Climate Change Litigation: Drawing Lines To Avoid Strict, Joint, and Several Liability

KIRK B. MAAG*

TABLE OF CONTENTS

INTRODUCTION .......................................... 185

I. FRAMING PUBLIC NUISANCE CLAIMS ....................... 188
   A. STRICT LIABILITY ........................................ 189
   B. JOINT AND SEVERAL LIABILITY ......................... 193
   C. DAMAGES REMEDY ....................................... 195
   D. SOURCES OF EMISSIONS ............................... 196

II. POTENTIAL LINE-DRAWING MECHANISMS .................... 196
   A. DE MINIMIS CONTRIBUTION ............................. 199
   B. LIVE AND LET LIVE .................................. 202
   C. UNREASONABLE CONDUCT ............................. 204
   D. APPORTIONING HARM .................................. 207

III. COMPARING LINE-DRAWING MECHANISMS ................... 211

CONCLUSION ............................................ 212

INTRODUCTION

The federal government’s failure to enact legislation to reduce greenhouse gas emissions has caused states and private parties to pursue alternative avenues for addressing greenhouse gas emissions. One such avenue is state regulation. For example, states are pursuing greenhouse gas emissions trading regimes and are seeking to impose restrictions on carbon dioxide emissions for automobiles.¹ A second such avenue is climate change litigation, pursued by both states

* Georgetown Law, J.D. 2009; Oregon State University, B.S. 2006. © 2009, Kirk B. Maag. This Note was developed in Professor Lisa Heinzerling’s Environmental Research Workshop. I would like to thank Professors Heinzerling, Peter Byrne, and Richard Lazarus, Vicki Arroyo, Heath Curtiss, Megan Woodhouse, and the Georgetown Law Senior Writing Fellows for their helpful feedback and Andrew March for his editorial assistance.

and private parties. These claims rely on the common law or existing environmental statutes to address climate change-related harms and reduce greenhouse gas emissions. This Note focuses on recent public nuisance claims in which plaintiffs have sued significant greenhouse gas emitters to restrict their emissions or recover for damages caused by climate change.

Climate change litigation faces an uphill battle. There are numerous grounds on which plaintiffs might lose, and until recently, every court to address such claims dismissed them without reaching the merits. However, climate change litigation will continue, and every greenhouse gas emitter will face the threat of being dragged into court. Eventually, a court may reach the merits, and if so, it will be confronted with the issue of whether to adopt a theory of liability under which nearly every American is a tortfeasor.

---

3. See infra notes 14–16 and accompanying text.
4. For example, plaintiffs have turned to the Clean Air Act, the National Environmental Policy Act, and the Endangered Species Act as potential avenues for reducing greenhouse gas emissions. See Massachusetts v. EPA, 549 U.S. 497, 532 (2007) (holding that the EPA has authority to regulate carbon dioxide under the Clean Air Act because it is an “air pollutant”); Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin., 538 F.3d 1172, 1219–20 (9th Cir. 2008) (holding that the NHTSA failed to provide sufficient justification for its decision not to complete an environmental impact statement for its final fuel economy standards); Complaint for Declaratory and Injunctive Relief at 1, Ctr. for Biological Diversity v. Kempthorne, No. C 08-1339 CW (N.D. Cal. Apr. 28, 2008) (alleging that the Secretary of Interior violated the Endangered Species Act by failing to take action on a petition to list a species that is threatened by climate change).
7. Examples of grounds on which courts might dismiss climate change litigation include: lack of standing, displacement of the federal common law by the Clean Air Act, the political question doctrine, and failure to show causation. See, e.g., id. at 744–59; Thomas W. Merrill, Global Warming as a Public Nuisance, 30 Colum. J. Envtl. L. 293, 294 (2005).
9. Legislators and regulators will face similar challenges in designing comprehensive greenhouse gas legislation and regulation. For example, they will be forced to decide whether to ignore greenhouse gas emissions until they reach a threshold level. Similarly, they will be forced to decide whether to
Plaintiffs argue that their claims are “ordinary” public nuisance actions—the type courts have decided for centuries. However, the claim in *Native Village of Kivalina v. ExxonMobil Corp.*, 10 a public nuisance action filed in September 2007, is far from “ordinary.” 11 In *Kivalina*, the plaintiffs advance a theory that would create strict, joint, and several liability for greenhouse gas emitters. The plaintiffs seek recovery from only a handful of defendants, but under the plaintiffs’ theory, every emitter of greenhouse gases could be liable in a public nuisance action—liable not only for the emitter’s contribution to climate change, but liable for all climate change-related harm suffered by the plaintiffs. As one of the defendants explains: “Plaintiffs seek to hold a handful of U.S. businesses . . . liable in damages, on nuisance and conspiracy theories, for what plaintiffs themselves explicitly allege to be harms resulting from *centuries of all human activities across the entire planet Earth.*” 12 Never before has public nuisance law been used to create a theory of liability under which nearly every American is potentially liable. 13

Part I of this Note explains how the *Kivalina* plaintiffs’ theory of liability would impose strict, joint, and several liability on every emitter of greenhouse gases. But it is unlikely that courts will accept this extreme result—not without finding a way to avoid imposing liability on certain categories of emitters. Part II identifies the various line-drawing mechanisms courts might employ to distinguish between various categories of emitters. Courts could use various common law theories to draw these lines, including the *de minimis* principle and the “live and let live” principle. Instead of exempting entire categories of emitters, courts could reject portions of the theory of liability, either by rejecting strict liability and requiring that a defendant’s conduct be unreasonable or by rejecting joint and several liability and apportioning damages based on each defendant’s contribution to atmospheric concentrations of greenhouse gases. Part III evaluates these line-drawing mechanisms using three criteria: the mechanism’s effectiveness at (1) reducing the number of potential defendants, (2) limiting liability for certain categories of emitters, and (3) constraining judicial discretion. Each mechanism has its respective limitations, but all have potential to mitigate the undesirable consequences of strict, joint, and several liability.

---

10. See generally Complaint for Damages, supra note 5.
11. Cf. Am. Elec. Power Co., 406 F. Supp. at 272 (“Plaintiffs advance a number of arguments why theirs is a simple nuisance claim of the kind courts have adjudicated in the past, but none of the pollution-as-public-nuisance cases cited by Plaintiffs has touched on so many areas of national and international policy.” (footnote omitted)).
12. Notice of Motion and Motion of Certain Oil Company Defendants to Dismiss Plaintiffs’ Complaint Pursuant to Fed. R. Civ. P. 12(b)(6), Memorandum of Points and Authorities at 1, Native Vill. of Kivalina v. ExxonMobil Corp., No. 08-cv-01138 (N.D. Cal. June 30, 2008) [hereinafter Motion of Oil Company Defendants].
Apportioning damages best satisfies the above criteria, but to utilize that mechanism, a court would need to relax the evidentiary burden traditionally imposed on defendants who seek to apportion liability where indivisible harm exists.

I. FRAMING PUBLIC NUISANCE CLAIMS

Commentators have identified various common law doctrines that could provide a basis for addressing climate change, including nuisance (public and private), public trust, and products liability. Many commentators agree that federal legislation, which could produce a comprehensive regulatory regime to address climate change, would be preferable to a common law approach. Nevertheless, in the absence of such a federal regime, plaintiffs are moving forward. Based on the cases filed to date, plaintiffs have identified public nuisance law as providing the best chance for success. However, some commentators remain skeptical about the potential success of these lawsuits.

This Note will focus primarily on climate change litigation as framed by the plaintiffs in *Native Village of Kivalina v. ExxonMobil Corp.* Approximately 400 Inupiat Eskimos live in the Native Village of Kivalina, which sits on a barrier island off of Alaska’s northwest coast. In 2007, the Native Village of Kivalina and the City of Kivalina (“Kivalina plaintiffs”) sued nineteen electric utilities and fossil fuel companies (“Kivalina defendants”) for damages, alleging that the defendants’ greenhouse gas emissions contributed to a public nuisance.

---

14. See, e.g., Hsu, supra note 6, at 732–43.
17. See, e.g., Richard A. Epstein, Nuisance Law: Corrective Justice and Its Utilitarian Constraints, 8 J. LEGAL STUD. 49, 99, 101–02 (1979) (explaining that public regulation is “the only possible way” to deal with air pollution); Grossman, supra note 16, at 6 (explaining that while a more comprehensive approach might be preferable, climate change litigation remains the best alternative in the absence of political action).
19. See, e.g., Hsu, supra note 6, at 749; Merrill, supra note 7, at 332–33; see also Epstein, supra note 17, at 101–02 (explaining that even though “[e]very automobile . . . creates a nuisance by the emission of smoke and other pollutants[,] . . . it is inconceivable for practical reasons to entertain the prospect of systematic redress for each violation of individual rights”).
20. Complaint for Damages, supra note 5. *Kivalina* is the most recent iteration of public nuisance-based climate change litigation, building upon legal theories developed in *Connecticut v. American Electric Power Co.* and *California v. General Motors Corp.* There had been no decision or settlement in *Kivalina* at the time this Note was published.
21. Id. at 1.
22. Generally, a public entity brings a public nuisance action. However, a private plaintiff is entitled to bring a public nuisance action when “the plaintiff’s damage[s] be different in kind, rather than in
under the federal common law and that the plaintiffs suffered a special injury from this nuisance. The Kivalina plaintiffs allege that climate change is causing the island on which their village is located to erode because sea ice, which protects the island from winter storms, is present for fewer months each year. The plaintiffs expect that it will be necessary to relocate their village and are seeking to recover the $100–$400 million expected cost of relocation.

This Part will explain why climate change litigation based on public nuisance common law would create strict, joint, and several liability for greenhouse gas emitters, leading to an unprecedented and unrealistic number of potential tortfeasors. First, the claims focus on the interference with public rights—for instance, environmental damage and health and welfare impacts—caused by climate change. By ignoring emitters’ conduct, the claims advance a theory of strict liability. Once atmospheric concentrations of greenhouse gases reach a certain threshold—one at which there is an unreasonable interference with a public right—a public nuisance exists. Second, the claims rely on joint and several liability because of the indivisible nature of the harm. By alleging joint and severable liability, the plaintiffs seek to hold a limited number of defendants liable for all of the climate change-related harms experienced by the plaintiffs. Third, the claimants seek damages, rather than injunctive relief. Injunctive relief would require a defendant to stop or reduce its own emissions. In an action for damages, however, a defendant can be held liable for the harm caused by greenhouse gas emitters. Finally, greenhouse gas emissions have the same effect no matter the emitter’s location and, once emissions enter the atmosphere, they cannot be traced to a particular source. Therefore, as claims are currently framed, if a coal-fired power plant is strictly, jointly, and severally liable for climate change-related harms, so is an automobile owner.

A. STRICT LIABILITY

The Kivalina plaintiffs advance a theory of strict liability, yet they refer to their theory as such only once—in a footnote. Under their theory, a plaintiff...
need not show either intent or unreasonable conduct on the part of the defendant to prevail.28 The sole focus is on whether there is an unreasonable interference with a public right. Professor Thomas Merrill describes this position as a “trespass” mode of analysis, which “reflects a kind of strict liability, deeming conduct unreasonable when it causes harm that is ‘serious’ or ‘severe’ and compensation of all victims of the harm would be feasible.”29 As Professor Merrill recognizes, it is predictable that plaintiffs in climate change litigation “will rely on cases and commentary from the trespass mode, while the defendants will invoke cases and commentary from the cost-benefit mode.”30 “[B]ecause the trespass [or strict liability] approach assumes that nuisance law is about enforcing ‘rights,’ [it] frames the inquiry in a way that is generally favorable to plaintiffs.”31

As explained in the Restatement, a public nuisance exists where there is “an unreasonable interference with a right common to the general public.”32 The Restatement lists three circumstances under which a court could find that an interference is unreasonable:

(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.33

The comments to the Restatement make it clear that “any one [of these circumstances] may warrant a holding of unreasonableness.”34 The first circumstance gives no consideration to the defendant’s conduct; rather, it focuses on the interference with a public right.35 The second circum-

---

29. Merrill, supra note 7, at 329; see RESTATEMENT (SECOND) OF TORTS § 826(b) (1979).
30. Merrill, supra note 7, at 329. “Under the cost benefit mode, courts attempt to weigh the harm to the plaintiff against the benefits of the defendant’s conduct, in order to determine whether the challenged conduct should be deemed a nuisance.” Id.; see RESTATEMENT (SECOND) OF TORTS § 826(a) (1979).
31. Merrill, supra note 7, at 330.
32. RESTATEMENT (SECOND) OF TORTS § 821B(1) (1979) (emphasis added).
33. Id. § 821B(2).
34. Id. § 821B cmt. e.
35. The Restatement explains that “[a] public right is one common to all members of the general public. It is collective in nature and not like the individual right that everyone has not to be assaulted or defamed or defrauded or negligently injured.” Id. § 821B cmt. g. In the context of public nuisances,
stance considers only whether the conduct is otherwise lawful—that is, whether the activity is a nuisance per se. 36 The third circumstance incorporates a knowledge requirement. 37 The Kivalina plaintiffs focus on the first circumstance because it narrowly focuses on the interference without considering the actor’s knowledge or the reasonableness of the actor’s conduct. They argue that climate change satisfies the first circumstance because environmental harms, like those caused by climate change, are commonly considered interferences with public rights. 38 The most recent report of the Intergovernmental Panel on Climate Change supports the Kivalina plaintiffs’ position: climate change creates an unreasonable interference with public rights. 39

Once plaintiffs establish that an unreasonable interference exists, some courts have been willing to impose liability in the absence of fault or unreasonable conduct. 40 In Wood v. Picillo, the defendants operated a hazardous waste dump on their property. 41 Some of the waste escaped and “threaten[ed] both aquatic wildlife and human beings with possible death, cancer, and liver disease.” 42 The defendants appealed the trial court’s order “to finance cleanup and removal of the toxic wastes,” 43 arguing that the plaintiffs failed to prove that the defendants acted negligently. 44 The court held that the plaintiffs were not required to show negligence in a public nuisance action and explained that “plaintiffs may recover in nuisance despite the otherwise nontortious nature of the conduct which create[d] the injury.” 45 The defendant in Commonwealth v. Barnes & Tucker Co. closed a mine after thirty years of operation. 46 The mine filled with contaminated water, which later discharged into a river. 47 Relying on public nuisance law, the court enjoined the discharge of water and held that “[t]he public rights include “the public health, the public safety, the public peace, the public comfort[, and] the public convenience.” Id. § 821B(2)(a).

37. Abrams and Washington argue that the knowledge component of the third circumstance is “confused.” Id. at 376. As they explain, “[w]hether the actor has knowledge that the activity in question has an effect on a public right, much less a significant effect, should not be a consideration in a finding of nuisance.” Id.
38. See Abate, supra note 28, at 600.
40. Because no court has reached the merits in a case involving climate change litigation, there is no climate change-specific precedent on which courts can rely. Therefore, this Note focuses, where possible, on cases from other areas of environmental law, which provide the closest analogue to climate change litigation.
42. Id. at 1248.
43. Id. at 1245.
44. Id. at 1247.
45. Id. (emphasis added).
47. Id.
absence of facts supporting concepts of negligence, foreseeability or unlawful conduct is not in the least fatal to a finding of the existence of a common law public nuisance.”\textsuperscript{48} And in \textit{Illinois v. City of Milwaukee}, the court upheld an injunction against the City of Milwaukee, prohibiting certain discharges of raw sewage by the city into Lake Michigan.\textsuperscript{49} The court explained that when “pollution endangers the public health, injunctive relief is proper, without resort to any balancing.”\textsuperscript{50}

Courts outside of the U.S. have also struggled with whether to impose strict liability in the public nuisance context. The Canadian Supreme Court recently embraced the strict liability approach, holding that Quebec civil law provides “a scheme of no-fault civil liability in respect of neighbourhood disturbances.”\textsuperscript{51} The basic issue in the case was whether the court should adopt a liability scheme that imposes liability for public nuisances based upon “the extent of the annoyances suffered by the victim rather than on the conduct of the person who allegedly caused the harm.”\textsuperscript{52} This mirrors the issue in U.S. climate change litigation: whether to focus on the unreasonableness of the interference or on the unreasonableness of the conduct. Adopting the former approach, the court held that a cement plant was liable for damages caused by its emissions even though its conduct was reasonable.\textsuperscript{53}

Once a court finds that a public nuisance exists, the result of strict liability is that everyone has an obligation “not to contribute—even slightly—to the nuisance.”\textsuperscript{54} This obligation extends beyond the defendants in a particular case. That is, every individual has an obligation not to contribute to the nuisance and can be held liable if they do contribute to it.

While this strict liability approach has some support, other scholars endorse an approach that considers defendants’ conduct.\textsuperscript{55} The California Supreme Court adopted the latter approach in \textit{San Diego Gas & Electric Co. v. Superior Court}.\textsuperscript{56} Under this theory, a defendant is liable under public nuisance law only when the defendant’s conduct—for example, emitting greenhouse gases—is

\begin{itemize}
\item \textsuperscript{48} \textit{Id.} at 883.
\item \textsuperscript{49} \textit{Illinois v. City of Milwaukee}, 599 F.2d 151, 177 (7th Cir. 1979), \textit{rev’d on other grounds}, City of Milwaukee v. Illinois, 451 U.S. 304 (1981).
\item \textsuperscript{50} \textit{Id.} at 166.
\item \textsuperscript{51} St. Lawrence Cement Inc. v. Barrette, [2008] 3 S.C.R. 392, ¶ 3 (Can.). Although the decision in this case was based on Quebec civil law, the Court explained that the result would be the same under the Canadian common law. \textit{Id.} at ¶¶ 76–79.
\item \textsuperscript{52} \textit{Id.} at ¶ 20.
\item \textsuperscript{53} \textit{Id.} at ¶¶ 1–3.
\item \textsuperscript{54} Hunter & Salzman, \textit{supra} note 2, at 1793.
\item \textsuperscript{55} Compare Abate, \textit{supra} note 28, at 600 (endorsing a strict liability approach to public nuisance law), and Abrams & Washington, \textit{supra} note 28, at 367–78 (same), with Jesse Dukeminier et al., \textit{Property} 661 (6th ed. 2006) (endorsing a balancing test approach to public nuisance law), and Hsu, \textit{supra} note 6, at 735–36 (same). Abrams and Washington explain: “The public should not be made to suffer an unreasonable interference with its rights merely because the entity responsible for the interference is acting nonnegligently and without bad intent.” Abrams & Washington, \textit{supra} note 28, at 370.
\item \textsuperscript{56} San Diego Gas & Elec. Co. v. Superior Court, 920 P.2d 669, 751–52 (Cal. 1996).
\end{itemize}
unreasonable. The significance of analyzing the defendants’ conduct is explored in section II.C.

B. JOINT AND SEVERAL LIABILITY

The Kivalina plaintiffs advance a theory of joint and several liability based on the indivisible nature of climate change-related harm. Joint and several liability is imposed where multiple parties cause harm, the harm is indivisible, and there is no reasonable basis for apportioning the harm. Each tortfeasor is liable for the entire amount of the damages, but a plaintiff is entitled to collect no more than the full damages award. Under this theory, the Kivalina plaintiffs could recover the entire amount of climate change-related damages from a single defendant.

To recover, plaintiffs must prove that a particular defendant caused the harm. This requirement is important because it presents one of the most significant obstacles to the Kivalina plaintiffs’ recovery. A defendant is a cause in fact where the defendant was “a substantial factor in bringing about the harm.” In the climate change context, a plaintiff would be unable to prove that any defendant, acting alone, would have caused climate change. Therefore, the Kivalina plaintiffs turned to multiple polluter case law to provide support for their theory of causation. They argue that “it is not necessary to trace molecules. Rather, each polluter who contributes to the nuisance is liable.”

The plaintiffs’ focus on the interference, as explained in section I.A, helps to frame their causation argument because the plaintiffs will want courts to focus on causation in the aggregate rather than the contribution of each emitter.

In multiple polluter cases, even where each polluter’s individual contribution would be harmless, courts have deemed each polluter a cause in fact of the

57. See Restatement (Second) of Torts § 433A (1965); see also In re Bell Petroleum Servs., Inc., 3 F.3d 889, 895–97 (5th Cir. 1993) (applying section 433A).
59. See Keeton et al., supra note 22, § 41, at 263 (explaining that causation is an “essential element” of any tort).
60. See, e.g., Gerrard, supra note 13, at 42–43 (“While few seriously dispute any more that greenhouse gas emissions in general are a major cause of climate change, proving a specific defendant’s emissions led to a specific plaintiff’s injury is probably impossible.” (footnote omitted)); Bruce Ledewitz & Robert D. Taylor, Law and the Coming Environmental Catastrophe, 21 WM. & Mary Envtl. L. & Pol’y Rev. 599, 615 (1997) (identifying causation as an obstacle for climate change litigation). The EPA recently concluded that there is insufficient scientific data to show a “causal connection between [greenhouse gas] emissions from a particular facility and effects on listed species or their habitats, for ESA purposes”). Letter from Robert J. Meyers, Principal Deputy Assistant Adm’r, Office of Air & Radiation, EPA to H. Dale Hall, Dir., U.S. Fish & Wildlife Serv. and James Lecky, Dir., Office of Protected Res., Nat’l Marine Fisheries Serv. 3 (Oct. 3, 2008) (on file with author).
61. See Restatement (Second) of Torts § 431(a) (1965).
63. Plaintiffs’ Memorandum in Opposition, supra note 27, at 37 (emphasis added).
harm.\textsuperscript{64} For example, in \textit{Woodyear v. Schaefer}, butchers, brewers, hair manufacturers, and soap broilers all discharged refuse into a river.\textsuperscript{65} The refuse collected at the plaintiff’s mill, creating an “offensive smell,” causing disease, and making employees sick.\textsuperscript{66} The plaintiff sued one of the butchers who discharged refuse into the river.\textsuperscript{67} The court held that the butcher was liable, explaining that a person may be liable for contributing to a public nuisance even if his contribution to the nuisance is “slight and scarcely appreciable.”\textsuperscript{68}

The \textit{Kivalina} plaintiffs rely on \textit{Woodyear} and other multiple polluter cases to establish a rule that “each polluter who contributes to the nuisance is liable.”\textsuperscript{69} Therefore, if a court accepts the plaintiffs’ argument that greenhouse gas emissions have created a public nuisance, every emitter of greenhouse gases will be “deemed to have caused the harm.”\textsuperscript{70} One criticism of joint and several liability is that it works well only in situations where the number of defendants is limited—“simple type” nuisances.\textsuperscript{71} Critics argue that where large numbers of defendants are involved, “[i]t is necessary to back off the joint causation rules to find some principle of proration that applies to the larger class.”\textsuperscript{72} One such method of proration is discussed in section II.D.

The \textit{Kivalina} plaintiffs dispute that they are trying to impose joint and several liability on all greenhouse gas emitters.\textsuperscript{73} However, with one minor exception, they fail to explain how any emitter of greenhouse gases would escape liability under their theory. The exception is the plaintiffs’ distinction between natural and non-natural sources of greenhouse gases.\textsuperscript{74} Although this exception would seem to exempt the carbon dioxide that humans emit through respiration, it would not exempt non-natural emissions even if they were negligible. The plaintiffs repeatedly emphasize that the \textit{quantity} of greenhouse gases emitted by the defendants distinguishes those defendants from other emitters.\textsuperscript{75} But the quantity of emissions seems irrelevant under the plaintiffs’ own theory of liability.\textsuperscript{76} In fact, the plaintiffs emphasize the \textit{relatively small contribution} of each defendant in the cases on which they rely, reinforcing the conclusion that

\begin{itemize}
  \item \textsuperscript{64} Pawa & Krass, \textit{supra} note 62, at 450.
  \item \textsuperscript{65} Woodyear v. Schaeffer, 57 Md. 1, 1 (1881).
  \item \textsuperscript{66} \textit{Id}. at 2.
  \item \textsuperscript{67} \textit{Id}. at 5.
  \item \textsuperscript{68} \textit{Id}. at 5.
  \item \textsuperscript{69} Plaintiffs’ Memorandum in Opposition, \textit{supra} note 27, at 37.
  \item \textsuperscript{70} Motion of Oil Company Defendants, \textit{supra} note 12, at 7 (quoting \textit{In re MTBE Prods. Liab. Litig.}, 447 F. Supp. 2d 289, 301 (S.D.N.Y. 2005)) (internal quotation marks omitted).
  \item \textsuperscript{72} Epstein, \textit{supra} note 71, at 871.
  \item \textsuperscript{73} Plaintiffs’ Memorandum in Opposition, \textit{supra} note 27, at 36–37.
  \item \textsuperscript{74} \textit{Id}. at 37.
  \item \textsuperscript{75} \textit{Id}. at 42, 44.
  \item \textsuperscript{76} \textit{Id}. at 44 (“In any event, as recognized by the multiple-polluter case law, \textit{each polluter who contributes to a nuisance is liable therefor}.” (emphasis added)).
\end{itemize}
every contributor is potentially liable.77

C. DAMAGES REMEDY

Public nuisance law provides two possible remedies: damages and injunctive relief.78 Injunctive relief is more common, and some commentators question whether a damages remedy is even available in a public nuisance action.79 The advantage of a damages remedy is that it does not require courts to set “numerical pollution limits,”80 nor does it “constitute a policy determination.”81 Therefore, it is more likely to survive a challenge under the political question doctrine.82 Nevertheless, the court in California v. General Motors Corp., relying on the political question doctrine, dismissed a public nuisance action in which the plaintiff sought damages from automobile manufacturers.83

Despite the appeal of a damages remedy in avoiding the political question doctrine, damages awards raise fairness questions when joint and several liability is involved. Where liability is joint and several, injunctive relief is viewed as a “modest” remedy because it “only requires the defendant to exercise responsibility for its own conduct.”84 In contrast, a damages remedy “requires the defendant to pay for more than the defendant’s proportionate share of the harm.”85

Notwithstanding their advantages and disadvantages, damages seem like the only appropriate remedy for the Kivalina plaintiffs. If in fact destruction of the village is imminent and relocation is necessary, an injunction will not provide any sort of relief to the plaintiffs.86 Seeking damages for past harm appears to be the only realistic avenue for recovery.

---

77. Id. at 37–38 (citing California v. Gold Run Ditch & Mining Co., 4 P. 1152, 1156–57 (Cal. 1884); Lockwood Co. v. Lawrence, 77 Me. 297, 309–10 (1885); Woodyear v. Schaefer, 57 Md. 1, 9–10 (1881)).
81. Abate, supra note 28, at 627.
82. See id. at 598, 628. The political question doctrine describes situations in which federal courts lack jurisdiction because resolution of the issue is constitutionally committed to another branch of government. E.g., Baker v. Carr, 369 U.S. 186, 217 (1962).
83. California v. Gen. Motors Corp., No. C06-05755, 2007 WL 2726871, at *16 (N.D. Cal. Sept. 17, 2007). That case involved a suit by the State of California against major automakers (GM, Toyota, Ford, Honda, Chrysler, and Nissan), seeking damages “for creating, and contributing to, an alleged public nuisance—global warming.” Id. at *1. The court concluded that the claim presented a political question because it would require the court to make “an initial policy determination of a kind clearly for nonjudicial discretion.” Id. at *6 (citing Baker, 369 U.S. at 217).
84. Pawa & Krass, supra note 62, at 455.
85. Id.
86. See GAO, supra note 25, at 29–32.
D. SOURCES OF EMISSIONS

The type of pollutants responsible for climate change—largely, carbon dioxide—is significant because the emissions of a particular greenhouse gas from each source are identical, disperse and remain in the atmosphere, and cannot be traced to a particular source. Further, carbon dioxide has been emitted in large quantities since the Industrial Revolution. Unlike some pollutants that can be traced primarily (or entirely) to the industrial sector, carbon dioxide emissions from the household sector are significant. Even human respiration results in the release of carbon dioxide. While admitting that greenhouse gases are “naturally occurring and emitted by everyone,” counsel for the Kivalina plaintiffs rejects the “everybody does it” defense. However, to the extent that carbon dioxide is responsible for climate change, every emitter—that is, every person—does contribute to the problem.

In selecting defendants, the Kivalina plaintiffs followed a pattern similar to other climate change litigation. Selecting the proper defendant is difficult because millions of greenhouse gas emitters exist. From these millions of emitters, plaintiffs in climate change litigation have identified three categories of defendants as most vulnerable: fossil fuel companies, electric utilities, and automobile manufacturers. Nevertheless, the Kivalina defendants realize that the scope of the plaintiffs’ theory goes beyond these “vulnerable defendants.” Future plaintiffs “would be entitled to sue any one contributor—perhaps a farmer driving a tractor in Nebraska, or a shrimp fisherman running his boat off the Mississippi Gulf shore. [Future] defendants likewise would be entitled to implead all the billions of other worldwide contributors to the alleged harm.”

II. POTENTIAL LINE-DRAWING MECHANISMS

Courts are probably unwilling to adopt a theory of liability that could be used to hold any one of millions of greenhouse gas emitters liable for all harms caused by climate change. This unwillingness stems from two related con-

---
87. IPCC, supra note 39, at 5–6.
89. This is not to suggest that human respiration has caused global warming; it is simply to illustrate that carbon dioxide emissions cannot be traced to a limited number of discrete sources.
90. Pawa, supra note 80, at 11. Pawa suggests that “[f]ocusing on ‘breathing’ is intellectually dishonest” even though the carbon dioxide emitted through respiration is indistinguishable from the carbon dioxide emitted from burning fossil fuels. Id.
92. Motion of Oil Company Defendants, supra note 12, at 7.
93. Hsu, supra note 6, at 750–51.
cerns. First, courts will want to limit the number of potential defendants in climate change litigation. Second, courts will want to exempt small emitters from liability—if not entirely, at least from liability that exceeds the harm attributable to those emitters. A court that reaches the merits in a public nuisance action involving climate change will be forced to address these concerns. Even if, as in Kivalina, “small” emitters are not before the court, the court will probably discuss in its decision (and almost certainly consider before reaching a decision) why the decision will not apply to “small” emitters (however the court chooses to define that category).

The Kivalina plaintiffs seem to recognize that the court will have difficulty accepting their broad theory of liability. They argue that the defendants’ emissions “quantitatively dwarf by many orders of magnitude the greenhouse gas emissions of the ordinary citizen.” They also argue that the defendants’ emissions differ qualitatively because of the defendants’ knowledge of the harm they were causing. Therefore, the plaintiffs argue that the “[d]efendants are . . . incorrect in contending that everyone would be liable for global warming.” Yet the strict, joint, and several liability scheme outlined by the plaintiffs does not include a theory under which small emitters might escape liability. Further, the plaintiffs’ sweeping language contradicts their argument. A court will want to rely on a legal theory that will allow future courts to draw lines between various categories of emitters.

Massive litigation is not unfamiliar in environmental law. As Michael Gerrard explains, “[t]he United States . . . has extensive experience with massive litigation over environmental liability from navigating the Comprehensive Environmental Response, Compensation, and Liability Act (‘CERCLA’).” But as

94. See id. at 751; see also Metro-North Commuter R.R. v. Buckley, 521 U.S. 424, 433 (1997) (refusing to expand the doctrine of negligent infliction of emotional distress under the federal common law because of the Court’s concern about opening the floodgates to relatively “trivial” claims); Epstein, supra note 71, at 877 (explaining that strict, joint, and several liability under the Comprehensive Environmental Response, Compensation, and Liability Act “multiplies the number of parties beyond the level to which the legal system could sensibly respond”).

95. See Hsu, supra note 6, at 750–51; cf. United States v. Burlington N. & Santa Fe Ry., 520 F.3d 918, 952–64 (9th Cir. 2008) (Bea, J., dissenting from the order denying the petition for rehearing en banc) (arguing that it is “unfair[]” to impose joint and several liability on a defendant under CERCLA where the defendant provides a reasonable basis for apportionment).

96. Plaintiffs’ Memorandum in Opposition, supra note 27, at 42.

97. Id.

98. Id.

99. Id. at 37 (“In a multiple polluter case sounding in public nuisance . . . each polluter who contributes to the nuisance is liable.”); id. at 44 (“[A]s recognized by the multiple-polluter case law, each polluter who contributes to a nuisance is liable therefor.”).

100. Gerrard, supra note 13, at 40 (citing the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601–9675 (2000)). CERCLA imposes liability for cleanup costs associated with “a release, or a threatened release . . . of a hazardous substance.” 42 U.S.C. § 9607(a). Liable parties include the current and past owners and operators of the site of the release or threat of release, those who arranged for disposing the hazardous substance, and those who transported the hazardous substance to the site. Id. Generally, courts have interpreted the statute as imposing strict, joint, and several liability. See In re Bell Petroleum Servs., Inc., 3 F.3d 889, 895 (5th Cir. 1993).
CERCLA has demonstrated, a regime that imposes liability on large numbers of defendants has large transaction costs, leads to inefficient cleanups, hurts relationships between business and government, and engenders opposition when it sweeps “[m]any tiny companies . . . into the liability net for their lawful actions.”

Some courts expressed frustration over their inability to protect small polluters from CERCLA’s reach because the statute limited the number of available defenses, preventing courts from relying on equitable doctrines developed under the common law. Other courts adopted creative line-drawing mechanisms to avoid imposing liability despite CERCLA’s exclusive list of available defenses. These concerns, and others, will motivate courts to engage in line drawing, but unlike courts deciding CERCLA claims, courts hearing climate change-related claims will not be constrained by a CERCLA-like statute in adopting line-drawing mechanisms.

But not all line-drawing mechanisms are equally effective. A line-drawing mechanism should satisfy three criteria: (1) limit the number of potential defendants in climate change litigation; (2) limit (or eliminate) small emitters’ potential liability; and (3) constrain judicial discretion. The first two criteria address courts’ concerns about imposing strict, joint, and several liability but allow courts significant discretion in imposing liability. The third criterion canalizes this discretion. In Metro-North Commuter Railroad v. Buckley, the Supreme Court resisted the opportunity to expand the doctrine of negligent infliction of emotional distress under the federal common law, citing the difficulty courts would face in separating meritorious claims from trivial ones.

Judge Posner expressed a similar concern in the context of substantive due process, explaining that one criticism of substantive due process is that “[t]he concept invests judges with . . . uncanalized discretion to invalidate federal and state legislation.” Further, “it is difficult to come up with limiting concepts that are not completely ad hoc.” Line-drawing in the public nuisance context presents similar concerns. A mechanism that allows courts to exempt certain categories of emitters from liability may also allow courts to proceed in an ad hoc fashion. This would introduce significant unpredictability into climate change litigation.

101. Gerrard, supra note 13, at 41–42.
102. See 42 U.S.C. § 9607(b) (providing an exclusive list of available defenses); see, e.g., Blasland, Bouck & Lee, Inc. v. City of N. Miami, 283 F.3d 1286, 1305–06 (11th Cir. 2002); United States v. Mexico Feed & Seed Co., 980 F.2d 478, 484 n.5 (8th Cir. 1992).
103. See Acushnet Co. v. Mohasco Corp., 191 F.3d 69, 79 (1st Cir. 1999) (applying a de minimis exception). The court explained that “the costs and inherent unfairness in saddling a party who has contributed only trace amounts of hazardous waste with joint and several liability for all costs incurred outweigh the public interest in requiring full contribution from de minimis polluters.” Id.
107. Id. at 466.
change litigation.

The question remains: Under what theory could a greenhouse gas emitter escape liability under the Kivalina plaintiffs’ theory of liability? This Part will examine four mechanisms courts might employ to draw lines to avoid holding each emitter of greenhouse gases liable for all climate change-related harms: a de minimis exception, the live and let live principle, an unreasonable conduct requirement, and apportionment of liability. This Part will also analyze the effectiveness of each mechanism in limiting the potential number of defendants in climate change litigation, exempting “small” emitters from liability (or, at least, limiting their potential liability), and constraining judicial discretion.

A. DE MINIMIS CONTRIBUTION

To avoid imposing liability on every greenhouse gas emitter, a court could require a threshold level of emissions before imposing liability, thereby exempting de minimis contributors from liability.108 Although cases applying such an exception in public nuisance actions are scarce, courts have at least raised the possibility that a de minimis exception exists.109 Commentators have recognized that such exceptions are appropriate when courts evaluate nuisances from the trespass (or strict liability) mode.110 Without such an exception, “every property owner . . . would have a cause of action against any neighboring industry which emitted particulate matter into the atmosphere, or even a passing motorist, whose exhaust emissions come to rest upon another’s property.”

In Harley v. Merrill Brick Co., a homeowner filed a public nuisance action against a neighboring brick company, alleging that soft-coal smoke from the brick company’s kiln damaged her property.112 The court held that the brick company could be held liable for the damages caused by its emissions even though a nearby factory, railroad, and city burned large quantities of soft coal, which contributed to the homeowner’s injuries.113 Recognizing that many households contributed to the plaintiff’s alleged injuries, the court explained that the contribution from individual households “might be a contribution . . . so slight

108. The term de minimis is a short form for de minimis non curat lex, which means “[t]he law does not concern itself with trifles.” BLACK’S LAW DICTIONARY 464 (8th ed. 2004).
109. See, e.g., Harley v. Merrill Brick Co., 48 N.W. 1000, 1002 (Iowa 1891) (suggesting, in dicta, that a de minimis exception might be available in public nuisance actions); Dep’t of Env’t Prot. v. Ventron Corp., 440 A.2d 455, 463 (N.J. Super. Ct. App. Div. 1981) (dismissing an action against de minimis contributors). Courts also use the de minimis exception when referring to insignificant harms as opposed to insignificant contributions. See, e.g., Pottock v. Cont’l Can Co., 211 A.2d 622, 625 (Del. Ch. 1965) (refusing to enjoin a junkyard owner’s operation of a smokestack that caused soot to fall on the plaintiff’s property because any damage was de minimis); MacArtor v. Graylyn Crest III Swim Club, Inc., 187 A.2d 417, 421 (Del. Ch. 1963) (refusing to enjoin a swim club from discharging starting guns during swim meets because the interference was de minimis).
110. See Merrill, supra note 7, at 329–30 (citing Epstein, supra note 17).
112. Harley, 48 N.W. at 1000.
113. Id. at 1001.
and inconsequential that the law would not take notice of it.” Although that language was dicta, it demonstrates one court’s willingness to engage in line drawing to avoid imposing liability on a large number of households for a ubiquitous activity—burning coal for heat.

Another case that recognizes the potential for a de minimis exception is Illinois ex rel. Scott v. City of Milwaukee. In that case, pollution from numerous point and non-point sources was causing eutrophication in Lake Michigan. The defendants, point source polluters, argued that an injunction would be inappropriate because the plaintiffs could not “show[] that the elimination or reduction of [the defendant’s] discharges would . . . ‘measurably’ improve the condition of the lake.” However, the court explained that “[t]he correct rule would seem to be that any discharger who contributes an aliquot of a total combined discharge which causes a nuisance may be enjoined from continuing his discharge.” Despite this sweeping language, the court went on to state that “[t]here may be a discharge so small that, as a practical matter, it can be regarded as de minimis, even though as a logical matter it is still part of the whole.” Therefore, like the court in Harley, the court in Scott was careful to draw a line to prevent its decision from reaching every contributor.

The use of the de minimis exception is more prevalent in trespass actions, but the rationale for using the de minimis exception in trespass actions easily can be extended to public nuisance actions, particularly if strict liability applies. A trespass is any intrusion that deprives a person of exclusive possession of his land, and a trespasser “is subject to liability . . . irrespective of whether he thereby causes harm.” Rigid application of this rule—like rigid application of strict liability—can lead to inequitable results. Thus, courts have used the de minimis principle to avoid imposing liability in certain situations. For example, in Martin v. Reynolds Metals Co., the court explained that certain conduct “is not substantial enough to be regarded as a trespassory intrusion.” As an example, the court explained that “the casting of a candle beam upon the screen of a drive-in theater would not constitute an actionable invasion.”

In another trespass case, a farmer sued a lead company to recover damages allegedly caused by the accumulation of lead particulates and sulfoxide deposits on the farmer’s property. The court explained that the farmer might be able to recover damages under a trespass action “[i]f the intrusion interferes with the

114. Id. at 1002.
116. Id. at *20.
117. Id.
118. Id. at *22.
119. Id.
120. RESTATEMENT (SECOND) OF TORTS § 158 (1979).
121. 342 P.2d 790, 794 (Or. 1959).
122. Id.
right to exclusive possession of [the] property.”

However, the court was careful to limit the reach of its holding, explaining that “there is a point where the entry is so lacking in substance that the law will refuse to recognize it, applying the maxim [d]e minimis non curat lex.”

As the above cases illustrate, courts have been willing to adopt and extend common law doctrines to avoid inequitable results, particularly in the case of de minimis contributors. Given the great disparity between, for example, the amount of greenhouse gases produced by a coal-fired power plant and the amount produced by a single automobile, the de minimis exception may prove to be a tempting line-drawing mechanism for courts. A court could begin its analysis in one of two ways: (1) by considering defendants individually or (2) by considering defendants in groups.

Under the first approach, the court could calculate a defendant’s contribution to atmospheric concentrations of greenhouse gases by comparing the estimated total greenhouse gas emissions from a particular defendant to the atmospheric concentration of greenhouse gases. Then, the court could deem a particular percentage de minimis and exempt from liability any defendant that contributed less than that percentage. Alternatively, a court might determine that the data necessary to perform such a calculation is insufficient or simply prefer to make a rough calculation. The court could calculate the percentage of annual greenhouse gas emissions attributable to a particular defendant and exempt defendants from liability if their emissions fall below a certain threshold. The problem with this approach (and the latter, as well) stems from the ubiquitous nature of greenhouse gas emissions—millions of individuals contribute relatively small amounts. Once a court begins exempting de minimis emitters, the total exemption begins to look quite large. For example, if a court chose to draw the line at household emissions, nearly one-third of domestic carbon dioxide emissions would be exempt.

Instead of considering the contributions from individual defendants, a court could consider defendants as groups—fossil fuel companies, electric utilities, automobile manufacturers, households, and so on. The court would calculate each group’s contribution to atmospheric concentrations of greenhouse gases and exempt a group only if the group’s contribution was de minimis. Under this approach, a court probably would not exempt the household sector from liability. But if a court decided not to exempt household emissions, it becomes difficult to imagine what would constitute a de minimis contribution.

The individualized approach to determining de minimis contributions would

124. Id. at 529.
125. Id.
126. See Vandenbergh, supra note 88, at 1703. This illustrates one problem posed by climate change litigation generally—it frames climate change issues in an unproductive way. Attention is focused on a small group of greenhouse gas emitters when an effective, comprehensive approach to climate change would focus on all emitters. Unfortunately, this is reflective of the way greenhouse gas emissions regulation has been framed in the United States for more than thirty years. See id. at 1753.
allow courts to limit the number of potential defendants in climate change litigation and avoid imposing liability on individuals for everyday activities like driving to work and heating their homes. This satisfies two of the criteria for line drawing. But the *de minimis* exception provides little, if any, constraint on judicial discretion. While a court can set a particular percentage as *de minimis*, providing a numeric standard to guide future decisions and to give predictability, where the court draws the initial line will be entirely discretionary. And as explained above, whether a court considers individual defendants or defendants as groups will change the result. Further, even with one court setting a numeric standard, future courts may choose to draw the line elsewhere. This is the kind of ad hoc line drawing that courts should avoid.

B. LIVE AND LET LIVE

The live and let live rule, as described by Professor Epstein, could provide another line-drawing mechanism for courts.\(^{127}\) The rule rests on the premise that although “common and ordinary use of land” can cause a nuisance,\(^{128}\) no remedy should be available for low-level interferences.\(^{129}\) Normally, a nuisance exists because there is an “assumption that nuisances impose greater losses [on] their victims than they generate benefits to their perpetrators.”\(^{130}\) However, in the live and let live context, everyone is better off if the activity continues.\(^{131}\) The rule rests on the assumption that, in the absence of transaction costs, individuals would reach a similar result through private agreement. However, private agreement becomes impossible as the number of parties involved grows.\(^{132}\)

One justification for the rule is the reciprocal nature of the benefits and harms of the nuisance-causing activities. That is, “virtually all persons will be in separate individual instances both wrongdoers and victims.”\(^{133}\) Another justification is that “the administrative costs needed to resolve these low-level claims within the legal system would be very high, particularly in light of the small amounts in controversy.”\(^{134}\) The rule is also flexible: whether it protects an activity from liability can change over time. For example, “[t]he smells of horses are easily ignored under a live and let live rule in an age in which horses

---

127. Epstein, *supra* note 17, at 82–84 (citing Bamford v. Turnley, (1862) 3 B. & S. 66, 122 Eng. Rep. 27 (Exch. Chamber)). The Canadian Supreme Court based its decision in *St. Lawrence Cement* on a provision of the Quebec Civil Code that seems to codify the live and let live rule. See *supra* notes 51–53 and accompanying text. The provision states: “Neighbours shall suffer the normal neighbourhood annoyances that are not beyond the limit of tolerance they owe each other, according to the nature or location of their land or local custom.” R.S.Q., c. 64, s. 976 (1991).
130. *Epstein, supra* note 78, at 372.
131. *Id.*
132. *Id.*
133. Epstein, *supra* note 17, at 84.
134. *Id.*
are the universal means of transportation, but those same smells raise very
different questions now that the horse has given way to the automobile."135 A
more modern example might involve the noise from home air conditioners.136
Under the live and let live principle, a plaintiff could not enjoin (or recover
damages for) a neighbor’s operation of an air conditioner, particularly if it were
a hot summer day in a community where most members of the community had
air conditioners.

A court might be tempted to rely on the live and let live rule to exempt
activities similar to those that could be exempted under the de minimis excep-
tion—household-sector activities, such as commuting and home heating. How-
ever, there are problems with applying the live and let live rule in the context of
climate change litigation. First, the rule begins to lose its force when one ceases
to assume that everyone engages in a particular activity.137 And to apply the
rule, a court would be forced to make assumptions about which activities are
sufficiently universal to generate reciprocal benefits and harms. Second, the live
and let live rule is meant to apply in situations where the resulting harm is
slight.138 Even Professor Epstein is skeptical of the rule’s application to air
pollution because the average harms can exceed the average benefits.139 There-
fore, to apply the rule, a court would be forced to focus on the harm attributable
to a single emitter, or group of emitters, rather than the aggregate harm.

Like the de minimis principle, the live and let live rule would seem to satisfy
two of the criteria for evaluating line-drawing mechanisms. Courts could limit
the number of potential defendants and exempt from liability relatively small
contributors. The live and let live rule also provides some constraint on judicial
discretion because the rule requires courts to determine that the benefits of an
activity outweigh the costs.140 But beyond this basic constraint, the live and let
live rule does little to constrain courts’ discretion. For example, a court would
undertake a cost-benefit analysis to determine whether the benefits of certain
household activities exceed their costs. Often, there will be sufficient data to
support either conclusion (that is, that the benefits do or do not exceed the
costs). If a court determines that the benefits outweigh the costs, the rule
exempts an activity from liability as long as the court deems the activity
sufficiently ubiquitous such that the costs and benefits are generally reciprocal.
The live and let live rule’s ability to constrain judges is also limited by the fact

135. Id. at 85.
136. See generally Milton Roberts, Annotation, Existence of, and Relief from, Nuisance Created by
137. See Epstein, supra note 17, at 84.
138. See id. at 102.
139. See Epstein, supra note 71, at 876 (arguing that the live and let live rule “cannot and should not
excuse wholesale pollution that creates a serious danger to life and health”); Epstein, supra note 17, at
102 (“Half of the live and let live maxim is satisfied in that most persons who cause air pollution suffer
from it. Yet, unlike the usual live and let live situation, the damages that each inflict quickly become
greater than the benefits that each receives.”).
140. See Epstein, supra note 17, at 84.
that it is largely an academic invention rather than a rule rooted in the common law. That is, Professor Epstein relies almost entirely on law and economics theory (and one nineteenth century case) to describe the rule.141

C. UNREASONABLE CONDUCT

Instead of exempting a class of emitters from liability under the *de minimis* or live and let live principle, courts could reject the strict liability theory of public nuisance law and, instead, adopt a balancing approach.142 Under a balancing approach, a court would shift its focus from the reasonableness of the interference caused by greenhouse gas emissions to the reasonableness of the conduct that causes greenhouse gas emissions.143 An emitter would be liable only if its conduct was unreasonable. According to the Restatement, conduct is unreasonable if “the gravity of the harm outweighs the utility of the actor’s conduct.”144 This rule specifically addresses private nuisances, but the comments to the rule suggest that it may also be applicable to public nuisances.145 Shifting its focus to conduct would allow a court significant flexibility in drawing lines between categories of emitters.

The Restatement provides a non-exclusive list of factors that courts can use in assessing the gravity of the harm and the utility of the conduct. In evaluating the gravity of the harm, the Restatement suggests five “harm factors”:

(a) The extent of the harm involved;
(b) the character of the harm involved;
(c) the social value that the law attaches to the type of use or enjoyment invaded;
(d) the suitability of the particular use or enjoyment invaded to the character of the locality; and
(e) the burden on the person harmed of avoiding the harm.146

In evaluating the utility of the actor’s conduct, there are three “utility factors” to consider: “(a) the social value that the law attaches to the primary purpose of the conduct; (b) the suitability of the conduct to the character of the locality; and (c) the impracticability of preventing or avoiding the invasion.”147

In determining whether a particular defendant’s conduct is reasonable, a court will focus its attention on the utility factors because the harm factors generally

---

142. See Merrill, supra note 7, at 329. Merrill recognizes that “[n]uisance law generally . . . has long oscillated between a ‘trespass’ mode of analysis and a ‘cost-benefit’ mode of analysis.” Id. (citing Henry E. Smith, *Exclusion and Property Rules in the Law of Nuisance*, 90 Va. L. Rev. 965 (2004)).
143. See Dana, supra note 79 (manuscript at 4).
144. RESTATEMENT (SECOND) OF TORTS § 826 (1979).
145. Id. § 826 cmt. a.
146. Id. § 827.
147. Id. § 828.
will not vary based on the particular defendant. That is, the harm suffered by the plaintiff is the same regardless of whether the defendant’s conduct is reasonable. The only relevant harm factor is the extent of the harm, which will increase based upon the quantity of emissions from a particular defendant. Therefore, the primary opportunity for line drawing rests in the utility analysis.

Professor Hsu identifies the U.S. electricity generation industry as the most vulnerable defendant in a public nuisance action. However, a court’s willingness to find the industry’s conduct unreasonable is not a foregone conclusion. First, the industry’s primary purpose—electricity production—unquestionably has social value. Second, the harms from greenhouse gas emissions are not local, and therefore, the incompatibility between types of land uses is not an issue. The third factor (the impracticability of preventing or avoiding the invasion), however, probably weighs against the industry. Greenhouse gas emissions are no longer “an inevitable product of electricity generation.” However, determining the practicality of preventing or limiting the harm becomes more difficult to answer the further one moves back in time. That is, even if it is practical for today’s electricity generation industry to limit its contribution of greenhouse gases, suggesting that the industry’s current conduct is unreasonable, the industry’s past conduct may well have been reasonable because limiting emissions would have been impractical. But given the availability of lower- and no-emission alternatives, “the record of emissions avoidance in the electricity generation industry is . . . a difficult one to defend.”

---

148. It is arguable, however, that even this factor does not vary based on the identity of the defendant. That is, the extent of the harm can be viewed as the entire harm suffered by a plaintiff, rather than the proportion of the harm attributable to a particular defendant.


150. Hsu, supra note 6, at 738; see RESTATEMENT (SECOND) OF TORTS § 828 cmts. d–f (1979). The Restatement explains:

The utility of the conduct depends to a great extent upon whether its primary purpose has social value and upon how much social value it has. It has social value if the general public good is in some way advanced or protected by the encouragement and achievement of the purpose.

151. See RESTATEMENT (SECOND) OF TORTS § 828 cmt. g. Although the harm from greenhouse gas emissions is not local, co-pollutants can, and often do, cause local harms. However, the harm caused by co-pollutants is beyond the scope of this Note. For a discussion of the harms caused by co-pollutants, see generally Alice Kaswan, Environmental Justice and Domestic Climate Change Policy, 38 ENVTL. L. REP. NEWS & ANALYSIS 10,287, 10,298–10,302 (2008).

152. See Hsu, supra note 6, at 739. Electricity sources that do not emit carbon dioxide (for example, renewable and nuclear sources) are available. See EPA, supra note 149, at 3-12 box 3-2. Further, some fossil fuel-based electricity sources, such as natural gas, emit less carbon dioxide per unit of energy produced than others. Id.

153. See Hsu, supra note 6, at 740.

154. Id.
Professor Hsu concludes that it would be at least “plausible” for a court to find the electricity industry’s current conduct unreasonable.\footnote{Id. at 741. Professor Hsu went on to write, “I would go so far as to say that the factors tilt in favor of a finding of liability. However, I question whether at this juncture courts are truly willing to go there.” Id. at 742. He based this latter conclusion on the unwillingness of some courts to impose liability in the face of “harms that are difficult to commodify” and the hostile reception environmental plaintiffs often face in federal court when they bring nuisance actions. Id. at 742–43.}

But what about the reasonableness of actions taken by the household sector? Certainly many household activities, such as commuting and home heating, are socially valuable even if they are carried out for “purely private purpose[s].”\footnote{RESTATEMENT (SECOND) OF TORTS § 828 cmt. e (1979).}

Yet, carbon dioxide emissions from U.S. households are significant, accounting for thirty to forty percent of annual U.S. carbon dioxide emissions.\footnote{Vandenbergh et al., supra note 88, at 1703. This figure represents a range based on the conclusions of two earlier studies. The first concluded that “direct emissions [from the household sector] account for 41 percent of total U.S. CO₂ emissions.” Id. at 1710 (citing Shui Bin & Hadi Dowlatabadi, Consumer Lifestyle Approach to U.S. Energy Use and the Related CO₂ Emissions, 33 ENERGY POL’Y 197, 205 (2005)). The second, which includ[ed] only emissions from activities over which individuals have substantial, direct control,” concluded that household sector emissions account for thirty-two percent of total U.S. CO₂ emissions. Id. (citing Michael P. Vandenbergh & Anne C. Steinemann, The Carbon-Neutral Individual, 82 N.Y.U. L. REV. 1673, 1694 (2007)); see also Gerald T. Gardner & Paul C. Stern, The Short List: The Most Effective Actions U.S. Households Can Take to Curb Climate Change, ENVIRONMENT, Sept.–Oct. 2008, at 12, 13 (attributing thirty-eight percent of U.S. carbon dioxide emissions to the household sector).}

Low- and no-cost measures are available for reducing household carbon dioxide emissions.\footnote{Gardner & Stern predict that the household sector, relying on these measures, and some longer-term, higher-cost measures, can reduce household sector carbon dioxide emissions by thirty percent.\footnote{Vandenbergh et al., supra note 88, at 1715. Vandenbergh et al. focus on seven of these actions:● Reduce the component of motor vehicle idling that has net costs to the driver;● Reduce standby power electricity use;● Accelerate the substitution of compact fluorescent light bulbs (CFLs) for incandescent bulbs;● Adjust temperature settings two degrees in both summer and winter;● Decrease household thermostat settings on water heaters;● Maintain the recommended tire pressure in personal motor vehicles; and● Change air filters in personal motor vehicles at recommended intervals. Id. at 20–21 tbl.3. Not only are these reductions available today, they “have existed for at least three decades.” Id. at 14.} In fact, some of these measures “should achieve emissions reductions at no or even negative abatement costs to individuals and households.”\footnote{Gardner & Stern, supra note 157, at 22.}

Gardner and Stern predict that the household sector, relying on these measures, and some longer-term, higher-cost measures, can reduce household sector carbon dioxide emissions by thirty percent.\footnote{Gardner & Stern, supra note 157, at 14; Vandenbergh et al., supra note 88, at 1703. These low- and no-cost measures include those that curtail energy use (such as carpooling to work and line-drying clothes) and those that increase energy efficiency (such as maintaining correct tire pressure and upgrading attic installation). Gardner & Stern, supra note 157, at 17–18 & tbl.2. Low- and no-cost actions that households can take immediately include, for example, cutting highway speed from seventy to sixty miles per hour, replacing incandescent bulbs with compact fluorescent bulbs, and caulking and weather-stripping the home. Id. at 20–21 tbl.3. Not only are these reductions available today, they “have existed for at least three decades.” Id. at 14.}
holds have practical options for reducing greenhouse gas emissions, with some of those options coming at little to no cost (or even providing a net savings) to households. This suggests that household sector conduct is unreasonable under the Restatement test.

These two examples suggest that focusing on unreasonable conduct may not be a useful line-drawing mechanism. First, it fails to limit the number of potential defendants in climate change litigation. The balancing test outlined in the Restatement is a fact-intensive inquiry, which would seldom allow courts to dismiss defendants on the pleadings or on summary judgment. Even if every emitter would not be liable, every emitter would certainly be a legitimate defendant. Second, this mechanism may not exempt small emitters from liability. As explained above, it is not immediately apparent that household-sector activities constitute reasonable conduct. Further, relatively large emitters might escape liability if they employed state-of-the-art technology, making further emissions reductions impractical. On the other hand, the balancing test would provide some constraint on judicial discretion. The Restatement test itself provides more of a framework for analysis than either the de minimis or live and let live principle. The Restatement comments provide further guidance to courts, and more importantly, hundreds of cases applying this balancing test serve as precedent that will guide, if not constrain, future courts.

D. APPORTIONING HARM

Courts could avoid the problems created by joint and several liability by apportioning liability based on the percentage of each defendant’s contribution to atmospheric concentrations of greenhouse gases. While this alternative would not eliminate liability for small emitters, it is likely that their share of the liability would be so small that no party would seek to recover from them. Although the Kivalina plaintiffs allege joint and several liability in their complaint, they recognize in their brief that a court may choose to apportion liability.163

Joint and several liability under the federal common law is frequently examined in the context of CERCLA. Although CERCLA cases often result in the imposition of joint and several liability, that result is not required by the statute. Instead, courts rely on the federal common law to “determine the scope of liability in CERCLA cases.” Those courts look primarily to section

---

161. See Restatement (Second) of Torts §§ 826–828 (1979); see, e.g., In re StarLink Corn Prods. Liab. Litig., 212 F. Supp. 2d 828, 848 (N.D. Ill. 2002) (explaining that, in a public nuisance action, a court will undertake only a limited review of the facts on a motion to dismiss because whether a defendant’s conduct was reasonable is a question for the jury).

162. See Hsu, supra note 6, at 750.

163. Plaintiffs’ Memorandum in Opposition, supra note 27, at 68.


165. The Supreme Court has never addressed this issue directly, but in Burlington Northern, the Court recognized that this “approach has been fully embraced by the Courts of Appeals.” Burlington N.
433A of the Restatement in analyzing joint and several liability. In public nuisance actions brought under the federal common law, CERCLA cases interpreting the scope of joint and several liability are binding.

The basic apportionment rule is that courts may apportion harm “when ‘there exists a reasonable basis for divisibility’ of a single harm.” The defendant bears the burden of proving that there exists a reasonable basis for apportioning the harm. An illustration from the Restatement is helpful to understand this rule:

A, B and C, each separately operating adjoining smelter plants in a farming community, send out fumes of equal concentration that unite and denude the grass upon the land of a nearby landowner. The fumes sent out by A would alone do no substantial harm to the land. A is subject to liability to the landowner for the proportion of the total harm that his proportion of the fumes bears to the total amount of fumes.

Like the smelter plants in the illustration, none of the Kivalina defendants alone emits sufficient quantities of greenhouse gases to harm the plaintiffs. Following the Restatement approach, a court should hold each defendant liable only “for the proportion of the total harm that his proportion of the [greenhouse gases] bears to the total amount of [greenhouse gases in the atmosphere].” The difficult question is often whether the defendant can provide sufficient evidence to establish a “reasonable basis for divisibility.” This can be difficult in CERCLA cases because they “involve hazardous waste sites at which numerous substances have been commingled,” and the substances vary in “relative toxicity, migratory potential, and synergistic capacity.” The Ninth Circuit’s decision in United States v. Burlington Northern & Santa Fe Railway illustrates a common problem for CERCLA defendants. Because defendants have little financial incentive to keep records of their hazardous waste spills, they are often unable to provide sufficient evidence to support apportionment
even though the contamination is capable of apportionment.175 This is particularly true of a landowner who leased the property to a tenant and played no role in the contamination.176

In Burlington Northern, the United States cleaned up soil and groundwater contamination caused by spills of hazardous substances from a chemical company.177 Because the chemical company was insolvent, the United States sought remediation costs from, among others, two railroads that owned a portion of the site on which the chemical company operated.178 Rather than holding the railroads jointly and severally liable for the entire cost of remediation, the district court apportioned the railroads’ liability based on (1) the percentage of the site owned by the railroads; (2) the percentage of the chemical company’s period of operation that it leased property from the railroads; and (3) the percentage of remediation costs attributable to the chemicals spilled on the railroad parcel.179 The Ninth Circuit reversed the district court’s decision because the railroads were unable to provide adequate records to support apportionment.180 However, the Supreme Court concluded that the facts relied upon by the district court “reasonably supported the apportionment of liability,” reversing the Ninth Circuit.181

Other courts of appeals have apportioned liability under similar circumstances, relying on “volumetric, chronological, [and] other types of evidence” to find divisibility.182 In In re Bell Petroleum Services Inc., the EPA sued three successive operators of a chrome-plating shop under CERCLA to recover the cost of providing an alternative water supply because of groundwater contamination.183 The chrome-plating shop dumped chromium-contaminated rinse water onto the ground, contaminating the groundwater.184 Two of the operators settled, and the EPA sought to recover the balance of its response costs from the remaining operator, Sequa.185 At trial, Sequa introduced records regarding the length of each operator’s tenure, “the amount of chrome flake purchased during each operator’s tenure,” “the value of the chrome-plating done by each [operator],” and electricity usage records.186 Where its records were incomplete, Sequa relied on “testimony from various witnesses regarding the rinsing and wastewater disposal practices of each [operator] and the amount of chrome-

175. See id. at 941–45.
176. See id. at 944.
178. Id. at 1876.
179. Id. at 1882.
180. Burlington N. & Santa Fe Ry., 520 F.3d at 945–46.
184. Id. at 892.
185. Id. at 894.
186. Id. at 903–04.
plating activity conducted by each.”187 The trial court held Sequa jointly and severally liable.188 The court of appeals reversed, holding that Sequa “met its burden of proving that there [was] a reasonable basis for apportioning liability among the [operators] on a volumetric basis.”189

Evidence can be sufficient to support a finding of divisibility even though it “may not [represent] the ‘perfect’ method of divisibility.”190 In Coeur d’Alene Tribe v. Asarco Inc., more than twenty mines discharged tailings into a river.191 Several plaintiffs sued the mines under CERCLA and under the Clean Water Act.192 The court apportioned liability based on the volume of tailings each mine discharged “[e]ven though the exact percentages of lead, cadmium and zinc in the tailings from each mill [were] unknown and differed slightly based on the type of metal being extracted in the milling process.”193 The Restatement provides an example of two head of cattle, each owned by a different person, that enter a neighbor’s field and damage the crop.194 Although it is impossible to trace the harm to the animal that caused the harm, the Restatement concludes that it is appropriate to apportion the harm.195

Greenhouse gas emissions seem well-suited for apportionment based on the percentage of atmospheric greenhouse gases attributable to a particular defendant. Courts would begin by calculating a defendant’s historical emissions of greenhouse gases.196 Industrial emitters are likely to have records to show past emissions going back some number of years,197 particularly because greenhouse gas emissions are closely related to inputs.198 A coal-fired power plant, for example, keeps records of annual electricity production and the amount of coal used to produce that electricity. These records can be used to provide a reasonable estimate of past greenhouse gas emissions and the percentage of those emissions that remain in the atmosphere.199 Despite the ability to estimate past emissions in limited contexts, the lack of evidence of past emissions poses a serious challenge to apportionment. Many of the potential defendants in climate change litigation (or their predecessors) have been in operation for

187. Id. at 904.
188. Id. at 894.
189. Id. at 904.
191. Id. at 1104–05.
192. Id. at 1102.
193. Id. at 1120–21.
194. Restatement (Second) of Torts § 433A cmt. d (1965).
195. Id.
196. Each greenhouse gas affects global warming differently, but those effects can be standardized to make comparison possible. “Global Warming Potential (GWP)” is a measurement developed by the IPCC and used “to compare the ability of each greenhouse gas to trap heat in the atmosphere relative to another gas.” EPA, supra note 146, at ES-3.
197. Hsu, supra note 6, at 750 & n.239 (speculating that the electricity generation industry likely has good emissions data back to 1990).
198. See EPA, supra note 149, at 3-13 box 3-2.
199. Hsu, supra note 6, at 750 & n.239.
decades. Absent the ability to reasonably estimate the total historical emissions from every emitter, significant portions of atmospheric greenhouse gases would be unaccounted for in an apportionment analysis.

Unlike the defendants in Burlington Northern and other CERLCA defendants, the Kivalina defendants would have a financial incentive to keep the records relevant to apportionment. That is, companies tend not to keep records of hazardous substance releases, but they do keep records related to past production. Individuals, on the other hand, have no incentive to keep records of their greenhouse gas emissions except, perhaps, in an effort to reduce their personal emissions. Thus, the Kivalina defendants might be able to provide a reasonable basis for apportioning liability based upon ordinary business records. Household-sector defendants, in contrast, would have little evidence on which to base apportionment.

The benefit of this line-drawing mechanism is that it significantly constrains judicial discretion. CERCLA cases provide binding precedent for courts apportioning liability. Courts’ discretion is limited to determining whether a defendant has provided a reasonable basis for divisibility, and while judges may disagree over the reasonableness of a basis for divisibility, courts will not be engaging in ad hoc factual inquiries, arbitrarily exempting certain defendants from liability. Apportionment also limits the number of potential defendants in climate change litigation. This is not because apportionment allows certain defendants to escape liability; rather, the cost of seeking recovery from many defendants may exceed their potential liability, making it inefficient for plaintiffs to seek recovery from them. However, apportionment will limit the potential liability of defendants only if courts can find some reasonable basis for apportioning liability. Existing case law does not provide a solution; therefore, a court would be required to fashion a new basis for apportioning liability. After Burlington Northern, courts may be more willing to base apportionment on estimates of past emissions rather than requiring detailed records of actual emissions.

III. COMPARING LINE-DRAWING MECHANISMS

An effective line-drawing mechanism would limit the number of potential defendants, limit the potential liability of small emitters, and provide a constraint on judicial discretion. None of the four line-drawing mechanisms discussed in this Note fully satisfies these criteria, but apportioning harm comes closest.

Both the de minimis and “live and let live” principles satisfy the first two criteria and would often exempt the same emitters from liability. However, the
two mechanisms differ in three important respects. First, the “live and let live” rule applies even in situations where individual contributions are not *de minimis*. For example, if automobile emissions are not *de minimis*, a court applying the “live and let live” rule might still exempt vehicle owners from liability. This outcome is defensible only if the court concludes that vehicle ownership is sufficiently ubiquitous such that the benefits and harms are reciprocal and the benefits outweigh the costs. Second, the *de minimis* exception extends to situations in which the harms and benefits are not reciprocal. For example, even if raising a few cattle falls under the *de minimis* exception, the benefits are not reciprocal because few people raise cattle. This suggests that the “live and let live” rule is more defensible. Third, the “live and let live” rule provides some constraint on judicial discretion. A court applying the rule must conclude that the benefits from the activity outweigh the costs. In contrast, a court applying the *de minimis* exception is simply deeming some level of contribution so slight that the defendant should escape liability.

The other two line-drawing mechanisms—focusing on unreasonable conduct and apportioning harm—provide greater constraint on judicial discretion. The primary reason is that both mechanisms have a strong foundation in existing law. The Restatement and existing case law will guide future decisions, adding predictability. Focusing on unreasonable conduct, however, will not limit the number of potential defendants in climate change litigation because it requires courts to engage in a fact-intensive inquiry to determine whether a defendant’s conduct was unreasonable. Further, commentators suggest household-sector conduct is unreasonable, which would subject even small emitters to liability. In contrast, apportioning harm may significantly limit the number of potential defendants and limit every emitter’s liability. However, this will happen only if courts can find some reasonable basis for apportioning liability. That might be easy with respect to the *Kivalina* defendants because courts can rely on the defendants’ business records in determining their contribution to greenhouse gas emissions. Other defendants, however, will be forced to rely on courts to create new bases for apportioning liability. While that could invite some degree of judicial activism, it would otherwise allow courts to satisfy the three criteria for evaluating line-drawing mechanisms.

**CONCLUSION**

Climate change litigation, particularly as it is framed by the *Kivalina* plaintiffs, does not present an “ordinary” public nuisance action. A theory of strict, joint, and several liability would allow the United States, any State, or a private party that suffered a special harm to sue any emitter of greenhouse gases. More importantly, it would allow the plaintiff to recover from the emitter any damages caused by climate change. This type of action is unprecedented. Although climate change litigation faces many obstacles to recovery, it is possible that a court will reach the merits in a future case. Fortunately, that court is unlikely to decide the case in a way that would expose millions of Americans to liability.
To avoid the harsh consequences that would follow from the \textit{Kivalina} plaintiffs’ theory of liability, courts could employ various line-drawing mechanisms to exempt various emitters from liability (or, at least, limit their potential liability). An effective line-drawing mechanism must limit the number of potential defendants in future climate change litigation, limit the potential liability of small emitters, and constrain judicial discretion. Of the four mechanisms discussed in this Note, apportioning liability based upon a defendant’s contribution to atmospheric concentrations of greenhouse gases best satisfies these criteria. Yet that mechanism may allow defendants who keep emissions-related records, like the \textit{Kivalina} defendants, to limit their liability while household-sector defendants who cannot provide a reasonable basis for apportioning liability would remain subject to joint and several liability. The \textit{de minimis} and live and let live principles fail to constrain judicial discretion, and focusing on emitters’ conduct fails to limit both the number of potential defendants and the potential liability of small emitters.

Thus, courts can rely upon line-drawing mechanisms to avoid strict, joint, and several liability in climate change litigation. Nevertheless, the limitations of each of the mechanisms discussed in this Note may provide further reason for courts to avoid reaching the merits in climate change litigation and conclude that climate change litigation expands public nuisance law too far. The limitations also underscore the need for a more comprehensive approach to reducing greenhouse gas emissions.