than 150 miles of roads and 30 bridges at a cost well in excess of $100 million. Municipal property damage in the City of Boulder amounted to $27 million.

192. In response, the County administered a flood-damaged property buyout program amounting to $24.6 million to reduce the risk of future flood danger.

193. Boulder County's 2017 State Legislative Agenda summarizes the reality:

> Data and forecasting reinforces recent experiences of communities along Colorado's Front Range – we will continue to be burdened by the negative effects of climate change, from drought to wildfires to floods. These ecosystem disruptions deeply affect residents and communities, and demand swift action and response on the part of local governments. With local emergency response agencies in place, county response is typically well-managed and triaged; however, the growing scale of disasters means that more programs and staff are necessary to aid in responding.

194. Similarly, the Mayor of the City of Boulder has told the U.S. EPA that climate change "will affect Boulder's ability to deliver services including fire protection and other emergency services, flood control and public works projects, and health care and social services for vulnerable populations."

195. As the 2012 Boulder County Climate Change Preparedness Plan recognizes, a

"sense of urgency" is needed in the implementation of hazard mitigation projects such as wildfire fuels treatments, stormwater infrastructure improvements, and floodplain property acquisitions "to offset the potential impacts of climate change."

196. All the Plaintiffs are expending considerable taxpayer dollars and undertaking adaptation measures to plan for, understand, and protect their land, infrastructure, and residents from current and future anticipated climate impacts.

The costs of climate change impacts monitoring and assessment.

197. Assessing and understanding the severity of current and projected impacts within the Plaintiff communities has been a substantial and expensive undertaking. All Plaintiffs have had to spend staff time to better understand and respond to the impacts of climate change, and this will only increase along with climate change impacts. In addition to taxing their internal resources, all Plaintiffs have also expended money on outside experts to help understand existing and projected vulnerabilities.

198. In 2012, Boulder County and the City of Boulder jointly spent nearly $75,000 apiece to hire a consultancy group to conduct a climate change preparedness study.

199. Boulder County has also already spent thousands of additional dollars on additional studies and experts, including, but not limited, to:

- $14,000 in 2017, to study to analyze the economic impacts of climate change on, among other things, County infrastructure;
- a consultant to identify high-risk property acquisitions and develop prospective approaches to reducing public and private risk to river-related hazards; and
- a study of floodplain management and transportation system resiliency.

200. Similarly, the City of Boulder has also already spent thousands of additional dollars on additional studies and experts including, but not limited, to:

- $45,000 to analyze the impacts of extreme heat;
- approximately $15,000 to study the impacts of climate change on just two City-owned facilities;
- thousands of dollars on several studies to analyze the impact of climate change on water issues;
- approximately $15,000 to study forest vulnerability to disturbances and climate change; and
- approximately $20,000 to study drought adaptation and sensitivity of plant species.

201. And San Miguel County, which operates with a much smaller annual budget, has likewise spent thousands of dollars on additional studies and experts in order to understand its risks, including but not limited to:

- approximately $5,000 for a forest health assessment that involved climate change projections;
- approximately $32,500 for an analysis of debris flow hazards to the County, which occur after heavy rainfall due to the County's steep topography;
- a watershed study that considered, among other things, the impact of climate trends on the San Miguel Watershed.

202. These monitoring and assessment costs will continue to be necessary as the severity and timing of impacts will change as projected future emissions become actual emissions.

Plaintiffs face damage and added costs to protect residents and drainage systems from flood and precipitation.

203. All Plaintiffs are susceptible to flooding, and climate change will exacerbate the

risk of such flooding, due to changes in rainfall intensity, storm frequency, the timing of snowpack melt, and other extreme events.

204. Increased temperatures and more extreme events associated with climate change also threaten ecosystems and vegetation that reduces runoff rates and flow velocities.

205. San Miguel County is extremely susceptible to riverine flooding given the steep mountainous terrain and the multitude of creeks and streams that eventually flow into the San Miguel River. The Town of Telluride and unincorporated community of Placerville are especially vulnerable to flooding and debris flows. San Miguel County also experiences flash flooding due to intense cloudburst storms over small and steep watersheds in the summer monsoon season and early fall, and spring snow runoff can also cause riverine flooding with the combination of warmer spring temperatures and spring rain.

206. In light of the increased precipitation projections and enhanced flood risk discussed above, Boulder County may need to upgrade its drainage and stormwater infrastructure or take other precautions to protect its residents from precipitation events.

207. Both Counties will have to spend additional sums to assess the need and cost of future flood mitigation. These assessments will reveal additional costs. Boulder County has already hired a consultant to determine if additional property acquisitions need to be made due to increased flood risk.

208. The City of Boulder has made significant investments in flood conveyance facilities over the last several decades and has identified approximately $170 million in additional investments – needed to accommodate industry standard one percent probability storms – based on historic data. Projected changes – in storm frequency and intensity, and

changes in the timing of peak snowpack melt, and the occurrence of other extreme events – may impact both the utility of prior investments and feasibility of planned future mitigation. The City will have to spend additional sums to monitor and assess these impacts.

209. The 15 major drainageways that run through the City of Boulder rely heavily on the presence of healthy ecosystems and vegetation to mitigate impacts by encouraging infiltration that reduces peak runoff rates, reducing flow velocities, and providing channel stability that reduces erosion and sediment transport. Increased temperatures and more extreme events associated with climate change increase the risk of degrading the health and stability of these systems, which in turn results in more frequent and severe impacts during major precipitation events. For example, wildfire has the potential to increase the damage associated with even small precipitation events, which would have historically had only small runoff.

210. The City updates the floodplain mapping and mitigation studies on its 15 major drainageways on a periodic basis to reflect changes due to land development, new study technologies and the impacts of major floods that have occurred. Changes in the base hydrology used for flood modeling, due to climate change, result in increased costs to maintain accurate mapping of hazards and require reevaluation of associated mitigation plans.

211. Additionally, the City will likely need to take more proactive steps to respond to the increased flood risk. For example, the City budgeted $500,000 annually for a program to reduce the dangers of flooding by purchasing and removing structures with the greatest life safety risk. The program further prevents reconstruction in high risk areas after a flood event through the City's purchase of private properties with flood-damaged structures. To adequately mitigate the risks associated with increased flooding on account of climate change, the City will

need more money for this program.

Plaintiffs face damage and added costs to protect transportation infrastructure.

212. Transportation infrastructure is critical, and vulnerable to climate change. All Plaintiffs maintain hundreds of miles of roads, and in the face of climate change, they face a choice: they can either spend millions of dollars to upgrade and improve roads, or spend money to maintain and repair roads as they are degraded by the effects of climate change.

213. Expected increases in temperature, rainfall intensity, and flooding can all damage roads, increasing maintenance costs. The precise future maintenance costs are uncertain, but Plaintiffs face the risk of increased expenditures on maintenance and reconstruction, and thus it is entirely reasonable for the Plaintiffs to spend money now and in the immediate future on upgrades and improvements.

214. Increased temperatures and altered precipitation patterns lead to more potholes and general asphalt degradation – intensifying the need for road repairs – because road materials are generally designed for the historic climate.[16] According to a climate vulnerability study commissioned by the Colorado Energy Office, road buckling increases at sustained temperatures over 90° F, which also shortens pavement life and causes bridge expansion; "[t]hese changes will necessitate increased maintenance and construction resulting in higher associated costs."

215. With conservative estimates projecting an average temperature rise in Boulder of 4°F by 2040, temperatures are projected to more frequently exceed pavement mix design standards used for asphalt roads. These, as well as cracking and erosion caused by altered

[16] As Boulder County's Climate Change Prepared Plan recognizes, altered patterns from climate change have "the potential to alter freeze-thaw cycles and shrink-swell soil cycles."

precipitation patterns, are projected to cost the City of Boulder and Boulder County tens of millions of dollars, and San Miguel County millions of dollars.

216. Roads may also be damaged by flooding, especially because many roads in western Boulder County tend to run adjacent to creeks, placing them at risk with any increase in flooding potential. Flooding and major storm events also place significant stress on bridges, necessitating more repairs and/or bridge upgrades to prevent bridge failure.

217. Boulder County and the City of Boulder have already spent over $100 million on repairs to roads and other infrastructure damaged by the 2013 flood, which is an example of the costs that it will increasingly bear in the future as climate change impacts increase.

218. Whether they spend money on adaptation efforts now to upgrade and improve roads and bridges, or wait to bear the increased maintenance costs later, all Plaintiffs are projected to spend millions on their roads and/or bridges due to climate change.

The City of Boulder faces damage and added costs to protect its water supply.

219. The City of Boulder supplies water to thousands of people, mostly in the City's limits, and it owns substantial and valuable water rights. It has faced and will continue to face to substantial additional costs to provide and to continue to provide water – an essential need – to its residents and other users on account of climate change.

220. Climate change impacts, including rising temperatures, earlier snowmelt runoff, precipitation changes, droughts, and wildfires have affected and are projected to continue to affect water supply and quality, as well as the infrastructure that the City uses to supply water. The City has spent and will be forced to spend substantial additional dollars to account for these impacts in added maintenance, monitoring, and proactive adaptation costs. The costs to the City

from not being able to provide water for a single day are estimated to be as high as $6.2 million.

221. The City has spent, is spending, and will continue to spend substantial staff resources and dollars to study the impacts of climate change on the adequacy and quality of its water supply. In 2008, the City commissioned a report, costing thousands of dollars, on how climate change will affect its water supply. In 2017, the City commissioned a new report, again looking at how climate change would affect its water supply and quality, costing $210,000. Since 2016, the City has spent tens of thousands of dollars to study how wildfires would affect the local watersheds.

222. While the City has been historically able to supply water to users, climate change will likely impact its ability to so in the future.[17] The City will have to continue expending money and staff resources to monitor and analyze whether the City will have to expand its water supply and/or storage capacity.

223. The City also faces increased challenges and will face additional costs associated

[17] While projections concerning overall precipitation diverge relative to the location of Boulder's water supply watersheds, there is a strong possibility that precipitation may decline. But even if overall precipitation remains constant, water supply may still be threatened. As peak snowpack melt occurs earlier in the year and summers become hotter and drier, water demand may increase, and stored water may be insufficient and the specific months when Boulder's most senior water rights are legally available may result in reduced water yield due to the change in runoff timing. Similarly, the water the City receives from the West Slope may become scarcer as a result of changes in flows, precipitation and demand in the regions supplied by the Colorado River. The City's water supply, watersheds and infrastructure will also be subject to an increased threat of damage from events such as wildfire and floods that are projected to increase with climate change.

with treating the water it supplies.[18] Warmer water is more expensive to treat and the City will be forced to bear those costs in the future. The debris and ash created from wildfires also poses a substantial risk to the quality of the City's water.[19]

224. The City has already taken substantial steps to proactively protect its ability to treat water, in light of climate change risks. Specifically, the City spent $40 million to cover a canal that transports West Slope water, in order to preserve water quality. That decision was driven, in part, by the need to ensure that water supply infrastructure would be more resistant to the impacts of climate change. Similarly, the City has expanded the emergency electrical generators at its critical water treatment facilities, in part, because of increasing extreme events – like floods, fires and storms – associated with climate change.

225. The City will also likely face increased funding challenges due to the rising costs of water treatment and maintaining its water supply infrastructure on account of climate change. The City's water users pay for water based on their use and those funds go towards maintaining the water supply infrastructure. If, as appears likely, the City must limit water supply – for example, on account of projected drought brought on by climate change – it may have less revenue to offset the costs associated with the operation and maintenance of its critical infrastructure.

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[18] The city currently has the ability to manage seasonal variation in source water quality and choose between different sources in order to optimize treatment and reduce associated costs; in the future, climate change may reduce such flexibility.

[19] Even minor precipitation events can flood the City's reservoirs, creeks, streams and canals with that ash and debris, leading to additional and sometimes insurmountable treatment costs, which the City will be forced to bear in the future.

Plaintiffs face damage and added costs to protect residents and property from wildfires.

226. All Plaintiffs expect increased costs from increased wildfire risk due to climate change. The Plaintiffs' response, prevention, mitigation and/or recovery costs are increasing and will continue to increase.

227. The higher temperatures and extended periods of droughts that San Miguel County will face as a result of climate change will substantially increase its risk of wildfire and its consequential damages. The number of wildfires and the size of the area burned are expected to increase over the next three decades, and the wildfire threat will extend to higher elevations, where historically there was a much lower wildfire risk, which could potentially include areas where mitigation has not been as high a priority.

228. Since San Miguel County is the first responder for wildfires that start on private or state land, and its anticipated response costs for such fires can reach hundreds of thousands of dollars *per day*, the County faces enormous financial liabilities from increased wildfire risk.

229. San Miguel County is already seeing a trend of larger, more frequent fires. In 2002, the Burn Canyon fire, started by lightning, consumed a devastating 31,300 acres of forest, costing $35.3 million to fight. In 2014, the Board of County Commissioners recognized that a "warming climate has accentuated" wildfire occurrence from natural patterns.

230. San Miguel County also faces the likelihood of increased premiums for wildfire insurance it carries for County property as a result of this increased risk.

231. Boulder County has responsibility for wildfire mitigation planning in a County where in just one of its two wildfire management zones, over 8,700 households exist in wildfire prone areas – in homes valued at over $3 billion. Much of the City's invaluable water supply also

comes from high-elevation forested watersheds and reservoirs.

232. The City of Boulder's Fire-Rescue Department is tasked with protecting life and property through fire prevention, education and risk reduction activities, fire suppression, emergency medical and rescue services, and coordination with neighboring fire districts. The Department is responsible for "[p]rotecting more than $21 billion dollars' worth of property within Boulder." As of 2007, the value of fire-prone structures and estimated contents in the City of Boulder's wildland-urban interface alone was $2.5 billion.

233. Both Boulder County and the City of Boulder have already suffered substantial and additional costs related to the increasing wildfire risk associated with current trends, including general suppression costs, prevention costs, and rehabilitation costs (of roads, forests, watersheds). These costs are significant, and Plaintiffs face the risk of continuing and increasing costs in the future as wildfires are likely to increase.

234. With current trends and predicted increases in drought and heat combined with earlier snowmelt, the frequency of wildfires is increasing and will continue to do so, further endangering a high-risk area filled with homes, water reservoirs, ecological hotspots, and wildlife.

235. The Plaintiffs have already had to, or will need to, increase their fire mitigation and firefighting response costs due to the increased risk of wildfire caused by climate change. The Boulder County Sheriff's Office has likewise increased staff in recent years.

236. Boulder County is also facing costs to adapt to and reduce wildfire risk, such as through its Wildfire Partners Program, which was created in 2014 in acknowledgment of an increased risk of fire from climate change. This Program assists County homeowners to protect

their homes against wildfire.

Plaintiffs face damage and added costs to protect and preserve their forests.

237. Related to but distinct from their responsibility for wildfire, Boulder County and the City of Boulder both own and have responsibility for thousands of acres of forest. As discussed above, Boulder's forests have been damaged and will continue to be threatened in numerous ways by climate change trends. Boulder County and City have expended and will continue to expend substantial additional resources, including staff time, to preserve forest health, and manage the impacts of dead trees and insect outbreaks.

238. For example, between 1996 and 2010, 122,455 acres of forest in Boulder County saw some level of damage related to mountain pine beetle, which forced the County to hire extra staff to manage their forests.

239. Because removal of beetle-killed trees reduces risk of wildfire in areas, Boulder County set up, and will continue to run at increasing cost, "sort yards" to provide a location to dispose of wood, in order to facilitate the removal of dead trees to protect homes and public infrastructure. Two main reasons that residents bring wood to the yards have been to mitigate wildfire risk and to remove trees killed by mountain pine beetle.

240. Boulder County will see even more severe beetle outbreaks decimating its forests and in turn creating the potential for increased watershed debris due to climate change, necessitating additional forest maintenance and management demands – specifically, removal of beetle-killed trees (which threaten public safety by increasing wildfire risk, damaging utility lines, private property, and public infrastructure), and a potential increase in insecticide spraying. In the face of a significant beetle outbreak, the County and the City will have to expend

significant costs to hire contractors to remove beetle-killed trees.

241. San Miguel County has partnered to fund a community-driven mapping effort to understand forest change in response to climate warming and drought trends, and to model potential climate change impacts on forest conditions given the potential for climate change to alter the landscape through beetle kill, disease, and wildfire. The information will be used to inform forest health and fire mitigation decisions. According to the Project, "Douglas-fir in the upper San Miguel basin are experiencing mortality from an outbreak of the Douglas-fir beetle and defoliation from spruce budworm, both climate change-related disturbances."

242. In addition to traditional forest space, the City of Boulder's Urban Forestry Division of the Parks and Recreation Department also directly manages approximately 51,000 public trees – out of an estimated total of 650,000 trees that form the City's "urban tree canopy" – in City parks and street rights-of-way.

243. Climate change has increased both the need for and the costs of maintaining this tree canopy. The tree canopy helps to cope with increasing temperatures due to climate change; trees help to combat the "urban heat island" effect and serve to slow and manage stormwater runoff.

244. In the face of tree die-off from insect infestation, the City has an overarching goal to maintain the tree canopy in the developed portions of the City that are shaded by trees to moderate extreme temperatures, among other benefits. Nevertheless, extreme weather and other events exacerbated by climate change, including significant temperature swings, insect outbreaks, floods, drought, and late snowstorms, also harm the tree canopy and increase the costs of maintaining it.

245. The costs of maintaining the urban forest can be enormous. For example, during springtime snowstorms in 2016, City urban forestry staff had to hire contractors at a cost of over $500,000 for pruning, hauling, and chipping. Extreme temperature fluctuations in November 2014 caused the mortality of over 500 elm trees that the City had to remove at the cost of $150,000.

Plaintiffs face damage and added costs to maintain their open space.

246. All Plaintiffs maintain parks and open space areas which will be damaged by the effects of climate change.

247. Boulder County Parks and Open Space ("Boulder County Open Space") manages over 100 miles of trails, and 30,000 acres of forests – forests that act as carbon sinks and provide a habitat for over ninety species of birds and large mammals, including bears and mountain lions. It also owns water rights valued at approximately $200 million, and an interest in more than 100,000 acres of land, the geological diversity of which spans alpine tundra, sweeping plains and grasslands, and wooded mountains. Boulder County Open Space is also responsible for weed control on over 30,000 acres of land.

248. San Miguel County Parks and Open Space ("San Miguel Open Space") manages hundreds of acres of land, miles of trails, and fairgrounds that are used for rodeos. The Open Space Program also encompasses the Land Heritage Program, which uses County funds to place conservation easements on important lands for preservation purposes.

249. The City of Boulder's Open Space and Mountain Parks Department ("City Open Space") manages over 45,000 acres of protected and preserved land, which includes wildlife habitats, floodplains, farm and ranchland, unique geologic features, cultural sites, greenways,

and over 150 miles of trails. The City also owns water rights in the four major creek drainages in the Boulder Valley, including many senior water rights that provide reliable sources of irrigation in most years. Its open space water portfolio is valued at $60-70 million.

250. These public lands and water resources exists for the use and enjoyment of residents and visitors, and serves as a vital spot for ecosystem protection, agricultural production, tourism, citizen health and wellness, and revenue. Boulder County Open Space has set policy and strategic goals of minimizing "impacts to open space resources . . . from oil and gas . . . and other third-party impacts," and adapting to human-caused climate change. The San Miguel Open Space Commission's mission is "to seek to protect and conserve open space for people, natural habitat for flora and fauna, and agricultural lands for the farming and ranching communities throughout San Miguel County for this and future generations."

251. With temperature rise, increases in precipitation intensity, and increased duration and intensity of wildfires due to climate change, all Plaintiffs are already taking or will need to take substantial and expensive protective and restorative measures on their public lands, including increased staff time to mitigate, repair, remove hazards, and restore open space lands.

252. Addressing climate change hazards to Open Space in Boulder means that Open Space has to adjust the way it designs trails, treats its forests, protects its diverse plant and animal species, manages invasive plans, and supports its agricultural tenants. Past events illustrate how significant these costs can be. All of the City Open Space trails were damaged in the 2013 flood, with 64 percent of the trails experiencing significant to severe damage. Facilities suffered from damage to fences, ditches, bridges, and water irrigation delivery systems. The estimated cost for all City Open Space infrastructure repair due to the flood was over $7 million.

In addition, 25 percent of Boulder County Open Space trails experienced damage, amounting to a repair cost of over $2 million.

253. The City of Boulder is already spending large amounts of staff time and money on consultants to understand the impacts of climate change to ecosystems and currently has a climate change vulnerability study for plants underway.

254. San Miguel Open Space is also initiating a Payments for Ecosystem Services program, which is a pilot to help farmers and ranchers improve soil ability to retain water and ease drought effects, and in 2017 committed $20,000 to study the ability of carbon sequestration on agricultural lands.

Boulder County and City face damage and costs to maintain their agricultural property.

255. Both Boulder County and the City of Boulder have significant agricultural property that is vulnerable to climate change.

256. Boulder County Open Space owns 25,000 acres of agricultural land, which it manages through its Agricultural Resources Division. That land is divided into 120 leases and 67 agriculture tenants, who grow sugar beets, beans, alfalfa, grains, and more, generating roughly $125,000 in profits for the County every year.

257. City Open Space owns nearly 15,000 acres of lands that it currently leases to 26 local farmers and ranchers. The land is primarily used for hay and forage production and livestock grazing. Annual crops grown on 300 to 600 acres of the land currently include wheat, corn and barley.

258. Climate change will increase heat waves, droughts, wildfires, and shifts in spring runoff, all of which negatively affect agricultural lands, including by reducing water availability.

Climate change is expected to decrease the nutritional quality of grain crops, increase growth of some weeds, decreased the efficacy of herbicides, decrease the availability of irrigation water, decrease crop yields, and bring higher winter minimum temperatures that could increase pest survival and the number of generations of insects that traditionally reproduced once per growing season.

259. Not only is climate change jeopardizing the existing water supply, but it is also likely to increase future agricultural water demand. Specifically, projected temperature increases, along with other changes in the climate, could increase water consumption by 2 to 26 percent, as soils and plants transpire more of their water. Other climate-related changes to agriculture include that earlier growing seasons could leave crops more susceptible to late frosts, weeds may become more common due to rising CO_2 levels and temperatures, and crop yields may otherwise decrease due to heat stress and increased drought severity.

260. As early as 2012, in part due to climate change predictions, consultants recommended that Boulder County "continue to emphasize investments in water-efficiency improvements on irrigated agricultural land owned by the county." These improvements are and will continue to be expensive; in 2016, for example, it cost the County nearly $75,000 to build four center-pivot sprinkler systems, which are expected to cut water usage in half.

261. The City of Boulder has expended resources to develop its Agricultural Resources Management Plan, which recognizes the numerous risks posed by climate change and the need to "[i]dentify agricultural management practices that help prepare for a more arid future" and to "[r]esearch the potential for agricultural practices to mitigate climate change." This research will likely include costly crop substitution studies and other assessments.

262. Boulder County Open Space has already expended resources in the planting of more water-efficient crops. City Open Space is also planning to increase the efficiency of water distribution, explore storm water retention strategies, and increase use of more water efficient crops.

Plaintiffs face damage and increased costs to provide emergency management services.

263. The Plaintiff communities face increasing costs to provide emergency management services as a result of climate change, and the impacts discussed above, including increased wildfires, heavy rainfall, and other extreme weather events.

264. The Boulder Office of Emergency Management (OEM) is a joint office that provides emergency management for both the County and the City and exists to create and coordinate a comprehensive emergency management program that enables "effective preparation for, efficient response to, and effective recovery from . . . disasters, in order to save lives . . . protect resources and develop a more resilient community." OEM has recognized climate change as a significant threat.

265. With increasing trends of extreme events such as wildfires, drought, and intense rainfall, more volatility from a warming climate, and the impending threat of an even greater frequency of extreme events in the future, OEM has had to hire more paid staff, needs to hire still more staff to handle future events, and engages in supplemental community preparation efforts.

266. Additionally, climate change contributes to OEM's need to make significant upgrades to its existing emergency management space, or build a new, fully built-out emergency operations center. The upgrades or new center will cost in the millions to tens of millions of dollars.

267. The City of Boulder is currently spending money to create sites and resilience centers in various parts of the city for sheltering purposes during severe storms due to an anticipated increase in extreme weather events.

268. San Miguel County Emergency Management's mission is to "support [the] community's disaster preparedness, response, recovery and mitigation needs." During the planning process for the newest version of its Multi-Hazard Mitigation Plan, encouragement of public involvement included educating the community on "potential mitigation and climate adaptation strategies." Among the other natural risks San Miguel deals with, power outages from severe weather is an ongoing concern.

269. San Miguel County Emergency Management does not have the resources to respond to increasingly severe weather events brought on by climate change, and is already expending funds to increase its capacity. In recent years, San Miguel County has added a new full-time staff member, expanded its Emergency Management Operations Center, and expanded its outreach and training programs.

Plaintiffs face increased costs to abate public health hazards in their communities.

270. All Plaintiffs have faced and will continue to face increased costs to abate climate change related public health hazards in their communities caused by, for example, increases in rainfall intensity, heat, wildfires, smoke, ground-level ozone, exposure to toxic materials, increase in vector-borne disease, and housing displacement.

271. Preparedness for outbreaks of disease and heat or other extreme events is crucial, and the public costs of mitigating and responding to these health hazards are extremely high.

272. Due to the expected continued heat rise in Boulder County, a place that

historically rarely saw days above 95 degrees, Boulder County and the City of Boulder are expected to see increased public health heat risks, such as heat stroke, and their associated costs.

273. Heat increase will affect everyone, but particularly vulnerable populations such as children, the elderly, and those with existing medical conditions. The number of heat-related mortalities in the Boulder area is expected to increase above the historic average.

274. Plaintiffs Boulder County and the City of Boulder will have increased costs connected with abating this public health hazard. For example, both may need to take steps to ensure that proper cooling systems are in place, especially in areas with vulnerable populations, given that Colorado has a high number of non-air-conditioned buildings due to its moderate temperature history.[20]

275. Cooling centers that are available during heat waves, and/or assisting with home air-conditioning installation, could cost Boulder County and the City of Boulder millions of dollars by mid-century.

276. Ground-level ozone – already a problem for the Boulder area – is also expected to increase with rising temperatures. The risk of increased ground-level ozone from warm temperatures may push San Miguel County, which is on the cusp of EPA non-attainment, into non-compliance.

277. Exposure to ozone is associated with respiratory inflammation and even

[20] Cooling costs for buildings can be incredibly high, reaching into the millions of dollars. For example, $37.7 million from a $575.5 million school construction bond for the Boulder Valley School District is being used to provide air-conditioning and better ventilation. This was done because of rising August temperatures and related health concerns for students. The schools had been built for open air cooling, in light of the area's historic climate.

premature mortality; an increase may alter public health employee workloads and the number of emissions reduction programs the Boulder area requires in order to meet federal requirements for ozone attainment.

278. All Plaintiffs will also face increasing costs to monitor and reduce ozone. According to the Climate Change Preparedness Plan, Boulder County "will likely need to expend more time and money in the future to avoid the monetary and health-related costs of being out-of-compliance with ozone attainment."

279. Boulder County has already spent resources studying ground-level ozone, including how it is affected by climate change. Moreover, all Plaintiffs have enacted a number of expensive GHG reduction programs, in part, because of the need for cleaner air in a changed/changing climate.

280. Boulder County is also responsible for providing vaccination services and general disease control to residents, including mosquito control; the County needs to prepare for increasing costs to provide these services in light of climate change. The City of Boulder uses ecosystem services to regulate mosquitos – ecosystems that will be damaged by human-caused climate change.

281. Because disease outbreaks are linked to increased temperature, Colorado may see a spread in infectious diseases in the future. For example, a trend towards warmer weather could lead to an increase in mosquito and other species and, thus, mosquito-borne illnesses or other arthropod-borne (e.g., ticks-borne) illnesses, which would in turn lead to the need for increased or adjusted vector control. With warmer weather, mosquito and tick populations have increased in San Miguel County.

282. Due to changing climate patterns such as warmer seasons, and increased drought, there is also the potential for animals to hibernate less, resulting in more human-animal interactions, which can increase incidence or risk of diseases, such as rabies.

283. The costs of responding to and monitoring these health risks can be substantial.

284. The spread of West Nile virus is instructive. West Nile virus first appeared in Colorado in 2002. By 2003, Colorado had the highest number of West Nile virus deaths and cases in the country. Prior to 2002, the City of Boulder did not have a mosquito control program. Now, the City's mosquito management costs are increasing annually, amounting to a budget of roughly $250,000 for 2018. In 2017, the budget for mosquito control in Boulder County was similarly high: $397,151.

285. Both Boulder County and the City of Boulder have experienced increased monitoring and costs to educate the public about these public health hazards, as they inspect areas where animals live and collect species (including mosquitos) to test for disease rates.[21] County public health officials in San Miguel have similarly spent time and resources to educate the public about West Nile virus, and work with local agencies to track and test mosquito populations. Last year, San Miguel engaged in Zika outreach and education.

286. The City of Boulder recently hired a consultant to study, among other things, alterations to ecosystems and species migration patterns due to a shifting climate, which will help the City understand public health risks. Warmer weather and shorter hibernation seasons

[21] Although predictions for vector-borne illness spread are difficult because they are also highly dependent on shifts in human behavior and human levels of immunity, the consequences of increases in such illnesses are dire enough that increases in monitoring and surveilling of the situation may be warranted.

could result in more human-animal exposure, including to species that typically carry rabies, such as skunks.

287. The City is also currently reviewing an adaptive management approach to its mosquito control program to address challenges from climate change, and has acknowledged that "[a] process needs to be developed in the event that a new mosquito-borne disease occurs in Boulder that could impact the community, particularly with the potential of new disease emergence with changing climate."

* * *

288. The programs and adaptation measures that the Plaintiffs have undertaken – such as new irrigation systems and stormwater infrastructure, increased wildfire defensive spaces, and more emergency management staff – are only the beginning of an adequate response to dealing with increased risks from climate change.

289. These costs are occurring now and being borne by taxpayers in order to protect the safety, health, and lives of residents, and the property and infrastructure of the Plaintiffs. The costs will continue to grow for decades to come to adapt to new conditions.

290. As detailed below, each of these costs and risks is a result of the Defendants' actions in causing and contributing to the alteration of the climate.

C. Defendants are responsible for Plaintiffs' injuries.

291. Exxon and the Suncor Defendants are responsible for causing and increasing the harms from human-caused climate change, which are injuring Plaintiffs.

292. They sold, sell and plan to continue selling an enormous amount of fossil fuels, while actively promoting their use. Those fossil fuels were used, are used and will continue to be

used by their consumers in the intended, foreseeable, and natural way: combustion.

293. Since the 1960s, moreover, Defendants sold and promoted fossil fuels knowing that climate impacts were substantially certain to occur if unchecked fossil fuel use continued. They concealed this knowledge from their consumers and the public, contributing to ongoing overreliance on fossil fuels.

294. In addition, through the 1990s and 2000s – critical decades when fossil fuel use needed to be brought under control and alternatives needed to come into the market – Defendants affirmatively misrepresented what they knew about the causes and consequences of climate change.

295. Defendants continue to produce, refine, promote and sell fossil fuels, and do not plan to stop or substantially reduce those activities. Their plans include selling *more* fossil fuels, including fuels that have an even more significant impact on climate. This is so even though Defendants, at least publicly, profess to acknowledge the dangers of climate change.

296. Defendants' conduct substantially contributed to, and was a substantial factor in bringing about, climate change, and continues to do so. It also accelerated, aggravated, and continues to accelerate and aggravate the impacts of climate change.

1. *Defendants knew fossil fuel use would result in dangerous changes in the climate.*

297. Decades ago, Exxon and Suncor knew that climate change was real, that it was being caused primarily by the combustion of fossil fuels, that it was irreversible, and that it posed a serious danger to people and property, including in Colorado.

298. Beginning in the 1960s, Defendants spent years studying climate change. Defendants' research *never* suggested that fossil fuel use was safe, that impacts were unlikely, or

that those impacts would be insubstantial.

299. Instead, Defendants' research demonstrated that their continued actions would cause significant alteration of the climate. Beginning in the 1960s, and throughout the 1970s and 1980s, their own scientists were telling Defendants that, while modeling may be imperfect, there was a growing consensus that fossil fuel use would result in likely catastrophic changes to the climate.

300. During this time period, Suncor and Exxon also knew what had to be done to prevent and/or lessen the impacts of anthropogenic climate change: that GHG emissions had to be reduced, the growth of fossil fuel use needed to be stopped, and energy needed to be supplied by fossil fuel alternatives. Defendants were warned that these actions needed to be taken imminently and that the transition would be too late if they delayed until the warming effects were significant.

301. In later years, the Defendants would emphasize what they claimed was the "uncertainty" of climate change, and its impacts. This was disingenuous.

302. During the 1970s and 1980s, Defendants were told that one (if not the primary) cause for any "uncertainty" was the extent of future fossil fuel use and growth. In other words, if fossil fuel use were greatly curtailed, then the predicted climate impacts might not happen. But such impacts were substantially certain if fossil fuel use continued to grow – exactly the path that Defendants took. So, Defendants' own plans and conduct were to blame for the problem they would complain about.

303. Defendants also knew that "uncertainty" did not mean human-caused climate change would necessarily be *less* serious than projected; it was simply uncertain whether the

impacts of their alteration of the climate would be merely disastrous or truly catastrophic. As an Exxon scientist warned the company in 1978, "there is no guarantee that better knowledge will lessen rather than augment the severity of the predictions."

Defendants knew fossil fuel use was causing CO_2 in the atmosphere to rise.

304. In 1958, the American Petroleum Institute began research on "gaseous compounds in the atmosphere *to determine the amount of carbon of fossil fuel origin*."

305. On information and belief – at that time and all other relevant times – Defendants or their predecessors were members of API, and commissioned, funded, participated in or, at a minimum, were aware of this and subsequent API research.

306. Defendants' and API's research continued through the 1960s culminating in a 1968 report, commissioned from the Stanford Research Institute (SRI), titled "Sources, Abundance, and Fate of Gaseous Atmospheric Pollutants." One of the report's conclusions was that atmospheric CO_2 was rising, and that fossil fuel combustion was by far the most likely "source [ ] for the additional CO_2 now being observed in the atmosphere." The authors went on to explain that the increase in the concentration of CO_2 in the atmosphere was because "[t]*he natural scavenging processes for removing CO_2 from the atmosphere are not sufficient to maintain a stable equilibrium in the atmosphere in the presence of this increase in emissions.*"

307. This point was underscored in a 1969 supplement that confirmed for API that "none of [the carbon sinks, e.g., the oceans and biosphere] [are] capable of counter-balancing" the "extremely large" CO_2 emissions resulting from fossil fuel combustion.

308. From the early stages, this information – that atmospheric CO_2 was rising fast, and that fossil fuels were to blame – was shared with and known by top company managers. For

example, Wilburn T. Askew, the president of Sun Company of Canada, Suncor's direct predecessor, served on API's technical committees. An internal Exxon memo from 1977 – reporting that "current scientific opinion overwhelmingly favors attributing atmospheric carbon dioxide increase to fossil fuel combustion" – was circulated to the "Corporate Management Committee," which included Exxon's highest-level managers.

309. As the years went on, Defendants' managers were continually reminded that fossil fuel use was causing a rise in atmospheric CO_2. A 1980 API report confirmed that there was "strong empirical evidence that . . . fossil fuel burning" was causing the rise in atmospheric CO_2 and that more than half of emitted CO_2 was remaining in the atmosphere. On information and belief, this report was shared with API member companies, including Defendants.

310. The implications of the rise in atmospheric CO_2 were obvious and Defendants were told what was needed next: a reduction of CO_2 emissions. The 1968 API Report summarized this recommendation: "Past and present studies of CO_2 are detailed and seem to explain adequately the present state of CO_2 in the atmosphere. *What is lacking, however, is an application of these atmospheric* CO_2 *data to air pollution technology and work toward systems in which* CO_2 *emissions would be brought under control."*

Defendants knew climate alteration would likely cause adverse and hazardous impacts.

311. Defendants' interest in the rise in atmospheric CO_2 was not academic. Defendants understood that rising CO_2 would trap heat and energy in the atmosphere, increasing

temperature,[22] and bringing about changes in the climate – i.e., drought, heatwaves, flooding, and sea level rise, etc. – that would have a profound effect on human lives, property and livelihoods.

312. In the same 1968 API report, Defendants were told that "there seems to be *no doubt* that the potential damage to our environment could be severe" and that the lack of attention on CO_2 emissions was "ironic" because they "may be the cause of serious world-wide environmental changes." Based on "[t]he latest available data", Defendants were warned that temperatures might increase by between 1.1°F and 7°F if the concentration of atmospheric CO_2 increased 25 percent (something they expected in 2000), and that temperature increases would "be three times this figure" if CO_2 levels doubled. The 1968 report concluded that – even if these projections were somewhat imprecise – "[s]ignificant temperature changes *are almost certain* to occur by the year 2000 and these could bring about climatic changes."

313. Defendants spent the next two decades enhancing their understanding of the likely effects of continued fossil fuel. At no point during that time were Defendants told that unchecked fossil fuel use would result in insignificant changes.

314. To the contrary, throughout this time period Defendants recognized that – as one 1980 document notes – even if there is some uncertainty, "[t]he physical facts agree on the probability of large effects 50 years away." Thirty-eight years after that statement, the Plaintiffs, and others, are experiencing those effects.

315. In 1979, API formed a task force to analyze climate impacts.

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[22] For example, SRI's 1968 paper for API reported that the "concern[ ] with the possible changes in atmospheric CO_2 content [is] because CO_2 plays a significant role in establishing the thermal balance of the earth."

316. As was the case during API's research efforts during the 1960s and 1970s, both Suncor and Exxon (or their predecessor companies) were members of the task force, and participated in the creation of or had access to the information produced by or available to the task force.

317. The task force circulated a commissioned report in 1980, on "The CO_2 Problem," which added alarming projections to those contained in the 1968 report. The 1980 report predicted a 4.5°F (2.5°C) temperature rise by 2038, which would have "major economic consequences." Indeed, the rise would effectively "halt" "world economic growth" by 2025. By 2067, the report predicted a 9°F (5°C) temperature rise – bringing "globally catastrophic effects."

318. The report warned that uncertainty might mean the impacts would happen even *faster* than initially recognized: there was a "1 in 10 chance [of a 4.5°F temperature rise] by 2005," not 2038.

319. The 1980 report recognized that the severity of the climate problem would be measured, at least in part, on the ability of society to withstand and adapt to the impacts, what the API task force dubbed "building in resilience." The costs of adaptation were thus a foreseen response to human-caused climate change.

320. The API taskforce appeared, at least internally, to take these warnings seriously.

321. As reflected in task force meeting minutes, additional research was suggested to "investigate the market penetration requirements of introducing a new energy source into world wide use" and one of the suggested "overall goal[s]" of the task force was to "develop ground rules for energy release of fuels and the cleanup of fuels as they relate to CO_2 creation."

322. In 1982, API commissioned another report, this time from Columbia University,

on the matter of climate modeling. The Columbia report noted that despite some variation among climate models, the various models "*all* predict some kind of increase in temperature within a global mean range of 4C [7.2°F]." The report also recognized 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."

323. In addition to its participation in API's work, Exxon conducted its own climate research (some of which has been made public).[23] Much of this confirmed the research conducted for API and its members, but it also adds more detail.

324. Exxon scientists warned in 1982 that a "*clear scientific consensus* ha[d] emerged" that the "well-documented increase in CO_2" would result in "global temperature rise" and there was "*unanimous* agreement in the scientific community that [the projected] temperature increase [ ] would bring about significant changes in the earth's climate, including rainfall distribution and alterations in the biosphere."

325. Two years earlier, Exxon was warned that those changes would "have a dramatic impact on soil moisture, and, in turn, on agriculture." Specifically, the "American Midwest" was projected to "become drier should there be a temperature increase of the magnitude postulated for a doubling of atmospheric CO_2," with "weeds and pests" also projected "to thrive with increasing average global temperature."

[23] Over the last few years, information about Exxon's awareness of and research into climate change has become public. Suncor may have also undertaken independent research into climate and its impacts, which will assumedly be revealed during the course of this litigation.

326. Exxon was separately warned that climate change could bring about "a northward migration of the desert areas of the United States" with "corn and wheat belts . . . migrat[ing] to Canada." At CO_2 levels of 500 ppm, Exxon projected that "[t]he flow of the Colorado River would diminish" making water shortages in the southwest "much more acute," and "[t]here would be less of a winter snow pack in the . . . Rockies, necessitating a major increase in storage reservoirs."

327. Privately, Exxon also clearly recognized that society would have to adapt to climate change, and that it would cost billions of dollars. While an internal Exxon memo describes the threat of climate change as less "significant . . . [than] a nuclear holocaust or world famine," the required adaptation would be measured in percentage points "of the gross national product estimated in the middle of the next century."

328. Two other revelations from the internal Exxon statements from the 1970s and 1980s are particularly relevant in light of their later contrary and misleading statements. First, it was clear to Exxon that low range temperature change projections were not credible. For example, in 1980, Exxon employees noted – with seeming agreement – that projections of a temperature increase "on the order of 0.25C [.45°F] for a doubling of CO2" were "not held in high regard by the scientific community."

329. Second, Exxon employees noted that there might be "time lags" which would mask "much more significant effects" in the future. In other words, the temperature increases due to CO_2 buildup might occur substantially later than the emission themselves, such that once they were felt, it would be too late to stop or reverse the impacts.

330. In August 1981, an Exxon scientist gave comments on a planning department

document that had indicated that the "observable effects [of rising CO_2] in the year 2030" would likely not be catastrophic (without defining that term). The reviewing scientist, concerned that this language would lull company officers into a false sense of confidence, suggested edits, warning that "it is distinctly possible" that Exxon's projections of fossil fuel use "will later produce effects which will indeed be catastrophic (at least for a substantial fraction of the earth's population)," because of "time lags" and natural climate variability, which might hide the effects of an enhanced greenhouse effect.

Defendants knew fossil fuel use reduction was needed.

331. Exxon and the Suncor Defendants have known for years that if fossil fuel use continued at the same rate (or grew), the impacts of climate change would come faster and harder. Specifically, the Defendants were told that the transition away from fossil fuels had to begin, that substantial shares of recoverable fossil fuels could not be exploited, and that more carbon-intensive fuels should not be promoted or sold, at least not if the impacts of climate change were to be prevented or kept manageable.

332. As early as 1968, API's members, including Exxon and Suncor, were warned that a substantial percentage of the known recoverable fossil fuels could not be burned because, if they were, atmospheric CO_2 concentrations would to rise to 830 ppm – a catastrophic level. And, although this was obvious, API members were told that *use* rates would affect how fast climate change happened, and how severe it might be.

333. Specifically, the Defendants were told that if the "use of fuel continues to expand at about the 5% rate experienced more recently" then CO_2 concentrations would be "30% higher than in 1950 by the year 2000" and that "a 25% increase in CO_2 concentrations [was] realistic."

334. Similarly, in 1980, API's climate task force recognized "the probability of large [climate] effects 50 years away," but that the "immediate problem [would be] considerably eased" "[i]f fossil fuel rates are reduced." This they understood implicated "the 50-year future of fossil fuel use" and the "roles" that "different categories of fossil or synthetic fuel play in future projections."

335. The 1980 report made an additional and important point about the need for immediate action: because replacing fossil fuels with energy sources that did not emit such high amounts of GHGs would take time, "there [was] no leeway" in the "time for action."

336. Throughout the 1980s, Exxon (including top company managers) continued to recognize and be told that "[m]itigation of the 'greenhouse effect' would require major reductions in fossil fuel combustion."

337. Additionally, Exxon knew that waiting to act would exacerbate the problem – and indeed that, by the time the effects were felt, it would be too late. In 1980, Exxon scientist Henry Shaw told the company that "there [would be] no likely technological 'fixes' (e.g., emission control devices or techniques) that will provide practical means of controlling CO_2 emissions resulting from combustion," and if "policy actions to control the increased CO_2 loading of the atmosphere are delayed until climate changes resulting from such an increase are discernible, then it is likely that they will occur too late to be effective."

Nothing changed Defendants' minds about the causes and consequences of climate change, in spite of the uncertainty they professed publicly.

338. While Defendants have often – at least for the last 25 years or so – publicly claimed that the causes and consequences of human-caused climate change are uncertain, they never abandoned or doubted what research had uncovered and what they had been told by their

own experts throughout the 1960s, 1970s and 1980s.

339. An internal industry memo from 1995 – drafted by a former Mobil employee and shared with API – said clearly that "[t]he scientific basis for the Greenhouse Effect and the potential impact of human emissions of greenhouse gases such as CO2 on climate is well established and cannot be denied." Moreover, "contrarian theories" – which the Defendants present to the public – for global warming were not considered credible and did "not offer convincing arguments against the conventional model of greenhouse gas emissions-induced climate change."

340. Defendants' own business operations also took into account the very climate hazards that they told the rest of the world not to worry about. In 1996, while building offshore exploration facilities in Canada, Mobil Oil "made structural allowances for rising temperatures and sea levels." The engineering consultant hired for the project admitted he "used the engineering standards of the day to incorporate potential impacts of Global warming on sea-level rise."

341. Defendants also used climate change as a means of planning future fossil fuel development. Exxon and its affiliates, for example, saw disappearing sea ice in the Arctic as a boon for oil production because it would substantially reduce the costs of development.

342. Between 1986 and 1992, Exxon's research team was looking "at both the positive and negative effects that a warming Arctic would have on oil operations." Those findings showed that warming would "only help lower exploration and development costs" in Arctic waters. The basis for those findings was the same global climate change models that Exxon publicly claimed were unreliable.

343. Defendants knew that the existence and likely consequences of anthropogenic climate change were certain enough for Defendants to plan their business operations around them.

2. *Defendants substantially contributed to, accelerated, and exacerbated climate change by promoting and selling huge amounts of fossil fuels.*

344. In spite of their knowledge, Suncor and Exxon produced, refined, promoted and sold massive amounts of fossil fuels. In addition, despite recognizing the severity and imminence of climate change, both Defendants developed and sold fossil fuels that contribute even more significantly to climate change than fuels refined from traditional crude oil. Through this course of intentional conduct, Defendants caused billions of tons of excess CO_2 emissions and substantially contributed to the dangerous and inexorable rise in atmospheric CO_2.

345. While Defendants likely knew about the consequences of fossil fuel use even before the 1960s, the vast majority of CO_2 emissions have taken place since the 1960s, after they unquestionably knew about the dangers. Indeed, nearly 75 percent of all industrial emissions were released since the 1960s, with more than half since the late 1980s, causing atmospheric CO_2 to rise. Moreover, the growth rate of CO_2 emissions and CO_2 concentrations in the atmosphere is still rising. While CO_2 concentration rose by 1 ppm per year between 1965 and 1975, it is now increasing by more than 2 ppm per year.

346. The Defendants' actions that have most substantially contributed to climate change and Plaintiffs' injuries were taken with full knowledge of, or reckless indifference to, their effects.

347. Even now, Exxon and Suncor are continuing their efforts toward massive growth of fossil fuel usage. Both of their business plans – while playing lip service to the reality of

climate change – include providing more fossil fuels through the middle of the century, including from more carbon-intensive sources. Far from bringing emissions under control, and helping to mitigate the impacts of climate change, this conduct will ensure and exacerbate the severity of impacts.

Since the 1960s, Exxon has knowingly provided a substantial portion of the fossil fuels causing and aggravating climate change, and it plans to continue doing so – causing continuing harm to Plaintiffs.

348. Since the 1960s, Exxon has sold trillions of cubic feet of natural gas, billions of barrels of oil, and millions of tons of coal and petroleum coke.

349. On information and belief, its share of the fossil fuel market has been substantially the same or has increased over time, which means that it has sold greater absolute amounts of fossil fuels over time as overall consumption has increased.[24]

350. Exxon intended its consumers to burn these fossil fuels, which it knew would, and did in fact, result in the release of billions of tons of CO_2 and other GHGs into the atmosphere. The emissions traceable to Exxon's products substantially contributed to the overall rise in atmospheric CO_2, were a substantial factor in bringing about and aggravating the resulting climate change impacts and will continue to contribute to warming and climate change impacts for the foreseeable future.

351. Exxon is one of the largest sources of GHG emissions both globally and historically.

352. Moreover, and despite its knowledge of the grave threats fossil fuels pose to the

[24] For example, in 2016, Exxon's petroleum product sales were around 5.5 million barrels of oil equivalent per day.

climate as far back as the 1950s, Exxon increased the development of dirtier fuels that contributed even more substantially to the concentration of atmospheric CO_2.Since the 1970s, Exxon has been a player in developing the Canadian tar sands. Canada's tar sands do not contain traditional crude oil. Instead, they are made up of bitumen.

353. Bitumen is extracted, typically by mining, before it can be refined into useable fuel products. The process of turning bitumen into useable fuel creates enormous CO_2 emissions – around 3.2 to 4.5 times the emissions generated from conventional oil produced in North America.

354. Moreover, the bitumen itself contains substantially more carbon than a comparable and conventional oil.

355. Much of that carbon is found in petroleum coke, a byproduct of the refining process, around 80 percent of which is sold for fuel. When it is burned, petroleum coke produces even more CO_2 than coal – 5-10 percent more CO_2 than coal relative to the energy provided – and is one of the dirtiest fuels around in terms of air quality. By 1999, Exxon was one of the world's largest petroleum coke producers, making thousands of tons a day.

356. Since the 1970s, Exxon's tar sands reserves have ballooned from under 1 billion barrels to 5.14 billion in 2015. In the last decade, tar sands as a percentage of Exxon's liquid holdings have increased from 17 percent to 35 percent.

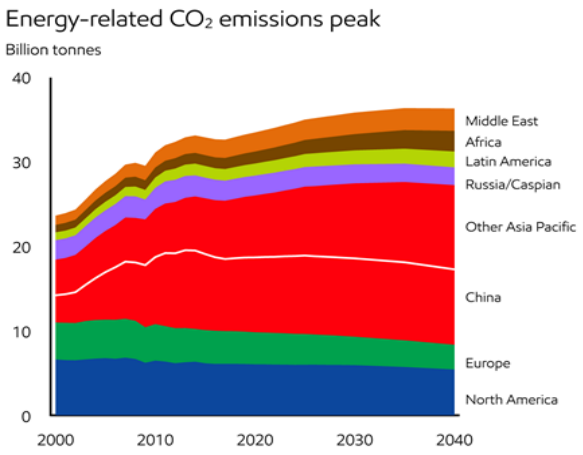
357. Beginning in the late 1960s Exxon also moved to acquire coal assets, and by the mid-1970s, it started coal mining in Latin America. By the early 1990s, Exxon was producing around 37 million metric tons of coal a year. Exxon maintained operational coal mines in the United States until 2009, and it continues to report profits from "coal and power" operations in

its filings to the U.S. Securities and Exchange Commission.

358. Exxon has also helped breathe new life into coal-fired power generation. Because petroleum coke is often cheaper than conventional coal and can be burned in coal-fired power plants, Exxon's petroleum coke production has helped to make coal-fired power generation dirtier and cheaper globally.

359. Exxon has also been a leader in efforts to produce commercially viable liquid fuels from coal since the 1960s, and it has continued this effort despite its recognition, in internal documents, that "liquid fuels from coal produce substantially more CO_2 than gasoline from petroleum."

360. Exxon plans to continue its reckless and tortious conduct. Exxon predicts that oil and gas will account for an even larger share of the world's energy supply in 2040, a figure it has a direct role in determining. Even under its rosy projections, which assume substantial emissions reductions through "efficiency," Exxon projects rising emissions through 2040 (see chart below).



361. Exxon is planning accordingly, hoping to supply a quarter of the Americas' oil by then.

362. Exxon confidently states in its most recent company-wide review that five major start-ups will contribute to an additional 250,000 BOE per day of working interest production, and that "several long-cycle project start-ups are anticipated in 2018 in Angola, Canada, Qatar, Russia and the United Arab Emirates, contributing about 340 thousand oil-equivalent barrels per day of working interest."

363. Exxon also plans to continue increasing production of even dirtier fuels. Exxon states on its website that "oil sands production offers a unique opportunity to increase North American oil supplies," and is currently expanding its tar sands operations there, aiming to access around 4.6 billion barrels of tar sands oil for more than 40 years with the expansion of its Kearl project. Exxon's related petroleum coke business will likewise continue apace.

Since the 1960s, the Suncor Defendants have knowingly provided a substantial portion of the fossil fuels causing and aggravating climate change; and Suncor plans to continue doing so, causing harm to Plaintiffs.

364. Since the 1960s, Suncor has sold trillions of cubic feet of natural gas, more than a billion barrels of oil, and millions of tons of petroleum coke.

365. In 2016, Suncor was one of the world's largest oil producers, supplying more than 600,000 barrels of oil every day, almost entirely from the Canadian tar sands.

366. On information and belief, Suncor's share of the fossil fuel market has increased since the 1960s. For example, between 2004 and 2016, Suncor's tar sands production increased 120 percent.

367. Suncor intended its consumers to burn these fossil fuels, which it knew would and in fact did result in the release of billions of tons of CO_2 into the atmosphere. The emissions traceable to Suncor's products substantially contributed to the overall rise in atmospheric CO_2,

were a substantial factor in bringing about and aggravating the resulting climate change impacts, and will continue to contribute to those impacts for the foreseeable future. Suncor is one of the largest sources of GHG emissions both globally and historically.

368. Moreover, and despite its knowledge of the grave threats fossil fuels pose to the climate as far back as the 1950s, Suncor produced and promoted dirtier fuels that contributed even more substantially to the rise in the concentration of atmospheric CO_2.

369. Indeed, according to an oil index recently established by the Carnegie Institute, Suncor's oil produces *the highest* GHG emissions in the world, whether one looks at the fuel's entire production lifecycle, or at combustion emissions alone.

370. Suncor was substantially responsible for the development of the Canadian tar sands. Despite the enormous costs and climatic risk, Suncor confidently states on its website, "skeptics said Canada's oil sands could never be developed commercially . . . [but] Suncor Energy proved them wrong."

371. Suncor began developing one of the dirtiest fuels on the planet in 1967. At the latest, Suncor was told a year later about the dangers of unchecked fossil fuel use, but plunged forward to this day regardless.

372. Like Exxon, Suncor has taken advantage of its business's dirty by-product – petroleum coke. Indeed, by 2008, Suncor was shipping "a half-million tons a year through Prince Rupert Ridley [Island] to Asian and Mexican ports." By 2016, "[a]pproximately half of all coke produced [from the Canadian tar sands] . . . came from Suncor's operations."

373. Suncor plans to continue producing and promoting more fossil fuels. As its CEO, Steve Williams, recently said, "In 100 years time, the oilsands will still be being developed and

still operating."

374. Suncor is doing its best to continue growing its production of this dirty fuel source, which enables it to sell such dirty fuels. Suncor plans to increase tar sands production in 2018 to more than 600,000 barrels a day, up from 505,000 barrels in 2016. And it plans to keep going in the near future: a tar sands project at Fort Hills, Alberta, Canada, will yield an additional 194,000 barrels a day, and 10 smaller projects, set for 2022, would add another 360,000 barrels a day to the company's production.

3. *Defendants concealed and misrepresented to the public what they knew about climate change and the dangers of continued and increasing fossil fuel use.*

375. Defendants promoted, marketed and sold fossil fuel products without disclosing (and in spite of) the climate-altering dangers that they knew – and have long known – were associated with their use.

376. In addition to concealing the known risks, Exxon and Suncor – separately, jointly and in coordination with others, such as API – directed, participated in, and benefited from efforts to misleadingly cast doubt about the causes and consequences of climate change, including: (1) making affirmative and misleading statements suggesting that continued and unabated fossil fuel use was safe (in spite of internal knowledge to the contrary); and (2) attacking climate science and scientists that tried to report truthfully about the dangers of climate change.

377. For example, in 1996, when opposing efforts to cut fossil fuel use, Exxon CEO Lee Raymond wrote that "scientific evidence remains inconclusive as to whether human activities affect global climate."

378. The Defendants undertook this course of conduct to confuse the public and consumers about the risks of alterations to the climate from fossil fuel use, in order to maintain fossil fuel demand and their fossil fuel business. The Defendants succeeded. Through the 1990s, at a critical point when the fossil fuel usage needed to be brought under control, public concern about the risks and causes of climate change waned.[25]

379. The Defendants' actions substantially contributed to the unchecked growth in fossil fuel use, GHG emissions, and the atmospheric concentration of GHGs that they knew would cause alterations in the climate.

Defendants acted in groups that concealed and misrepresented the dangers of fossil fuel use.

380. Defendants acted with and through groups and industry associations, such as API.

381. Defendants set up, and have funded, directed, and participated in efforts by such groups to mislead the public and fossil fuel consumers about the connection between unchecked fossil fuel use and dangerous climate alteration.

382. Defendants used such groups to spread information that they knew to be false, and to give the impression that there was "independent" science that doubted the causes and consequences of climate change.

Defendants promoted fossil fuels as necessary and responsible, while concealing their danger.

383. Defendants have promoted fossil fuels as safe, environmentally friendly and necessary. They have done this in their own commercial advertisements and marketing materials, and through third-party advertisements and marketing materials designed to encourage fossil fuel

[25] In 1992, 88 percent of American believed that global warming was a serious problem, but by 1997 that number had fallen to 42 percent (with only 28 percent of Americans thinking immediate action was needed).

use more generally. At no point did the Defendants or their associations disclose that continued reliance on and the unchecked use of fossil fuels was threatening the climate.

384. For years, API has also blanketed the airwaves and print media, including in Colorado and Boulder County, with misleading statements about the safety of, need for and benefits of fossil fuel use. At no point did API disclose that continued reliance on and unchecked use of fossil fuels was threatening the climate.

Defendants affirmatively misrepresented the causes and consequences of climate change.

385. By the late 1980s, the public was taking notice of changes to the climate, as well as the role of fossil fuels in bringing it about. In June 1988, James Hansen – then Director of the Goddard Institute of Space Studies at NASA – testified at a congressional hearing that "the greenhouse effect has been detected, and it is changing our climate now."

386. In spite of their recognition that climate change posed a serious threat decades earlier, Defendants saw public awareness of climate change and its causes as a threat to their business and sought to undermine public awareness and understanding through misleading advertising and other communications that cast doubt on the existence, causes and dangers associated with alterations to the climate, in order to preserve and promote fossil fuel use at levels Defendants knew to be dangerous.

387. Exxon and its predecessors directly ran multiple advertisements downplaying the risks of climate change and emphasizing uncertainty, contrary to its own internal documents. For example, in 1997 Mobil ran advertisements in the New York Times claiming, "Scientists cannot predict with certainty if temperatures will increase, by how much and where changes will occur. We still don't know what role man-made greenhouse gases might play in warming the planet."

388. Exxon continued these advertisements after its merger with Mobil.

389. One 2000 Exxon advertisement claimed that climate science was "unsettled." A 2001 Exxon advertisement criticized "the unrealistic and economically damaging Kyoto process." A 2004 Exxon advertisement again emphasized "[s]cientific uncertainties" that "limit our ability to make objective, quantitative determinations regarding the human role in recent climate change, or the degree and consequence of future change."

390. Defendants also communicated through API, and groups that were created, organized or controlled by API.

391. For example, the Global Climate Coalition (GCC) – formed in the late 1980s as the self-described "voice of U.S. businesses and industries that have a stake in the outcome of the global climate change debate" – was largely run and directed by API.

392. The GCC spent millions of dollars on advertising that tried to discredit climate science, and cast doubt on the dangerous consequences of climate change. In 1992, when 130 nations came together to sign the U.N. Framework Convention on Climate Change at the Rio de Janeiro "Earth Summit," GCC spent millions in misleading marketing to discredit the science. They distributed videos claiming that climate change would not be a problem, and that more atmospheric carbon dioxide would actually be beneficial for the world. Similarly, throughout the 1990s and early 2000s, GCC and its members spent millions more and distributed similarly deceptive materials designed to undermine support for the Kyoto Protocol, the follow-up to the Framework Convention.

393. These GCC advertisements were intentionally misleading because its members knew that climate change was ongoing, and that its impacts were increasingly posing serious

risks to the public. In a 1995 memo (also discussed above), a Mobil (now Exxon) representative told the GCC that "[t]he scientific basis for the Greenhouse Effect and the potential impact of human emissions of greenhouse gases such as CO2 on climate is well established and cannot be denied," and that "contrarian theories" to explain global warming were not credible.

394. Another front group organized by API was the Global Climate Science Communications Team (GCSCT), through which Defendants acted to mislead the public about climate change.

395. The GCSCT was organized in the late 1990s, largely in response to the signing of the Kyoto Protocol, including by the United States. Its stated goal was to get "[a] majority of the American public" to "recognize[ ] that significant uncertainties exist in climate science" and to make climate change "a non-issue, meaning that the Kyoto Protocol is defeated and there are no further initiatives to thwart the threat of climate change."

396. Defendants, through GCSCT, sought to achieve this by spreading misinformation about human caused climate change and the credibility of climate science – in the media, to their consumers, and in classrooms across the United States. While the Defendants, per the GCSCT's "action plan", suggested that there was uncertainty about "whether (a) climate change actually is occurring, or (b) if it is, whether humans really have any influence on it," they clearly knew otherwise.

397. The Defendants also acted through a cadre of claimed climate scientists, who they paid, directly or indirectly, to cast doubt on climate science.

398. In the early 1990s, both API and Exxon funded and promoted the work of Fred Seitz, Fred Singer, and Singer's Science and Environmental Policy Project (SEPP). Neither Seitz

nor Singer was trained in climate science, but both had previously been hired by industry, including tobacco companies, to create doubt in the public mind (where there should have been none).

399. Seitz, Singer, and SEPP were used to attack climate science, and specifically the IPCC conclusions and process. At first, Seitz and Singer claimed there was no climate warming or alteration. When the evidence of warming of the climate became too hard to deny, they claimed the warming was simply natural variation.

400. As just one example of their tactics, in 1998, Seitz helped to organize and distribute a sham petition "refuting" global warming. The petition was formatted to look like it was sanctioned by the National Academy of Scientists and sent to thousands of American scientists. Supposedly signed by 17,000 "scientists," the petition claimed to find "no convincing scientific evidence that human release of greenhouse gases is causing or will, in the foreseeable future, cause catastrophic heating of the Earth's atmosphere and disruption of the Earth's climate." The list of signatories was filled not with 17,000 actual scientists, but fictitious names, deceased persons, and celebrities.

401. The industry later turned to Wei-Hock (Willie) Soon, an aerospace engineer at the Harvard-Smithsonian Center for Astrophysics, who received over $1.2 million from Exxon, API and other fossil fuel interests from 2001-2012. Soon wrote numerous papers suggesting non-fossil fuel causes of climate change, and is best known for promoting the widely discredited idea that solar variability is responsible for climate change. Soon's papers were rejected in the scientific community, for good reason.

402. In 2015, it came to light that Soon was being funded by fossil fuel companies – a

fact he had not disclosed – and that those funders were given the right to review his work before it was published. Soon described his supposedly "academic" work for the Smithsonian as a "deliverable" to his funders, i.e. produced in exchange for their funding.

403. Defendants, and their agents, such as API, routinely referenced the work of Singer, Seitz and Soon when casting doubt on and/or trying to undermine public recognition of the scientific consensus around climate change.

Doubt won Defendants years of inaction.

404. Despite the scientific consensus around the existence and causes of climate change, uncertainty in the minds of the American public and Defendants' consumers grew throughout the 1990s and 2000s as a result of Defendants' efforts.

405. A poll reported in Time magazine in 2006 found that only 56 percent of Americans thought that average global temperatures had risen – despite the fact that a clear majority of climate scientists thought it had, and despite the IPCC's unequivocal statement that average temperatures had risen in its 2001 report.

406. An ABC poll the same year found that while more than 80 percent of Americans believed that global warming was "probably happening," 64 percent did not believe the science was settled, perceiving "a lot of disagreement among scientists." Defendants concealed the knowledge that would have demonstrated that the science of climate change had been settled since at least the 1960s.

407. The Pew Research Center in 2006 found that only 41 percent of Americans believed human activity such as burning fossil fuels was causing global warming – approximately equal to the number of people who said either that it was caused by natural

patterns (21 percent) or that there was no solid evidence of warming (20 percent).

408. By 2009, Pew Research Center found the number of Americans who said there was solid evidence that global temperatures are rising had *declined* to 57 percent, down from 71 percent in 2008. Only 35 percent of people thought the issue was very serious.

409. There was a similar decline in the number of Americans who said temperatures are rising as a result of human activity, such as burning fossil fuels – down from 47 percent in 2008 to just 36 percent in 2009.

410. In 2012, in response to the survey question: Do scientists believe that earth is getting warmer because of human activity? 43 percent replied no, 12 percent did not know, and only 45 percent of the U.S. public accurately reported the scientific community's overwhelming consensus.

IV. PLAINTIFFS' CLAIMS

FIRST CAUSE OF ACTION
(Public Nuisance)

411. Plaintiffs reallege and reaffirm each and every allegation set forth in all the preceding paragraphs as is fully stated herein.

412. The Defendants' conduct – i.e., knowingly supplying a substantial portion of all used fossil fuels and misrepresenting the dangers associated with their use – has caused, created, substantially contributed to, and/or exacerbated dangerous alterations in the climate.

413. The alterations in the climate caused and contributed to by Defendants constitute a present and continuing public nuisance in Plaintiffs' communities. Plaintiffs have to mitigate the impacts and severity of the public nuisances within their respective jurisdictions.

414. Plaintiffs are specially injured by the public nuisance brought about Defendants'

actions altering the climate because of their special responsibility to respond to and abate its hazards, and because they and their property and assets are especially vulnerable to the impacts of climate change, including, specifically but not exlusively their:

- transportation infrastructure, include roads, bridges, and culverts;
- flood, storm-water and water supply infrastructure;
- agricultural and open space lands; and
- high elevation properties, including reservoirs and park lands.

415. The impacts of climate change caused by the Defendants' actions have interfered and will continue to threaten and interfere with public rights in the Plaintiff communities, including the right to use and enjoy public property, spaces, parks, ecosystems, and the environment; the right to public health, safety, emergency management, comfort and well-being; and the right to safe and unobstructed trasportation and intercourse.

416. The interference with and threat to public rights caued by the Defendants' actions is substantial, and includes, but is not limited to:

- increasing, longer duration, wider burning and more intense wildfires, including in areas where wildfire risk had previously been low or non-existent;
- increasing extreme precipitation events;
- rising temperatures and an increasing numbers of extreme temperature events;
- prolonged and more severe drought conditions;
- the spread of pests, disease, and increasing threats to public health by, among other things, increasing allergens and ozone, as well as diminishing air quality.

417. The harms caused by the Defendants are and will continue to be borne by Plaintiffs and residents of the Plaintiff communities in the form of serious personal injury;

damage to property (valued in the billions of dollars); impairment of health; obstructed movement within their communities; the loss of use and enjoyment of public property, the environment and local eco-systems, and infrastructure; as well as added costs to protect, repair, and remediate the harms caused by the Defendants' alteration of the climate.

418. The Defendants have substantially contributed to and continue to substantially contribute to the creation and exacerbation of the nuisance, in that the intended and foreseeable combustion of Defendants' fossil fuels has produced and will continue to produce a substantial amount of GHG emissions, measured in billions of excess tons of CO_2 and other GHGs. Those excess tons have caused, contributed to, and/or exacerbated the impacts of climate change. Additionally, the Defendants' promotion of fossil fuels and misrepresentation of the risk known to them of the intended use of their product has also resulted in a substantial amount of excess GHG emissions, which caused, contributed to, and/or exacerbated the impacts of climate change.

419. The Defendants intentionally, negligently and/or recklessly created the interference incurred by Plaintiffs and the Plaintiff communities**.** From decades ago, Defendants knew or should have known that climate change impacts – including those affecting the Plaintiff communities – were substantially certain to result when they put their fossil fuel products into the stream of commerce to be combusted by their users. Defendants knew or should have known that climate change impacts – including those affecting the Plaintiff communities – were substantially certain to result when they concealed and affirmatively misrepresented the truth about climate change and fossil fuel use to the public and their consumers.

420. The inteference with public rights is unreasonable. For decades, Defendants have largely internalized the benefits of fossil fuel use, i.e., their profits, and externalized its costs, i.e.,

the impacts of climate change. Defendants knew or should have known the costs to Plaintiffs and their communities of placing fossil fuel products into the stream of commerce and have not compensated Plaintiffs or their communities for those foreseen harms. Defendants continue to put fossil fuels into the stream of commerce, continue to profit from those sales, and continue to not compensate Plaintiffs or their communities for the continued and added impacts that they suffer and will continue to suffer from as a direct and proximate result of Defendants' nuisance.

421. Plaintiffs and their residents have been damaged, including in their exercise of public and common rights, as a direct and proximate result of the public nuisance created by the Defendants. Plaintiffs have spent and will have to spend substantial dollars to mitigate this interference. Plaintiffs' damages and losses include but are not limited to:

- costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts;
- costs associated with wildfire response, management, and mitigation;
- costs of responding to, managing, and repairing damage from bark beetle and other pest infestations;
- costs associated with increased drought conditions including alternate planting and increase landscape maintenance costs;
- costs associated with additional medical treatment and hospital visits necessitated by extreme heat vents, increased allergen exposure and exposure to vector-borne disease, mitigation measures and public education programs to reduce the occurrence of such health impacts;
- costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage;
- costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration;
- costs associated with alteration and repair of bridge structures to retain safety due

to increases in stream flow rates;

- costs of repair of physical damage to buildings owned by Plaintiffs;
- costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
- loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
- costs of public education programs concerning responses to climate alteration;
- costs of reduced employee productivity.

422. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

423. Wherefore, the Plaintiffs pray for an award of damages, restitution for their costs of abating the nuisance, and remediation by the Defendants as set forth below.

SECOND CAUSE OF ACTION
BY ALL PLAINTIFFS AGAINST ALL DEFENDANTS
(Private Nuisance)

424. Plaintiffs reallege and reaffirm each and every allegation set forth in all the preceding paragraphs as is fully stated herein.

425. The Plaintiffs own, lease, occupy, manage, control and/or are otherwise in lawful possession of extensive real property within their jurisdictions.

426. As a direct and proximate result of Defendants' conduct, as set forth above, the Plaintiffs' property rights and interests, including their rights to the free and unthreatened use and enjoyment of that property, have been and will be unreasonably interfered with.

427. Defendants, and each of them, by causing and/or substantially contributing to climate change through their acts and omissions described above, have created conditions on

and/or set in motion forces that cause interference with the Plaintiffs' property, and permitted those conditions and forces to persist, which constitute a nuisance.

428. The Plaintiffs' property has been and/or will be substantially harmed by the effects of climate change. The conditions and forces Defendants created substantially and unreasonably interfere with, and will substantially interfere with, Plaintiffs' use and quiet enjoyment of rights to and interests in their real property, including by increasing the frequency and intensity of flooding, storms, the spread of invasive species, and wildfire.

429. The harms to and interference with Plaintiffs' property have become and/or will continue to be regular and severe.

430. Plaintiffs have not consented to Defendants' conduct in creating the condition that has interfered with Plaintiffs' property.

431. All of their harms will actually be borne by the Plaintiffs as loss of use and enjoyment of public property and infrastructure. The burden on Plaintiffs to mitigate, repair, remediate and prevent further grave interferences with their property is significant and severe.

432. The Defendants' conduct was and is negligent, reckless and intentional because Defendants knew or should have known their actions were substantially certain to interfere with Plaintiffs' property rights and interests. Defendants have known for decades, or reasonably should have known, that their conduct was substantially certain to alter or contribute to alterations in the climate and is exacerbating climate change.

433. Defendants' conduct was and is unreasonable because they have created and are creating the interference with Plaintiffs' property rights without compensating Plaintiffs for the harm they knowingly, recklessly or negligently created or will create.

434. Defendants' conduct is continuing and has produced and will produce ongoing effects.

435. Defendants' actions are a direct and proximate cause of Plaintiffs' damages and losses.

436. Plaintiffs' real property has been damaged and their use and enjoyment of that property has been threatened by the nuisance created by the Defendants; Plaintiffs have spent and will have to spend substantial dollars to mitigate this interference. Plaintiffs' damages and losses include but are not limited to:

- costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts;
- costs associated with wildfire response, management, and mitigation;
- costs of responding to, managing, and repairing damage from pine beetle and other pest infestations;
- costs associated with increased drought conditions including alternate planting and increase landscape maintenance costs;
- costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage;
- costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration;
- costs associated with alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
- costs of repair of physical damage to buildings owned by Plaintiffs;
- costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
- loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable.

437. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

438. Wherefore, Plaintiffs pray for an award of damages, restitution of their costs to abate the nuisance, and remediation of the nuisance by the Defendants as set forth below.

THIRD CAUSE OF ACTION
(Trespass)

439. Plaintiffs reallege and reaffirm each and every allegation set forth in all the preceding paragraphs as is fully stated herein.

440. Plaintiffs are the owners, in lawful possession, of real property.

441. Defendants have each intentionally engaged in conduct that has caused and contributed to climate change, thus causing flood waters, fire, hail, rain, snow, wind and invasive species to enter Plaintiffs' property.

442. Defendants knew, with substantial certainty, that the use of their fossil fuel products would both cause climate change and cause these invasions of Plaintiffs' property.

443. This trespass is recurring, and will continue.

444. Plaintiffs did not give Defendants permission for these invasions of their property.

445. Defendants' trespasses are the direct and proximate cause of damages and losses to the Plaintiffs.

446. Defendant's actions are and have been a substantial factor in causing the injuries and damages to Plaintiffs' property.

447. Plaintiffs' real property has been and will be damaged by Defendants' trespasses and Plaintiffs have spent and will spend substantial dollars to mitigate the damage caused by the

trespasses. Such damages and losses include but are not limited to:

- costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts;
- costs associated with wildfire response, management, and mitigation;
- costs of responding to, managing, and repairing damage from pine beetle and other pest infestations;
- costs associated with increased drought conditions including alternate planting and increase landscape maintenance costs;
- costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage;
- costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration;
- costs associated with alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
- costs of repair of physical damage to buildings owned by plaintiffs;
- costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
- loss of income from property owned by plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;

448. These damages and losses are the direct and proximate result of climate alteration by Defendants in excess of historical trends in climate variation.

449. Wherefore, Plaintiffs pray for damages and other relief as set forth below.

FOURTH CAUSE OF ACTION
(Unjust Enrichment)

450. Plaintiffs reallege and reaffirm each and every allegation set forth in all the preceding paragraphs as is fully stated herein.

451. Defendants profited from the manufacture, distribution and/or sales of fossil fuel products, and continued to do so long after they were aware of the harms that have resulted and would result from the Defendants' alteration of the climate.

452. Further, Defendants have profited from and continue to profit from the manufacture, distribution and/or sale of fossil fuels with that knowledge and have benefited from not incurring the costs necessary to reduce the impacts of Defendants' contributions to climate change.

453. Defendants received benefits from their actions and it would be unconscionable and contrary to equity for Defendants to retain those benefits.

454. Defendants have profited at the expense of Plaintiffs and the Plaintiff communities who have been damaged and must abate the hazards created by Defendants' fossil fuel products.

FIFTH CAUSE OF ACTION
(Violation of the Colorado Consumer Protection Act,
Colo. Rev. Stat. § 6-1-105(1), *et seq*.)

455. Plaintiffs reallege and reaffirm each and every allegation set forth in all the preceding paragraphs as if fully stated herein.

456. Defendants engaged in and caused others to engage in deceptive trade practices in Colorado, including in Plaintiffs' communities.

457. Defendants' deceptive trade practices included but were not limited to:

- knowingly making false representations as to the characteristics, ingredients, uses, or benefits of their fossil fuel products and services;
- failing to disclose material information concerning their goods and services, which information was known at the time of an advertisement or sale, including: the true cost and harms from the use of their products; the damage to the climate

that the use of their goods and services would cause; and the impacts of the use of their fossil fuels and fossil fuel derived products and services on Plaintiffs' property, social services, and infrastructure.

458. Defendants' failure to disclose such information was intended to induce the public and consumers at large to enter into transactions for the continued and expanding use of fossil fuels and fossil fuel products.

459. Defendants' misrepresentations, false representations, concealment and omissions concerning their goods and services were materially false statements that induced the persons to whom they were made to act or to refrain from acting and had the capacity to deceive the recipient.

460. The material information Defendants failed to disclose was information Defendants knew at the time of their advertisement or sale of their fossil fuels and fossil fuel derived products.

461. Defendants' deceptive trade practices occurred in the course of Defendants' business.

462. Defendants' deceptive trade practices significantly impacted the public as actual or potential consumers of Defendants' goods and services. A large number of consumers in Colorado were and continue to be directly affected by Defendants' deceptive trade practices. The consumers directly affected by the deceptive trade practices had minimal if any bargaining power. The deceptive practices have previously impacted other consumers. Defendants' deceptive trade practices have a significant potential to impact other consumers in the future.

463. Defendants engaged in bad faith conduct in their deceptive trade practices meaning they acted fraudulently, willfully, knowingly, and/or intentionally causing damages and

losses to Plaintiffs.

464. Colorado residents that were the targets of these deceptive trade practices were, and are, actual and potential consumers of Defendants' goods or services.

465. Plaintiffs and their residents were injured in the course of their business as a result of such deceptive trade practice. Defendants' deceptive trade practices directly and proximately caused actual damages and losses to Plaintiffs and their residents. Such damages and losses include but are not limited to:

- costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts;
- costs associated with wildfire response, management, and mitigation;
- costs of responding to, managing, and repairing damage from pine beetle and other pest infestations;
- costs associated with increased drought conditions including alternate planting and increased landscape maintenance costs;
- costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure to vector-borne disease, as well as mitigation measures and public education programs to reduce the occurrence of such health impacts;
- costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage;
- costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration;
- costs associated with alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
- costs of repair of physical damage to buildings owned by plaintiffs;
- costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;

- loss of income from property owned by plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
- the cost of public education programs concerning responses to climate alteration;
- the cost of reduced employee productivity.

466. These damages and losses are the direct and proximate result of Defendants' deceptive trade practices.

V. RELIEF REQUESTED

467. Plaintiffs are entitled to the following relief:

468. Monetary relief to compensate Plaintiffs for their **past** and **future** damages and costs to mitigate the impact of climate change, such as the costs to analyze, evaluate, mitigate, abate, and/or remediate the impacts of climate change. These costs include, but are not limited to:

- costs to analyze and evaluate the future impacts of climate alteration, the response to such impacts and the costs of mitigating, adapting to, or remediating those impacts;
- costs associated with wildfire response, management, and mitigation;
- costs of responding to, managing, and repairing damage from pine beetle and other pest infestations;
- costs associated with increased drought conditions including alternate planting and increased landscape maintenance costs;
- costs associated with additional medical treatment and hospital visits necessitated by extreme heat events, increased allergen exposure and exposure to vector-borne disease, as well as mitigation measures and public education programs to reduce the occurrence of such health impacts;
- costs associated with repairing and replacing existing flood control and drainage measures, and repairing flood damage;

- costs of repair, maintenance, mitigation and rebuilding and replacement of road systems to respond to the impacts of climate alteration;
- costs associated with alteration and repair of bridge structures to retain safety due to increases in stream flow rates;
- repair of physical damage to buildings owned by Plaintiffs;
- costs of analysis of alternative building design and construction and costs to implement such alternative design and construction;
- loss of income from property owned by Plaintiffs due to reduced agricultural productivity or lease or rental income while property is unusable;
- the cost of public education programs concerning responses to climate alteration;
- the cost of reduced employee productivity.

469. Damages to compensate Plaintiffs for past and reasonably certain future damages, including but not limited to decreased value in water rights; decreased value in agricultural holdings and real property; increased administrative and staffing costs; monitoring costs; costs of past mitigation efforts; and all other costs and harms previously described in this Complaint.

470. Plaintiffs seek remediation and/or abatement of the hazards discussed above by the Defendants by any other practical means.

471. Plaintiffs seek costs and disbursements of this action as permitted by law.

472. Plaintiffs seek attorneys' fees as permitted by law.

473. Plaintiffs seek pre- and post-judgment interest as permitted by law.

474. Pursuant to C.R.S.§ 6-1-113(2), Plaintiffs seek three times the amount of actual damages sustained, plus the costs of the action together with reasonable attorneys' fees as determined by the court.

475. Additionally, Plaintiffs seek any other applicable remedies and any other relief as

this Court deems just and proper.

476. Plaintiffs **do not** seek to enjoin any oil and gas operations or sales in the State of Colorado, or elsewhere, or to enforce emissions controls of any kind. Plaintiffs **do not** seek damages or abatement relief for injuries to or occurring on federal lands. Plaintiffs **do not** seek damages or any relief based on any activity by the Defendants that could be considered lobbying or petitioning of federal, state or local governments.

477. None of the relief requested is inconsistent with any obligation of the U.S. under the United Nations Framework Convention on Climate Change, the Paris Agreement, or any other U.S. international commitment.

VII. JURY TRIAL DEMANDED

478. Plaintiffs demand a trial by jury for all issues triable by a jury.

Dated: April 17, 2018

Respectfully submitted,

/s/ Kevin S. Hannon
Kevin S. Hannon, #16015
DULY AUTHORIZED SIGNATURE OF KEVIN S. HANNON ON FILE AT THE HANNON LAW FIRM, LLC

Co-Counsel to be admitted *pro hac vice*

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