2010

An Empirical Survey of Climate Change Litigation in the United States

David Markell

J. B. Ruhl

An Empirical Survey of Climate Change Litigation in the United States

by David Markell and J.B. Ruhl

David Markell is the Steven M. Goldstein Professor, the Florida State University College of Law. J.B. Ruhl is the Matthews & Hawkins Professor of Property, the Florida State University College of Law.

Editors' Summary

A quickly growing number of commentators have suggested that the U.S. courts are already significant drivers of climate change policy, and that their role is likely to increase. In addition to fashioning law on their own, judicial decisions have significant implications for the work of the other branches of government. This Article provides a chronicling of every climate change case filed through December 31, 2009 (more than 130 such cases). It presents basic information about the cases, e.g., the types of cases, where they have been brought, the types of parties involved, and the outcomes. It also analyzes the data to identify trends that have emerged thus far. The Article, in short, presents an empirically based picture of what one *New York Times* headline describes as courts serving as "battlefields" in "climate fights."

The burgeoning law review literature on climate change reflects the explosion of interest in this potentially game-changing phenomenon.[1] Climate change is now widely considered to be among the handful of most important public policy issues of our time.[2] If any topic deserves careful scrutiny from a range of perspectives, including the perspectives of a diversity of scholars, climate change qualifies.

The range of issues climate change raises is sweeping. For example, there are fundamental, still unsettled, issues of institutional governance within the federal executive—which institution(s) should be in the "lead" on climate change, what roles they should play, and how to facilitate coordination among key federal and other actors, to name a few.[3] Similarly, the U.S. Congress' role in dealing with climate change remains a work in progress. There is general skepticism about the suitability of existing statutes such as the Clean Air Act (CAA)[4] and the Endangered Species Act (ESA)[5] to deal with climate change challenges.[6] While Congress has adopted an

Authors' Note: The authors are deeply appreciative of the assistance provided by their research assistants, Abigail Dean, Gina Iacona, and Melanie Leitman, Florida State University College of Law 2011, and of the research support provided by the FSU College of Law. They are also indebted to Michael Gerrard and Cullen Howe for their foundational work in this arena, upon which the authors have built. The dataset used in this study is available for public access at http://www.law.fsu.edu/faculty/profiles/ruhl/markellruhldata.xlsx. Please direct any questions or comments on this Article to dmarkell@law.fsu.edu or jbruhl@law.fsu.edu.

1. A Westlaw search in for climate w/2 change yielded a list of 9,860 articles (last visited March 23, 2010). The American Bar Association Section of Environment, Energy, and Resources (SEER) was the first to publish a book-length treatment of domestic climate change law and litigation, in Global Climate Change and U.S. Law (ABA SEER, Michael B. Gerrard, ed. 2007). In 2009, several additional books on legal aspects of climate change were published, including two 2009 climate change casebooks, Richard C. Hildreth et al., Climate Change Law: Mitigation and Adaptation (West 2009) and Chris Wold et al., Climate Change and the Law (LexisNexis 2009).
2. *See* Intergovernmental Panel on Climate Change, Summary for Policymakers of the Synthesis Report of the IPCC Fourth Assessment Report 1 (2007), *available at* http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_ spm.pdf. (citing climate change as one of the greatest challenges the world faces). This view is not unanimous. For example, a March 2009 Gallop Poll reflects the "highest level of public skepticism about mainstream reporting on global warming seen in more than a decade," with 40% of those polled saying the media are "exaggerating the issue." Yale Forum on Climate Change and the Media, *Gallup Poll Finds More Americans Say Media Overstate Warming Risks*, www.yaleclimatemediaforum.org/2009/03/gallup-poll-more-americans/ (last visited Nov. 20, 2009).
3. In addition to issues concerning the structure of governance, there are obviously extraordinarily important normative issues, as well as the need to identify an appropriate mix of tools to address climate change challenges.
4. 42 U.S.C. §§7401-7671q, ELR Stat. CAA §§101-618.
5. 16 U.S.C. §§1531-1544, ELR Stat. ESA §§2-18.
6. *See* Nicholas Inst. for Envtl. Pol'y Solutions, *Regulating Climate: What Role for the Clean Air Act?*, http://www.nicholas.duke.edu/institute/clean.air.2009.html (last visited Nov. 8, 2009) (involving a one-day conference at Duke Univeristy about the future of the CAA). For general reviews of some of the options

alphabet soup of legislation over the past few years to address aspects of climate change,[7] it is probably inevitable that a climate change bill that addresses both mitigation and adaptation will eventually survive the legislative process.[8] The roles that the U.S. Environmental Protection Agency (EPA) and the multitude of other interested federal agencies are likely to play, and should play, are very much evolving and remain in flux as well.

There has been enormous ramping up to deal with climate change issues at the regional, state, and local levels. States, working with various Canadian provinces, have formed regional initiatives to reduce emissions of greenhouse gases (GHGs).[9] Several states have developed climate change strategies on their own, some of which call for significant changes in the shape of state and local governance.[10] A host of local governments have similarly taken action to address climate change.[11] Much more activity is likely on the way in all of these arenas.[12]

And, of course, climate change raises issues of international cooperation (and conflict), probably more than does any other contemporary environmental challenge, because of the global impacts of emissions of GHGs. While it is unclear whether United Nations (U.N.)-spawned vehicles, such as the U.N. Framework Convention on Climate Change,[13] Kyoto Protocol,[14] and Copenhagen Accord,[15] will prove successful in galvanizing worldwide cooperation,[16] or whether other multilateral initiatives will do so,[17] it is inevitable that discussions, and ultimately future commitments for significant action, will occur at a multilateral level.

As this brief overview reflects, while there has been an enormous amount of activity already to address climate change, perhaps the only thing that is certain is that the landscape in just a few years is likely to look very different from the way it looks today. Efforts to grapple with climate change are likely to be transformational, as one of us has put it[18]; it simply remains unclear, at this juncture, what type of transformation is likely to occur.

As plans to address climate change in differential venues and in different ways begin to take shape, work cataloguing such efforts is beginning to emerge. Especially given the extraordinary complexity of climate change—with the multitude of actors, issues, and disciplines it engages—the possibilities for working at cross-purposes and without a full understanding of other initiatives are endless. Foundational work that reports on "facts on the ground," and that synthesizes such information, thus strikes us as of fundamental importance.

Our audience is fully aware of the central role courts play in contemporary governance. To name three functions of our judicial branch, the courts are the ultimate arbiters of much of what other branches of government do through the courts' power to determine the constitutionality of legislative, executive, and administrative action. Further, courts play an enormously important role in overseeing the actions of agen-

---

and of the value of some of the CAA's approaches, see Inimai M. Chettiar and Jason A. Schwartz, The Road Ahead: EPA's Options and Obligations for Regulating Greenhouse Gases, Institute for Policy Integrity, NYU School of Law, Report No. 3 (Apr. 2009); Hollly Doremus & W. Michael Hanemann, *Of Babies and Bathwater: Why the Clean Air Act's Cooperative Federalism Framework Is Useful for Addressing Global Warming*, 50 Ariz. L. Rev. 799 (2008). For one recent example of a skeptical appraisal, see Jason Scott Johnston, *Climate Change Confusion and the Supreme Court: The Misguided Regulation of Greenhouse Gas Emissions Under the Clean Air Act*, 84 Notre Dame L. Rev. 1 (2008).

7. *See, e.g.*, Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492; Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 656; Food, Conservation, and Energy Act of 2008, Pub. L. No. 110-234, 122 Stat. 923. H.R. 1, 111th Cong. §406 (2009); John C. Dernbach & Seema Kakade, *Climate Change Law: An Introduction*, 29 Energy L.J. 1 (2008).
8. As we and many others have outlined, policy options to address climate change issues tend to divide into two significant categories—efforts to mitigate (or reduce) the emission of greenhouse gases (GHGs) into the environment, and efforts to adapt to changes in climate and their impacts on our environment. Fortunately, in our view, there is increasing recognition that mitigation and adaptation do not represent an either-or set of options; instead, it is important to pursue each, based on integrated thinking about the relative effectiveness of different approaches.
9. *See, e.g.*, Dernbach & Kakade, *supra* note 7, at 19.
10. A Pew Center website tracks the progress of state climate change legislation and initiatives. Pew Center on Global Climate Change, *States & Regions*, http://www.pewclimate.org/states-regions (last visited Mar. 22, 2010). *See also* American Planning Association, Policy Guide on Planning & Climate Change 4 (2008) (noting that "the majority of states now have special commissions or adopted action plans on climate change. Nearly half have already set overall GHG emission or vehicle-based GHG emission targets."); David Markell, *Greening the Economy Sustainably*, 1 Wash. & Lee J. of Energy, Climate, & the Env't 41 (forthcoming 2010).
11. *See, e.g.*, American Planning Association, *supra* note 10, at 4 (noting that "[m]ore than 500 cities have pledged to significantly lower their emissions. . . .")
12. *See, e.g.*, *id.* at 5 (noting that "traditional [planning] approaches are not enough to mitigate and adapt to climate change. A new type of planning and public policy has to be developed.") In addition to the enormous array of government initiatives at all levels, nongovernmental individuals and organizations of all sorts are acting on their own to address climate change, in addition to working in tandem with government institutions.
13. United Nations Framework Convention on Climate Change, U.N. Doc. A/AC237/18 (May 9, 1992), *reprinted in* 31 I.L.M. 849 (1992).
14. Kyoto Protocol to the United Nations Framework Convention on Climate Change, U.N. Doc. FCCC/CP/197/L.7/Add. 1, art. 3.1 & Annex B (Dec. 10, 1997), *reprinted in* 37 I.L.M. 22 (1998).
15. Copenhagen Accord, FCCC/CP/2009/L.7 (2009).
16. For differing views on the likely impacts of the December 2009 Copenhagen session, see *Was the Copenhagen Summit a Failure? What Will the International Climate Change Regime Look Like in the Next Three to Five Years?*, Envtl. F. 46 (Mar./Apr. 2010); John M. Broder, *U.S. Official Says Talks on Emissions Show Promise*, N.Y Times, Jan. 14, 2010, at A8, *available at* http://www.nytimes.com/2010/01/15/science/earth/15climate.html; Jennifer Morgan, *Reflections From Copenhagen: The Accord and the Way Forward*, World Resources Institute (Dec. 29, 2009), http://www.wri.org/stories/2009/12/reflections-copenhagen-accord-and-way-forward; John Vidal et al., *Low Targets, Goals Dropped: Copenhagen Ends in Failure*, The Guardian (Dec. 19. 2009), http://www.guardian.co.uk/environment/2009/dec/18/copenhagen-deal.
17. For example, for a list of several climate change-related multilateral initiatives in which the United States has participated, see, e.g., U.S. Dep't of State, State Department Fact Sheet, United States Global Engagement on Climate Change and Public Health (Mar. 28, 2008).
18. J.B. Ruhl, *Climate Change Adaptation and the Structural Transformation of Environmental Law*, 40 Envtl. L. (forthcoming 2010).

cies to ensure they are consistent with legislative direction.[19] In addition, courts often fashion law of their own, through their development of common-law principles,[20] and through their broad equitable powers.[21]

The foundational gap we seek to begin to fill in this Article is a chronicling of developments in the judicial arena. In performing this chronicling function, we hope to contribute in two important respects to understanding of the climate change action in the courts to date. First, we compile and present basic information about the cases brought to date, e.g., the types of cases, where they have been brought, the types of plaintiffs and defendants involved, and the outcomes. In addition, we provide a further layer of analysis through our synthesis of this basic information and our identification of trends that have emerged thus far.[22]

Some commentators have suggested that the courts are already significant drivers of climate change policy, and their role is likely to increase. Carol Browner, Director of the White House Office of Energy and Climate Change Policy, for example, has suggested that "the courts are starting to take control" of climate change.[23] A December 2009 *Wall Street Journal* op-ed contends that, because of the lack of progress internationally and in domestic legislation, the "climate-change lobby is already shifting to Plan B. . . . Meet the carbon tort."[24] A recent *New York Times* article similarly concludes that we are likely to see increasing numbers of common-law nuisance cases in the climate change arena:

> In a report issued last year, Swiss Re, an insurance giant, compared the [common-law nuisance] suits to those that led dozens of companies in asbestos industries to file for bankruptcy, and predicted that "climate change-related liability will develop more quickly than asbestos-related claims." The pressure from such suits, the report stated, "could become a significant issue within the next couple of years."[25]

Echoing this theme, Prof. Hari Osofsky suggests in a forthcoming article that courts have "become a critical forum in which the future of greenhouse gas emissions regulation and responsibility are debated."[26]

Judicial action is not important solely because of the direction courts provide through their decisions, though that direction itself is of substantial significance. Scholars, policymakers, and others have begun to think about the implications of judicial decisions on the work of other branches. Prof. Richard Lazarus, for example, following the U.S. Court of Appeals for the Second Circuit's recent decision in *Connecticut v. American Electric Power*,[27] a significant victory for activists because of its favorable holdings on standing and justiciability grounds, notes that a major challenge for "environmentalists" is "how best to use this win to help promote meaningful climate change legislation in Congress and regulatory action by EPA, where the issues will best be addressed."[28] White House Director Browner similarly suggests that recent court decisions have "increased the pressure on Congress to pass legislation to curb heat-trapping gases."[29]

This Article unpacks the realities of what one *New York Times* headline describes as courts serving as "battlefields" in "climate fights."[30] We have read and coded every climate change case that has been resolved to date; and, if a case has been filed but no resolution has yet been reached, we have

19. *See, e.g.*, Chevron, U.S.A., Inc. v. Natural Res. Def. Council, 467 U.S. 837, 14 ELR 20507 (1984); Solid Waste Agency of N. Cook County v. U.S. Army Corps of Eng'rs, 531 U.S. 159, 31 ELR 20382 (2000).
20. For a recent, much-cited example of a discussion of the availability of common-law nuisance doctrine in the climate change arena, see *Connecticut v. American Electric Power Co.,* 582 F.3d 309, 39 ELR 20215 (2d Cir. 2009).
21. *See, e.g.*, Weinberger v. Romero-Barcelo, 456 U.S. 305, 12 ELR 20538 (1982).
22. As might be expected, the law review literature on climate change litigation is growing rapidly, but ours is the first, as far as we have been able to determine, to provide a comprehensive empirical view of the entire range of such litigation. For a few examples of very helpful work, see, e.g., Justin R. Pidot, Global Warming in the Courts: An Overview of Current Litigation and Common Legal Issues (Georgetown Envtl. L. & Pol'y Inst. 2006); Robert Meltz, Climate Change Litigation: A Growing Phenomenon (CRS Report for Congress, Dec. 26, 2007); Alice Kaswan, *The Domestic Response to Global Climate Change: What Role for Federal, State, and Litigation Initiatives?*, 42 U.S.F. L. Rev. 39 (2007).
23. *Courts "Take Control" of Climate*, insideepa.com (Sept. 23, 2009). Another recent report indicates that "[e]nvironmentalists are vowing to ramp up 'very creative and intense' . . . litigation bringing common law claims . . . including climate change. . . ." *Climate Ruling Boosts Push for "Intense" New Environmental Tort Claims*, insideepa.com (Oct. 6, 2009). *See also* Robert A. Wyman et al., *Significant Climate Issues Likely to Be Raised in the Federal Courts*, 39 ELR 10925, 10926 (Oct. 2009) (suggesting that judicial decisions "may have a powerful impact on public policy" in the climate change arena).
24. *The New Climate Litigation*, Wall St. J., Dec. 28, 2009, at A 16. To the same effect is a recent statement by a former Bush Administration official that the "sense of inaction [in Congress and internationally] has left a situation in which those intent on reducing gas emissions could try to make the courts 'a significant battleground.'" John Schwartz, *Courts Emerging as Battlefield for Fights Over Climate Change*, N.Y. Times, Jan. 27, 2010, at 1A (quoting Harold Kim, a former Bush Administration official).
25. *See id.*; *see also* Douglas J. Feichtner, *Global Warming Litigation and the Ghost of Mrs. Palsgraf: Why Carbon-Heavy Entities Should Be Scared of Both*, 40 ELR 10121 (Feb. 2010) (suggesting that the recent U.S. Court of Appeals for the Second Circuit and U.S. Court of Appeals for the Fifth Circuit decisions in Connecticut v. American Elec. Power Co., 582 F.3d 309, 39 ELR 20215 (2d Cir. 2009) and Comer v. Murphy Oil, USA, 585 F.3d 855, 39 ELR 20237 (5th Cir. 2009), vacated, 598 F.3d 208 (5th Cir. 2010), and appeal dismissed, 2010 WL 2136658 (5th Cir., May 28, 2010), respectively, "imply a significant expansion of the *Palsgraf* majority decision's 'zone of danger' rule" and that "[a]ny private entity with significant . . . GHG emissions could be identified in the next climate change lawsuit"). The Fifth Circuit decided on February 26, 2010, to vacate the *Comer* decision and grant rehearing en banc, see Comer v. Murphy Oil, USA, 598 F.3d 208 (5th Cir. 2010), but on May 28, 2010, dismissed the appeal for lack of a quorum and reinstated the district court's opinion.
26. Hari M. Osofsky, *The Continuing Importance of Climate Change Litigation*, *available at* ssrn.com/abstract=1529669; Adjudicating Climate Change: State, National, and International Approaches 2 (Burns & Osofsky, eds., Cambridge Univ. Press 2009) (taking the position that litigation "has value as a regulatory mechanism" in addition to serving a gap-filling function). Others would confine the role of litigation to a much greater degree. Laurence H. Tribe et al., *Too Hot for Courts to Handle: Fuel Temperatures, Global Warming, and the Political Question Doctrine*, Washington Legal Foundation Critical Legal Issues Working Paper Series No. 169 (Jan. 2010).
27. 582 F.3d 309, 39 ELR 20215 (2d Cir. 2009).
28. Richard Lazarus, *A Huge Green Win in the 2nd Circuit*, 26 Envtl. F. 14 (2009).
29. Schwartz, *supra* note 24 (Director Browner offers the view that setting environmental standards "is best done through legislation."); Wyman et al., *supra* note 23, at 10925 (suggesting that future legislation and rulemaking will, in turn, present "fertile ground" for future judicial review).
30. Schwartz, *supra* note 24. For a skeptical view concerning the appropriateness of a significant judicial role, see Tribe et al., *supra* note 26, at 3 (noting, for example, that "the judicial application of common law principles provides a constitutionally deficient—and structurally unsound—mechanism for remedying temperature's unwanted effects.").

reviewed (and coded) the complaint and other documents in the court docket.[31]

Some of what we have found is in line with our expectations, while other findings frankly took us by surprise. Briefly, with more detail and description following in later sections, eight of our findings include:

- Most of the cases brought to date are suits that environmental nongovernmental organizations (NGOs) have brought against the federal and/or state government, with a handful of "professional" environmental NGOs serving as plaintiffs in many of the cases;
- Most of the cases have been brought in federal court;
- Most of the cases are based on statutory causes of action (rather than constitutional or common-law claims);
- Many of the cases are based on National Environmental Policy Act (NEPA)[32] or state "Little NEPA" claims and are focused on stopping coal-fired power plants[33];
- Adaptation is not on the litigation radar screen;
- Common-law nuisance cases are a very small component of the case mix, despite the significant attention they have received;
- Of the relatively small number of cases that have been resolved, the success rate for plaintiffs is roughly 50%; and
- The use of the courts to raise climate change issues really gained steam in 2006; before that year, climate change litigation was quite rare.

In the following section, we explain the methodology we used in this initial effort to provide a comprehensive picture of the role of the courts to date in the development of the law on climate change.

II. Study Method

The goal of this study is to evaluate what is happening on the ground in the world of climate change litigation. As we indicate in the introductory section of this Article, there are a number of articles about different facets of climate change litigation, but we believe that ours is the first to attempt a comprehensive empirical description of all of the climate change litigation initiated to date. In this section, we explain how we defined climate change litigation, identified cases that met the criteria, and coded each case for relevant attributes.

A. *Defining Climate Change Litigation*

The threshold step for our study was to define what qualifies as climate change litigation. A broad view might include any litigation motivated by a concern about climate change or climate change policy, whether that means stopping a coal-fired power plant because of its anticipated GHG emissions or blocking state regulation of emission sources because of economic impacts. We concluded, however, that this is too broad a conception of climate change litigation for purposes of an empirical legal study. For one thing, it would require that we identify motives for litigation, which would in many cases require us to make uninformed judgments about litigant's mental state. Moreover, many cases motivated by concern over climate change might not involve issues of fact or law that bear directly on relevant questions of climate change law and policy. Opposition to a coal-fired power plant, for example, might be driven largely by concerns about climate change, but the subject matter of the actual litigation claims might not have any connection with GHG emissions or climate change impacts. For example, an argument might be that the environmental impact analysis did not adequately examine the effects of mercury deposition, or that the permit hearing was procedurally defective. Such a case, to the extent it might succeed in preventing the facility from being constructed and operating, might be thought of as influencing the law and policy of climate change in the broadest sense, but it would not be contributing to any discrete body of law bearing a direct connection to climate change issues.

We decided, therefore, to define climate change litigation as any piece of federal, state, tribal, or local administrative or judicial litigation in which the party filings or tribunal decisions directly and expressly raise an issue of fact or law regarding the substance or policy of climate change causes and impacts. So, in the power plant example, if the claim were that the environmental impact analysis failed to take into account GHG emissions, or that the permit hearing was defective because the tribunal refused to allow evidence of GHG emissions, that would qualify the case as climate change litigation.

We recognize that this approach has some limiting effects on the pool of cases included in the study. For example, without reading every docket entry in a piece of litigation, we cannot be sure mention of climate change issues of fact or law did not occur at some point in a case. Given time and resource constraints, we focused on reviewing complaints, where we could obtain them, and on intermediate and final judicial decisions to detect whether our criteria were met. Also, in some instances, particularly cases in which power plants were opposed, we suspected that climate change concerns were a motivating factor behind the litigation, but excluded the case from our study because the filings failed to

31. We are very much in the debt of Prof. Mike Gerrard of Columbia University Law School and J. Cullen Howe of the law firm of Arnold & Porter for their website, http://www.climatecasechart.com/, which includes an inventory of cases. Anyone following this emerging area of law is familiar with this terrific resource. As is explained *infra* in Part II, this foundational work saved us an incredibly time-consuming step in our empirical process, notably developing the inventory of climate change cases. There are several other very helpful resources as well. *See, e.g.*, The Howry Law Firm, www.globalclimatelaw.com/articles/climate-change-litigation/; *Warming Law*, http://theusconstitution.org/blog.warming/; Tom Mounteer, Climate Change Deskbook (Envtl. L. Inst. 2009).
32. 42 U.S.C. §§4321-4370f, ELR Stat. NEPA §§2-209.
33. Michael B. Gerrard, *Coal-Fired Power Plants Dominate Climate Change Litigation*, N.Y. L.J., Sept. 25, 2009 (similarly suggesting that battles over coal-fired power plants "dominate[ ]" the litigation aiming to reduce GHG emissions).

meet our criteria. Lastly, we did not include any matter that had not actually been filed as active litigation in a tribunal, thus excluding events such as the filing of a petition for rulemaking or issuance of a 60-day or other notice of intent to file suit. Hence, there are likely some cases not included in our study notwithstanding they either qualify under our criteria[34] or do not qualify but nonetheless might reasonably be considered within the scope of climate change litigation. On the other hand, we can say that every case included in our study meets our criteria and thus is appropriate to include in a study of climate change litigation.

To help add details to our general definition of climate change, we also developed a typology of different claims that might be expected to arise in the climate change litigation world (see Table 1). The typology includes claims that are actively being litigated in numerous cases, such as claims that a species should be listed under the ESA because of threats stemming from climate change, as well as claims not yet likely to arise in litigation but which could arise as policy develops, such as disputes over offset contracts and claims that a property owner failed to take adequate adaptation measures to respond to sea-level rise. This typology proved robust, accounting for all but a few of the cases we ultimately deemed to qualify as climate change litigation (see Table 1, Case Type 18, "Other").

B. Identifying Cases

Having developed our general criteria for climate change litigation and types of cases, the next step was to identify qualifying cases. As an initial source of candidate cases, we benefitted greatly from a climate change litigation inventory Michael Gerrard and Cullen Howe have developed and kept updated on a dedicated website maintained by the law firm of Arnold & Porter.[35] Indeed, this foundational work is what inspired us to take this next step of digging more deeply into an empirical analysis of climate change litigation. We reviewed all of the materials Gerrard and Howe identified for each case (for many cases, the inventory includes electronic links to documents filed in connection with a case, in addition to providing the key docket and related information). We also made an effort to obtain the current status of each matter identified in their inventory through traditional legal search engines and web browser searches, as well as reasonably available additional methods, such as consulting online dockets or contacting court clerks. Moreover, independent of the Gerrard and Howe inventory, we searched for climate change litigation cases through normal legal research methods and updated any qualifying cases as described.

We cut off our search and update efforts on December 31, 2009, at which point we had identified 139 climate change litigation cases in various stages of progress.[36] Although we know of developments in some of the cases since the cutoff date,[37] as well as of new cases having been filed,[38] we did not incorporate those developments into this version of the study, as we plan to update the study annually using a calendar year cutoff.

C. Coding Case Attributes

We developed a coding system in order to help us gain a better understanding of important features of the identified climate change cases. At a basic level, we sought eight types of information, as follows: (1) the identity of the plaintiffs—who was bringing the action; (2) the identity of the defendants—who was the target of the suit; (3) the identity of the tribunal—in what forum was each case brought; (4) the time frame involved for each case—the year of filing and the year of decision; (5) the type of claim being brought (various types of constitutional claims, statutory claims, common-law causes of action, etc.); (6) the jurisdictional mechanism the plaintiffs used to bring an action; (7) the outcome of the case; and (8) the type of contribution the case made to developments in the law.[39] We then developed finer categorizations for many of these top-level attributes, such as which statutes plaintiffs relied on for their claims, the grounds for dismissal of a case, the type of relief awarded, and so on. The final set of coding categories is shown in Appendix A.

Each case was coded initially by one of the principal authors. Subsequent spot-checking and confirmation was provided by one of our research assistants. Any differences in coding calls or other questions about a case were resolved at regular conferences held between all of the authors and research assistants.

As we reviewed the cases, particularly those that were the subject of conferences, it became clear that we would need to make some judgment calls in doing the coding. One of the dilemmas in empirical work is striking the right balance between detail and aggregation. Some cases presented attributes that did not obviously and neatly fit into one of our coding categories. In some such instances, we developed a new category, whereas in others, we fit the case into the closest existing category.

Several of these judgment calls were problematic to resolve. First, in some instances, evaluating the threshold question of whether a matter truly qualified as climate change litigation was not straightforward. Generally, we tried to be as inclu-

34. We intend to update our database and empirical analysis annually and would welcome being informed of any qualifying cases we omitted for this first presentation of the data.
35. *See* Michael B. Gerrard & J. Cullen Howe, *Climate Change Litigation in the U.S.*, http://www.climatecasechart.com/.
36. This number is lower than the number of cases on the Gerrard and Howe inventory. Some of the cases in their inventory did not meet our criteria for climate change litigation. Also, some cases in their inventory are either duplicates of or consolidated with other cases.
37. For example, the Fifth Circuit withdrew the panel decision in *Comer* to reconsider the decision en banc, *see* Comer v. Murphy Oil USA, 598 F.3d 208 (5th Cir. 2010), and later dismissed the appeal for lack of a quorum.
38. For example, at least 16 pieces of litigation have been filed challenging EPA's CAA endangerment finding. *Sixteen Lawsuits Filed Challenging EPA Rule That Greenhouse Gas Emissions Pose Danger,* 41 Env't Rep. (BNA) No. 8 (Feb. 19, 2010).
39. Appendix A contains our more granular coding sheet, which focuses on these eight categories of information in considerable detail.

sive as possible within the scope of our criteria.[40] Next, in terms of coding the case outcome, we decided to focus only on the climate change portion of a case in situations involving multiple causes of action. For example, we coded a case as a win for the defendant if the plaintiff lost on the climate change ground, even if the plaintiff prevailed on a different count in the complaint and ultimately succeeded in, say, having a power plant permit revoked. Our rationale was that it is more important for our purposes to assess the outcome of the climate change law component of the case than to focus on the holistic litigation outcome. This approach was especially relevant to NEPA claims involving numerous alleged defects in an environmental impact statement (EIS), where plaintiffs sometimes lost on the claim that GHG emissions were not adequately considered but prevailed on some other claim. Finally, if all the relevant claims in a case were advanced to the next level of review and resolved before the cutoff date—for example, a trial court opinion was reversed on appeal—we coded only for the higher level tribunal's decision. If, however, the matter was pending on appeal at the time of the cutoff date, we coded for the lower level tribunal's decision and reflected that the case was on appeal for its status.

III. Findings

Based on sheer number of cases, the prototype of climate change litigation in the United States involves an environmental NGO suing a federal agency in federal court to prevent the agency from taking an action by alleging that the agency violated NEPA. Yet, this configuration by no means defines the breadth and depth of the cases in our study. Indeed, the rich diversity of attributes in the cases suggests the future holds a broadening of litigation themes over time. In this section, we delve into some of those attributes by examining the full scope of: (1) parties and forums; (2) types of claims and litigation objectives; and (3) the outcomes, status, and trends of the cases.

A. *Parties and Forums*

One clear finding of our study is that NGOs are driving climate change litigation as plaintiffs, and their primary targets are the federal government and states.[41] As Figure 1 shows, environmental NGOs were plaintiffs in almost two-thirds of the cases, and industry NGOs were involved in over 10%, meaning NGOs were involved as plaintiffs in almost three-quarters of the cases. Companies and state and local governments were also frequently involved as plaintiffs. On the defendant side, Figure 2 shows that the federal government was a named defendant in over one-third of the cases, and states were defendants in over one-quarter of the cases. Companies and local governments were also frequently named as defendants.

Intergovernmental litigation was not a common occurrence. The federal government was not a plaintiff in any case. States were named plaintiffs in 11 suits against the federal government, and local governments were named plaintiffs in eight such cases. Also, in one case, a state government sued a local government. There were no other examples of intergovernmental litigation. Of course, as *Massachusetts v. EPA*[42] demonstrates, small numbers in this sense do not necessarily mean small impact.

As Figure 3 shows, over one-half of climate change cases have been filed in federal court, and over one-quarter in state court. Litigation in federal and state agencies accounted for just over 10% of the cases, while we found no examples of local court or agency litigation.

B. *Types of Cases and Litigation Objectives*

Table 1 shows our typology of cases and the number of cases in our study fitting each category. As noted above, we developed the typology based on our review of literature about the status and future of climate change litigation. Thus, some of the litigation types had no matching cases. This is a significant finding, in that it shows that some forms of climate change litigation remain anticipated. For example, no case involved a claim regarding substantive climate change adaptation measures, whereas over 40% of the cases focused on substantive mitigation measures. The other major category, also accounting for over 40% of the cases, involved claims that causes or effects of climate change had not adequately been incorporated into impact assessment or information disclosure procedures, such as NEPA. The rest of the cases involved a range including ESA listing litigation and tort and contract liability litigation.

Table 2 digs a little deeper into the attributes of cases in the two major litigation thrusts—substantive mitigation and procedural defects. The patterns are quite similar in both categories, but a few noteworthy differences are apparent. For example, most industry NGO and company-initiated litigation is focused on substantive mitigation issues, whereas most environmental NGO litigation is focused on procedural claims. Also, state governments are the most frequent defendant in substantive mitigation cases, whereas the federal government is the most frequent defendant in the procedural cases.

We designed the typology also to allow us to differentiate between what we refer to as "pro" and "anti" cases, with "pro" cases having the objective of increasing regulation or liability associated with climate change, and "anti" cases

40. The majority of the cases we excluded involved challenges to new power plants that were based on prevention of significant deterioration (PSD) or other CAA-based claims. We readily acknowledge that the plaintiffs in such cases may have been motivated, at least in part, by a desire to reduce emissions of GHGs. However, because at the time of the survey EPA had not designated any GHG a pollutant for purposes of the PSD or other CAA programs involved in these cases, and because the claims involved other pollutants, we excluded the cases as not meeting our criteria for climate change litigation. U.S. EPA, Reconsideration of Interpretation of Regulations That Determine Pollutants Covered by Clean Air Act Permitting Programs, 75 Fed. Reg. 17004 (Apr. 2, 2010).

41. Many of the cases in the study involve mixes of plaintiffs and defendants, thus we report percentages of cases in which each type of party was named as a plaintiff or defendant.

42. 127 S. Ct. 1438, 37 ELR 20075 (2007).

being aimed in the opposite direction.[43] As Figure 4 shows, with 85% of the cases, "pro" litigation is the dominant thrust. Not surprisingly, our data show that "pro" litigation is most associated with environmental NGO plaintiffs, and "anti" litigation is most associated with industry NGO and company-initiated litigation.

Our coding system also adopted the structure of the Gerrard and Howe litigation inventory, by identifying sources of law behind the claims and by differentiating between cases based on statutory claims designed to force government to take action, such as to adopt a rule or issue a permit, or to prevent government from taking action. Figure 5 shows the breakdown between constitutional, statutory, and common-law claims, with statutory claims leading by far. Figure 6 shows the statutes raised in cases to force government action, and Figure 7 does the same for cases intended to prevent government action. Clearly, cases designed to prevent government action predominate, with NEPA and similar state statutes accounting for over one-third of the claims. Litigation to prevent issuance of permits to coal-fired power plants is also a significant component of this category, as are cases to prevent issuance of permits to other industrial facilities. In the much smaller category of cases to force government action, ESA listing cases accounted for the largest number, though other statutes were not far behind.

C. Outcomes, Status, and Trends

As Figure 8 shows, climate change litigation is a relatively recent phenomenon, with only 18 cases having been filed prior to 2006. Not surprisingly, therefore, most of the federal cases are pending or reached final resolution in district courts, as shown in Figure 9, with a small percentage reaching appellate stages. Figure 10 shows the status of all cases included in our study, with close to one-third of all cases still pending with no significant developments. Figures 11 and 12 show that this pattern is the same for "pro" and "anti" cases.

Figures 10 through 12 also show, however, that many cases have attained some degree of success on the merits. Almost one-third of all "pro" cases and a little over 10% of all "anti" cases have achieved partial or total success on the climate change-related claims. More cases in both categories, however, have been unsuccessful, either due to procedural defects or on the substantive merits—the climate change claims in over one-third of the "pro" cases and just under one-quarter of the "anti" cases have failed for one or the other reason.

Overall, the distribution of types of cases, their outcomes, and the relative recency of the filings suggests that the profile of climate change litigation is likely to be dynamic over the next decade. Over one-half of the cases in our study were filed in 2007 or later. Only 5% of cases have reached the appeals stage. No claims involving adaptation have been filed, and very few cases have involved tort, contract, human rights, or property rights claims. Moreover, one has to bear in mind that there is no comprehensive federal climate change legislation to begin with, thus accounting for the complete lack of federal enforcement litigation. Hence, climate change litigation has the potential to broaden in scope on many fronts and intensify across the board, including in areas where it is already quite active. In all likelihood, therefore, the findings of our study of cases filed through 2009 will be much different in many respects from our updated study in, say, 2015.

IV. Conclusion

Those who follow climate change matters know well the frenetic nature of initiatives to develop and implement strategies to address concerns about climate change impacts. The governance landscape is evolving rapidly and, if anything is clear, it seems inevitable that this landscape in a few years will look very different from the way it looks today. Indeed, our own speculation is that efforts to grapple with climate change issues are likely to be transformational beyond the climate change arena, and there is some evidence that this is already occurring.

This is the first law review effort of which we are aware that provides a comprehensive description of developments about climate change litigation in the U.S. court system. Given the importance of the judicial branch, both as a maker of law and as a driver of policy change in other branches, an understanding of developments in the judicial arena is indispensable. Our hope is that this effort to develop and present this set of analyses, which constitutes an initial baseline of activity in the court system, will be of value to a broad range of academicians, policymakers, litigators, and others.

While we gave considerable thought to the types of information about domestic climate change litigation that would have the greatest salience, we offer this Article well aware that there is a broad universe of experts interested in the questions we raise and the information and analyses we have provided. We solicit and welcome input about the fields of inquiry we have targeted. Our intention is that this Article will serve as a baseline for annual updates on the state of climate change litigation. As we track what we anticipate will be an ever-growing universe of cases, we very much welcome input on the types of information about such litigation that would be most useful to experts tilling different parts of the climate change landscape (or beyond). This Article is intended to contribute to an ongoing dialogue about the role of the courts in our system of governance. Our hope is that this initial story about the role of the courts in the climate change arena will encourage additional scholarship and, in tandem with future annual updates we prepare, will contribute to our understanding of a wide variety of issues relating to the judicial branch and its position and influence in our system of governance. We invite readers to work with us in this enterprise.

43. "Pro" cases are Case Types 1, 3, 5, 6, 7, 9, 10, 11, 13, 14, 15, and 16 in our typology, and "anti" cases are Case Types 2, 4, 8, 12, and 17.

Table 1. Case Typology

Category	Case Type	Cases # (%)
Substantive Mitigation Regulation	1. Action to prevent or limit a legislative or agency decision to carry out, fund, or authorize a direct or indirect source of GHG emissions, e.g., building, funding, or permitting a coal power plant.	25 (18%)
	2. Action challenging a legislative or agency decision to refuse or place limits on proposals to carry out, fund, or authorize a direct or indirect source of GHG emissions, e.g., to overturn denial of a power plant permit.	5 (3.5%)
	3. Action to require a legislature or agency to promulgate a statute, rule, or policy establishing new or more stringent limits on GHG emissions by regulating direct or indirect sources, e.g., to force EPA to regulate GHG emissions; to force local government to impose green building requirements.	10 (6.5%)
	4. Action challenging legislative or agency promulgation of statute, rule, or policy establishing new or more stringent limits on GHS emissions that regulate direct or indirect sources, e.g., to prevent EPA from regulating GHG emissions; to challenge local decisions to require green building.	13 (9.5%)
	5. Government enforcement action against direct or indirect GHG emissions source alleging violation of regulatory or permit limits.	0
	6. Citizen enforcement action against direct or indirect GHG emissions source alleging violation of regulatory or permit limits.	4 (3%)
Substantive Adaptation Measures	7. Action to require legislative or agency action on statute, rule, policy, or permit to require new or more extensive climate change adaptation actions, e.g., to require a coastal development permittee to retain wetlands as sea level buffer.	0
	8. Action to prevent legislative or agency action on statute, rule, policy, or permit that proposes to require new or more extensive climate change adaptation actions, e.g., to challenge proposed sea wall.	0
	9. Government enforcement action against public or private entity alleging violation of regulatory or permit condition related to climate change adaptation.	0
	10. Citizen enforcement action against public or private entity alleging violation of regulatory or permit condition related to climate change adaptation.	0
Procedural Monitoring, Impact Assessment, and Information Reporting	**11.** Action to impose on public or private entities a new or more extensive monitoring, impact assessment, or information disclosure requirement focused on GHG emissions, impacts of climate change, or means and success of climate change adaptation, e.g., to require NEPA documentation for coastal development to account for sea-level rise in EIS; to require public companies to disclose GHG emissions.	57 (41%)
	12. Action to prevent imposition on public or private entities a new or more extensive monitoring, impact assessment, or information disclosure requirement focused on GHG emissions, impacts of climate change, or means and success of climate change adaptation, e.g., to challenge proposed GHG emissions monitoring requirement.	0
Rights & Liabilities	**13.** Action to extend scope of human rights, property rights, or civil rights to provide protection of individual or public against effects of or responses to climate change, e.g., claim that GHG source violates civil rights; claim that immigration policy for climate refuges violates human rights.	0
	14. Action to impose statutory, tort, nuisance, or other property damage or personal injury liability on source of GHG emissions or for inadequate climate change mitigation or adaptation measures, e.g., public-nuisance action against GHG emission sources; public-nuisance claim for destruction of coastal dunes.	6 (4.5%)
	15. Action to impose contract, insurance, securities, fraud, failure to disclose, or other business or economic injury liability on source of GHG emissions or for inadequate climate change mitigation or adaptation measures, e.g., insurance recovery claim for effects of sea-level rise; dispute over carbon credit market transaction.	2 (1.5%)
Identification of Climate-Threatened Resources	**16.** Action to force agency to identify species or other resource as climate-threatened and list under federal or state ESA or other statute.	7 (5%)
	17. Action to reverse decision by agency to identify species or other resource as climate-threatened and list under federal or state ESA or other statute.	2 (1.5%)
Other	**18**. Other—not defined by other categories.	8 (6%)

Table 2. Attributes of Substantive Mitigation and Procedural Cases

Category	Attribute	Substantive Cases (#)	Procedural Cases (#)
Plaintiff	Federal	0	0
	State	5	4
	Local	3	5
	Tribal	0	3
	Env. NGO	40	52
	Ind. NGO	11	2
	Company	11	1
	Individual	0	2
Defendant	Federal	17	38
	State	28	14
	Local	7	11
	Tribal	0	0
	Company	20	11
	Individual	2	0
Forum	Federal Court	27	36
	State Court	16	19
	Local Court	0	0
	U.S. EPA	8	1
	Other Federal Agency	0	0
	State Agency	6	1
	Local Agency	0	0
Source of Law	Constitutional	7	3
	Statutory	50	55
	Common Law	1	0

Figure 1. Plaintiffs (# of cases)

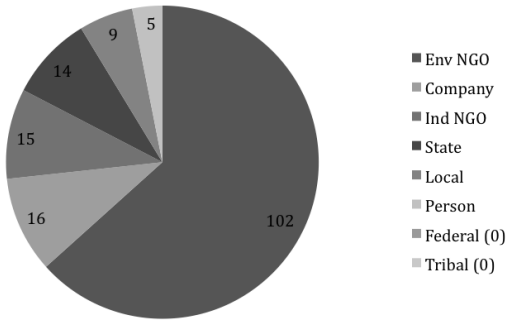


Figure 2. Defendants (# of cases)

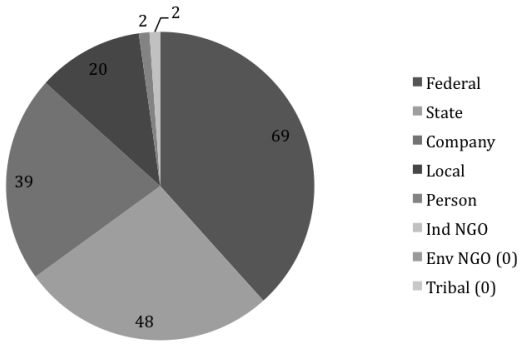


Figure 3. Forums (% of all cases)

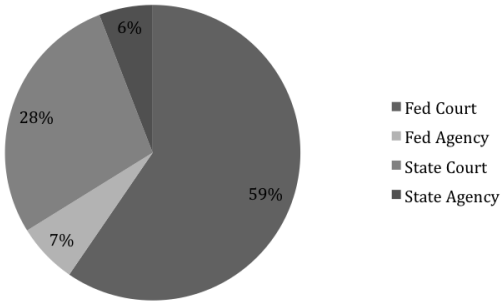


Figure 4. Litigation Objective (% of all cases)

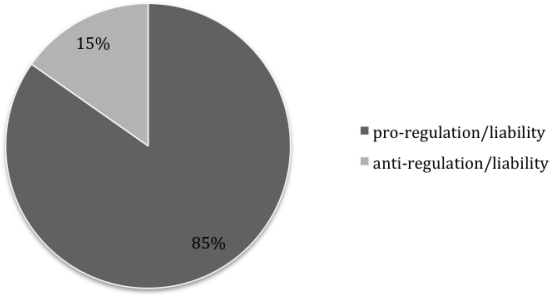


Figure 5. Source of Law for Claim (% of all cases)

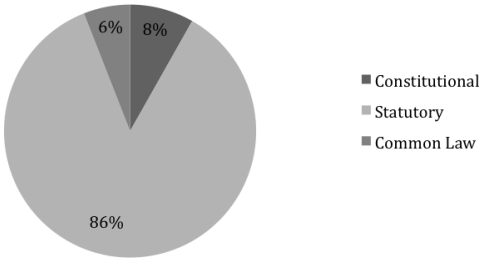


Figure 8. Annual Number of Cases Filed

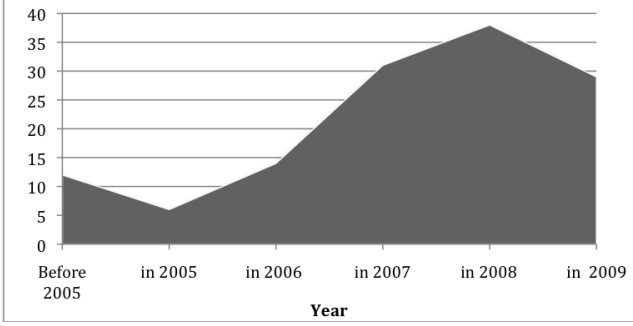


Figure 6. Claims to Force Government Action (# of cases)

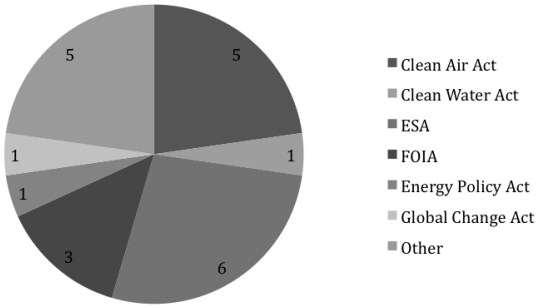


Figure 9. Cases Pending or Resolved in Federal Courts (# of cases)

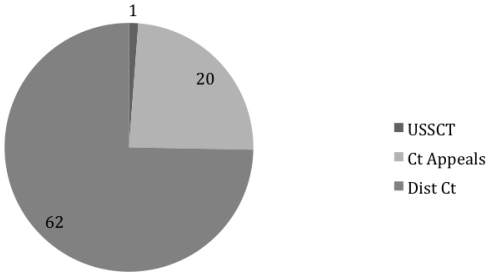


Figure 7. Claims to Prevent Government Action (# of cases)

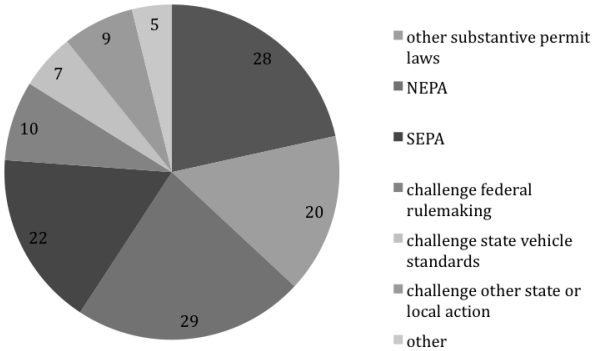


Figure 10. Status of Cases (% of all cases)

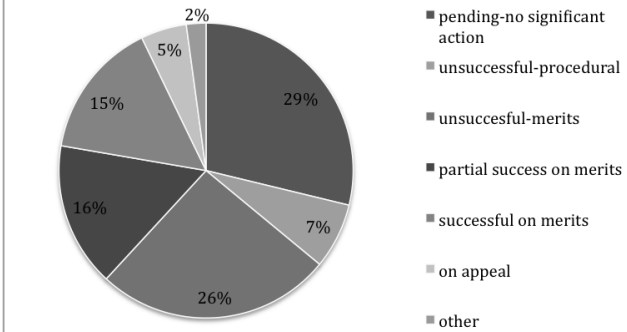


Figure 11. Status of "Pro" Cases (% of 111 cases)

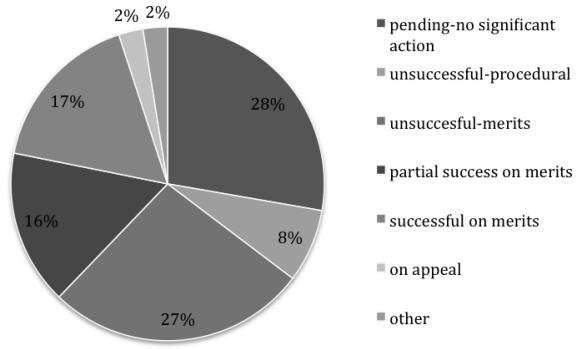
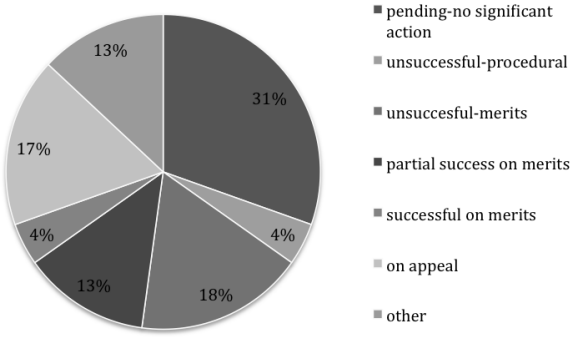


Figure 12. Status of "Anti" Cases (% of 20 cases)



Appendix A—Case Coding Attributes

Summary Information

- Case Style
- Year of filing
- Year of decision
- Type of Case (see Table 1)
- "Pro" Regulation/Liability
- "Anti" Regulation/Liability
- Status
  - Pending—No substantive preliminary or final outcomes
  - Unsuccessful—Procedural Obstacles
  - Unsuccessful—Substantive Merits
  - Partially successful preliminary or final substantive outcome
  - Successful preliminary or final substantive outcome
  - Appealed
  - Unknown
  - Other

Plaintiff(s)/Applicant(s)

- Federal government
- State government
- Local government
- Native Americans
- Environmental NGO
- Industry NGO
- Company
- Person

Defendant(s)/Parties

- Federal government
- State government
- Local government
- Native Americans
- Company
- Person

Tribunal

- International
  - Court
  - Agency
- Federal
  - Court
    - U.S. S. Ct.
    - Ct. App.
    - Dist.
  - Agency—EPA
  - Agency—Other
- State
  - Court
  - Agency—State EPA
  - Agency—Other
- Local
  - Court
  - Agency
- Tribal

Type of claim

- Constitutional
  - Commerce Clause—Lack of federal authority
  - Commerce Clause—Improper state action
  - Takings Clause
  - Other Federal
  - State
- Statutory
  - Force government to act
    - CAA
    - CWA
    - ESA
    - FOIA
    - Energy Policy Act
    - Global Change Research Act
    - Other
  - Stop government action
    - Prevent Coal Power Plant
    - Other Substantive Project Challenges

        - NEPA Claim
        - State NEPA Claim
        - Challenge Federal Rulemaking
        - Challenge State vehicle standards
        - Challenge Other State/Local enactments
        - Other
    - Regulate private conduct
        - CWA
        - ESA
        - Other
- Common-Law Claims
    - Private Nuisance
    - Public nuisance
    - Trespass
    - Negligence
    - Strict Liability
    - Public trust doctrine
    - Civil conspiracy
- Public International Law Claim
- Administrative Challenge to Agency Permit, License, Etc.
    - Permit Challenge
    - Ratemaking Challenge
    - Licensing Challenge
    - Contract Challenge
    - Other

Jurisdictional Mechanism

- APA
- Citizen suit
- Common-law cause of action
- Right of petition
- Other

Outcome and relief awarded

- Unknown
- Pending—No Significant Action
- Court denies plaintiff motion for PI
- Dismissal not on merits
    - Standing
    - Lack of Jurisdiction
        - Procedural
        - Statutory
        - Political question
    - Ripeness
    - Failure to exhaust
    - Mootness
    - Preemption
- Dismissal on merits (motion or S/J)
- Trial on merits—no liability
- Preliminary Injunction awarded
- Plaintiff MSJ granted in part, denied in part
- Final Injunctive relief awarded
- Money damages awarded
- Attorneys' fees awarded
- Declaratory judgment
- Remand to agency
- Agency promulgation of rule
- Agency grants permit, license, rate, etc.
- Agency denies permit, license, rate, etc.
- Appeal denied
- Appeal affirms ruling below

Development of law

- Constitutional interpretation
- Statutory interpretation
- Regulatory interpretation
- Common-law doctrinal interpretation
- None