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REGULATION OR LITIGATION: USING THE AMERICAN LEGAL SYSTEM TO
ADDRESS CLIMATE CHANGE

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Professional Paper

presented in partial fulfillment of the requirements
for the degree of

Master of Science
in Environmental Studies, Environmental Law

The University of Montana
Missoula, MT

May 2012

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Regulation or Litigation: Using the American Legal System to Address Climate Change

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While a growing scientific consensus recognizes that anthropogenic greenhouse gas emissions are contributing to the global phenomenon known as climate change, little progress has been made to pass comprehensive legislation addressing climate change. Many concerned with the effects of climate change have turned to the American court system as a means of addressing climate change or reducing greenhouse gases. Similar to the early litigation history of many environmental cases, climate change litigation has thus far been unsuccessful in holding major greenhouse gas emitters liable for the impacts of climate change. Plaintiffs have not given up, however. Many climate change cases are still pending. While there are several legal hurdles to overcome, the court system may provide an avenue to comprehensive climate change legislation in the United States.

In order to better predict the future of climate change in the legal system, it is instructive to look to past environmental and public health litigation and regulation. This paper looks to the histories of two other environmental health agents, asbestos and sulfur dioxide, to identify similarities between these substances and greenhouse gas emissions. An examination of each substance's scientific and regulatory history suggests what obstacles climate change plaintiffs may expect, including: the political question doctrine, standing, and causation. A comparison with asbestos and sulfur dioxide suggests possible ways of overcoming these hurdles and reaching comprehensive climate change regulation in the United States. The histories of asbestos and sulfur dioxide suggest that litigation and comprehensive federal legislation are both necessary to effectively reduce greenhouse gas emissions.

In the American legal system, an extensive set of statutory and administrative regulatory mechanisms exist to protect United States citizens from harmful environmental agents; however, these regulatory approaches are often preceded by sometimes long histories of individuals relying on common law tort theories for protection. Of importance in this paper, both federal statutes and regulations and the common law have provided protection from asbestos and remedies for individuals suffering from asbestos-related disease. Likewise, common law theories and statutory regulations have helped reduce health impacts and property damage from sulfur dioxide. Similarly, individuals and states have attempted to use tort law as a tool to hold major greenhouse gas (GHG) emitters accountable for the effects of climate change because climate change victims lack the protection and tools of federal legislation or regulations.¹ As climate change progresses, it is likely more claims will arise, increasing the need for protective national laws mitigating the effects of climate change.

This paper focuses on how the United States legal system has addressed past environmental health threats and how the court system may provide a pathway to comprehensive climate change legislation. Attempts to pass national legislation addressing climate change have been unsuccessful thus far.² To provide the foundation for the necessary laws addressing climate change, this paper examines two other environmental health agents: asbestos and sulfur dioxide. By considering the litigation and regulatory history of asbestos and sulfur dioxide, it is possible to make predictions about how to best use the legal system to address climate change in the United States.

¹ Hilary Sigman, *Legal Liability as Climate Change Policy*, 155 U. Pa. L. Rev. 1953, 1953 (2007).

² See Waxman-Markey American Clean Energy and Securities Act which was approved by the U.S. House of Representatives in 2009 but failed to pass the U.S. Senate. H. R. Res. 2554, 111th Cong. (June 26, 2009).

Both asbestos and sulfur dioxide are comparable with climate change in that they all are invisible environmental health threats exacerbated by human activity. This paper first addresses asbestos, sulfur dioxide, and climate change individually and concludes with a comparison of the three substances, drawing lessons from asbestos and sulfur dioxide litigation and regulation that may help predict how to best address climate change in the U.S. legal system. First, a basic introduction to each substance and its associated health effects is provided. Then, how the court system addressed the substance is discussed, followed by a summary of statutory and administrative regulations addressing the substance. Finally, the paper concludes with comparisons between the three substances' litigation and regulatory histories and identifies the legal theories that may best succeed in addressing climate change.

I. Asbestos

A. Introduction to Asbestos

The U.S. Environmental Protection Agency (EPA) defines asbestos as, “the asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite.”³ More generally, asbestos includes several kinds of naturally occurring, hydrated silicate fibrous materials that can be woven and are heat resistant.⁴ Asbestos fibers are invisible to the naked eye and can travel through the air when disrupted or dislodged from other materials.⁵ These properties make asbestos a highly useful material for a variety of manufactured goods, including:

³ 60 C.F. R. § 61.141 (2011).

⁴U.S. Environmental Protection Agency (hereinafter EPA), *Asbestos: Basic Information*, <http://www.epa.gov/asbestos/pubs/help.html> (last updated Jan. 3, 2012); Mansfield, *Asbestos: The Cases and the Insurance Problem*, 14 Forum 860 (1980); Mehaffy, *Asbestos-Related Lung Disease*, 16 Forum 341, 341-342 (1980).

⁵ EPA, *supra* n. 4.

flooring tiles, paper products, cement, textiles, pipe and machinery coatings, and transmission and brake parts.⁶

While asbestos can be a very useful, it is also known to be very harmful to human health. When exposed to airborne friable, or loose, asbestos fibers the risk of disease from the fibers imbedding in human lungs is significant.⁷ Asbestosis, lung cancer, and mesothelioma are the three major health effects associated with exposure to asbestos.⁸ All three asbestos-related diseases have long latency periods; generally twenty to forty years after exposure the symptoms appear.⁹

Asbestosis is a pneumoconiosis, or lung disease resulting from extended inhalation of a mineral, occurring when asbestos fibers are inhaled, become lodged in lung tissue, and cause inflammation and scarring of the lung tissue.¹⁰ As lung tissue is scarred, air sacs are destroyed and lung function is impaired.¹¹ Individuals who have been exposed to friable asbestos are more likely to develop lung cancer than the general population.¹² Finally, mesothelioma is a rare cancer of the membrane in the thoracic or abdominal cavity lining and is most commonly associated with exposure to friable asbestos.¹³

The health risks presented by asbestos have been documented for generations. In 1907, Dr. Montague Murray reported to a British government committee about the “evil effects” of inhaling asbestos dust after long periods without any symptoms.¹⁴ In the

⁶ EPA, *supra* n. 4.

⁷ Craig A. Etter, *The Causation Problem in Asbestos Litigation: Is there an Alternative Theory of Liability?* 16 Ind. L. Rev. 679, 679 (1982).

⁸ *Id.*

⁹ *Id.* at 680.

¹⁰ *Id.* at 679, n.5.

¹¹ *Id.*

¹² EPA, *supra* n. 4.

¹³ Etter, 16 Ind. L. Rev. at 679, n.7.

¹⁴ Morris Greenberg, *Classical Syndromes in Occupational Medicine: The Montague Murray Case*, 3 Am. J. Indus. Med. 351, 352-356 (1982).

years following, medical consensus grew that asbestos-related diseases are a serious and growing public health threat. In 1924, the first medical paper on asbestos-related disease was released in the British Medical Journal, discussing the illness and death of Nellie Kershaw, an asbestos factory worker who was diagnosed with “asbestos poisoning” and died of lung fibrosis and tuberculosis.¹⁵ Following these and other medical reports documenting the dangers and cause of asbestosis, the British government enacted the Asbestos Industry Regulations in 1931 to control asbestos dust exposure.¹⁶

Also in the 1930s and continuing into the 1940s, evidence of a casual association between asbestos and lung cancer grew.¹⁷ It was not until the 1960s that medical studies uncovered the relationship between asbestos inhalation and mesothelioma.¹⁸ During this time it was also discovered that the hazards of asbestos dust reached beyond workers in asbestos factories and included insulation workers, individuals using asbestos-containing products, and those living near asbestos factories.¹⁹

In the United States, the health risks of asbestos in textile factories was reported and documented by the Public Health Service in 1938.²⁰ Throughout the 1950s and 1960s more medical studies in the United States established the dangers of asbestos dust inhalation. Although medical evidence had been building and the number of people suffering from asbestos-related disease continued to rise for decades, asbestos was not banned. Given the usefulness of asbestos in fireproofing, insulation, and friction materials, asbestos use was permitted in England, but regulations to minimize dust

¹⁵ P.W.J. Bartrip, *History of Asbestos Related Disease*, 80 Postgrad Med. J. 72 (2004); Irving J. Selikoff and Morris Greenberg, *A Landmark Case in Asbestos*, 265 J. Am. Med. Acad. 898, 898-899 (Feb. 20, 1991).

¹⁶ P.W.J. Bartrip, *supra* n. 15, at 73.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Borel v. Fibreboard Paper Prod. Corp.*, 493 F.2d 1076, 1084 (5th Cir. 1973).

exposure continued.²¹ It was a different story in the United States, where no asbestos legislation was passed by Congress until 1970.²²

B. Asbestos Litigation

Despite decades of information on the dangers of asbestos exposure and regulation in England, no federal control of asbestos occurred in the United States until the Occupational Safety and Health Act (OSHA) of 1970.²³ This was not the first time asbestos was addressed by the U.S. legal system, however. A year prior to Congress enacting OSHA, *Borel v. Fibreboard Paper Products Corp.* was the first third party lawsuit claiming personal injury from asbestos exposure.²⁴ In this landmark civil case, plaintiff Clarence Borel argued he contracted asbestosis and mesothelioma from exposure to asbestos containing insulation materials in his employment from 1936 to 1969.²⁵ Borel sued the defendant insulation manufacturers, whose products contained asbestos, in tort seeking damages for negligence, gross negligence, and breach of warranty or strict liability.²⁶ Specifically, Borel alleged defendants were negligent for failing to warn him of asbestos dangers in their products, failing to test asbestos products, and failing to

²¹ P.W.J. Bartrip, *supra* n. 15 at 73.

²² While asbestos has not been banned in the United States, many uses have been banned. In 1989 the EPA attempted to ban and phase-out asbestos-containing products, but the agency's rule was overturned by the Fifth Circuit Court of Appeals in 1991. Asbestos is now banned flooring felt, rollboard, corrugated paper, commercial paper, specialty paper. Further, asbestos is prohibited from new uses in products that have not historically contained asbestos. EPA, *Asbestos Ban and Phase Out*, <http://www.epa.gov/asbestos/pubs/ban.html> (last updated June 7, 2010).

²³ P.W.J. Bartrip, *supra* n. 15 at 73; 29 U.S.C. §§ 651 et seq (1970). In passing OSHA, Congress recognized the forty year history of documented occupational harm from asbestos and called asbestos a material that “destroys the lives of workers.” Sen. Rep. 91-1282 at 3 (Oct. 6, 1970).

²⁴ P.W.J. Bartrip, *supra* n. 15 at 73. Additionally, some states had sporadic industrial hygiene regulations beginning in the 1930s that addressed asbestos. *Id.*

²⁵ *Borel*, 493 F.2d at 1081.

²⁶ *Id.* at 1083. A negligence claim is a common law theory where the defendant failed to act the manner and it caused the plaintiff's injury. *Black's Law Dictionary* 1061 (8th ed., West 2004). Gross negligence is a reckless disregard of a legal duty to another. *Id.* Breach of warranty occurs when a manufacturer provides a product in a defective condition. *Id.* at 201. Strict liability is imposed when a manufacturer sells an unreasonably dangerous product without adequate warnings of the product's dangerous properties. *Id.* at 1245.

remove the products from the market after learning they could cause asbestosis.²⁷ Borel also alleged defendants should be held strictly liable in warranty and tort for manufacturing unreasonably dangerous products without adequate warnings of the foreseeable dangers presented by the products.²⁸ A defendant is strictly liable when an unreasonably dangerous product does not contain warnings for consumers that are reasonably foreseeable to the manufacturer at the time the product is sold.²⁹

Healthy until the mid-1960s, Borel's doctors attributed his illness to lung congestion and pleurisy and advised him to avoid asbestos dust.³⁰ Borel was diagnosed with pulmonary asbestosis in January 1969, which he testified was the first time he learned he had asbestosis.³¹ In 1970, Borel had surgery to remove his right lung when his doctors determined Borel had mesothelioma caused by asbestosis.³² At the trial court, medical evidence established that even light exposure to asbestos dust can cause asbestosis.³³ Further evidence showed that asbestos-related diseases are difficult to diagnose due to long latency periods of ten to twenty-five years from initial exposure to symptoms.³⁴

The jury found all but two defendants negligent, none grossly negligent, and Borel contributorily negligent.³⁵ The jury also found that all defendants were strictly liable for selling an unreasonably dangerous product, meaning the product is "so

²⁷ *Borel*, 493 F.2d at 1086.

²⁸ *Id.*

²⁹ *Id.* at 1088.

³⁰ *Id.* at 1082.

³¹ *Id.*

³² *Id.*

³³ *Id.*

³⁴ *Id.* at 1083.

³⁵ *Id.* at 1086.

dangerous that a reasonable man would not sell it if he knew of the risk involved.”³⁶ The defendants were held jointly and severally liable, allowing Borel to collect his damages from one or more of the defendants.³⁷ The defendants appealed, arguing the trial court judge improperly instructed the jury as to strict liability.

Although the Fifth Circuit Court of Appeals agreed the jury instruction may have been confusing, the court upheld the jury’s finding of strict liability.³⁸ The court held that the utility of asbestos in insulation may outweigh the known or foreseeable risk of asbestos-related disease.³⁹ The court noted, however, asbestos-containing products are unreasonably dangerous if they do not have adequate warnings for users and consumers.⁴⁰ Finally, the Court upheld the jury’s damages award in spite of the jury’s findings that Borel was contributorily negligent because Borel was not unreasonable in encountering the asbestos.

Borel represents the challenges of many typical asbestos cases brought under common law torts theories, which have grown in number since the 1930s. In 2002, 730,000 asbestos cases had been filed, with the number of cases expected to continue to grow to as much as 3,000,000.⁴¹ In both *Borel*, as with many asbestos cases brought under traditional common law theories, proving causation and damages were difficult hurdles for the plaintiffs. The plaintiff had to demonstrate that he or she had been exposed to asbestos, that the defendant manufactures had all supplied asbestos-containing materials used by the plaintiff, and that the plaintiff developed an asbestos-related

³⁶ *Id.*

³⁷ *Borel*, 493 F.2d at 1086-1087.

³⁸ *Id.* at 1090.

³⁹ *Id.* at 1089.

⁴⁰ *Id.*

⁴¹ Robert O. Faulk, *Symposium on Asbestos Litigation*, 44 S. Tex. L. Rev. 945, 948 (2003); see also Lester Brickman, *Ethical Issues in Asbestos Litigation*, 33 Hofstra L. Rev. 833, 834 (2005).

disease.⁴² This was difficult for all asbestos plaintiffs due to the latency period of asbestos-related diseases. Knowing the exact date of an asbestos exposure is difficult over decades working in an industry using asbestos-containing products. Further, it was impossible to medically determine which individual asbestos exposure caused a disease. Plaintiffs who were successful in proving causation benefitted from doctrines like the substantial factor test, arguing that all defendants each supplied asbestos-containing materials that each was individually sufficient to bring about the plaintiff's disease. This common law theory allowed plaintiffs like *Borel* to hold defendants jointly and severally liable and therefore collect damages even if a plaintiff could not prove the exact source of asbestos exposure.

C. Asbestos Regulation

While asbestos litigation continues to grow, the United States has now enacted several statutes and countless administrative regulations for asbestos. The most common statutes under which asbestos is regulated are OSHA⁴³ and the Clean Air Act (CAA).⁴⁴ Originally enacted in 1970, OSHA was the first federal statute addressing asbestos, requiring employers to monitor how much asbestos employees were exposed to and eventually required warnings and measures to reduce exposure.⁴⁵ Under the CAA asbestos is listed as a hazardous air pollutant⁴⁶ and national emissions standards were promulgated for asbestos.⁴⁷ These statutes are designed to minimize future asbestos exposure, but do little to provide remedies for people already suffering from asbestos-

⁴² *Borel*, 493 F.2d at 1088.

⁴³ 29 U.S.C. §§ 652, et seq. (1970).

⁴⁴ 42 U.S.C. § 7401 et seq. (1970). The Toxic Substances Control Act of 1976 is another statute that heavily regulates asbestos and limits the places and application of asbestos-containing materials. 15 U.S.C. §§ 2601 et seq. (1976).

⁴⁵ 29 U.S.C. § 652 (1970); 37 Fed. Reg. 11318, 11322 (June 7, 1972).

⁴⁶ 42 U.S.C. § 7412(b) (1970).

⁴⁷ 40 C.F.R. §§ 61.01 et seq. (2011); 40 C.F.R. §§ 140 et seq. (2011).

related diseases.⁴⁸ Although there are numerous federal statutes and administrative regulations on asbestos and the health risks associated with asbestos, its use is not prohibited but is limited to only specific applications.⁴⁹ Asbestos lawsuits relying on state common law theories continue today.⁵⁰ Congress has not explicitly stated that federal asbestos legislation has preempted state or common law theories, therefore allowing litigation to continue.

As discussed in later sections, asbestos may be instructive to climate change litigants. Asbestos litigation demonstrates how the doctrine of the substantial factor test may be used to prove causation when it is difficult to single out one defendant and one discrete event brought about the plaintiff's harm. Further, asbestos regulation demonstrates that even when an environmental health threat is regulated many individual injuries remain unresolved. This may be the case for coastal climate change plaintiffs who are currently losing land due to warming temperatures and strong storms. It is also probable that like sulfur dioxide, discussed below, if comprehensive national legislation regulating GHG emissions is enacted, climate change lawsuits may change focus and sue to enforce regulations, rather than recover damages from past injuries.

⁴⁸ 29 U.S.C. §§ 652 et seq.; 42 U.S.C. §§ 7401 et seq.; 15 U.S.C. §§ 2641 et seq. (1990).

⁴⁹ Jennifer L. Leonardi, *It's Still Here! The Continuing Battle over Asbestos in America*. 16 Vill. Envtl. L. J. 129, 129 (2005).

⁵⁰ While there are civil enforcement provisions in the CAA that allow citizens to sue for a violation of asbestos emissions standards (see 42 U.S.C. § 7604), it is arguable that individuals harmed by asbestos exposure continue to rely on the common law because common remedies include damages whereas the CAA civil provisions do not.

II. Sulfur Dioxide

A. Introduction of Sulfur Dioxide

Sulfur dioxide is a naturally occurring, highly reactive gas listed as one of six criteria pollutants under the CAA.⁵¹ Fossil fuel combustion in power plants is the largest source of sulfur dioxide emissions in the United States, followed by industrial facilities.⁵² Along with nitrous oxides, sulfur dioxide is a major contributor to acid rain and is known to impact human respiratory health. Studies early in the Industrial Revolution suspected that burning fossil fuels and the release of sulfur dioxide negatively affected human health. As early as the 1930s, studies in Europe began noting a connection between respiratory disease and air pollution.⁵³ Subsequent studies comparing sulfur dioxide exposure between employees working in London and employees in smaller country towns with lower sulfur dioxide levels found that longevity was diminished with higher sulfur dioxide exposure.⁵⁴

By 1970, the relationship between sulfur dioxide and respiratory disease was well documented.⁵⁵ Asthmatics and people with other respiratory diseases are most sensitive to sulfur dioxide exposure, but even people without respiratory impairments can be harmed by sulfur dioxide gas. At concentrations over 2.0 parts per million (ppm) sulfur dioxide can affect respiration of healthy adults.⁵⁶ At concentrations less than 2.0ppm, sulfur dioxide affects sensitive groups, like individuals with asthma. At higher levels of

⁵¹ EPA. *Six Common Pollutants: Sulfur Dioxide*, <http://www.epa.gov/airquality/sulfurdioxide/index.html> (last updated March 23, 2012).

⁵² *Id.*

⁵³ C. Arden Pope III, David V. Bates, and Mark E. Raizenne. *Health Effects of Particulate Air Pollution: Time for Reassessment?* 103 *Env'tl. Health Persp.* 472, 472 (May 1995).

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ 61 Fed. Reg. 25566, 25570 (May 22, 1996).

sulfur dioxide concentration or with elevated levels of respiration, as in moderate exercise, asthmatics experience moderately severe reactions.⁵⁷

Although the health impacts are well documented, sulfur dioxide is perhaps better known for its role in the phenomenon known as acid rain, where sulfur dioxide and nitrogen oxides released during the burning of fossil fuels mix in the atmosphere, collect in water vapors, and rain down as acidic precipitation.⁵⁸ As early as 1907-1908 acidic rain and deposits in soil were noted in England.⁵⁹ Acid rain can be very damaging to human-made structures and severely impacts ecological systems.⁶⁰

B. Sulfur Dioxide Litigation

Much like early asbestos litigation, early in the twentieth century those suffering from damage caused by sulfur dioxide released during fossil fuel combustion turned to the common law for relief. Many of these cases relied on the common law theory of public nuisance. A public nuisance is an “unreasonable interference with a right common to the general public.”⁶¹ An interference is unreasonable if it “involves a significant interference with the public health, the public safety, the public peace, the public comfort or the public convenience,” or “the conduct is of a continuing nature or has produced a permanent or long-lasting effect, and, as the actor knows or has reason to know, has a significant effect upon the public right.”⁶²

In a very early case addressing property damage from sulfur dioxide, the court had to balance the interests of landowners claiming property damage from sulfur dioxide

⁵⁷ *Id.* at 25571.

⁵⁸ EPA. *What is Acid Rain*. <http://www.epa.gov/acidrain/what/index.html> (last updated June 8, 2007).

⁵⁹ Gene E. Likens, F. Herbert Bormann, and Noye M. Johnson. *Acid Rain*. 14 *Environment* 33, 35 (March 1972).

⁶⁰ *Id.*

⁶¹ *Restatement (Second) of Torts* § 821B (1979).

⁶² *Id.* at § 821B(2)(a).

emissions and the economic benefits of an ore smelting company.⁶³ In *McCleery v. Highland Boy Gold Mining Co.*, a group of similarly situated landowners complained that ores smelted by defendant Highland Boy Gold Mining Co., released sulfur dioxide into the air and when the compound made contact with moisture in the air, it created sulfuric rain that damaged vegetation on plaintiffs' properties.⁶⁴ The plaintiffs sued seeking an injunction to stop Highland Boy from continuing operations that caused sulfuric rain.⁶⁵ The court held that if Highland Boy did not compensate the plaintiffs for their property damage, Highland Boy would be enjoined from continuing smelting practices.⁶⁶ This case again demonstrates how common law tort principles were used before statutes and regulations offered protection from injurious sulfur dioxide.

In another series of cases in the early twentieth century, Georgia sought an injunction against the Tennessee Copper Co. on the grounds of a public nuisance.⁶⁷ Georgia sued on behalf of its citizens alleging that Tennessee Copper Co.'s industrial activities, located near the state line, caused sulfur dioxide gas emissions that destroyed forests, orchards, crops, and inflicted other injuries in five counties in Georgia.⁶⁸ In assessing whether Georgia could assert a public nuisance claim on behalf of its citizens for damage to privately owned property, the U.S. Supreme Court noted that Georgia was entitled to sue in its capacity as a quasi-sovereign and that Georgia had an interest independent of its private citizens in protecting the state's earth, air, and forests.⁶⁹

⁶³ *McCleery v. Highland Boy Gold Mining Co.*, 140 F. 951 (D. Utah 1904).

⁶⁴ *Id.* at 951.

⁶⁵ *Id.*

⁶⁶ *Id.* at 954-955.

⁶⁷ *Georgia v. Tennessee Copper Co.*, 206 U.S. 230 (1907).

⁶⁸ *Id.* at 236-237.

⁶⁹ *Id.* at 619.

The Court agreed that sulfur dioxide can mix with moisture in the air to become sulfurous acid that can then travel by wind and damage forests, crops and human health.⁷⁰ The Court also noted that the effects of acid rain are relatively localized, which helped the plaintiffs assert that the sulfur dioxide emissions came from Tennessee Copper Co. and not other sources. In so concluding, the Court held that Georgia could seek an injunction if Tennessee Copper Co.'s efforts to minimize sulfur dioxide emissions failed to cease property damage in Georgia.⁷¹ Here again, common law tort principles provided some relief to those whose land and health were damaged from sulfur dioxide emissions.

After laws regulating sulfur dioxide emissions were enacted in the 1970s, lawsuits over sulfur dioxide changed focus. Instead of most litigants relying on common law torts, many cases now involve plaintiffs suing to require the federal government to strengthen or enforce existing regulations. At issue in *American Lung Assoc. v. EPA* was the EPA Administrator's finding that "bursts" of sulfur dioxide exposure for asthmatics likely caused disruption of ongoing activities, required medication, and possibly required medical attention.⁷² The American Lung Association sued demanding the EPA promulgate additional NAAQS for five-minute bursts capping sulfur dioxide emissions at 0.60 ppm to protect the national's nine million asthmatics.⁷³ The U.S. Court of Appeals for the District of Columbia held the EPA Administrator must adequately explain the conclusion not to promulgate a more stringent national standard for sulfur dioxide

⁷⁰ *Id.* at 620.

⁷¹ *Id.*

⁷² *Am. Lung Assoc. v. Env. Protec. Agency*, 134 F.3d 388, 389 (1998) [hereinafter *Am. Lung. Assoc. v. EPA*].

⁷³ *Id.* at 391.

emissions to protect the health of asthmatics and other sensitive groups in light of the documented public health effect.⁷⁴

Pursuant to the CAA, once the EPA Administrator finds a pollutant “may reasonably be anticipated to endanger public health or welfare” and the pollutant derives from “numerous or diverse mobile or stationary sources” the EPA Administrator must provide data on the identifiable public health effects associated with the pollutant.⁷⁵ The EPA Administrator must determine a level of safety to protect the public health from adverse effects from the pollutant and set national standards to limit emissions within the margin of safety.⁷⁶ These safety levels, known as national ambient air quality standards (NAAQS), must establish a level of safety to protect sensitive citizens as well as healthy citizens.⁷⁷

The Court held that it is within the Administrator’s authority to determine if burst exposure to asthmatics presents a public health concern requiring an additional NAAQS, but that the Administrator failed to explain her reasoning for not issuing the new NAAQS.⁷⁸ Therefore, the Court remanded the case for the Administrator to further explain her reasoning, but cautioned that the Administrator does not necessarily have broad discretion to decline to establish a margin of safety when adverse health effects are documented.⁷⁹ It was not until 2010 that the EPA changed the sulfur dioxide NAAQS. After years conducting new clinical, epidemiological, and toxicological studies the EPA

⁷⁴ *Id.* at 388.

⁷⁵ *Id.* at 389, citing 42 U.S.C. § 7409(b)(1) (1994); 42 U.S.C. § 7408(a)(1)(A)-(B) (1994); 42 U.S.C. 7408 (a)(2) (1994).

⁷⁶ *Am. Lung Assoc. v. EPA*, 134 F.3d at 389, citing *Lead Industries Assoc., Inc. v. Env. Protec. Agency*, 647 F.2d 1130, 1153 (D.C. Cir. 1980)

⁷⁷ *Am. Lung Assoc. v. EPA*, 134 F.3d at 389, citing Sen. Rep. No. 91-1196, at 10 (1970); *Lead Industries Assoc., Inc. v. EPA*, 647 F.2d, at 1152-1153.

⁷⁸ *Am. Lung Assoc. v. EPA*, 134 F.3d at 392.

⁷⁹ *Id.* at 393.

issued an Integrated Science Assessment in 2008 finding a causal relationship between bursts of sulfur dioxide exposure and respiratory morbidity.⁸⁰ The new NAAQS limits sulfur dioxide to 75 parts per billion (ppb) in one hour, reduced from the original .14 ppm in twenty four hours or a 0.03 ppm annual average.⁸¹

These sulfur dioxide cases demonstrate the use of the court system both with and without a statutory code to protect the public health. Where there is no statute or regulation in place, plaintiffs may rely on common law torts to seek remedies. Where statutes and regulations are available, plaintiffs may sue to see that they are properly administered and enforced.

C. Sulfur Dioxide Regulations

While sulfur dioxide is regulated under a few federal statutes, including OSHA, it is most heavily regulated under the CAA. As discussed in the case above, sulfur dioxide is a criteria pollutant under the CAA.⁸² The EPA Administrator is directed to establish NAAQS for air pollutants that cause or contribute to air pollution which “may reasonably be anticipated to endanger public health or welfare.”⁸³ The EPA Administrator is also tasked with establishing primary and secondary NAAQS.⁸⁴ Primary NAAQS are standards that allow for an “adequate margin of safety” to protect the public health.⁸⁵ Primary NAAQS are to be “the maximum permissible ambient air level” to protect sensitive populations.⁸⁶ Secondary NAAQS set a level of air quality required to “protect

⁸⁰ EPA, *Integrated Science Assessment (ISA) for Sulfur Oxides – Health Criteria (Final Report)*, <http://cfpub.epa.gov/ncea/cfm/recorddisplay.cfm?deid=198843> (last updated Sept 12, 2008).

⁸¹ 75 Fed. Reg. 35520 (June 22, 2010); 36 Fed. Reg. 8186 (April 30, 1971).

⁸² EPA, *supra* n. 50.

⁸³ 42 U.S.C. § 7408 (1970).

⁸⁴ 42 U.S.C. § 7409 (1970).

⁸⁵ *Id.*

⁸⁶ Sen. Rep. No. 91-1196 at 10 (1970).

the public welfare from known or anticipated adverse effects” of a pollutant.⁸⁷ The welfare effects covered by secondary NAAQS include effects on soil, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility, climate, property damage, transportation hazards, and economic and personal comfort and wellbeing.⁸⁸

In regulating sulfur dioxide as an acid rain threat, the EPA noted that acid rain deposits contain multiple criteria pollutants, including: sulfur oxides, nitrogen oxides, and particular matter. To address acid rain effects, Congress passed the 1990 Clean Air Act Amendments (1990 CAA Amendments) and created the Acid Rain Program to reduce sulfur dioxide emissions by 10 million tons below 1980 levels.⁸⁹

Beginning in 1995, the EPA allocated allowances to utilities directing how many pounds of sulfur dioxide may be released from the utility. In this manner, EPA sets the total number of tons of sulfur dioxide emitted from fossil fuel burning utilities.⁹⁰ Each year EPA may reduce the total number of allowances available, causing utilities to either reduce how much sulfur dioxide produced, or purchase allowances from another utility that had emitted fewer tons of sulfur dioxide than it held in allowances.⁹¹ Beginning in

⁸⁷ 42 U.S.C. § 7409.

⁸⁸ 42 U.S.C. § 7602(h) (1970).

⁸⁹ Clean Air Act Amendments of 1990, Pub. L. 101-549 (1990). To reach this goal, an innovative market-based approach was adopted. Utilities and entities regulated under the Acid Rain Program can choose from two methods of reducing sulfur dioxide emissions. Utilities can either: 1. develop and use energy conservation measures, increase use of renewable energy sources, reduce fossil fuel usage, install pollution control techniques, or use low-sulfur fuel sources; or 2. purchase allowances from other utilities to offset sulfur dioxide emissions. EPA, *Acid Rain Program SO₂ Allowances Fact Sheet*. <http://www.epa.gov/airmarkets/trading/factsheet.html#who> (last updated April 14, 2009).

Those utilities that reduce their sulfur dioxide emissions can auction off unused allowances equaling the level of sulfur dioxide reductions the utility achieved through measures like pollution control techniques.

Id.

⁹⁰ EPA, *supra* n. 88.

⁹¹ *Id.*

2010, sulfur dioxide allowances are capped at 8.95 million units each year to maintain emissions reductions over time.⁹²

The Acid Rain Program has been successful in driving down sulfur dioxide emissions associated with acid rain, and therefore also reduced emissions causing harmful health effects in humans. The cap-and-trade model employed to reduce acid rain is widely touted as an innovative combination of traditional regulation (setting the cap) and market-based regulation (allowing utilities to select the best method to reduce their sulfur dioxide emissions). These regulations continue to protect against sulfur dioxide emissions reaching dangerous levels once again. Now the regulations are used in combination with litigation and market-based principles to limit sulfur dioxide.

Like asbestos, sulfur dioxide may prove educational for climate change litigation and regulation. As discussed in later sections, many current climate change lawsuits are relying on common law public nuisances, as was the case in many early sulfur dioxide cases. Perhaps the most instructive piece of sulfur dioxide's litigation and regulatory history is the consequence of effective comprehensive national emissions standards set through statute and administrative regulation. Following the 1990 CAA Amendments, few sulfur dioxide lawsuits sought injunctions to stop all pollution because the regulatory standards prevented most property damage associated with sulfur dioxide. If similar comprehensive national legislation and administrative regulations are passed and effective in driving down U.S. GHG emissions, perhaps fewer climate change plaintiffs will have to rely on common law theories like public nuisance for relief.

⁹² *Id.*

III. Climate Change

A. Introduction to Climate Change

Like asbestos and sulfur dioxide, the GHG effect fueling climate change also has a long history. The six anthropogenic GHGs contributing to climate change are: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.⁹³ The most important of these gases in measuring the GHG effect is carbon dioxide.⁹⁴ The long history documenting the GHG effect and relationship between anthropogenic GHG emissions and a warming climate began in the late 1800s and continues today.

Scientists have studied the GHG effect since it was first described by a French physicist in 1824.⁹⁵ In 1896, a Swedish chemist proposed the idea of the GHG effect and hypothesized that burning coal in the industrial revolution would increase carbon dioxide in the atmosphere and warm the earth.⁹⁶ As research continued, evidence of a warming climate caused by GHGs grew. In 1988, Dr. James Hansen of NASA's Goddard Institute for Space Studies reported to the U.S. Senate that "with 99% confidence" the nearly 0.4 degrees Centigrade global warming from 1950 to 1987 is "a real warming trend" related to increased GHG emissions.⁹⁷ Also in 1988, the Intergovernmental Panel on Climate Change (IPCC) was created by the United Nations to report on the scientific evidence of

⁹³ 50 C.F.R. § 52.21 (2012).

⁹⁴ Intergovernmental Panel on Climate Change (hereinafter IPCC), *Climate Change 2007: Synthesis Report Summary for Policy Makers 5*, http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf (accessed April 8, 2012).

⁹⁵ Matthew Knight, *A Timeline of Climate Change Science*, <http://www.cnn.com/2008/TECH/science/03/31/intro.timeline/index.html> (May 14, 2008).

⁹⁶ *Id.*

⁹⁷ Sen. Comm. Energy & Nat. Resources, *Greenhouse Effect and Global Climate Change, Part 2*, 100th Cong., (June 23, 1988).

climate change.⁹⁸ In 1990, IPCC released the First Assessment Report, which predicted a faster increase in the mean global temperature than had been seen in the previous 10,000 years.⁹⁹ In 2007, the most recent report from the IPCC stated, “GHG emissions due to human activities have grown since pre-industrial times with an increase of 70% between 1970 and 2004,” and it is “very likely” that the observed average global temperature increases are caused by the observed increase in anthropogenic GHG emissions.¹⁰⁰

Climate scientists have now reached a consensus that GHGs are the gases that trap heat in the earth’s atmosphere and increase the average global temperature.¹⁰¹ The international community of climate scientists agrees that humans are contributing to climate change through the increased release of GHGs.¹⁰² In recent years, scientists began examining the particular environmental and human health effects of a warming climate. Consensus about these effects is not as well developed as the belief that anthropogenic GHG emissions are causing a warming climate. There is, however, growing evidence that a warming climate may produce more extreme climate events like longer, more frequent heat waves, increased wind speeds in tropical cyclones, and intensified droughts.¹⁰³ Some injuries, like land loss to rising sea levels are well documented, as in the *Massachusetts v. EPA* case discussed below.¹⁰⁴

⁹⁸ Matthew Knight, *supra* n. 94.

⁹⁹ IPCC, *IPCC First Assessment Report 52*, http://www.ipcc.ch/ipccreports/1992%20IPCC%20Supplement/IPCC_1990_and_1992_Assessments/English/ipcc_90_92_assessments_far_overview.pdf (accessed April 8, 2012).

¹⁰⁰ IPCC, *supra* n. 93 at 5.

¹⁰¹ EPA, *Frequently Asked Questions about Global Warming and Climate Change: Back to Basics 3*, http://www.epa.gov/climatechange/downloads/Climate_Basics.pdf (last updated May 20, 2010).

¹⁰² IPCC, *supra* n. 93.

¹⁰³ IPCC, *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation: A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change 13*, http://www.ipcc-wg2.gov/SREX/images/uploads/SREX-All_FINAL.pdf (accessed April 25, 2012). Critics who suggest that GHGs are not the cause of increased loss from events like tropical cyclones; instead some argue increased loss is a function of more development and capital in historically vulnerable areas subjected to tropical cyclones. Roger A. Pielke. *The Climate Fix: What Scientists and Politicians Won’t*

Regionally, wildfires in the arid western United States are expected to increase in frequency due to longer periods of drought in light of increased GHG emissions.¹⁰⁵ Evidence is growing to better establish specific impacts to humans and environment from a warming climate. The scientific consensus regarding the impacts of GHGs has not yet reached the level of certainty of the causes of asbestos-related diseases or sulfur dioxide's impacts to respiratory health or acid rain. This may be one reason climate change plaintiffs have had difficulty proving causation, an element of common law claims discussed below.

The increasing GHG emissions come from many sources, but the major emitters include the U.S. as a country, and the U.S. energy industry in particular. Until 2006, the U.S. emitted more carbon dioxide, than any other nation in the world.¹⁰⁶ In 2006, China surpassed the U.S. in carbon dioxide emissions.¹⁰⁷ That does not mean the U.S. has experienced a dramatic reduction in GHG emissions, however. From 1990 to 2007, U.S. GHG emissions increased by 16.7%.¹⁰⁸ A major contributor to GHGs in the U.S. is the energy industry. Over 80% of U.S. carbon dioxide emissions in 2007 were from the energy industry, including energy generation and transportation.¹⁰⁹ Electricity

Tell You About Global Warming. (Basic Books 2010). The IPCC does consider the level of exposure and vulnerability of a region when making predictions about extreme events related to climate change. IPCC, *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation: A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change* 13, http://www.ipcc-wg2.gov/SREX/images/uploads/SREX-All_FINAL.pdf (accessed April 25, 2012).

¹⁰⁴ IPCC, *supra* n. 102 at 13.

¹⁰⁵ D. McKenzie, F.A. Heinsch, W.E. Heilamn, *U.S. Department of Agriculture, Forest Service, Climate Change Resource Center: Wildfire and Climate Change*, <http://www.fs.fed.us/ccrc/topics/wildlife-fire.shtml> (last updated Jan. 17, 2011).

¹⁰⁶ *China Overtakes U.S. in Greenhouse Gas Emissions*, N.Y. Times (June 20, 2007). Available at <http://www.nytimes.com/2007/06/20/business/worldbusiness/20iht-emit.1.6227564.html> (accessed May 8, 2012).

¹⁰⁷ *Id.*

¹⁰⁸ Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2007*, <ftp://ftp.eia.doe.gov/pub/oiaf/1605/cdrom/pdf/ggrpt/057307.pdf> (Dec. 2008).

¹⁰⁹ *Id.*

generation alone consumed 36% of fossil fuel energy in 2010.¹¹⁰ Beginning in 2005, however, carbon dioxide emissions from the industrial energy-related sector began to drop and are now below 1990 levels¹¹¹.

Changes in the U.S. economy, like the shift from a manufacturing-based economy to a service-based economy, are helping industry-related emissions decline.¹¹² While total U.S. emissions are increasing, the proportion attributed to the industrial sector is declining. With the increasing emissions from China, the proportionate impact of the U.S. energy industry's GHG emissions becomes less substantial than it was in previous years.

Although climate change is recognized as a human-influenced problem and the evidence of the harmful effects of a warming climate is growing, reductions in GHG emissions have been slow. In 1997, industrialized nations agreed to reduce their GHG emissions to an average of 5% below each country's 1990 emissions level in the Kyoto Protocol.¹¹³ The U.S. Senate, on a 95-0 vote, issued a resolution opposing the United States' signing the Protocol.¹¹⁴ In 2001, the U.S. opposed the Kyoto Protocol under the direction of the George W. Bush Administration.¹¹⁵

Since withdrawal from the Kyoto Protocol, the issue of climate change has been hotly contested in the U.S. There have been attempts to regulate climate change

¹¹⁰ EPA. *Executive Summary: 2012 U.S. Greenhouse Gas Inventory Report*, ES-9 <http://www.epa.gov/climatechange/emissions/usinventoryreport.html> (last updated April 16, 2012).

¹¹¹ The industrial energy sector includes carbon dioxide emissions from combustion and process emission from agriculture, coal mines, petroleum and natural gas pipelines, industrial process emissions, stationary combustion of methane and nitrous oxide, purchased electricity from, electric power generation, and electricity transmission. Energy Information Administration, *supra* n. 107.

¹¹² EPA, *supra* n.109 at ES-8.

¹¹³ United Nations Framework Convention on Climate Change, *Kyoto Protocol*, http://unfccc.int/kyoto_protocol/items/2830.php/ (accessed April 8, 2012).

¹¹⁴ Sen. Res. 98, 105th Cong. (July 25, 1997).

¹¹⁵ George W. Bush, *Letter to U.S. Senate*, <http://georgewbush-whitehouse.archives.gov/news/releases/2001/03/20010314.html> (March 13, 2001).

nationally¹¹⁶ and at the state level;¹¹⁷ however, no comprehensive regulatory scheme has been developed in the United States. As in early asbestos and sulfur dioxide cases, many concerned about the damage from climate change are turning to the court system and common law. Several climate change cases have been decided that are influencing domestic climate change policy. Based on the history of asbestos and sulfur dioxide, continuing climate change litigation may serve as an initial step toward national legislation of GHGs.

B. Climate Change Litigation: Threshold Challenges

Climate change plaintiffs have faced two common challenges in bringing a lawsuit: the political question doctrine and the doctrine of standing. Both of these challenges are threshold jurisdictional issues the courts consider before addressing the merits of a case. If a court finds the political question is present or standing is not satisfied, the court will not have jurisdiction to hear the case.

1. Climate Change and the Political Question Doctrine

The political question doctrine precludes judicial action and is frequently raised by climate change defendants. The political question doctrine is a judicial doctrine used to ensure the separation of powers is upheld. It is designed to prevent the judicial branch from intruding into an area of law committed to either the executive or legislative branches of government.¹¹⁸ If the doctrine applies, the court may not hear the case.¹¹⁹

Six factors were developed to determine if the political question doctrine applies, known

¹¹⁶ 50 C.F.R. at § 52.21.

¹¹⁷ California's Climate Change Program, which is working to reduce GHG emissions to 1990 levels by 2020, is one example of state regulatory efforts. California Environmental Protection Agency, *Climate Change Program, Background* <http://www.arb.ca.gov/cc/cc.htm> (accessed April 8, 2012).

¹¹⁸ *U.S. v. Munoz-Flores*, 495 U.S. 385, 394 (1990); *Marbury v. Madison*, 5 U.S. (1 Cranch) 137 (1803) (recognized there are limitations on federal courts to prevent the courts from asserting jurisdiction over a matter better addressed by another branch of government).

¹¹⁹ *Marbury v. Madison*, 5 U.S. (1 Cranch) 137 at 170.

as the *Baker* factors.¹²⁰ The first three factors are used most frequently to determine if a political question exists. These three factors ask if there is:

1. a textually demonstrable constitutional commitment of the issue to a coordinate political department; or
2. a lack of judicially discoverable and manageable standards for resolving [the case]; or
3. impossibility of deciding [the case] without an initial policy determination of a kind clearly for nonjudicial discretion?¹²¹

Climate change litigants have had great difficulty overcoming the second and third factors of the political question doctrine. For example, the case of the Native Village of Kivalina and City of Kivalina, who sued major GHG emitters under a federal common law public nuisance theory, was dismissed by the district court on the grounds that there were no judicially-discoverable or manageable standards to guide the court in rendering a decision on the appropriate level of GHG emissions¹²² The district court further held that it would have had to make an initial policy determination when balancing the interest of the defendants' to pollute against the interest of the plaintiffs' to have GHG emissions reduced, as would be required in a nuisance claim.¹²³ However, one climate change case has successfully overcome these *Baker* factors.

In *Connecticut v. American Electric Power Company, Inc. (Conn. v. AEP)* the Second Circuit Court of Appeals held no political question was presented.¹²⁴ In this case the plaintiffs, eight states, the City of New York, and three land trusts sued six corporations who owned and operated fossil-fuel powered electricity plants under the

¹²⁰ *Baker v. Carr*, 369 U.S. 186, 216 (1962).

¹²¹ *Id.* The final three factors ask: whether adjudication of the case would demonstrate a lack of respect for a political branch; whether there is “an unusual need for adherence to a political decision” that has been made previously; or whether deciding the case would cause embarrassment from having multiple decisions regarding a single issue. *Id.*

¹²² *Native Village of Kivalina v. ExxonMobil Corp.*, 663 F. Supp. 2d 863 (N.D. Cal. 2009), *appeal filed*.

¹²³ *Id.*

¹²⁴ *Conn. v. Am. Elec. Power Co., Inc.* 582 F.3d 309, 398 (2d Cir. 2009), *aff'd in part and rev'd in part*.

federal common law doctrine of public nuisance seeking a carbon dioxide emissions cap be placed on defendants.¹²⁵ Plaintiffs alleged the defendants made substantial contributions to elevated levels of carbon dioxide, causing harm to the states and ecological damage to the land trusts' properties.¹²⁶ Specifically, plaintiff states and land trusts alleged injuries including loss of snowpack providing freshwater for the residents of California and future injuries including: increased illnesses and deaths from heat waves, smog, and respiratory problems; sea level rises and increased damage to coastal infrastructure; and increased wildfires.¹²⁷ Plaintiffs made a claim under federal common law nuisance and alternatively under state statutory or common law, and requested an injunction to abate GHG emissions from the defendants through a carbon dioxide cap.¹²⁸

In response, the defendants first argued that if carbon dioxide emissions should be subject to limits or restrictions, this is textually committed to Congress under the Commerce Clause.¹²⁹ The Second Circuit Court of Appeals quickly dismissed this argument as it was unsupported.¹³⁰ The defendants also argued that the first *Baker* factor was implicated because regulation of GHGs emissions would interfere with the President's authority over foreign relations by disturbing the President's efforts for achieving international emissions reduction.¹³¹ Again the court dismissed this claim as plaintiffs were only seeking to limit emissions from domestic electricity plants, which does not interfere with international emissions regulation or foreign policy.¹³²

¹²⁵ *Id.* at 316.

¹²⁶ *Id.* at 317-319.

¹²⁷ *Id.*

¹²⁸ *Id.*

¹²⁹ *Id.* at 324.

¹³⁰ *Id.*

¹³¹ *Conn. v. Am. Elec. Power Co., Inc.* 582 F.3d at 324.

¹³² *Id.* at 325.

Finding no textual commitment granting the political branches responsibility to address emissions reduction, the court moved to the second *Baker* factor. The defendants argued that the court lacks the standards or expertise to determine the appropriate emissions levels and who should be held accountable for emissions.¹³³ The Second Circuit found that the issue in this case was a question of federal common law public nuisance and federal courts have been hearing public nuisance claims for over a hundred years.¹³⁴ Further, the court found that the Restatement (Second) of Torts section 821 provides the standard for adjudicating public nuisances.¹³⁵ The court held it had well established standards and adequate expertise to hear the claim.¹³⁶

Turning to the third *Baker* factor the court found that it did not have to make an initial policy determination to decide the case.¹³⁷ The defendants argued that the court would have to determine what an acceptable level of emissions is and who should be held accountable for emitting carbon dioxide.¹³⁸ In rejecting this argument the court found that this was merely an ordinary tort of public nuisance. Where a case involves an ordinary tort there is no possibility of making an initial policy determination.¹³⁹

The court quickly dismissed the remaining *Baker* factors as inapplicable because resolving the case did not require contradicting prior political decisions as there is no

¹³³ *Id.* at 326.

¹³⁴ *Id.*

¹³⁵ *Id.* at 329. Restatement (Second) of Torts defines a public nuisance as “an unreasonable interference with a right common to the general public” and lists circumstances that may be unreasonable as “ (a) Whether the conduct involves a significant interference with the public health, the public safety, the public peace, the public comfort or the public convenience, or (b) whether the conduct is proscribed by a statute, ordinance or administrative regulation, or (c) whether the conduct is of a continuing nature or has produced a permanent or long-lasting effect, and, as the actor knows or has reason to know, has a significant effect upon the public right.” *Restatement (Second) of Torts* § 821B.

¹³⁶ *Conn. v. Am. Elec. Power Co., Inc.* 582 F.3d at 329.

¹³⁷ *Id.* at 331.

¹³⁸ *Id.* at 330.

¹³⁹ *Id.* at 331.

uniform policy on GHG emissions.¹⁴⁰ In so holding, the court concluded that the political question doctrine was not applicable and plaintiffs could proceed with their federal common law nuisance claim.¹⁴¹ The defendants then appealed to the U.S. Supreme Court.

On appeal, a divided U.S. Supreme Court upheld the Second Circuit’s finding of jurisdiction, affirming that a political question was not presented.¹⁴² The U.S. Supreme Court held, however, that because the EPA has now begun regulating carbon dioxide emissions under the CAA, the federal common law nuisance claim asserted by plaintiffs is displaced by federal law and may not proceed.¹⁴³ The Court noted that the federal common law is displaced by legislation when a statute “speak[s] directly to [the] question” presented.¹⁴⁴ Therefore, the EPA, as authorized by the CAA to list and set emissions criteria for pollutants “speaks directly” to carbon dioxide emissions from defendants’ plants.¹⁴⁵

Climate change plaintiffs have had great difficulty in overcoming the political question doctrine. With the recent U.S. Supreme Court decision upholding the Second Circuit Court of Appeal’s finding that a political question is not presented, perhaps more climate change plaintiffs will more easily satisfy this jurisdictional requirements to bring a claim. A new challenge is presented, however, in that federal common law theories are likely to be displaced by the relatively few EPA carbon dioxide regulations.

¹⁴⁰ *Id.*

¹⁴¹ *Id.* at 332.

¹⁴² *Conn. v. Am. Elec. Power Co., Inc.*, 131 S. Ct. 2527, 2535 (2011).

¹⁴³ *Id.* at 2537.

¹⁴⁴ *Conn. v. Am. Elec. Power Co., Inc.*, 131 S. Ct. at 2537, quoting *Mobil Oil Corp. v. Higginbotham*, 436 U.S. 618, 625 (1978).

¹⁴⁵ *Conn. v. Am. Elec. Power Co., Inc.*, 131 S. Ct. at 2537.

2. Standing for a Climate Change Plaintiff

The second jurisdictional issue preventing many climate change cases from proceeding to the merits of the case is the doctrine of standing. This doctrine has three requirements that must be satisfied before a court will hear a case.¹⁴⁶ In order to bring a claim against major GHG emitters in the U.S., a plaintiff must be able to assert an injury-in-fact, show that the injury is fairly traceable to the defendant, and the relief sought will actually remedy the injury.¹⁴⁷ Many climate change plaintiffs have faced challenges proving an injury-in-fact and tracing the injury to the defendant. For example, in the recent federal district court case of *Kivalina v. ExxonMobil*, the plaintiffs sued for monetary damages as their Alaskan village is no longer inhabitable.¹⁴⁸ The protective ice shelf surrounding the village has melted and the village is now subjected to damaging storms.¹⁴⁹

Plaintiffs in *Kivalina* alleged that fossil fuel burning electric power plants in the U.S. emit approximately 2.6 billion tons of carbon dioxide each year, the largest source of carbon dioxide emissions in the United States.¹⁵⁰ Further, plaintiffs alleged 19 companies accounted for half of the emissions associated with electricity production in the U.S. in 2004.¹⁵¹ In *Kivalina v. ExxonMobil*, the district court held the plaintiffs could not establish the source of the GHG emissions causing the ice shelf to melt came from the defendants.¹⁵² Therefore the requirement of traceability was not satisfied.¹⁵³ In so concluding, the court made no mention of the substantial factor test, as discussed above

¹⁴⁶ *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560 (1992).

¹⁴⁷ *Id.*

¹⁴⁸ *Native Village of Kivalina v. ExxonMobil Corp.*, 663 F. Supp. 2d at 1.

¹⁴⁹ *Id.*

¹⁵⁰ Br. of App. at 7, *Native Village of Kivalina v. ExxonMobil Corp.*, 663 F. Supp. 2d at 1.

¹⁵¹ *Id.*

¹⁵² *Native Village of Kivalina v. ExxonMobil Corp.*, 663 F. Supp. 2d at 12-13.

¹⁵³ *Id.*

in the asbestos cases. It is possible that the courts ignored this principles in climate change cases thus far because the doctrine applies when proving the prima facie elements of a tort claim and is not typically used to assert jurisdiction.

Further, as countries like China continue to emit a greater portion of the global GHGs, the GHG emissions from U.S. electricity generating plants are comparatively less significant. It may be harder for a plaintiff to trace U.S. GHG emissions to a particular injury as other international GHG emissions increase. This will likely be an ongoing issue for plaintiffs in satisfying traceability or the substantive element of causation. The pending Ninth Circuit Court of Appeals' decision in *Kivalina v. ExxonMobil* may help shed light on the level of contribution of GHGs courts view is necessary to satisfy the traceability element.

A previous case, *Massachusetts v. Environmental Protection Agency* (*Mass. v. EPA*), may serve as a model for future climate change plaintiffs to prove standing. In *Mass. v. EPA*, twelve states, four local governments, and several private organizations sued the EPA, arguing the EPA had abandoned its responsibility pursuant to the CAA to regulate emissions of four GHGs, including carbon dioxide.¹⁵⁴ In 1998, Jonathan Z. Cannon, EPA General Counsel, determined that carbon dioxide emissions are within the scope of agency's regulatory authority.¹⁵⁵ The EPA chose not to exercise this authority, however.¹⁵⁶ The EPA argued that GHGs had a history of regulation from Congress which prevented the EPA from regulating GHGs.¹⁵⁷ The U.S. Supreme Court denied the argument, reasoning that other regulation and legislation merely promotes "interagency

¹⁵⁴ *Mass. v. Envtl. Protec. Agency*, 549 U.S. 497, 504 (2007).

¹⁵⁵ *Id.* at 510.

¹⁵⁶ *Id.*

¹⁵⁷ *Id.* at 512.

collaboration and research to better understand ... climate change,” which complements the EPA’s regulatory efforts.¹⁵⁸

The Court held that the plaintiffs, Massachusetts in particular, had standing to bring the claim. Massachusetts could establish an injury-in-fact because it was losing state coastal land to rising sea levels.¹⁵⁹ In so holding, the Court looked to *Georgia v. Tennessee Copper Co.* which held that states may sue in their capacity as quasi-sovereigns for the protection of “the earth and air within” the state.¹⁶⁰ Because Massachusetts is a quasi-sovereign and could assert a loss to its coastal land due to rising sea level, the injury in fact element was satisfied.¹⁶¹ The Supreme Court also found that traceability was satisfied because although the EPA would only be regulating emissions from new vehicles, these emissions are a “meaningful contribution” to domestic GHG emissions and climate change because transportation emissions are a significant portion of the U.S. GHG emissions.¹⁶² Finally, the Court held that a reduction of domestic emissions would reduce global emissions.¹⁶³ Even if this reduction would not resolve the issue of climate change, it would still reduce emissions and limit the growing problem of climate change.¹⁶⁴ Therefore, the Court held that the plaintiffs had standing to bring the suit.¹⁶⁵ If other climate change cases can name a plaintiff with a quasi-sovereign status and an injury to an interest held by the quasi-sovereign, like the Native Village plaintiff in *Kivalina v. ExxonMobil*, it may be easier to establish standing.

¹⁵⁸ *Id.* at 530.

¹⁵⁹ *Id.* at 522.

¹⁶⁰ *Id.* at 522, citing *Georgia v. Tennessee Copper Co.*, 206 U.S. 230, 237 (1907).

¹⁶¹ *Mass. v. Envtl. Protec. Agency*, 549 U.S. at 522.

¹⁶² *Id.* at 524-525.

¹⁶³ *Id.* at 526.

¹⁶⁴ *Id.* at 525-526.

¹⁶⁵ *Id.* at 526.

Like the political question doctrine, the challenge of proving standing may be lessening. In light of upcoming EPA regulations, states or other quasi-sovereign plaintiffs may be better able to establish an injury, traceability, and relief through the EPA's own findings of the sources and dangers of GHG emissions. As the EPA recognizes emission sources such as fossil-fuel burning industry as significant contributors to GHG emissions, climate change plaintiffs may rely on this recognition to overcome the traceability element of standing. These emerging regulations are discussed in the following section.

C. Climate Change Regulation on the Horizon

Although climate change litigation to date has not been successful on the merits, there are now emerging carbon dioxide regulations following *Mass. v. EPA*. Discussed above, the plaintiffs in *Mass. v. EPA* were concerned that the EPA was not regulating carbon dioxide and other GHGs pursuant to the CAA.¹⁶⁶ Having established that the plaintiffs had standing, the Court proceeded to hear the case.

On the merits, the Supreme Court held that under section 202(a)(1) of the CAA, the EPA must determine if GHGs cause or contribute to climate change. Section 202(a)(1) of the CAA states the EPA shall regulate air pollutants from new motor vehicles if the pollutants “cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare.”¹⁶⁷ The Court's holding required only that EPA make a finding whether or not GHGs present a threat to the public health or welfare and provide reasoning for its determination.¹⁶⁸ Because the EPA had not

¹⁶⁶ *Id.* at 504.

¹⁶⁷ 42 U.S.C. § 7521(a)(1) (2006).

¹⁶⁸ *Mass. v. Envtl. Protec. Agency*, 549 U.S. at 533.

declared any reason for not regulating GHGs, the Court found EPA's inaction was arbitrary and capricious.¹⁶⁹

Although the case was decided in 2007, EPA took no action to determine if GHGs cause or contribute to climate change and if this presents a danger to public health or welfare until 2009. In January 2010, the EPA's endangerment finding final rule went into effect establishing that carbon dioxide may endanger the public health or welfare.¹⁷⁰ On April 1, 2010 the EPA and National Highway Traffic Safety Administration issued a joint final rule setting emissions and fuel economy standards for new motor vehicles in the United States.¹⁷¹ On March 27, 2012 EPA Administrator Lisa Jackson signed a proposed rule which sets performance standards for carbon dioxide emissions for new fossil fuel-fired electricity generating units. The proposed rule, which is awaiting publication in the Federal Register for public comment, applies only to new electricity utilities over 25 megawatt electric (MWe) to meet an output-based standard of 1,000 pounds of carbon dioxide per megawatt-hour.¹⁷²

These new regulations may develop a regulatory scheme that will provide courts with standards to apply in future climate change litigation. Such a scheme would help litigants overcome the political question doctrine by providing the courts with emissions standards. If the EPA continues to expand regulation of carbon dioxide and eventually sets an emissions cap for carbon dioxide, this would set a standard which the courts could determine is an acceptable or unacceptable amount of emissions from a particular source. Much like the NAAQS for sulfur dioxide helped the courts determine what level of sulfur

¹⁶⁹ *Id.* at 534-535.

¹⁷⁰ 40 C.F.R. § 52.21.

¹⁷¹ 74 Fed. Reg. 25323, 25324 (May 7, 2010).

¹⁷² EPA, *Proposed Rule*, <http://epa.gov/carbonpollutionstandard/pdfs/20120327proposal.pdf> (accessed April 23, 2012).

dioxide emissions were permissible, a ruling by the EPA on an acceptable level of carbon dioxide emissions would ease a court's difficulty in determining whether a certain level carbon dioxide emissions is reasonable.

IV. Getting Comprehensive Climate Change Regulation: Learning from Asbestos and Sulfur Dioxide

Looking to past environmental health problems in the U.S., the common law and litigation have been important steps along the road to national regulation to protect the public from harmful environmental agents. Many concerned with the effects of GHGs have already turned to the court system and common law remedies in search of relief from climate change's effects. If climate change litigants continue to rely on traditional common law theories, causation will likely be a difficult hurdle for plaintiff to overcome.

To date, no climate change case moving forward on a common law case theory has reached the merits of the case. The cases are often thrown out on grounds of political question, standing, or legislation occupying the field. Should a climate change litigant continue to follow a state common law case theory and is able to overcome political question and standing, plaintiffs will still face challenges in proving causation, which is a required element of a common law torts claims. Past common law asbestos and sulfur dioxide cases provide comparisons with present climate change litigation and allow predictions regarding the future of climate change litigation and regulation.

A. Asbestos, Sulfur Dioxide and Climate Change: General Comparisons

Asbestos, sulfur dioxide, and climate change all share several commonalities. First, each substance is naturally occurring and generally invisible to the naked eye.

Asbestos is a naturally occurring fiber mined from geologic formations in the earth.¹⁷³

Sulfur dioxide is a naturally occurring gas, emitted when fossil fuels are burned, including during volcanic eruptions.¹⁷⁴ Most of the GHGs, particularly carbon dioxide, are naturally occurring as well, emitted from a variety of sources, including human respiration.¹⁷⁵

Second, as with asbestos and sulfur dioxide, the dangers of GHGs and climate change were known long before comprehensive regulation existed to remedy the harm presented by each substance. Asbestos was a known public health risk from 1907,¹⁷⁶ but was not subject to federal regulation until the Occupational Safety and Health Act of 1970.¹⁷⁷ Sulfur dioxide was a known public health threat causing respiratory disease from the 1930s¹⁷⁸ and a known environmental hazard causing damage to water sources and vegetation from 1907.¹⁷⁹ Since 1824, scientists have been studying GHGs and their effects on the climate,¹⁸⁰ yet only since 2010 have piecemeal federal administrative regulations of GHGs been established to reduce the impacts of climate change.¹⁸¹ Each substance has waited decades from when it was discovered as a public health risk to national regulation was enacted. Along the way principles of common law have helped plaintiffs receive remedies for injuries suffered by the unregulated substances.

Finally, while each of these substances is naturally occurring, each poses a greater threat to human health when humans interfere with the substance. Asbestos fibers are not

¹⁷³ EPA, *supra* n. 4.

¹⁷⁴ EPA, *Volcanoes*, <http://www.epa.gov/naturaldisasters/volcanoes.html> (last updated July 14, 2011).

¹⁷⁵ EPA, *Climate Change: Greenhouse Gas Emissions*, <http://www.epa.gov/climatechange/emissions/index.html> (Feb. 27, 2012).

¹⁷⁶ Morris Greenberg, *supra* n. 14.

¹⁷⁷ P.W.J. Bartrip, *supra* n. 15 at 73.

¹⁷⁸ C. Arden Pope III, David V. Bates, and Mark E. Raizenne, *supra* n. 52.

¹⁷⁹ Gene E. Likens, F. Herbert Bormann, and Noye M. Johnson, *supra* n. 52 at 35.

¹⁸⁰ Matthew Knight, *supra* n. 94

¹⁸¹ *Mass. v. Envtl. Protec. Agency*, 549 U.S. at 534-535; 40 C.F.R. § 52.21.

dangerous to human health until they are disturbed and become airborne.¹⁸² As humans burn fossil fuels, sulfur dioxide is released at rates greatly exceeding natural emissions levels.¹⁸³ Similarly, as humans burn fossil fuels, carbon dioxide and other GHGs are also emitted into the atmosphere at unprecedented levels.¹⁸⁴ Without human action, the health threats posed by asbestos, sulfur dioxide, and GHGs would be significantly less concerning. These are a few of the general similarities shared by all three substances. Another area of similarity is the difficulty plaintiffs have in proving causation to establish a personal injury claim.

B. Proving Causation

In order to be successful on a common law claim, a plaintiff must prove that he or she suffered a particular injury and that the injury would not have occurred without the defendant's action or inaction. In climate change, many challenges have been raised arguing that because so many different sources emit GHGs, no particular defendant may be held liable for a plaintiff's injury. Climate change plaintiffs also face challenges that the injury suffered is not actually caused by increased GHG emissions. Discussed below are two possible methods that were successful in asbestos and sulfur dioxide litigation and may also allow climate change plaintiffs to overcome the causation hurdle.

1. The Substantial Factor Test

In order for tort litigation to succeed, the plaintiff must prove a particular defendant caused a specific injury. Many asbestos plaintiffs faced difficulty in proving which asbestos manufacturer specifically provided the asbestos that resulted in illness. The difficulty in proving causation in asbestos cases arose when an asbestos plaintiff

¹⁸² EPA, *supra* n. 4.

¹⁸³ EPA, *supra* n. 50.

¹⁸⁴ IPCC, *supra* n. 93 at 5.

worked for years in an industry exposed to many different sources of asbestos. In *Borel v. Fireboard*, the court responded to this with the substantial factor test.¹⁸⁵ The substantial factor test states that if a plaintiff can show multiple sufficient causes of the plaintiff's harm and each individual cause is sufficient to bring about the harm, the plaintiff may hold all sources of the harm liable.¹⁸⁶

Plaintiffs in *Kivalina* asserted a similar claim, arguing the named defendants are all major GHG emitters and each substantially contributed to a warming climate and melting the protective ice shelf that made the village habitable.¹⁸⁷ GHGs are emitted from many sources and no discrete source can be determined to cause a specific, individual harm. It is therefore likely climate change plaintiffs like in *Kivalina*, will have to carefully select the most egregious GHG emitters and demonstrate the defendants contribute a significant portion of global GHGs.

Plaintiffs in *Kivalina* carefully cataloged the nation's largest emitters of GHGs and selected a venue where the most of these polluters conducted business.¹⁸⁸ Plaintiffs alleged that just 19 companies in the fossil fuel energy sector accounted for half of all electricity emissions in 2004.¹⁸⁹ Because the district court dismissed the case on political question grounds, it is unclear whether the plaintiffs successfully alleged the defendants substantially contributed to their injury. Hopefully, climate change plaintiffs will be able to assert that the sources of greatest GHG emissions in the U.S. substantially contributed to the total GHG concentration and this is sufficient to bring about the harms of climate

¹⁸⁵ *Borel v. Fibreboard Paper Products Corp.*, 493 F.2d at 1095.

¹⁸⁶ *Black's Law Dictionary*, 1470 (8th ed., West 2004).

¹⁸⁷ *Native Village of Kivalina v. ExxonMobil Corp.*, 663 F. Supp. 2d at 1.

¹⁸⁸ Br. of App. at 6-9, *Native Village of Kivalina v. ExxonMobil Corp.*, 663 F. Supp. 2d 863 (N.D. Cal. 2009), *appeal filed*.

¹⁸⁹ *Id.*

change. Until a climate change claim relying on a common law theory of liability overcomes the threshold challenges of the political question doctrine and standing, it is unclear how the courts will address causation when multiple defendants are attributed with emitting sizable levels of GHGs.

2. Proving Causation with Improved Science

While awaiting a decision from the court system allowing a climate change case to proceed to the merits and address the substantial factor test, other evidence is building that may ease a climate change plaintiff's ability to prove causation. Proving causation becomes easier as science improves. This was the case in asbestos and sulfur dioxide litigation and is very likely to be true in climate change litigation. In asbestos cases, plaintiffs had a difficult time proving causation until medical studies improved to establish that a plaintiff's illness was the result of asbestos dust inhalation.¹⁹⁰ Similarly, proving that a defendant's sulfur dioxide emissions caused a plaintiff's harm also eased as scientific evidence of the potential harm of sulfur dioxide increased.¹⁹¹ After scientists established a link between sulfur dioxide emissions released during the combustion of fossil fuels, plaintiffs did not have a significant problem proving their injury was the result of sulfur dioxide emissions.¹⁹² Because sulfur dioxide emissions are most damaging near the source of the emission, most plaintiffs were able to show the nearest sizable source of sulfur dioxide emissions caused the injury.

Proving causation in climate change litigation is especially challenging as some GHG emissions are naturally occurring and GHGs have a global impact, unlike sulfur

¹⁹⁰ *Borel v. Fibreboard Paper Products Corp.*, 493 F.2d at 1083.

¹⁹¹ C. Arden Pope III, David V. Bates, and Mark E. Raizenne, *supra* n. 52 at 472; Gene E. Likens, F. Herbert Bormann, and Noye M. Johnson, *supra* n. 58 at 33.

¹⁹² *McCleery v. Highland Boy Gold Mining Co.*, 140 F. 951 (1904); *Georgia v. Tennessee Copper Co.*, 206 U.S. 230 (1907).

dioxide's localized impact. However, proving causation in climate change litigation is becoming easier as climate science continues to improve the certainty that climate change is caused by anthropogenic GHG emissions. The IPCC reviews the "most recent scientific, technical, and socio-economic information" from around the world relating to climate science.¹⁹³ The IPCC continues to find stronger evidence that humans are producing more GHG emissions than at any previous time, causing average global temperatures to rise.¹⁹⁴ While the IPCC's science has not gone unchallenged, the review process conducted by the IPCC is quite rigorous.¹⁹⁵ In total, more than 190 countries must reach a scientific consensus on the materials produced by the IPCC.¹⁹⁶ This exacting review process ensures the IPCC Assessment Reports accurately represent the available scientific research.

Given the rigorous review process and the vast number of countries and expert scientists reporting on climate change, the assessments released by the IPCC will help plaintiffs clear the causation hurdle. Like the improved studies in asbestos and sulfur dioxide litigation, as climate science continues to become more reliable and convincing,

¹⁹³ IPCC, *Organization*, <http://www.ipcc.ch/organization/organization.htm> (accessed April 8, 2012).

¹⁹⁴ IPCC, *supra* n. 93 at 2, 5.

¹⁹⁵ First, authors of research submitted to the IPCC are compiled so the appropriate expert reviewers may be identified. IPCC, *IPCC Review Procedures*, <http://www.ipcc.ch/pdf/ipcc-principles/ipcc-principles-appendix-a.pdf> (accessed April 8, 2012). Then, lead authors from contributing countries are selected. The lead authors are selected to include a range of views, expertise, and geographic regions. *Id.*

Draft reports are then submitted to the lead authors. *Id.* The lead authors review the drafts based on peer-reviewed citations and internationally available data and then they carefully identify any disparities found within the drafts. *Id.* The review process is guided by the criteria requiring that the best available scientific advice is applied. *Id.* The papers are widely distributed to allow for independent experts to review the papers, and the review process must be objective, open, and transparent. *Id.* A final draft is then submitted to a Working Group Session where government and expert comments are considered. *Id.*

Finally, if the Working Group approves the final draft, it is released as a Summary for Policy Makers, which is further subjected to review by experts and governments and requires a line-by-line approval by a Session of the Working Group. *Id.*

¹⁹⁶ David Biello, *Negating Climategate*, 302 *Sci. Am.* 16, 16 (Feb. 2010).

climate litigants will be able to satisfy the threshold standing requirements of injury and traceability elements and the substantive element of causation.

C. Lessons in Litigation and Regulation: Will the Future of Climate Change Look more like Asbestos or Sulfur Dioxide?

The common law provides an avenue for plaintiffs to seek a remedy, either a monetary damage award to repair a past harm or an injunction to stop the harm from continuing. It also raises awareness of the severity of the public health risk and arguably plays a role in bringing about the federal regulation. Some federal regulations, like those regulating asbestos, still allow plaintiffs to bring personal injury claims under state common law theories. Other federal regulations have largely closed out the opportunity for plaintiffs to continue to rely on federal common law theories. An examination of these common law theories illuminates whether climate change plaintiffs will be successful in continuing to rely on common law theories. This is an important question in light of the recent *Conn. v. AEP* decision and the *Kivalina v. ExxonMobil* case waiting a decision from the Ninth Circuit Court of Appeals. If climate change plaintiffs are able to succeed on the merits of a case, this may bring about comprehensive legislation of GHGs as was the case with asbestos and sulfur dioxide.

1. Federal Common Law as a Theory of Liability

The climate change cases discussed above demonstrate that many climate change plaintiffs are relying on federal and state common law nuisance case theories. As the EPA has begun to regulate carbon dioxide under the CAA, this alters the availability of common law nuisance claims for climate change plaintiffs. The federal common law is limited to specialized areas where an overriding federal interest requires a uniform rule or

basic federalism interests are involved and federal legislation does not provide a rule.¹⁹⁷ Federal common law was limited to specialized cases following *Erie Railroad Co. v. Tompkins* which established that federal courts should apply the law of the forum state in diversity jurisdiction cases,¹⁹⁸ but some federal common law was reserved.¹⁹⁹ Specialized federal common law is typically reserved for interstate pollution as in *Georgia v. Tennessee Copper Co.* where Georgia sought to enjoin copper companies near the state line from emitting sulfur dioxide causing damage to land in Georgia.²⁰⁰

The change from a wide body of federal common law to specialized common law demonstrates the reason few sulfur dioxide cases relying on federal common law exist today. Today, as represented by *American Lung Assoc v. EPA*, many sulfur dioxide cases focus on enforcing or strengthening existing regulations. Since promulgation of the 1990 CAA Amendments directly regulating sulfur dioxide it is likely the courts will view the federal common law for regulating sulfur dioxide has been displaced. The 1990 CAA Amendments directly speak to sulfur dioxide emissions and the EPA has set standards establishing maximum sulfur dioxide emissions from a variety of interstate sources. The federal common law is therefore displaced by federal regulation.

This is the same conclusion reached by the U.S. Supreme Court in the climate change case *Conn. v. AEP*.²⁰¹ In *Conn. v. AEP* the Court held that when the EPA made its endangerment finding that carbon dioxide caused or contributed to “air pollution ... reasonably anticipated to endanger the public health or welfare” and began promulgating

¹⁹⁷ *Ill. v. City of Milwaukee*, 406 U.S. 91, 105 n.6 (1972), citing *Banca National de Cuba v. Sabbatino*, 376 U.S. 398, 421-427 (1964).

¹⁹⁸ *Erie R.R. Co. v. Tompkins*, 304 U.S. 63 (1938).

¹⁹⁹ *Ill. v. City of Milwaukee*, 406 U.S. at 105 n.6.

²⁰⁰ *Georgia v. Tennessee Copper Co.*, 206 U.S. 230.

²⁰¹ *Conn. v. Am. Elec. Power Co., Inc.*, 131 S. Ct. at 2537.

regulations pursuant to the CAA, that was enough to displace federal common law on carbon dioxide emissions.²⁰²

Many asbestos claims still rely on common law theories, however. The distinction between asbestos and sulfur dioxide case theories rests in the fact that sulfur dioxide common law cases were brought under federal common law nuisance, whereas asbestos common law cases proceeded under state common law theories of negligence, strict liability, and breach of warranty. The 1990 CAA Amendments spoke directly to sulfur dioxide interstate pollution and has therefore displaced federal common law. Although there are many federal statutes regulating asbestos, the U.S. Supreme Court has not ruled whether a federal statute can displace state common law.²⁰³ Until the Supreme Court rules otherwise, state common law theories relied upon by asbestos plaintiffs will not be displaced by federal statutes.

Federal legislation displacing federal common law will impact climate change litigation. Until the last two years, GHGs were not subject to federal regulation. This left only the common law for climate change plaintiffs to bring a claim. In light of the recent U.S. Supreme Court decision in *Conn. v. AEP*, the federal common law is no longer available to climate change plaintiffs. It is unclear whether climate change plaintiffs will be successful in suing under state common law theories. The upcoming decision from the Ninth Circuit Court of Appeals in *Kivalina v. ExxonMobil* may answer this question. It is likely, however, that as the EPA promulgates GHG regulations, climate change plaintiffs will be able to sue to enforce these regulations rather than rely on federal common law theories.

²⁰² *Id.*

²⁰³ Thomas C. Buchele. *State Common Law Actions and Federal Pollution Control Statutes: Can the Work Together?* U. Ill. L. Rev. 609, 640-642 (1986).

2. Following Sulfur Dioxide's Example

Because the federal common law is now likely closed to climate change plaintiffs, it is likely that climate change litigation will more closely follow the historic path of sulfur dioxide regulation than asbestos regulation. While asbestos has a similarly long history documenting its dangerous health risks leading up to many federal statutes, many personal injury claims for asbestos persist and rely on state common law theories. Because federal regulations are not held to displace state common law causes of action and many people will continue to discover latent exposure to asbestos, it is likely asbestos claims will continue to seek damage awards for people with asbestos-related diseases.

Sulfur dioxide's regulatory history is marked by a long history of public and environmental health problems, followed by litigation seeking to stop the polluting emissions, followed by strong federal regulations. For those looking to reduce GHG emissions contributing to climate change, looking to sulfur dioxide may provide a model for comprehensive regulation. Recent EPA regulation of carbon dioxide may lay the groundwork for a comprehensive regulatory scheme addressing GHG emissions. Although the current regulations are few in number and only address new carbon dioxide sources, the EPA has now taken an important initial step toward regulation. Additionally, the U.S. Supreme Court held these regulations are sufficient to displace federal common law, closing the most popular theory of liability for climate change plaintiffs.²⁰⁴ However, a few regulations only addressing future carbon dioxide emissions will surely fall short of bringing about a significant reduction in GHG emissions. In light of this, it is probable that only significant federal legislation will actually result in considerable

²⁰⁴ *Conn. v. Am. Elec. Power Co., Inc.*, 131 S. Ct. at 2537.

GHG emissions reductions in the U.S. That was the case with the sulfur dioxide emissions regulations and Acid Rain Program under the 1990 CAA Amendments.

Until the federal government makes a deliberate decision to regulate GHGs and passes legislation to that effect, it is likely that many concerned with climate change will continue to rely on the judicial process and state common law theories. Without comprehensive federal legislation addressing climate change, the court system is the primary avenue to reducing GHG emissions. Not only this, but it is likely that the threat of litigation and high damage awards may push major GHG emitters to favor comprehensive GHG legislation because then the major GHG emitters would know exactly what level of emissions is acceptable. This was the case for sulfur dioxide emitters after the 1990 CAA Amendments and Acid Rain Program. Now sulfur dioxide emitters know what level of emissions is acceptable and are not in fear of litigation so long as they abide by the federal standards. While it may be many years before major GHG emitters feel enough pressure to call for federal GHG emission standards, the threat of common law litigation and possibly astronomical damage awards²⁰⁵ or injunctions stopping all emissions may encourage major GHG emitters to support national legislation.

The fate of climate change in the court system is still unpredictable and changes with every court decision. As previously noted, no climate change case relying on common law theories has reached the merits of the case. Current cases like *Kivalina v. ExxonMobil* will further shape the future of climate change litigation. If the Ninth Circuit Court of Appeals finds that no political question is presented and the plaintiffs have

²⁰⁵ Plaintiffs in *Kivalina v. ExxonMobil* did not specify a damage amount, but alleged it would cost \$95 to \$400 million to relocate the village. 663 F.Supp.2d 863 (2009).

standing, which are likely in light of *Conn. v. AEP*, and that a claim has been asserted under state common law, this may be the first climate change case to reach the merits of the claim. Only then will we know if climate change plaintiffs can rely on the judicial system to provide a remedy.

Looking forward, the extent of EPA's regulation of carbon dioxide and how the courts address state common law claims will determine whether or not climate change is regulated without new federal legislation. If one looks to the history of sulfur dioxide, however, it suggests that national legislation is required in order to effectively address climate change.

V. Conclusion

Asbestos, sulfur dioxide, and climate change all share characteristics like invisibility to the naked eye, long histories as known environmental agents presenting health risks, and all relied on both the court system and legislative process to reduce the public health risk. The histories of these substances demonstrate it often takes many years from the discovery of a hazardous substance until it is heavily regulated by the federal government. Also, before the U.S. Congress passes federal legislation to protect the public health, there is often a long history of plaintiffs relying on common law principles to seek a remedy after they have suffered an injury from a pollutant. After the court system has spent years trying to balance the need to provide a remedy for those who have been injured by a polluter with the polluter's need to emit harmful sources, federal legislation is then enacted to help draw a more definitive line establishing an acceptable level of pollution.

While asbestos, sulfur dioxide, and GHGs share similarities, when their histories are compared to predict the future of climate change regulation, it is likely that climate change will more closely follow sulfur dioxide's regulatory history. Learning from sulfur dioxide, it is probable that climate change will only be effectively regulated following strong, deliberate federal legislation setting comprehensive emissions standards for the largest GHG emitters. Until such legislation is enacted, however, climate change plaintiffs will continue to turn to the court system to address climate change.