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Environmental Law and Policy Annual Review

Environmental Law and Policy Annual Review

2017-2018

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ELR invites readers to submit articles and comments, which are shorter features, for publication. Manuscripts may be on any subject of environmental, sustainability, natural resources, energy, toxic tort, or land use law or policy. Citations should conform to *A Uniform System of Citation* (the "Bluebook") and should include *ELR* citations for materials that we have published.

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Environmental Law and Policy Annual Review

Dear Readers:

The *Environmental Law and Policy Annual Review* (ELPAR) is published by the Environmental Law Institute's (ELI's) *Environmental Law Reporter (ELR)* in partnership with Vanderbilt University Law School. ELPAR provides an annual forum for presentation and discussion of the best environmental law and policy-relevant ideas from the legal academic literature. The publication is designed to fill the same important niche as *ELR* by helping to bridge the gap between academic scholarship and environmental policymaking.

ELI and Vanderbilt formed ELPAR to accomplish three principal goals. The first is to provide a vehicle for movement of ideas from the academy to the policymaking realm. Academicians in the environmental law and policy arena generate hundreds of articles each year, many of which are written in a dense, footnote-heavy style that is inaccessible to policymakers with time constraints. ELPAR selects the leading ideas from this large pool of articles and makes them digestible by reprinting them in a short, readable fashion accompanied by expert, balanced commentary.

The second goal is to improve the quality of legal scholarship. Academicians have strong institutional incentives to write theoretical work that ignores policy implications. ELPAR seeks to shift these incentives by recognizing scholars who write articles that not only advance legal theory, but also reach policy-relevant conclusions. By doing so, ELPAR seeks to induce academicians to generate new policy ideas and to improve theoretical scholarship by asking them to account for the hard choices and constraints faced by policymakers. And the third and most important goal is to provide a first-rate educational experience to law students interested in environmental law and policy.

To select articles for inclusion, the ELPAR Editorial Board and Staff conducted a key word search for "environment!" in an electronic database. The search was limited to articles published from August 1, 2016, through July 31, 2017, in the law reviews from the top 100 *U.S. News and World Report*-ranked law schools and the environmental law journals ranked by the Washington and Lee University School of Law. Journals that are solely published online were searched separately. Student scholarship and non-substantive content were excluded.

The Vanderbilt students then screened articles for consistency with the ELPAR selection criteria. They included only those articles that met the threshold criteria of addressing an issue of environmental quality and offering a law or policy-relevant solution. Next, they considered the articles' feasibility, impact, creativity, and persuasiveness.

Through discussion and consultation, the students ultimately chose 16 articles for review by the ELPAR Advisory Committee. The Advisory Committee provided invaluable insights on article selection. Vanderbilt University Law School Prof. Michael Vandenbergh, ELI Senior Attorney Linda Breggin, ELI Director of Communications & Publications Rachel Jean-Baptiste, and *ELR* Editor-in-Chief Jay Austin also assisted in the final selection process. Five articles were selected, and two received honorable mentions. Commentary on the selected articles then was solicited from practicing experts in both the private and public sectors.

On April 6, 2018, in Washington, D.C., ELI and Vanderbilt cosponsored a conference, where some of the authors of the articles and comments presented their ideas to an audience of business, government (federal, state, and local), think tank, media, and nonprofit participants. The featured articles were "Preventing Industrial Disasters in a Time of Climate Change: A Call for Financial Assurance Mandates"; "Visual Rulemaking"; and "Impact Transaction: Lawyering for the Public Good Through Collective Impact Agreements." The conference was structured to encourage dialogue among presenters and attendees.

In addition, a symposium at Vanderbilt on March 12 featured "Relative Administrability, Conservatives, and Environmental Regulatory Reform," and an ELI public webinar on April 9 showcased "Managing the Future of the Electricity Grid: Distributed Generation and Net Metering."

The students worked with the authors to shorten the original articles and to highlight the policy issues presented, as well as to edit the comments. These edited articles and comments are published here as ELPAR, which is also the August issue of *ELR*. Also included in ELPAR is an article on environmental legal scholarship, which is based on the data collected through the ELPAR review process. We are pleased to present the results of this year's efforts.

Linda K. Breggin, Senior Attorney, Environmental Law Institute;
Adjunct Professor of Law, Vanderbilt University Law School

Jay E. Austin, Editor-in-Chief, *Environmental Law Reporter*

Michael P. Vandenbergh, David Daniels Allen Distinguished Chair of Law, Vanderbilt University Law School

Analysis of Environmental Law Scholarship 2016-2017

by Stephanie M. Biggs, Linda K. Breggin, Claire B. Johnson, and Michael P. Vandenbergh

Linda K. Breggin is a Senior Attorney with the Environmental Law Institute and Adjunct Professor, Vanderbilt University Law School. Stephanie M. Biggs and Claire B. Johnson are recent graduates of Vanderbilt University Law School. Michael P. Vandenbergh is the David Daniels Allen Distinguished Chair of Law and Co-Director of the Energy, Environment, and Land Use Program, Vanderbilt University Law School.

The *Environmental Law and Policy Annual Review* (ELPAR) is published by the Environmental Law Institute's (ELI's) *Environmental Law Reporter* in partnership with Vanderbilt University Law School. ELPAR provides a forum for the presentation and discussion of some of the most creative and feasible environmental law and policy proposals from the legal academic literature each year. The pool of articles that are considered includes all environmental law articles published during the previous academic year. The law journal articles that are re-published and discussed are selected by Vanderbilt University Law School students with input from their course instructors and an outside advisory committee of experts.

The purpose of this Comment is to highlight the results of the ELPAR article selection process and to report on the environmental legal scholarship for the 2016-2017 academic year, including the number of environmental law articles published in general law reviews versus environmental law journals, and the topics covered in the articles. We also present the top 16 articles that met ELPAR's criteria of persuasiveness, impact, feasibility, and creativity, from which seven articles were selected to re-publish in shortened form, some of them with commentaries from leading practitioners and policymakers. Thus, the goal of this Comment is to provide an empirical snapshot of the environmental legal literature during the past academic year, as well as provide information on the top articles chosen by ELPAR.

I. Methodology

A detailed description of the methodology is posted on the Vanderbilt University Law School and Environmental Law Institute ELPAR websites.[1] In brief, the initial search for articles that qualify for ELPAR review is limited to articles published from August 1 of the prior year to July 31 of the current year, roughly corresponding to the academic year. The search is conducted in law reviews from the top 100 law schools, as ranked by *U.S. News and World Report* in its most recent report, counting only articles from the first 100 schools ranked for data purposes (i.e., if there is a tie and over 100 schools are considered top 100, those that fall in the first 100 alphabetically are counted). Additionally, journals listed in the "Environment, Natural Resources and Land Use" subject area of the most recent rankings compiled by Washington & Lee University School of Law are searched,[2] with certain modifications.

The ELPAR Editorial Board and Staff start with a keyword search for "environment!" in an electronic legal scholarship database.[3] Articles without a connection to the

1. *Environmental Law and Policy Annual Review Publications*, Envtl. L. Inst., https://www.eli.org/environmental-law-policy-annual-review/publications (last visited Feb. 28, 2018) [https://perma.cc/99JV-W6SS]; *Environmental Law & Policy Annual Review Online Supplements*, Vand. L. Sch., http://law.vanderbilt.edu/academics/academic-programs/environmental-law/environmental-law-policy-annual-review/online-supplements.php (last visited Feb. 28, 2018) [https://perma.cc/D78E-X5P8].
2. *Law Journals, Submissions, and Rankings Explained*, Wash. & Lee Sch. of L., https://managementtools4.wlu.edu/LawJournals/ (last visited Mar. 13, 2018) [https://perma.cc/PW5F-LM3U].
3. ELPAR members conduct a search in the spring semester of articles published between August 1 and December 31 of the previous year. In the fall semester, members search each journal for articles published earlier that year, between the days of January 1 and July 31. The exact date of access for each journal varies according to when each individual ELPAR member performed the searches on their assigned journals, but the spring searches were performed in the 3rd week of January, 2017, and the fall searches were performed in the 3rd week of August, 2017. In order to collect articles from "embargoed" journals, which are only available on Westlaw after a delay, as well as articles from journals that are published after their official publication date, we set up a Westlaw Alert system to notify us when an article meeting our search criteria was uploaded to Westlaw after ELPAR members conducted their initial searches. A Westlaw Alert was set up for the spring search on April 4, 2017 and ran until August 24, 2017. An alert was set up for the fall search on August 26, 2017 and ran until September 11, 2017. Articles caught by the Westlaw Alert system were subsequently considered for selection by ELPAR and added to our data analysis. This is the first year ELPAR has implemented the Westlaw Alert system, therefore, our article data in Section II should not be compared to data from prior years. Law reviews of schools added to the *U.S. News and World Report* Top 100 are

natural environment (e.g. "work environment" or "political environment") are removed, as are book reviews, eulogies, non-substantive symposia introductions, case studies, presentation transcripts and editors' notes. Student scholarship is excluded if the piece is published as a note or comment by a student who is a member of the staff of the publishing journal. We recognize that all ranking systems have shortcomings and that only examining top journal imposes limitations on the value of our results. Nevertheless, this approach provides a useful glimpse of leading scholarship in the field.

For purposes of tracking trends in environmental scholarship, the next step is to cull the list generated from the initial search in an effort to ensure that the list contains only those articles that qualify as "environmental law articles." Determining whether an article qualifies as an environmental law article is more of an art than a science, and our conclusions should be interpreted in that light. However, we have attempted to use a rigorous, transparent process. Specifically, an article is considered an "environmental law article" if environmental law and policy are a substantial focus of the article. The article need not focus exclusively on environmental law, but environmental topics should be given more than incidental treatment and should be integral to the main thrust of the article. Many articles in the initial pool, for example, address subjects that influence environmental law, including administrative law topics (e.g., executive power and standing), or tort law topics (e.g., punitive damages). Although these articles may be considered for inclusion in ELPAR and appear in our selection of top articles, they are not included for purposes of tracking environmental law scholarship since environmental law is not the main thrust of these articles.

Each article in the data set is categorized by environmental topic to allow for tracking of scholarship by topic area. The 10 topic categories are adopted from the *Environmental Law Reporter* subject matter index and include: air, climate change, energy, governance, land use, natural resources, toxic substances, waste, water, and wildlife.[4] ELPAR students assign each article a primary topic category and, if appropriate, a secondary category.

The ELPAR Editorial Board and Staff work in consultation with the course instructors, Professor Michael P. Vandenbergh and ELI Senior Attorney Linda K. Breggin, to determine whether articles should be considered environmental law articles and how to categorize the article by environmental topic for purposes of tracking scholarship. The articles included in the total for each year are identified on lists posted on the Vanderbilt University Law School website.[5]

searched for the entire year in the fall, and schools removed from the top 100 after the spring search are not considered for trends data.

4. *Subject Matter Index,* Envtl. L. Rep., http://www.elr.info/subject-matter-index (last visited Feb. 12, 2018) [https://perma.cc/94NK-LZHE].

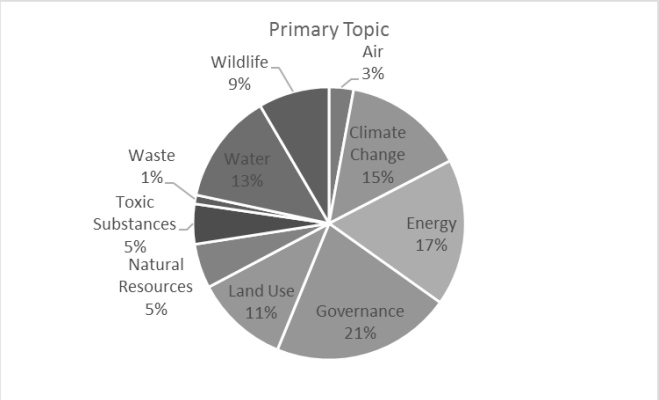
5. *Environmental Law & Policy Annual Review Online Supplements*, Vand. L. Sch., http://law.vanderbilt.edu/academics/academic-programs/environmental-law/environmental-law-policy-annual-review/online-supplements.php (last visited Feb. 28, 2018) [https://perma.cc/D78E-X5P8].

II. Data Analysis on Environmental Legal Scholarship

During the 2017 ELPAR review period, we identified 379 environmental articles published in top law reviews and environmental law journals from August 1, 2016, to July 31, 2017. Three hundred and fifteen (83%) of these articles were published in journals that focus on environmental law, and 64 (17%) were published in general law reviews.

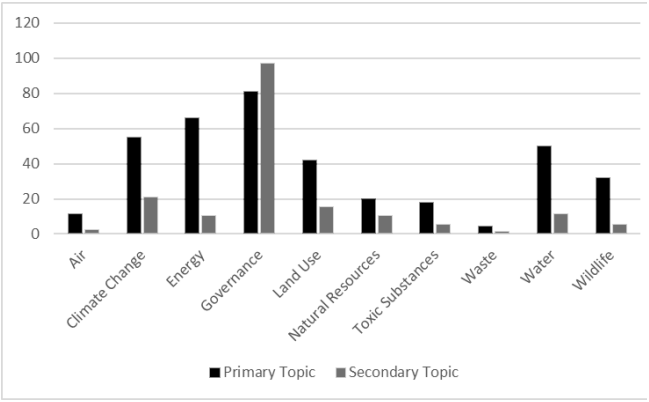
The primary topics of the 379 environmental articles published in 2016-2017 were as follows (see Figure 1): 81 governance[6] articles (21.4%), 66 energy articles (17.4%), 55 climate change articles (14.5%), 50 water articles (13.2%), 42 land use articles (11.1%), 32 wildlife articles (8.4%), 20 natural resources articles (5.3%), 18 toxic substances articles (4.7%), 11 air articles (2.9%), and 4 waste articles (1.1%). One hundred and seventy-seven articles were also identified as including a secondary topic, categorized as follows (see Figure 2): 97 governance articles, 21 climate change articles, 15 land use articles, 11 water articles, 10 energy articles, 10 natural resources articles, 5 toxic substances articles, 5 wildlife articles, 2 air articles, and 1 waste article. Accordingly, the most common topic category was governance, followed by energy and climate change.

Figure 1. 2016-2017 Articles Categorized by Primary Topic



6. *ELR* subject matter index includes subtopics for each topic. For example, subtopics for the governance topic include: administrative law, Administrative Procedure Act, agencies, bankruptcy, civil procedure, comparative law, constitutional law, contracts, corporate law, courts, criminal law, enforcement and compliance, environmental justice, environmental law and policy, Equal Access to Justice Act, False Claims Act, Federal Advisory Committee Act, federal facilities, federal jurisdiction, Freedom of Information Act, human rights, indigenous people, infrastructure, institutional controls, insurance, international, public health, public participation, risk assessment, states, tax, tort law, trade, tribes, and U.S. government. For a list of all the subtopics in each topic, please see the following *ELR* link. *Subject Matter Index,* Envtl. L. Rep., http://www.elr.info/subject-matter-index (last visited Feb. 12, 2018) [https://perma.cc/94NK-LZHE].

Figure 2. 2016-2017 Articles Categorized by Primary and Secondary Topic



III. Top 16 Articles Analysis

The top 16 articles chosen from the pool of eligible environmental law and policy-related articles published during the 2016-2017 academic year can be found in Table 1. Of the top 16 outlined below, eight articles call for action by state and local governments as part of their proposal, four articles call for action by private entities and non-profit groups, and three articles call for federal agency action. Several of the articles include proposals that incorporate federal, state, local, and private entity actions.

Primary topics identified in the top 16 articles were as follows: five climate change articles, five governance articles, three energy articles, two land use articles, and one wildlife article. Secondary topics were also identified for several articles: four governance, one climate change, and one land use.

This year's pool of top articles came from both general and environmental law journals. Nine of the top 16 articles were published in environmental law journals, including three articles from Harvard Environmental Law Review and two articles from The Environmental Law Reporter News & Analysis. Seven of the top 16 articles were published in law reviews, including two articles from N.Y.U. Law Review.

The lead authors of the top articles came from a range of law schools and academic backgrounds. Two article authors are from Vanderbilt University Law School. While most articles chosen are written by professors, three of the lead authors of the top 16 articles wrote their pieces as J.D. Candidates.

The chart below lists every article included in the top 16, with a brief description of each article's big idea. The descriptions of the big ideas were drafted by the student editors and reflect the key points they thought made an important contribution to the environmental law and policy literature. Links are provided to the full articles and most of the links contain the author's abstract.

Table 1. Article Overview Chart

Author	Author Affiliation	Title	Citation and URL	Topic	The Big Idea
Arnold, Zachary	J.D., Yale Law School	Preventing Industrial Disasters in a Time of Climate Change: A Call for Financial Assurance Mandates	41 Harv. Envtl. L. Rev. 243 http://harvardelr.com/wp-content/uploads/2017/05/Arnold.pdf	Climate Change /Governance	Financial assurance mandates (FAMs), such as insurance requirements, should be a central element of climate adaptation policy, because coastal industries are underinvesting in reducing the risks their operations pose and the most common coastal climate adaptation regulatory approaches—such as zoning, building codes, and adaptation subsidy programs—have serious drawbacks.

Author	Author Affiliation	Title	Citation and URL	Topic	The Big Idea
Crowder, Patience	Associate Professor of Law, University of Denver Sturm College of Law	Impact Transaction: Lawyering for the Public Good Through Collective Impact Agreements	49 IND. L. REV. 621 https://mckinneylaw.iu.edu/ilr/pdf/vol49p621.pdf	Governance	Nonprofit organizations, public entities (including state and local governments), educational institutions, the private sector, and community representatives should create "impact transactions" that leverage public and private resources to address large-scale societal problems, such as environmental degradation, using new tools, including a collective impact initiative roadmap and an outline for the collective impact contract process that is based on relational contract theory.
Erwin, John	J.D., James E. Rogers College of Law and Ph.D., Genetics Graduate Interdisciplinary Department, University of Arizona	Hybridizing Law: A Policy for Hybridization Under the Endangered Species Act	47 ELR 10615 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2930418	Wildlife	In determining whether hybrid populations should be protected under the Endangered Species Act, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service should adopt a policy that uses a two-factor test that considers whether protection of hybrid organisms: 1) preserves an endangered taxon; and 2) benefits the ecosystem as a whole.
Gaudioso, Lynsey	J.D. and M.E.M., Yale Law School	A Billion Grains of Truth: Distributional Impacts of Household-Level Climate Change Tax Subsidies in the United States	18 VT. J. ENVTL. L. 666 http://vjel.vermontlaw.edu/files/2017/06/Gaudioso_FP.pdf	Climate Change	Federal and state climate change tax incentives should be structured as refundable credits for renters and owners (of homes, cars, or other energy-efficient technology) so that they are available to low-income taxpayers because more progressive tax incentives are cost-effective, efficient, equitable, and will help increase long-term support for climate change programs.

Author	Author Affiliation	Title	Citation and URL	Topic	The Big Idea
Hudson, Blake	Professor of Law, University of Houston Law Center	Relative Administrability, Conservatives, And Environmental Regulatory Reform	68 Fla. L. Rev. 1661 http://www.floridalawreview.com/2017/relative-administrability-conservatives-environmental-regulatory-reform/	Land Use	State and local policies that employ geographic delineations or line drawing, such as environmental buffers and growth boundaries, provide opportunities for conservatives to support environmental protection goals while reducing the size, scope, and cost of the federal bureaucracy.
Kisska-Schulze, Kathryn & Darren Prum	Kisska-Schulze—Assistant Professor, Clemson University; Prum—Assistant Professor, Florida State University	States Taxing Carbon: Proposing Flexibility and Harmonization in the Movement Toward Environmental Reform in the U.S.	40-SPG Environs Envtl. L. & Pol'y J. 87 https://environs.law.ucdavis.edu/volumes/40/2/articles/Kisska-Schulze-Prum.pdf	Governance/ Climate Change	Unilateral state carbon tax regulations will be more efficient and cost-effective if a Streamlined State Carbon Tax Administration is established and if states: 1) provide businesses with a flexible schedule; 2) offer tax credits to offset price increases; and 3) promote carbon reducing programs and technologies.
Klass, Alexandra & Jim Rossi	Klass—Distinguished McKnight University Professor, University of Minnesota Law School; Rossi—Professor of Law, Vanderbilt Law School	Reconstituting the Federalism Battle in Energy Transportation	41 Harv. Envtl. L. Rev. 423 http://harvardelr.com/wp-content/uploads/2017/08/KlassRossi_final.pdf	Energy	Specific procedural reforms that proactively incorporate state and local input earlier in the federal approval processes for energy transport projects can result in more rapid integration of diverse energy resources and implementation of new energy technologies.
Light, Sarah	Assistant Professor of Legal Studies and Business Ethics, Wharton School, University of Pennsylvania	Precautionary Federalism and the Sharing Economy	66 Emory L.J. 333 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2760985	Governance	A new "precautionary federalism" principle should be adopted by agencies, courts, and legislatures that allows all levels of government to regulate the sharing economy in the near term, in an effort to garner information on economic and environmental impacts and determine which level(s) of government are best situated to regulate it.

Author	Author Affiliation	Title	Citation and URL	Topic	The Big Idea
Porter, Elizabeth G. & Kathryn A. Watts	Porter—Charles I. Stone Professor of Law and Associate Professor of Law, University of Washington School of Law; Watts—Jack R. MacDonald Chair and Professor of Law, University of Washington School of Law	Visual Rulemaking	91 N.Y.U. L. Rev. 1183 http://www.nyulawreview.org/sites/default/files/pdf/NYULawReview-91-5-Porter%26Watts_0.pdf	Governance	The use of visuals by agencies and other key stakeholders in the rulemaking process should be encouraged, as well as included as part of the administrative record, in order to democratize the system by promoting transparency, political accountability, and increased public participation.
Revesz, Richard & Burcin Unel	Revesz—Lawrence King Professor of Law and Dean Emeritus, N.Y.U. School of Law; Unel—Senior Economist, Institute of Policy Integrity, N.Y.U. School of Law	Managing the Future of the Electricity Grid: Distributed Generation and Net Metering	41 Harv. Envtl. L. Rev. 43 http://harvardelr.com/wp-content/uploads/2017/05/Revesz_Unel_updated.pdf	Energy	Until more comprehensive energy reform can be achieved that ensures the efficient integration of all types of distributed energy into the grid, an "Avoided Cost Plus Social Benefit" protocol should be adopted for net metering of distributed energy generation, whereby clean distributed energy is rewarded for its environmental and health benefits and utilities are compensated for the services they provide.
Righetti, Tara	Associate Professor of Law, University of Wyoming College of Law	Correlative Rights and Limited Common Property in the Pore Space: A Response to the Challenge of Subsurface Trespass in Carbon Capture and Sequestration	47 ELR 10420 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2961477	Climate Change	State governments should adopt regulations that foster carbon capture and sequestration (CCS) by establishing a limited common property right in the pore space, with rights of proportionate use, as a way to address concerns about subsurface trespass resulting from migration of carbon dioxide and other chemicals from injection projects.
Scrufari, Carrie	Assistant Professor and Senior Fellow at the Center for Agriculture and Food Systems, Vermont Law School	Tackling the Tenure Problem: Promoting Land Access for New Farmers as Part of a Climate Change Solution	42 Colum. J. Envtl. L. 497 http://www.columbiaenvironmentallaw.org/tackling-the-tenure-problem/	Climate Change /Land Use	Farmers should use legal tools, such as limited liability companies, leases, and conservation easements, in innovative ways to promote land access, preserve farmland, facilitate succession, and ensure equitable and stable tenure arrangements so that civic agriculture can contribute to climate change mitigation.

Author	Author Affiliation	Title	Citation and URL	Topic	The Big Idea
Serkin, Christopher	Professor of Law and Associate Dean for Academic Affairs, Vanderbilt Law School	Insuring Takings Claims	111 Nw. U. L. Rev. 75 https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1263&context=nulr	Land Use/ Governance	State indemnification or private insurance for takings claims against local governments would increase municipalities' willingness to regulate land use in ways that promote environmental quality and facilitate climate adaptation, such as converting private property into wetlands.
Simms, Patrice	Associate Professor of Law, Howard University School of Law	Leveraging Supplemental Environmental Projects: Toward an Integrated Strategy for Empowering Environmental Justice Communities	47 ELR 10511 https://elr.info/news-analysis/47/10511/leveraging-supplemental-environmental-projects-toward-integrated-strategy-empowering-environmental-justice	Governance	Governments, philanthropies, universities, and nongovernmental organizations should work with marginalized communities to advance environmental justice by leveraging supplemental environmental projects associated with enforcement actions, and using a deliberate strategy that includes identifying opportunities, providing technical assistance, engaging in advocacy, and fostering regional partnerships.
Van de Biezenbos, Kristen	Associate Professor, University of Oklahoma College of Law	Where Oil Is King	85 Fordham L. Rev. 1631 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2739172	Energy	With a number of states forbidding local fracking bans and the federal government rolling back environmental regulation, cities and towns should incorporate and enforce existing state environmental laws to minimize harms associated with fracking.
Welton, Shelley	Assistant Professor, University of South Carolina School of Law	Public Energy	92 N.Y.U. L. Rev. 267 http://www.nyulawreview.org/sites/default/files/pdf/Welton—Final.pdf	Climate Change /Governance	Cities should consider reclaiming public ownership or control of private electric utilities as a way to more effectively control energy supplies and achieve their decarbonization goals.

Preventing Industrial Disasters in a Time of Climate Change: A Call for Financial Assurance Mandates

Zachary C.M. Arnold

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I. Introduction

When Hurricane Katrina tore through southern Louisiana, it left more than downed trees and standing water in its wake: over one million gallons of oil coated the streets, homes, and businesses of the small city of Meraux, home of a Murphy Oil refinery. Katrina's fierce winds and storm surge had torn a massive tank off its foundations and carried it away on the floodwaters, gushing oil as it went.[1] The damage could have been far greater. Katrina was by no means a worst-case storm,[2] and luckily, only one of the refinery's many tanks ruptured—and it leaked less than a third of the oil it contained.[3] Nonetheless, the spill devastated the surrounding area, causing hundreds of millions of dollars in damage to thousands of homes and businesses and choking nearby canals with oil.[4] When reporters returned to the scene a year later, they found "abandoned houses and overgrown lawns," and neighbors lamenting the loss of a community.[5]

This Article is adapted from Zachary Arnold*, Preventing Industrial Disasters in a Time of Climate Change: A Call for Financial Assurance Mandates,* 41 Harv. Envtl. L. Rev. 243 (2017).

**This Article expresses the personal views of the author and has not been approved or endorsed by Latham & Watkins. The views expressed herein should not be attributed to Latham & Watkins or its personnel. The author wishes to thank Dan Esty, John Broomfield, Don Elliott, Sue Neuman, Cameron Partovi, David Schleicher, Mark Tomaier, Mike Walker, and Hannah Wiseman.*

1. *See* Murphy Oil Spill Fact Sheet, EPA, 1 (2006), https://perma.cc/8VQU-4YHA.
2. *See, e.g.*, *Katrina Was Category 3, Not 4*, CNN (Dec. 21, 2005, 9:23 AM), https://perma.cc/J35Y-PQTP ("When it slammed ashore on the Gulf Coast in August, Hurricane Katrina was a strong Category 3 storm, not a Category 4 as initially thought . . . New Orleans . . . likely escaped the storm's strongest winds.").
3. *See* Murphy Oil Spill Fact Sheet, *supra* note 1.
4. *See $330 Million Settlement Deal in Katrina Oil Spill*, NBC News (Sept. 25, 2006, 7:43 PM), https://perma.cc/779P-KW44.
5. *See id.*

The Murphy Oil incident may be a sign of things to come. Consensus projections of climate change and its impacts suggest that over the next several decades, sea levels will rise, coastal flooding will become more and more prevalent, and hurricanes may become stronger and more frequent as ocean temperatures warm. In turn, industrial facilities along the coasts will become more and more likely to experience destructive floods and storms.

This trend has sobering implications. America's population and economy are disproportionately coastal. Rising sea levels, more powerful and frequent storms, and increased flooding threaten to wreak havoc on these facilities, causing grave harm to life, property, and natural resources in surrounding communities.[6]

Financial assurance mandates (FAMs) may help induce coastal industries to invest in adaptation. FAMs require companies to prove that they can pay for the liabilities they may incur—whether by drawing on their own resources or by bringing in a third party, such as an insurer or surety, to pick up the tab.

FAMs are familiar tools whose strengths have been demonstrated in practice as well as in theory. Federal, state, and local regulators use them to reduce the risk of catastrophes of all sorts, from nuclear incidents and oil spills to impacts resulting from abandonment of dangerous facilities. History shows that these measures can be effective and reasonable in cost.[7] And crucially, because they are relatively

6. *See, e.g.*, Scott Gurian, *New Jersey's Industrial Coast Remains Vulnerable to the Next Extreme Storm*, NJSpotlight (Dec. 8, 2015), https://perma.cc/TA5L-U7LE/; David A. Graham, *The Mothers of All Disasters*, The Atlantic (Sept. 2, 2015), https://perma.cc/28YX-XQCW; Eric Berger, *Models Show "Massive Devastation" in Houston*, Houston Chron. (Feb. 20, 2005, 6:30 AM), https://perma.cc/SJ9J-UPA6; Tom Fowler, *Houston-Area Facilities Say They're Prepared*, Houston Chron. (Sept. 21, 2005, 5:30 AM), https://perma.cc/A37M-FXNH.
7. James Boyd, *Financial Responsibility for Environmental Obligations: Are Bonding and Assurance Rules Fulfilling Their Promise?* 5–8 (Resources for the Future Discussion Paper 01-42, Aug. 2001), https://perma.cc/9D9B-SHEP ("In every regulatory context to date, private financial markets have developed to provide the insurance, bonds, and other financial instruments necessary to demonstrate assurance, and they provide these products at reasonable cost."); Robert V. Percival et al., Environmental Regulation: Law, Science, and Policy 145 ("[F]inancial assurance mandates in the Oil

simple to design and enforce, FAMs are particularly appropriate for use by state and local policymakers, making them well suited to an era of federal gridlock and geographically uneven climate impacts. For these reasons, policymakers should require many coastal firms to buy insurance for the harms their operations may cause to others as a result of the coastal impacts of climate change.

II. The Coastal Impacts of Climate Change and the Need for Industrial Adaptation

There is broad consensus that coastal climate adaptation efforts are both essential and underdeveloped.[8] Many of America's vital industries are concentrated on the coasts, and their exposure to the floods and storms that climate change threatens poses grave risks for society at large.

First, extreme weather and flooding could cause huge economic losses by disrupting systemically important industries.[9]

Second, storms and flooding could cause environmental and public health catastrophes. The industrial facilities lining our coasts store and process dangerous substances, and when facilities are damaged, inundated, or hastily taken offline, these substances can and do escape.

Third, and relatedly, storm and flood hazards, and the potential liabilities and business risks they entail, could lead companies to simply abandon facilities, leaving unsecured and dangerous structures containing hazardous substances to blight the coasts—and, potentially, to cause releases and spills.

In theory, coastal industry should already have strong economic incentives to adapt, but it will probably underinvest in adaptation on its own. At its highest levels, corporate America generally understands that climate change is occurring and likely to accelerate in the future, and that it entails serious business risks.[10] However, coastal businesses may not fully bear all of the relevant risks of climate change. In particular, corporations have a number of ways to "externalize" environmental damage. Lawsuits over environmental disasters entail tricky questions of causation and valuation. For example, if faced with environmental claims it cannot pay, a business may declare bankruptcy as a last resort, leaving claimants to haggle over whatever remains.[11]

III. Approaches to Coastal Industrial Adaptation: The Role of Financial Assurance Mandates

A. *The Typical Regulatory Strategies—Command-and-Control Mandates and Subsidies—Are Inadequate*

To promote climate adaptation, many states and localities have imposed command-and-control regulations in the form of building codes and land use regulations.[12] These policies have a role to play in coastal industry adaptation, but their well-known disadvantages counsel against a primarily command-and-control approach to the issue. Command-and-control regulators must distinguish between acceptable and unacceptable conduct, requiring substantial information and expertise. Moreover, the "one size fits all" tendency of rulemaking can be inefficiently oblivious to variations among regulated entities. And without financial incentives to produce thoughtful rules and implement them with alacrity, regulators may prove sluggish—or worse, beholden to the very interests they are meant to control.[13]

Policymakers may choose instead to subsidize coastal adaptation, rather than (or in addition to) mandating that industries enact particular measures. But subsidies, like command-and-control regulation, have serious weaknesses. Subsidizing coastal industrial adaptation would funnel the general public's tax dollars to subsidy recipients, raising

Pollution Act of 1990 helped drive "a "sea change" in the shipping industry's safety practices [and] a substantial reduction in the amount of oil spilled in U.S. waters."); *see also* Haitao Yin et al., *Risk-Based Pricing and Risk-Reducing Effort: Does Private Insurance Reduce Environmental Accidents?*, Reg. 36, 46 (Summer 2012) (explaining that Michigan's private insurance mandate for underground storage tanks significantly reduced spills and induced owners to close facilities likely to leak).

8. *See, e.g.*, Nat'l Oceanic & Atmospheric Admin., Adapting to Climate Change: A Planning Guide for State Coastal Managers, 1, 16 (2010), https://perma.cc/VZG5-9K9V; John R. Nolon, *Land Use and Climate Change: Lawyers Negotiating Above Regulation*, 78 Brook. L. Rev. 521, 545 (2013).
9. *See, e.g.*, Hal Needham et al., Ctr. for Climate & Energy Solutions, Impacts and Adaptation Options in the Gulf Coast 16–20 (2012), https://perma.cc/43PU-SM3P; Neena Satija et al., *Hell and High Water*, ProPublica (Mar. 3, 2016), https://perma.cc/9E8V-33L4; *see also* Meg Crawford & Stephen Seidel, Weathering the Storm: Building Business Resilience to Climate Change, Ctr. for Climate and Energy Solutions 3 (July 2013), https://perma.cc/DQX7-83Z5.
10. Crawford & Seidel, *supra* note 9, at ix ("[T]he vast majority of [Global 100] companies recognize risks from extreme weather and climate change, and many see these risks in the present or near term.").
11. *See* James Boyd, *Financial Responsibility for Environmental Obligations: Are Bonding and Assurance Rules Fulfilling Their Promise?* 3–4 (Resources for the Future Discussion Paper 01-42, Aug. 2001), https://perma.cc/9D9B-SHEP; Joel M. Gross, *The Interface Between Bankruptcy and CERCLA: Where Does New Legislation Belong?*, 5 Fordham Envtl. L. Rev. 287, 293–94 (2011); *See generally* Milissa A. Murray & Sandra Franco, *Treatment of Environmental Liabilities in Bankruptcy*, Environmental Aspects of Real Estate and Commercial Transactions 341 (James B. Witkin ed., 4th ed. 2011). For a vivid recent example, see Michael Wines, *Owners of Chemical Firm Charged in Elk River Spill in West Virginia*, N.Y. Times (Dec. 17, 2014), https://perma.cc/R7SR-LQ9G.
12. *See generally* Jessica Grannis, Adaptation Tool Kit: Sea-Level Rise and Coastal Land Use, Geo. Climate Ctr. (2011), https://perma.cc/YH4L-RJFK (describing a variety of relevant regulatory strategies).
13. *See* David A. Dana & Hannah J. Wiseman, *A Market Approach to Regulating the Energy Revolution: Assurance Bonds, Insurance, and the Certain and Uncertain Risks of Hydraulic Fracturing*, 99 Iowa L. Rev. 1523, 1552–54 (2014) (describing industry capture of state and federal regulators through industry lobbying and pressure, groupthink, and "revolving door" personnel exchange).

issues of equity and political feasibility.[14] Moreover, subsidies are essentially reverse command-and-control mandates; rather than specifying behavior to be punished, they specify behavior to be rewarded. And if subsidized adaptation measures do not fully mitigate risk (a likely proposition), subsidies could, on balance, have the perverse effect of maintaining or even increasing overall risk exposure.

B. Financial Assurance Mandates: A Brief Overview

FAMs require individuals or companies to prove their ability to meet potential liabilities, ensuring that if liability arises, the liable parties ultimately pay rather than those to whom they are liable.[15]

Individuals and businesses can comply with FAMs in various ways. The most familiar financial assurance mechanism is insurance: a commitment from a financially capable outsider to pay for any liability the potentially liable party may incur.[16] In other contexts, surety bonds are commonly used, requiring a financially capable third party to pay a specified amount if certain conditions are fulfilled, such as a liability.

Insurance and bonds both use third parties to assure the availability of funds. Other financial assurance tools do not. For example, some FAMs require regulated entities to set money aside in anticipation of potential liability.[17] Others allow regulated entities to "self-insure" by demonstrating to a regulator's satisfaction that they are financially secure enough to be able to meet any future liability.[18]

C. The Virtues of Financial Assurance Mandates and the Superiority of Insurance

1. Insurance vs. Other Financial Assurance Tools

FAMs serve two essential functions. First, by requiring regulated individuals and businesses to have enough funds to fulfill their potential liabilities regardless of solvency, corporate form, or capitalization, FAMs ensure that victims or society at large do not have to bear financial burdens that the law allocates to those individuals and businesses alone.

Second, FAMs ensure cost internalization (by ensuring that regulated entities can pay, and can therefore be made to pay, any costs that materialize) and assign a clear and immediate value to those future costs: some companies with dangerous practices may find themselves unable to find insurance at any price,[19] and in other cases, insurers monitor their customers' activities and vary premiums and underwriting standards accordingly.[20]

2. Insurance vs. Command-and-Control Regulation

FAMs internalize the costs of harms and thereby reduce the risk that harms will occur in the first place. There are at least three reasons to think that insurers can be more effective in these tasks than their counterparts in the command-and-control bureaucracy. First, insurers have a strong profit motive to accurately price risk.[21] Premiums that do not fully reflect policyholders' risks will attract risky customers, tending to cause the insurer to pay out more than it takes in; premiums disproportionate to policyholders' risks will drive potentially profitable customers away.[22]

Second, as specialists in risk management, insurers develop and draw on deep expertise and proprietary knowledge as they assess the risks posed by their policyholders, craft incentives to mitigate those risks, and monitor policyholders to ensure that their premiums reflect their behavior.[23] Third, and crucially, these institutional advantages also render insurance requirements more practically and politically viable than command-and-control regulations. By opting for insurance requirements, a regulator can effectively subcontract the design and enforcement of finer-grained rules to the insurer.

IV. Sketching a Coastal Industry FAM

A. For Which Liabilities Should Financial Assurance Be Required?

FAMs ensure that funds will be available to pay potential liabilities. Initially, at least, I suggest that coastal industry FAMs should cover only existing liabilities. Specifically, coastal industries should provide financial assurance sufficient to fully remediate worst-case spills, releases, and other such environmental disasters. As discussed above, the costs of these disasters are not fully internalized to firms, and cli-

14. A similar redistributive mechanism is already at work in the residential adaptation context in the guise of NFIP, through which all taxpayers subsidize coastal residents' living expenses by paying for the gap between NFIP's premiums and claims paid. *See, e.g.*, Mark Fogarty, *Industry Victory on Flood Insurance Will Be Taxpayers' Loss*, Nat'l Mortgage News (Apr. 15, 2014), https://perma.cc/TNR8-9TC4.
15. *See* Boyd, *supra* note 7, at 1 (FAMs are also known as financial requirements or bonding requirements).
16. *Id.* at 23.
17. *Id.* at 25.
18. *Id.* at 20–21, 26–27.
19. *See, e.g.*, Omri Ben-Shahar & Kyle D. Logue, *Outsourcing Regulation: How Insurance Reduces Moral Hazard*, 111 Mich. L. Rev. 197, 207 (2012) ("Differentiated insurance premiums provide explicit prices to people's choices of care in much the same way as Pigouvian taxes."); *see also id.* at 233 ("By converting the uncertain expected cost of liability into a certain cost of the insurance premium, insurance premiums enable insureds to make more informed choices regarding activity levels. Since most regulated parties do not have the information necessary to accurately convert expected ex post liability awards and fines into an exactly equivalent Pigouvian tax, and since the government does not provide such estimates to help people plan, insurers fill this void.").
20. *See* David A. Dana & Hannah J. Wiseman, *A Market Approach to Regulating the Energy Revolution: Assurance Bonds, Insurance, and the Certain and Uncertain Risks of Hydraulic Fracturing*, 99 Iowa L. Rev. 1523, 1527–28, 1563–65 (2014).
21. *See* Omri Ben-Shahar & Kyle D. Logue, *Outsourcing Regulation: How Insurance Reduces Moral Hazard*, 111 Mich. L. Rev. 197, 207 (2012).
22. *See id.* at 204.
23. *See id.* at 205–06, 233.

mate change will make them much more likely. FAMs that address only existing liabilities will require less legal revision and impose fewer costs and uncertainties on subject businesses than FAMs that impose novel liabilities.

A FAM aimed at climate-related coastal environmental disasters should logically apply to facilities that are vulnerable to the coastal impacts of climate change, and that contain substances and operations capable of serious harm if disrupted. Existing regulations provide proxies for both of these characteristics:

- **Vulnerability to the coastal impacts of climate change:** Some coastal facilities are of particular concern given their exposure to flooding and storm surge. The Federal Emergency Management Agency's (FEMA) flood insurance maps provide estimates of flood risk at any location in the United States, and designate certain areas as especially vulnerable.
- **Presence of potentially harmful substances and operations:** The Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and its implementing regulations identify certain facilities as posing a particular risk of dangerous contamination, and require those facilities to make disclosures to state and local regulators.

Together, FEMA's flood maps and EPCRA's reporting standards suggest a rough rule of thumb for identifying facilities to subject to the FAM. This rule of thumb is imperfect; FEMA's flood maps, in particular, have been widely criticized as both under- and over-inclusive in certain areas.[24] Nonetheless, the combination of EPCRA and flood map data offers a coherent, reasonably robust, and easily implementable initial framework.[25]

B. Which Assurance Mechanism(s) Should the FAM Use?

The FAM must also identify acceptable mechanisms of assurance. Some real-world FAMs provide laundry lists of acceptable mechanisms.[26] Others leave the decision to individual regulators, rather than (or in addition to) making a choice in the law itself.[27] Still others emphasize or require a particular mechanism.[28]

Two major concerns frame the choice among financial assurance mechanisms. The first is regulatory complexity. FAMs that allow self-insurance require regulators to confirm and monitor regulated parties' financial stability. Even the most sophisticated regulators have struggled with this task.[29] Implementation is simpler if the regulated party purchases financial assurance—the regulator needs only to verify that the party in fact did so, and that the terms of the assurance (e.g., the type and amount of liability covered) meet the FAM's requirements.[30]

The second framing concern is the extent and immediacy of risk mitigation incentives. In theory, all financial assurance mechanisms ensure that those subject to FAMs bear the costs at issue. This theoretically should drive risk mitigation no matter which financial assurance mechanism is chosen. However, businesses are unlikely to take strong action if they do not face immediate, risk-responsive financial incentives.[31]

In the case of a coastal industry FAM, both of these factors favor a private insurance requirement. Resource-strained state and local governments may not be able to effectively manage informationally intensive assurance mechanisms such as self-insurance.[32] Private insurance, and the private regulatory apparatus it entails, also provides the upfront risk mitigation incentives lacking in other FAMs.[33]

V. Confronting Potential Objections to a Coastal Industry FAM

A. Financial Assurance Will Be Very Expensive or Even Unavailable at Any Price

The first and most obvious counterargument goes something like this: Insurance is expensive. Insurers will demand high premiums in order to have enough money on hand if a coastal disaster produces many expensive claims.[34] In

24. *See, e.g.*, Christopher Joyce, *Outdated FEMA Flood Maps Don't Account for Climate Change*, Nat'l Pub. Radio (Sept. 15, 2016, 4:37 AM), https://perma.cc/82QK-8JFQ; Andy Horowitz, Op-Ed, *New Orleans's New Flood Maps: An Outline for Disaster*, N.Y. Times (June 1, 2016), https://perma.cc/J9DS-GQWY; Al Shaw et al., *Federal Flood Maps Left New York Unprepared for Sandy—and FEMA Knew It*, ProPublica (Dec. 6, 2013, 5:00 AM), https://perma.cc/A6HF-NT3F; Theodoric Meyer, *Using Outdated Data, FEMA Is Wrongly Placing Homeowners in Flood Zones*, ProPublica (July 18, 2013, 1:07 PM), https://perma.cc/V4N7-RTYD.
25. *See, e.g.*, Ivan Maddox, *Why FEMA Flood Maps Don't Tell the Whole Risk Story*, Intermap: The Risks of Hazard (Dec. 3, 2014, 10:09 AM), https://perma.cc/3ESP-XVTZ. *See, e.g.*, Joyce, *supra* note 24 (FEMA's ongoing map revision process may help fix some of the maps' errors); Al Shaw, *How Well Did FEMA's Maps Predict Sandy's Flooding?*, ProPublica (Dec. 6, 2013), https://perma.cc/4U2Z-Q8UW ("areas with newer [FEMA] maps using newer technology predicted . . . flood extents far more accurately overall"). *But see* Horowitz, *supra* note 24.
26. The Oil Pollution Act is one example. *See* 33 U.S.C. § 2716(e) (2012); 30 C.F.R. § 138.80 (2014); *see also* Kenneth S. Abraham, *Catastrophic Oil Spills and the Problem of Insurance*, 64 Vand. L. Rev. 1769, 1776 (2011) ("the principal means" of complying with OPA's FAMs "is through the purchase of liability insurance").
27. *See, e.g.*, Cleveland, Ohio, Code of Ordinances § 354A.08(b)(1) (2016) (requiring a "performance bond or equivalent financial instrument . . . . sufficient to guarantee full and faithful performance of the requirements of this chapter and . . . satisfactory to" certain city officials).
28. SMCRA, for example, emphasizes bonding. 30 U.S.C. § 1259 (2012).
29. *See* Boyd, *supra* note 7, at 61–66.
30. *See id.* at 21.
31. *See infra* note 51 and accompanying text; Dana & Wiseman, *supra* note 20, at 1581; *cf.* Thomas W. Merrill, Insurance and Safety Incentives 10 (2011) (working paper for the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling), https://perma.cc/P7U4-D4ME.
32. *See* Michael P. Vandenbergh, *The Private Life of Public Law*, 105 Colum. L. Rev. 2029, 2081 (2005); Tracy Gordon, *State and Local Budgets and the Great Recession*, Russell Sage Found. & Stan. Ctr. Poverty & Inequality (Dec. 2012), https://perma.cc/QU3P-NSTH; Dana & Wiseman, *supra* note 20. *But see infra* Section V.D (discussing difficulties in defining the required amount of assurance, regardless of the assurance mechanism chosen).
33. *See* Dana & Wiseman, *supra* note 20, at 1581.
34. *See, e.g.*, Paul K. Freedman & Howard Kunreuther, Managing Environmental Risk Through Insurance 40-48 (1997); Howard C. Kunreuther & Erwann O. Michel-Kerjan, *Climate Change, Insurability of Large-*

especially risky areas, they may refuse to provide insurance altogether, forcing businesses to close or relocate. In other areas, high premiums will increase the cost of doing business so much that companies will be at a significant disadvantage relative to those in unregulated areas. In turn, they will close their doors, or flee for other jurisdictions.

This argument has some merit. All else equal, industries in jurisdictions with FAMs will be at a competitive disadvantage relative to jurisdictions without them. For three reasons, however, this dynamic should not worry policymakers too much.

1. Private Insurance Is Unlikely to Be Very Expensive or Unattainable

Historical and theoretical evidence both suggest that the costs of complying with coastal industry FAMs will be modest. Predictions of sky-high premiums, unavailable insurance, widespread insolvencies, and the like were heard ad nauseam when many modern FAMs were enacted, yet none of these consequences came to pass. Moreover, from a theoretical perspective, it is not clear that coastal climate risk specifically should be unusually difficult or expensive to insure. To simplify slightly, insurers set premiums in light of four basic considerations.[35] First, insurers will charge higher premiums for ambiguous risks, that is, risks with large variances in the likelihood of losses arising and/or in the magnitude of those losses.[36] Second, they will charge more if they cannot tell whether their customers are especially likely to make claims (adverse selection).[37] Third, they will charge more if customers are likely to act more dangerously once insured (moral hazard).[38] Fourth, they will charge more if risks are correlated, that is, if many customers are likely to make claims at the same time.[39]

On the one hand, moral hazard and adverse selection probably would not cause insurance premiums to rise, because customers would not have an informational advantage over insurers. Rather, insurers should be equally or more able than the customers themselves to discern whether their customers are vulnerable to climate risk. This is because insurers can monitor customers and draw on superior proprietary information to evaluate risk exposure.[40] Similarly, by monitoring customers and varying their premiums according to the risks uncovered, insurers should be able to ward off moral hazard.

On the other hand, ambiguity and correlation should tend to raise premiums, as the impacts of climate change are uncertain and can produce many losses all at once. Nonetheless, there is cause for optimism. Insurers have been able to provide affordable insurance even in markets with similarly high ambiguity and correlation, such as offshore drilling, where a robust and risk-responsive private insurance market exists.[41] And by encouraging risk-mitigating behavior, insurers can narrow the range of potential losses, further reducing ambiguity.[42]

2. A FAM's Costs Will Not Necessarily Drive Industries Away

Even if a coastal industry FAM raises costs, businesses subject to the FAM will not necessarily flee. After all, the coasts offer easy access to port facilities, fuel terminals, and other important infrastructure, as well as to major population centers.[43] Partially for this reason, many coastal areas have developed robust networks of upstream product producers, downstream input suppliers, and specialized contractors and service providers, allowing productivity-enhancing informational exchanges and fostering deep labor markets.[44] Energy producers and businesses in other coastally concentrated industries cannot easily forsake the locational amenities available along the coasts.

3. High Costs or Relocation, If They Occur, May Actually Be Socially Beneficial

Finally, insofar as the FAM does increase costs or drive industry from the coasts, this may be a good thing. To the extent that FAMs "increase" the cost of doing business, they do not create that cost, but rather shift it from society back to those regulated.[45] From a social welfare perspective, then, businesses whose operations are so socially risky that they cannot afford to mitigate or insure them *should not continue to exist*, and businesses that can only avoid crippling insurance costs by relocating *should* be forced to do so.[46]

Scale Disasters, and the Emerging Liability Challenge, 155 U. Pa. L. Rev. 1795, 1821–22 (2007).

35. *See, e.g.*, *id.*; Michael Faure & Véronique Bruggeman, *Catastrophic Risks and First-Party Insurance*, 15 Conn. Ins. L.J. 1, 16, 33 (2008) ("Due to problems of ambiguity, adverse selection, moral hazard, and highly correlated losses, insurance companies will want to charge a risk premium that considerably exceeds the expected loss. This premium can, however, be so high that there would be very little demand for coverage at that rate."); a fifth factor, which I will set aside here, is administrative costs. I see little reason to believe that the administrative costs of providing climate-related environmental insurance will be wildly different from those of providing other forms of individualized specialty insurance.
36. *See* Freedman & Kunreuther, *supra* note 34, at 40–43.
37. *See id.* at 43–44.
38. *See id.* at 17–19.
39. *See id.* at 19–20.
40. *See* Kunreuther & Michel-Kerjan, *supra* note 34, at 1824.
41. *See, e.g.*, Mark A. Cohen et al., *Deepwater Drilling: Law, Policy, and Economics of Firm Organization and Safety*, 64 Vand. L. Rev. 1853, 1901 (2011); Dana & Wiseman, *supra* note 20, at 1573–74.
42. *See, e.g.*, Celine Herweijer et al., *Adaptation to Climate Change: Threats and Opportunities for the Insurance Industry*, 34 Geneva Papers 360, 366 (2009).
43. *See, e.g.*, Needham et al., *supra* note 9, at 14; U.S. Energy Information Agency, *Flood Vulnerability Assessment Map*, U.S. Dep't Energy, https://perma.cc/CQJ4-64LB (last visited Nov. 24, 2014) (mapping energy infrastructure located in flood hazard zones); Kate Spinner, *For Chemical Disaster, Just Add Storm Surge*, Sarasota Herald-Tribune (Sept. 19, 2010, 12:01 AM), https://perma.cc/KBS6-JS4W ("A quarter of all the gas, 40 percent of jet fuel and 60 to 70 percent of military jet fuel is all refined in the hurricane surge zone in Texas.").
44. *See generally* Glenn Ellison et al., *What Causes Industry Agglomeration? Evidence From Coagglomeration Patterns*, 100 Am. Econ. Rev. 1195, 1196 (2010); David Schleicher, *The City as a Law and Economic Subject*, 2010 U. Ill. L. Rev. 1507 (2010) 1509–10, 1514, 1517–28.
45. *See, e.g.*, Boyd, *supra* note 7, at 29.
46. *Cf.* Dana & Wiseman, *supra* note 20, at 1582.

B. A FAM Is Politically Implausible

A coastal industry FAM might also face vigorous opposition from the sectors to be regulated and their employees. With no broad pro-FAM lobby to counter this opposition, the FAM would either fail or be diluted to the point of ineffectiveness.

Again, there is some merit to this argument. At the national level, it will likely take major disasters for legislators to consider a robust coastal industry FAM. At the state and local level, too, jurisdictions that have experienced major weather disasters, such as Florida and New York City, have poured effort into designing and implementing coastal adaptation strategies.[47]

Yet, although they face political headwinds for the time being, coastal industry FAMs have at least three important political advantages. First, as I have shown, the costs of a coastal industry FAM will probably be modest. Second, even if coastal industry FAMs raise costs, many jurisdictions may be willing to enact them anyway. Because states and localities can implement them on their own, FAMs can emerge piecemeal even in the absence of a properly functioning Congress (or even state legislature) or a nationally galvanizing catastrophe.

Third, coastal industry FAMs will not directly affect most coastal residents, so they may provoke less political resistance than other adaptation initiatives have. The politics of the FAM, in turn, might more closely resemble those of conventional environmental regulations. These are not easy to enact, of course, but may be more attainable than regulations that threaten to directly increase costs for coastal homeowners.[48]

C. Self-Insurance and Rate Regulation Will Prevent the FAM From Mitigating Risk

Even those who favor FAMs in theory might doubt whether their theoretical advantages will translate to the real world. In practice, it could be argued, coastal industry FAMs will be compromised in two ways. First, regulators can allow businesses to self-insure by demonstrating sound finances and ample reserves. Self-insurance removes the third-party monitoring and upfront financial incentives that cause companies to reduce risks.[49] It is important to note, however, that FAMs that allow self-insurance should still promote the core goal of cost internalization to some extent. Moreover, self-insurance is not inevitably allowed in real-world FAMs. Many, especially at the state and local level, do not explicitly allow it, and self-insurance is certainly not the only form of insurance that major corporations are willing to obtain.[50] To promote upfront risk mitigation, jurisdictions implementing FAMs can and should choose not to allow self-insurance.[51]

Second, legislators and insurance regulators may prevent insurers from charging fully risk-sensitive premiums, reducing coastal businesses' incentives to adapt and possibly causing private insurers to leave the market altogether.[52] But this has not happened with existing industry FAMs, in sharp contrast to residential FAMs. Premiums in

47. *See* Curtis Morgan, *Impact of Hurricane Andrew: Better Homes*, Miami Herald (June 2, 2012), https://perma.cc/3CE8-6EVY; Dep't of City Planning, *Flood Resilience Zoning Text Amendment*, City of N.Y. (Oct. 9, 2013), https://perma.cc/BA84-G5DG. *See generally* John Schwartz, *Pragmatism on Climate Change Trumps Politics at Local Level Across U.S.*, N.Y. Times (Oct. 24, 2014), https://perma.cc/N4BU-P934.

48. If recent history is any indication, the American public broadly supports environmental regulations that apply directly to businesses, and implementing new regulations is possible despite vociferous business opposition. *See, e.g.*, Frederick Mayer et al., Americans Think the Climate is Changing and Support Some Actions 2–3 (Duke Univ. Nicholas Inst. for Envtl. Pol'y Sol. 2013), https://perma.cc/422Y-J4GT; Zack Colman, *Most Americans Support Climate Regulations Even With Costs: Poll*, Wash. Examiner (Nov. 20, 2014, 10:25 AM), https://perma.cc/ELU2-EFF5; Juliet Eilperin, *Autos Must Average 54.5 MPG by 2025, New EPA Standards Say*, Wash. Post (Aug. 28, 2012), https://perma.cc/9GEC-MNHR; Amy Harder, *Obama Carbon Rule Backed by Most Americans—WSJ/NBC Poll*, Wall Street J. (June 18, 2014), https://perma.cc/K72V-CD45. *But see* Coral Davenport, *EPA Funding Reductions Have Kneecapped Environmental Enforcement*, Nat'l J. (Mar. 3, 2013), https://perma.cc/FN9T-8TY4.

49. Dana & Wiseman, *supra* note 20, at 1580–82.

50. *See, e.g.*, *Deepwater Horizon Disaster Not a Watershed Event for P&C Insurance Market*, Towers Watson (Aug. 2010), https://perma.cc/SN8G-UUV6 (describing private insurance held by major players in the Deepwater Horizon disaster); Abraham, *supra* note 26, at 1787.

51. *See, e.g.*, Richard Dobbs et al., *Building the Healthy Corporation*, McKinsey Q., Aug. 2005, at 63, https://perma.cc/YVL9-KELP (discussing "short-sighted behavior" among corporate managers); Dana & Wiseman, *supra* note 20, at 1581; Crawford & Seidel, *supra* note 9, at 8, 21-22 ([C]orporate adaptation "frameworks typically draw from a historical picture of risk and often do not adequately consider the changing character—such as frequency and intensity—of extreme weather events . . . [c]ompanies' investment in building resilience competes with other business objectives and resources, many of which are more immediate and tangible. Short-term costs and cash flows are often considered more important than benefits that may not be realized until much later."); Max Messervy et al., *Insurer Climate Risk Disclosure Survey Report & Scorecard: 2014 Findings & Recommendations*, Ceres 6 (2014), https://perma.cc/7RJ5-Z999 (describing climate risk planning among the 350 largest American insurers and finding that "most of the companies responding to the survey reported a profound lack of preparedness in addressing climate-related risks and opportunities"); *Are UK Companies Prepared For the International Impacts of Climate Change?: FTSE 350 Climate Change Report 2013*, Carbon Disclosure Project (2013), https://perma.cc/75WE-4TY7 (concluding that FTSE 350 "companies' current focus on risks and opportunities needs broadening. While the majority of FTSE 350 companies identify risks (86%) and opportunities (82%) from climate change, the focus remains relatively narrow, looking primarily at direct, shorter-term risks. Only 32% of companies report risks (14% opportunities) which have timeframes of ten years or more and 13% of companies report that they have not identified any climate change related risks at all."); Aleka Saville et al., *2015 Corporate Adaptation Survey*, Notre Dame Global Adaptation Index 6–7, 17 (May 2015), https://perma.cc/L953-P86C; On the Global 100, *see S&P Global 100 Methodology*, S&P Dow Jones Indices 3 (September 2016), https://perma.cc/G6V6-N2SR. *See also* Ana Maria Cruz et al., *Identifying Hurricane-Induced Hazardous Material Release Scenarios in a Petroleum Refinery*, 2 Nat. Hazards Rev. 203, 203 ("emergency management preparations to deal with natural disaster-induced hazmat releases, however, are very limited, if they exist at all" among Gulf Coast petroleum refineries). *Cf.* Sean B. Hecht, *Climate Change and the Transformation of Risk: Insurance Matters*, 55 UCLA L. Rev. 1559, 1591–93 (2008) (reviewing behavioral psychology findings concerning underinvestment in insurance); Faure & Bruggeman, *supra* note 35, at 16, 21–26 (finding that "empirical evidence . . . suggests that there is generally no adequate interest in and thus no demand for voluntary [first-party] insurance protecting against natural catastrophes" and discussing various cognitive and informational explanations) (citations omitted).

52. *See, e.g.*, Bradley G. Bodiford, *Florida's Unnatural Disaster: Who Will Pay for the Next Hurricane?*, 21 U. Fla. J.L. & Pub. Pol'y 147, 158–160 (2010) (discussing the woes of Florida's state-operated property insurer). *See generally* Richard A. Epstein, *Exit Rights and Insurance Regulation: From Federalism to Takings*, 7 Geo. Mason L. Rev. 293, 303–08 (1999).

economic sectors subject to FAMs vary widely according to insurers' perceptions of risk, as do business insurance premiums in general.[53]

D. Regulators Will Struggle to Determine How Much Assurance to Require

As noted above, FAM implementation might be fairly simple if purchased financial assurance is required. Nevertheless, regulators will face a tricky design question regardless of their chosen assurance mechanism: how much assurance to require. A FAM that attempts to align financial responsibility with the full extent of potential liability (as I have advocated) must estimate potential damages from a worst-case disaster and translate those damages into a minimum policy limit for insurance regimes, a minimum bond amount for surety bond regimes, a minimum self-insurance capacity for self-insurance regimes, and so on.

This is a real challenge, but it should not be overstated. Regulators can make the task of defining appropriate assurance levels easier on themselves by setting sector-wide required policy limits. This is the approach of most FAMs. In any event, in opting for FAMs, regulators take up the task of determining required assurance amounts, but they avoid many other informationally intensive tasks inherent in other regulatory approaches.[54]

E. A FAM Is Unnecessary Because Coastal Businesses Are Already Insured

Coastal industry FAMs will obviously be superfluous if the businesses they target already have private insurance for the impacts the FAMs address. However, this is probably not the case. Data on the prevalence of insurance against the potential coastal impacts of climate change are scarce, and many vulnerable facilities are no doubt already insured to some extent.[55] However, as I have argued, there is strong evidence that coastal businesses are underpreparing generally for these impacts—even when they directly threaten core operations.[56]

Moreover, current shortfalls in the broader environmental liability insurance market suggest that coastal businesses are unlikely to be consistently and adequately insured. To the contrary, industry publications suggest that the market is growing but underdeveloped and that regulatory mandates are needed to drive demand. This shortfall derives in part from businesses' reliance on self-insurance, which theoretically internalizes costs but may fail to drive investment in risk mitigation in practice.[57] Demand-suppressing institutional and psychological factors also appear to play a role.[58] Whatever the reason, although the broader market for environmental insurance does appear to have grown in recent years,[59] it is still sorely underdeveloped.[60] Given this, it seems unlikely that coastal businesses are already well insured against environmental liabilities to third parties resulting from climate change.

VI. Conclusion

I have argued that FAMs can help advance climate adaptation among coastal industries. Those industries appear to be underpreparing for climate change, risking devastation for the communities in which they are concentrated. By internalizing the potential costs of those disasters to industry through risk-attuned private regulation, FAMs, and especially insurance mandates, can help reduce the chance of disaster.

Spills and releases are a logical starting point for coastal adaptation FAMs, but these policies could also help tackle other problems. Climate change and its coastal impacts implicate many sources of liability under existing law, and as these impacts mount, policymakers may be inclined to create new liabilities as well.[61] FAMs can help ensure that liable parties pay up, and can encourage investment in measures that reduce the risk of liabilities in the first place. As the waters rise and the storm clouds gather, FAMs can and should play a leading role in protecting coastal communities from the dangers of climate change.

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53. *See, e.g.*, Julia Kollewe, *BP Disaster Raises Oil Industry's Insurance Costs*, The Guardian (June 3, 2010, 7:45 AM), https://perma.cc/R5JY-LC5F.
54. *See* Richard B. Stewart, *Controlling Environmental Risks Through Economic Incentives*, 13 Colum. J. Envtl. L. 153, 156 (1988); Dana & Wiseman, *supra* note 20, at 1548.
55. In fact, the Murphy Oil refinery was insured. John Henry, *Murphy Oil Says Gulf Spill Covered By Insurance*, Ark. Bus. (Dec. 5, 2005), http://www.arkansasbusiness.com/article/49693/murphy-oil-says-gulf-spill-covered-by-insurance.
56. *See* Crawford & Seidel, *supra* note 9, at 21.
57. *See* Dana & Wiseman, *supra* note 20, at 1581; Abraham, *supra* note 26, at 1787.
58. *See supra* note 51; Chad Hemenway, *Environmental Liability Market Still Has Plenty of Room for Growth*, Nat'l Underwriter Prop. & Casualty, July 19, 2010, at 12.
59. *See, e.g.*, Heather Turner, *Environmental Insurance Activity Is on the Rise*, Ins. Bus. Am. (Mar. 30, 2016), https://perma.cc/2HH2-NTSN; Rosalie L. Donlon, *ACE: There Is a Global Need for Environmental and Pollution Protection Insurance*, PropertyCasualty360 (May 13, 2015), https://perma.cc/6SC5-8TBZ; Brian Anderson, *Environmental Trends and Market Prospects: Part 3*, Ins. Bus. Am., https://perma.cc/U57V-EKXW (last visited Dec. 8, 2014).
60. *See, e.g.*, David Dybdahl, *A Big Picture on Environmental Insurance*, Int'l Risk Mgmt. Inst. (July 2016), https://perma.cc/5PFV-49QJ; Hemenway, *supra* note 58; Dave Lenckus, *The Polluter Pays*, Global Fin. (Jan. 3, 2013), https://perma.cc/26RL-6GPV. *See also* Judy Greenwald, *Environmental Liability Insurance Market Stabilizes on Increased Capacity*, Bus. Ins. (Feb. 2, 2014), https://perma.cc/H7UH-5JA7 (noting that rates have decreased in recent years and insurers are actively competing with one another for business); Turner, *supra* note 59.
61. An analysis of the legal and policy merits of expanded liability is beyond the scope of this Article. However, the previous sections have indicated a few ways in which policymakers might choose to expand liability.

Financial Assurance Mandates: No Substitute for Agency Expertise and Oversight

by Rachel Cleetus, Ph.D.

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I. Introduction

Arnold's article highlights an important issue of growing urgency: the exposure of industrial facilities—many with toxic products or by-products—to risks of flooding exacerbated by sea-level rise and storm surge. His proposal to use financial assurance mandates (FAMs) is a compelling one, and he provides substantive details, including a draft local ordinance, to help implement this type of policy. However, the article is far too sanguine about the ability of this one policy tool to protect communities located in proximity to these industrial facilities, and it is overly dismissive of the role of complementary policies including robust chemical regulation, disclosure, and standards for pre-disaster mitigation measures and post-disaster response. Rather than pit these policies against one another using pejorative terms like "command-and-control," a more thoughtful and comprehensive approach would be to combine elements of these to implement a suite of policies designed to help build the resilience of industrial facilities to climate and extreme weather impacts while prioritizing the safety and well-being of local communities. Finally, to enact any of these policies at the national level will require political will from Congress and the administration—both of which are sorely lacking with respect to addressing climate change.

II. Lessons From Houston After Hurricane Harvey

The example of Houston that Arnold cites repeatedly is particularly poignant considering the destruction wrought upon the city by Hurricane Harvey in August 2017. (His article was written prior to that signal event.) The flood damage to the Arkema chemical storage plant in Crosby, Texas and subsequent explosions, fires, and toxic pollution epitomize the dangers of industrial facilities that Arnold attempts to address. Yet, that example provides a cautionary note to the limits of FAMs as a sole means of addressing risks. That incident highlights the need for robust chemical safety standards, monitored and enforced by the Environmental Protection Agency (EPA) and Occupational Safety and Health Administration (OSHA), as well as the importance of the Chemical Safety Board, an independent agency charged with investigating chemical accidents. Strikingly, Arkema had been engaged in lobbying EPA and Congress to delay implementing key chemical safety regulations and found a sympathetic ear in EPA Administrator Scott Pruitt.[1]

There were more than 100 toxic spills after Harvey, many more incidents than were initially reported, and the full extent of the health burden of that pollution is still unclear.[2] A recent *New York Times* analysis of the Toxic Release Inventory found that there are more than 1,400 facilities using toxic chemicals in high flood risk areas and an additional 1,100 in moderate flood risk zones as designated by the Federal Emergency Management Agency.[3]

III. Need for a Suite of Policies

The challenge of safeguarding coastal industrial facilities is not simply one of robust building standards, back-up power systems that can withstand flooding, and other protective measures—it requires specialized knowledge of chemical

1. David Sirota et al., *Texas Republicans Helped Chemical Plant That Exploded Lobby Against Safety Rules*, Int'l Bus. Times (Aug. 31, 2017, 1:20 PM), www.ibtimes.com/political-capital/texas-republicans-helped-chemical-plant-exploded-lobby-against-safety-rules.
2. Frank Bajak & Lise Olsen, *Silent Spills Part 1: In Houston and Beyond, Harvey's Spills Leave a Toxic Legacy*, Houston Chron. & Associated Press (2017), https://www.houstonchronicle.com/news/houston-texas/houston/article/In-Houston-and-beyond-Harvey-s-spills-leave-a-12771237.php.
3. Hiroko Tabuchi et al., *Floods Are Getting Worse, and 2,500 Chemical Sites Lie in the Water's Path*, N.Y. Times (Feb. 6, 2018), www.nytimes.com/interactive/2018/02/06/climate/flood-toxic-chemicals.html.

safety and emergency response and the resources to deploy in the event of a disaster. Further, industrial facilities will need to coordinate closely with local, state, and federal emergency response efforts in the event of a disaster. First responders need to know what chemicals may be implicated in order to protect the local populations. FAMs can help with the costs of cleanup after the fact but not with the emergency response itself. Clearly, industrial facilities cannot self-regulate on issues that are vital to the public's health—so additional standards will need to be in place.

Arkema claimed that the events were unprecedented and therefore the company had no way of preparing for them—a claim not unlike that made by other companies in the aftermath of major industrial disasters. And yet the chemical storage facility was located in a known floodplain and had been identified as a risky site in a study by Texas A&M.[4] Will companies actually take responsibility for the myriad ways in which climate change is contributing to worsening disasters—or will they resort to the "Act of God" clause to escape responsibility? Best practice guidelines will need to be in place to determine sufficiently protective measures in light of what we know about projected climate change.

Arnold singles out the nuclear power industry as a successful example of FAMs. Yet the industry is shielded from bearing the full cost of its risks by statute, under the Price Anderson Act. The Nuclear Regulatory Commission is charged with setting and enforcing safety standards to limit the risks from these power plants. While Florida was ultimately lucky enough to escape a direct hit from Hurricane Irma in 2017, that storm could have had a serious effect on the Turkey Point nuclear plant near Miami. In the event of a total loss of power, hurricane force winds and debris could damage condensate storage tanks and compromise their ability to serve as a back-up option to cool the reactors.[5]

Industrial facilities that shut down as a precaution ahead of extreme weather events also need to exercise care in the start-up process post-disaster. For example, the U.S. Chemical Safety and Hazard Investigation Board (CSB) issued a safety alert after Harvey urging oil and chemical facilities to take special precautions when restarting in the wake of shutdowns due to Hurricane Harvey.

Contrary to what Arnold claims, an authoritative study from the National Institute of Building Sciences underscores the value and cost-effectiveness of protective building codes to limit damages to homes from extreme weather events. The study found that designing new buildings to exceed provisions of the *2015 International Codes* (I-Codes), the model building codes developed by the International Code Council (ICC), can save the nation $4 for every $1 spent.[6] While the study was done in the context of residential buildings, its lessons lend themselves to industrial facilities.

FAMs have been used in other contexts including for underground storage tanks and some mining operations. However, under the current administration there are challenges regarding the use of FAMs. Earlier this year, EPA rolled back financial requirements for certain hardrock mining facilities under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, or Superfund). This Obama era rule was a first step toward meeting a long-standing recommendation from the U.S. Government and Accountability Office that EPA do more to ensure that liable parties do more to meet their cleanup obligations, including by implementing financial assurance mandates allowed by the Superfund statute since 1980.[7] The agency is next set to evaluate similar requirements for chemical manufacturing, petroleum and coal products manufacturing, and electric power generation, transmission, and distribution. Given the precedent with hardrock mining, there are clearly no guarantees that requirements will be set.

The potential for companies to go bankrupt or be bought and sold to other entities can result in cleanup costs and risks being passed on to the public. Finally, FAMs should not be used as a way to sidestep legal proceedings and citizen lawsuits brought to expose culpability, provide remedy, and hopefully to improve safeguards going forward.

IV. Climate Risks and Coastal Industrial Facilities

Major industrial zones along the East and Gulf coasts of the United States are hotspots of chronic inundation because of a combination of climate-induced sea-level rise and local land subsidence. Storm surge riding on high sea levels can also reach much further and higher inland, causing greater damage, as experienced during Hurricane Ike in 2008 and Hurricane Sandy in 2012. Climate change also increases extreme precipitation events, contributing to growing risks of flooding in both coastal and inland locations.[8] Yet these types of risks are not adequately captured in the Federal Emergency Management Agency's current flood risk maps, as evidenced by recent flooding events. Population growth and growing development in floodplains also put more people and property in harm's way.

The 2017 *Climate Science Special Report*, Volume 1 of the *National Climate Assessment*, finds that "nuisance

4. Texas A&M, Mary Kay O'Connor Process Safety Center, Ranking of Chemical Facilities Based on the Potential to Cause Harm to the Public (Jan. 2016), assets.documentcloud.org/documents/2822336/PCHP-Report-Updated-Edited-on-050216.pdf.
5. Ed Lyman, *Florida's Nuclear Plants and Hurricane Irma*, Union of Concerned Scientists Blog: All Things Nuclear (Sept. 8, 2017, 8:18 PM), www.allthingsnuclear.org/elyman/floridas-nuclear-plants-and-hurricane-irma.
6. National Institute of Building Sciences Multihazard Mitigation Council, Natural Hazard Mitigation Saves: 2017 Interim Report (National Institute of Building Sciences Dec. 2017), https://www.eenews.net/assets/2018/02/02/document_pm_01.pdf.
7. U.S. Gov't Accountability Office, EPA Should Do More to Ensure That Liable Parties Meet Their Cleanup Obligations (U.S Gov't Accountability Office 2005), www.gao.gov/products/GAO-05-658.
8. Donald J. Wuebbles et al., Climate Science Special Report: Fourth National Climate Assessment, Vol. 1. (U.S. Global Change Research Program 2017), www.science2017.globalchange.gov.

flooding" has increased in severity and frequency, in many places increasing 5- to 10-fold or more since the 1960s.[9] This type of flooding will increase with projected sea-level rise. The report also finds that: "A projected increase in the intensity of hurricanes in the North Atlantic could increase the probability of extreme flooding along most of the U.S. Atlantic and Gulf Coast states beyond what would be projected based solely on sea-level rise."[10]

Similarly, a 2017 publication from the Union of Concerned Scientists, *When Rising Seas Hit Home: Hard Choices Ahead for Hundreds of US Coastal Communities*, also highlights the worsening risks of chronic inundation.[11] Well before their land goes completely underwater, and even in the absence of storms, many communities will face a level of disruptive flooding that will seriously impede daily lives and activities. The analysis finds that by 2035, about 170 communities—roughly twice as many as today—will face chronic inundation and possible retreat from affected areas under intermediate or high scenarios of sea-level rise, with more than 100 seeing at least one-quarter of their land chronically flooded.

A 2015 Union of Concerned Scientists report highlighted the risks to coastal oil refineries from sea-level rise and storms.[12] It found that 120 U.S. oil and gas facilities are situated within 10 feet of the local high tide line. Many of these facilities are located along the Gulf of Mexico and they include facilities belonging to major corporations like Exxon Mobil and Chevron Corporation. With sea-level rise, by 2030 or 2045, many of these facilities could be partially or fully flooded by storms.

V. Conclusion

Arnold's proposal for FAMs could play an important role in encouraging companies to invest in measures to reduce risks from sea-level rise at coastal industrial facilities. However, they will not be a sufficient policy mechanism on their own. Additional policies, including the implementation, monitoring, and enforcement of robust public health safeguards, will also be needed. Because of the complex nature of these facilities and the myriad specialized chemicals and processes involved, adequate disclosure requirements are also key to ensuring that emergency responders and the public are aware of the risks to which they might potentially be exposed. The role of key regulatory agencies including EPA and OSHA cannot be overstated.

9. *Id.*
10. *Id.*
11. Erika Spanger-Siegfried et al., When Rising Seas Hit Home: Hard Choices Ahead for Hundreds of US Coastal Communities (Union of Concerned Scientists July 2017), www.ucsusa.org/sites/default/files/attach/2017/07/when-rising-seas-hit-home-full-report.pdf.
12. Christina Carlson et al., Stormy Seas, Rising Risks: What Investors Should Know About Climate Change Impacts at Oil Refineries (Union of Concerned Scientists Feb. 2015), www.ucsusa.org/sites/default/files/attach/2015/02/stormy-seas-rising-risks-ucs-2015.pdf.

The Future of FAMs

by Rosalie L. Donlon

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Zachary Arnold's proposal of a policy framework to prevent coastal industrial disasters is quite timely, coming as it does after the 2017 hurricane season on the East Coast, followed by the equally devastating wildfire season in the West. Arnold suggests that imposing financial assurance mandates (FAMs), such as minimum insurance coverage, would induce coastal industries to proactively manage climate adaptation, and thus, proactively manage risk.

Arnold points out that government at all levels—local, state, and federal—could do more. A major drawback is that many governments are not encouraging businesses or developers to invest in climate adaptation. Without a government directive, it is likely to take longer to convince businesses of all sizes to be proactive.

I. Climate Does Not Equal Weather

In describing "climate adaptation," Arnold uses scientific terms that, while accurate, may have the effect of turning off those who should be paying better attention. Generally, businesses and governments are not composed of scientists, and as Dr. Louis Gritzo, vice president and manager of research at FM Global, has said, "climate science is not a long-term weather forecast."[1] As long as the public, including policymakers and business owners and operators confuse the two, there is likely to be resistance to the need for a FAM and no interest in gaining greater understanding.

At least one state appears to have adopted Arnold's idea, at least in part. Louisiana has adopted an aggressive response to climate-linked flooding in the United States. The plan calls for prohibitions on building new homes in high-risk areas, buyouts of homeowners who live there now, and hikes in taxes on those who won't leave. Commercial development would still be allowed, but developers would need to put up bonds to pay for those buildings' eventual demolition.[2]

According to published reports, the draft plan is part of a state initiative funded by the federal government to help Louisiana plan for the effects of coastal erosion. That erosion is happening faster in Louisiana than anywhere else in the United States, due to a mix of rising seas and sinking land caused in part by oil and gas extraction. State officials say they hope the program, called "Louisiana Strategic Adaptations for Future Environments,"[3] or LA SAFE, which focuses on community adaptation, becomes a model for coastal areas around the country and around the world that are threatened by climate change.[4]

II. EU Environmental Liability Directive

The European Union has begun dealing with climate change in a more formal way, as Arnold proposes for the United States. In 2004, the European Commission (EC) issued Directive 2004/35/EC, the Environmental Liability Directive (ELD).[5] The Directive established a framework based on the polluter-pays principle to prevent and remedy environmental damage. The ELD is an administrative approach, based on the powers and duties of public authorities.[6]

Under the ELD, European Union Member States are expected to ensure the effective implementation and enforcement of the Directive. Although the Directive was issued by the EC, Member States had three years to enact appropriate domestic legislation adopting the terms.

In practice, the ELD has not been as successful as the EC hoped it would be. On Oct. 26, 2017, the commission issued a resolution noting that[7]:

> [O]wing to the discretionary powers awarded in the ELD and to the significant lack of clarity and uniform application of key concepts as well as to underdeveloped capacities and expertise, the transposition of the ELD into national liability systems has not resulted in a level playing field and that, as confirmed in the Commission report, it is currently totally disparate in both legal and practical terms, with great variability in the amount of cases

1. Dr. Louis Gritzo, *The Economic Risk of Climate Change*, PropertyCasualty360 (July 29, 2014), https://www.propertycasualty360.com/2014/07/29/the-economic-risk-of-climate-change.
2. Christopher Flavelle, *Louisiana, Sinking Fast, Prepares to Empty Out Its Coastal Plain*, Bloomberg (Dec. 27, 2017), https://content-service.bloomberg.com/articles/P1C0RY6JTSEA.
3. Liz Russel, *Louisiana Strategic Adaptations for Future Environments,* https://lasafe.la.gov (last updated Apr. 27, 2018).
4. Flavelle, *supra* note 2.
5. European Commission, *Environmental Liability,* http://ec.europa.eu/environment/legal/liability/ (last updated July 2, 2018).
6. *Id.*
7. Implementation of the Environmental Liability Directive (2017) Eur. Parl. Doc. PV 0414.

> between Member States; is therefore of the opinion that additional efforts are required to enable regulatory standardisation to take place across the EU.

The resolution also stresses that all stakeholders have reported problems in holding operators strictly liable for "dangerous activities" in relation to successors of liable parties.[8] In the United States, it has also been difficult to track owners and possible insurance coverage for environmental spills or other similar actions. Here, organizations with significant exposure to such liabilities are consulting "insurance archaeologists" to conduct specialized research that could recover or reconstruct old liability policies.[9]

Before adopting a requirement for FAMs as part of a climate adaptation program, we should carefully study what is going well and what is not working with the ELD.

III. Increased Complexity

Arnold suggests that FAMs would operate as an "outsourced" regulatory scheme. The regulatory program as outlined would require the affected business to have insurance coverage, but the program would leave it up to the insurance companies to decide what risks to insure, how to underwrite them and how to mitigate the risk. "All the regulator has to do is *verify compliance*" [emphasis added].

Arnold's idea would require setting up an additional layer of bureaucracy and regulation to ensure compliance. Auto insurance, Arnold's example, is verified by state departments of motor vehicles (DMV) when cars are registered. (And we know how much we all hate DMV.) Would the responsibility be with the state department of insurance to verify that a certain level of insurance coverage is in place? How would policymakers select the industries to be regulated—in addition to those that might be regulated currently? Would the requirement for coverage be based on where the business is located or the industry that it's part of?

IV. Status of Environmental Insurance Market

Arnold's point that private insurance is unlikely to be very expensive or unattainable is borne out by the current state of the environmental insurance market. According to a recent report from USI Insurance Services, the environmental marketplace is estimated to be more than $2 billion in annual premiums with double-digit growth, outpacing the annual growth rate of the general property and casualty market.[10]

The insurance industry is poised to provide FAMs without additional government regulation because the market for environmental coverage is highly competitive. The underwriting, however, is complicated by limited data that doesn't provide an accurate assessment of the risk in many areas.[11]

USI also predicts that profitability will be delayed because there are currently about 50 insurers with more than $600 million in capacity.[12] Although insurance is available, ten-year term transactional risk policies, once the most common, can only be purchased from certain insurers.[13] For more difficult and complicated risks, such as the day-to-day operations of energy, mining, petrochemical, and power and utility firms, one-year policy terms are becoming the norm, creating volatility for these classes of business as well as a risk of gaps in coverage.[14]

Buyers of environmental insurance are generally construction contractors or vendors related to construction. A requirement by the local permitting authority to have pollution liability coverage or other similar policies could provide the FAMs that Arnold proposes without an added layer of bureaucracy—assuming state and local laws allow them to impose such a requirement. Generally, larger construction firms are aware of their risk of liability and are requiring the subcontractors they work with to also have environmental insurance. In addition, lenders on large projects are requiring FAMs of their own as a condition precedent to making the loans.[15]

V. Insurers in Agreement

In its recent report on storms from Super Storm Sandy in 2012 to Hurricane Maria in 2017, global insurer Allianz notes that many of its builder's risk insureds who previously would have resisted discussions concerning high wind, flooding and storm surge events impacting their construction projects are now paying much more attention.[16]

Allianz clearly agrees with many of the points that Arnold makes: "After catastrophes like Sandy, customers may relocate and the business base evaporates until recov-

8. *Id.*
9. Sheila Mulrennan & Michele Pierro, *Insurance Archaeology & Environmental Claims*, PropertyCasualty360 (Feb, 15, 2018), https://www.propertycasualty360.com/2018/02/15/insurance-archaeology-environmental-claims/.
10. Dough O'Brien et al., *2018 Insurance Market Outlook: Insights From Our National Practice Leaders*, USI, http://www.usi.com/content/downloads/16038_2018_Insurance_Market_Outloook_Book_V9.pdf (last visited Apr. 2, 2018).
11. Joyce Anne Grabel, *Is the Environmental Market too Low-Priced for Its Own Good?*, PropertyCasualty360 (Feb. 8, 2018), https://www.propertycasualty360.com/2018/02/08/is-the-environmental-market-too-low-priced-for-its/.
12. O'Brien et al., *supra* note 10.
13. *Id.*
14. *Id.*
15. Grabel, *supra* note 11.
16. *From Sandy to Maria: Increasingly Destructive Perfect Storms*, Allianz, http://www.agcs.allianz.com/PageFiles/9507/Allianz_Hurricane%20Sandy%205%20Years%20Later_2017.pdf (last visited Apr. 2, 2018).

ery progresses. The key to recovery is to establish a plan in advance that identifies crucial operations so a company can be up and running before the competition."[17] This suggests that the insurance industry would be open to discussions with clients about climate adaptation and providing FAMs. The industry might also take the lead in such discussions instead of waiting for clients to come to them.

One significant aspect of environmental disasters that Arnold does not appear to factor in extensively is the long time frame for environmental claims. Many contaminated properties require years to clean up, and the potential losses to businesses as well as claims can quickly mount up.

As part of the requirement to have a FAM in place, would there be a time limit on liability? Would the legal standard for liability be immediate, as the source would be known after a natural disaster? Or, would it be "knew or should have known" for an incident that starts as a natural disaster, appears to be cleaned up, but actually results in ongoing contamination?

None of these issues would argue against FAMs. However, the devil is in the details, as they say. In creating the program, possible ramifications and unintended consequences should be considered.

VI. More Than Coastal Properties

According to a new study led by the University of Bristol, 41 million Americans are at risk from flooding rivers.[18] That's more than three times the current estimate of 13 million people, the study says, and it's a problem that dovetails on coastal flooding and may also be related to climate adaptation. The study is based on a new high-resolution model that maps flood risk across the entire continental United States, whereas the existing regulatory flood maps produced by the Federal Emergency Management Agency (FEMA) cover about 60% of the continental United States.[19]

The estimate of 41 million doesn't include the millions of additional Americans that are at risk of coastal flooding, the report says. The increase is a result of the expanded coverage of the map combined with its ability to estimate flooding on small streams, which wasn't adequately captured in previous flood-risk models, according to the study's researchers. The study predicts that more than 60 million Americans may be vulnerable to a 100-year flood by 2050—sooner than we think.

The report highlights, as does Arnold, that relying on traditional flood maps from FEMA may not be the best way to mitigate risk from flooding. Several catastrophe modeling companies have shown with better and more current data that flooding risks—and thus risks of chemical spills or other environmental hazards—are more significant than previously believed. The modelers may help reinforce Arnold's premise that climate adaptation is needed more than ever. Certainly, private insurers rely on their accumulated data as well as models from sources other than FEMA to assess risk.

VII. FAMs Have a Future

Arnold has succeeded in his effort to show that FAMs can efficiently and equitably promote climate adaptation. As with most policy issues, despite the data about economic losses from recent natural disasters, demonstrating the importance of adopting climate adaptation measures sooner rather than later is likely to be difficult. If a natural disaster hasn't had a direct impact with the same devastating results as Hurricane Harvey or Super Storm Sandy, governments are less likely to insist that businesses undertake climate adaptation or provide financial assurances.

Along with governments encouraging high-hazard businesses to provide financial assurances in the event of a natural disaster, the insurance industry and risk managers could be enlisted to educate the businesses that are underpreparing for climate change. An appeal to the company's bottom line, encouraged by risk managers and insurers who could emphasize any cost-saving measures and demonstrate a return on investment in the form of reduced premiums, might be more successful and better accepted than another government regulation.

Arnold's idea is definitely one worth pursuing and discussing at all levels of government, as well as with risk managers and environmental insurance providers.

17. *Id.*
18. Denny Jacob, *Americans' Flood Risk Is Far Greater Than Previously Thought,* PropertyCasualty360 (Mar. 8, 2018), https://www.propertycasualty360.com/2018/03/08/flood-risk-for-americans-is-highly-underestimated/.
19. *Id.*

Applying a FAMiliar Question of Climate Change Scope and Scale: Financial Assurance Mandates and Coastal Risk Management

by Catherine E.B. McCall

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I. Introduction

Just as our coasts have been defined and shaped by their surrounding lands and waters, the future scale and scope of climate change impacts in any one location will—in part—be defined by geography and surrounding landscape. In *Preventing Industrial Disasters in a Time of Climate Change: A Call for Financial Assurance Mandates*, Mr. Arnold presents a case for how Financial Assurance Mandates (FAMs) such as insurance or surety bonding could be utilized effectively to reduce the risk communities face from climate-driven impacts that result in coastal industrial disasters. Onshore and offshore, our coasts and oceans support a wide variety of livelihoods, economies, and natural resources. According to the National Oceanic and Atmospheric Administration's *Economics: National Ocean Watch* data, the coastal zone of the United States contributed $7.9 trillion toward the Gross Domestic Product (GDP) and supported 54.6 million jobs in 2014.[1] If the nation's coastal counties comprised an individual country, it would have the third-largest GDP in the world behind the United States and China.[2] Coastal industries are particularly vulnerable to episodic storm events, and chronic hazards related to flooding, inundation and shoreline erosion will continue to be driven and exacerbated by climate change. Other climate impacts not associated only or so closely with coastal[3] environments—such as temperature fluctuations or extreme heat, drought, precipitation changes, and wildfire—could also pose significant direct and indirect risks to coastal industries that could result in industrial disasters. The author's arguments for how FAMs could help to reduce regulatory and enforcement burdens related to climate-driven industrial disasters could be a positive step toward focusing limited public resources on advancing other climate actions and limiting climate risk and impact costs in other sectors.

II. Industrial Development and Our Coasts

The author bases much of his argument for climate FAMs on the premise that they can be used to reduce community and environmental risk when applied primarily to new industrial development in vulnerable coastal areas. As non-water dependent uses of our coastlines increase, the population living, recreating and working by our coasts also grows, as do the investments in transportation and other infrastructure. In 2010, 123.3 million people, or 39% of the nation's population, lived in counties bordering the shoreline, and by 2020 this number is expected to increase by an additional 10 million people, or 8%.[4] Therefore, the author is correct in stating that the associated risk from industrial accidents resulting from accelerating climate change, rising sea levels, and increasingly extreme weather is expansive and growing. However, applying FAMs primarily to new industrial development may limit their scope and application in reducing risk to land-based assets, people, resources and society, to say nothing of offshore indus-

1. Nat'l Oceanic & Atmospheric Admin. (NOAA) Office for Coastal Mgmt, Socioeconomic Data Summary (2017), https://coast.noaa.gov/digitalcoast/training/socioeconomic-data-summary.html.
2. *See* NOAA Office for Coastal Mgmt, *Fast Facts: Economics and Demographics*, https://coast.noaa.gov/states/fast-facts/economics-and-demographics.html (last visited Apr. 4, 2018).
3. In this Comment, the term "coastal" refers to both ocean- and embayment-fronting areas of the coastal environment.
4. NOAA, *What Percentage of the American Population Lives Near the Coast?*, Nat'l Ocean Serv., https://oceanservice.noaa.gov/facts/population.html (last visited Apr. 4, 2018).

trial development such as oil and gas or mineral extraction that may evolve into the future.

While FAMs can serve as a catalyst prompting industrial businesses and developments to take steps or make modifications that reduce risk and enable them to secure lower insurance premiums, the points in time during which such actions are most cost-effective and feasible are at the siting, planning, design, or post-event re-building stages of development. Risk-reducing infrastructure modifications and facility siting become more problematic and costly once construction is complete. To achieve the greatest risk-reduction potential from FAMs, consideration should be given to how the application of this approach could be tailored and implemented in ways that reflect the different climate change vulnerabilities facing either new or existing coastal industrial development. To build support for FAMs to reduce industrial risk in an era of climate change, open dialogue amongst all parties would enable FAMs to be designed, reviewed, and established in ways that reflect these differences.[5]

III. Networks of Coastal Industrial Supply

Mr. Arnold describes how some coastal industries count on easy access to port facilities, fuel terminals, and other coastal-oriented infrastructure in addition to upstream producers. That same coastal orientation that benefits companies exposes their facilities to climate-driven impacts from both episodic storm events and longer-term risks such as inundation from sea level rise. In either scenario, the risk of an industrial accident that exposes the surrounding environment and population is increased due to the facility's location. The author notes that during recent storm events, including Hurricanes Katrina and Rita, the scope of disaster impacts was not limited to areas directly surrounding the industrial oil and gas refinery facilities. The author presents arguments for how FAMs could cover the financial impacts of an industrial disaster that occurred due to climate change, but does not address whether or if FAMs could or should cover impacts that are not proximate to the industrial facility. A challenge that may exist in establishing the will to require FAMs could include the degree to which a FAM covers impacts further up or down the supply chain or network of the industrial facility. Establishing the scope and scale for which a FAM should cover impacts would provide more realistic cost estimates for FAM tools—such as insurance premiums—that would be required of coastal industrial facilities. This information would allow federal, state, or local governments to realistically evaluate the costs and benefits to a jurisdiction when considering the use of FAMs to reduce coastal industrial risk.

IV. Risk Shifting and "Opportunities Lost"

The author notes that at first, FAMs will likely not be enough to cause industries to relocate, but that if the added costs do result in business relocation, the benefit may outweigh the cost. He states that coastal industry FAMs would not directly affect most coastal residents, thus provoking less political resistance than other adaptation measures. One does not have to look too far for examples of communities that have experienced industrial disasters along the coast where, in addition to the immediate and long-term economic and social costs, there were significant environmental and human health impacts. In considering FAMs as a means to address climate-driven coastal industrial disaster costs and risks, the issue of economic and social costs cannot be understated nor can the "opportunities lost" factor be ignored as a tangible direct impact to coastal residents.

In considering two otherwise-equal locations for industrial development or re-investment,[6] a FAM requirement in one location may tip the scale in favor of the other, thereby shifting or doubling down on risk toward or in a particular area. The author states that FAMs initially may emerge piecemeal, and until such mandates achieve a demonstrated benefit, this may very well be the case. However, by building partnerships, communicating, and sharing information amongst businesses, communities, insurers and governments, significant potential exists to accelerate the use of FAMs by creating conditions that would lessen direct and indirect disaster costs or reduce the potential for community economic or opportunity loss.

Command-and-control approaches—like planning and zoning tools—could complement FAMs to enable coastal industrial uses in community areas where they may pose less risk. This co-benefit approach may also result in reduced cost to the industrial business, and may incentivize or create conditions for economic and job investment in the community, should they pursue FAMs as a means to achieve risk reduction. The author states that insurers are specialists in risk management and that they draw on proprietary knowledge as they assess and value risk. Arguably, to achieve measurable and meaningful climate change risk reduction within a necessary timeframe,[7] information must be more integrated and readily shared to ensure that the overall and long-term costs and risks are minimized. Consistency in FAM approach or policy could be beneficial, and the author states that FAMs could be workable and effective through a review of existing policies at all levels of government.

5. Involved or affected parties could include governments, insurers, industry businesses and communities.

6. Re-investment in this sense could refer to upgrades to or expansion of an existing industrial site, or additional business investments in the surrounding community.

7. Action must be taken now to mitigate future climate change risk.

V. Facility Lifespans and Identifying FAM Areas

The question of the timeframe and likelihood of various impacts on a facility or project over its anticipated lifespan is central to climate change-related discussions, adaptation and mitigation actions, and policy development. Scientists, regulators, insurers, and businesses will continue to track and analyze climate science and work to ensure that the best available science is used to reduce or mitigate future cost and risk. In the pursuit of FAMs as a tool to address coastal industrial cost and risk challenges, it would benefit the conversation to consider how to narrow the timeframes over which FAM conditions are reviewed. This periodic review approach may clarify how to evaluate risk in a way that is responsive to evolving climate science in various geographic locations, and perhaps also how to garner support at a broader scale to address any question regarding the cause or driver of a particular disaster. The author notes that the Federal Emergency Management Agency floodplain maps could be used to identify geographic locations appropriate for FAMs. While they may assist in informing the initial scope of where FAMs could be applied, these maps outline only areas where current risk exists. Limiting the application of FAMs to just areas identified on these maps may significantly underestimate the geographic scope of risk as sea level rise and future climate effects are not incorporated into these products.[8]

VI. Determining the Scope of Risk and Liability

In the context of establishing FAMs, the question of how cost, liability, or responsibility would be assigned would also need clarification. Mr. Arnold acknowledges that some liability can be evaded when environmental disasters occur because they "entail tricky questions of causation and valuation." When a storm hits and results in a coastal industrial disaster, at what point would FAMs that address climate-driven impacts be applicable, versus other insurance coverage requirements? Following an industrial disaster, where does the burden of proof lie in establishing whether climate change played a role in the associated direct and indirect impacts? Where a coastal industrial facility already carries standard insurance, would adding a climate-related impact policy prove problematic when identifying liable parties? Discussion on this very issue is evolving on a regular basis.[9]

VII. Conclusion

Mr. Arnold's argument for the role that FAMs may play in addressing underinvestment in coastal industrial disaster risk is valuable. In assessing how to mitigate the risks and adapt to the impacts of climate change, he makes a strong case for FAMs as a tool to address climate-driven or -exacerbated coastal industrial disaster management challenges.

8. While the current Federal Emergency Management Agency (FEMA) floodplain maps do not account for future conditions, in accordance with the Biggert-Water Flood Insurance Reform Act of 2012, FEMA "is to establish a Technical Mapping Advisory Council that will provide recommendations to FEMA on flood hazard mapping guidelines—including recommendations for . . . the impacts of sea level rise. . . ." FEMA, *Coastal Frequently Asked Questions*, Department of Homeland Security, www.fema.gov/coastal-frequently-asked-questions (last visited Apr. 5, 2018).

9. *See* Letter from David H. Krantz, Director, Ctr. for Research on Envtl. Decisions, *Climate Change: Uncertainty and the Burden of Proof*, Ctr for Research on Envtl. Decisions, http://cred.columbia.edu/about-cred/letter-from-the-director/ (last visited Apr. 4, 2018); Noah S. Diffenbaugh, *How We Know It Was Climate Change*, N.Y. Times (Dec. 29, 2017), https://www.nytimes.com/2017/12/29/opinion/sunday/climate-change-global-warming.html.

Financial Assurance Mandates: A Mechanism to Prevent Climate-Induced Industrial Disasters

by Liz Williams Russell

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Within his call for Financial Assurance Mandates (FAMs), Zachary Arnold highlights some of the coastal impacts of climate change and emphasizes the need for industrial adaptation, while underscoring the reality that adaptation efforts are mostly underdeveloped generally.[1] He illustrates some socioeconomic effects of environmental hazards to industrial facilities, extrapolating future economic losses across industrial systems, environmental and public health catastrophes, and the likelihood of abandonment of vulnerable industrial facilities. Arnold presents the notion that industry is likely to underinvest in mitigation and adaptation activities such as upgrading facilities to withstand weather or relocating from vulnerable areas because of a set of realities present in existing regulations, incentives, and disaster response practices. Industrial facilities and operators are able to externalize much of the cost of failing to taxpayers and society at large, thus reducing the benefit that reducing risk to future harm provides the company, and weakening the cost-to-benefit ratio typically used for decisionmaking. Arnold states that typical command-and-control responses, such as zoning and building codes, are generally inflexible and difficult to enforce while often being bulky and poorly tailored to various circumstances; adaptation programs often include similar problems with additional cost. Thus, Arnold proposes that industry should be required to insure its activities and assets in preparation for the coastal impacts of climate change, presumably sea level rise and increased tidal and surge-based flooding, as a way of motivating mitigation and adaptation.

A series of mechanisms are likely necessary to induce adaptation. Financial Assurance Mandates are a promising option to ensure that companies pay for the liabilities they incur as a result of environmental hazards likely to continue increasing from the effects of climate change and other human activities. As Arnold states, they also appear to be appropriate for use by state and local policymakers due to variations of intensity in experienced effects of climate change, should state and local policymakers prove willing to pursue appropriate versions and adopt such measures. Still, the way insurance requirements would likely be determined depends on external premises that could dilute performance of these measures, some of which could be addressed through an expanded lens of the industrial insurance field, and others of which would likely prove to be barriers with increased attention. Though some experiences of these hazards are familiar, the effects of climate change are expected to bring unknown extremes of calamities that do not exist within current parameters of planning or design. Another challenge is that the most severe effects of climate change will likely not be seen for decades or generations across most vulnerable coastal landscapes nationwide. Similarly, institutions of various means with the power to act were not designed to address challenges on this time scale and, thus, the "tragedy of the horizon" deters necessary action.[2] However, within Louisiana, the implications of coastal land loss and increased flood risk are an ongoing set of complex, evolving conditions—offering a nationally relevant case study in which to hypothesize, test, and iterate within the present.

Louisiana's coastal crisis did not begin as one centered on climate change, but the predicament of ongoing and upcoming relative sea level rise ensures that the current coastal crisis in Louisiana is unlikely to be solved through established methods. Most of Southern Louisiana was built by annual spring floods over thousands of years, spreading the Mississippi's muddy water across the delta to build layers of new land.[3] This deltaic deposition provided for fertile

1. Zachary C.M. Arnold, *Preventing Industrial Disasters in a Time of Climate Change: A Call for Financial Assurance Mandates*, 41 Harv. Envtl. L. Rev. 243 (2017); *see also* Nat'l Oceanic & Atmospheric Admin., *Adapting to Climate Change: A Planning Guide for State Coastal Managers*, 1, 16 (2010), https://perma.cc/VZG5-9K9V; John R. Nolon, *Land Use and Climate Change: Lawyers Negotiating Above Regulation*, 78 Brook. L. Rev. 521, 545 (2013).

2. Mark Carney, Governor, Bank of England, Chairman, Financial Stability Board, Speech to the Insurance Market Lloyd's of London: Breaking the Tragedy of the Horizon—Climate Change and Financial Stability (Sept. 29, 2015).

3. *America Needs the Delta*, Restore the Miss. River Delta, http://mississippiriverdelta.org/ (last visited Apr. 5, 2018).

lands swollen with natural resources, but over the past century, we have stopped those historic floods to allow growth of communities and economies. Subsidence of deltaic soils in tandem with pervasive oil and gas as well as maritime operations, including the construction of navigational channels and other industrial infrastructure, have meant that since 1932, the state of Louisiana has lost an area of land equivalent to the size of the state of Delaware.[4] Still, coastal Louisiana currently contains 37% of the estuarine marsh in the country, maintaining the most substantial commercial fishery in the lower 48 states. With waterways and navigational channels crisscrossing a meandering delta system, 24% of the nation's maritime commerce courses through Louisiana, also providing a fifth of the national oil supply.[5] Maritime and energy infrastructure is pervasive within Louisiana's vulnerable coastal systems, including various scales of assets and operations. This working coast supports the nation, but must mitigate risk and adapt in order to avoid future losses.

I. Existing and Future Locations of Industrial Facilities

Coastal Louisiana is scattered with maritime and petrochemical operations and assets increasingly at risk of flooding due to land loss and sea level rise. These facilities are distributed across areas currently and projected to be low-, moderate- and high-risk areas, all expected to see increased flooding in coming decades. Since oil and gas emerged as an industry in Louisiana more than a century ago, at least 57,465 wells have been drilled across the coast, and a 50,000-mile web of pipelines now connects wells and rigs to refineries and tank farms further inland.[6] Along the Mississippi, petrochemical facilities line the river ridge, many of which have already proved vulnerable to storms since 2005. The Murphy Oil Spill referenced by Arnold was but one of many spills that occurred in the aftermath of Hurricane Katrina[7]—the damages for more are yet to be properly addressed.

Since Katrina made landfall in 2005, every parish in the state of Louisiana has been under a federal flood declaration.[8] Katrina followed by Rita, Gustav, Ike, and Isaac, and then the cloudburst, precipitation-based flooding in 2016, have illustrated the reality that most of the state, not just the coastal system, is highly vulnerable to flood events. Insurance measures to advance mitigation against the effects of climate change while reducing risks as well as costs to local and state entities should not be limited to coastal regions and should be part of a more comprehensive toolkit. In terms of Financial Assurance Mandates, the key takeaway here is that current development practice combined with shifting precipitation patterns occurring inland similarly induce risks to the broader populace based on climate related events. Therefore, mechanisms to instigate mitigation and adaptation practice throughout industry assets and operations should not be limited to coastal land loss and resulting increased flood risk but also could be appropriate for inland industry subject to watershed-based flood risk.

Not mentioned by Arnold and especially relevant to how industry might be required to maintain insurance or how activities towards resilience would be measured in terms of risk reduction is the reality that many industrial facilities are located adjacent to low-income communities and communities of color. Decades of research and data collection in the field of environmental justice has revealed that clear patterns of racial biases and socioeconomic disparities often play in to placement of industrial operations and environmental hazards.[9] Zoning and building codes assist in the continuation of inequitable development practices, resulting in industrial uses adjacent to communities least able to mitigate the effects of disaster and industrial spill-related health catastrophes.

II. Risk Mapping and Cost-Benefit Analysis

Certain influences external to and often consistent with typical insurance practice also impact the viability of requirements for industry to self-insure against climate hazards. To appropriately gauge flood risk relative to industrial assets and operations and effectively insure against future harms, a sophisticated modeling system for projections of those hazards is necessary to determine relative risk. Though coastal data from the National Oceanic and Atmospheric Administration (NOAA) generally illustrates the predicted extent of coastal flood risk, most local and state entities nationally do not have access to sophisticated flood risk data with the granularity to predict the extent of flooding in a given coastal storm event in order to give value to the effects of hazards. Further, though the Federal Emergency Management Agency (FEMA) maintains Flood Insurance Rate Maps across watersheds to determine floodplain extents and provides

4. State of Louisiana, *Comprehensive Master Plan for a Sustainable Coast*, June 2, 2017, http://coastal.la.gov/wp-content/uploads/2017/04/2017-Coastal-Master-Plan_Web-Book_CFinal-with-Effective-Date-06092017.pdf
5. *See* Kevin Sack & John Schwartz, *Left to Louisiana's Tides, A Village Fights for Time*, NYTimes.com, Feb. 24, 2018, https://www.nytimes.com/interactive/2018/02/24/us/jean-lafitte-floodwaters.html.
6. *Ibid.*
7. *See*, *e.g.*, *Hurricane Katrina Bass Enterprises*, Nat'l Oceanic & Atmospheric Admin. (NOAA) IncidentNews (Sept. 6, 2005), https://incidentnews.noaa.gov/incident/6005.
8. *See Information on Katrina/Rita 10-Year Anniversaries*, La. Div. of Admin., http://www.doa.la.gov/Pages/ocd-dru/Disasters.aspx (last visited Apr. 5, 2018).
9. *See* Jim Erickson, *Targeting Minority, Low-Income Neighborhoods for Hazardous Waste Sites*, Univ. Mich. News (Jan. 19, 2016), http://ns.umich.edu/new/releases/23414-targeting-minority-low-income-neighborhoods-for-hazardous-waste-sites.

insurance options accordingly, those risk zones are designated according to previous storm events historically.[10] As severe coastal and inland storms continue to maintain extreme precipitation levels outside established amounts over a given duration, the modeling based on previous experiences will be increasingly outdated and inaccurate in terms of predicting risk. Thus, significant investment is required to effectively illustrate flood risk in terms of future hazards for insurance valuation purposes. More broadly, this data affects which entities are required to maintain insurance and has vast implications.

Valuation of risk response again comes into play within traditional cost-benefit analysis typically used by industry to prioritize investment in risk reduction and adaptation activities. Traditional cost-benefit analyses are designed to give value to economic risks alone, inherently prioritizing costly industrial or infrastructural assets as well as wealthier areas with more high-value real estate. In terms of prioritizing mitigation and adaptation activities, these performance metrics are ineffective in comprehensively reducing risks of industrial hazards and spills to society. The method of valuation itself is flawed, built on historic principles of value that are often racialized or based on existing wealth. Interested insurers could prove capable of devising equitable measures to reduce risk to society from industrial hazards induced by climate change, should they elect to do so.

Even where insurance could catalyze risk reduction and adaptation measures across industrial assets and operations, those actions to reduce risk of climate-based hazards are likely to have other implications. In Louisiana, populations and businesses are already shifting[11] from areas vulnerable to coastal land loss and increased flooding to areas further inland perceived to be at lower risk due to higher elevations. Though communities losing populations accordingly experience dwindling resources for everyday infrastructure and services, other inland municipalities are also experiencing strains and stressors including increased demand for housing stock and transportation infrastructure. As businesses and industry relocate, access to jobs for adjacent communities shifts as well. Where residents are migrating, many are moving their households to lower-risk areas while still working in higher-risk coastal zones and impacting commuter patterns and transportation needs accordingly. In areas that could be receiving communities—such as those adjacent to inland waterways at higher elevations—industry continues to acquire land and develop it in ways that neither prevent issues of air and water quality nor reduce the likelihood of various environmental catastrophes. The effects of climate change are producing—and will produce—impacts that stretch far beyond those understood to be environmental.

III. Conclusion

The challenge of inducing risk reduction and adaptation practice is not a purely environmental one, but the vast impacts of acute and chronic environmental events and changes associated with climate change extend across socioeconomic landscapes. Elevated environmental hazards to communities are increasingly present with severe storms, both inland and coastal. Should a set of conditions evolve to accommodate this challenge, Financial Assurance Mandates could prove to be a valuable option to reduce risks. Should insurers prove interested in providing industrial insurance to induce mitigation, should policymakers prove willing to require industry to insure themselves for the costs associated with climate-based hazards, should flood risk-based modeling capacity receive investment to effectively illustrate flood risk, and should comprehensive mechanisms for valuation of risk response arise, Financial Assurance Mandates could prove to be a valuable tool in a larger adaptation toolkit.

10. *See* Sarah Pralle, *Hurricane Harvey Shows How Floods Don't Pay Attention to Flood Zone Maps—or Politicians*, Wash. Post (Sept. 7, 2017), https://www.washingtonpost.com/news/monkey-cage/wp/2017/09/07/hurricane-harvey-shows-how-floods-dont-pay-attention-to-flood-zone-maps-or-politicians/?utm_term=.fe86765d8b69.
11. Esri, *Regional Population Shift Map*, LA SAFE, https://lasafe.la.gov/wp-content/uploads/2018/03/Regional_Population-Shift_Clean.jpg (last visited June 11, 2018).

Impact Transaction: Lawyering for the Public Good Through Collective Impact Agreements

by Patience A. Crowder

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I. Introduction

"Impact transaction" is a term I coined to describe a strategy of transactional advocacy in the public interest that, like impact litigation, has the potential for making large-scale social change.[1] Community leaders interested in large-scale social change are seeking innovative approaches by which to effectuate change against the reality of shrunken public sector resources, the limitations of judicial remedies, and the political nature of public policy.

"Collective impact" is a relatively new terminology emerging out of the philanthropic community for describing structured collaboration among parties who are focused on alleviating a particular social ill.[2] Branded as "a way to better utilize resources and identify effective practices,"[3] a collective impact initiative (CII) intentionally recruits actors from diverse industries and with diverse perspectives to focus on a specific social ill.[4] In many respects, collective impact participants "agree to agree" over the course of an ongoing relationship. This approach raises important questions about authority and responsibility, such as "[h]ow and by whom are strategic goals determined? Who gets to participate and what are the requirements for participation? How are initiatives held accountable and by whom?"[5]

Collective impact is in early stages, and barriers to effectiveness are emerging, such as the absence of a contractual framework. Typical CIIs are managed through the strength of the parties' relationships, not through a written agreement. This Article argues that critical questions such as those asked above and the collective impact process are best understood through a relational contract context—a contract law theory that looks beyond the parties' privity to consider the intent and relationships among the parties. More specifically, this Article lays the groundwork for impact transaction—large-scale social change by agreement—by building a framework for drafting relational contracts to enhance the likelihood of the sustainability of CIIs and impact transaction strategies, generally.

II. Promoting Social Change Through Impact Transaction

Impact litigation is the legal tool traditionally associated with public interest or social change lawyering.[6] Impact litigation is a familiar term: judicial adjudication of cases that have the potential to impact conditions broadly for many similarly situated people or to highlight a particular issue. Impact litigation works to reform institutions, including both public governmental agencies, such as those agencies involved with education or environmental protection, and private entities, such as corporate employers.[7] Impact litigation protects the interests of individuals in the suit while hoping those actions eventually advance the public good. But as with all litigation, private adjudica-

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1. I thank my University of Denver colleague and civil rights advocate, Prof. Nantiya Ruan, who helped me coin this phrase through our discussions on impact litigation, transactional work, and public interest law. I intend for this Article to be the first of several forthcoming articles that will: detail specific contract law issues inherent in the collective impact process; propose a system for papering these initiatives by presenting a form term sheet and collective impact agreement; explore ideas of corporate governance and community participation in collective impact; and determine whether collective impact can be scaled up as a tool in the regional equity movement.
2. *See* Collective Impact F., http://collectiveimpactforum.org [https://perma.cc/D4HZ-XET9] (last visited Feb. 28, 2016).
3. Kara Bixby, Collective Impact: How Backbone Organizations Influence Change Without Formal Authority (2014), http://web.augsburg.edu/sabo/CollectiveImpactBixby.pdf [https://perma.cc/9GWK-7ES7].
4. *Id.*
5. *Id.*
6. Alan Chen & Scott Cummings, Public Interest Lawyering 201 (Wolters Kluwer 2012).
7. *See, e.g.*, Lori Turner, *Using Impact Litigation as a Tool for Social Change:* Jimmy Doe*: A Case Study*, Harv. C.R.-C.L. L. Rev. (Aug. 10, 2010), http://harvardcrcl.org/using-impact-litigation-as-a-tool-for-social-change-jimmy-doe-a-case-study-by-lori-turner [https://perma.cc/5F9W-CB65].

tion comes with high costs and risks and may take years to come to fruition.[8]

Legal commentators have aptly and thoroughly described the risks associated with litigation and presented alternate dispute resolution (ADR) choices such as negotiation, mediation, and arbitration as alternatives to address them.[9] This Article builds upon the ADR critique of litigation to demonstrate the value of agreement to build relationships. What if the core of ADR—agreement—was able to promote social change—the core of impact litigation? Impact transaction is that answer.

Impact transaction cannot replace impact litigation as a strategy for social change. However, notwithstanding the nuances inherent in transactional or litigation practice, some social problems may be more effectively challenged through transactional practice than litigation. Four major disadvantages of impact litigation can be countered with corresponding benefits of impact transaction:

(1) Judicial decisions do not guarantee desired outcomes, do not ensure implementation of any programs, and may be narrow in scope—applicable only to a specific litigated issue. Impact transaction, however, can promote social change where individual rights are not necessarily implicated.[10]

(2) Impact litigation is costly. Transaction, by contrast, alleviates many of litigation's resource drains, such as the attendant costs of trial fees.[11] Transaction costs include the time spent coming to an agreement, which itself is part of the justice-seeking outcome.[12]

(3) Litigation determines winners and losers, while transaction is grounded in collaboration.[13] In order for impact litigation to have lasting social change, judges must recognize the policy implications at play in their decisions and be willing to address those issues head-on by providing guidance for implementation.[14] On the other hand, transaction is the process of formalizing the outcome that the parties themselves determine from engaging in negotiation or mediation. Instead of a "higher" power passing judgment, the parties self-determine their destiny.[15]

(4) Attorneys control litigation by making decisions with little client input[16] and by often strategically identifying the right plaintiff(s) to bring the "right test-case" to the exclusion of otherwise worthy clients.[17] These power imbalances are largely absent in transactional practice.[18] Impact litigation is largely initiated by lawyers seeking to effectuate social change through judicial remedies, while impact transaction is initiated by clients seeking to effectuate social change through agreement.

III. Collective Impact as Impact Transaction

Collective impact has quickly evolved as a process and is gaining national attention.[19] After the term "collective impact" was first published in a 2011 *Stanford Social Innovation Review* article, a series of milestone events in the evolution of collective impact occurred. For example, in 2012, the White House Council for Community Solutions recognized the "collective impact" framework as one of two designated strategies for advancing communities throughout the nation.[20] "This term shows the power of a good buzzword to compel an idea."[21]

A. *Collective Impact Defined*

Collective impact is generally defined as a "[c]ommitment of a group of important actors from different sectors to a common agenda for solving a specific social problem," using a structured form of collaboration.[22] One example would be a local neighborhood association, private business interests, and a governmental agency joining to clean up a local water source. The defining feature of the collective impact framework is its structured infrastructure built around five characteristics[23]: (1) a common agenda that attracts participants to a given CII[24]; (2) shared measurement of success and (3) mutually reinforcing activi-

8. *See id.*
9. *See, e.g.*, Carrie J. Menkel-Meadow, Mediation: Practice, Policy, and Ethics (2d ed. 2013).
10. *See generally* Patience A. Crowder, *Interest Convergence as Transaction?*, 75 U. Pitt. L. Rev. 693 (2014).
11. David M. Trubek et al., *The Costs of Ordinary Litigation*, 31 UCLA L. Rev. 72, 91-92 (1983).
12. *Id.* at 91.
13. *See, e.g.*, Christine Liyanto, *The Discrete, the Rational, the Selfish, and the Societal: Elements Present in All Transactions*, 4 Hastings Bus. L.J. 315, 331 (2008).
14. *See* Joel Handler, Social Movements and the Legal System: A Theory of Law Reform and Social Change 1 (Acad. Press 1978).
15. *But see* Ian R. Macneil, *The Many Futures of Contracts*, 47 S. Cal. L. Rev. 691, 715 (1974).
16. *See, e.g.*, John Lande, *Failing Faith in Litigation? A Survey of Business Lawyers' and Executives' Opinions*, 3 Harv. Negot. L. Rev. 1, 21 (1998).
17. *See* Gerald P. López, Rebellious Lawyering: One Chicano's Vision of Progressive Law Practice 14-17 (1st ed. 1992).
18. *See, e.g.*, Alicia Alvarez & Paul R. Tremblay, Introduction to Transactional Lawyering Practice (1st ed. 2013).
19. John Kania & Mark Kramer, *Collective Impact*, Stan. Soc. Innovation Rev., Winter 2011, at 36 (2011), https://ssir.org/articles/entry/collective_impact [https://perma.cc/DLX2-587D].
20. Michele Jolin et al., Needle-Moving Community Collaboratives: A Promising Approach to Addressing America's Biggest Challenges (2012), https://www.bridgespan.org/bridgespan/Images/articles/needle-moving-community-collaboratives/needle-moving-community-collaboratives.pdf?ext=.pdf [https://perma.cc/6MTP-G2YN]; *see also White House Council for Community Services*, United We Serve, http://www.sferve.gov/?q=site-page/white-house-council-community-services [https://perma.cc/K46A-U8JJ] (last visited Feb. 28, 2016).
21. Lucy Bernholz, *Philanthropy Buzzwords of 2011*, Chron. Philanthropy (Dec. 27, 2011), https://philanthropy.com/article/Philanthropy-Buzzwords-of-2011/157395 [https://perma.cc/ZM45-S42X].
22. Kania & Kramer, *supra* note 19, at 36-41.
23. *See id.* at 39-40.
24. *See id.* at 39.

ties to promote interdependence among the participants to advance the initiative outcome[25]; (4) continuous communication among the parties to reinforce levels of trust among the participants[26]; and (5) the implementation of backbone support organizations to ensure the other conditions are advanced by serving as a project manager.[27] CII members "agre[e] to agree,"[28] as they begin an intensive planning process to build trust and an appreciation for each other's perspectives.[29]

CIIs have generally fallen into one of the following categories: youth development; educational reform; environmental protection; health and welfare; and economic development. An example of an environmental protection CII is one of the earliest identified CIIs, the Elizabeth River Project,[30] founded in 1991 to clean up the Elizabeth River in Portsmouth, Virginia.[31] The river had long been used as an industrial waste dump.[32] Still active today, the project has more than 100 stakeholders, including representatives from government, science, business, and citizen interests.[33]

Collective impact is not the first iteration of transaction for the public good. However, several prior types of "public good transactions" have limitations that inhibit impact transaction. Memorandums of understanding are less encompassing in scope than collective impact agreements are intended to be. Questions remain about the substance and enforceability of community benefits agreements[34] as tools for large-scale social change, including the identification of the appropriate "community" that such an agreement should govern.[35] Social enterprises are not as well suited to create and sustain large-scale social change as impact transaction because they do not typically act in concert with each other through networks.[36] Although community economic development (CED)[37] projects originally were founded in order to increase economic opportunity in underserved communities, today's CED projects have strong market connections.[38] CEDs may also be too localized to address the large-scale social problems CIIs address.[39]

B. Standard Parties to CIIs

An important characteristic of CIIs is their diverse range of typical parties,[40] which can include nonprofit organizations, public entities, educational institutions, the private sector, and representatives of the targeted community.[41]

Backbone agencies—independent entities with their own dedicated staff and physical space[42]—coordinate the activities of the other stakeholders.[43] They must foster changed behavior and attitudes but lack inherent authority over the other participants.[44] The number one reason CIIs fail is ineffective backbone support.[45]

Organizational participants in CIIs provide "specialized assistance and resources specific to their ability."[46] Representatives of the network members should include CEO-level leadership of each participant to demonstrate a serious commitment to participate. Funders play significant roles[47] of infrastructure support,[48] problem-solving around an issue,[49] and expertise such as data collection, professional development, and skills related to the scope of the initiative.[50] CIIs also receive nonmonetary support from public institutions and consultants. Federal Reserve banks, for example,[51] support and facilitate data collection, such as poverty metrics.[52] Collective impact consultants work to facilitate strategic decisionmaking within a CII.[53]

25. *See id.* at 40-41.
26. *Id.*
27. *Id.* at 39-40.
28. *See* Ian R. Macneil, *A Primer of Contract Planning*, 48 S. Cal. L. Rev. 627, 662, 662 n.10, 684 (1975); *see also* Thomas J. Stipanowich, *Contract and Conflict Management*, 2001 Wis. L. Rev. 831 (2001).
29. Kania & Kramer, *supra* note 19, at 40.
30. Elizabeth River Project, http://www.elizabethriver.org/ [https://perma.cc/B8NK-YT79] (last visited Apr. 4, 2016).
31. Elizabeth River Project, Explore the Elizabeth's Lauded Past 2, https://elizabethriver.org/sites/default/files/ERP-elizabethsplauded-past.pdf [https://perma.cc/P3QW-U7ZR] (last visited Feb. 28, 2016).
32. *Id.* at 1-2.
33. Elizabeth River Project, Twentieth Century Watershed Action Plan for the Elizabeth River 24 (2016), http://www.elizabethriver.org/#!watershed-action-plan/c1l8m [https://perma.cc/3FM8-CVWY].
34. *See, e.g.*, Sandy Gerber, *Community Benefits Agreements: A Tool for More Equitable Development?*, Fed. Res. Bank Minneapolis (Nov. 1, 2007), https://minneapolisfed.org/publications/community-dividend/community-benefits-agreements-a-tool-for-more-equitable-development [https://perma.cc/DZB6-BPQ8].
35. *See* Vicki Been, *Community Benefits Agreements: A New Local Government Tool or Another Variation on the Exactions Theme?*, 77 U. Chi. L. Rev. 5 (2010).
36. *But see* Soc. Enterprise Alliance, https://socialenterprise.us/ [https://perma.cc/4JHN-95U7] (last visited Feb. 28, 2016).
37. *See, e.g.*, *Community Economic Development (CED)*, Admin. for Child. & Families: Off. Community Services, http://www.acf.hhs.gov/programs/ocs/programs/ced [https://perma.cc/CJJ5-E9FM] (last visited Feb. 28, 2016).
38. *See* Scott L. Cummings, *Community Economic Development as Progressive Politics: Toward a Grassroots Movement for Economic Justice*, 54 Stan. L. Rev. 399 (2001).
39. Scott L. Cummings, *Recentralization: Community Economic Development and the Case for Regionalism*, 8 J. Small & Emerging Bus. L. 131, 144-45 (2004).
40. *See What Is Collective Impact*, Collective Impact F., http://collectiveimpactforum.org/what-collective-impact [https://perma.cc/ENQ5-EZN3] (last visited Feb. 28, 2016).
41. *See* Kania & Kramer, *supra* note 19, at 40.
42. *Id.*
43. *Id.*
44. Bixby, *supra* note 3, at 2.
45. Shiloh Turner et al., *Understanding the Value of Backbone Organizations in Collective Impact: Part 3*, Stan. Soc. Innovation Rev. (July 19, 2012), http://ssir.org/articles/entry/understanding_the_value_of_backbone_organizations_in_collective_impact_3 [https://perma.cc/DV75-8UBC].
46. *See Collective Impact Model*, 5 Marketwise Community 1, 5 (2015), https://www.richmondfed.org/publications/community_development/marketwise_community/2015/issue_1/mwc_vol5-issue1_p3_collective_impact [https://perma.cc/FQM2-HC4B].
47. *See* Eric Nee & Michele Jolin, *Roundtable on Collective Impact*, Stan. Soc. Innovation Rev., Fall 2012, at 25, http://ssir.org/articles/entry/roundtable_on_collective_impact [https://perma.cc/Z4AA-5J62].
48. *Id.* at 28.
49. *See id.*
50. *See id.*
51. *See, e.g.*, Emily Mitchell, *The Power of Collective Impact*, Fed. Res. Bank Atlanta, https://www.frbatlanta.org/community-development/publications/partners-update/2014/03/140516-power-of-collective-impact.aspx [https://perma.cc/MPR2-QKFL] (last visited Feb. 28, 2016).
52. *See Collective Impact Model*, *supra* note 46, at 7.
53. *See, e.g.*, Spark Pol'y Inst., http://www.sparkpolicy.com/about.htm [https://perma.cc/8JP8-9PZB] (last visited Feb. 28, 2016).

C. *The Unquantifiable Value and Manageable Risks of Collective Impact*

As a strategy for social change, collective impact houses an unquantifiable and unique value yet to be fully realized. Collective impact is causing three paradigm shifts in the way governments and nonprofits collaborate to deliver social and public services.

(1) CIIs move beyond isolated impact and technical problems to identify and embrace adaptive problems in social service delivery.[54] Technical social problems are well defined and able to be addressed by one organization. Adaptive problems, in contrast, are complex problems with unknown or yet-to-be-discovered answers and, even if an answer is identified, for which no single entity "has the resources or authority to bring about the necessary change."[55] This shift in focus engages larger-scale interventions, designed for multidimensional problem solving.[56]

(2) Funders of CIIs increasingly are willing to fund a grantee's broad operational and planning needs, rather than solely funding specific programs.[57] In contrast to the traditional model, funders who invest in creating large-scale change through collective impact follow four recognizable practices: "take responsibility for assembling the elements of a solution; create a movement for change; include solutions from outside the nonprofit sector; and use actionable knowledge to influence behavior and improve performance."[58]

(3) A third paradigm shift implicates the role of business and commercial interests.[59] The private sector is gaining new appreciation for social issues, and nonprofits are gaining deeper awareness of potential business partnerships.[60]

Several risks are also inherent in collective impact frameworks, but they can best be managed by a written agreement:

(1) CIIs may be criticized because participating institutions are making decisions without engaging the impacted community until an initiative is well underway, if at all.[61] Thoughtful and innovative collective impact governance structures incorporated in a written collective impact agreement, to which some representation of the community is a signatory, can manage the risk of falling into these historical patterns.

(2) Although passage of time is the best way to test the durability of collective impact strategy, the risk that work cannot be sustained could be managed through a written collective impact agreement that legislates transparency, sets expectations for participant behavior, manages accountability, and incorporates an evaluation component.

(3) CIIs also risk forming politically divisive minicoalitions, or CII parties might hold out for a more authoritative role or greater compensation.[62] A written collective impact agreement that incorporates covenants prohibiting this behavior can manage these risks.

Promoting written agreement in CIIs runs counter to the culture of trust which is fundamental to collective impact and which is perceived as an opportunity to actualize the value of current paradigm shifts.[63] However, there are other important reasons for encouraging written collective impact agreements. For example, the absence of an executed agreement can cause confusion about the parties' roles and increase their individual liabilities. A written agreement based on relational contract theory is the most effective way to actualize the value and minimize the risk of collective impact.

IV. Positive Risk: Relational Contract Theory

According to relational contract theory, contracts involve more than discrete exchanges between parties and "every

54. *See* John Kania et al., *Essential Mindset Shifts for Collective Impact*, *in* Collective Insights on Collective Impact 2 (Stanford Soc. Innovation Review 2014), http://ssir.org/articles/entry/essential_mindset_shifts_for_collective_impact [https://perma.cc/VUV8-88ZB].
55. Kania & Kramer, *supra* note 19, at 39.
56. *Id.*; *see also, e.g.*, Leonard J. Marcus et al., *The Walk in the Woods: A Step-by-Step Method for Facilitating Interest-Based Negotiation and Conflict Resolution*, 28 Negot. J. 337, 339-40 (2012).
57. *See, e.g.*, Jennifer Chambers, *New Detroit Hire Works to Keep Philanthropy Aid Flowing*, Detroit News (June 9, 2015, 12:14 AM), http://www.detroitnews.com/story/news/local/detroit-city/2015/06/09/detroit-philathropy/28721791 [https://perma.cc/JMS8-MWAC].
58. Kania & Kramer, *supra* note 19, at 41; *see also* Kim Fortunato, *When and How to Engage the Private Sector in Collective Impact*, Collective Impact F. (July 14, 2015, 9:12 PM), http://collectiveimpactforum.org/blogs/9406/when-and-how-engage-private-sector-collective-impact [https://perma.cc/5MAC-ENJK].
59. Fortunato, *supra* note 58.
60. *10 Lessons Learned From Engaging the Business Community in Collective Impact*, Collective Impact F. (July 14, 2015, 8:49 PM), http://collectiveimpactforum.org/blogs/1/10-lessons-learned-engaging-business-community-collective-impact [https://perma.cc/KV4X-V66R].
61. *See, e.g.*, Melody Barnes et al., *Roundtable on Community Engagement and Collective Impact*, *in* Collective Insights on Collective Impact, *supra* note 54, at 14, http://ssir.org/articles/entry/roundtable_on_community_engagement_and_collective_impact [https://perma.cc/Y46P-8E3Q]; *see also* Patience A. Crowder, *"Ain't No Sunshine": Examining Informality and State Open Meetings Acts as the Anti-Public Norm in Inner-City Redevelopment Deal Making*, 74 Tenn. L. Rev. 623 (2007); *Why Communities of Color Are Getting Frustrated With Collective Impact*, Nonprofit With Balls (Nov. 29, 2015), http://nonprofitwithballs.com/2015/11/why-communities-of-color-are-getting-frustrated-with-collective-impact/ [https://perma.cc/YM4Q-D4Q5].
62. *See, e.g.*, Robert H. Mnookin, *Strategic Barriers to Dispute Resolution: A Comparison of Bilateral and Multilateral Negotiations*, 8 Harv. Negot. L. Rev. 1, 15 (2003).
63. *See* Ethan J. Leib, *Contracts and Friendships*, 59 Emory L.J. 649, 675-76 (2010).

time a relationship seems properly to enjoy the label 'contracts' there is, or has been, some cooperation between or among the people connected with it."[64]

A. *The Evolution of Relational Contract Theory and the Importance of Context in Contract*

Relational contract theory is a significant contribution to contract law and applies to collective impact.

Classical (or "conventional" or "traditional") contract law holds very fixed definitions for the dimensions of contract and holds no space for "justifying doctrinal propositions on the basis of social propositions—that is, propositions of morality, policy, and experience."[65] As an open, inductive, dynamic, and individualized mechanism of contract interpretation,[66] relational contract theory responds to two "fundamental weaknesses of classical contract law–its static character, and . . . its . . . empirical premise [and flawed assumption] that most contracts are discrete."[67]

Relational contracts are typically distinguished by: indefiniteness about duration; informality of language; incompleteness[68]; imprecise performance standards; expectations of roles for social norms; reference to industry standards[69]; and gaps in risk allocation.

Relational contract theory recognizes context-driven distinctions.[70] Relationists argue that "[c]ontract law, which orders bargaining relationships and transactions, should always be tempered by the facts of particular contexts."[71] Context is important in the formation of relational contracts, including CIIs. Parties select the common agenda, negotiate the logistics behind the mechanisms for shared measurement and continuous communication, and identify and agree to perform mutually reinforcing activities that advance the initiative.[72] For example, CII parties enter into relational contracts to try to exploit the "economies" of grant funds managed by the backbone agency. In typical relational contracts, this process is accomplished by specifying the performance standard of each party and then selecting a mechanism to ensure compliance.[73]

Relational contract theory provides guidance to CII participants (and their lawyers) about how to: navigate collective impact processes, approach drafting collective impact agreements, approach funders about expectations and requirements, and approach the courts about resolving collective impact disputes.[74] These concepts are particularly important for the "middle market" local nonprofits that lack those resources but, nonetheless, want to participate in CIIs.

B. *Why Collective Impact Needs a Written Contract*

The written agreement is a valuable tool in collective impact because there are conditions precedent in CIIs that must account for allowing the parties to understand: when their obligations are triggered; when CIIs raise questions about the ownership of intellectual property; and when activities undertaken implicate liability concerns.

Written relational contracts are incomplete contracts "that rely on trust and reciprocity rather than control."[75] Collective impact agreements should be encouraged because (1) notions of neoformalism promote the values of efficiency and uniformity and (2) they would give rise to public policy benefits.

C. *Neoformalist Values: Efficiency and Uniformity*

Although relationists prefer standards over rules,[76] neoformalism, which prefers language and formality,[77] "recognizes that even parties embedded in a complex relationship may nevertheless prefer to be governed under a formalist system."[78] The main argument in favor of neoformalism asserts that it promotes judicial efficiency by providing relational contract interpretive strategies for courts and other decision makers.[79] The counterargument is that it could be used to alter a relational contract beyond its bounds.[80]

While the use of written agreements in CIIs is not completely absent, the current use of collective impact agreements is too infrequent. Moreover, the types of agreements executed are ill-structured documents for effectuating CIIs. For example, a funder's grant governs the award and administration of the grant, and there is no privity of contract between the funder and the non-backbone participants or among the participants. Also, partnership agreements are designed to memorialize the legal obligations of parties who have intentionally decided to work in concert together for a for-profit purpose and govern, among other matters, the partners' ownership interests, levels of liability, and governance rights; they are not contracts for the exchange of services between parties.

64. Ian R. Macneil, *Whither Contracts?*, 21 J. Legal Educ. 403, 404 (1969); *see also* Ian R. Macneil, The New Social Contract: An Inquiry Into Modern Contractual Relations (Yale Univ. Press 1980); Ian R. Macneil, *Relational Contract Theory: Challenges and Queries*, 94 Nw. U. L. Rev. 877, 877 (2000).
65. *See* Larry A. DiMatteo & Blake Morant, *Contract in Context and Contract as Context*, 45 Wake Forest L. Rev. 549, 569 (2010).
66. *See* Melvin A. Eisenberg, *Why There Is No Law of Relational Contracts*, 94 Nw. U. L. Rev. 805, 812-13 (2000).
67. *See id.* at 821.
68. *See* Robert E. Scott, *The Case for Formalism in Relational Contract*, 94 Nw. U. L. Rev. 847, 862 (2000).
69. *But see* Leib, *supra* note 63, at 662.
70. DiMatteo & Morant, *supra* note 65, at 557.
71. *Id.* at 561.
72. Kania & Kramer, *supra* note 19, at 5-6.
73. Charles C. Goetz & Robert E. Scott, *Principles of Relational Contracts*, 67 Va. L. Rev. 1089, 1092 (1981).
74. *See infra* Section V.A-B.
75. *See* Wendy Netter Epstein, *Facilitating Incomplete Contracts*, 65 Case W. Res. L. Rev. 297, 300 (2014).
76. *See* Leib, *supra* note 63, at 667.
77. *See* David V. Snyder, *Language and Formalities in Commercial Contracts: A Defense of Custom and Conduct*, 54 SMU L. Rev. 617, 619 (2001).
78. Franklin G. Snyder, *Relational Contracting in a Digital Age,* 11 Tex. Wesleyan L. Rev. 675, 677-78.
79. *See* Scott, *supra* note 68, at 869; *see also* Scott Baker & Albert Choi, *Contract's Role in Relational Contract*, 101 Va. L. Rev. 559, 559 (2015).
80. *See* Leib, *supra* note 63, at 715; *see also* Ian R. Macneil, *Contracts: Adjustment of Long-Term Economic Relations Under Classical, Neoclassical, and Relational Contract Law*, 72 Nw. U. L. Rev. 854 (1978).

If participants continue to borrow from other disciplines to meet their collective impact needs, it will limit the capacity for strategy study and development.

D. Public Policy

Unlike most private law transactions, CIIs are designed to address a particular social problem for the public good and, thus, collective impact agreements are contracts for the public interest. The seriousness of any potential to harm an underserved community and the amounts of money invested in CIIs[81] warrant the imposition of more formalized collective impact agreement processes to increase the likelihood that social change is advanced with transactional efficiency.

V. Contracting for Complexity: Planning for and Drafting Collective Impact Agreements

Two important considerations when contemplating a CII are the substance of the project and the services to be exchanged among the working group. Relational contract drafting principles employed in a collective impact term sheet should support a shared agenda for social change, provide for accountability, and respect the collective impact mindset.

A. Collective Impact Agreements: Planning and Drafting for Flexibility

Collective impact agreements are (1) multilateral (2) service agreements (3) between participants drafted to memorialize the parties' intent to effect social change for an underserved population through (4) synchronized and phased service delivery coordinated through long-term ongoing planning.

Multilateral agreements require special drafting considerations[82]—particularly, establishing privity of contract between each party. Services agreements are inherently relational,[83] which should be considered in the drafting of provisions such as performance standards and assignment provisions.[84] Non-legal social enforcement through trust and dispute resolution is a signature characteristic of relational contracts.[85]

Planning is necessary for all contracts, but the unplanned nature of contracts[86] is particularly true of collective impact, which fundamentally involves the distinction between performance planning and risk planning.[87] Performance planning outlines what tasks each party will perform, the timeline for these tasks, and applicable performance standards. Risk planning requires assessing which parties are in the best position to minimize or withstand the risks associated with the transaction.[88]

B. Drafting a Collective Impact Term Sheet

Relational contract theory is underutilized in practice because lawyers are underinformed about its applicability.[89] A form collective impact term sheet may help to normalize the contract processes.

Term sheets explore the possibility of a transaction[90] and demonstrate the parties' commitment to contract.[91] They are intentionally vague documents designed to present the framework of a transaction, set forth provisions of the drafting and execution of the main agreement, act as a thermometer for negotiations, forecast the types of provisions that will be in the main agreement, and memorialize the distribution mechanism for compensation.[92]

Collective impact is a nascent framework, so this discussion about term sheets is important but speculative. To start the conversation about impact transaction contract principles, the following term sheet concepts are the most salient: (1) Recitals and preambles set the tone for the initiative, acting somewhat as a mission statement; ground new members to the initiative; and communicate the initiative to interested nonparties. (2) Identifying binding and nonbinding provisions helps to highlight the parties' expectations of each other's behavior.[93] An example appropriate for collective impact agreements would be the obligation that parties negotiate and proceed in good faith with fair dealing. (3) Including provisions on developing standard dispute resolution mechanisms over time would be appropriate for a term sheet, given the collaborative intent of collective impact. (4) Mechanisms for tracking responsibility for performing conditions precedent would allow parties to track projects, including responsibility for existing projects and a willingness to take on new projects that might emerge.

Naturally, it would be difficult to manage these ideas specifically with a term sheet; however, an innovative

81. *See, e.g.*, Project U-Turn, http://www.projectuturn.net/ [https://perma.cc/PG5G-FQ9V] (last visited Mar. 4, 2016).
82. *See* Bryce Johnson, *Efficiency Concerns in Breach of Multilateral Contracts*, 44 UCLA L. Rev. 1513 (1997).
83. *See* Macneil, *supra* note 15, at 694.
84. Robert E. Scott, *A Relational Theory of Default Rules for Commercial Contracts*, 19 J. Legal Stud. 597, 598 (1990).
85. *See, e.g.*, Lisa Bernstein, *Private Commercial Law in the Cotton Industry: Creating Cooperation Through Rules, Norms, and Institutions*, 99 Mich. L. Rev. 1724, 1725-28 (2001); DiMatteo & Morant, *supra* note 65, at 562.
86. Macneil, *supra* note 28, at 636.
87. Leib, *supra* note 63, at 661.
88. *See* Scott, *supra* note 84, at 597.
89. Symposium, *Relational Contracting in a Digital Age*, 11 Tex. Wesleyan L. Rev. 675, 690 (2005).
90. *See* Vincent R. Martorana, *Letters of Intent: What to Consider Before Your Deal Becomes a "Deal,"* Com. L. WebAdvisor, http://www.commerciallawwebadvisor.com/schedule/detail/letters-of-intent-what-to-consider [https://perma.cc/APJ7-N93G] (last visited Mar. 4, 2016).
91. *Id.*
92. *See* Bruce Gibney, Founder's Fund, What's in a Term Sheet? The World's Most Irritating Not-Quite-Contract, http://web.archive.org/web/20130303042811/http://www.foundersfund.com/uploads/term_sheet_explained.pdf [https://perma.cc/K6CB-UUG7] (last visited Mar. 6, 2016); *see also* Richard B. Potter, *The Drafting and Enforcement of Canada/United States Contracts: A Canadian Lawyer's Perspective*, 20 Int'l L. 3, 5 (1986).
93. *See* Carl J. Circo, *The Evolving Role of Relational Contract in Construction Law*, 32 Construction L. 16, 17 (2012).

mechanism may help to preserve them in a term sheet for CIIs.[94]

VI. Conclusion: Concerns, Predictions, and Next Steps

Contract orders social and commercial relationships, functioning as both preference-protecting and preference-enhancing.[95] This duality is reflected in some of the counterarguments to this Article's proposal. Three of the strongest counterarguments—and responses to them—are:

(1) Collective impact succeeds where trust among the participants is strong, and therefore a formal agreement might counter this mindset of trust. However, the relational nature of the collective impact agreement would enable the drafting process to be reflective of the collective impact mindset.

(2) Collective impact might provide direct relief to underserved communities, but it does not necessarily address the larger social and political issues that historically have fostered inequity. Although collective impact is designed to foster large-scale social change, more research is required to assess how collective impact may be scaled up. Nothing suggests that the framework could not be used to advance public policy if the right parties formed a CII.[96]

(3) The formalization of the collective impact agreement process does not necessarily improve the opportunities for community engagement. However, histories of exclusion will be repeated unless collective impact innovates with respect to expectations of community involvement.

Collective impact has a lot of potential. The normalization of a form collective impact agreement is essential for the success of collective impact as the first impact transaction strategy. More empirical data is needed to answer other important questions about the appropriateness of impact transaction. The state could deploy or require mechanisms for oversight of CIIs, regulate the substance of form provisions, or create a ratings system for backbone agencies. As the framework continues to grow in popularity, it will be important to create mechanisms for assessment.[97]

94. *See, e.g.*, *id.* at 24.
95. *See* DiMatteo & Morant, *supra* note 65, at 568.
96. *See* Thaddeus Ferber & Erin White, *Making Public Policy Collective Impact Friendly*, *in* Collective Insights on Collective Impact, *supra* note 54, at 22-23, http://ssir.org/articles/entry/making_public_policy_collective_impact_friendly [https://perma.cc/9MHV-ARTH].
97. *See* Marcie Parkhurst & Hallie Preskill, *Learning in Action: Evaluating Collective Impact*, *in* Collective Insights on Collective Impact 17, http://ssir.org/articles/entry/learning_in_action_evaluating_collective_impact [https://perma.cc/X7L3-3XK6].

Impact Transactions From a Practitioner's Perspective

by Ann E. Condon

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In *Impact Transaction: Lawyering for the Public Good Through Collective Impact Agreements*, Patience A. Crowder proposes a theory of how written agreements can be a vehicle to foster "collective impact" collaborations to address social ills.[1] Collective impact initiatives (CIIs) bring together actors with diverse experiences and perspectives to focus on an issue, with the potential to create new skill sets and solutions to long-standing problems. Professor Crowder posits that the absence of an existing contractual framework is one of the emerging barriers to the effectiveness of CIIs, many of which are currently based on informal relationships and not enforceable agreements. In particular, the author believes we need to develop practical contract drafting strategies to memorialize collective impact strategies. This article is designed as the first in a series on collective impact. Future articles will review specific contract law issues, recommend governance structures, and explore how collective impact can be scaled as a tool in the regional equity movement. One element that is missing from this article is evidence that organizations working on social projects will gain tangible benefits from adopting a formal contract. Articulating these benefits, perhaps through detailed case studies, should be a key element of Professor Crowder's future work.

I. CIIs and Social Change

Professor Crowder is correct that CIIs are a promising vehicle for effecting social change. My perspective is that of a practitioner. For the last three years of my career as a lawyer at General Electric (GE), I acted as legal counsel to the GE Foundation. Using my more than 30 years of experience working on transactions, I supported the program managers as they developed unique collaborations around science, technology, engineering, and math (STEM) education and healthcare, and in particular, developed regional programs to address the opioid crisis. The opioid work stream recognized the need to (1) build collaborations between governmental agencies, such as the police and first responders; (2) involve local service providers, such as hospitals and community health centers; (3) build on the expertise of nongovernmental agencies, such as those providing mental health and housing support to affected families, and (4) find ways to engage addicted individuals. One of the significant lessons learned has been the power of engaging very diverse organizations working with the same populations on related issues. This enables much better utilization of the assets of each organization and minimizes duplicative or competing work. There is not—and likely will never be—sufficient resources to fund every need.

I am also a board member of the Institute for Sustainable Communities (ISC), a nongovernmental organization that has been working with local communities on resilience projects for many years.[2] One of the main lessons of resilience work with communities is that the poor are the most adversely affected when a natural disaster strikes. On the plus side, organizations working on resilience have learned that improving the ability of a local community to plan for, respond to, and rebound from a natural disaster can be done in ways that improve the ongoing lives of members of those communities and their ability to manage more routine upsets to their finances or personal lives. ISC has been working with multiple communities, acting as the convenor and facilitator, to bring together social service agencies, local communities, and environmental organizations to prioritize the needs and discuss what works and how they can collaborate. Just the act of convening the various organizations can have dramatic and often quick benefits. This work has given me some insight on what is needed to foster a collaboration.

The initial formation phase of a new collaboration is one of the most challenging. It requires two things: (1) a funding source that is willing to provide a safe space for what some critics consider "mushy stuff," and (2) a will-

1. Patience A. Crowder, *Impact Transaction: Lawyering for the Public Good Through Collective Impact Agreements*, 49 Ind. L. Rev. 621, 622-23 (2016).

2. *See Partnership for Resilient Communities*, Inst. for Sustainable Communities, https://www.iscvt.org/program/partnership-resilient-communities/ (last visited Apr. 4, 2018).

ingness of over-stretched organizations to commit precious staff time to brainstorming, norming, and forming activities. In this age of impact investing, when funders want to see measurable results, funding activities for the health of an organization or for long-term program development is not the norm. In my view, attempting to introduce a contractual form at this formation phase is likely to either create a high barrier to entry in terms of staff time or predetermine the outcome. In the article, Professor Crowder discusses the concept of a backbone agency who will guide the collaboration. It is my experience that trust needs to be built before the backbone organization can form the collaboration or itself be formed if a new structure is needed. Case studies, with clear evidence on how various forms of agreement have accelerated progress at the formation stage, would be an important next step in Professor Crowder's work.

II. The Role of Agreements in Fostering Social Change

Once a group has passed the formation stage and has identified a critical mass of participants, a common sense of mission, and at least a preliminary plan of action, then an agreement is appropriate. I was initially skeptical when asked to provide input or draft a memorandum of understanding (MOU), which Professor Crowder identifies as one of the common means social service providers use to memorialize their arrangements. Over time, I came to see their utility—and not just as a way to document strategic partnerships for grant applications. In my experience, MOUs became a key way to ensure the participants were in fact in alignment, to set up the governance structures, and to establish the working mechanisms for the ongoing relationship. In one case, the negotiation of the MOU surfaced a profound lack of alignment between the parties, which resulted in termination of the discussions. We avoided wasting significant resources on a strategy that never would have worked.

Professor Crowder is fairly critical of the MOU as the main vehicle for documenting these relationships. She suggests that the MOU has created a culture in which groups compete against each other for funding. While acknowledging that groups must compete for funding, I do not believe that is due to the MOU form, but to the priorities of the donors. I have had the experience that an MOU can provide a very useful basis for long-term, flexible relationship management, which in the context of how governments and charities typically disburse funds, may be a sufficient legal structure to facilitate collaborative initiatives.

In the business context, an MOU is often the first phase of an "agreement to agree." The principals to the transaction have established a common vision, and the MOU provides instructions to the teams that will negotiate a fully binding agreement on how to proceed. In the social project context, the MOU serves a similar "agreement to agree" role, but the next phase is typically grants or contracts, which will control the legal obligations of the parties with respect to the project, the use of funds, reporting, and other legal obligations.

The question I hope Professor Crowder can answer in the next phase of this series is what commitments *need* to be subject to a fully binding agreement. In particular, what is not already adequately documented by the fairly typical social project MOU? This needs to be analyzed in the context of the grant agreements typically used by NGO donors or the government contracting procedures used by public entities to hire contractors to perform specific tasks. As Professor Crowder identifies, there is a significant transaction cost to organizations if they need to engage lawyers to negotiate more complex agreements. If that is to be the recommended model, what is the tangible benefit the organizations can obtain from a more fulsome agreement above and beyond simple MOUs combined with the existing control mechanisms donors provide over funds? And, if there are benefits, how can this evolve from existing practice?

III. The Key Content of a Social Impact Agreement

If the social project involves multiple participants with a common vision and a longer-term work plan, then I fully agree that a written agreement is appropriate. Whether in the form of an MOU, a term sheet, or a more fulsome agreement, I agree with Professor Crowder's identification of some of the key elements of the agreement:

a. **A strong preamble.** When writing commercial agreements, I almost always wrote very short preambles because I wanted all the commitments in the binding portion of the contract. For the Foundation, I often helped the team write detailed preambles because they outlined the vision and because the various actors, who will be working in parallel but independently, need a clear road map. It can also create confidence in the mission if the group hopes to bring additional entities into the relationship over time.

b. **Setting up a clear decisionmaking process.** Creating a working committee with clearly designated individuals is critical. In most cases, the role of this committee should be to develop the detailed work plan specifying clear roles, responsibilities, tasks, and desired outcomes and measures.

c. **Methods for dispute resolution.** One of the main reasons for creating any form of relationship contract is to specify how disputes will be resolved. This could be as simple as creating a committee of principals from the various participants (e.g., the mayor, the president of a donor, the CEO of the local hospital, etc.) to whom disputes would be escalated. It could also specify how an organization could withdraw from the relationship, as well as who owns any assets that are created during the relationship in case an entity leaves or the collaboration ends.

d. **Mechanism for tracking responsibilities.** Reporting to the principals on progress is critical to credibility. Ensuring that the organization can explain its mission and results and that the participants are properly credited for the role they played is also key.

There are some items Professor Crowder does not mention that I believe are also important:

a. **Clear identification of the parties to the agreement.** Surprisingly this is not always clear to the various program managers. Many individuals working in this space wear multiple hats, so understanding exactly whom they represent, and what organizations intend to be bound, is very helpful.

b. **Identifying the processes each organization needs.** Foundations and governmental entities have specific processes for disbursing funds and measuring progress against commitments. Having each group specify, at least at a high level, what those obligations will be can help ensure that a separate agreement does not confuse donor recipients about what will be required to receive future tranches of committed funds and to enable the funding organizations to meet their own controllership obligations and tax compliance.

c. **Specifying how a detailed work plan will be developed.** As Professor Crowder rightly points out, we cannot put all the detailed obligations into the high-level agreement. But the process for development and approval of that work plan can be specified. Professor Crowder suggests putting a list of binding and nonbinding provisions directly in the agreement. Setting up the process to develop detailed work plans that can evolve over time may be a more flexible way of laying out those provisions.

d. **External communications and public relations.** As many participants will want to publicize their role, agreeing on how participants' identities can be used—and when they will have sole control over how their role is discussed—is very helpful.

Depending upon the nature of the underlying agreement, concepts commonly used in business relationship contracts—such as controlling law and jurisdiction for disputes, term length of the agreement, and assignment rights and official notifications—will likely make sense.

IV. Conclusion

Professor Crowder has laid out an interesting theoretical construct for a collective impact approach using contractual means to advance social development. But what seems to be missing is evidence that tangible benefits will accrue to the organizations working on social projects if a formal contract is adopted. For organizations with critical missions and limited means, articulating these benefits—in business parlance, "making the business case"—should be a key element of any future work.

The Prospect of Impact Transactions Through the Eyes of a "Backbone" Organization Practitioner

by John R. Ehrmann, Ph.D.

John R. Ehrmann is a Founder and Senior Partner of the Meridian Institute.

First, I want to thank Patience A. Crowder for this very interesting and thought-provoking exploration of a new and innovative concept. I believe, based on her initial exploration, that the concept of impact transaction merits further work, so I am pleased to know that she intends to continue her development of the idea in future papers. I look forward to following her work as it progresses.

I have spent my entire professional career designing and implementing collaborative problem-solving approaches in the sustainability realm, broadly defined. My work and that of many, many others has laid the groundwork for the conceptualization of the collective impact construct, put forth by John Kania and Mark Kramer,[1] upon which Crowder builds the case for impact transactions. At my organization, Meridian Institute, we have helped diverse parties construct and implement efforts based on collaborative and collective impact. These efforts have been focused on areas like building community resilience in the face of natural disasters; developing new legal and regulatory frameworks on issues such as Superfund cleanups and Toxic Substances Control Act (TSCA) reform; and addressing international issues such as food security, tropical deforestation, and the elimination of aflatoxin food contamination in sub-Saharan Africa.

I. The Underlying Premises of the Impact Transaction Approach

I agree with several of the underlying premises of Professor Crowder's development of the impact transaction approach. First, collaborative, as opposed to adversarial, proceedings are inherently well suited to address the complex societal challenges and conflicts that she is exploring. This results from several factors: collaborative processes bring multiple interested parties to the table; these processes explore and strive to understand underlying interests, rather than focusing on stated positions, which is at the heart of most adversarial proceedings; and they empower the group of involved parties, rather than an adjudicatory person or body, to make decisions. I think this last point is particularly important to consider in the context of the potential benefits of the impact transaction approach.

I also agree very much that a backbone organization or agency plays a critically important role in convening, managing, and facilitating collective impact efforts. That is the role that my colleagues and I play on a daily basis—so I admit to perhaps having some inherent bias—but I do believe that this role is key to assisting a diverse group of stakeholders in meeting their collective objectives. I will not spend time here detailing the many administrative roles that a backbone organization plays, including scheduling, meeting planning, logistics support, and management of financial resources. I do want to comment on two additional dimensions of the backbone and facilitation role that I think are very important and merit further exploration by Crowder in her subsequent work. One is the reality that having an engaged third party fundamentally changes the problem-solving dynamic. A party can direct communications to and through the third party, who can assist in assuring that the other parties clearly understand the content of the communications. In a complex, multiparty effort, this function plays an extremely important role in deescalating interpersonal dynamics and historical animosities between parties.

Another key dimension of the backbone role is that the third party is positioned to help all involved to develop a common conceptualization of the problems that they want to address. Often, people do not see the nature of the problems in similar ways; and hence, the challenges associated with developing strategies to address them are multiplied. An example of action that the facilitator/backbone team could take is assisting in researching the fact base to help map key elements of the issues. This can then lay the foundation for all

1. John Kania & Mark Kramer, *Collective Impact*, Stan. Soc. Innovation Rev, 36 (2011), https://ssir.org/articles/entry/collective_impact.

parties to work to develop a logical, sequential way of addressing the issues at hand, which in my experience has played a very important role in constructively framing the problem-solving process.

I also agree with Crowder's proposition that, in some cases, a weakness of collaborative and collective impact processes is their inability to sustain impact due to their lack of accountability through a more formal implementation structure. The ad hoc nature of these processes is both a blessing and a curse: a blessing because the processes can be designed to fit the characteristics of the conflict or issue at hand—rather than to fit the prescribed rules of a more formal process; a curse because that same ad hoc nature can make it challenging to sustain engagement and impact over time.

I applaud one of Crowder's underlying hopes—that impact transactions can help to amplify the scope and scale of impact beyond that associated with a particular, case-specific application. It is, however, not yet clear to me how this would necessarily result from the application of the impact transaction approach, but I know that is a question that she plans to explore further.

II. Additional Important Considerations for the Impact Transaction Approach

Crowder summarizes some important considerations that need to take place as the impact transaction approach is further explored. Some of the points I now raise might echo her sentiments, but I am framing them through my practitioner lens and have added a few others for consideration.

There is an inherent power in people joining together around a common cause and forging a joint problem-solving effort, particularly when they hold diverse perspectives and interests. It is very important that they chose to embark on this type of process of their own free will. While I fully support the notion of using terms sheets and memoranda of understanding to help define the ground rules and expectations for a process that is being designed, some very important dimensions include how that is done, who is involved, and how decisions are made regarding the content. It is very important to understand the importance of the "storming"[2] phase of these processes, which in my experience plays a critical role in building trust among parties—trust that will be vital to maintain if there is to be any hope of success and sustained impact. The ways these early steps are carried out are critical in the trust-building process. I often say to groups that "you don't make any interest on your trust account if you do not make a deposit." Therefore, in considering the development of a more formal, potentially legalistic overlay for the process design, it would be very important to maintain the power and positive dynamics that arise when people take part in the mutual risk-taking associated with collective action. I certainly see benefits to what the impact transaction concept has to offer, but a deeper exploration of the appropriate timing and nature of its development and implementation needs to be a very important aspect of future work.

It will also be important to further explore the implications of how units of government are involved in the development and implementation of impact transactions. As Crowder points out, government must be at the table to effectively address many of the social issues for which these processes would be applied, but that government presence has to entail a seat at the table, not owning the table. I think it will be important to think through the implications of a more formal legal process for the involvement and engagement of units of government. Considering some of our current political realities, a formalized impact transaction process coupled with government involvement might affect the perceived or actual power balance among parties, the prospect of undue interference, and the effect of political turnover on the collective impact effort.

There also are issues regarding what "binding" means in the context of these types of impact transaction agreements. What types of sanctions for failure to carry through on commitments are being contemplated? How could they be crafted in a manner that is equitable to all parties? If, for example, sanctions are monetary in nature or require legal action—and have associated costs—what would be the implications for certain parties?

I would also note that if lawyers are to play a more significant role, given the relational contract approach, their legal perspective and mindset might affect this work. Crowder points out that "[d]rafting relational contracts is not for the weak of heart. Good lawyers whose practice includes relational contracts will have to become 'anthropologists, sociologists, economists, political theorists, and philosophers.'"[3] In other words, these lawyers would not act like normal lawyers. It will be very important for appropriate training and experiential opportunities for lawyers to be offered and utilized if lawyers are going to be able to assist parties in the ways that Crowder contemplates.

III. Conclusion

In summary, I am very pleased to see Crowder's interest in exploring innovative ways to increase the impact of collective impact approaches by raising up the concept

2. Bruce W. Tuckman, *Developmental Sequence in Small Groups*, 63 Psychol. Bull. 384, 396 (1965):

> The second point in the sequence [of group development] is characterized by conflict and polarization around interpersonal issues, with concomitant emotional responding in the task sphere. These behaviors serve as resistance to group influence and task requirements and may be labeled as storming. Resistance is overcome in the third stage in which ingroup feeling and cohesiveness develop, new standards evolve, and new roles are adopted. In the task realm, intimate, personal opinions are expressed. Thus, we have the stage of norming.

3. Patience A. Crowder, *Impact Transaction: Lawyering for the Public Good Through Collective Impact Agreements*, 49 Ind. L. Rev. 621, 671 (2016) (discussing the relational contract approach).

of impact transactions. The problems we face as a society require this type of innovative thinking, focused on problem solving that empowers people to engage with and understand issues and each other in deep and meaningful ways that can lead to sustained impact. I am excited by the prospect of exploring how to bring the best of collaborative and collective impact approaches together with the appropriate application of increased rigor and accountability—but urge us all to realize that will not be an easy marriage to consummate.

COMMENT

The Potential for Funder Networks to Effectuate Collective Impact

by Kristin A. Pauly

Kristin A. Pauly is a co-founder of the Chesapeake Bay Funders Network, and served as the Managing Director of Prince Charitable Trusts for 17 years.

Having spent the greater part of my professional life supporting social change through philanthropy, I welcome the focus Patience Crowder is bringing to the potential role of the legal profession and contract law to enhance the effectiveness of collective impact strategies. One does not have to spend much time in traditional philanthropy before beginning to question the value of providing yearly funding to various organizations for various activities directed at the public good. This piecemeal approach leaves gaping holes and persistent questions about impact and fundamental transformation that are not being adequately addressed in most current funding approaches. Taking a more comprehensive and systematic approach makes more sense on the face of it and, as Crowder states, "has the potential for making large-scale social change."[1]

Crowder effectively summarizes the benefits and strategy associated with the collective impact approach. She provides an interesting and comprehensive collective impact framework and an analysis of the values and risks in collective impact. However, as Crowder points out, "[a] s a strategy for social change, collective impact houses an unquantifiable and unique value yet to be fully realized."[2]

I hope to contribute to the discussion this paper initiates by utilizing my history of philanthropic work to offer some insights into why this exciting approach is yet to be fully realized, and then to offer some suggestions about how Crowder's work could be directed most usefully toward the philanthropic community, where I think many of the problems lie. This paper does an important service in explaining and attempting to improve upon the history of contract law and its adaptability to collective impact activity. Crowder encourages an expansion in thinking about contract law and describes how it could contribute to collective impact approaches.

In most cities and regions, a collective impact approach needs both financial and intellectual capital from a foundation or foundations. Crowder describes the variety of roles that can be and are played by funders and other supporters of collective impact initiatives (CIIs). However, because there are many different kinds of foundations, and because the amount of funding and the leadership necessary to bring a group of foundations together to pursue a common goal is not insignificant, CIIs also require an expansion in thinking on the part of foundations. Crowder addresses this problem, acknowledging that "paradigm shifts" have occurred or must occur in philanthropic, nonprofit, governmental, and commercial spheres as a result of the rising prominence of collective impact strategies.

All foundations operate in unique ways, with different and often multiple objectives. They embody different ideas about the roles of their staff, have differing amounts of available funding, and have their own prevailing institutional constraints. There are large, national foundations such as the Ford Foundation, operating foundations such The Pew Charitable Trusts, regional foundations such as the W.K. Kellogg Foundation, corporate foundations, community foundations, family foundations—both large and small—and even networks of foundations that operate in geographic and/or subject areas.

Crowder lists three significant roles that funders—including private foundations, public charities, and business enterprises—play in CIIs. They are often looked to, first, for financial support for the initiative's underlying infrastructure or management body; second, for advisory help and information about the particular issue being addressed; and third, for contacts to other foundations, various forms of expertise, technical support, and guid-

1. Patience A. Crowder, *Impact Transaction: Lawyering for the Public Good Through Collective Impact Agreements*, 49 Ind. L. Rev.. 621, 621 (2016).
2. *Id.* at 646.

ance on activities such as data collection and professional development. To determine how foundations can best support CIIs, it is important to look at the general strengths and weaknesses of different sizes and types of foundations.

Very few foundations have the financial resources to solely fund a collective impact project. Large foundations which might have the financial resources—such as the Ford Foundation and The Pew Charitable Trusts—have made profound changes in their approaches to grant-making and, to some extent, embraced the idea of collective impact. However, when a large foundation provides significant funding for an initiative, it can discourage smaller, local funders from participating or feeling that they are on equal footing with the larger institution. Most CIIs rely on multiple foundations—and often a public agency—to fund discrete elements of a collective impact approach that line up with one or another of their interests. Engaging these foundations can be time-consuming and requires a significant amount of diplomatic and technical skill.

Traditionally many foundations do not have either the inclination to support infrastructure or the staff time available to provide the necessary advisory roles—which also can be extremely time-consuming. It is unusual for smaller foundations, including community foundations, to provide upfront money for planning and design, to invest heavily in a management organization that does not deliver services, to invest in expensive, yet necessary, research to know whether goals are being met, or to support ancillary activities such as communications and fundraising activities.

Often an interest in collective impact funding arises at the staff level in a foundation, and convincing the upper echelons of administration and the board to change their method of making grants and the duration of grants often is not an easy lift. Direct ways of educating the founders and trustees of foundations about the benefits of collective impact are necessary to support staff interest and initiatives. However, most foundation staff have good contacts in both the nonprofit and funding arenas, have convening ability, and often can enlist the support of consultants and experts in support of a CII.

Finally, collective impact strategies often take a long time from beginning to end, requiring a long-term commitment. Many foundation trustees and boards eschew long-term funding because it commits uncertain future revenues. I have also noticed that larger institutions rarely have the leadership tenure to stick with these initiatives through decades—which is what real change requires. It is also the case that the legal advisors that foundations access may not understand or encourage the foundation to engage in such non-traditional agreements.

Throughout my professional foundation career, I have participated in many funder networks: the Funders' Network for Smart Growth and Livable Communities, the Chesapeake Bay Funders Network, the Washington Regional Food Funders, and informal funder networks in Rhode Island—specifically in Newport. Some of these networks were more active and long-lasting than others; yet they all performed useful roles. I learned that funder networks tend to be most effective when they have a clear role or agenda and a dedicated staff and administrative structure.

I believe that many of the weaknesses of individual foundations could be addressed, and their strengths magnified, if foundations would create their own networks on behalf of specific collective impact activities. Funder networks can provide support for staff, help educate trustees, elucidate and manage discreet roles for different foundations, and help attract additional funding to the initiative. They can provide the surrounding services that help the initiative utilize public money. Most of all, since networks have a certain staying power, they can help provide the long-term stability that these projects require. There are subtle, yet fundamental, reasons why most funders need and benefit from the mutual support and understandings that only can be achieved through a funder network. Establishing such a network—ideally within the initiative—could help magnetize additional funder involvement. For example, if there are three initial funders for a collective impact project, they could form a network within that particular project to perform many of the tasks listed above. They would still meet with the entire initiative—including non-profits and consultants—yet have their own, distinct network that would assume a role specifically within the foundation community to support the CII.

Crowder has developed an important paper, which in its present form will significantly benefit the legal community and those organizations that have already embraced the concept of collective impact, perhaps experimented with the approach, or are prepared to act as consultants to communities interested in exploring it. However, there are many within the foundation community who do not yet see themselves participating in this approach at all. If the paper were simplified for a lay audience, philanthropic leaders could be inspired by the ways in which the legal profession has begun to address changing their roles to support more collective impact approaches and might begin to think more broadly and deeply about their own current practices. I also encourage Crowder to look into the experiences of funder networks to find examples of the kind of collaborative activity they encourage and that could be directed toward CIIs.

Some Additional Important Attributes of a Successful Collective Impact Agreement

by Matthew J. Wagner

Matthew J. Wagner is the Manager of Renewable Energy Development for DTE Energy. His team manages various aspects of wind and solar development, including communications and community relations.

I. Introduction

DTE Energy recently submitted a renewable energy plan to the state of Michigan that reflects an ambitious effort to increase the renewable energy component of our fleet over the next several decades. We currently produce about 10% of our energy from renewable sources and have set a course for an 80% reduction in our carbon footprint by 2050. I have been part of this effort since it first began for DTE in 2006 and have been involved in multiple collaboratives that have served the role of educating and creating acceptance of wind energy in Michigan communities.

Unfortunately, with these successes we have also seen this effort become much more difficult, as those opposed have grown more aggressive—and sophisticated—at slowing down or stopping renewable energy projects.

I accepted the invitation to review and offer comment on Prof. Patience Crowder's article because I see the potential strength of the concept of Collective Impact Initiatives (CIIs)—and the introduction of agreements into such efforts—to improve the odds of success in what we do, as well as in other areas. Transforming our energy infrastructure is as critical to the environment as it is difficult in communities. Applying this concept in a fashion that holds all participants accountable may become a powerful tool as the mandate for renewable development continues to increase, even as it grows more challenging at the local level. More broadly, the concept has potential to align many different groups doing other socially important work—such as work with the poor, clean water advocacy, etc.—and thereby yield a much greater impact.

The concept of formalizing an initiative's agreements in writing certainly improves its chances of success, but it also introduces challenges which Crowder does a credible job articulating. The comments that emerged from my review of the article involve the other attributes of an initiative and its corresponding written agreement that would serve to improve the chances of a CII's success. These attributes include the team and its leadership, key drivers of the initiative, the form of and process of carrying out the agreement, and the unaccounted-for costs of the initiative.

II. Team

The quality of the team and its leadership is critical to the success of a CII. Having the right team will not only increase the chance of developing an effective agreement, but also improve the odds that the initiative is successful. I emphasize this because at various points, this article suggests that team dynamics, such as power imbalances or conflict, are minimized through impact transactions, as compared with impact litigation. While impact transactions probably implicate these dynamics less than impact litigation, any effort that relies on leveraging relationships and trust also involves personalities and background—and the potential discord that comes with these attributes.

So, who should be on a team? Given that passions might run high in collaboratives with high stakes, team members should have experience managing conflict. They should also be able to remain objective, even if aspects of the effort that the group at large has determined are needed go against something important to them. There is much more to say about the attributes of good team players and the necessary diversity that constitutes a strong team. Perhaps most importantly, finding team members with the right level of maturity, diversity, and experience requires extensive effort, so ample time should be devoted to this process. The long-term benefit, in part, is the increased likelihood that the team assembled will understand the value of a written agreement, and subscribe to it, increasing the initiative's chances of success.

I want to be clear that the author never suggests that CII teams will be without challenges. She expresses the need for strong leadership and management—for example, the need for a strong backbone organization and a project manager to lead and facilitate the effort. I would encourage

the team and its leaders not to underestimate the importance of finding and assembling the right team to "get the right people on the bus," as author Jim Collins says, and in the right seats.[1]

One last comment regarding the team relates to when to bring the community into the initiative. Crowder indicates that the community is sometimes brought into the process very late. While I agree that this can be a problem, there are times when engaging the community later makes some sense. If an impact initiative is meant for a community, but for some reason the team is not familiar with its condition, it would be wise for the team to perhaps learn more (true needs, demographics, etc.) before engaging them. This lends credibility to the team in the eyes of the community. Another reason to wait is the possibility of community groups opposing the initiative. It is sometimes wise to build a support base in the community before publicly engaging them to improve chances of the initiative's success.

III. Drivers

Another key component of an initiative's success is understanding what is driving the process. Clearly, passion for an outcome that serves the greater good is important. In fact, companies such as DTE are learning that having goals and aspirations much bigger than themselves is not only good for business, but simply the right thing to do. While in most cases this is a given for initiatives desiring large social or environmental change, ensuring that this goal is made clear in the agreement is critical for success. But other factors should also be considered.

Often timing is a big driver of an initiative's success. Responding to climate change is an example of a goal that has required the right timing. This issue has been debated for many years, yet in my observation, only recently has gained significant traction. One driver of this recent traction was the willingness of many companies to take a leadership role in committing to reductions in their carbon footprints. In contrast, the driver of local community interest in renewable energy is not climate change at all, but rather economics. Many communities have reached a point of financial need that compels them to consider accepting the changes that renewable energy brings to their landscape because of its economic benefits—so for them, as well, timing is a key driver for change.

These examples indicate the importance of knowing what the true drivers of a project might be and how that improves the chance for a successful outcome. The group and its leaders need to not only set a goal sufficiently impactful to inspire, but also consider whether the timing of the effort works in favor of or against the progress of an initiative.

IV. Agreement Format and Process

The author notes that the challenges involved in introducing a written agreement into a process traditionally driven by trust and relationships might pose barriers to an initiative's success. I think this is true. However, ensuring the creation of the right team (as discussed above) improves the likelihood of adopting such an instrument. This is because those selected will more likely agree that the instrument improves the chances of the initiative's overall success.

Another import issue involves the extent and level of detail in the agreement. A document indicating assignments, performance expectations and metrics, schedule, and more, will certainly increase clarity for the team. However, if resistance to a highly detailed and formalized agreement is encountered, a scaled-down version that deals more specifically with behavioral norms expected of team members might still be effective—and would certainly be preferred to no initiative at all.

The author suggests that a term sheet might be an effective way to convey the content of a formal agreement. I think this idea has merit and could actually be used as a recruiting tool for some or all team members and as an educational document for entities that may consider providing funding or other contributions to the effort.

Concerning the process of executing the agreement and carrying out the iniatiative, the author lists communications amongst the initiative's team as a pillar of an effective CII. I agree wholeheartedly. It is particularly critical as the level and pace of the effort increases because as this occurs, communications become increasingly difficult. Failure to ensure that the pace of communication keeps up with the pace of the effort will result in process breakdowns caused by a lack of clarity.

V. Costs of Impact Transaction Efforts

Lastly, the author notes that the cost of impact transactions should be low compared to that of impact litigation. I agree that this can be expected regarding financial costs. However, there can be other costs to those involved in high-stakes impact transactions. I have witnessed team members so invested in their cause that they sacrificed health and/or family. Granted, this is a personal choice. But it is worth acknowledging. So, the full evaluation of transaction costs is a function of how you define "cost." A last consideration for written agreements for CIIs is that they recognize costs in this area and perhaps take steps to mitigate them.

1. Jim Collins, Good to Great 13, 44 (2001):
   > *First Who . . . Then What.* We expected that good-to-great leaders would begin by setting a new vision and strategy. We found instead that they *first* got the right people on the bus, the wrong people off the bus, and the right people in the right seats–and *then* they figured out where to drive it. . . . The main point is to *first* get the right people on the bus (and the wrong people off the bus) *before* you figure out where to drive it. (emphasis added).

ARTICLE

Visual Rulemaking

by Elizabeth G. Porter & Kathryn A. Watts

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I. Introduction

This Article uncovers an emerging and significant phenomenon that has gathered momentum only within the last few years: the use of visual media to develop, critique, and engender support for (or opposition to) high-stakes, and sometimes virulently controversial, federal rulemakings. Visuals have played little historical role in rulemaking. Instead, the rarified realm of rulemaking has remained technocratic in its form—defined by linear analysis, black-and-white text, and expert reports. Now, due to the explosion of highly visual social media, a visual transformation in rulemaking has resulted in what might at first appear to be two separate universes: on one hand, the official rulemaking proceedings, which even in the digital age remain text-bound, technocratic, and difficult for lay citizens to comprehend, and on the other hand, a newly visual—newly social—universe in which agencies, the president, members of Congress, and public stakeholders sell their regulatory ideas. But these universes are not in fact distinct. Visual rulemaking—even when it is outside the four corners of official rulemaking proceedings—is seeping into the technocracy.

This has significant theoretical implications for administrative law. We conclude that agencies' use of visuals to market their regulatory agendas—often in direct coordination with President Barack Obama's sophisticated exploitation of digital media—furthers two fundamental theoretical justifications underpinning the regulatory state: transparency and political accountability. In addition, visual tools have the potential to democratize public participation and to enable greater dialogue between agencies and the public. Despite these theoretical advantages, visual rulemaking raises serious risks. Visuals may oversimplify complexities, appeal to emotions over intellect, and fuel partisan politics.

Visual rulemaking also implicates significant doctrinal questions, including fundamental provisions of the Administrative Procedure Act (APA) and prohibitions on agency lobbying. While none of these doctrinal issues threaten to obstruct visual rulemaking entirely, they do suggest that agencies' use of visuals may need to change some around the margins. Ultimately, we conclude that administrative law doctrine and theory can and should welcome the arrival of visual rulemaking.

II. The Ad Hoc Emergence of Visual Rulemaking

Until recently, visual communication played little role in the rulemaking realm, even among e-rulemaking scholars.[1] However, beginning in the Obama Administration, the president, Congress, members of the public, and repeat-player institutions are all using the tools of the modern, quintessentially visual, information age to wield influence over the regulatory state.

A. Agencies

An evolving group of visually adventurous agencies—nearly all of which are executive agencies under the control of the president—is beginning to deploy the power of visuals in the context of high-stakes, politically charged rulemaking proceedings. These agencies—which currently include, among others, the Food and Drug Administration (FDA), Department of Transportation (DOT), Department of Labor (DOL), and Environmental Protection Agency (EPA)—are not monolithic in their use of visuals. Nonetheless, their collective visual exploits show that rulemaking is no longer a solely textual endeavor.

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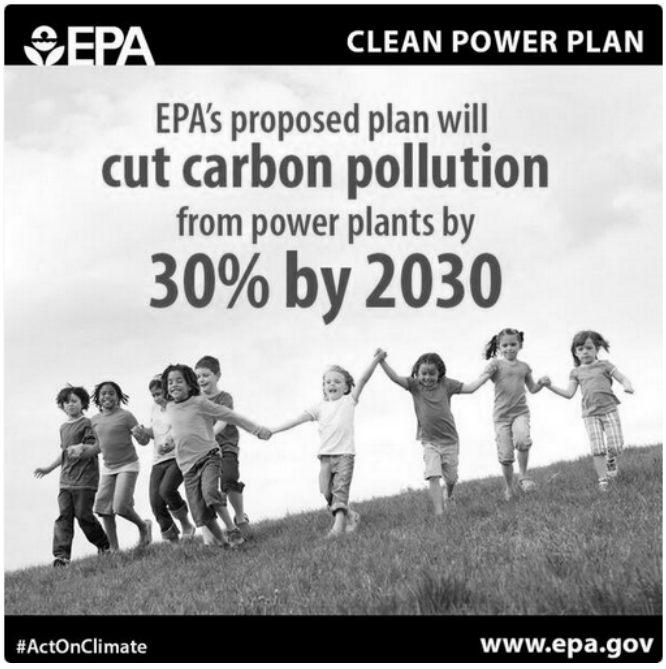
1. *See, e.g.*, Michael Herz, *Using Social Media in Rulemaking: Possibilities and Barriers*, Final Report to the Administrative Conference of the United States 24 (Nov. 21, 2013), https://www.acus.gov/sites/default/files/documents/Herz%20Social%20Media%20Final%20Report.pdf ("[O]ne of the defining characteristics of social media is that it is multi-media and therefore allows communication other than through words. That is breathtaking and wonderful and valuable in many settings. But writing regulations just is not one of them.").

The most prominent way in which agencies are deploying visuals in the rulemaking context involves what we call the "outflow" of information from agencies. Outflow-oriented visuals enable agencies to tell—and to sell—their rulemaking stories to the American people, and to counter narratives offered by any opposing institutional stakeholders. At the forefront of this emerging trend, EPA has leveraged visual media to promote high-profile rulemakings, particularly its Clean Power Plan[2] and Clean Water Rule.[3]

From the outset of its Clean Power Plan rulemaking, EPA unleashed a torrent of visuals aimed at marketing its proposed rule to the public. For instance, just as it released its notice of proposed rulemaking,[4] EPA posted a video titled "Clean Power Plan Explained" to its *YouTube* channel,[5] illustrating how the proposed rule will "boost our economy, protect our health and environment and fight climate change."[6] EPA also used social media to disseminate colorful photographs,[7] videos,[8] and infographics about its plan:

EPA Tweets About Proposed Clean Power Plan, 2014



Source: See EPA (@EPA), Twitter (June 2, 2014), https://twitter.com/EPA/status/473528421201752064; EPA (@EPA), Twitter (Sept. 24, 2014), https://twitter.com/EPA/status/514806567141908481.

When EPA announced in August 2015 that it was finalizing the Clean Power Plan, a slew of additional visuals followed.[9] These visuals did not seek participation in the rulemaking. Instead, they marketed the benefits of EPA's proposal to the American people.

EPA's clean water rulemaking (also referred to as the "Waters of the U.S." or "WOTUS" rulemaking) offers a second example of visual rulemaking.[10] Visuals, ranging from videos[11] to infographics[12] to a social media *Thunder-*

2. *See* Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Sources, 80 Fed. Reg. 64662 (Oct. 23, 2015) (to be codified at 40 C.F.R. § 60).
3. *See generally Clean Water Rule*, U.S. Envt'l Protection Agency (U.S. EPA), http://www.epa.gov/cleanwaterrule (last visited Feb. 15, 2016).
4. *See* Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Sources, 79 Fed. Reg. 34830 (proposed June 18, 2014) (to be codified at 40 C.F.R. § 60).
5. *See* U.S. EPA, *Clean Power Explained,* YouTube (June 2, 2014), https://www.youtube.com/watch?v=AcNTGX_d8mY.
6. *Id.*
7. *See, e.g.*, U.S. EPA (@EPA), Twitter (June 10, 2014), https://twitter.com/EPA/status/476402164169191424 (tweeting the photo of EPA Administrator talking with reporters about proposed rule).
8. *See* U.S. EPA (@EPA), Twitter (June 4, 2014), https://twitter.com/EPA/status/474169813607383041 (tweeting video of EPA Administrator announcing proposed Clean Power Plan).
9. *See, e.g.*, U.S. EPA (@EPA), Twitter (Jan. 13, 2016), https://twitter.com/EPA/status/687278131208712192.
10. The WOTUS rulemaking was a joint rulemaking between EPA and the U.S. Army Corps of Engineers. *See* Clean Water Rule, 80 Fed. Reg. 37054 (June 29, 2015).
11. *See, e.g.*, U.S. EPA, *EPA White Board: Clean Water Act Rule Proposal Explained,* YouTube (Mar. 25, 2014), https://www.youtube.com/watch?v=fOUESH_JmA0.
12. *See, e.g.*, EPA Water (@EPAwater), Twitter (May 26, 2015), https://twitter.com/EPAwater/status/603300591113216000; EPA Water (@EPAwater), Twitter (June 4, 2015), https://twitter.com/EPAwater/status/606515913077215233.

clap campaign,[13] represented a highly coordinated effort to convince America that #CleanWaterRules, featuring everything from a fly fisherman[14] to local beer:

EPA #CleanWaterRules Tweet, 2015

Source: EPA Water (@EPAwater), Twitter (May 26, 2015), https://twitter.com/EPAwater/status/603303236456558592.

Interestingly, many of the visuals that EPA circulated during its Clean Water Act rulemaking were *responses* to public feedback on its proposed rule.[15] Furthermore, when faced with a vehement #DitchTheRule campaign unleashed by the American Farm Bureau—an organization that advocates on behalf of farmers and ranchers—EPA fired back with its own #DitchTheMyth campaign, using a variety of infographics[16] and videos[17] to counter the Farm Bureau's narrative.

While this very visual, politically tinged battle was being waged over social media, EPA continued collecting traditional written comments via Regulations.gov. Thus, the comment period during the clean water rulemaking played out in parallel universes: one highly textual and legalistic in which EPA was silent, and the other a much more dialogic and political universe in which EPA had an ongoing voice.

In contrast to their embrace of outflow-oriented visuals, agencies have been much less adept at—or perhaps interested in—leveraging visuals as a means of inviting what we call informational "inflow"—meaning the flow of information *from* the public *to* agencies in rulemakings. There are exceptions. This tweet from the Consumer Financial Protection Bureau (CFPB)—the only non-executive agency experimenting with any frequency with visual rulemaking—provides one example:

CFPB Tweet, "Let us know what you think," 2014

Source: CFPB (@CFPB), Twitter (Nov. 19, 2014), https://twitter.com/CFPB/status/535123637582708736.

The tweet includes a link that takes viewers directly to a CFPB blog post stating: "If you want to influence the design of a new prepaid card fee disclosure, let us know what you think. Submit a comment at Regulations.gov," followed by the appropriate hyperlink.[18] Overall, however, agencies have eschewed using visuals in this fashion.

A third and final way in which agencies are using visuals is to nudge Congress to take legislative action that would advance agencies' and the president's political agenda. We call this "overflow" because it spills over the edges of specific rulemaking proceedings and into the legislative arena.[19] Consider, for example, DOL's #RaiseTheWage campaign. DOL lacks regulatory authority to raise the minimum wage for all workers nationwide.[20] Consistent with President Obama's minimum wage campaign,[21] however, DOL

13. *See infra* at notes 75–78 and accompanying text (discussing the EPA's *Thunderclap* campaign).
14. *See* EPA Water (@EPAwater), Twitter (Apr. 27, 2015), https://twitter.com/EPAwater/status/592688337489649665.
15. *See, e.g.*, EPA Water (@EPAwater), Twitter (Aug. 27, 2014), https://twitter.com/EPAwater/status/504640273713205248.
16. *See, e.g.*, EPA Water (@EPAwater), Twitter (Sept. 11, 2014), https://twitter.com/EPAwater/status/510098078398152704 (#ditchthemyth infographic).
17. *See, e.g.*, U.S. EPA, *Waters of the U.S.: Ordinary High Water Mark & Tributaries Explained,* YouTube (Sept. 26, 2014), https://www.youtube.com/watch?v=htpiTnAYy-I.
18. Eric Goldberg, *Prepaid Products: New Disclosures to Help You Compare Options,* CFPB Blog (Nov. 13, 2014), http://go.usa.gov/srzA.
19. *See, e.g.*, *Grow America*, U.S. Dep't of Transp., https://www.transportation.gov/grow-america (last visited Feb. 25, 2016) (linking to video on DOT's "Grow America" campaign, which pushed for six-year funding bill).
20. *Questions and Answers About the Minimum Wage*, U.S. Dep't of Labor, http://www.dol.gov/whd/minwage/q-a.htm (last visited Feb. 25, 2016).
21. *See, e.g.*, The White House, (@whitehouse), Instagram (Aug. 12, 2014), https://www.instagram.com/p/rnIEKmQigI/ (infographic asking Congress to raise minimum wage to $10.10).

posted an entire page of colorful "shareables" to its website, visually advocating for a higher national minimum wage[22]:

Shareables From DOL's #RaiseTheWage Campaign

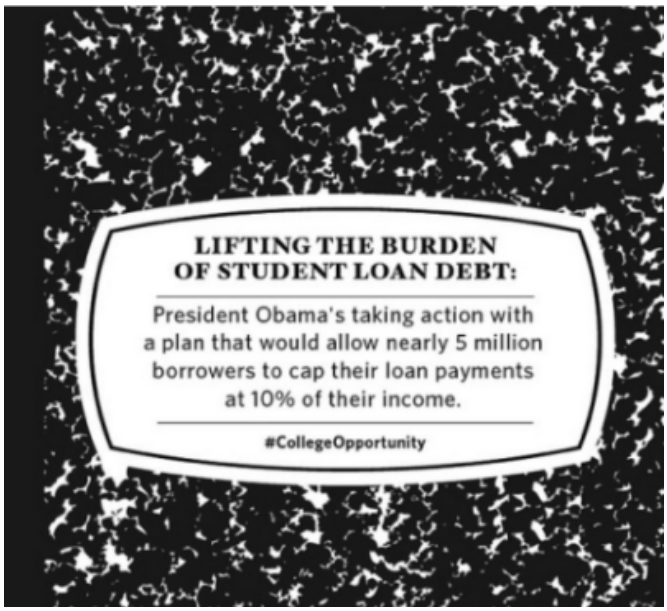
Source: *Shareables*, U.S. Dep't of Labor, http://www.dol.gov/featured/minimum-wage/infographics (last visited Feb. 25, 2016).

This is one example of how agencies are leveraging visual communications even beyond the confines of their delegated authority.

B. The President

Like agencies, Obama leveraged visuals to control and shape the regulatory state. First, he used visuals to show his influence on the initiation and substance of rulemakings and to publicly throw his political capital behind proposed rules. This can be seen in a variety of high-stakes rulemakings, including DOL's fiduciary duty rule,[23] DOL's overtime rule,[24] and EPA's and DOT's fuel efficiency standards.[25] Perhaps the best example, however, is Obama's effort to tackle student debt.[26] In June 2014, Obama signed a memorandum directing the Department of Education (DOE) to propose student debt regulations.[27] Simultaneously, the White House issued a steady stream of visual communications designed to spread the president's message of regulatory action, including a photo of Obama signing the memorandum while flanked by student borrowers,[28] and an *Instagram* image of a school notebook highlighting key points of Obama's plan[29]:

Visuals Accompanying Obama's Directive to DOE Regarding Student Debt, 2014



22. *See Shareables,* U.S. Dep't of Labor, http://www.dol.gov/featured/minimum-wage/infographics (last visited Feb. 25, 2016).

23. *See Weekly Address: Ensuring Hardworking Americans Retire With Dignity,* The White House (Feb. 28, 2015), https://www.whitehouse.gov/the-press-office/2015/02/28/weekly-address-ensuring-hardworking-americans-retire-dignity.

24. *See* The White House, *Weekly Address: Rewarding Hard Work by Strengthening Overtime Pay Protections,* YouTube (March 15, 2014), https://youtu.be/HGqFQxEtX5k?list=UUYxRlFDqcWM4y7FfpiAN3KQ (showing Obama explaining that he directed DOL to update its overtime rules).

25. *See* The White House, Facebook (Feb. 18, 2014), https://www.facebook.com/WhiteHouse/photos/a.158628314237.115142.63811549237/10152290509134238/?type=3&theater (infographic explaining how Obama directed formulation of new fuel efficiency standards).

26. *See generally Making College Affordable,* The White House, https://www.whitehouse.gov/issues/education/higher-education/making-college-affordable (last visited Feb. 25, 2016).

27. *See* Barack Obama, *Student Loan Repayments*, The White House (June 9, 2014), http://www.whitehouse.gov/the-press-office/2014/06/09/presidential-memorandum-federal-student-loan-repayments (directing the Secretary of Education to "propose regulations that will allow" certain students to cap their federal student loan payments at 10 percent of their income).

28. *See* David Hudson, *President Obama on Student Loan Debt: "No Hard-Working Young Person Should Be Priced Out of a Higher Education,"* White House Blog (June 9, 2014), https://perma.cc/TU2C-EHR6; *see also* The White House, (@whitehouse), Instagram, https://www.instagram.com/p/pCvCwBQisI/.

29. *See* The White House, (@whitehouse), Instagram (June 9, 2014), https://www.instagram.com/p/pCBHrSQisT/?taken-by=whitehouse.

Source: The White House, (@whitehouse), INSTAGRAM, https://www.instagram.com/p/pCBHrSQisT/?taken-by=whitehouse

The White House also posted a video to its blog and to *YouTube* in which Obama spoke passionately about his personal student debt experiences.[30] These visuals highlighted the president's involvement in prompting DOE to address the issue of student debt. Ultimately, DOE listened.[31]

President Obama also used visuals as a mechanism for claiming credit for and asserting ownership over final rules. One illustration is in the "memo to America"—a modern fireside chat—that Obama issued just one day before EPA announced its final version of the Clean Power Plan[32]:

Obama's Memo to America on Clean Power Plan, 2015

Source: The White House, President Obama on America's Clean Power Plan, YOUTUBE (Aug. 2, 2015), https://youtu.be/uYXyYFzP4Lc

The video, with a voiceover by Obama, illustrates why his "administration" is releasing "[t]he biggest, most important step we've ever taken to combat climate change."[33] Notably, the video does not mention that the Clean Power Plan was the product of a long and highly technical rulemaking process led by EPA.[34]

C. Stakeholders Outside of the Executive Branch

Rulemaking stakeholders outside the executive branch—industry insiders, members of Congress, the media, and everyday Americans—also are using visuals to create a public dialogue about rulemaking. Members of Congress, for example, frequently disseminate visuals about rulemaking,[35] sometimes directing constituents to the official rulemaking process,[36] other times simply encouraging a political dialogue on social media.

A tweet from Sen. Ted Cruz, opposing a proposed Internal Revenue Service (IRS) rule involving tax-exempt social welfare organizations, falls into the latter category:

Tweet From Senator Ted Cruz, 2014

Source: Ted Cruz (@tedcruz), TWITTER (Feb. 18, 2014), https://twitter.com/tedcruz/status/435870573051121664

30. *See* The White House, *President Obama Speaks on Student Loan Debt,* YOUTUBE (June 9, 2014), https://youtu.be/Mz5prW9iw14.
31. *See* Student Assistance General Provisions, 80 Fed. Reg. 67204 (Oct. 13, 2015).
32. *See Clean Power Plan for Existing Power Plants,* U.S. EPA, http://www.epa.gov/cleanpowerplan/clean-power-plan-existing-power-plants (last visited Feb. 25, 2016) (noting that EPA announced its final Clean Power Plan on August 3, 2015).
33. The White House, President Obama on America's Clean Power Plan, YOUTUBE (Aug. 2, 2015), https://youtu.be/uYXyYFzP4Lc.
34. *See* Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Sources, 80 Fed. Reg. at 64662, 64663 (noting the "unprecedented outreach and engagement with states, tribes, utilities, and other stakeholders" that led to promulgation of the rule).
35. *See, e.g.*, Senator Pat Toomey, *Pushing Back on Out-of-Control EPA Regulations,* YOUTUBE (April 9, 2014), https://www.youtube.com/watch?v=8VXwiMGUEg (responding to proposed Clean Water Rule).
36. *See, e.g.*, Senator Chuck Grassley, *Supporting the Renewable Fuel Standard,* YOUTUBE (Jan. 16, 2014), https://www.youtube.com/watch?v=_r_oLk5e7dI (encouraging Iowans to file comments with EPA on its proposed renewable fuel standard).

This tweet was not designed to prompt constituents to file official comments during the public comment period, which had already closed.[37] Rather, it linked to a page that expressly requested viewers to "[s]pread the word about this proposed rule change with your *Facebook* friends and *Twitter* followers."[38]

The media uses visuals to put a spotlight on proposed regulations and encourage public comments on the rules. No better example of this exists than John Oliver's late-night comedy spot on the Federal Communications Commission's (FCC) net neutrality rulemaking, which called upon viewers to speak up and gave them the web address for the agency's official commenting platform.[39] This proved tremendously effective, ultimately prompting 45,000 new comments to flood into FCC's comment system.[40] Interest groups have deployed similar tactics.[41]

At other times, visuals seem designed primarily to drum up unofficial political support. Consider again the American Farm Bureau's #DitchTheRule campaign.[42] A centerpiece of the campaign was a video parody set to the musical score "Let It Go" from the movie *Frozen*.[43] In the video, children pretend to canoe, fish, and swim in dry ditches on their farm:

#DitchTheRule Video Parody, 2014

Source: See Missouri Farm Bureau, *That's Enough—"Let It Go" Parody,* YouTube (May 23, 2014), https://youtu.be/9U0OqJqNbbs

37. *See Stop the IRS's Abuse of Power,* Senator Ted Cruz, http://www.cruz.senate.gov/irs/ (last visited Feb. 25, 2016) ("The public commenting period may have ended, but you can still make your voice heard.").
38. *Id.*
39. HBO, *Last Week Tonight With John Oliver: Net Neutrality* (June 1, 2014), YouTube, https://www.youtube.com/watch?v=fpbOEoRrHyU, at 11:07.
40. *See* Ben Brody, *How John Oliver Transformed the Net Neutrality Debate Once and for All,* Bloomberg (Feb. 26, 2015), http://www.bloomberg.com/politics/articles/2015-02-26/how-john-oliver-transformed-the-net-neutrality-debate-once-and-for-all.
41. *See, e.g.*, *Healthcare Professionals' Perspectives: FDA Proposed Rule on Generic Drug Labeling,* GPHA Online, http://www.gphaonline.org/media/cms/GPhA5886_infographic_v5_a_.pdf (last visited Feb. 25, 2016); *see also* Victor Villegas, *You Need to Comment on the #NPRM,* YouTube (March 6, 2015), https://www.youtube.com/watch?v=Cyr8oNhNZlo&app=desktop (music parody set to tune of famous "YMCA" song designed to encourage comments on proposed drone rules).
42. *See, e.g.*, Nebraska Farm Bureau, *Waters of the U.S. Rule Explained,* YouTube (June 30, 2014), https://www.youtube.com/watch?v=SFe9u2696gg&app=desktop; *#DitchTheRule*, Farm Bureau, http://wamc.org/post/farmers-fight-epa-over-proposed-water-rule#stream/0 (last visited Feb. 25, 2016); *It's Time to Ditch the Rule,* American Farm Bureau, http://ditchtherule.fb.org/ (last visited Feb. 26, 2016).
43. *See* Missouri Farm Bureau, *That's Enough—"Let It Go" Parody*, YouTube (May 23, 2014), https://youtu.be/9U0OqJqNbbs.

The video has more than 140,000 views,[44] and the family was interviewed by Fox News.[45] Thus, the Farm Bureau successfully used the video to call public attention to its opposition to EPA's proposed rule.

III. Implications for the Future of Rulemaking

As we have demonstrated, rulemaking is no longer a solely textual affair. Below, we begin the yet-uncharted inquiry into the theoretical and doctrinal implications of this emerging phenomenon.

A. Theoretical Implications

One major theoretical justification frequently offered in support of allowing Congress to delegate large swaths of legislative-like power to agencies involves notions of political accountability. Notably, reliance on political accountability rests on a big but often unstated assumption: that the electorate will indeed know whom to blame—or whom to credit—for regulatory action or inaction. However, agencies routinely strip the rulemaking record of any references to political influences.[46] This lack of transparency has serious consequences for administrative law's reliance on theories of political control and accountability.[47] Visual rulemaking enhances political accountability by raising the visibility of agencies' regulatory activities and the president's tight control over executive agencies.

A second—and somewhat conflicting—justification frequently offered in support of agency rulemaking turns on notions of agency expertise. Administrative law today veers between acknowledging the important role that politics plays in justifying agency action, and demanding that agencies act in a technocratic, expert-driven manner. Not surprisingly, visual rulemaking reflects—indeed, heightens—this longstanding, simmering tension, making clear what often goes unspoken: there is no perfectly clean demarcation between expert-driven decisions and policy-driven decisions.

For example, the American Farm Bureau's #DitchtheRule campaign—and EPA's corresponding #DitchtheMyth campaign—highlights how politics, and not merely science, influence regulations. In the competing campaigns, the Farm Bureau unleashed a variety of visuals designed to establish as "fact" various takes on EPA's rule that EPA

44. *Id.*
45. *See WATCH: Frustrated Farmers Parody "Let It Go" to Protest EPA Regulations*, Fox News Insider (June 9, 2014), http://insider.foxnews.com/2014/06/09/video-frustrated-farmers-parody-let-it-go-protest-epa-regulations.
46. *See* Kathryn A. Watts, *Proposing a Place for Politics in Arbitrary and Capricious Review*, 119 Yale L.J. 2, 23 (2009) ("[A]gencies today generally couch their decisions in technocratic, statutory, or scientific language, either failing to disclose or affirmatively hiding political influences that factor into the mix.").
47. Nina A. Mendelson, *Disclosing "Political" Oversight of Agency Decision Making*, 108 Mich. L. Rev. 1127, 1159 (2010) (noting that the presidential supervision process is largely "opaque").

countered by deeming them "myths."[48] For example, see this visual battle about the scope of the rule:

Image of Agricultural Land, #DitchTheRule Campaign, 2014

Source: *See #DitchTheRule*, http://ditchtherule.fb.org/custom_page/stop-epa-overreach-farm-bureaus-stallman-tells-congress/

EPA's Response, #ditchthemyth, 2014

Source: EPA Water (@EPAwater), TWITTER (Sept. 11, 2014), https://twitter.com/EPAwater/status/510098078398152704

Lost in this tussle was the complexity of the rulemaking proceeding, which resulted in a 74-page final rule.[49] Instead, simplified "facts" and "myths" were visually slung back and forth in what looked more like a political campaign than a technocratic process.

Thus, when it comes to the expertise rationale for agency rulemaking, visual communications present a mixed bag. On one hand, visuals threaten to oversimplify, obscure, and twist facts; on the other hand, visuals demonstrate that even purportedly technocratic rulemakings involve policy calls, thereby enhancing transparency in the process.

Finally, a third justification frequently offered in support of the legitimacy of rulemaking is that agencies must allow significant public participation when promulgating rules. Visuals may help overcome barriers to public participation in the rulemaking process. For example, EPA's video explaining the Clean Power Plan has been viewed more than 28,000 times.[50] Similarly, Obama's video message to FCC on net neutrality has been viewed nearly one million times.[51] Visuals circulated by parties outside of the executive branch also play a role.

In sum, visual rulemaking has the potential to strengthen and further democratize public participation, and advance transparency and political accountability in the regulatory world. Yet visual rulemaking poses serious risks as well, including the risk that visual appeals may turn high-stakes rulemakings into viral political battles, undermining the expert-driven foundations of the regulatory state.

B. Doctrinal Implications

The use of visuals in the rulemaking realm raises significant doctrinal issues in key areas. We discuss two here: (1) the APA; and (2) anti-lobbying and anti-propaganda laws.[52]

1. The APA

Nothing in the APA, enacted in 1946,[53] expressly speaks to agencies' or others' use of visuals in the rulemaking realm. Nonetheless, agencies' treatment of visuals could run afoul of the APA's notice-and-comment, record, and open mind requirements.

The APA requires that agencies' notices of proposed rulemakings include "a statement of the time, place, and nature of public rulemaking proceedings."[54] This notice requirement is designed to "afford interested parties a

48. *Compare* American Farm Bureau, *#DitchTheRule*, http://ditchtherule.fb.org/custom_page/stop-epa-overreach-farm-bureaus-stallman-tells-congress/ (last visited Feb. 26, 2016), *with* EPA, *Ditch the Myth*, U.S. EPA, http://www.epa.gov/sites/production/files/201407/documents/ditch_the_myth_wotus.pdf (last visited Feb. 26, 2016).
49. *See* Clean Water Rule: Definition of "Waters of the United States," 80 Fed. Reg. at 37054.
50. EPA, *Clean Power Explained,* YOUTUBE (June 2, 2014), https://www.youtube.com/watch?v=AcNTGX_d8mY.
51. *See* The White House, *President Obama's Statement on Keeping the Internet Free and Open*, YOUTUBE (Nov. 10, 2014), https://www.youtube.com/watch?v=uKcjQPVwfDk
52. The full-length version of this Article also discusses the First Amendment. Other legal issues might surface as well, including those concerning copyright and *ex parte* contacts between agencies and stakeholders.
53. Pub. L. No. 79-404, 60 Stat. 237 (1946) (codified as amended at 5 U.S.C. §§ 551-706 (2012)).
54. 5 U.S.C. §§ 553(b)(1), (3).

reasonable opportunity to participate in the rulemaking process."[55] Agencies deploying online visuals seeking feedback routinely fail to clarify whether or not that feedback will be considered an official "comment," thus triggering agencies' obligation to consider and to respond to all significant comments received.[56] To the extent this ambiguity prevents the public from understanding the proper channel for participating in the rulemaking process, it undermines the central purpose of the APA's notice requirement.[57]

For example, consider this 2015 *Facebook* post by FDA:

FDA's Visual Announcement Inviting Comments on Use of Term "Natural," 2015

Source: U.S. Food & Drug Admin., Facebook (Nov. 10, 2015), https://www.facebook.com/FDA/photos/a.411715387298.184452.94399502298/10153709622187299/?type=3&theater

Text accompanying the graphic question does contain a link to an FDA webpage, which prominently and clearly notifies interested stakeholders how and where they can file official comments.[58] Nonetheless, because *Facebook* allows users to "comment," viewers might reasonably conclude that they could participate in FDA's proceeding simply by commenting on *Facebook*.

Whether an agency will only consider feedback filed on Regulations.gov as official comments, or includes feedback solicited in social media as part of the official rulemaking record, it should clearly notify public stakeholders.[59] Ultimately, we believe the latter approach is required. When justifying a final rule, an agency may not rely upon materials that are not in the rulemaking record.[60] Thus, the artificial separation that agencies are currently trying to maintain between the "unofficial" visual rulemaking world and the "official" textual, legalistic rulemaking world will necessarily break down if agencies try to justify their final rules by relying upon communications the agency received in the visual, online world.

More broadly, agencies' use of visuals to campaign for proposed rules could also call into question the legitimacy of agencies' consideration of public comments. The APA's comment requirement rests on the assumption that agencies will "maintain minds open to whatever insights the comments produced by notice under § 553 may generate."[61] Thus, agencies should ensure that their visuals do not turn into what appear to be uncompromising advocacy campaigns.[62]

Visual rulemaking also raises questions relating to the APA's record requirement.[63] For judicial review, the administrative record must contain materials that are directly or indirectly considered by the agency, not just those materials that the agency actually relied upon.[64] An agency may not, for example, "skew the record by excluding unfavorable information" that was before it at the time the decision was made.[65] Notably, however, courts grant agencies "a presumption that [they] properly designated the administrative record absent clear evidence to the contrary."[66] An agency's failure to include its videos in the administrative record—or an agency's omission of textual feedback submitted by the public in response to an agency communication—might lead to disputes over the sufficiency of the record.

2. Anti-Lobbying and Anti-Propaganda Statutes

For nearly as long as agencies have existed, Congress has been uncomfortable with agencies' power.[67] Perhaps most troubling, from Congress's perspective, is when agencies use federal funds—funds granted to them by Congress—to turn back and lobby Congress.[68] Thus, for over a century, Congress has passed statutes that attempt to circumscribe agency communications in two ways.

The first includes anti-publicity and anti-propaganda provisions in annual appropriations bills aimed at limiting agencies' messaging to the American public.[69] The

55. Friends of Iwo Jima v. Nat'l Capital Planning Comm'n, 176 F.3d 768, 774 (4th Cir. 1999) ("[T]he purpose of providing notice" is "soliciting comments and fostering debate.").
56. *See, e.g.*, Reyblatt v. Nuclear Regulatory Comm'n, 105 F.3d 715, 722 (D.C. Cir. 1997) ("An agency need not address every comment, but it must respond in a reasoned manner to those that raise significant problems.").
57. *Cf.* Herz, *supra* note 1, at 75 ("If a layperson would be reasonably misled into thinking that the social media discussion was an official forum for commenting, then a strong argument could be made that the agency is interfering with or denying the opportunity to comment.").
58. *"Natural" on Food Labeling*, U.S. Food & Drug Admin., http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm456090.htm (updated Dec. 24, 2015).
59. *Cf.* Recommendation 2011-8, *Agency Innovations in e-Rulemaking*, 77 Fed. Reg. 2257, 2265 (Jan. 17, 2012) (asserting that agencies should "provide clear notice as to whether and how it will use [a social media] discussion in the rulemaking proceeding).
60. *See* Herz, *supra* note 1, at 73 ("Material that is not put into the rulemaking docket . . . cannot be relied on to justify the final rule.").
61. Nat. Res. Def. Council, Inc. v. EPA, 859 F.2d 156, 194 (D.C. Cir. 1988).
62. *See, e.g.*, Complaint for Declaratory and Injunctive Relief at 3, 23, 28, Am. Farm Bureau v. EPA, No. 3:15-cv-00165 (S.D. Tex. July 2, 2015).
63. 5 U.S.C. § 706.
64. *See, e.g.*, Tafas v. Dudas, 530 F. Supp. 2d 786, 793-94 (E.D. Va. 2008) ("[A]n agency may not exclude information on the ground that it did not 'rely' on that information in its final decision.").
65. Sears, Roebuck & Co. v. U.S. Postal Serv., 118 F. Supp. 3d 244 (D.D.C. 2015).
66. Lee Memorial Hosp. v. Burwell, 109 F. Supp. 3d 40, 47 (D.D.C. 2015).
67. *See generally* Mordecai Lee, Congress vs. The Bureaucracy: Muzzling Agency Public Relations (2011).
68. *See* William V. Luneburg, The Lobbying Manual 338 (Thomas M. Susman and Rebecca H. Gordon, Eds., 4th ed. 2009) ("Congress does not want to fund anyone who tries to influence its actions.").
69. Financial Services and General Government Appropriations Act, 2015, Pub. L. No. 113-235, div. E, Section 718.

second targets lobbying of Congress by agencies, particularly "grassroots lobbying," which occurs when agencies encourage the public to contact legislators to support or oppose a congressional measure.[70] In general, the laws in both categories have been woefully ineffective. The Government Accountability Office (GAO), left with the task of interpreting these provisions,[71] has chiseled away at the laws' broad wording, leaving little agency conduct within their ambit. Nevertheless, congressional outrage over EPA's use of visual media in its clean water rulemaking appears to have breathed some new life into these laws.

For example, in 2015, GAO found that EPA violated the propaganda ban by disseminating "covert propaganda"[72] during its #CleanWaterRules campaign. GAO has interpreted the prohibition on "covert propaganda" as essentially a disclosure requirement.[73] As part of its campaign, EPA used *Thunderclap*—a social media platform designed to create an "online flash mob."[74] EPA created a *Thunderclap* page titled "I Choose Clean Water" and used social media to sign up supporters:

EPA "I Choose Clean Water" *Facebook* **Post, 2014**

Source: U.S. EPA, *EPA Water Is Worth It*, Facebook (Sept. 13, 2014), https://www.facebook.com/EPAWaterIsWorthIt/posts/10152446114118337.

At 2 p.m. on September 29, 2014, the social media sites of every registered supporter stated: "Clean water is important to me. I support EPA's efforts to protect it for my health, my family, and my community."[75] The message, which contained a hyperlink connected to EPA's web page on the Clean Water Rule,[76] reached over 1.8 million people.[77]

GAO found that this campaign constituted "covert propaganda" because, while original supporters were aware of EPA's sponsorship, the *Thunderclap* message itself did not identify EPA; rather, it appeared have been written by the person on whose social media site it appeared.[78]

GAO also found that EPA violated the prohibition on grassroots lobbying.[79] GAO's finding focused on an EPA blog post, *Tell Us Why #CleanWaterRules*,[80] which contained embedded hyperlinks to organizations supporting the Clean Water Rule. One such organization's website contained a button that said, "Tell Congress to stop interfering with your right to clean water!"[81] Notwithstanding EPA's inability to control external websites, GAO found that EPA had responsibility for its own message, including hyperlinks.[82]

GAO's 2015 report indicates that in a hostile political environment, these provisions may be used against adventurous agencies. On balance, however, the rise of visual media is likely to weaken rather than strengthen anti-publicity and anti-lobbying laws. There is an ever-increasing quantity of agency communications—far too much for GAO or Congress to monitor. Moreover, post hoc findings of violation may have only a limited effect. For example, by the time GAO issued its decision, EPA's *Thunderclap* message was #cleanwater under the bridge.

IV. Conclusion

Visual rulemaking is a new and dynamic phenomenon. Visuals shed technicolor light on what has always been true but often hidden from plain sight: There is no hermetic seal between the technocratic and the political, between science and values, between fact and spin. Even more importantly, visual rulemaking promises to raise public awareness of rulemakings and to empower participation by more diverse stakeholders. In light of these benefits, we believe that administrative law doctrine and theory should welcome, rather than simply ignore, this growing and influential phenomenon.

70. U.S. Gov't Accountability Off., Principles of Federal Appropriations Law, 4 GAO-RB pt. C s. 11 at 1, 2004 WL 5661385 (2015).
71. *See* Luneburg, *supra* note 68, at 340 (GAO has authority "to investigate all matters relating to the use of appropriated funds").
72. *See, e.g.*, Financial Services and General Government Appropriations Act, 2015, Pub. L. No. 113-235, div. E, Section 718 (barring use of appropriations for "propaganda").
73. *See* Letter From Susan A. Poling, General Counsel, Gov't Accountability Off., to James M. Inhofe, Chairman, Comm. on Env't & Pub. Works (Dec. 14, 2015), http://www.gao.gov/assets/680/674163.pdf.
74. *See Frequently Asked Questions*, Thunderclap, https://www.thunderclap.it/faq (last visited Feb. 20, 2016).
75. *See* Poling, *supra* note 73, at 4.
76. *Id.* (noting that hyperlink has since been disabled).
77. *See* U.S. EPA, *I Choose Clean Water*, Thunderclap, https://www.thunderclap.it/projects/16052-i-choose-clean-water (last visited Feb. 20, 2016).
78. *See* Poling, *supra* note 73, at 13. Notably, GAO found no "covert propaganda" in the agency's extensive #DitchTheMyth campaign, because "the graphics used in the #DitchTheMyth campaign contained the EPA logo, and the prewritten tweets contained the '#DitchTheMyth/@EPA water' ascription at the end." *See id*. at 15.
79. *Id.* at 17-20.
80. Travis Loop, *Tell Us Why #CleanWaterRules*, The EPA Blog (Apr. 7, 2015), https://blog.epa.gov/blog/?s=tell+us+why+%23cleanwaterrules.
81. *See* Poling, *supra* note 73, at 8.
82. *Id.* at 23-24.

COMMENT

The Potential of Visual Rulemaking to Strengthen and Democratize Rulemaking

Julia Anastasio

Julia Anastasio is the Executive Director and General Counsel of the Association of Clean Water Administrators (ACWA). The opinions and statements outlined in this Comment are the personal opinions of the author and should not be interpreted to represent any opinion other than those of the author.

Profs. Porter and Watts' article, *Visual Rulemaking*, is a timely examination of the increased use of visual images in the rulemaking process by the administration, interested stakeholder groups, and the public. The article explores the potential of visual images to "strengthen and further democratize" the rulemaking process by promoting transparency, accountability, and increased public participation.[1] The authors discuss the power of visuals to simplify and powerfully convey complex messages and emotions while also addressing the shortcomings and risks associated with the use of these visual tools. They conclude with an important discussion of the legal implications raised by the emergence of visuals in the rulemaking process.

I agree that the shortcomings and risks associated with visual rulemaking are not insurmountable, that the benefits associated with the use of visuals outweigh these risks, and that their use supports the objectives of administrative law.[2] I agree that strengthening and increasing transparency, political accountability, and public participation are fundamentally important values to encourage in the regulatory process. I therefore focus my Comment on highlighting some of the limitations associated with visual rulemaking, drawing upon my experience[3] participating the Clean Water Rule: Definition of "Waters of the United States" (CWR) rulemaking effort.[4] I conclude my Comment by offering several recommended guidelines for federal agencies to consider as they inevitably develop a framework to engage in visual rulemaking.

Rulemaking has emerged as one of the most significant powers exercised by the federal government, so it is essential that the process promote increased transparency, political accountability, and public participation. From rules ensuring the safety of food and consumer products, to controlling environmental pollution, to providing oversight over financial institutions and markets, agencies publish thousands of regulations each year and collectively the impacts are enormous.[5] The fundamental objective of the rulemaking process is for agencies to balance competing values, expertise, and politics when developing federal policy, and visual rulemaking is a valuable tool for agencies to use.[6]

Rulemaking by its very nature "is the most transparent and participatory decision-making process used in any branch of federal government."[7] So it is not surprising, then, that many of us who professionally participate in the regulatory process inherently believe that "increased public participation will lead to better policymaking."[8] Administrative law doctrine has created legal structures and processes to promote clarity, transparency, political accountability, and public participation. As the co-authors illustrate, the regulatory process will benefit from the growing phenomenon of visual rulemaking and its contributions to these same qualities.

For all its good and bad, there is little doubt that social media has transformed the way individuals communicate and share information and that visual images are an inher-

1. Elizabeth G. Porter & Kathryn A. Watts, *Visual Rulemaking,* 91 N.Y.U. L. Rev. 1248 (2016) ("Ultimately, we conclude that the benefits of visual rulemaking outweigh its risks and that the administrative law doctrine and theory can and should welcome the use of visuals in rulemaking.").
2. *See id.*
3. While my comments draw upon my experience participating in the Waters of the United States (WOTUS) rulemaking process on behalf of the members of the Association of Clean Water Administrators (ACWA), the views presented here are my own and not the views of ACWA.
4. I use the phrase Clean Water Rule (CWR) to distinguish between the rulemaking activities under the Obama Administration versus the rulemaking activities that are currently underway in the Trump Administration. Clean Water Rule: Definitions of "Waters of the United States," 80 Fed. Reg. 37054 (June 29, 2015).
5. Maeve P. Carey, Cong. Research Serv., R43056, Counting Regulations: An Overview of Rulemaking, Types of Federal Regulations, and Pages in the Federal Register 1 (2016).
6. Cynthia R. Farina et al., *Rulemaking vs. Democracy: Judging and Nudging Public Participation That Counts*, 44 ELR 10670 (Aug. 2014).
7. Cynthia R. Farina et al., *Rulemaking 2.0*, 65 Univ. Miami L. Rev. 395, 402 (2011).
8. Farina et al., *supra* note 6.

ent feature of this form of communication. As the co-authors demonstrate, visual appeals are useful and effective because they are "easy to create and to digest in today's social media culture," and therefore, "visual rulemaking empowers a broader range of stakeholders."[9] Images powerfully and efficiently convey both information and emotion, and they can simplify complex and detailed subjects in a manner that is easier to digest and understand. Because of the increasing role social media plays in communication today, the increased use of visuals in rulemaking is inevitable and agencies should begin to take advantage of the benefits graphics provide while minimizing the potential shortcomings. At the same time, the advantages and strengths offered by visual images also represent their limitations and risks.

To support their conclusion, Porter and Watts use several recent examples of visual rulemaking as a means of driving public awareness and support for regulatory actions, including the social media-driven campaigns used by the Environmental Protection Agency (EPA), the president, and interested stakeholders during the debate over the CWR. EPA and interested stakeholders, like the Farm Bureau, used visual-based campaigns to successfully increase public awareness of and interest in the CWR by drawing heavily on images that provoked emotions like fear over facts in an otherwise highly technical policy debate over federal clean water jurisdiction. The pictures and videos also contributed to the stakeholders' understanding of this complex law and policy issue up to a point.

The Agency leveraged visual media such as infographics, videos, photos, and tweets on various social media platforms to both inform the public of the rulemaking and to persuade viewers to support the proposed rule. In response to similarly emotionally-tinged visuals used by various stakeholder groups, EPA also turned to visual media to counter the alternative narratives. While there was an enormous amount of public participation during the development of the CWR, the process and debate became highly politicized and fueled partisan politics which ultimately distracted from the highly technical, complex, and important deliberations.

The #DitchtheRule campaign, along with coordinated campaigns from other stakeholder groups, was very effective at increasing awareness about the rulemaking beyond just the Farm Bureau's constituents. The #DitchtheRule video highlighted ambiguities in the CWR proposal and played upon this uncertainty and lack of clarity to raise stakeholders' participation in the process. Because the CWR proposal left several key terms undefined and was not sufficiently clear and precise elsewhere in the rule, the Farm Bureau capitalized on this ambiguity by suggesting that the new rule would give EPA unfettered discretion to regulate ditches, ponds, and potentially any other drop of water on land to sway their members to participate in the rulemaking. However, the CWR did not intend to regulate ditches or other traditional agricultural features and the #DitchtheRule campaign unnecessarily created fear over the potential impacts of the rule by putting forth a narrative that distorted facts, fueling the politicization of the process and appealing to the farming community's fear of federal overreach.

Similarly, the EPA response campaign—#Ditchthe Myth—focused on creating urgent public support for the CWR by countering the #DitchtheRule message with an overly simplistic narrative promoted through the Thunderclap[10] campaign and the YouTube remarks of Administrator McCarthy,[11] who provided an overview of the importance of the CWR. In these messages, EPA implied that millions of Americans' drinking water was at risk if the CWR was not finalized. The implication that in the absence of federal Clean Water Act regulation the drinking water of citizens across the nation was at risk is inaccurate and created unnecessary fear.

The provocative messages promoted by EPA and the Farm Bureau illustrate some of the limitations and excessive simplicity of visual rulemaking during the CWR. Each of these campaigns failed to address or acknowledge the important co-regulatory role states play in protecting and restoring the nation's water resources. The majority of states are delegated to implement both the Clean Water Act and the Safe Drinking Water Act.[12] State water programs continuously strive to provide clean water for drinking, to support the state's economy, and to protect the natural world within their borders. Crucially, they would continue to do this even in the absence of the CWR. The #DitchtheRule effort also failed to present this distinction in its counterpoints, and the campaign likely contributed to the politicization of the rulemaking effort.

Reliance on visual media campaigns during the CWR debate limited EPA and interested stakeholders' ability to clearly explain the concepts of cooperative federalism and thereby failed to fully inform the viewer, and therefore likely diminished the meaningfulness of the comments. Ultimately, these messages distorted the overall policy goals and some of the facts, minimizing the benefits associated with visual rulemaking. Public participation is not merely a numbers game of generating a large quantity of comments, but rather rests on a foundation of expert-driven and technical facts to promote transparency and accountability. The simplicity of the messages, in combination with the appeal to emotions over technical, fact-based reasoning, turned the CWR debate into a high-stakes political battle that is still playing out.

9. Porter & Watts, *supra* note 1, at 1187.

10. U.S. Envtl. Protection Agency (U.S. EPA), *I Choose Clean Water*, Thunderclap (last visited Apr. 4, 2018), https://www.thunderclap.it/projects/16052-i-choose-clean-water.

11. U.S. EPA, *EPA Administrator McCarthy Gives an Overview of EPA's Clean Water Act Rule Proposal*, YouTube (Mar. 25, 2014), https://www.youtube.com/watch?v=ow-n8zZuDY.

12. *See Clean Water Act (CWA) Compliance Monitoring*, U.S. EPA (last updated Feb. 15, 2018), https://www.epa.gov/compliance/clean-water-act-cwa-compliance-monitoring; *Primacy Enforcement Responsibility for Public Water Systems*, U.S. EPA (last updated Nov. 2, 2016), https://www.epa.gov/dwreginfo/primacy-enforcement-responsibility-public-water-systems.

Furthermore, while Porter and Watts do not address the rise of bots or algorithm-generated social media posts, it is not hard to imagine, based upon recent developments, the risks and shortcomings such computer-generated campaigns may pose. Posts from bots, or others who wish to cause mischief, could virally spread misleading or false information. This flood of information and misinformation could paralyze the regulatory process and undermine agency policy deliberations and distort the amount of public support for or against a rule. Neither of these possibilities would add meaningfully to the regulatory development process and both could contribute further to the general public's distrust of government actions.[13]

The visual rulemaking activities of the CWR development process occurred on two parallel and distinct tracks and muddied the discussion and debate over the technical facts of the proposed policy. On one track, EPA employed visual tools to raise public awareness and generate public support, as well as to counter opposing narratives, through various informal social media channels such as Facebook and Twitter. The second track focused on the official notice-and-comment process that was occurring in the federal docket on Regulations.gov, and it is where the technical, specialized advocacy occurred. While the public's ability to form an informed conclusion was minimized through highly-politicized, dueling campaigns, interested and savvy stakeholder groups like the Farm Bureau, Association of Clean Water Administrators (ACWA), and others participated fully in the official rulemaking process and provided high-level, expert-driven comments on the CWR. Both processes minimized the democratization potential of visual rulemaking. Porter and Watts demonstrate that for visual rulemaking to successfully promote and support the fundamental goals of administrative democracy, it is essential that agencies merge the two parallel tracks.

In many of the visual efforts used in the CWR process, EPA did not adequately explain to the public these two tracks and how members of the public could participate in the rulemaking process in a meaningful way. Thus, because the Agency failed to connect its visual media efforts to the official record, the benefits of using visual rulemaking to increase transparency and accountability were undercut. Additionally, the Agency failed to clearly articulate the social media guidelines it would follow when confronting (or not confronting) comments or responses that presented an opposing narrative.

As the discussion above illustrates, it is essential that agencies using visual rulemaking establish a clear framework that guides staff using these tools to ensure the legitimacy of the rulemaking process. The basis of this framework must be communication that provides clarity and consistency. Agency guidelines should clearly divulge and link to resources that provide a broader and deeper focus that conveys an accurate picture of the choices being considered and the costs and benefits associated with the policy. Agencies employing visual rulemaking in the future will also need to develop strategies to address the risks associated with computer-generated social media campaigns by those who would wish to distort the process.

Equally importantly, agencies must merge the two parallel universes of potential commenting to fully achieve the goals of administrative law. Agency guidelines must clearly convey where stakeholders can provide comments in the official docket so that the legal legitimacy of the process is preserved. Agencies employing visual campaigns through social media outlets must find some way to either link social media comments to the official docket or alert the public to the official record so that their comments can be included in the deliberations, or both. The CWR generated a huge quantity of comments both through social media channels and through the docket, but not all of these comments became part of the materials the Agency used in its deliberations. By establishing clear guidelines for visual rulemaking and feedback, federal agencies can promote transparency, political accountability, and public participation in the regulatory process.

My experience in the CWR regulatory process supports the conclusion that increasing the use of visuals in rulemaking would promote transparency, political accountability, and public participation in the rulemaking process. And, while the CWR process illustrates that visual rulemaking can improve the regulatory process in some ways, it also demonstrates the limitations and hurdles associated with these techniques. Regardless of these drawbacks, agencies should continue (and increase) the use of visuals to promote rulemaking activities and encourage public participation levels, but also take steps to establish clear guidelines for the use of visual rulemaking. The impact of regulations is great, and thus, the democratization of the regulatory process is a worthy goal which, with the proper foresight, can be enhanced greatly by the rise in graphic information-sharing.

13. Carroll Doherty et al., *Public Trust in Government Remains Near Historic Lows as Partisan Attitudes Shift*, Pew Research Center (May 3, 2017), http://www.people-press.org/2017/05/03/public-trust-in-government-remains-near-historic-lows-as-partisan-attitudes-shift/.

The Transformation Toward Visual Communication and Brevity: aka Lawyers Can Communicate Differently and Still Be Lawyers

by Roger Martella

Roger Martella is General Counsel for General Electric's Environment, Health, and Safety operations worldwide, and formerly served as General Counsel of the Environmental Protection Agency.

Putting words to paper is part of a lawyer's DNA. We're taught from the first days of law school that the currency we most often trade in is the quality—and quantity—of the written word. The first assignment for many law students is graded on the comprehensiveness of the legal documents they generate. Many attorneys spend their early years writing memos that are rewarded based on how much they write—and then transition to writing briefs where the first question asked frequently still is: what's the word limit?

Thus, the premise in *Visual Rulemaking*, by Professors Elizabeth Porter and Kathryn Watts—that graphics and visuals are gaining traction on the written word in the regulatory setting—seems to threaten the very nature of everything to which lawyers have dedicated their careers. But the transformation they identify is real and necessary. It's increasingly true that to be successful in persuading an audience to adopt a point of view, lawyers need to transform their advocacy methods to employ new forms of communication, both relying on visuals as the authors discuss and—another concept antithetical to much legal training—adopting a theme of brevity.

I. The Growth of Visuals in Legal Communications

Porter and Watts provide numerous examples of how the adage "a picture is worth a thousand words" increasingly is becoming the norm in regulatory advocacy.

This does not surprise me. Going back to my tenure at EPA from 2006 to 2008, smart advocates already were making use of visuals to stand out from endless stacks of rulemaking comments. When considering a final rule, I would ask the team to share the best comments on both sides of an issue. What struck me was that they rarely brought lengthy comments with four sublevels of legal arguments, but rather ones that contained graphics, tables, and summaries. And when I prepared for meetings in the White House's Roosevelt Room, I quickly learned that busy cabinet secretaries and chiefs of staff would focus their full attention on graphics, tables, and maps, and barely reference even short memos.

Thus, I moved from government service into private practice appreciating that even regulators, who are legally compelled to read it all and translate comments into countless pages of Code of Federal Regulations text, are drawn to the visual and concise over lengthy tomes.

This trend only has accelerated in recent years. In the middle of my EPA tenure, Steve Jobs gave his famous introduction of the first iPhone while the senior EPA lawyers were meeting in New York City. I remember us dreaming of trading in our text-based BlackBerry phones for the visual iPhones. But as unrealistic as that seemed at the time, none of us anticipated how smartphones with limitless apps like YouTube and Instagram would produce a generation that learns by watching as opposed to reading, and thus accelerate the pace of change in how people acquire information toward communications dominated by visuals. Lawyers may not want to admit it, but clients and regulators are not immune to this trend.

Finally, along with the consumption of visual communication comes an increasing sophistication in the creation of such messages. When I worked at EPA 10 years ago, we were pretty proud if we simply generated a poster every few months that looked clean and creative. In contrast, Porter and Watts demonstrate the sharply more sophisticated visual messages the Obama and Trump Administrations routinely create in real time on issues big and small. Agencies and the public are vastly more experienced with technology than a decade ago, creating new expectations

for the inclusion of quality visuals, and the rapid pace at which they're generated. The reality is that today, lawyers risk having even the most well-reasoned and passionately-written messages ignored if they are not part of such a clean and professional visual message.

There is a consequence to this visual transformation, evident in perhaps the most surprising theme from the examples the professors cite: previously arcane regulatory issues are being transformed into full marketing campaigns using visuals, themes, and trending hashtags worthy of major advertising drives. While lawyers at core are advocates, the standards of advertising and marketing can sometimes clash with the ethical standards which lawyers must uphold in our collective search for the truth.

This is perhaps the more troubling element of this trend; more concerning, I believe, than the "administrative record" issues the professors cite. While lawyers increasingly need to incorporate visual communications into their advocacy and presentations, they must continue to enforce the principles of accuracy, truthfulness, and integrity in all communications, whether written or visual—a standard that probably sets a higher bar than advertising and marketing, or even pure policy advocacy. For lawyers who communicate with graphics, there is no double standard for what is written versus what is drawn. Enforcing the same principles is critical to the integrity of the message and the individual.

II. Beyond Visuals: The Brevity Transformation

The article's recognition of the growth in visual communications complements a trend with arguably more impact on legal advocacy: brevity. As with visual communications, here again the world has transformed where the success of a lawyer's position increasingly may depend not on how detailed his or her presentation is, but on concision in expressing an idea.

The transition toward brevity may be the most significant development in how lawyers communicate effectively. The pride of the lawyer's work product—the 25- to 50-page research memo—is now the stigma of the industry, much the same way large V8 badges on cars from the prior decade signal obsolescence in today's environmentally conscious era. Efficiency is trending in everything, from fossil fuels to word counts. Lawyers already have experienced the transition from "paper trail" memos to emails or even slides in communicating with clients and other audiences. This trend toward brevity continues to build; many audiences expect to be able to digest messages communicated on not much more than a smartphone screen.

At the same time, this growing expectation—from regulators, clients, and the public—of brevity can clash with most lawyers' instincts: Lawyers at core are trained to be thorough and comprehensive, to chase down every footnote and caveat, and to take pride in producing a work product that advises on the full range of risks and scenarios.

To reconcile this new era of concision, lawyers must exercise an additional layer of judgment: they must project empathy toward deciding what the audience really needs and wants to know instead of what the lawyer wants to tell them. This is a different challenge, to take a complex message with many derivations and qualifiers and distill it down to the core takeaways for the client. A lawyer who ignores this effort risks alienating a client operating in an environment where the culture of brevity already has been embraced—basically, everywhere other than law firms and academia—and, worse yet, takes the risk that their message will be lost entirely to other competing priorities.

As with visual communications, this transformation toward brevity also creates risks for lawyers. Most legal issues cannot be adequately resolved in the space of a smartphone screen, nor should they be. Trying to present the pros, cons, and recommended path forward on a complex regulatory compliance issue through a handful of bullets is unlikely to serve the client and could create professional responsibility conundrums for the lawyer who fails to fully disclose risks and context. And in an era of brevity, conciseness, and multitasking, it's important not to forget that the nuanced legal arguments that frequently carry the day can be found in footnotes, buried deep inside documents, or in group brainstorming sessions where no stone is left unturned.

The seemingly competing concepts of brevity and legal thoroughness can be and should be reconciled for lawyers who want to make sure their messages are heard by a client while being able to counsel on important considerations and risks. The key is for the lawyer to exercise judgment in presenting information to the audience in a concise way that invites further discussion. The lawyer might briefly summarize not only a position, but also identify the considerations that are not included in that communication and warrant follow up. In other words, with this trend toward more visual and concise communication, lawyers need to be cognizant that text on the page might no longer be able to run down every legal argument, and find other ways to facilitate a more thorough discussion.

III. Transforming Toward Visuals and Brevity

At the end of the day, what every good lawyer cares about the most is being a zealous advocate and counselor for their client. A few simple rules can help facilitate the transition toward greater use of visuals and focus on brevity without reducing the rigor of critical legal analysis and judgment.

(1) Embrace opportunities for visuals in legal documents: While various rules and norms of legal writing might be strict on page limits, font sizes, and margins, there are few prohibitions on including graphics. When I think back to some of the long-shot motions I won over the years or comments that changed a regulator's position, such as expedited review, preliminary injunctions, or a technical rulemaking, one theme common among them was incorporating simple graphics that showed chronologies relating to complex schedules or maps and visuals depicting irreparable harm. These are perhaps the best opportunities for lawyers to embrace visuals, when a simple graphic can depict timelines, schedules, geography, or technical data in ways that are more persuasive to present than with words alone.

(2) Begin with brevity: For communications that do not follow established templates (those other than legal briefs, deal documents, formal regulatory filings, etc.), adopt an instinct to start all communications with a spirit of brevity that opens the door to more nuanced discussion. Develop empathy toward your audience and prioritize what they need to hear over what you want to tell them. After you write your draft message, go back and focus on what words and sentences can be deleted as superfluous while still preserving the key points. If the message is delivered with such consideration at the outset, a broader analysis can be invited, either through a more detailed analysis that follows, or verbally.

(3) Still be a great lawyer: While the transformation toward visual communication and brevity is unavoidable, this does not and cannot excuse lawyers from rigorous legal analysis and nuanced presentations that drive the strongest advice and outcomes. Lawyers serve their clients best when they creatively consider and exhaust a wide range of arguments, think through a broad continuum of risks, and engage in brainstorming sessions with colleagues and clients to invite diverse views. The trend towards brevity should never be used as an excuse to shortcut thorough legal analysis; the point is to adopt new methods of communicating complex thoughts in visual and concise ways that align with the modern world's expectations and serve as a tool to set the issues up for more thorough discussion and assessment.

(4) Back it up: A lawyer's use of visuals also does not excuse the need to be fully accurate, truthful, and fair. The basis for any visual should be established in a record that supports any point made in the graphic, and both the content of the graphic and the backup information should fully withstand the same scrutiny as the written word. There is no laxer standard for lawyers when using visuals.

(5) Always integrity first: The examples that Porter and Watts cite are largely from advocacy campaigns, where legal professional responsibility and ethics rules might not be implicated. While lawyers should look for opportunities to incorporate visuals into their communications, the same standards apply regardless of whether the message is a graphic or written. The most important commodity for a lawyer is not the words he or she uses, but integrity in the message and in the person. Nothing in these trends for visual communications and brevity should distract lawyers from upholding the strongest principles of legal integrity.

Visualizing Accountability and Transparency Measures

by Martha Roberts and Surbhi Sarang

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Porter and Watts' article helpfully underscores the values that should be reflected in the regulatory process, including the worthy goals of making regulatory activities more transparent, increasing political accountability, and encouraging public participation. There is a long, bipartisan history of efforts to further these aims in the rulemaking process; Porter and Watts' piece illuminates one new emerging strategy to support these goals. As the authors point out, visual rulemaking has the ability to increase transparency of agency action, better convey how agency actions affect the public, and engage a more diverse segment of the public in agency rulemakings—all of which can help assure accountability in implementation of public health and safety protections. In an era during which foundational rulemaking values are under threat, reflecting on the history and future of rulemaking transparency and accountability is an opportunity to examine the importance of these qualities and evaluate current and potential sources of support.

I. A Long History of Reforms to Enhance Rulemaking Transparency

Recent efforts to enhance agency communication through compelling visuals build from and advance the aims of text-focused bipartisan reforms over several decades that have similarly aimed to encourage approachable, digestible regulatory documents and processes. Both aim to increase public understanding of the implications of the agency action at issue.

The Administrative Procedure Act (APA) itself was intended to bring transparency, public participation, and political accountability into the rulemaking process. The APA requires that agencies must provide notice when proposing new rules, allow the public to comment on proposed rules, consider seriously each comment they receive, and submit to judicial review of final agency actions. The APA was accordingly an early effort to embed democratic values into agency procedures.

Subsequent efforts have built on this foundation. Executive Order 12866, which built on the Reagan-era Executive Orders 12291 and 12498, underscores the need for a regulatory process that is "accessible and open to the public."[1] As such, Executive Order 12866 emphasizes the need for agencies to "provide the public with meaningful participation in the regulatory process" including "a meaningful opportunity to comment on any proposed regulation."[2] It also stresses that "[a]ll information provided to the public by the agency shall be in plain, understandable language"[3]—recognizing that engaging the public requires first that they understand the issue.

Executive Order 12988, which was issued almost three years after Executive Order 12866, directly stresses the importance of using plain language in regulations.[4] Citing the important consequences that regulations can have for the public, Executive Order 12988 emphasizes a need to draft regulations that clearly inform the public about their applicability and effect, and urges that clear language should be a main regulatory priority.

Other reforms have focused on illuminating specific, critical aspects of rulemakings. Executive Order 12898, for instance, requires agencies to "identify[ ] and address[ ] . . . disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."[5] Executive Order 13045, similarly, requires agencies to include in the administrative record "an evaluation of the environmental health or safety effects of the planned regulation on children [ ] and [ ] an explanation of why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the agency."[6] As a result of these Executive Orders, the Environmental Protection Agency (EPA) provides an environmental

1. Exec. Order No. 12866, 58 Fed. Reg. 51735 (Oct. 4, 1993).
2. *Id.* at 51740.
3. *Id.* at 51742.
4. Exec. Order No. 12988, 61 Fed. Reg. 4729 (Feb. 5, 1996).
5. Exec. Order No. 12898, 59 Fed. Reg. 7629 (Feb. 16, 1994).
6. Exec. Order No. 13045, 62 Fed. Reg. 19885, 19887 (Apr. 23, 1997).

justice analysis and consideration of effects on children's health in separate, explicitly-labeled sections of its rule preambles, taking a step toward greater transparency by requiring the agency to directly address the impacts of its action on relevant communities.

II. The Role of Transparency in Assuring Accountability

Porter and Watts assert that visual rulemaking tools can help stakeholder communities understand the practical implications of agency decisions. They note the power of graphics to distill even complex and technical information.[7] As an example, they point to an EPA-produced YouTube video that uses simple whiteboard drawings to explain how the Clean Power Plan (CPP) will reduce carbon pollution from power plants and why EPA considers the action necessary to address climate change.[8]

An examination of the role of earlier reforms in the current day helps demonstrate how informational graphics can serve transparency and accountability goals in practice. EPA under Administrator Scott Pruitt has attempted to reverse or delay a number of different safeguards for human health and the environment. The sections of rulemaking preambles that address executive orders on environmental justice and children's health have helped shed light and provide concrete, discernable information on the real-world impact of these rulemaking actions.

The preamble to Administrator Pruitt's proposal to repeal the CPP provides an illuminating example. The CPP established the first nationwide limits on pollution from existing power plants, America's largest stationary source of carbon dioxide emissions. In Administrator Pruitt's proposed repeal package, the preamble focuses on statutory interpretation, justifying the repeal on the basis of a changed legal interpretation of Section 111(d) of the Clean Air Act. The consequences of this proposed action on public health or the environment are largely overlooked. Observers of the CPP repeal rulemaking have expressed serious concerns that the repeal rulemaking has been insufficiently transparent by, for example, obscuring information on the risks to the public from power plant pollution.[9]

In response to mandated rulemaking disclosure requirements, the preamble does provide some incremental level of information. As required under Executive Order 13045 on children's health, the preamble acknowledges that "[t]he CPP was anticipated to lower ambient concentrations of [fine particulate matter] and ozone, and some of the benefits of reducing these pollutants would have accrued to children."[10] As required under Executive Order 12898, an environmental justice analysis is included that finds that the Clean Power Plan "anticipated reductions in CO_2 emissions, as well as lower concentrations of [fine particulate matter] and ozone" due to changes in power plant emissions and that low-income and minority communities located in proximity to power plants "may have experienced an improvement in air quality as a result of the emissions reductions."[11] Thus these executive orders that require agencies to explain certain particularly salient impacts for the public play a role in helping require that this preamble—which otherwise shortchanges information on the health impacts of revoking the Clean Power Plan—provides at least a minimum level of transparency on a proposal's practical implications.

These analyses can help alert individuals to impacts they may face from an agency action and allow them to be more informed in their engagement in the rulemaking process. For example, a blog post by Moms Clean Air Force, an organization dedicated to protecting children and families from air pollution, compiled a list of twelve actions by Scott Pruitt's EPA that would delay and rollback critical human health and environmental protections important for children's health, including the CPP repeal proposal. The post noted that in each listed instance, due to required Executive Order 13045 regulatory analysis, EPA had either acknowledged the adverse impact on children's health its current action would have or previously acknowledged that the safeguard would have benefited children's health.[12] This post displays how members of the public can use transparent language about agency actions in regulatory documents to hold agencies accountable.

III. Advancing Transparency in the Current Day

The APA and subsequent executive orders have taken steps to increase accountability and transparency, but unfortunately, these foundational values are currently under question. EPA's conduct under Administrator Pruitt provides an example of why these values are so critical to uphold. At the same time that Pruitt's administration has engaged in a

7. Elizabeth G. Porter & Kathryn A. Watts, *Visual Rulemaking*, 91 N.Y.U. L. Rev. 1183, 1245 (2016).
8. U.S. Envtl. Protection Agency, *Clean Power Plan Explained*, YouTube (June 2, 2014), https://www.youtube.com/watch?v=AcNTGX_d8mY.
9. *See*, *e.g.*, William W. Buzbee, *Trump Administration's Clean Power Plan Repeal Proposal Is Illegal*, The Hill (Oct. 29, 2017), http://thehill.com/opinion/energy-environment/357557-trump-administrations-clean-power-plan-repeal-proposal-is-illegal ("The agency, however, barely mentions the massive factual record and EPA findings supporting the Clean Power Plan. . . . Pruitt's EPA even purged contrary studies from its website, as if that would make them go away . . . The repeal proposal does not discuss or justify the lost pollution reductions that motivated the original rule and are the focus of the Clean Air Act, although an accompanying cost-benefit analysis quantifies the changes in a document that itself is skewed and deviates from its past analyses."); Harold P. Wimmer & Stephen C. Crane, *EPA's Proposed Repeal Will Make Americans Sicker*, CNN (Mar. 13, 2018), https://www.cnn.com/2018/03/13/opinions/epa-air-pollution-health-opinion-wimmer-crane/index.html (criticizing the regulatory impact analysis published to support the proposed repeal: "The EPA has cherry-picked data to conceal the true health costs of air pollution. Its revised calculations diminish and devalue the harm that comes from breathing particulate matter, suggesting that below certain levels, it is not harmful to human health. This is wrong.").
10. 82 Fed. Reg. 48035, 48048.
11. *Id.*
12. Molly Rauch, *12 Ways Scott Pruitt's EPA Threatens Children's Health—In the Agency's Own Words*, Moms Clean Air Force Blog (Nov. 27, 2017), http://www.momscleanairforce.org/12-ways-pruitts-epa-threatens-childrens-health/.

rulemaking to repeal the CPP, it has obscured public access to climate science[13] and removed information about the Clean Power Plan from its website.[14] In a series of actions rolling back other public health and environmental safeguards, Pruitt's EPA completely closed the doors to public engagement and did not even provide an opportunity for public comment.[15] Pruitt has further kept the public and elected officials at arm's-length, appearing for just two congressional oversight hearings in his first year at EPA, only one before the Senate Environment and Public Works Committee,[16] and limiting his public appearances.[17] Steps like these frustrate the goals of public participation because in order to provide informed comment the public must first know what the agency is considering and receive good information to assess that course, which depends on access to decisionmakers who will listen and answer questions in open dialogue.

By examining the potential of visual rulemaking, Porter and Watts helpfully illuminate one strategy that EPA and other agencies could employ to reinvigorate and return to the long history of supporting the democratic process of rulemaking. There can be meaningful benefits if agencies reach audiences where they are—increasingly on social media. Lay communities can face language barriers, lack access to technical experts, and have more constraints on their time that pose barriers to engaging with a complex, technical regulatory process. By using graphics to convey the importance of their regulations, and to break down complex, technical regulatory text to clearly demonstrate what an action means for the public, agencies can engage more stakeholders and empower them to better participate in decisions agencies are making about their health and environment.

However, visual rulemaking tools can only achieve so much when an agency's approach to rulemaking gives short shrift to transparency and accountability; indeed, visual brevity may as easily be twisted to serve the purposes of an administration looking to avoid disclosure. Pruitt's administration's approach has underscored the continued value of historical reforms that have made certain minimum disclosures mandatory.

While visual rulemaking has the potential to enhance transparency and public participation, its true value may only be realized under an administration focused on supporting these values. In the meantime, this article has shown that it is worthy of further study and consideration.

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13. Michael Biesecker, *Emails Show Pruitt Monitored Changes to EPA Webpages on Climate*, PBS (Feb. 2, 2018), https://www.pbs.org/newshour/politics/emails-show-pruitt-monitored-changes-to-epa-webpages-on-climate.
14. Neela Banerjee, *Scott Pruitt Closely Monitored Scrubbing of EPA Climate Websites, Emails Show*, Inside Climate News (Jan. 29, 2018), https://insideclimatenews.org/news/29012018/scott-pruitt-epa-climate-websites-erased-emails-reveal-close-involvement-clean-power-plan.
15. *See* Letter From Scott Pruitt, Adm'r, EPA, to Howard J. Feldman, Director, American Petroleum Inst., Shannon S. Broome, Counsel, Tex. Oil & Gas James D. Elliott, Counsel, Indep. Ass'ns and Matt Hite, Vice President, GPA Midstream Ass'n (Apr. 18, 2017), https://www.epa.gov/sites/production/files/2017-04/documents/oil_and_gas_fugitive_emissions_monitoring_reconsideration_4_18_2017.pdf (informing industry representatives that EPA was suspending and reconsidering limits on pollution from oil and gas operations with no simultaneous public notice or opportunity to comment); *Notice Regarding Withdrawal of Obligation to Submit Information*, 82 Fed. Reg. 12817 (Mar. 7, 2017) (EPA providing notice of withdrawal of requests for information from oil and gas operators with no opportunity for public comments); *Extension of Deadline for Promulgating Designations for the 2015 Ozone National Ambient Air Quality Standards*, 82 Fed. Reg. 29246 (June 28, 2017) (EPA providing notice of decision to delay limits on ozone pollution by one year with no opportunity for public comments); *Postponement of Certain Compliance Dates for Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category*, 82 Fed. Reg. 19005 (Apr. 25, 2017) (EPA providing notice of stay and reconsideration of wastewater standards for power plants, only after earlier notifying industry representatives, and only providing an opportunity for public comment on further postponement of the standards more than a month later); Letter From Scott Pruitt, Adm'r, EPA, to Carroll W. McGuffey III, Counsel, Republic Servs., Barry Shanoff, Counsel, Solid Waste Ass'n of N. America, Kevin J. Kraushaar, Counsel, Nat'l Waste & Recycling Ass'n, and Carol F. McCabe, Counsel, Waste Mgmt. Disposal Servs. of Pa. (May 5, 2017), https://www.epa.gov/sites/production/files/2017-05/documents/signed_-_letter_-_municipal_solid_waste_landfills.pdf (notifying industry of grant of request to delay and reconsider pollution limits from landfills, with formal notice to the public not provided until over two weeks later).
16. Brady Dennis & Juliet Eilperin, *EPA Chief Once Said Trump "Would Be More Abusive to the Constitution Than Barack Obama—and That's Saying a Lot*," Chicago Trib. (Jan. 30, 2018), http://www.chicagotribune.com/news/nationworld/politics/ct-scott-pruitt-trump-constitution-comment-20180130-story.html.
17. William D. Ruckelshaus, *Pruitt Is Turning His Back on Transparency at the EPA*, Wash. Post (Nov. 1, 2017), https://www.washingtonpost.com/opinions/pruitt-is-turning-his-back-on-transparency-at-the-epa/2017/11/01/cd2c1b84-bd88-11e7-8444-a0d4f04b89eb_story.html ("Pruitt operates in secrecy. By concealing his efforts, even innocent actions create an air of suspicion, making it difficult for a skeptical public to give him the benefit of the doubt."); Emily Atkin, *What Is Scott Pruitt Hiding?*, New Republic (May 30, 2017), https://newrepublic.com/article/142785/scott-pruitt-hiding ("Public appearances are also rare for the administrator, as are on-the-record briefings with journalists.").

Pouring New Wine Into Old Wineskins? Promulgating Regulations in the Era of Social Media

by Carol Ann Siciliano

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In their rich, lucid, and engagingly illustrated article entitled *Visual Rulemaking*, Prof. Elizabeth G. Porter and Prof. Kathryn A. Watts challenge agencies to break free of dense text and to explore a new universe of "visual rulemaking." Citing colorful examples from the past few years, the authors urge agencies to make greater use of videos, images, and social media to promote transparency and expand public engagement. The authors also fully acknowledge the legal risks of pouring such new wine into old wineskins. And so they invite legal scholars, courts, and agency attorneys to help move administrative law toward a warmer embrace of these dynamic new practices.

Profs. Porter and Watts create three elegant categories to describe agencies' use of visual rulemaking: outflow, inflow, and overflow. The authors use the term "outflow" to describe agencies' efforts to engage the public in rulemaking processes and to educate and persuade the public about the rule's value. The term "inflow" refers to the public's use of visual media to convey information and feedback to the rulemaking agency. Finally, the authors capture an agency's search for legislative solutions within the term "overflow."

I. Building Better Decisions Through Public Engagement

As an agency attorney with decades of experience in rulemaking, I was captivated by the authors' insights regarding "inflow." In this Comment, I intend to analyze the authors' proposals in relation to agencies' responsibilities under the Administrative Procedure Act (APA).

I'll begin by laying a foundation from the perspective of a rule-counseling attorney. For many of us, rulemaking invariably—if not inevitably—leads to litigation. The greater the precipitating problem, the more likely we will encounter stakeholders disappointed with the agency's solution. Therefore, from the very beginning of any rulemaking effort, counseling entails an analysis and management of legal risk. Simply put, the successful defense of an agency rule rests on a three-legged stool: statutory authority, record support, and procedural propriety. If any leg gives way, the rule collapses, taking with it years of investment by agencies and stakeholders, along with the solution itself. Engaging the public within and outside the formal public comment process can strengthen each leg of the stool. At the threshold of rulemaking, agencies can use stakeholder meetings, social media engagements, and Advanced Notices of Proposed Rulemaking (ANPRMs) to explore the nature and extent of the perceived problem, elicit possible solutions, and evaluate the intensity and character of public support or opposition. Feedback flowing into an agency through all of these channels not only equips the agency to make better rulemaking choices, but also highlights potential legal vulnerabilities. Having spent my career defending challenges to agency actions, I highly value early insights into future litigants' objections. I want to know what the public considers to be dubious legal authority or insufficient factual or analytical bases for regulatory ideas. My goal is to strengthen at least two legs of our rulemaking stool. At the very least, I want to apprise agency decisionmakers fully of the legal risks associated with various options and to build the best legal and factual case in support of their final choices. Early and active engagement between an agency and the public allows agency counsel to minimize surprises and prepare, prepare, prepare. By testing the waters, agency outreach through stakeholder meetings, social media, and ANPRMs can also build better regulatory choices: regulate, deregulate, or do nothing at all.

But at this stage, agency attorneys start to get a little nervous: how does innovative public engagement affect the third leg of our rulemaking stool? Agency attorneys are the first and, in many ways, the principal guardians of

the APA's rulemaking requirements. The list of procedural requirements is long. Here are just a few of the questions I would ask myself when counseling on a rule: does the APA require public comment here? If so, does an exception apply? Does the action at issue qualify for that exception? If the agency solicits public comment, how long should the comment period be? What information should the agency include in its docket, preamble, and supporting analyses to provide an adequate opportunity to comment? How does the agency capture and consider public input during the comment period? Which comments are significant enough to compel a response? Has the agency's thinking changed enough to warrant a new round of comment or even a new proposal? And, for heaven's sake, what constitutes the administrative record?

I appreciate the comment process: there's risk and reward for everyone, agency and stakeholder alike. Agency decisionmakers are rewarded with information and ideas; we lawyers are rewarded with intelligence: who is likely to sue us and why? With few exceptions, courts expect future plaintiffs to raise their legal and factual objections with agencies before they place those objections before a court. This gives the agency a fair opportunity to consider the objections, make appropriate changes, and prepare for litigation. Commenters risk showing their analytical hands, but even if they fail to persuade the agency, they are rewarded with the court's attention. Indeed, dissatisfied commenters can reap, in litigation, the information and objections they have sown into the rulemaking record. That material can severely weaken the legs of the stool. A court could upend a rule as arbitrary and capricious if an agency fails adequately to account for credible comments that contradict the information, assumptions, and analyses upon which an agency relies. Or a court could cry procedural foul if, irrespective of the record, an agency fails to respond to significant comments. To me, the comment process is all about fair play.

And that's why I get nervous about the use of social media and especially videos as a form of rulemaking comment. My jitters are a bit predictable, so I'll start instead with the opportunities.

II. Signposts and Direction Arrows

Like the authors, I love the idea of an agency's use of visuals to explain its rulemaking proposals and spur public reaction. In my view, agencies serve the public best when, with creative, diversified outreach strategies and robust information sharing, we engage the broader public in the problem we seek to solve. Even if the public doesn't agree with our ultimate solution, at least—we hope—we have interested more people in governance, improved the record and rationale for our ultimate choice, and helped the public understand the astonishing complexity of making choices amid many reasonable, competing points of view.

I also agree with the authors that agencies can more consistently use social media and visuals during the rulemaking process to encourage the public to comment formally in Regulations.gov. Regulations.gov provides an easy way for the public to send feedback to agencies and—this is very important—for agencies to consider that feedback in a meaningful way. Staff at large rulemaking agencies are well-equipped to recognize and harvest comments conveyed through Regulations.gov. And that means staff are similarly well equipped to help decisionmakers to consider those comments. As the authors point out, by using social media to sweep more people into the Regulations.gov environment, agencies can reach a broader audience.

I also agree with the authors that agencies should place clear signposts when using visuals and other forms of social media in rulemaking. We begin with a confusion of terms: a rulemaking agency will not necessarily recognize a "comment" on social media as a "comment" for APA purposes. And yet, as the authors note, to the broader public that distinction is silly. For reasons explained below, I continue to value the distinction. And because of that, I believe agencies need to explain clearly to the public how each universe functions. For example, as part of a video explaining a proposed rule, I imagine an agency voiceover inviting viewers to learn about the problem by watching the video, experience the views of other members of the public by reading their comments, and participate in the dialogue themselves by providing their own thoughts. And then that voice could invite viewers to talk to the agency itself by going to Regulations.gov to file a comment. The signposts should be clear: use social media to share your views with the public; use Regulations.gov to share your views with us.

Social media can be used in other ways to facilitate public dialogue within and among stakeholder communities. For example, I've been intrigued by the possibility of using wiki pages to develop regulatory text. I imagine an agency creating three or four different wiki "sandboxes" during the comment period, each starting with the agency's proposed regulatory text but each designated for a particular cluster of stakeholders (regulated entities, public interest groups, state governments, etc.). The agency might invite each stakeholder cluster to engage collectively to build regulatory text that reflects that cluster's policy preferences. The agency would then treat as a single comment whatever each cluster's regulatory text looks like at the close of the comment period. Members of the public would, as always, be free to submit their own proposed regulatory text through the customary comment process. But a wiki like this might yield thoughtful results from collective thinking on all sides of the question, especially if different clusters could experiment by collaborating on a single version. No one would need to claim the product, but the result could cer-

tainly be interesting for the agency to see. If an agency were to experiment with a wiki like this, I would also expect the agency to address the comment and record issues, e.g., by stating plainly that none of the wiki material entered or deleted before the precise close of the comment period constitutes a comment for APA purposes; nor will the agency include any of that material in its rulemaking docket or administrative record. Only the final product "counts," the agency would say.

III. The Jitters

This brings me to my jitters. As the authors recognize, squeezing public videos and other visuals into the rulemaking process can create logistical complications. With those complications come legal risk—and jitters. Harvesting factual information and comments from videos and audio can be difficult and resource-intensive for agency personnel, litigants, and the courts. In addition, the authors fairly worry about "link rot" and other practical problems that could impair the permanence of the administrative record. Similar logistical issues hover around text-based feedback generated on social media platforms. Even though these public remarks could more easily be preserved for record purposes, they pose significant problems for the agency as it begins to consider and respond to rulemaking comments. As I noted above, Regulations.gov provides a transparent and tidy platform for both stakeholders and agency staff to comprehend the universe of public comment. But comment strings on social media may be neither. First, there's the matter of transparency. Although certainly public, the comment strings may originate from literally dozens of different platforms, some sponsored by the agency and others not. People reacting to an agency proposal might respond to an agency message, or they might (by choice or accident) express their views as part of a stakeholder-sponsored message. In contrast to Regulations.gov, which clearly describes the agency as the primary audience for comments logged there, the public might reasonably become confused about the destination of its comments. And because of the diversity of platforms, the public might never see the full spectrum of public views on the topic.

My second concern is tidiness. Even if an agency is able to disentangle all the social media strings and tug only on its own, what bits are actually the speaker's final comment? Ordinarily, individuals or entities submitting views to the agency bundle all their information, analyses and opinions into a single document that they label as a comment and submit to Regulations.gov. That document typically reflects their thoughtful deliberations on the issues relevant to them. And—to maximize the amount of time available to collect information, deliberate, and write—commenters typically submit their comments at the very end of the comment period. Contrast this to the give and take of feedback on an agency-sponsored social media site. On these platforms, speakers may post views in short bursts and soon begin to dialogue with each other, not the agency. Even assuming those conversations stay within the scope of the proposed rule, they typically reflect a sequence of thought by the speaker, not a final judgment. What then, is the speaker's "comment" for APA purposes: the last remark or the entire possibly self-contradicting or evolving chain? Where in the sequence did the speaker express a last thought on an issue before moving on to another? How can the agency or another member of the public find it? And what is the agency's APA obligation to respond to those comments? Can an agency's rule fall on procedural grounds for failing to account for each post? And if an agency chooses not to monitor the social media conversation—having merely launched it for educational purposes and to promote dialogue among stakeholders—has it even "considered" those comments for record purposes?

Notwithstanding my jitters, I support the idea of agencies and the public using visuals in rulemaking to expand the audience and enrich the conversation. In their article, Profs. Porter and Watts not only contribute new ideas and analysis to scholarly debate, but they also make sensible recommendations to agency attorneys like me. And, like the authors, I highly value Regulations.gov, which provides a transparent and tidy way for agencies and the public to communicate with each other during the rulemaking process. Profs. Porter and Watts envision a future that avidly embraces both Regulations.gov and visual rulemaking. I do too. We just need signposts to help the public distinguish between the two.

The Future of Distributed Generation: Moving Past Net Metering

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I. Introduction

"Distributed generation" is a term used to describe electricity that is produced at or near the location where it is used.[1] Distributed generation systems, also known as distributed energy resources, can rely on a variety of energy sources, such as solar, wind, fuel cells, and combined heat and power.[2] Over 90% of the current distributed generation capacity in the United States is solar,[3] and the number of installations is increasing rapidly.[4] As a result, many states are in the process of changing their utility structures and regulatory policies to accommodate more distributed energy resources.[5]

Most distributed generation systems are grid-tied, which means that they are connected to a utility's power grid.[6] Customers with connected distributed generation systems can buy power from their electric utility when they are not producing enough electricity to meet their needs, and sell power back to the utility company when their systems are producing more electricity than they are using.[7]

The question of how these customers should be compensated for that electricity they send to the grid has three significant policy implications. First, it plays a key role in determining the economic feasibility of clean electricity relative to electricity produced by fossil fuels. Second, distributed generation has benefits for the electric grid's resilience, as it provides a more diversified portfolio of energy sources than schemes that rely exclusively on centralized power plants.[8] Finally, the details of how distributed generation is compensated for various benefits will affect the composition of future clean energy projects.

Net metering is the most commonly used approach for setting distributed energy compensation.[9] The traditional net metering approach is functionally equivalent to having a single meter that runs forward when the customer needs more power than she produces, and backward when she sends excess power to the grid.[10] At the end of the billing period, the customer is billed at the retail electricity rate

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5. *DPS—Reforming the Energy Vision,* N.Y. Dep't Pub. Serv., https://perma.cc/BB5Y-VFPA (announcing broad regulatory changes that promote "wider deployment of 'distributed' energy resources"); D.C. Pub. Serv. Comm'n, Formal Case 1130, Comment on the Scope of the Proceeding (Aug. 31, 2015), https://perma.cc/EG5M-PK68 (calling for grid modernization with a "focus on deployment of distributed energy resources"); Mass. Dep't of Pub. Utils., Investigation by the Department of Public Utilities on its own Motion into Modernization of the Electric Grid, D.P.U. Order 12-76-B, 2 (June 12, 2014), https://perma.cc/6FZR-8J5Q (requiring every Massachusetts electric provider to submit a 10-year plan outlining how the utility will "integrate distributed resources."
6. Andrew Mills et al., *Net Metering*, Sunlight Elec (July 2015), https://perma.cc/6S48-YKKQ.
7. Edison Electric Inst., Straight Talk About Net Metering 1–2 (Jan. 2016), https://perma.cc/E5FF-C54F.
8. Devi Glick et al., Rate Design for the Distribution Edge: Electricity Pricing for a Distributed Resource Future 16 (Rocky Mountain Inst. Aug. 2014), https://perma.cc/JNK4-52T7.
9. Straight Talk, *supra* note 7 (laying out electric industry arguments against net metering).
10. *Id.* at 2.

for the net power used.[11] In effect, suppliers are paid at the retail rate for their excess generation.[12]

As of October 2016, 45 states and the District of Columbia compensated utility customers with distributed generation for the power they generated.[13] Even though details of individual state approaches vary, in this Article, we use the term "net metering" to refer to the practice of compensating distributed generation customers at the retail price, which remains the most common practice.[14]

Utilities concerned about lost revenues have begun urging state legislatures and public service commissions to impose fixed charges for net metering customers and to decrease the rate of compensation those customers receive for the energy they generate.[15] Environmentalists and individuals seeking to generate their own electricity for financial or libertarian reasons have argued opposite positions.

One goal of this Article is to evaluate the respective arguments. An ideal pricing mechanism would take into account the potential environmental and health benefits of cleaner energy and the grid-related costs resulting from distributed generation. Our second goal is to provide an alternative compensation structure for distributed solar generation that can also be used consistently and fairly for all types of energy sources. Our final goal is to highlight the need to analyze net metering in the context of more comprehensive energy policies, such as much-needed reform in electricity pricing policy.

II. Net Metering Policies

The most common tool to track electrical output and compensate distributed generation owners is a billing arrangement known as net metering.[16] The 2005 Energy Policy Act catalyzed distributed generation by offering favorable tax treatment to individuals installing solar generators and by encouraging state adoption of net metering policies[17] that allow individual utility customers to produce and sell energy in state-regulated retail markets.[18] However, despite the near-ubiquitous adoption of net metering by states, the policies differ among jurisdictions.[19]

First, state net metering programs differ in how they compensate customer-sited generation. Currently, 34 net metering jurisdictions credit customers for generation at the retail rate,[20] which exactly mirrors the price charged by utilities to end-use consumers for electricity.[21] Only seven jurisdictions exclusively credit net excess generation at the avoided cost rates,[22] which reflect the cost to a utility of generating equivalent power or purchasing it from a non-qualifying facility third-party.[23] Many states offer a combination of rates.[24] A second variation is how long a customer's monthly excess generation may be "carried over" to future billing cycles. As of October 2016, net generation may be carried over month-to-month and applied in subsequent billing periods to offset later usage in all but two jurisdictions.[25] Third, nearly all jurisdictions place a cap on the maximum permissible size of any individual net-metered generator.[26] Fourth, 24 jurisdictions set aggregate capacity limits that constrain the total amount of net-metered generation permissibly installed within a state or utility service area.[27]

The differences among net metering policies can significantly affect the attractiveness of distributed generation to utility customers. Over 76% of net-metered distributed generation systems are located in states with favorable net metering policies.[28]

III. Evaluating Current Pricing Approaches

A. *Net Metering*

The argument that a kilowatt hour (kWh) of electricity produced and sent to the grid by a distributed generator should be compensated at the retail rate is grounded in the basic principles of perfectly competitive markets, in which buyers and sellers buy or sell the product at the same market-clearing price determined by the marginal cost of

11. *Id.*
12. Naïm R. Darghouth et al., Net Metering and Market Feedback Loops: Exploring the Impact of Retail Rate Design on Distributed PV Deployment 1 (Lawrence Berkeley Nat'l Lab. July 2015), https://perma.cc/Y7GK-69WW.
13. The only states that do not offer a statewide net metering policy are Alabama, Idaho, South Dakota, Tennessee, and Texas. Best Practices in State Net Metering Policies and Interconnection Procedures, Freeing the Grid (2015), https://perma.cc/USG7-HR3U [hereinafter Best Practices].
14. *See* Steven Ferrey, *Virtual "Nets" and Law: Power Navigates the Supremacy Clause*, 24 Geo. Int'l Envtl. L. Rev. 267, 267 (2012); Benjamin Hanna, *FERC Net Metering Decisions Keep States in the Dark*, 42 B.C. Envtl. Aff. L. Rev. 133, 133–34 (2015).
15. Peter Kind, Disruptive Challenges: Financial Implications and Strategic Responses to a Changing Retail Electric Business 18 (Edison Elec. Inst. 2013); *see also* Solar Energy Indus. Ass'n, Solar Market Insight Report: 2014 Year in Review (2015).
16. U.S. Energy Info. Admin., State Energy Data System, Net Metering Customers and Capacity by Technology Type, by End Use Sector, 2004 Through 2014, tbl. 4.10 (2013), https://perma.cc/4C44-9JDK (noting a 53% annual growth rate in NEM customers); *see also* J. Heeter et al., Status of Net Metering: Assessing the Potential to Reach Program Caps 12 (Nat'l Renewable Energy Lab. 2014), https://perma.cc/2KPV-KC2M (noting net metering is a statistically significant driver of solar growth).
17. Energy Policy Act of 2005 § 1251, 16 U.S.C. § 2621(d) (2012).
18. According to the "net sales" test, retail market transactions include transactions between a utility customer and the utility as long as the customer does *not* consistently produce sufficient excess energy (beyond their own energy consumption) during a given time period to be considered a "net seller" of electricity. *See* 16 U.S.C. § 824(a).
19. *See* Best Practices, *supra* note 13.
20. *Id.*
21. Yih-huei Wan & H. James Green, Current Experience With Net Metering Programs 1-2 (Nat'l Renewable Energy Lab., 1998), https://perma.cc/5CRH-D5AL.
22. Best Practices, *supra* note 13.
23. Wan & Green, *supra* note 21, at 1-2.
24. Laurence D. Kirsch & Mathew J. Morey, Pricing Retail Electricity in a Distributed Energy Resources World (Christensen Ass'n Energy Consulting 2015), https://perma.cc/U5CN-R9SJ.
25. Best Practices, *supra* note 13.
26. *Id.*
27. *See Net Metering State Database*, Database of State Incentives for Renewables & Efficiency, https://perma.cc/NA52-4BMV.
28. *See* Best Practices, *supra* note 13 (noting states with favorable net metering policies).

production. However, many retail electricity tariffs use inefficiently designed, flat volumetric per-kWh rates. These rates are intended to cover not only the variable costs of the generation of electricity itself, but also fixed costs and a reasonable rate of return for the utilities.[29]

1. Shortcomings of a Bundled, Flat Volumetric Rate

A typical tariff for residential customers has two parts, a fixed monthly service charge and a flat, volumetric energy-consumption charge. Consequently, utilities' ability to recover their costs depends on the volume of electricity sold. The retail electricity price is essentially the bundled average cost of providing retail electricity to a customer, which includes electricity generation and additional services, as well as transmission, balancing, and local distribution. Hence the electricity sent to the grid by a distributed generator, which lacks those additional services, is not a perfect substitute for the retail electricity consumed by the end-user. When net-metered customers are compensated using retail rates, they avoid paying for the costs already incurred for their reliance on grid-delivered electricity and for the demand they place on the grid.[30]

2. Temporal and Locational Variations, and Production and Transmission Constraints

Another source of inefficiency in electricity pricing stems from the way in which energy charges are calculated for retail customers. Demand for electricity is higher at certain "peak" demand times during the day, and utilities use more expensive generators during these periods to meet demand. When variation in costs is not reflected in retail rates, net metering compensates distributed generation using the same flat volumetric rate at all times and locations. As a consequence, net metering policies lead to overcompensating distributed generation exports during off-peak times and undercompensating them during peak times, effectively exchanging a high-value product for a low-value one.

3. Demand Variations and Distribution Constraints

A consumer's contribution to the fixed costs of local distribution networks is also dependent on the time and location of consumption. The maximum demand during peak periods is the main driver of any new distribution system capacity investment.[31] A customer's maximum demand at the moment of highest usage among all customers in a particular location—"coincident peak demand"—is more important as a driver of infrastructure investments than the customer's individual peak demand—"non-coincident peak demand."[32] When distributed generation lowers the coincident peak demand at a location that is close to the peak network capacity, it lowers the need for future distributed capacity investment. As this variation is not reflected in the flat volumetric retail rates, common net metering policies cannot sufficiently capture the full value of distributed generation.

4. Equity Considerations

The mismatch between the way in which costs are incurred and how they are recovered due to flat, volumetric rates gives rise to the possibility of cost shifting among different customer groups when one group lowers its consumption for any reason, whether it is a result of distributed generation, energy efficiency, or personal preference. With net metering, while customers who own solar panels essentially get credited for the output they produce at the retail rate by being billed for a lower net volume of electricity, customers without distributed generation systems end up having to make up the lost revenue with higher rates.[33] Net metering is often disproportionately concentrated among wealthier customers. Thus, many fear that net metering acts as a socially regressive subsidy for utility customers with distributed generation by placing additional costs on moderate- and low-income customers.[34]

B. Fixed Charges and Net Metering Caps

An increase in fixed charges that applies only to distributed generators, as suggested in some states, would hurt efficiency if it does not reflect the costs that they actually impose on the grid.[35] Converting distribution expenses into flat service fees also ignores actual variation in delivery costs and undervalues the savings achieved by the *distributed* nature of distributed generation. Simply increasing fixed service charges can therefore transfer cost burdens from rural, higher-use ratepayers, who require greater delivery costs, to urban and low-use ratepayers, for whom these costs are lower.[36]

To the extent that a utility cannot recover its costs with the prevailing retail rates, a net metering cap could alleviate the cost recovery concerns of utilities. However, given that a proper tariff design would alleviate any cost recovery concerns, an arbitrary net metering cap would only lead to further inefficiency and under-deployment of distributed generation.

29. *See* Tom Tanton, Reforming Net Metering: Providing a Bright and Equitable Future 1-5 (Am. Legis. Exch. Council 2014, https://perma.cc/K4XF-6BRD.
30. *Id.* at 1.
31. Paul Simshauser, *Distribution Network Prices and Solar PV: Resolving Rate Instability and Wealth Transfers Through Demand Tariffs*, 54 Energy Econ. 108, 108-09 (2016).
32. *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Staff White Paper on Ratemaking and Utility Business Models*, Case No. 14-M-0101, N.Y. PSC, Filing No. 416 at 80 n.81 (July 28, 2015).
33. *See* Tanton, *supra* note 29, at 9-11.
34. Ashley Brown, *Valuation of Distributed Solar*, 27 Elec. J. 27, 27 (2014), https://perma.cc/C35M-G2QV.
35. Darghouth et al., *supra* note 12, at 6–8.
36. Jim Lazar, Rate Design Where Advanced Metering Infrastructure Has Not Been Fully Deployed 59 (Reg. Assistance Project 2013).

IV. Evaluating the Contributions of Distributed Generation to the Electric Grid

A. *Benefits of Distributed Generation to the Electric Grid*

The clearest benefit of distributed generation to the overall electrical system is that it avoids the cost of operating a bulk system generator to meet customer demand. Avoided energy benefits can be especially significant if distributed energy resources help avoid generation from costlier "peaker" plants. Distributed energy resources also provide value to the transmission and distribution system; electricity travels shorter distances to the end user, directly curtailing energy losses that may occur because of inefficient power lines. Distributed renewables offer long-term cost savings by enabling utility and state entities to defer or avoid large capital investments in new fossil fuel generators, transmission, and distribution infrastructure.[37] Finally, distributed generation can be invaluable to providing power supply during extreme weather events such as storms or other emergency situations.

B. *Costs of Distributed Generation to the Grid*

The costs of distributed generation go beyond the costs of installing new meters. As electricity cannot be stored on a large scale, customer usage must be met in real time by utility generation.[38] Significant mismatches between consumer demand and available power supply can cause grid frequency levels to drop,[39] which may damage generator turbines or lead to blackouts.[40] The dependence of most distributed generation on weather conditions inescapably means that its output is variable and patterned, which can hamper the grid's reliability and interfere with its efficient operation.[41]

Unregulated, bi-directional energy flow introduced by net-metered customers also imposes additional strains on the physical electric grid,[42] leading to increased flow management and voltage regulation costs,[43] and may overload the circuits close to the distributed generator.[44] Another related challenge is that distributed solar units cannot be intentionally fueled or dispatched with certainty to meet consumer demand at a particular time.[45] As a result, utilities must provide adequate backup power. Erratic changes in output make matching electric generation and customer usage difficult,[46] and can require other power plants to remain online simply to ensure that adequate power is available to meet demand,[47] thereby forgoing environmental benefits of distributed generation and doing little to reduce the operational costs of utilities.[48] However, these costs can be lowered or eliminated as technology and forecasting methods become more advanced.

V. Considering the Social Benefits of Distributed Generation

The primary external benefit of distributed generation is arguably the reduced carbon dioxide emissions from fossil fuel sources displaced by distributed generators. Other benefits include public health and welfare improvements, water conservation, land preservation, and reductions in physical infrastructure necessary to support fossil fuel electricity generation.[49] As these benefits are not fully reflected in current retail tariffs, the existing net metering policies do not capture the true value of distributed generation to society, and will thus lead to less distributed generation than is socially optimal.

A. *Incorporating Climate Change Benefits*

1. Quantifying Net Avoided Emissions and Valuing Avoided Carbon Dioxide Emissions

The first step in valuing the climate change benefits of distributed generation is to calculate the amount of net avoided emissions. Avoided emissions depend on the type of generator that the distributed generation is displacing and thus the time and location of the energy generated.[50] The quantity of greenhouse gas emissions avoided by distributed generation should be calculated by looking at the quantity of emissions that the marginal generator at that location would have emitted at the time of the distributed generation production. This feature is a missing quality in

37. Anderson Hoke & Paul Komor, *Maximizing the Benefits of Distributed Photovoltaics*, 35 Elec. J. 55, 55–61 (2012).
38. *See* Timothy P. Duane, *Legal, Technical, and Economic Challenges in Integrating Renewable Power Generation Into the Electricity Grid*, 4 San Diego J. Climate & Energy L. 1, 7-9 (2013).
39. Erik Ela et al., Active Power Controls From Wind Power: Bridging the Gaps 40 (Nat'l Renewable Energy Lab. 2014), https://perma.cc/XA7K-GRDP.
40. *Id.* at 1.
41. Tanton, *supra* note 29, at 4.
42. *See* Am. Pub. Power Ass'n, *supra* note 2, at 11 (potential safety issues involving distributed generation include "islanding," high-voltage spikes, out-of-phase reclosing, and system-wide blackouts).
43. *See* Mass. Inst. of Tech., The Future of the Electric Grid 17, 64 (2011), https://perma.cc/UKE4-SM36; *see also* Elec. Power Research Inst., The Integrated Grid: Realizing the Full Value of Central and Distributed Energy Resources 14 (2014), https://perma.cc/U77P-W893.
44. *See* Am. Pub. Power Ass'n, *supra* note 2, at 11.
45. Severin Borenstein & James Bushnell, *The U.S. Electricity Industry After 20 Years of Restructuring*, 7 Ann. Rev. Econ. 437, 455 (2015).
46. N. Am. Elec. Reliability Corp., Accommodating High Levels of Variable Generation ii (2009), https://perma.cc/NL4X-XNU4 [hereinafter NERC Report].
47. *See* Borenstein & Bushnell, *supra* note 45, at 455.
48. Lori Bird et al., Integrating Variable Renewable Energy: Challenges and Solutions 3-4 (Nat'l Renewable Energy Lab. 2013), https://perma.cc/28B5-XK8Y.
49. Lazar, *supra* note 36, at 50.
50. *See* Kyle Siler-Evans et al., *Regional Variations in the Health, Environmental, and Climate Benefits of Wind and Solar Generation*, 110 PNAS 11768, 11770 (2013).

current net metering or "value of solar" policies. The second step is to monetize the quantity of avoided emissions based on estimates of the monetary value of the damage they impose on society. Currently, the best estimate of the marginal damage caused by carbon emissions is the social cost of carbon (SCC).

2. Interaction With Other Regulatory Approaches

The variation in state policies regarding distributed generation is not limited to the specifics of net metering policies. States provide a variety of different incentives for renewable energy resources, and specifically for solar panels, including tax credits, for example.

The existence of other policies aimed at reducing emissions does not change the marginal external cost of carbon emissions, which is the monetary value of all the damages caused by one additional unit of emission. Thus, the marginal external damage associated with each additional unit of emissions is exogenously determined, and is independent of any other environmental policies that are in effect. If, however, there are other policies in effect that cause fossil fuel generators to internalize some of the external damage they are causing, then the environmental benefit adjustment in remuneration of distributed generation should only include the "uninternalized" damages.

The existence of a cap-and-trade program complicates the calculation of the quantity of net avoided emissions. A precise calculation of the quantity of net avoided emissions in the presence of a cap-and-trade program requires an in-depth study of how distributed generation affects the number of unused allowances and how fast those unused allowances in turn affect the long-term level of the cap. An alternative approach would be to use the quantity of emissions displaced by the distributed generator as an approximation. Once the quantity of avoided emissions is calculated, it can be then multiplied by the SCC to monetize the environmental benefits of distributed generation.

VI. Toward an "Avoided Cost Plus Social Benefit" Approach

The efficient price for distributed generation should reflect all of its costs and benefits, both private and external. Net metering falls short of accomplishing this goal because the current retail electricity rates do not fully reflect either the true marginal cost of electricity generation or the associated externalities. A new approach is needed until comprehensive retail rate reform corrects such inefficiencies. As state efforts to evaluate and reform net metering become increasingly common, it is important to establish a socially desirable framework that can be used consistently in different states and for different types of distributed energy resources.

An "Avoided Cost Plus Social Benefit" approach that compensates distributed generation for the net avoided cost and net social benefits is preferable to net metering. Distributed generation should be compensated for social benefits such as environmental and health benefits while taking into account the additional costs imposed by distributed generation and rewarding distributed generation only for costs it avoids, thus eliminating utilities' concerns about recovering costs of existing infrastructure. Until recently, the Federal Energy Regulatory Commission (FERC) explicitly prohibited the inclusion of externality adders in avoided-cost rates in the wholesale markets.[51] However, in 2010, FERC changed course, and ruled that avoided cost rates could permissibly differentiate between "various [qualifying facility] technologies on the basis of the supply characteristics of the different technologies" opening the way to incorporating environmental benefits that are monetized through compliance with state policies such as renewable portfolio standards.[52] Thus, state utility commissions now have discretion to tailor avoided cost rates for certain policies,[53] and "the authority to dictate the generation resources from which utilities may procure electric energy,"[54] opening the door to avoided-cost rates that reflect the characteristics of a qualifying facility.

VII. The Promise of Time-, Location-, and Demand-Variant Pricing

The "Avoided Cost Plus Social Benefit" approach to compensating distributed generation advocated in this Article is only a stopgap measure until comprehensive retail electricity reform can take place. The first-best solution to the problems caused by net metering is simply to correct the inefficiencies of the retail rates.

Current tariff designs almost universally use one flat volumetric price per kWh to recover costs incurred in non-volumetric ways. Using a cost-reflective tariff that is properly unbundled and granular would improve overall system efficiency and the value of distributed generation. First, a bundled, flat volumetric rate insulates consumers and producers from receiving the correct price signals about the true social cost of generating energy. As a result, consumers have no incentive to adjust their usage based on the actual cost of electricity. More importantly, a flat rate prevents prices from being interpreted as efficient investment signals.

Second, using a flat volumetric rate that is uniform across the service territory of a utility undercompensates distributed generation for other benefits it provides, such as reducing grid congestion when the system is close to capacity during peak hours. Third, a flat volumetric rate creates perverse incentives for customers during the installation phase. As net-metered customers are compensated using the same flat rate regardless of what time they send

51. S. Cal. Edison Co., 70 FERC ¶ 61,215 (1995), 71 FERC ¶ 61,269 (1995).
52. *See* Cal. Pub. Utils. Comm'n, 133 FERC ¶ 61,059, 61,628 (2010).
53. Kaylie E. Klein, *Bypassing Roadblocks to Renewable Energy: Understanding Electricity Law and the Legal Tools Available to Advance Clean Energy*, 92 Or. L. Rev. 235, 258 (2013).
54. Cal. Pub. Utils. Comm'n, 134 FERC ¶ 61,044, 61,160 (2011).

energy to the grid, their inherent incentive is to install solar panels with the goal of maximizing their total production, and hence compensation, rather than overall power system benefits. Finally, the amount of greenhouse gas emissions displaced by distributed generation also depends on time and location. Once again, the use of a flat volumetric rate that does not granularly reflect changes in the external costs of electricity generation prevents the realization of the full value of distributed generation.

A. *Valuing Distributed Generation With Time-, Locational- and Demand-Variant Pricing*

The efficiency problems created by the interaction of net metering policies and inadequate retail rate designs are preventable. Regulators need only move toward more sophisticated rate designs that are unbundled—with generation, distribution, and transmission valued and priced separately—and more cost-reflective.[55] Thus, costs are recovered similarly to the way they are incurred, based on the unit of their drivers. For example, energy generation costs that are based on the volume of energy sold should be recovered using volumetric charges. To avoid any cross-subsidization, volumetric energy charges should be designed to reflect the variation in locational and temporal changes in the cost of providing electricity.

Similarly, distribution network charges should be carefully designed.[56] If the highest electricity capacity a customer needs at a particular time period is driving the need for further infrastructure investment, charges based on this coincident peak demand could be imposed. To ensure that existing network costs are recovered fairly, a charge based on connected load, similar to a network subscription charge, could be imposed.[57] Cost-reflective retail tariff rate structures that provide customers proper price signals that reflect the actual costs underlying the provision of electricity, including the associated externalities, will improve economic efficiency.

B. *Equity Issues*

Any significant tariff change should be implemented with regard for the stakeholders who stand to lose in the short term. The possibility of such transitional equity problems should be recognized, and policy solutions aimed at these problems should be discussed as part of any reform. However, keeping volumetric rates artificially low is not the solution to equity concerns regarding vulnerable low-income energy customers. Social welfare is maximized when the market price reflects both private and external marginal costs.[58] Once such a price is established so that the maximum possible net benefits can be realized, distributing this net value among different groups of stakeholders is best done through direct transfer programs that have specific policy goals, such as crediting low-income customers with fixed amounts on their energy bills, or subsidizing programs that would allow low-income customers easier access to distributed energy resources.

C. *Incorporating Externalities Into Dynamic Pricing*

Internalizing externalities like environmental and health benefits in retail rates and tariff design aimed at maximizing net social benefits is crucial to the success of clean energy policies, especially when dynamic tariffs are used. While dynamic tariffs using time-, location-, and demand-variant pricing provide more incentives for distributed generation deployment and result in a decreased energy demand from the bulk system, they may also cause consumers without distributed generation systems to shift their loads to periods where dirtier plants are on the margin, unless the externalities are fully internalized in retail rates.

As peaker plants are often less efficient and dirtier,[59] overall emissions decrease when distributed generation reduces the need for the electricity generated from such plants. However, if time-varying rates shift consumption to other periods, calculating the net effects requires a more careful analysis. If the temporal dimensions are not taken into account while calculating environmental and health benefits, and all distributed energy resources are rewarded based on the same average quantity of avoided emissions, market incentives will lead to more investment in cheaper distributed energy resources, regardless of whether they are the most beneficial for society when taking externalities into account.

Overall, having the right price signals would ensure an efficient allocation of resources by directing the right type of distributed energy resource investments to where they are needed most. While solar panels may be more valuable when installed near areas where demand peaks during the day, investing in wind turbines may be more valuable in areas where demand peaks later in the day, as that is when wind production also peaks.[60] Only by using a comprehensive framework that can recognize granular variations in valuation can we move beyond narrow, short-sighted debates that may inefficiently favor one low-carbon resource over another.

55. Ahmad Faruqui, The Global Movement Towards Cost-Reflective Tariffs 30–31 (Brattle Group 2015), https://perma.cc/6QH4-GAB3.
56. *See generally,* Toby Brown et al., *Efficient Tariff Structures for Distribution Network Services*, 48 Econ. Analysis & Pol'y 139 (2015).
57. Ahmad Faruqui, The Case for Introducing Demand Charges in Residential Tariffs (Brattle Group 2015), https://perma.cc/8HQY-4Q5G.
58. *See* Jonathan Gruber, Public Finance and Public Policy 127, 138–42 (MacMillan Higher Education, 4th ed. 2012).
59. Robin Bravender & Collin Sullivan, *Utility to Build First Power Plant With Greenhouse Gas Emissions Limits in California,* Sci. Am. (Feb. 5, 2010), https://perma.cc/Q4GW-TGWU; *see also Flexible Peaking Resource*, Energy Storage Ass'n, https://perma.cc/9YUH-5AXV; Janice Lin, *The Value of Energy Storage*, Cal. Energy Storage All. (Mar. 25, 2014), https://perma.cc/R2MM-M23G.
60. *See generally* Joseph Cullen, *Measuring the Environmental Benefits of Wind-Generated Electricity*, 5 Am. Econ. J.: Econ. Pol'y 107,107-133 (2013).

VIII. Conclusion

As many states are looking to integrate more distributed energy resources into the grid, current net metering policies are proving to be inadequate to properly value the clean energy produced by distributed generation, or the services provided by the electric grid and the utilities.

Our analysis identifies the sources of the inefficiencies of current policies and we propose a preferable protocol, which we refer to as the "Avoided Cost Plus Social Benefit" approach. This approach both rewards clean distributed energy for the environmental and health benefits it provides and ensures that utilities are compensated for the services they provide. This approach is the best that can be accomplished given the limitations of the current energy policy framework, which relies too heavily on fixed volumetric rates. Finally, this Article provides a roadmap for more comprehensive energy policy reform, which is necessary in order to properly value all energy resources, including distributed generation, and thereby ensure that states' clean energy and resilience goals can be achieved as efficiently as possible.

Distributed Generation and the Minnesota Value of Solar Tariff

by Ellen Anderson

Ellen Anderson is the Executive Director of the Energy Transition Lab at the University of Minnesota. Previously, she served in the Minnesota Senate and chaired the Minnesota Public Utilities Commission.

The article, *Managing the Future of the Electricity Grid: Distributed Generation and Net Metering*, by Prof. Richard L. Revesz and Dr. Burcin Unel, is a thorough and timely analysis of the regulatory challenges of valuing distributed energy generation. Their proposal for an "Avoided Cost Plus Social Benefit" valuation protocol for clean distributed energy is a valuable addition to the knowledge base, and the authors' longer-term solution of comprehensive energy reform is a well-thought-out alternative.

The article establishes that distributed generation (DG) provides a suite of benefits to the grid and to our broader societal goals, and it should be compensated for those benefits, and that DG can also lead to additional costs to the grid and can raise the potential of cost-shifting. We appreciate the approach to try to balance these factors.

The article's internal debate examines whether and how to accurately and fairly compensate or charge distributed generation (DG) producers, other non-DG customers, and utility shareholders for costs and benefits of the DG systems. This is an important question, but our comments are based on a more focused set of assertions. First, particularly in markets with minimal DG, the policy reasons to incent DG are stronger, and the cost shifting question seems premature. Second, approaches such as the Minnesota Value of Solar Tariff (VOST) are designed to nullify cost-shifting concerns and may serve as useful models.

Two underlying assumptions, consistent with Revesz and Unel's analysis, are important to set the stage for the internal debate in the article. They are:

(1) Federal policies generally support the concept that more renewable, distributed generation is beneficial and in the public interest.

(2) Changes to our electricity resource mix demand that grid operators and utilities integrate variable renewable resources produced by many dispersed generators.

On point one, the Public Utilities Regulatory Policy Act (PURPA) includes a clear statement to encourage development of cogeneration and small power production facilities in order to reduce demand for fossil fuels and to increase the efficient use of energy.[1] Section 210(a) directed the Federal Energy Regulatory Commission (FERC) to promulgate "such rules as it determines necessary to encourage cogeneration and small power production." The U.S. Supreme Court upheld a FERC rule that requires the purchase rate to be "just and reasonable to the electric consumers of the electric utility and in the public interest" and that it not discriminate against qualifying facilities (QFs).[2] The Court indicated that this framework supporting small energy generators might not directly provide any rate savings to electric utility consumers. It was more important to provide an incentive for small power producers and the broader benefit of decreased reliance on scarce fossil fuels and more efficient use of energy. The Court ruled that "just and reasonable" language in section 210(b) did not require the rate to be set "at the lowest possible reasonable rate consistent with the maintenance of adequate service in the public interest," concluding rather that Congress did not intend to impose traditional ratemaking concepts on sales by QFs to utilities.

In addition to established federal policy support for distributed renewable energy, state policies like renewable portfolio standards and dramatic price reductions have led to a real-time expansion of renewable energy across the United States. This evolution of the electricity markets demands accommodation to dispersed renewable energy generators. Our energy system is rapidly evolving into a very different model than the legacy central station power plant sending power one way to customers across long distance wires. Renewable energy deployment and generation has grown rapidly and represents 25-50% of electricity generation in many states and regions for certain periods of time. While much of those capacity additions are from large utility-scale projects, renewable energy production is more geographically dispersed and variable than conven-

1. 16 U.S.C. §824 (a).
2. Am. Paper Inst. v. Am. Elec. PowerServ. Corp., 461 U.S. 402 (1983).

tional power plants. As prices drop dramatically, many residential, commercial, industrial, and institutional customers are deploying their own renewable energy systems. This buildout of renewable energy is essential to meet global carbon reduction targets and will require electricity grids to be more flexible and operate differently than in the past. At the same time, the United States has seen the rapid decline of coal-fired power plants, with 531 coal units representing 55.6 GW of capacity retired since 2016.[3] Together these factors are changing the nature of the grid, which will need to integrate variable resources at both the transmission and the distribution scale.

These assumptions together—that advancing some amount of DG is in the public interest and that our evolving energy system needs to accommodate DG—should form the starting point for this debate question. This is where we find a significant gap in the article's analysis. If rate and tariff designs are constructed with good intentions of fairness and rationality, but have the actual effect of stopping DG deployment, then the solutions are fatally flawed. This assertion can be explained by a discussion of Minnesota's experience with DG.

We bring up Minnesota as an example because geographic and market factors need to be closely considered to determine the right approach to evaluating compensation to DG owners. A "one size fits all" policy would not lead to fair or reasonable results. States and regions vary greatly in the costs and benefits of DG. Our hypothesis is that the states with the most rooftop solar tend to be states with high electricity prices, favorable policies and incentives, or high solar irradiance—or some combination of these three factors. In those states, payback time for rooftop solar can be just a few years. High DG penetration can cause grid ramping issues like California's duck curve or congestion problems at overloaded substations. In these situations of high DG penetration, there is more potential for significant cost-shifting.

In contrast, the perspective from the Midwest and Minnesota is different. Generally, the Midwest region has a very small amount of DG and lower electricity retail prices than the East or West Coasts.[4] In the Midwest, wind energy is the lowest-cost electricity resource, but solar energy can be more costly than in the high DG states. Other policy barriers to DG exist. Some Midwest states, for example, have limitations on third-party leasing or ownership options for rooftop solar.

Focusing on Minnesota in particular as a case study shows that DG development can face barriers even with thoughtful policy and strong renewable energy growth. The prescriptions posed by Revesz and Unel unfortunately could exacerbate DG obstacles.

For background, Minnesota has a strong wind resource, which comprises most of the state's renewable electricity. In 2018, 25% of Minnesota's electricity is from renewable sources, and the state's largest utility, Xcel Energy, plans to reach 60% renewable electricity within a few years. Most of that is developed at utility scale. Solar irradiation is average for the United States.[5]

Solar energy is growing quickly and is supported by state policies—in particular, the most robust community solar program in the United States is in Minnesota, where the law defines DG at under 10 MW; very little wind energy is built at that size.[6] Minnesota's net metering law provides for paying retail rate for up to 40 kW DG systems.[7] From 40 kW–1 MW, net metered facilities receive "Avoided Cost." Rural electric cooperatives and municipal utilities are explicitly allowed by statute to "charge an additional fee to recover the fixed costs."[8]

In Minnesota, the rules, rates, and incentives are not always enough to support a robust DG market.

I. Value of Solar Tariff

Minnesota has led the nation as the first state to create and institute a value of solar tariff. The Public Utilities Commission (PUC) sets the rates based on a methodology developed by the state Department of Commerce.[9] The rate changes over time to reflect inflation.

A group of nonprofit organizations recently filed a motion at the PUC asking for the distributed generation tariff required by statute to be reconsidered. Proponents maintain that the law requires an "avoided cost plus" formula to be set and offered to DG producers. This proposal is somewhat similar to that suggested by Revesz and Unel, but does not explicitly include utility costs.

Otherwise, DG projects over 40 kWh receive avoided cost rates, which are quite low in Minnesota. Figure 1 shows the rates under each approach and their viability for DG project finance.

3. Silvio Marcacci, *Utilities Closed Dozens of Coal Plants in 2017*, Forbes (Dec. 18, 2017), https://www.forbes.com/sites/energyinnovation/2017/12/18/utilities-closed-dozens-of-coal-plants-in-2017-here-are-the-6-most-important/#554821f5aca5.
4. Bureau of Labor Statistics, *Average Energy Prices*, (Feb. 2018), https://www.bls.gov/regions/mid-atlantic/data/averageretailfoodandenergyprices_usandmidwest_table.htm.
5. Solar Irradiance Map, *National Renewable Energy Lab*,https://www.google.com/search?q=solar+irradiance+map&rlz=1C1GGRV_enUS751US751&tbm=isch&source=iu&ictx=1&fir=c74fA_A3i3sW8M%253A%252CvW7ehjn1gF7bQM%252C_&usg=__9A55pFALXlXHrVwuhgFjPh-_F6g%3D&sa=X&ved=0ahUKEwjGkfC96sfaAhWQw4MKHf5YDoMQ9QEILjAD#imgrc=c74fA_A3i3sW8M.
6. Minn. Stat. §216B.164 (2017)
7. *Id.*
8. Minn. Stat. §216B.164(3)(a)
9. Benjamin Norris, *Minnesota Value of Solar: Methodology*, Minnesota Department of Commerce, Division of Energy Resources (2014), http://mn.gov/commerce-stat/pdfs/vos-methodology.pdf.

Figure 1

Minnesota DG rates	What can be built for this?
Value of solar tariff: $0.976 kWh	1 MW ("barely")
"Avoided cost plus" (proposed): $0.05-0.08 kWh	Minimum 10 MW project
Avoided cost: $0.02-0.04 kWh	Utility scale only; no DG

Figure 1 Notes: VOST is required only for the Community Solar Garden program, which has a 1 MW cap.
Source for estimate of 1 MW viability for VOST: Minnesota Solar Energy Industry Association (MNSEIA) staff.
"Avoided cost plus" was proposed in the recent docket: *In the Matter of Establishing Generic Standards for Utility Tariffs for Interconnection and Operation of Distributed Generation Facilities (March 23, 2018),* Docket No. E-999/CI-01-1023. MINN. STAT. §216B.1611.

The Minnesota VOST, which is currently slightly lower than retail rates, establishes a methodology that the PUC believes is fair to DG producers, other non-DG customers, and utilities.[10] The rate set includes measures avoided costs of a number of metrics. The VOST includes[11]:

- Avoided fuel costs
- Avoided plant operations and maintenance, both fixed and variable
- Avoided generation capacity costs
- Avoided reserve capacity cost
- Avoided transmission capacity cost
- Avoided distribution capacity cost
- Avoided environmental cost
- Avoided voltage control cost
- Solar integration cost

In the decision to require the value of solar tariff to be applied to community solar projects, the PUC stated, "[b]ecause the Value of Solar rate compensates subscribers for the value—and only the value—that their generation brings to Xcel's system, it will address concerns that nonparticipating ratepayers are subsidizing the program."[12] Thus, the position of the PUC is that additional costs to non-DG customers and utility systems need not be compensated for a fair DG tariff. This is because the value of solar tariff "is a rate designed to reflect the value of distributed solar generation to a utility, its customers, and society," as required by Minnesota Statutes §216B.164, subdivision 10(a).

II. Conclusions

First, we observe that there is a spectrum of rates for compensating DG, and at the other end, compensating other customers and utilities for their costs. Revesz and Unel admirably attempt to find the middle ground on this spectrum. I conclude that diverging too far on either end of the spectrum is unacceptable. We do not analyze the research relating to undue costs, which is extensive. In focusing on the rates for DG compensation, we assert that if rates are so low as to prevent development of the DG market by making DG deployment uneconomic and not financeable, this violates the principle that DG is needed as part of our energy transition. In early stage markets for DG, we assume that any cost-shifting that occurs is minimal and that regulatory policies should incent DG development.

Second, the best model we have seen for DG compensation thus far is the value of solar tariff. However, to improve its fairness and rationality, the rate should include locational and temporal factors in energy costs—so that true costs and benefits at different locations, hosting capacity constraints, and production at peak vs. non-peak times are incorporated. The Minnesota PUC has ordered Xcel Energy, beginning with the 2018 value of solar rate, to use location-specific avoided costs in calculating avoided distribution capacity.[13] The PUC's rationale is that part of the benefit of distributed generation derives from its location on the grid; by being located near load, it reduces local peak demand and defers the need for distribution system upgrades. The same kind of methodology should be applied to other distributed generation resources so that it is not just a solar tariff.

We agree with Revesz and Unel's conclusion that a more comprehensive long-term solution is reform of rate design so that rates more clearly reflect costs at times and locations and include price signals for electricity consumers.

Finally, we believe new utility business models are needed to better rationalize the evolving energy system that will include significant amounts of distributed generation. Reforms such as those proposed by the e21 Initiative[14] are critical. Performance-based compensation for utilities would help to reduce their inherent incentive to build more and sell more, and appropriate metrics instead could incent utilities to support DG and customer choices.

10. Colleen Reagan, *State Energy Factsheet: Minnesota,* Bloomberg New Energy Finance (2018), http://www.bcse.org/wp-content/uploads/2018-BCSE-BNEF-Minnesota-Energy-Factsheet.pdf.
11. Benjamin Norris, *Minnesota Value of Solar: Methodology*, Minnesota Department of Commerce, Division of Energy Resources (2014), http://mn.gov/commerce-stat/pdfs/vos-methodology.pdf.
12. *In the Matter of the Petition of Northern States Power Company*, (Sept. 6, 2016), Doc. No. E-002/M-13-867.
13. *Id.* at 14.
14. Rolf Nordstrom, *e12 Phases & Reports*, e12 Initiative (2018), http://e21initiative.org/progress/.

Retail Net Metering: It's Time to Get It Right for All Customers

by Adam Benshoff and Alison Williams

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A profound transformation is underway across the United States, as the way in which energy is produced and used is shifting due to changes in technology, policy, and customer demands. At the center of this great change is the energy grid itself. Electric companies are investing more than $100 billion each year to build the smarter energy infrastructure needed to integrate distributed energy resources of all types (e.g., private or rooftop solar, microgrids, storage) in homes and businesses. Accommodating these devices means that the energy grid must fundamentally shift from the traditional system of one-way power delivery into a dynamic system with two-way power flow between the electric company and its customers.

With the myriad of changes underway in the energy sector, it is more important than ever for the regulatory paradigm—specifically rate design—to keep pace, as Professors Revesz and Unel rightly point out in their article *Managing the Future of the Electricity Grid: Distributed Generation and Net Metering*. Historically, residential retail electricity rates have been designed to recover most of an electric company's total costs of service—primarily driven by infrastructure needs—on the basis of energy consumption, with most of the fixed costs and capacity-related costs rolled into that volumetric charge.[1] This approach no longer works when a customer's use of the energy grid is defined by more than just the amount of electricity he or she purchases. By extension, retail net metering is similarly flawed from a cost-causation standpoint.

In Sections 1 and 2 of our Comment, we highlight various areas of agreement with the authors, while Section 3 focuses on where our views diverge with respect to proposed rate designs and, specifically, the authors' suggested inclusion of speculative and unquantifiable externalities in any compensation analysis. Finally, Section 4 offers important data points to support our position that distributed generation is not the sole—or even the primary—component determining the economic feasibility of clean energy.

I. Retail Net Metering Is a Blunt Policy Tool That Warrants Review by Regulators to Better Ensure Equity and to Support Further Technological Advances

The original intent of net metering, a policy which dates as far back as the early 1980s, was to incent installation of small wind turbines and solar panels at a time when these technologies were prohibitively expensive. These customer programs were small, almost always had participation caps, and were designed around the limitations of analog meters. Net metering was—and remains—a basic billing mechanism whereby customers' electricity meters spin forward when they need power from the electric company and backward when their system generates power. This simplistic system provided enough of a subsidy on the customer side to help jump-start the distributed energy sector.

Fast-forward to today, nearly 40 years after customers first installed distributed energy systems, and the picture is very different. The adoption of digital smart meters—nearly 76 million have been installed in close to half of all U.S. households—enables more precise, economic, and equitable rate designs that could not even be considered a decade ago.[2] Moreover, many distributed generation technologies are now widely deployed—the result of a significant fall in price that has made these technologies affordable to a larger portion of the population. According to the Solar Energy Industries Association, more than one million different solar installations nationwide had been connected to the energy grid as of May 2016.[3] This

1. Rate designs that fully recover fixed costs are needed to ensure that infrastructure costs are shared equitably across all customers that use and rely on the grid. *See* Lisa Wood, *Getting Solar Pricing Right*, Brookings Institute (Sept. 18, 2014), https://www.brookings.edu/articles/getting-solar-pricing-right/.

2. Adam Cooper, Electric Company Smart Meter Deployments: Foundation for a Smart Grid (2016).

3. Andrew Savage, *1 Million Solar Strong, and Growing*, Solar Energy Indus. Ass'n (May 3, 2016), https://www.seia.org/blog/1-million-solar-strong-and-growing.

number, which is surely higher now, is a huge achievement for all involved and a clear marker that net metering—which has long acted as a price-support subsidy—is overdue for reevaluation.

Under traditional retail net metering designs, private solar customers are paid the full retail rate for the power that they export back to the energy grid. This retail rate includes not just the cost of bulk power generation, but also a number of fixed costs associated with delivering the power from the generation source through the energy grid to the customer. As the authors correctly point out: "When net-metered customers are compensated they avoid paying for the costs already incurred for their reliance on grid-delivered electricity and for the demand they place on the grid."[4] A private solar customer's "reliance" on the grid is as great as—if not greater than—that of other residential customers.[5]

In effect, private solar customers avoid paying for the fixed costs associated with maintaining a modern energy grid, and those costs ultimately are borne by customers without private solar systems.[6] This cost shift from net metering has been substantiated in a number of well-regarded studies. One such study in California found that net metering, if left unchanged, would produce an annual net cost of $1.1 billion by 2020.[7]

Beyond just the cost shift, we should explore the deeper inequity often at play—that people who own private solar systems tend to be wealthier than other residential customers. The same California study noted above found that the median income of private solar customers was approximately $90,000 per year—nearly double the state's median income of $54,000 per year. This and other studies indicate that the more affluent private solar customers are being enriched at the expense of lower-income customers.

Acknowledging these facts, policymakers across the country have started evaluating options beyond net metering. The outcomes in multiple states and jurisdictions show that retail net metering is worthy of revision: 17 states already have changed net metering on the grounds that the policy was neither efficient nor equitable.[8] Still, there remains staunch support for maintaining the status quo in some quarters. Surely, we can do better. Now more than ever, it is important to design rates that work for all customers, not just a select group.

II. One Key Problem With Retail Net Metering Is the Underlying Volumetric Retail Rate

Any effort to update net metering must start with the underlying rate design. The authors are correct in positing that "[t]he first-best solution to the problems caused by net metering is to simply correct the inefficiencies in the retail rates."[9] Rate designs that reduce the use of flat volumetric (kWh) charges for recovering the fixed costs of the energy grid are needed to ensure that infrastructure costs are shared equitably across all customers who use and rely on the grid.[10]

The figures on the next page show the difference between the calculated costs of serving a residential customer compared to the way costs are recovered by the electric company. Only a fraction of the calculated costs vary with energy consumption, while almost the entire amount of revenue is collected based on variable energy consumption charges ($/kWh). With the recent increases in the amount of private solar installed in most jurisdictions across the United States, this volumetric rate structure, which is not cost-reflective, is increasingly failing to meet the objectives of good rate design.[11]

The most straightforward approach to cost-based rate design for distribution or grid services is to support rate design with cost-causation by first properly aligning the variable price signals sent by delivery rates with the variable costs imposed by customers' demand of the delivery system.

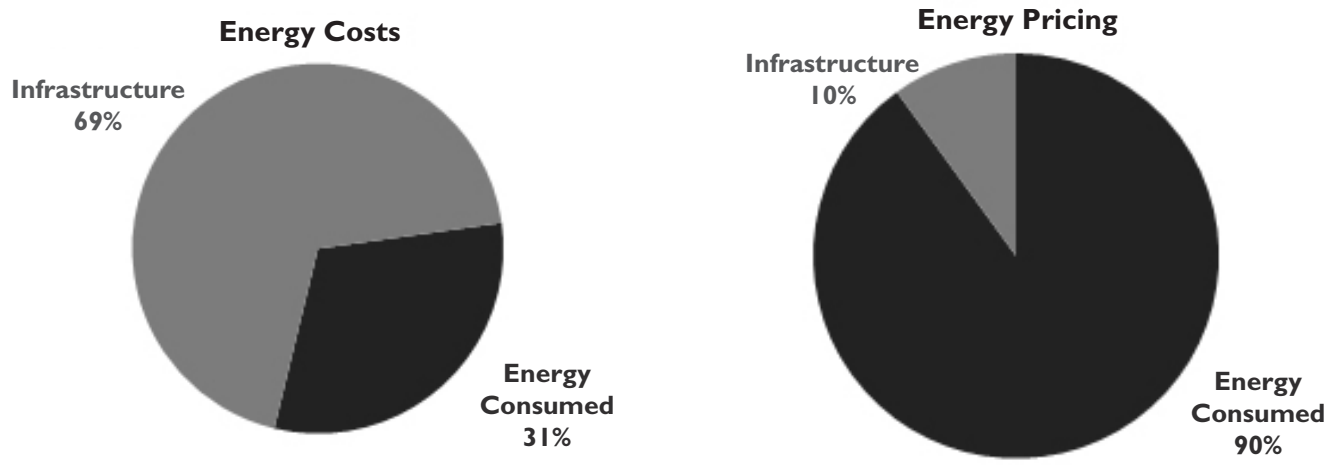
III. Avoided Cost Plus Social Benefit Gets the Equation Half Right

Outside of the needed changes to the underlying rate structure, net metering compensation can be made to reflect costs better, and the authors suggest doing so with an "Avoided Cost Plus Social Benefit" approach that would compensate distributed generation "for societal benefits such as environmental and health benefits while taking into account the additional costs imposed . . . and rewarding distributed generation only for costs it avoids."[12] While this methodology sounds inherently reasonable, it is not the act of only considering avoided costs that is concerning, but the inclusion of what amounts to unquantifiable externalities.

State regulators and the electric companies they regulate always have been charged with designing electric rates

4. Richard L. Revesz & Burcin Unel, *Managing the Future of the Electricity Grid: Distributed Generation and Net Metering* 41 Harv. Envtl. L. Rev. 43, 73 (2017).
5. The services provided by the energy grid to its users are, in fact, of tremendous value, as a new Electric Power Research Institute (EPRI) report shows. EPRI demonstrates that a solar customer that self-produces all its electricity consumption still needs to use the grid to constantly balance generation and demand. *See* Haresh Kamath, *Residential Off-Grid Solar + Storage Systems: A Case Study Comparison of On-Grid and Off-Grid Power for Residential Consumers*, Elec. Power Research Inst. (Aug. 2016).
6. *See, e.g.*, Ca. Pub. Util. Comm'n, California Net Energy Metering Ratepayer Impacts Evaluation (Gabe Petlin & Katie Wu eds., 2013) [hereinafter California Evaluation]; Energy & Envtl. Econ., Inc., Evaluation of Hawaii's Renewable Energy Policy and Procurement (2014); Energy & Envtl. Econ., Inc., Nevada Net Energy Metering Impacts Evaluation (2014).
7. *See* California Evaluation, *supra* note 6, at 6.
8. Autumn Proudlove et al., The 50 States of Solar: Q4 2017 Quarterly Report & 2017 Annual Review (2018).
9. Revesz & Unel, *supra* note 4, at 10.
10. *See* Edison Elec. Inst., 1.0 Primer on Rate Design for Residential Distributed Generation (2016).
11. *See* James C. Bonbright et al., Principles of Public Utility Rates (Albert L. Danielson & David R. Kamerschen eds., 2d ed. 1988).
12. Revesz & Unel, *supra* note 4, at 11.

The Mismatch Between Energy Costs and Energy Pricing: An Illustrative Example From a Representative Investor-Owned Electric Company



Source: Edison Electric Institute, *Primer on Rate Design for Residential Distributed Generation* (Feb. 2016), *available at* http://www.eei.org.

that reflect an electric company's verifiable "booked" costs, promote the efficient use of electricity, and seek equity for all customers, as well as other stakeholders. Historically, this has been accomplished through cost-of-service ratemaking.[13] Even with the rise of distributed generation, traditional cost-of-service ratemaking remains the primary mechanism for protecting customers by basing prospective electric rates on readily observable and verifiable costs. This approach ensures that electricity customers pay rates that cover their costs of service, but no more.[14] Net metering policy likewise should adhere to cost-of-service principles.

Because we must consider the financial impact of net metering on all customers (not just the subset of private solar customers), we *agree* with the authors that the costs and any quantifiable benefits of private solar should be considered in the aggregate and that time and location matter in assessing those benefits. However, we respectfully disagree with what costs and benefits should, and more accurately, can, be included.

A reasonable compensation mechanism could take into account typical avoided cost of energy and capacity[15] and any deferred or avoided transmission and distribution capacity—but only if they are based on specific and verifiable savings. (Calculating avoided transmission and distribution is more art than science, especially on the distribution side.) Any avoided expenses associated with peaking and reserve requirements must be evaluated honestly, as private solar systems usually do not provide energy at times of the system peak. If these systems cannot be relied upon to help meet an electric company's peak demand, the company is required to continue to ensure that adequate capacity is available to serve the needs of customers. This requirement is primarily met through natural gas-based peaker plants. As a result, the authors' claim that "overall emissions decrease when distributed generation reduces the need for the electricity generated from [peaker] plants" does not typically hold true.

Finally, the inclusion of speculative avoided costs or benefits, be they environmental, economic, health-related, or otherwise, is inappropriate because they cannot be quantified in a verifiable way. Even if they could be, this approach is not reflected in the pricing for any other clean energy resource—meaning that inclusion of environmental and social externalities only for private solar would create a perverse incentive for one type of solar over another.

IV. Net Metering Policy, While Important, Is Not the Key in Determining Economic Feasibility of Clean Energy

The authors posit at the start of their article that net metering policy "plays a key role in determining the economic feasibility of clean electricity relative to electricity produced by fossil fuels."[16] While arguably important to the continued evolution of distributed energy, net metering is not the key to determining the feasibility of clean energy more broadly. In fact, almost half of all new electricity generation capacity added in recent years was large-scale renewable energy. America's electric companies provide virtually all of the wind, geothermal, and hydropower in

13. *See* Bonbright et al., *supra* note 11.
14. This is essentially the regulatory compact whereby electric companies accept the obligation to serve and charge regulated cost-based rates, and customers accept limited entry (i.e., loss of choice) for protection from monopoly pricing. The electric company is provided the opportunity to recover its actual legitimate or prudent costs plus a fair return as measured by the cost of obtaining capital in a competitive capital market. *See* Karl McDermott, Cost of Service Regulation in the Investor-Owned Electric Utility Industry (2012).
15. In areas with wholesale markets this could be the energy price; in vertically integrated markets, one proxy option could be a blended price of large-scale (or universal) solar contracts, as recently done in Arizona.
16. Revesz & Unel, *supra* note 4, at 1.

the country and have installed more than 60% of all U.S. solar capacity.

Given the prominence of large-scale renewables and the sizeable investment expected by electric companies—$9 billion per year in solar through 2020[17]—it is reasonable to explore which policies are truly driving renewables development. Richard Schmalensee, MIT Emeritus Professor of Management and Economics, has highlighted this issue from a subsidy perspective:

> Both [utility-scale and private solar] generation bring the same environmental and other benefits per kilowatt-hour of generation, but large-scale solar provides more generation per dollar of subsidy and thus more benefits. It makes no economic sense to give higher subsidies to the less efficient solar technology.[18]

If our collective goal is more zero-carbon energy, then we should prioritize the procurement of solar, wind, and other energy resources in the most economical way possible—that is, large-scale solar, not private solar. If our goal is to provide more options and choices to customers, then let us implement rates that give customers true choices and opportunities to respond to price signals, rather than outdated policies like net metering that only benefit a minority of residential customers.

Surely net metering has played an important role in the story about solar development in the United States. But, as a policy, net metering is the equivalent of looking in the rearview mirror. If we want a dynamic, responsive energy system, then we need to look ahead and toward smart rate designs that do not favor certain customers over others. We need rates that work to the benefit of all customers and their unique energy needs. Finally, we need rates that appropriately value investment in the energy grid to ensure that the energy system is reliable, affordable, increasingly clean, and secure for all.

17. Maria Hoeven, World Energy Investment Outlook, Int'l Energy Agency 162 (2014), https://www.iea.org/publications/freepublications/publication/WEIO2014.pdf.
18. Richard Schmalensee, *Maine Public Utilities Commission Proposed Rule on Customer Net Energy Billing, Re: Docket No. 2016-00222* (Oct. 2016).

A R T I C L E

Relative Administrability, Conservatives, and Environmental Regulatory Reform

Blake Hudson

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I. Introduction

Perhaps three things in life are now certain: death, taxes, and federal environmental regulation. While the nation has made great progress on a number of environmental fronts, the size and cost of the federal environmental regulatory bureaucracy have come under sharp criticism. Some argue that the federal government is doing too little and needs to do more,[1] while others frame federal environmental law as too big, too costly, too intrusive, and too restrictive. If one accepts these criticisms, then the question becomes: what is a better way?

One alternative policy approach—long available, but underutilized—is based on the straightforward governmental use of line drawing (also known as "geographic delineations"). These policies include the creation of development buffer zones as well as urban growth boundaries and density/open-space controls that may be utilized to protect air, water, biodiversity, and other resources targeted by federal environmental laws. Geographic delineation policies, for instance, prohibit certain development densities on one side of a line but not the other, allow individuals to only cut trees up to X feet from a watershed, or compel developers to integrate X acreage of open space into a commercial development.

As discussed below, these policies have very low administrative costs relative to current federal environmental statutes, which consume vast amounts of economic, human, and temporal resources. In this way, these policies have what we can call high "relative administrability." Even so, geographic delineation policies remain largely unutilized. The question is: why? One important reason is the failure of conservative policymakers and commentators to accept that prescriptive line-drawing policies actually support a number of principles valued by conservatives. In fact, geographic delineations offer great promise as policies that many, if not most, environmentalists would support but that would also provide more efficient environmental management from a conservative perspective—at least more efficient than relying predominantly on expansive federal control like we do today.

II. Relative Administrability in Environmental Law

Despite the wealth of criticism of federal environmental law, many of the suggestions proffered to date have arguably been too polarized in form. Scholars who dislike federal governance simply want environmental regulations to be rolled back and devolved to state and local governments,[2] while scholars in favor of federal environmental governance want more of it.[3] There is a middle ground, however—geographic delineations implemented primarily through state and local government land use law, supplemented by federal laws that fill gaps. Given its long-

This Article is adapted from Blake Hudson, *Relative Administrability, Conservatives, and Environmental Regulatory Reform,* 68 Fla. L. Rev. 1661 (2016)*, and is reprinted with permission. Mr. Hudson presented this Article at Vanderbilt University Law School on March 12, 2018. Although written comments were not produced, the discussion included oral comments from Michael Butler, CEO of the Tennessee Wildlife Federation; Robert Martineu, Commissioner of the Tennessee Department of Environment and Conservation; and Greer Tidwell, Director of Environmental Management for Bridgestone Americas.*

1. *See* David W. Case, *The Lost Generation: Environmental Regulatory Reform in the Era of Congressional Abdication*, 25 Duke Envtl. L. & Pol'y F. 49, 53 (2014).

2. *See, e.g.*, Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. Rev. 1210, 1211-13 (1992).

3. *See, e.g.*, Dan L. Gildor, *Preserving the Priceless: A Constitutional Amendment to Empower Congress to Preserve, Protect, and Promote the Environment*, 32 Ecology L.Q. 821, 823 (2005).

standing status as one of the first forms of environmental law in the United States, land use planning can be a powerful tool for addressing the problems that Congress attempts to remedy through environmental laws like the Clean Air Act (CAA), the Clean Water Act (CWA), and the Endangered Species Act (ESA)—but only if land use planning efforts can be holistically implemented in a coordinated manner across states.

More specifically, this Article focuses on one critique of federal environmental law arising from conservative circles—the administrability of federal government programs—and contends that geographic delineations can resolve or at least mollify much of the complexity commonly found in federal environmental law. While geographic delineations require political will and transaction costs for gathering information on where to place the lines, once the lines are delineated, they form the basis for relatively easy-to-administer policies. Not only do parties have a clear directive on what they can and cannot do, but enforcement of a line simply involves an assessment of whether the proscribed activity takes place on one side of the line or the other. In this way, perhaps the biggest advantage of lines is their utility as a proxy for many of the environmental ills that complex federal statutes seek to address.

The following subsections highlight a number of geographic delineation policies. With higher relative administrability, these line-drawing policies answer the call for environmental regulatory reform—particularly from the conservative critic perspective—as well as tackle many environmental problems that currently appear intractable.

A. *Needed Environmental Policies With High Relative Administrability*

To protect environmental resources, lines may be drawn either around specific resources to prevent their degradation (environmental buffers) or around development negatively impacting resources society wants to protect as a general matter (growth boundaries/density restrictions).

1. Environmental Buffers

Environmental buffers create a zone between natural resources and development activities. This subsection details several of these policies, describing their benefits and how each has high relative administrability.

a. Forest Riparian Buffers

Riparian buffer zones in forested watersheds provide a number of environmental benefits related to preventing nonpoint source water pollution, regulation of stream temperatures, prevention of erosion, protection of harvestable timber, reduction of downstream flooding, and water retention for groundwater filtration and recharge, among other ecosystem services.[4] Examples of riparian buffer zone policies include prescribing that no timber extraction activities take place within 35 feet of a flowing waterway, or that only 50% of the tree canopy density can be removed from the area within 35 feet of the waterway.

The environmental (and economic) benefits of moving toward a holistic use of riparian buffer zones nationally are clear.[5] In addition to the benefits outlined above, several cobenefits related to the goals of federal environmental laws are preserved. The aggregated effect of preserving forest cover along watersheds leaves climate- and pollutant-regulating forest cover in place (CAA), helps maintain habitat corridors for species (ESA), and improves water quality (CWA).[6] But unlike with federal laws, the administration of riparian buffer zones is a straightforward endeavor; once the rule is put into place, program administration is not complicated—effective enforcement can be accomplished through the use of limited human capital (a single pilot of a helicopter), technology (a drone; the use of satellite data and GPS coordinates), and straightforward communication (mailing violators notice of a fine).[7]

b. Agricultural Riparian Buffers

Agricultural buffer zones capture many of the same environmental benefits as forest riparian buffers but are largely aimed at ameliorating problems unique to agricultural production—namely, the use of fertilizers and other nutrients for agricultural crops. Agricultural buffer zones are particularly needed considering that nonpoint source water pollution is the number one threat to the nation's waterways, and agriculture is a leading contributor.[8] Moreover, the federal government does not regulate most types of agricultural pollution under the CWA, and states in turn are doing very little, if anything, to address this problem.

Consider a farmer's use of a nutrient-greedy alfalfa buffer around the perimeter of an agricultural field,[9] dramatically

4. *See* Constance L. McDermott et al., Global Environmental Forest Policies 15 (2010).
5. *See* Phyllis Bongard & Gary Wyatt, Benefits of Riparian Forest Buffers (2010), http://www.extension.umn.edu/environment/agroforestry/riparian-forest-buffers-series/benefits-of-riparian-forest-buffers/doc/riparian-benefits.pdf; Julia C. Klapproth & James E. Johnson, Understanding the Science Behind Riparian Forest Buffers: Effects on Water Quality (2009), http://pubs.ext.vt.edu/420/420-151/420-151.html.
6. *See* Bongard & Wyatt, *supra* note 5; Klapproth & Johnson, s*upra* note 5.
7. *See* David James, *The Fourth Amendment, Future Methods of Environmental Enforcement, and Warrantless Inspections*, 33 Rev. Litig. 183, 203-04, 204 n.86 (2014); U.S. Forest Serv., *Unmanned Aircraft Systems*, U.S.D.A., https://www.fs.fed.us/science-technology/fire/unmanned-aircraft-systems.
8. *See* U.S. Envtl. Protection Agency, Nonpoint Source Pollution: The Nation's Largest Water Quality Problem (1996), https://nepis.epa.gov/Exe/ZyPDF.cgi/20004PZG.PDF?Dockey=20004PZG.PDF; Jonathan Cannon, *A Bargain for Clean Water*, 17 N.Y.U. Envtl. L.J. 608, 616 (2008) ("Unregulated nonpoint source pollution is solely responsible for failure of 30 to 50 percent of U.S. waterbodies to meet water quality standards and is a contributing factor in an even larger percentage."); *Nonpoint Source: Agriculture*, U.S. Envtl. Protection Agency, https://www.epa.gov/polluted-runoff-nonpoint-source-pollution/nonpoint-source-agriculture.
9. *See* John D. Sutter, *Minnesota Farmer Battles Gulf "Dead Zone,"* CNN (Mar. 3, 2018, 3:47 PM), http://www.cnn.com/2010/TECH/innovation/08/30/gulf.dead.zone.minnesota.farm/index.html.

reducing nutrient runoff into adjacent watersheds. This is a simple line-drawing exercise. The aggregated effects of farmers planting such buffers around their farms or leaving other types of buffer strips (such as forested buffer strips) to reduce the number of nutrients entering waterways would have a profound effect on watersheds.[10] Once the size and scope of agricultural buffer zones are established, as with forest riparian buffers, implementation again requires little human or economic capital to implement.

c. Future Coastline Buffers

Geographic delineations can also be a useful way to adapt to impending changes on the coast wrought by climate change, particularly sea-level rise. Over the last century, rapid development of the coast has replaced much of the natural capital—such as coastal wetlands[11]—that previously protected coastal populations from the increasing threat of sea-level rise. But when an adequate buffer is in place, the overland flow of storm surge can be slowed down by or stored in healthy marshes and forests.[12] Consequently, buffers will be increasingly important in the future, especially as sea levels rise at an accelerated rate.[13]

Creating coastal buffer zones through line drawing is a climate change adaptation policy, seeking "to adjust the built and social environment to minimize the negative outcomes of now-unavoidable climate change."[14] Adaptation in the coastal zone includes reining in human development to, first, remove the populace from lands likely to be lost and, second, provide more natural land to act as a buffer between rising seas and future human habitations that have moved farther inland. Geographic delineations in the coastal zone would foster both types of adaptation policies. In particular, preventing the development of *new* settlements in areas either likely to be lost or needed in the future to buffer settlements farther inland is a relatively cheap and practical approach to adapting to coastal land loss.[15]

d. Flood Zone Prohibitions

The National Flood Insurance Program (NFIP)[16] subsidizes the insurance of property owners who live in high-risk areas—primarily in designated "100-year" floodplains.[17] The program has no doubt resulted in a great deal of economic gain, as it has allowed development to expand into areas where it would likely have been economically infeasible. But at what cost? While the program predicates eligibility on some level of local land use planning to mitigate flood risk,[18] it has exacerbated development in high-risk areas. Moreover, the development of floodplains removes natural resources that would otherwise act as buffers to protect social systems and that are crucial to water quality, species habitat, carbon sequestration processes, and overall ecosystem functionality.[19] An additional problem is how the lines for flood zones are currently drawn, which may or may not be supported by the best available data and science.[20]

Nonetheless, harnessing geographic delineations can assist in better land use planning going forward—planning that both better preserves natural capital in high-risk areas like floodplains and helps society adjust to looming new threats like sea-level rise. More specifically, better line drawing can assist in pinpointing evolving flood risk in floodplains, providing better certainty for what remains of NFIP over time. Line drawing can also be used to prohibit development in previously undeveloped (but risky) areas or in areas where development has already been destroyed by disaster events. In addition to greater administrative simplicity, these line-drawing exercises also reduce taxpayer expenditures on the front end through the reduction of subsidized insurance rates and on the back end through fewer disaster relief expenditures.

2. Growth Boundaries/Density Restrictions

Probably the most politically controversial types of geographic delineations described in this piece are urban growth boundaries and other development-density requirements (referred to collectively as "growth boundaries"). While each of the buffers described above is linked to a particular resource (forests, agricultural lands, water, coasts), growth boundaries protect the environment outside of a boundary without reference to any particular resource and are applicable to all types of development and land uses.[21]

Growth boundaries might be seen as a more holistic policy than mere buffers. Most importantly, growth boundaries are not aimed at treating the symptoms of human development activities—the pollution and resource-scarcity problems at which most federal environmental laws are

10. *Id.*
11. *NOAA Analysis Reveals Significant Land Cover Changes in U.S. Coastal Regions,* Nat'l Oceanic & Atmospheric Admin. (Aug. 18, 2014), http://www.noaanews.noaa.gov/stories2014/20140818_landcover.html.
12. Coastal La. Ecosystem Assessment & Restoration, Reducing Flood Damage in Coastal Louisiana: Communities, Culture & Commerce 2 (2006), http://ian.umces.edu/pdfs/ian_newsletter_13.pdf.
13. Josh Eagle, Coastal Law 27 (2011); U.S. Climate Change Sci. Program, Subcomm. on Glob. Change Research, Coastal Sensitivity to Sea-Level Rise: A Focus on the Mid-Atlantic Region 177 (2009), https://downloads.globalchange.gov/sap/sap4-1/sap4-1-final-report-all.pdf.
14. Elisabeth M. Hamin & Nicole Gurran, *Urban Form and Climate Change: Balancing Adaptation and Mitigation in the U.S. and Australia*, 33 Habitat Int'l 238, 238 (2009).
15. Gordon McGranahan et al., *The Rising Tide: Assessing the Risks of Climate Change and Human Settlements in Low Elevation Coastal Zones*, 19 Env't & Urbanization 17, 21 (2007).
16. 42 U.S.C. §§ 4001-4129 (2012).
17. Laurel Adams, *Government-Subsidized Flood Insurance Premiums Are About Half of Full-Risk Price*, Pub. Integrity, https://www.publicintegrity.org/2011/06/23/5006/government-subsidized-flood-insurance-premiums-are-about-half-full-risk-price.
18. Patricia E. Salkin, *The Quiet Revolution and Land Use*, 45 J. Marshall L. Rev. 253, 274 (2012).
19. *Functions and Values of Wetlands*, Wash. St. Dep't Ecology, https://ecology.wa.gov/Water-Shorelines/Wetlands/Education-training/Functions-values-of-wetlands.
20. Michael Keller et al., *Outdated and Unreliable: FEMA's Faulty Flood Maps Put Homeowners at Risk*, Bloomberg, https://www.bloomberg.com/graphics/2017-fema-faulty-flood-maps/.
21. *See* Ecotrust, *Reliable Prosperity*, YouTube (Jan. 8, 2010), https://www.youtube.com/watch?v=9qZ_HRobCEA.

aimed—but instead attack the *drivers* of these problems, which ultimately result from the replacement of the natural environment with the human-built environment. In this way, growth boundaries act as a precautionary proxy, internalizing externalities by forcing a more efficient use of developed space so that natural resources are impacted as little as possible.

Interestingly, urban growth boundaries have perhaps the highest potential to achieve the greatest environmental gain at the lowest overall administrative cost to the U.S. citizenry. Undoubtedly, growth boundaries present high upfront costs—both political costs due to interest group pressures and transaction costs as governments determine where the boundaries should be placed. They also present distributional costs, as the price of housing inside a boundary may increase (though this is arguably a consequence of their sparse implementation across jurisdictions "competing" for citizens). But once in place, markets can work freely within or without the boundary and according to its strictures, and the environmental benefits are integrated into the system without the need to reference specific environmental targets.

Growth boundaries may include urban limit lines, which effectively draw lines around a municipality and require reduced development densities outside each line. But the types of lines need not be limited to urban limit lines. Lines may be incorporated into individual projects to adjust density to better integrate environmental resources and services into development. Building big box retailers *up* on fifty acres, with parking underneath, while setting aside another fifty acres for green space, provides an example.[22] These are fairly simple requirements to place upon development. Once developers integrate lines, those buffers are fixed and need little continued administration.

To be sure, current urban growth boundary policies are not without their critics or their flaws.[23] Ultimately, however, utilizing growth boundary policies to protect resources like the nation's forests and wetlands from urban sprawl furthers air quality gains, regulates climate through carbon sequestration, and reduces energy consumption, all goals of the CAA. Guarding these resources from the negative effects of development also protects biodiversity (ESA) and water quality (CWA).

III. A Conservative Vision of Environmental Regulatory Reform—Balancing Principles

Conservative critics calling for regulatory reform have claimed to support the ends of environmental protection, but are critical of federal bureaucracy as the means of achieving that protection.[24] As a result, the arguments put forth in this Article assume that conservative critics are not wholesale opposed to regulatory controls, but rather prefer state and local governments to be the locus of any prescriptive environmental policy making.[25]

Section III.B below argues that the geographic delineations described in this Article are largely consistent with the general preferences of conservatives most relevant to environmental policymaking, though to varying extents. Before turning to that analysis, however, section III.A details how certain institutional and political impediments have caused conservatives to overlook geographic delineations at the state and local level as policies consistent with their political philosophy.

A. *Impediments*

The impediments to conservatives supporting geographic delineations include federalism and prevailing legal conceptions of private property rights. Though it is important to provide context for these roadblocks, keep in mind that this Article is focused primarily on the administrability of environmental policies and the relative advantages of line-based policies. It thus leaves out a thorough assessment of the political feasibility of enacting these policies—in fact the Article is attempting to lay a foundation of argumentation that would assist in making these policies more politically palpable. Still, elements of politics are nonetheless relevant and so will be discussed in a narrow context below.

1. Property Theory and Regulatory Takings Doctrine

American property law has been influenced by the labor theory of property perhaps more than any other theory. The labor theory effectively justifies property ownership by awarding property rights to members of society that cultivate or make economically productive use of land.[26] Significantly, this account drives the jurisprudential development of legal concepts like the regulatory takings doctrine, which has come to effectively equate a regulation restricting the development of land beyond a certain threshold with the physical appropriation of that land.[27] However, the idea of limiting development or cultivation of land outside certain boundaries is often seen as antithetical to this theory.

What is lost in the predominant views of property theory and regulatory takings is that sometimes the most productive use of land for society as a whole is to leave it in its natural state. Preservation of a stable society—one that flourishes

22. *See* Patricia E. Salkin, *Supersizing Small Town America: Using Regionalism to Right-Size Big Box Retail*, 6 Vt. J. Envtl. L. 48, 55 (2005).
23. *See generally* L. Anders Sandberg et al., The Oak Ridges Moraine Battles (2013); Peter A. Walker & Patrick T. Hurley, Planning Paradise (2011).
24. *See* Jonathan H. Adler, *Conservative Principles for Environmental Reform*, 23 Duke Envtl. L. & Pol'y F. 253, 254-55 (2013).
25. *Id.* at 280. These critics may reject prescriptive regulation altogether, believing markets are more suitable and adaptable to providing environmental benefits.
26. Paul Goldstein & Barton H. Thompson, Jr., Property Law: Ownership, Use, and Conservation, 22-23 (2006).
27. Peter Gerhart, Property Law and Social Morality 262-65 (2014).

within a stable environment—should be a core principle of conservative thought, as should preserving option values for the future. Social conservatives argue for the consideration of future generations in many social debates, such as abortion, so how much more so should they care about future generations impacted by today's resource use?

Nonetheless, in some circles being "conservative" has morphed into merely "conserving one's personal financial resources." Consider the complicity of state and local governments in attempting to capture short-term economic gains (i.e., an increased tax base), despite long-term human and economic costs, because they fail to engage in more responsible, environmentally conscious land use planning. This is nothing if not a shortsighted concern over capturing short-term economic benefits and economic return from individual property ownership at the expense of long-term environmental and economic well-being.

This is a political dimension of the property theory impediment that exacerbates and impedes the use of geographic delineations to achieve many other goals that are in the wheelhouse of conservative thought. But given the high economic costs of degraded ecosystems, the expanding federal regulatory bureaucracy aimed at checking that degradation, and the reduced wealth of future generations if that degradation is not checked,[28] many conservatives seem to be grasping at conventional wisdom that does not match the foundations of conservative ideology.

2. Federalism

Federalism is another impediment to the adoption of geographic delineations at the state and local level. Land use regulation of the kind required for line drawing has long been considered a state and local government regulatory role. This poses a complication—states remain reluctant to use more robust geographic delineation policies and the federal government may maintain (or perceive that it maintains) little to no legal authority to require them do so (or to set such standards itself). While some local governments may be reluctant to use growth-boundary and other land use policies, others may be impeded by state government preemption—another wrinkle arising out of federalism.[29]

Consequently, any successful environmental reform efforts must not only overcome federalism complications, but must also balance the relative advantages provided by local, state, and federal governance. Because the states are the locus of regulatory authority over land use,[30] from an environmental-outcome perspective, states should not only allow local governments to curb urban sprawl but should actually mandate sprawl controls. Even though local governments have historically controlled land use, in the environmental context this authority should shift back to the states for "extralocal" issues like environmental protection.[31]

Accordingly, this Article argues it is time that states provide some very basic mandates to local governments to preserve the land base itself and associated natural resources. These mandates would be that local governments must use lines to achieve a certain degree of protection—there would still be autonomy and control at the local level about where to put the lines and how development proceeds on the correct side of the line. States can no longer use federalism as an excuse to do nothing, but must harness the benefits of federalism to significantly displace the federal government's role in environmental protection if they want to truly reduce the federal bureaucracy of which conservatives are so critical.

B. *Conservative Principles and Geographic Delineations*

One conservative critic of federal environmental law has noted that while conservatives have increasingly opposed the current structure of environmental law, they offer few alternatives for protecting the environment.[32] So here is an alternative plan: be more stringent with land use planning at the state and local level, and the need for federal intervention will be lessened. With that plan in mind, the below subsections highlight nine general principles of conservatism and assess whether and how each is consistent with the use of geographic delineations as a means of environmental reform. These principles are informed by and supplement the five strands of conservative philosophy influencing conservative environmental policymaking, as outlined by Prof. Barton H. "Buzz" Thompson, Jr.[33]

1. State and Local Policymaking Over Federal Policymaking

Geographic delineations exercised by state and local governments are most obviously consistent with this principle of conservatism. State and local governments already maintain clear constitutional authority to engage in this type of policymaking, and they have long maintained the regulatory tools necessary to achieve geographic delineation policies, primarily through zoning. All that remains is forging the political will to do so, for which the active participation of conservative policy makers is crucial. Conservative commentators should support geographic delineations as a legitimate means of environmental regulatory

28. Studies have demonstrated that when the costs associated with the loss of natural resources are actually taken into account, nations may sacrifice up to half of their future income to achieve current rates of economic growth. David Hunter et al., International Environmental Law and Policy 132-33 (4th ed. 2011).
29. *See* Blake Hudson & Jonathan Rosenbloom, *Uncommon Approaches to Commons Problems: Nested Governance Commons and Climate Change*, 64 Hastings L.J. 1273, 1308-12 (2013).
30. Salkin, *supra* note 18, at 257.
31. *See* Sara C. Bronin, *The Quiet Revolution Revived: Sustainable Design, Land Use Regulation, and the States*, 93 Minn. L. Rev. 231, 257 (2008).
32. Adler, *supra* note 24, at 258.
33. *See* Barton H. Thompson, Jr., *Conservative Environmental Thought: The Bush Administration and Environmental Policy*, 32 Ecology L.Q. 307, 312 (2005).

reform because they preserve the principle of state and local governance as the preferred locus of policymaking.

2. Smaller Government Over Larger Government

Geographic delineation policies implemented by local governments are administered by government regulators that are individually smaller in form, closer to the people whom they govern, and less self-perpetuating and administratively complex. While some may consider the prescriptive nature of policies and the restrictions they place on individual freedom as the metrics by which we should measure "large" versus "small" government, another perspective is that the democratic process manifests more readily through having smaller-scale governments engage in policymaking within smaller regions. It also may be that most people consider the burdensomeness of policy administration when they think of "large" versus "small" government. Governments implementing geographic delineations are "smaller" in the sense that the administrative complexities of the policies they implement are reduced. If "large" government is measured, rather, by its intrusiveness into the behavior of regulated entities, then state and local geographic delineation policies are also not as large as federal policies. Local governments would not be dictating which activities take place and how, only where they may take place. The rest is up to the parties operating under the regulatory regime.

3. Lower Taxes Over Higher Taxes

Geographic delineations do not extract money directly from property owners or the general populace. An obvious rebuttal to this argument might be that the practical effect is the same when, for example, an urban growth boundary causes the value of property outside the line to drop. Yet property investments are speculative endeavors in the first instance. A holistic use of geographic delineations will provide certainty in the market from the point at which the geographic delineation is established and into the future. Limiting speculative values not currently part of a property owner's cash flow is different entirely from extracting funds from their bank account to implement costly policies.

Geographic delineations also more fairly place the cost of avoiding harm on those most likely to be doing the harm. If Alabama maintains poor land use policies, which cause the state to have more species on the federal endangered species list than almost any other state,[34] why should federal taxpayers in Oregon have to foot the bill to address Alabama species' survival?

4. Clear, Simple Rules Over Complex Rules and Regulatory Discretion

Geographic delineations provide clear and simple rules that create certainty for regulated entities as well as stability in the markets that conservatives want to foster. Once a line is placed, the market can work without interference. Contrast these clear rules with the great degree of discretion afforded federal regulatory agencies in implementing often ambiguous statutory language.

Obviously, there remains a degree of flexibility in establishing geographic delineations. What was once an appropriate place to draw a boundary may no longer be so at some point in the future. And exceptions may be needed regarding particular projects of special interest to society. Thus, the land is not locked up forever, but once the boundary is set it is a far clearer and simpler policy under which to operate than being subject to agency discretion in developing and implementing complex regulations that, in their own right, do not arise out of clear legislative directives or provide clear and straightforward mandates.

5. Conservation for the Utility It Provides to Humans Over Conservation for Its Own Sake

Generally speaking, it seems likely that conservatives for whom the environment is *not* at the forefront of their minds are more likely to be utilitarian in their view of why resources should be protected. The stereotypical conservative cares about the environment for what it can do for her. But the growing field of ecosystem services[35] makes clear that even if one takes this utilitarian perspective, more stringent conservation approaches are needed—in particular, geographic delineations that keep vast swaths of the landscape intact. For example, biodiversity provides utility to humans in the form of medication.[36] If a conservative does not care about a species for the species' sake, perhaps they would be more inclined to take precautionary measures to protect habitat to protect the species that may be studied in the future and yield a cure for cancer. The mere option value of reserving the right to discover such species should be appealing to someone identifying with virtually any strand of conservatism. Similarly, the utility of preserving a wetland rather than paving it and building a detention pond that must be constructed and maintained with taxpayer expenditures should appeal to conservative values.

6. Legislative Process Over Executive Process

Many of the critiques of federal environmental law are in part concerned about a perceived lack of democratic

34. Russell McLendon, *Which U.S. States Have the Most Endangered Species?*, Mother Nature Network (Sept. 21, 2015, 11:50 AM), http://www.mnn.com/earth-matters/wilderness-resources/blogs/which-us-states-have-the-most-endangered-species#ixzz3j8fLuMii.

35. James Rasband et al., Natural Resources Law and Policy 336 (2d ed. 2009).

36. Anthony Artuso et al., Biodiversity and Human Health 3-4 (Francesca Grifo & Joshua Rosenthal eds., 1997).

process when unelected federal agency officials mandate environmental regulations. Even though they are implementing a federal statute, those statutes are all too often ambiguous and give the agency a great deal of discretion. In contrast, local land use regulations are as close as you can get to citizens regulating themselves through direct legislative means. Certainly, there is executive administration at the local level as well as the risk of capture by regulated entities. But overall, state and local authority may provide a more precise representation of democracy that tends to raise less skepticism among conservatives. While state and local governments may—very democratically—choose to do nothing, the question is how to provide an alternative to the arguably less democratic federal administrative bureaucracy. Local land use policy implementing geographic delineations is the best alternative for conservatives, and they would be wise not to allow the perfect to be the enemy of the good.

7. Markets Over Regulatory Prescriptions

At first blush it may seem that geographic delineations are not consistent with this principle of conservatism, because geographic delineations are clearly a form of prescriptive regulation. But geographic delineations merely create a boundary, making clear what activities can or cannot take place on particular sides of the line. Within those bounds the market may work freely as long as it takes into account the basic and straightforward requirements of the policy. This is very different from prescriptive regulation arising out of complex federal dictates that delve into the regulated entity's affairs, which can have a much more restrictive effect on the actor's participation within the market.

8. Compensation for Restraints on Property Rights Over the Provision of Uncompensated Public Benefits

This principle of conservatism—embodied by regulatory takings law—is at odds with the use of geographic delineation policies. And yet, even under current regulatory takings doctrine, one would be hard-pressed to succeed on a takings claim for restrictions on the consumption of natural resources on one's property because such restrictions generally leave property with other economic value and allow it to be utilized for other purposes. Nonetheless, the notion that property owners should be compensated for such restrictions makes geographic delineation policies politically difficult to implement. Even so, uncompensated restrictions on private property actually occur quite frequently, and even the staunchest property rights advocate must admit that the question really becomes where to draw the line. Nuisance law provides an example, where uncompensated restrictions arise to avoid harm to the broader public. The same may be said about land use restrictions designed to forestall the harm that habitat fragmentation foists on the public and on future generations.

9. Cost-Benefit Analysis Over Precautionary Rulemaking

This principle of conservatism may also seem at odds with the use of geographic delineations. Boundaries are clearly aimed at taking a precautionary approach to the drivers of environmental problems. Cost-benefit analysis, on the other hand, seeks to place hard numbers on the economic burdens resulting from a regulation relative to its economic benefits. But a major flaw of cost-benefit analysis is that the short-term economic costs of forgoing development activities are readily calculable, while the aggregated costs of forgoing protection of particular isolated natural resources over time are largely unquantifiable. It is not surprising, then, that a traditional form of cost-benefit analysis will most often lead to a decision to develop a particular parcel of land. But this is the very reason the ESA, for example, has grown unwieldy, complex, and costly. Though some economic benefit undoubtedly occurred from development activities that took place, the cost of remedying the environmental harms that later emerge through federal legislation may be far greater. For this reason, conservatives would be wise to preserve the option value of future generations, so that those generations can utilize resources to the same extent that we utilize them today.

IV. Conclusion

This Article puts forth three primary propositions: there is great purchase to calls for federal environmental regulatory reform; geographic delineation policies have a high degree of relative administrability when compared to federal environmental laws, which answers the call from critics for a means of protecting the environment at less cost and with less centralized bureaucracy; and geographic delineation policies at the state and local level are quite consistent with a number of important conservative principles.

If society is to achieve meaningful environmental regulatory reform, we need members of all political ideologies to get on board. Using geographic delineations at the state and local level more efficiently attacks the drivers of the problems that federal environmental statutes seek to address and therefore secures for conservatives a number of principles they value. If state and local governments (and conservative policymakers) do not fill this role, then they have no grounds to argue against federal intervention seeking to remedy the environmental ills that they are facilitating. Society will need to enlist the support of conservatives in addressing continued environmental degradation if it is to conserve for future generations the robust environmental systems that laid a foundation for today's wealth, prosperity, and societal well-being.

Hybridizing Law: A Policy for Hybridization Under the Endangered Species Act

by John A. Erwin

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For centuries, hybridization was a poorly understood process thought to be a threat to endangered species. With the advent of genomic technologies, those views are starting to change; hybridization is now recognized as vital for the formation and continued persistence of many species. However, our current system of protection under the Endangered Species Act (ESA) fails to take many of the modern nuances of evolutionary biology into consideration. Despite calls for an explicit "hybrid policy" since the early 1990s, the U.S. Fish and Wildlife Service and National Marine Fisheries Service have instead chosen to apply a case-by-case approach with no guidance or overarching policy. With the new technologies, many species we are currently protecting could technically be unsuitable for protection based on a rigid interpretation of the ESA. A defined hybrid policy must be adopted, taking into consideration the twin aims of protecting genetic lineages and protecting ecosystems.

This abstract is adapted from John Erwin, *Hybridizing Law: A Policy for Hybridization Under the Endangered Species Act*, 47 ELR 10615 (July 2017)*, and is reprinted with permission.*

Precautionary Federalism and the Sharing Economy

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The rise of the sharing economy exposes cracks in legislative and regulatory regimes designed with a different vision of the economy in mind. To date, scholars and policymakers have focused primarily on whether and how the government should regulate the sharing economy—that is, on what form, if any, regulation should take. This Article focuses on a logically antecedent question—who should decide. Using the potentially significant, yet uncertain, environmental impacts of Uber and Lyft as a case study, this Article argues that regulatory authority should be allocated according to the principle of precautionary federalism. Just as the precautionary principle tells us that regulation can proceed in the face of uncertainty about significant environmental, health, or safety risks, precautionary federalism embodies a default presumption in favor of multiple regulatory voices, and against broad exercises of preemption under such conditions. The presumption must be weighed against values favoring uniformity, taking into account trade offs across different kinds of risks. And precautionary federalism is time-bound—it acknowledges that greater certainty about impacts may warrant a shift from one allocation of authority to another. This precautionary approach can serve an information-forcing function about the significance of uncertain impacts, and offers the best way to achieve the kind of rules called for by the precautionary principle.

This abstract is reprinted from Sarah E. Light, *Precautionary Federalism and the Sharing Economy,* 66 Emory L.J. 333 (2017), *and is reprinted with permission.*

RECENT DEVELOPMENTS

In the Congress

"In the Congress" entries cover activities reported in the *Congressional Record* from June 1, 2018, through June 30, 2018. Entries are arranged by bill number, with Senate bills listed first. "In the Congress" covers all environment-related bills that are introduced, reported out of committee, passed by either house, or signed by the president. "In the Congress" also covers all environmental treaties ratified by the Senate. This material is updated monthly. For archived materials, visit http://elr.info/legislative/congressional-update/archive.

Public Laws

H.R. 1397 (land use), which authorizes, directs, facilitates, and expedites the transfer of administrative jurisdiction of certain federal land, was signed into law by President Trump on June 22, 2018. Pub. L. No. 115-190, 164 Cong. Rec. D698 (daily ed. June 25, 2018).

H.R. 1719 (land use), which authorizes the Secretary of the Interior to acquire approximately 44 acres of land in Martinez, California, for inclusion in the John Muir National Historic Site, was signed into law by President Trump on June 22, 2018. Pub. L. No. 115-191, 164 Cong. Rec. D698 (daily ed. June 25, 2018).

Chamber Action

S. 724 (energy), which would amend the Federal Power Act to modernize authorizations for necessary hydropower approvals, was passed by the Senate. 164 Cong. Rec. S4809 (daily ed. June 28, 2018).

H.R. 2 (land use), which would provide for the reform and continuation of agricultural and other programs of USDA through fiscal year 2023, was passed by the Senate. 164 Cong. Rec. S4709 (daily ed. June 28, 2018).

H.R. 2 (land use), which would provide for the reform and continuation of agricultural and other programs of USDA through fiscal year 2023, was passed by the House. 164 Cong. Rec. H5447 (daily ed. June 21, 2018).

H.R. 8 (water), which would provide for improvements to the rivers and harbors of the United States and provide for the conservation and development of water and related resources, was passed by the House. 164 Cong. Rec. H4798 (daily ed. June 6, 2018).

H.R. 88 (land use), which would modify the boundary of the Shiloh National Military Park located in Tennessee and Mississippi to establish Parker's Crossroads Battlefield as an affiliated area of the National Park System, was passed by the Senate. 164 Cong. Rec. S3263, S3265 (daily ed. June 6, 2018).

H.R. 857 (land use), which would provide for conservation and enhanced recreation activities in the California Desert Conservation Area, was passed by the House. 164 Cong. Rec. H5594 (daily ed. June 25, 2018).

H.R. 1029 (toxic substances), which would amend FIFRA to improve pesticide registration and other activities under the Act, and extend and modify fee authorities, was passed by the Senate. 164 Cong. Rec. S4771 (daily ed. June 28, 2018).

H.R. 1397 (land use), which would authorize, direct, facilitate, and expedite the transfer of administrative jurisdiction of certain federal land, was passed by the Senate. 164 Cong. Rec. S3264 (daily ed. June 6, 2018).

H.R. 1719 (land use), which would authorize the Secretary of the Interior to acquire approximately 44 acres of land in Martinez, California, for inclusion in the John Muir National Historic Site, was passed by the Senate. 164 Cong. Rec. S3263 (daily ed. June 6, 2018).

H.R. 1791 (land use), which would establish the Mountains to Sound Greenway National Heritage Area in the state of Washington, was passed by the House. 164 Cong. Rec. H5604 (daily ed. June 25, 2018).

H.R. 2083 (wildlife), which would amend the Marine Mammal Protection Act of 1972 to reduce predation on endangered Columbia River salmon and other nonlisted species, was passed by the House. 164 Cong. Rec. H5705 (daily ed. June 26, 2018).

H.R. 4257 (land use), which would maximize land management efficiencies, promote land conservation, and generate education funding, was passed by the House. 164 Cong. Rec. H5608 (daily ed. June 25, 2018).

H.R. 4528 (water), which would make technical amendments to certain marine fish conservation statutes, was passed by the House. 164 Cong. Rec. H5622 (daily ed. June 25, 2018).

H.R. 5751 (land use), which would redesignate Golden Spike National Historic Site and establish the Transcontinental Railroad Network, was passed by the House. 164 Cong. Rec. H5591 (daily ed. June 25, 2018).

H.R. 5895 (energy), which would make appropriations for energy and water development and related agencies for the fiscal year ending September

30, 2019, was passed by the Senate. 164 Cong. Rec. S4363 (daily ed. June 25, 2018).

H.R. 5895 (governance), which would make appropriations for energy and water development and related agencies for the fiscal year ending September 30, 2019, was passed by the House. 164 Cong. Rec. H4985 (daily ed. June 8, 2018).

H.R. 5905 (energy), which would authorize basic research programs in DOE's Office of Science for fiscal years 2018 and 2019, was passed by the House. 164 Cong. Rec. H5771 (daily ed. June 27, 2018).

H.R. 5906 (energy), which would amend the America COMPETES Act to establish DOE policy for Advanced Research Projects Agency-Energy, was passed by the House. 164 Cong. Rec. H5779 (daily ed. June 27, 2018).

Committee Action

S. 186 (energy) was reported by the Committee on Energy and Natural Resources. S. Rep. No. 115-278, 164 Cong. Rec. S3982 (daily ed. June 18, 2018). The bill would amend the Federal Power Act to provide that any inaction by FERC that allows a rate change to go into effect shall be treated as an order by the Commission for purposes of rehearing and court review.

S. 1520 (wildlife) was reported by the Committee on Commerce, Science, and Transportation. H. Rep. No. 115-264, 164 Cong. Rec. S52991 (daily ed. June 5, 2018). The bill would expand recreational fishing opportunities through enhanced marine fishery conservation and management.

S. 3073 (governance) was reported by the Committee on Appropriations. S. Rep. No. 115-276, 164 Cong. Rec. S3591 (daily ed. June 14, 2018). The bill would make appropriations for DOI, EPA, and related agencies for the fiscal year ending September 30, 2019.

H.R. 8 (water) was reported by the Committee on Transportation and Infrastructure. H. Rep. No. 115-708, 164 Cong. Rec. H4738 (daily ed. June 1, 2018). The bill would provide for improvements to rivers and harbors of the United States and provide for the conservation and development of water and related resources.

H.R. 200 (wildlife) was reported by the Committee on Natural Resources. H. Rep. No. 115-758, 164 Cong. Rec. H5283 (daily ed. June 19, 2018). The bill would amend the Magnuson-Stevens Fishery Conservation and Management Act to provide flexibility for fishery managers and stability for fishermen.

H.R. 224 (wildlife) was reported by the Committee on Natural Resources. H. Rep. No. 115-735, 164 Cong. Rec. H5092 (daily ed. June 12, 2018). The bill would amend the Marine Mammal Protection Act of 1972 to allow importation of polar bear trophies taken in sport hunts in Canada before the date the polar bear was determined to be a threatened species under the ESA.

H.R. 1791 (land use) was reported by the Committee on Natural Resources. H. Rep. No. 115-709, 164 Cong. Rec. H4738 (daily ed. June 1, 2018). The bill would establish the Mountains to Sound Greenway National Heritage Area in the state of Washington.

H.R. 5751 (land use) was reported by the Committee on Natural Resources. H. Rep. No. 115-782, 164 Cong. Rec. H5647 (daily ed. June 25, 2018). The bill would redesignate Golden Spike National Historic Site and establish the Transcontinental Railroad Network.

H.R. 5905 (energy) was reported by the Committee on Science, Space, and Technology. H. Rep. No. 115-787, 164 Cong. Rec. H5814 (daily ed. June 27, 2018). The bill would authorize basic research programs in DOE's Office of Science for fiscal years 2018 and 2019.

H.R. 6147 (governance) was reported by the Committee on Appropriations. H. Rep. No. 115-765, 164 Cong. Rec. H5283 (daily ed. June 19, 2018). The bill would make appropriations for DOI, EPA, and related agencies for the fiscal year ending September 30, 2019.

H. Res. 923 (water) was reported by the Committee on Rules. H. Rep. No. 115-712, 164 Cong. Rec. H4848 (daily ed. June 6, 2018). The resolution would provide for further consideration of H.R. 5895, which would make appropriations for energy and water development and related agencies for the fiscal year ending September 30, 2019, and H.R. 3, which would rescind certain budget authority proposed to be rescinded in special messages transmitted to Congress by the president on May 8, 2018, in accordance with Title X of the Congressional Budget and Impoundment Control Act of 1974.

H. Res. 961 (wildlife) was reported by the Committee on Rules. H. Rep. No. 115-783, 164 Cong. Rec. H5647 (daily ed. June 25, 2018). The resolution would provide for further consideration of H.R. 6157, which would make appropriations for DOD for the fiscal year ending September 30, 2019, and H.R. 2083, which would amend the Marine Mammal Protection Act of 1972 to reduce predation on endangered Columbia River salmon and other nonlisted species.

H. Res. 965 (water) was reported by the Committee on Rules. H. Rep. No. 115-786, 164 Cong. Rec. H5747 (daily ed. June 26, 2018). The resolution would provide for further consideration of H.R. 200, which would amend the Magnuson-Stevens Fishery Conservation and Management Act to provide flexibility for fishery managers and stability for fishermen.

Bills Introduced

S. 2989 (Bennet, D-Colo.) (land use) would amend the Food Security Act of 1985 to encourage soil health. 164 Cong. Rec. S52991 (daily ed. June 5, 2018). The bill was referred to the Committee on Agriculture, Nutrition, and Forestry.

S. 2990 (Blumenthal, D-Conn.) (wildlife) would amend the Lacey Act Amendments of 1981 to clarify provisions enacted by the Captive Wildlife Safety Act to further the conservation of prohibited wildlife species. 164

Cong. Rec. S52991 (daily ed. June 5, 2018). The bill was referred to the Committee on Environment and Public Works.

S. 2997 (Bennet, D-Colo.) (climate change) would amend the Farm Security and Rural Investment Act of 2002 to advance carbon utilization technologies. 164 Cong. Rec. S52991 (daily ed. June 5, 2018). The bill was referred to the Committee on Agriculture, Nutrition, and Forestry.

S. 3001 (Feinstein, D-Cal.) (land use) would authorize the Secretary of the Interior to convey certain land and facilities of the Central Valley Project. 164 Cong. Rec. S3034 (daily ed. June 6, 2018). The bill was referred to the Committee on Energy and Natural Resources.

S. 3009 (Capito, R-W. Va.) (water) would amend the FWPCA to clarify when the Administrator of EPA has the authority to prohibit the specification of a defined area, or deny or restrict the use of a defined area for specification, as a disposal site under §404 of that Act. 164 Cong. Rec. S3035 (daily ed. June 6, 2018). The bill was referred to the Committee on Environment and Public Works.

S. 3011 (Menendez, D-N.J.) (natural resources) would ban the exportation of crude oil or refined petroleum products derived from federal land. 164 Cong. Rec. S3035 (daily ed. June 6, 2018). The bill was referred to the Committee on Banking, Housing, and Urban Affairs.

S. 3012 (Baldwin, D-Wis.) (water) would establish an innovative water technology grant program and amend the SDWA and the FWPCA to encourage the use of innovative water technology. 164 Cong. Rec. S3035 (daily ed. June 6, 2018). The bill was referred to the Committee on Environment and Public Works.

S. 3015 (Harris, D-Cal.) (water) would amend the FWPCA to establish a low-income sewer and drinking water assistance pilot program. 164 Cong. Rec. S3035 (daily ed. June 6, 2018). The bill was referred to the Committee on Environment and Public Works.

S. 3038 (Booker, D-N.J.) (wildlife) would assist in the conservation of the North Atlantic right whale by supporting and providing financial resources for North Atlantic right whale conservation programs and projects of persons with expertise required for the conservation of North Atlantic right whales. 164 Cong. Rec. S3293 (daily ed. June 7, 2018). The bill was referred to the Committee on Commerce, Science, and Transportation.

S. 3073 (Murkowski, R-Alaska) (governance) would make appropriations for DOI, EPA, and related agencies for the fiscal year ending September 30, 2019. 164 Cong. Rec. S3951 (daily ed. June 14, 2018). The bill was referred to the Committee on Appropriations.

S. 3076 (Gillibrand, D-N.Y.) (governance) would establish a national commission on the federal response to the 2017 natural disasters in Puerto Rico. 164 Cong. Rec. S3951 (daily ed. June 14, 2018). The bill was referred to the Committee on Homeland Security and Governmental Affairs.

S. 3080 (Murkowski, R-Alaska) (land use) would reauthorize certain agricultural programs through 2023. 164 Cong. Rec. S3982 (daily ed. June 18, 2018). The bill was referred to the Committee on Agriculture, Nutrition, and Forestry.

S. 3087 (Harris, D-Cal.) (water) would direct the Administrator of NOAA to make grants to state and local governments and nonprofit organizations for purposes of carrying out shoreline stabilization projects utilizing natural materials that support natural habitats and ecosystem functions. 164 Cong. Rec. S4035 (daily ed. June 19, 2018). The bill was referred to the Committee on Commerce, Science, and Transportation.

S. 3088 (Durbin, D-Ill.) (energy) would amend the Energy Policy Act of 2005 to require the Secretary of Energy to establish a program to prepare veterans for careers in the energy industry, including the solar, wind, cybersecurity, and other low-carbon emissions sectors or zero-emissions sectors of the energy industry. 164 Cong. Rec. S4035 (daily ed. June 19, 2018). The bill was referred to the Committee on Energy and Natural Resources.

S. 3100 (Cantwell, D-Wash.) (land use) would establish the Mountains to Sound Greenway National Heritage Area in the state of Washington. 164 Cong. Rec. S4281 (daily ed. June 20, 2018).

S. 3103 (Young, R-Ind.) (land use) would amend the Food, Agriculture, Conservation, and Trade Act of 1990 to improve and reauthorize the Biotechnology and Agricultural Trade Program. 164 Cong. Rec. S4343 (daily ed. June 21, 2018). The bill was referred to the Committee on Agriculture, Nutrition, and Forestry.

S. 3115 (Merkley, D-Or.) (land use) would amend the Farm Security and Rural Investment Act of 2002 to extend and modify the rural energy savings program. 164 Cong. Rec. S4344 (daily ed. June 21, 2018). The bill was referred to the Committee on Agriculture, Nutrition, and Forestry.

S. 3117 (Jones, D-Ala.) (land use) would require the Secretary of Agriculture to grant farm numbers to individuals with certain documentation, to amend the Consolidated Farm and Rural Development Act to include qualified intermediaries as recipients of farm ownership loans, and to provide for a study of farmland tenure. 164 Cong. Rec. S4344 (daily ed. June 21, 2018). The bill was referred to the Committee on Agriculture, Nutrition, and Forestry.

S. 3119 (Risch, R-Idaho) (wildlife) would allow for the taking of sea lions on the Columbia River and its tributaries to protect endangered and threatened species of salmon and other nonlisted fish species. 164 Cong. Rec. S4344 (daily ed. June 21, 2018). The bill was referred to the Committee on Commerce, Science, and Transportation.

S. 3121 (Paul, R-Ky.) (water) would amend the FWPCA, the SDWA, and the Water Infrastructure Finance and Innovation Act of 2014 to require maximum open and free competition in procurement for projects receiving assistance under those Acts. 164 Cong.

Rec. S4368 (daily ed. June 25, 2018). The bill was referred to the Committee on Environment and Public Works.

S. 3133 (Harris, D-Cal.) (energy) would amend the Farm Security and Rural Investment Act of 2002 to clarify certain requirements relating to solar electric power generation projects. 164 Cong. Rec. S4410 (daily ed. June 26, 2018). The bill was referred to the Committee on Energy and Natural Resources.

S. 3134 (Harris, D-Cal.) (air) would address the health and economic development impacts of nonattainment of federally mandated air quality standards in the San Joaquin Valley, California, by designating air quality empowerment zones. 164 Cong. Rec. S4410 (daily ed. June 26, 2018). The bill was referred to the Committee on Environment and Public Works.

S. 3138 (Wicker, R-Miss.) (water) would establish a regulatory system for marine aquaculture in the U.S. exclusive economic zone. 164 Cong. Rec. S4410 (daily ed. June 26, 2018). The bill was referred to the Committee on Commerce, Science, and Transportation.

S. 3140 (Fischer, R-Neb.) (land use) would amend the Packers and Stockyards Act of 1921 to provide for the establishment of a trust for the benefit of all unpaid cash sellers of livestock. 164 Cong. Rec. S4410 (daily ed. June 26, 2018). The bill was referred to the Committee on Agriculture, Nutrition, and Forestry.

S. 3146 (Carper, D-Del.) (water) would amend the CZMA to allow the District of Columbia to receive federal funding under such Act. 164 Cong. Rec. S4512 (daily ed. June 27, 2018). The bill was referred to the Committee on Commerce, Science, and Transportation.

S. 3168 (Udall, D-N.M.) (land use) would amend the Omnibus Public Land Management Act of 2009 to make Reclamation Water Settlements Fund permanent. 164 Cong. Rec. S4734 (daily ed. June 28, 2018). The bill was referred to the Committee on Indian Affairs.

S. 3172 (Portman, R-Ohio) (land use) would amend Title 54, U.S. Code, to establish, fund, and provide for the use of amounts in a National Park Service Legacy Restoration Fund to address the maintenance backlog of the National Park Service. 164 Cong. Rec. S4734 (daily ed. June 28, 2018). The bill was referred to the Committee on Energy and Natural Resources.

S. 3176 (McConnell, R-Ky.) (land use) would establish the Mill Springs Battlefield National Monument in the state of Kentucky as a unit of the National Park System. 164 Cong. Rec. S4734 (daily ed. June 28, 2018). The bill was referred to the Committee on Energy and Natural Resources.

H.R. 5995 (Norman, R-S.C.) (climate change) would prohibit the National Endowment for the Arts to make grants to demonstrate how artists work to show the impact of climate change in the San Francisco Bay area and how works of art can inform, inspire, and empower communities at risk. 164 Cong. Rec. H4738 (daily ed. June 1, 2018). The bill was referred to the Committee on Education and the Workforce.

H.R. 5996 (Bordallo, D-Guam) (wildlife) would reauthorize and amend the Coral Reef Conservation Act of 2000. 164 Cong. Rec. H4775 (daily ed. June 5, 2018). The bill was referred to the Committee on Natural Resources and the Committee on the Judiciary.

H.R. 6007 (LaMalfa, R-Cal.) (land use) would release certain federal land in California from wilderness study. 164 Cong. Rec. H4776 (daily ed. June 5, 2018). The bill was referred to the Committee on Natural Resources.

H.R. 6008 (McEachin, D-Va.) (governance) would amend the Outer Continental Shelf Lands Act to withdraw the outer continental shelf in the Mid-Atlantic planning area from disposition. 164 Cong. Rec. H4776 (daily ed. June 5, 2018). The bill was referred to the Committee on Natural Resources.

H.R. 6060 (Moulton, D-Mass.) (wildlife) would assist in the conservation of the North Atlantic right whale by supporting and providing financial resources for North Atlantic right whale conservation programs and projects of persons with expertise required for the conservation of North Atlantic right whales. 164 Cong. Rec. H5021 (daily ed. June 8, 2018). The bill was referred to the Committee on Natural Resources and the Committee on the Budget.

H.R. 6064 (Suozzi, D-N.Y.) (land use) would rename the Oyster Bay National Wildlife Refuge as the Congressman Lester Wolff National Wildlife Refuge. 164 Cong. Rec. H5021 (daily ed. June 8, 2018). The bill was referred to the Committee on Natural Resources.

H.R. 6087 (Cheney, R-Wyo.) (energy) would authorize the Secretary of the Interior to recover the cost of processing administrative protests for oil and gas lease sales, applications for permits to drill, and right-of-way applications. 164 Cong. Rec. H5152 (daily ed. June 13, 2018). The bill was referred to the Committee on Natural Resources.

H.R. 6088 (Curtis, R-Utah) (natural resources) would amend the Mineral Leasing Act to authorize notifications of permit to drill. 164 Cong. Rec. H5152 (daily ed. June 13, 2018). The bill was referred to the Committee on Natural Resources.

H.R. 6103 (Velazquez, D-N.Y.) (governance) would establish a national commission on the federal response to the 2017 natural disasters in Puerto Rico. 164 Cong. Rec. H5199 (daily ed. June 14, 2018). The bill was referred to the Committee on Transportation and Infrastructure.

H.R. 6106 (Pearce, R-N.M.) (natural resources) would amend the Energy Policy Act of 2005 to clarify the authorized categorical exclusions and authorize additional categorical exclusions to streamline the oil and gas permitting process. 164 Cong. Rec. H5199 (daily ed. June 14, 2018). The bill was referred to the Committee on Natural Resources.

H.R. 6107 (Pearce, R-N.M.) (natural resources) would clarify that BLM shall not require permits for oil and

gas activities conducted on nonfederal surface estate to access subsurface mineral estate that is less than 50% federally owned. 164 Cong. Rec. H5199 (daily ed. June 14, 2018). The bill was referred to the Committee on Natural Resources.

H.R. 6119 (Rouzer, R-N.C.) (wildlife) would remove the red wolf from the list of endangered and threatened wildlife for North Carolina. 164 Cong. Rec. H5200 (daily ed. June 14, 2018). The bill was referred to the Committee on Natural Resources.

H.R. 6146 (Gosar, R-Ariz.) (land use) would authorize, direct, expedite, and facilitate a land exchange in Yavapai County, Arizona. 164 Cong. Rec. H5284 (daily ed. June 19, 2018). The bill was referred to the Committee on Natural Resources.

H.R. 6166 (Rosen, D-Nev.) (energy) would require the Secretary of Energy to develop a solar workforce training course for certain members of the Armed Forces. 164 Cong. Rec. H5362 (daily ed. June 20, 2018). The bill was referred to the Committee on Education and the Workforce and the Committee on Armed Services.

H.R. 6255 (Soto, D-Fla.) (wildlife) would amend Title 18, U.S. Code, to establish measures to combat invasive lionfish. 164 Cong. Rec. H5815 (daily ed. June 27, 2018). The bill was referred to the Committee on the Judiciary and the Committee on Natural Resources.

H.R. 6267 (Bonamici, D-Or.) (water) would amend the Federal Ocean Acidification Research and Monitoring Act of 2009 to establish an Ocean Acidification Advisory Board, expand and improve the research on ocean acidification and coastal acidification, and establish and maintain a data archive system for ocean acidification data and coastal acidification data. 164 Cong. Rec. H5974 (daily ed. June 28, 2018). The bill was referred to the Committee on Science, Space, and Technology.

H.R. 6270 (Posey, R-Fla.) (water) would provide for a study by the Ocean Studies Board of the National Academies of Science to examine the impact of ocean acidification and other stressors in estuarine environments. 164 Cong. Rec. H5974 (daily ed. June 28, 2018). The bill was referred to the Committee on Science, Space, and Technology, and the Committee on Natural Resources.

H.R. 6272 (Abraham, R-La.) (wildlife) would authorize a special resource study on the spread vectors of chronic wasting disease in Cervidae. 164 Cong. Rec. H5974 (daily ed. June 28, 2018). The bill was referred to the Committee on Agriculture and the Committee on Natural Resources.

H.R. 6288 (Moulton, D-Mass.) (water) would require research in coastal sustainability and resilience, and ensure that the federal government continues to implement and advance coastal resiliency efforts. 164 Cong. Rec. H5974 (daily ed. June 28, 2018). The bill was referred to the Committee on Natural Resources and the Committee on Science, Space, and Technology.

H.R. 6291 (Rice, R-S.C.) (air) would exempt from certain requirements of the CAA incinerator units owned and operated by a federal, state, or local law enforcement agency when used for the sole purpose of destroying contraband or household pharmaceuticals. 164 Cong. Rec. H5975 (daily ed. June 28, 2018). The bill was referred to the Committee on Energy and Commerce.

H. Res. 929 (Bonamici, D-Or.) (water) would recognize World Oceans Day and the necessity to protect, conserve, maintain, and rebuild the ocean and its resources. 164 Cong. Rec. H5021 (daily ed. June 8, 2018). The bill was referred to the Committee on Natural Resources and the Committee on Science, Space, and Technology.

H. Res. 959 (Heck, D-Wash.) (wildlife) would recognize June 2018 as National Orca Protection Month. 164 Cong. Rec. H5580 (daily ed. June 22, 2018). The bill was referred to the Committee on Oversight and Government Reform.

In the Courts

These entries summarize recent cases under the following categories: Air, Climate Change, Energy, Governance, Land Use, Natural Resources, Waste, Water, and Wildlife. The entries are arranged alphabetically by case name within each category. This material is updated monthly. For archived materials, visit http://www.elr.info/judicial.

AIR

National Environmental Development Ass'n's Clean Air Project v. Environmental Protection Agency, No. 16-1344, 48 ELR 20093 (D.C. Cir. June 8, 2018). The D.C. Circuit upheld amendments EPA made to its CAA regional consistency regulations that allow regional offices to act counter to national policies when ordered to do so by federal circuit courts.

New York v. Pruitt, No. 18-cv-406, 48 ELR 20095 (S.D.N.Y. June 12, 2018). A district court ordered EPA to issue federal implementation plans fully resolving interstate transport obligations under the CAA's "good neighbor" provision for the 2008 ozone NAAQS.

Wyoming v. United States Bureau of Land Management, Nos. 18-8027, -8029, 48 ELR 20091 (10th Cir. June 4, 2018). The Tenth Circuit refused to stay pending interlocutory appeal a

lower court order staying BLM's waste prevention rule, which was issued to reduce the venting, flaring, and leaking of natural gas emissions during oil and gas production activities on onshore federal land.

CLIMATE CHANGE

Juliana v. United States, No. 6:15-cv-1517, 48 ELR 20083 (D. Or. May 25, 2018). A district court denied the U.S. government's motion to stay discovery in a lawsuit brought by a group of youths against the U.S. government for failing to protect them from climate change.

Public Employees for Environmental Responsibility v. Pruitt, No. 17-652, 48 ELR 20085 (D.D.C. June 1, 2018). A district court ordered EPA to comply with a FOIA request concerning the EPA Administrator's televised statement that he did not believe human activity was a primary cause of climate change.

San Juan Citizens Alliance v. United States Bureau of Land Management, No. 16-cv-376, 48 ELR 20096 (D.N.M. June 14, 2018). A district court held BLM violated NEPA when it approved 13 oil and gas leases covering 19,788 acres in the Santa Fe National Forest without considering the leases' impacts on climate change.

ENERGY

Marcellus Shale Coalition v. Department of Environmental Protection, No. J-73-2017, 49 ELR 20090 (Pa. June 1, 2018). Pennsylvania's highest court largely upheld a temporary injunction enjoining the state environmental agency from enforcing certain regulations governing unconventional oil and gas operations.

Silfab Solar, Inc. v. United States, No. 18-1718, 48 ELR 20097 (Fed. Cir. June 15, 2018). The Federal Circuit affirmed a lower court decision denying three Canadian solar manufacturers' and a U.S. importer's motion for preliminary injunction to bar the enforcement of presidentially imposed tariffs on solar products.

South Carolina v. United States, No. 1:18-cv-01431, 48 ELR 20092 (D.S.C. June 7, 2018). A district court granted South Carolina's motion to preliminarily enjoin DOE from terminating a mixed-oxide fuel fabrication facility project currently under construction until the case can be decided on its merits.

Tindall v. First Solar, Inc., No. 17-15185, 48 ELR 20101 (9th Cir. June 13, 2018). The Ninth Circuit upheld the dismissal of shareholders' derivative action against a solar panel company for failing to disclose in financial statements and press releases the existence of manufacturing and design defects.

GOVERNANCE

Eli Lilly & Co. v. Arla Foods, Inc., No. 17-2252, 48 ELR 20100 (7th Cir. June 15, 2018). The Seventh Circuit upheld a preliminary injunction barring a global dairy conglomerate from making any claims in its advertisements that cheese from cows treated with recombinant bovine somato-tropin (rbST), an artificial growth hormone, is dangerous and unhealthy.

LAND USE

Gorsline v. Board of Supervisors of Fairfield Township, No. 67 MAP 2016, 48 ELR 20089 (Pa. June 1, 2018). Pennsylvania's highest court reversed a lower court decision that would have allowed a company to drill, construct, develop, and operate unconventional natural gas wells as a conditional use in a district zoned for residential and agricultural uses.

NATURAL RESOURCES

National Parks Conservation Ass'n v. Semonite, Nos. 17-CV-01361, -01574, 48 ELR 20086 (D.D.C. May 24, 2018). A district court dismissed groups' NEPA and CWA claims against the U.S. Army Corps of Engineers in connection with its approval of a 17-mile transmission line across the James River near historic Jamestown, Virginia.

Western Organization of Resource Councils v. Zinke, No. 15-5294, 48 ELR 20098 (D.C. Cir. June 19, 2018). The D.C. Circuit affirmed a lower court decision granting DOI's motion to dismiss an order compelling it to update the EIS for the federal coal management program.

WASTE

Bartlett v. Honeywell International Inc., No. 17-1907, 48 ELR 20088 (2d Cir. May 25, 2018). The Second Circuit affirmed a lower court decision that CERCLA preempts state tort law claims brought by residents living near the Onondaga Lake Superfund site.

WATER

Georgia v. Pruitt, No. 2:15-cv-79, 48 ELR 20094 (S.D. Ga. June 8, 2018). A district court granted 11 states' motion to preliminarily enjoin EPA and the U.S. Army Corps of Engineers from implementing the "waters of the United States" rule, also known as the WOTUS rule or Clean Water Rule.

New York v. Pruitt, Nos. 18-CV-1030, -1048, 48 ELR 20084 (S.D.N.Y. May 29, 2018). A district court denied the U.S. government's request to transfer to the Southern District of Texas two cases challenging the Trump Administration's delay of the Clean Water Rule.

Ohio Valley Environmental Coalition, Inc. v. Pruitt, No. 17-1430, 48 ELR 20099 (4th Cir. June 20, 2018). The Fourth Circuit reversed a lower court's grant of summary judgment requiring EPA and West Virginia to address coal mining-related water pollution.

WILDLIFE

California Cattlemen's Ass'n v. United States Fish & Wildlife Service, No. 1:17-cv-01536, 48 ELR 20087 (D.D.C. May 29, 2018). A district court denied motions to dismiss a lawsuit challenging the federal designation of over 1.8 million acres in the Sierra Nevada mountains as critical habitat for three amphibian species.

In the Federal Agencies

These entries cover the period June 1, 2018, through June 30, 2018. Citations are to the *Federal Register* (FR). Entries below are organized by Final Rules, Proposed Rules, and Notices. Within each section, entries are further subdivided by the subject matter area, with entries listed chronologically. This material is updated monthly. For archived material, visit http://elr.info/daily-update/archives.

Final Rules

AIR

EPA redesignated the Greenville-Spartanburg, South Carolina, fine particulate matter ($PM_{2.5}$) unclassifiable area to unclassifiable/attainment for the 1997 primary and secondary annual $PM_{2.5}$ NAAQS. 83 FR 25390 (6/1/18).

EPA granted Iowa, Kansas, Missouri, Nebraska, Lincoln-Lancaster County, Neb., and Omaha, Neb., delegation of authority for new source performance standards and NESHAPs, including maximum achievable control technology standards. 83 FR 25832 (6/1/18).

EPA established air quality designations for certain areas of the United States, including areas of Indian country, for the 2015 primary and secondary ozone NAAQS; except for eight counties in the San Antonio, Texas, metropolitan area for which the Agency intends to issue final designations by July 17, 2018, all areas of the country have now been issued designations. 83 FR 25776 (6/4/18).

EPA, due to adverse comment of the direct final rule issued on April 13, 2018, withdrew its delegation of authority for implementation and enforcement of certain new source performance standards and NESHAPs to the New Mexico Environmental Department. 83 FR 25936 (6/5/18).

EPA announced that it is proposing to deny CAA §126(b) petitions submitted by Delaware and Maryland concerning interstate pollution; the states failed to demonstrate that the sources identified in the petitions emit or would emit in violation of the CAA's "good neighbor" provision. 83 FR 26666 (6/8/18).

EPA finalized the updated Outer Continental Shelf (OCS) air regulations for New Jersey to regulate emissions from OCS sources in accordance with onshore requirements. 83 FR 30050 (6/27/18).

SIP Approvals: Alabama (redesignation of the Pike County lead nonattainment area to attainment) 83 FR 28543 (6/20/18). Alaska (interstate transport requirements for the 2010 nitrogen dioxide and sulfur dioxide NAAQS) 83 FR 29449 (6/25/18); (interstate transport requirements for the 2012 fine particulate matter NAAQS) 83 FR 30048 (6/27/18). Arizona (second 10-year maintenance plan for the Douglas maintenance area for the 1971 NAAQS for sulfur dioxide) 83 FR 26596 (6/8/18). Arkansas (revisions to minor new source review program) 83 FR 30553 (6/29/18). California (Butte County air quality management district new source review permitting program for new and modified sources) 83 FR 26222 (6/6/18). Idaho (ozone requirement for crop residue burning) 83 FR 28382 (6/19/18). Iowa (updates and clarifications, plus approval of CAA §111(d) plan and operating permits program) 83 FR 26599 (6/8/18); (amendment to administrative consent order for grain processing corporation) 83 FR 30348 (6/28/18). Maine (infrastructure requirements for the 2008 lead, 2008 ozone, and 2010 nitrogen dioxide NAAQS) 83 FR 28157 (6/18/18). Michigan (regional haze progress report) 83 FR 25375 (6/1/18); (revisions to volatile organic compound rules) 83 FR 30571 (6/29/18). Minnesota (regional haze progress report) 83 FR 30350 (6/28/18). Missouri (transportation conformity for the St. Louis area) 83 FR 26598 (6/8/18). Montana (revisions to prevention of significant deterioration permitting program) 83 FR 29694 (6/26/18). Nebraska (regional haze) 83 FR 30352 (6/28/18). New Hampshire (one-hour sulfur dioxide primary NAAQS nonattainment plan) 83 FR 25922 (6/5/18). New York (transportation conformity determination) 83 FR 26597 (6/8/18). Pennsylvania (emissions statement requirement for the 2008 ozone NAAQS) 83 FR 26221 (6/6/18); (removal of Department of Environmental Protection gasoline volatility requirements for the Pittsburgh-Beaver Valley Area) 83 FR 27901 (6/15/18). South Carolina (revisions to definitions and open burning regulation) 83 FR 29451 (6/25/18); (revisions to air pollution control standards) 83 FR 29455 (6/25/18); (revision to definition of volatile organic compounds) 83 FR 29696 (6/26/18). South Dakota (revisions to permitting rules) 83 FR 29698 (6/26/18). Texas (infrastructure and interstate transport for the 2012 fine particulate matter NAAQS) 83 FR 25920 (6/5/18). Virginia (emissions statement rule certification for the 2008 ozone NAAQS) 83 FR 25378 (6/1/18). Wisconsin (regional haze progress report) 83 FR 27910 (6/15/18).

GOVERNANCE

EPA removed the Mentor Protégé Program from its acquisition regulations. 83 FR 28772 (6/21/18).

TOXIC SUBSTANCES

EPA added a nonylphenol ethoxylates (NPEs) category to the list of toxic chemicals subject to reporting under EPCRA §313 and Pollution Prevention Act §6607; short-chain NPEs are highly toxic to aquatic organisms and longer chain NPEs, while not as toxic as short-chain NPEs, can break down in the environment to short-chain NPEs and nonylphenol, both of which are highly toxic to aquatic organisms. 83 FR 27291 (6/12/18).

EPA finalized reporting requirements for the TSCA Mercury Inventory. 83 FR 30054 (6/27/18).

WASTE

EPA approved Oklahoma's coal combustion residuals state permit program. 83 FR 30356 (6/28/18).

WATER

EPA delegated authority to the New Hampshire Department of Environmental Services to implement and enforce the federal plan requirements for sewage sludge incineration units constructed on or before October 14, 2010. 83 FR 29458 (6/25/18).

EPA amended the Water Infrastructure Finance and Innovation Act (WIFIA) regulations to clarify the process for, and conditions under which, a recipient of WIFIA credit assistance can include previously incurred costs. 83 FR 29691 (6/26/18).

EPA withdrew a designated ocean-dredged material disposal site, the Grays Harbor Eight Mile Site, from the Agency's regulation and management. 83 FR 29706 (6/26/18).

WILDLIFE

FWS removed the Hidden Lake bluecurls from the Federal List of Endangered and Threatened Plants because threats to the species have been eliminated or reduced to the point where it no longer meets the definition of an endangered or threatened species under the ESA. 83 FR 25392 (6/1/18).

Proposed Rules

AIR

EPA proposed to redesignate the Etowah County, Alabama, fine particulate matter ($PM_{2.5}$) unclassifiable area to attainment for the 2006 primary and secondary 24-hour $PM_{2.5}$ NAAQS. 83 FR 25422 (6/1/18).

EPA proposed to approve Florida's state plan for implementing and enforcing the emissions guidelines for existing commercial and industrial solid waste incineration units. 83 FF 25633 (6/4/18).

EPA proposed to approve Alabama's state plan for implementing and enforcing the emissions guidelines applicable to existing commercial and industrial solid waste incineration units. 83 FR 25983 (6/5/18).

EPA proposed to retain the primary NAAQS for sulfur oxides without revision. 83 FR 26752 (6/8/18).

EPA proposed amendments to the 2016 new source performance standards and emission guidelines for commercial and industrial solid waste incineration units to clarify implementation of the standards and to make technical corrections to address certain testing and monitoring issues, and inconsistencies within the standards. 83 FR 28068 (6/15/18).

EPA proposed to update requirements for outer continental shelf (OCS) sources for the Santa Barbara County air pollution control district to regulate emissions from OCS sources in accordance with onshore OCS requirements. 83 FR 28795 (6/21/18).

EPA proposed to grant the Allegheny County Health Department's voluntary withdrawal from EPA's delegation of authority to enforce chemical accident prevention regulations under CAA §112(l). 83 FR 29085 (6/22/18).

SIP Proposals: Arizona (nonattainment plan for the Miami 2010 one-hour sulfur dioxide primary NAAQS) 83 FR 27938 (6/15/18). Arkansas (interstate transport requirements for the 2012 fine particulate matter NAAQS and definition update) 83 FR 30622 (6/29/18). California (Maricopa County air quality department new source review permitting program for new and modified sources) 83 FR 26912 (6/11/18); (prevention of significant deterioration permitting program for new and modified sources in the Placer County air pollution control district) 83 FR 27738 (6/14/18); (new source review permitting program for new and modified sources in the San Diego County air pollution control district) 83 FR 29483 (6/25/18). Colorado, Montana, North Dakota, South Dakota, and Wyoming (interstate transport requirements for the 2010 sulfur dioxide NAAQS) 83 FR 25617 (6/4/18). Connecticut (volatile organic compound emissions from consumer products and architectural and industrial maintenance coatings) 83 FR 25615 (6/4/18); (prevention of significant deterioration permitting program for greenhouse gases) 83 FR 27936 (6/15/18). Florida (redesignation of the Hillsborough County lead nonattainment area to attainment) 83 FR 28402 (6/19/18). Idaho (incorporation by reference of federal regulations) 83 FR 30626 (6/29/18). Missouri (infrastructure requirements for the 2012 fine particulate matter NAAQS) 83 FR 25979 (6/5/18); (redesignation of the Missouri portion of the St. Louis-St. Charles-Farmington, MO-IL ozone nonattainment area to attainment) 83 FR 29486 (6/25/18). Nebraska (particulate emissions) 83 FR 25975 (6/5/18); (rules of practice and procedure) 83 FR 25977 (6/5/18). New York (revision to sulfur-in-fuel limits) 83 FR 29723 (6/26/18). North Carolina (new source review requirements for fine particulate matter NAAQS) 83 FR 28789 (6/21/18). Ohio (2012 fine particulate matter NAAQS for the Cleveland nonattainment area) 83 FR 25608 (6/4/18). Pennsylvania (interstate transport requirements for the 2012 fine particulate matter NAAQS) 83 FR 27732 (6/14/18); (removal of Department of Environmental Protection gasoline volatility requirements for the Pittsburgh-Beaver Valley Area) 83 FR 27937 (6/15/18). Rhode Island (volatile organic compound emissions, nitrogen oxide emissions, sulfur content in fuel requirements, and associated general definitions) 83 FR 25981 (6/5/18). South Carolina (regional haze plan and prong 4 (visibility) for the 2012 fine particulate matter, 2010 nitrogen dioxide, 2010 sulfur dioxide, and 2008 ozone NAAQS) 83 FR 25604 (6/4/18). Tennessee (PSD and nonattainment new source review regulations in Knox County) 83 FR 28568 (6/20/18); (determination of baseline actual emissions for new source review regulations) 83 FR 28577 (6/20/18); (regional haze plan and infrastructure requirements for the 2012 fine particu-

late matter, 2010 nitrogen dioxide, and 2010 sulfur dioxide NAAQS) 83 FR 28582 (6/20/18); (attainment plan for Sullivan County sulfur dioxide nonattainment area) 83 FR 30609 (6/29/18). Texas (reasonably available control technology in the Houston-Galveston-Brazoria ozone nonattainment area) 83 FR 29727 (6/26/18). Vermont (infrastructure requirements for the 2012 fine particulate matter NAAQS) 83 FR 30598 (6/29/18). Washington (interstate transport requirements for the 2012 fine particulate matter NAAQS) 83 FR 30380 (6/28/18). West Virginia (regional haze plan and visibility requirements for 2010 sulfur dioxide and 2012 fine particulate matter NAAQS) 83 FR 27734 (6/14/18); (minor new source review permitting) 83 FR 28179 (6/18/18).

GOVERNANCE

The federal agencies issued their semiannual regulatory agendas to update the public about regulations and major policies currently under development, reviews of existing regulations and major policies, and rules and major policymakings completed or canceled since the last agenda. EPA's agenda can be found at 83 FR 27197 (6/11/18).

EPA proposed to promulgate regulations that increase consistency and transparency in considering costs and benefits when making regulatory decisions. 83 FR 27524 (6/13/18).

NATURAL RESOURCES

CEQ proposed to update its implementing regulations for the procedural provisions of NEPA to ensure a more efficient, timely, and effective NEPA process consistent with the statute's national environmental policy. 83 FR 28591 (6/20/18).

WASTE

EPA proposed to approve revisions to North Dakota's state hazardous waste program under RCRA. 83 FR 25986 (6/5/18).

EPA proposed to approve revisions to the District of Columbia's hazardous waste program under RCRA. 83 FR 26917 (6/11/18).

EPA proposed to authorize revisions to Hawaii's hazardous waste management program under RCRA. 83 FR 29520 (6/25/18).

WATER

EPA proposed to establish no new hazardous substance spill prevention requirements under CWA §311; the Agency issued the proposal to comply with a 2016 consent decree. 83 FR 29499 (6/25/18).

WILDLIFE

FWS proposed to remove the Colorado butterfly plant from the Federal List of Endangered and Threatened Plants due to the species' recovery. 83 FR 26623 (6/8/18).

FWS announced its 90-day finding on petitions to add the Dixie Valley toad and the Oregon vesper sparrow to, and to remove the Yellow-billed cuckoo from, the ESA list of threatened and endangered species; the agency determined that the petitioned action may be warranted and initiated a status review. 83 FR 30091 (6/27/18).

FWS proposed to replace existing regulations governing the nonessential experimental population designation of the red wolf under ESA §10(j). 83 FR 30382 (6/28/18).

Notices

LAND USE

The U.S. Forest Service seeks comment on its revised land management plans for the Malheur, Umatilla, and Wallowa-Whitman National Forests. 83 FR 30101 (6/27/18).

TOXIC SUBSTANCES

EPA announced the availability of the final Strategic Plan to Promote the Development and Implementation of Alternative Test Methods Supporting the TSCA. 83 FR 30167 (6/27/18).

EPA announced a new policy for assigning and applying unique identifiers for TSCA chemical substances. 83 FR 30168 (6/27/18).

EPA announced the availability of three guidance documents on expanded access to TSCA confidential business information. 83 FR 30171 (6/27/18).

EPA announced the availability of and seeks comment on its *Guidance for Creating Generic Names for Confidential Chemical Substance Identity Reporting Under the TSCA*. 83 FR 30173 (6/27/18).

WASTE

EPA seeks comment on three provisions in the Brownfields Utilization, Investment, and Local Development Act: the authority to increase the per-site cleanup grant amounts to $500,000; the new multipurpose grant authority; and the new small community assistance grant authority. 83 FR 29782 (6/26/18).

WATER

EPA announced it intends to approve revisions to Nevada's Public Water System Supervision Program; the revisions adopt the Ground Water Rule, the Long Term 2 Enhanced Surface Water Treatment Rule, the Revised Total Coliform Rule, and the Stage 2 Disinfectants and Disinfection Byproducts Rule. 83 FR 26456 (6/7/18).

The president issued Exec. Order No. 13840, Ocean Policy to Advance the Economic, Security, and Environmental Interests of the United States; the order revokes Exec. Order No. 13547 of July 19, 2010, Stewardship of the Ocean, Our Coasts, and the Great Lakes, and puts more emphasis on national security concerns. 83 FR 29431 (6/22/18).

NOAA and EPA announced their proposed finding that Georgia has satisfied the conditions of its coastal nonpoint pollution control program. 83 FR 29761 (6/26/18).

NOAA requests comment on its *Science and Technology for America's Oceans: A Decadal Vision* report, which seeks to provide guidance for U.S. federal agencies and nonfederal sectors to align their resources and areas of expertise, further improve our knowledge and stewardship of the ocean, address issues of national and global importance, and inform decisionmaking for the coming decade. 83 FR 30420 (6/28/18).

WILDLIFE

FWS initiated five-year status reviews for 50 species in California, Nevada, and the Klamath Basin of Oregon under the ESA. 83 FR 28251 (6/18/18).

FWS seeks comment on a summary report detailing analysis of the use of an updated collision risk model to predict the number of golden and bald eagles that may be killed at new wind facilities. 83 FR 28858 (6/21/18).

EPA entered into a proposed stipulated order of partial dismissal to address ESA claims that it failed to consult with FWS and NMFS regarding water quality standards adopted by Washington; the order requires EPA to complete an ESA-effects determination for its February 11, 2008, approval of Washington's revised ammonia criteria, and, as appropriate, request initiation of any necessary ESA consultations. 83 FR 29113 (6/22/18).

DOJ NOTICES OF SETTLEMENT

United States v. Stevens, No. 2:18-cv-00402 (D. Utah May 24, 2018). A settling CERCLA defendant must sell site property and pay 75% of the net proceeds to the EPA Hazardous Substance Superfund in reimbursement of U.S. response costs incurred at the North Salt Lake HazMat site in Salt Lake City, Utah; the United States will pay $302,950 to the EPA Hazardous Substance Superfund to resolve the alleged liability of DOD, the Defense Logistics Agency, and DLA Disposition Services. 83 FR 25493 (6/1/18).

United States v. Capt. Millions III, LLC, No. 1:18-cv-196 (D. Haw. May 24, 2018). Settling CWA defendants liable for violations related to commercial longline fishing vessel operations based out of Honolulu, Hawaii, must perform corrective measures to remedy the violations and prevent future ones. 83 FR 25494 (6/1/18).

United States v. Akron, City of, No. 09-cv-00272 (N.D. Ohio June 5, 2018). A settling CWA defendant that operates a municipal wastewater treatment facility and sewer system entered into a second amended consent decree that modifies certain elements of a court-approved plan to address overflows from the operator's combined sewer system and bypasses around secondary treatment at its wastewater treatment facility. 83 FR 27350 (6/12/18).

United States v. Felman Production, LLC, No. 3:18-cv-01003 (S.D. W. Va. June 6, 2018). A settling CAA defendant that failed to comply with opacity standards, performance testing and monitoring requirements, and good air pollution control practices at its silicomanganese facility in Letart, West Virginia, must install pollution-control measures, conduct additional monitoring for pollution, and pay a $200,000 civil penalty, equal shares of which are to be allocated between the United States and the state of West Virginia. 83 FR 28012 (6/15/18).

United States v. Noble, No. 4:16-cv-06178-SBA (N.D. Cal. June 11, 2018). A settling CWA and ESA defendant that discharged pollutants into waters of the United States without a permit and that took protected species must remove the offending material, restore the impacted areas, enhance fish habitat, and pay a civil penalty. 83 FR 28449 (6/19/18).

United States v. TWOL LLC, No. 1:18-cv-00242 (D. Haw. June 21, 2018). Settling CWA defendants that discharged oily waste from a commercial fishing vessel's bilge and that failed to provide sufficient capacity to retain oily bilge water onboard the vessel must repair the vessel to reduce the quantity of oily waste generated during a fishing voyage, provide crewmembers with training on the proper handling of oily wastes, document proper oily waste management and disposal after returning to port, submit compliance reports to the U.S. Coast Guard and DOJ, and pay a civil penalty. 83 FR 30459 (6/28/18).

In the State Agencies

The entries below cover state regulatory developments during the month of June 2018. The entries are arranged by state, and within each section, entries are further subdivided by subject matter. For material previously reported, visit http://elr.info/administrative/state-updates/archive.

ALASKA

WASTE

The Alaska Department of Environmental Conservation, U.S. Coast Guard, and EPA seek input on structural changes to the Alaska Federal/State Preparedness Plan for Response to Oil and Hazardous Substance Discharges/Release and 10 Sub-Area Plans to a Regional Plan and four Area Plans. The new planning structure would contain the same information as is currently housed under the existing planning structure, but with formatting that would be more consistent with the National Contingency Plan and National Response Framework. *See* https://aws.state.ak.us/OnlinePublicNotices/Notices/View.aspx?id=190419.

CALIFORNIA

TOXIC SUBSTANCES

The Office of Environmental Health Hazard Assessment proposed amendments to Cal. Code Regs. tit. 27, §25603. The proposed amendment would modify the safe-harbor warning content for on-product warnings for exposures to listed chemicals in pesticides. *See* https://oal.ca.gov/wp-content/uploads/sites/28/2018/06/23z-2018.pdf (p. 903).

The Department of Pesticide Regulation proposed to amend Cal. Code Regs. tit. 3, §6000, concerning groundwater protection areas. The revisions would add new groundwater protection areas that were identified based on pesticide detections. *See* https://oal.ca.gov/wp-content/uploads/sites/28/2018/05/21z-2018.pdf (pp. 794-97).

WASTE

The California Department of Resources Recycling and Recovery proposed to add §17988 to Cal. Code Regs. tit. 14-7-4. The proposal would clarify administrative procedures and establish the administrative certification fee for the Reusable Grocery Bag Program. *See* https://oal.ca.gov/wp-content/uploads/sites/28/2018/06/24z-2018.pdf (pp. 919-20).

WATER

The Office of Environmental Health Hazard Assessment announced the availability of the revised draft technical support document for proposed updates to Public Health Goals for cis- and trans-1,2-dichloroethylene in drinking water. The Public Health Goals are used by the State Water Resources Control Board in setting California's drinking water standards. *See* https://oal.ca.gov/wp-content/uploads/sites/28/2018/06/22z-2018.pdf (p. 876).

DELAWARE

AIR

The Department of Natural Resources and Environmental Control proposed amendments to 7-60-1101 Del. Admin. Code §2 and 7-60-1102 Del. Admin. Code §15. The proposed amendments would clarify that removal of lead-containing coatings from water tanks by dry abrasive blasting is no longer exempt from obtaining a permit, and add definitions needed for the new permit requirement. *See* http://regulations.delaware.gov/register/june2018/proposed/21%20DE%20Reg%20958%2006-01-18.pdf.

FLORIDA

GOVERNANCE

The Department of Health proposed to revise Fla. Admin. Code Ann. r. 64E-1, Certification of Environmental Testing Laboratories. The proposed rule amendments incorporate by reference the updated consensus environmental testing certification standards, as revised in 2016. They also incorporate revised language for on-site laboratory assessments performed by third-party contractors and reduce the related fees charged by the Department. *See* https://www.flrules.org/Gateway/View_notice.asp?id=20469248.

GEORGIA

WASTE

The Environmental Protection Division proposed amendments to Ga. Comp. R. & Regs. 391-3-19, Hazardous Site Response. The revisions are intended to modernize the state soil and groundwater cleanup standards (risk reduction standards) to reflect the most current risk assessment methodology and standard industry practices. Other amendments include clarifying the Brownfield notification exemption, allowing the Director to designate EPA removal actions as compliant with Type 5 cleanup standards, and providing appropriate deed language for properties needing corrective action and those

with continuing obligations. *See* https://epd.georgia.gov/chapter-391-3-19-rules-hazardous-site-response.

IDAHO

AIR

The Department of Environmental Quality proposed amendments to Idaho Admin. Code r. 58.01.01. The proposed amendments would allow farmers to pay the required fees after burning crop residue instead of prior to burning crop residue. *See* https://adminrules.idaho.gov/bulletin/2018/06.pdf (pp. 123-24).

TOXIC SUBSTANCES

The Department of Environmental Quality proposed to revise Idaho Admin. Code r. 58.01.24 and the associated guidance manual to reflect updated toxicity criteria established by EPA. The proposed revisions would update portions of the rule that are pertinent to evaluation of petroleum release sites in order to promote consistent corrective action decisionmaking at these sites. *See* https://adminrules.idaho.gov/bulletin/2018/06.pdf (pp 125-26).

ILLINOIS

WASTE

The Pollution Control Board proposed amendments to Ill. Admin. Code tit. 35, §§702, 705, 720, and 721. The proposed amendments would incorporate amendments adopted by EPA during 2016 and 2017, and make numerous corrections and nonsubstantive stylistic revisions. *See* http://www.cyberdriveillinois.com/departments/index/register/volume42/register_volume42_issue24.pdf (pp. 9633-10350).

IOWA

WASTE

The Environmental Protection Commission proposed amendments to Iowa Admin. Code r. 567-119, 567-123, and 567-211. The proposed amendments would incorporate EPA's recent terminology change to 40 C.F.R. 262.13 regarding hazardous waste generator categories and provide clarification regarding regulatory requirements. *See* https://www.legis.iowa.gov/docs/aco/bulletin/06-06-2018.pdf (pp. 3010-20).

WATER

The Soil Conservation and Water Quality Division proposed amendments to Iowa Admin. Code r. 27-16. The proposed amendments would add new eligible practices, identify applicable standards for urban infrastructure program projects, and remove the application of the 50 percent cost-share limitation to edge-of-field practices and land uses changes. *See* https://www.legis.iowa.gov/docs/aco/bulletin/06-20-2018.pdf (pp. 3153-55).

KANSAS

WASTE

The Kansas Department of Health and Environment proposed to adopt new regulations, Kan. Admin. Regs. 28-35-800, 28-35-802, 28-35-803, 28-35-804, and 28-35-805, regarding naturally occurring radioactive material and technologically enhanced naturally occurring radioactive material. A hearing will be held September 27, 2018. Comments are due September 28, 2018. *See* http://www.kssos.org/pubs/register/2018/Vol_37_No_23_June_7_2018_pages-599-642.pdf (pp. 635-36).

KENTUCKY

WATER

The Department for Environmental Protection proposed amendments to Ky. Admin. Regs. 401-5. The amendments would ensure that Kentucky pollution discharge elimination system (KPDES) permits issued under the KPDES permitting program are legally sound and in compliance. *See* http://www.lrc.ky.gov/kar/contents/registers/44Ky_R_2017-18/12_june.pdf (pp. 2578-635).

LOUISIANA

WASTE

The Department of Environmental Quality proposed amendments to La. Admin. Code tit. 33 XI. The proposed amendments would incorporate changes made to 40 C.F.R. Parts 280 and 281, including: adding periodic operation and management requirements for UST systems; addressing UST systems that were previously deferred from certain regulations; adding new release prevention and detection technologies; updating codes of practice; and making editorial corrections and technical amendments. *See* http://www.doa.la.gov/osr/REG/1806/1806.pdf (pp. 1109-50).

MAINE

AIR

The Department of Environmental Protection proposed to create Chapter 166, Industrial Cleaning Solvents. In 2006, EPA published a control technique guideline (CTG) recommending volatile organic compound controls for industrial cleaning solvents. The proposal would incorporate this CTG into a new rule, which will be submitted to

EPA for approval in Maine's SIP. *See* http://www.maine.gov/sos/cec/rules/notices/2018/053018.html.

WASTE

The Department of Environmental Protection proposed amendments to Chapters 850, Identification of Hazardous Waste; 851, Standards for Generators of Hazardous Waste; 852, Land Disposal Restrictions; and 858, Universal Waste Rules. The proposed amendments would incorporate new and revised regulations promulgated by EPA under the Solid Waste Disposal Act. *See* https://www.maine.gov/sos/cec/rules/notices/2018/061318.html.

The Department of Environmental Protection proposed amendments to Chapter 418, Solid Waste Management Rules: Beneficial Use of Solid Wastes. The proposed amendments would create new exemptions addressing the beneficial use of several different waste streams; provide updated and consolidated general standards for beneficial use projects; replace constituent values for "Screening Standards for Beneficial Use" with current, risk-based values based on "Regional Screening Levels for Chemical Contaminants at Superfund Sites" methodology; provide additions and revisions to licensing standards for tires and dredge material; and update "Fuel Substitution" provisions. *See* https://www.maine.gov/sos/cec/rules/notices/2018/061318.html.

The Department of Environmental Protection proposed to amend Chapter 415, Reasonable Costs for Handling, Transportation, and Recycling of Electronic Wastes. The proposed changes, which are in response to changes in state law, include the addition of 3D printers as covered devices; changes to the method for calculating payment for the recycling of monitors and printers so that the cost of recycling is paid according to market share and no longer brand-sorted, with the result that historic manufacturers will no longer be billed for recycling; and moving the due date for annual manufacturer registrations to April 1. *See* http://www.maine.gov/sos/cec/rules/notices/2018/053018.html.

WATER

The Department of Environmental Protection proposed to amend Chapter 310, Wetlands and Waterbodies Protection. The amendment would limit the definition of certain "wetlands of special significance" to include contiguous wetlands within a 250-foot radius unless the department determines that the activity may unreasonably adversely affect the protected resource that created the special significance designation. The proposed rulemaking would also add shoreline stabilization projects to the list of projects that may be considered in wetlands of special significance subject to an alternatives analysis and clarifies the definitions of "emergent marsh vegetation" and "peatland." *See* http://www.maine.gov/sos/cec/rules/notices/2018/053018.html.

WILDLIFE

The Department of Marine Resources proposed amendments to Chapter 7, Requirements for Municipalities Having Shellfish Conservation Programs. The proposed amendments would clarify existing requirements by reorganizing sections to be more understandable and improving the wording of the regulation; provide greater consistency with regard to the establishment of deadlines; and ensure that components of municipal shellfish management plans are consistent with what the law allows. *See* https://www.maine.gov/sos/cec/rules/notices/2018/060618.html.

MINNESOTA

WATER

The Minnesota Pollution Control Agency seeks comment on the proposed Watershed Restoration and Protection Strategy and TMDL reports for the Mississippi River Headwaters Watershed. The Watershed Restoration and Protection Strategy report is heavily focused on protection of the high-quality waters of the Mississippi River Headwaters Watershed, while the TMDL is focused on the restoration of two lakes in Beltrami County, Lake Irving and Little Turtle. *See* https://mn.gov/admin/assets/SR42_49%20-%20Accessible_tcm36-341551.pdf (pp. 1529-31).

The Minnesota Pollution Control Agency seeks comment on the proposed Watershed Restoration and Protection Strategies and TMDL reports for the Lake Superior North Watershed. *See* https://mn.gov/admin/assets/SR42_51%20-%20Accessible_tcm36-342907.pdf (pp. 1563-65).

MISSOURI

AIR

The Department of Natural Resources proposed amendments to Mo. Code Regs. Ann. tit. 10, §§10-2, 10-5, and 10-6. The proposed amendments would, among other things, remove obsolete provisions; reduce regulatory burden on facilities; remove unnecessary restrictive words; incorporate new emissions standards, updates, and clarifications; and clarify rule language on testing, reporting, and other items. A hearing will be held August 30, 2018. Comments are due September 6, 2018. *See* https://www.sos.mo.gov/CMSImages/AdRules/moreg/2018/v43n12June15/v43n12a.pdf (pp. 1266-328).

The Department of Natural Resources proposed amendments to Mo. Code Regs. Ann. tit. 10, §§10-2.260, 2.300, 5.500, 5.530, 5.540, 6.070, 6.075, 6.080, 6.120, 6.130, 6.161, 6.241, 6.250, 6.280, 6.300, and 6.380. The proposed amendments would, among other things, remove obsolete provisions; reduce regulatory burden on facilities; incorporate by reference new emission standards, updates, and clarifications to 40 C.F.R. 60, 61, and 63; and clarify rule language on testing, reporting, and other items. A hearing will be held August 30, 2018. Comments are due September 6, 2018. *See* https://www.sos.mo.gov/CMSImages/AdRules/moreg/2018/v43n12June15/v43n12a.pdf (pp. 1266-1328).

WATER

The Clean Water Commission proposed amendments to Mo. Code Regs. Ann. tit. 10, §20-2. The amendments would bring definitions up to date to match updated statutes, federal regulations, and terminology; and remove duplication and unnecessary restrictive words. *See* https://www.sos.mo.gov/CMSImages/AdRules/moreg/2018/v43n11June1/v43n11a.pdf (pp. 1148-53).

NEW HAMPSHIRE

WATER

The Department of Environmental Services proposed amendments to N.H. Code Admin. R. Env-Dw 800. The proposed amendments would ensure equivalency with federal requirements, clarify existing requirements and update cross-references, and replace the term "owner" with "O/O" to reflect the change in terminology required by EPA. *See* http://www.gencourt.state.nh.us/rules/register/2018/june-7-18.pdf (pp. 1-2).

NEW MEXICO

WATER

The New Mexico Water Quality Control Commission proposed amendments to N.M. Code R. §20.7.5, Wastewater Facility Construction Loans. The amendments would expand the scope of projects and borrowers eligible for consideration for funding pursuant to the Wastewater Facility Construction Loan Act, in addition to other changes. A hearing will be held August 14, 2018. *See* http://164.64.110.239/nmregister/xxix/xxix10/WQCC_English.htm.

NORTH CAROLINA

WASTE

The Department of Environmental Quality proposed amendments to 15A N.C. Admin. Code 13B-.1101 to .1110. The proposed amendments would clarify unclear language, consolidate requirements and repeal rules to remove redundant or unnecessary language, and correct technical errors. Comments are due August 14, 2018. *See* https://www.ncoah.com/rules/register/Volume%2032%20Issue%2024%20June%2015,%202018.pdf (pp. 2717-22).

WATER

The Department of Environmental Quality proposed amendments to 15A N.C. Admin. Code 02B-.0300. The proposed amendments would reclassify Enka Lake, which is part of the French Broad River Basin, from Class C to Class B, that would require a fecal coliform limit for new NPDES wastewater discharges to these waters. A hearing will be held August 8, 2018. Comments are due August 14, 2018. *See* https://www.ncoah.com/rules/register/Volume%2032%20Issue%2024%20June%2015,%202018.pdf (pp. 2661-63).

The Department of Environmental Quality proposed amendments to 15A N.C. Admin. Code 02C. The proposed amendments would, among other things, incorporate current rule interpretations and newly adopted statutory requirements, and reflect significant improvement in consistency and clarity. Comments are due August 14, 2018. *See* https://www.ncoah.com/rules/register/Volume%2032%20Issue%2024%20June%2015,%202018.pdf (pp. 2663-2716).

OHIO

WATER

The Ohio Environmental Protection Agency proposed amendments to Ohio Admin. Code 3745-40. The proposed amendments would add a self-certification requirement for beneficial use sites and requirements for approval of nontraditional or alternative feedstocks for use in anaerobic digestion. *See* http://www.registerofohio.state.oh.us/pdfs/phn/3745_NO_321608_20180614_0938.pdf.

OREGON

AIR

The Department of Environmental Quality proposed amendments to Or. Admin. R. 340-220-0030, 340-220-0040, and 340-220-0050. The proposed amendments would increase Title V permit fees to pay for increased program costs. *See* https://secure.sos.state.or.us/oard/viewRedlinePDF.action?filingRsn=38040.

CLIMATE CHANGE

The Department of Environmental Quality proposed amendments to Or. Admin. R. 345-024-0550, 345-024-0570, 345-024-0590, and 345-024-0620. The proposed amendments would update carbon dioxide emissions standards based on current natural gas-fired energy facility technology. *See* https://secure.sos.state.or.us/oard/viewRedlinePDF.action?filingRsn=38244.

WATER

The Department of Environmental Quality proposed amendments to Or. Admin. R. 340-045-0075 and 340-071-0800. The proposed amendments would increase NPDES and water pollution control facility fees to cover costs associated with implementing the per-

mitting program and delivering services to regulated entities. *See* https://secure.sos.state.or.us/oard/viewRedlinePDF.action?filingRsn=37984.

PENNSYLVANIA

AIR

The Department of Environmental Protection seeks comment on Pennsylvania's 2018 Annual Ambient Air Monitoring Network Plan, which has been updated to address changes made in the Commonwealth's ambient air monitoring network and identify changes anticipated to occur in the remainder of 2018 and in 2019. *See* https://www.pabulletin.com/secure/data/vol48/48-24/932.html.

WATER

The Department of Environmental Protection seeks comment on revisions to the Comprehensive Conservation and Management Plan to protect the Delaware Estuary. The revisions to the Comprehensive Conservation and Management Plan mark the first revisions to the Plan since it was originally written in 1996. *See* https://www.pabulletin.com/secure/data/vol48/48-23/888.html.

RHODE ISLAND

WATER

The Department of Health proposed amendments to 216-50-5 R.I. Code R. §7. The proposed amendments would create "Authority" and "Purpose" sections, revise the definitions section to implement the Secretary of State definitional requirements, correct citations to the statute, remove citations to the repealed statute, and remove superfluous language. *See* http://sos.ri.gov/documents/archives/regdocs/holding/DOH/2018.06.08_CWI_PC_Notice_FULL.pdf.

The Department of Environmental Management proposed amendments to 250-150-5 R.I. Code R. §1. The proposed amendments would add an "Incorporated Materials" section, update provisions to conform to National Shellfish Sanitation Program guidance, and make additional non-technical changes. *See* http://sos.ri.gov/documents/archives/regdocs/holding/DEM/pn250-RICR-150-05-1.pdf.

The Coastal Resources Management Council proposed amendments to 650-20 R.I. Code R. §6. The proposed amendments would establish the Greenwich Bay Special Area Management Plan for integration and coordination of protection of natural resources, promotion of reasonable coastal-dependent economic growth, and improved protection of life and property within the Greenwich Bay Watershed. *See* http://sos.ri.gov/documents/archives/regdocs/holding/CRMC/9985%20--%20650-RICR-20-00-6%20--%2004%20000%20020.pdf.

TENNESSEE

WATER

The Board of Water Quality proposed amendments to Tenn. Comp. R. & Regs. chs. 0400-40-03 and 0400-40-04, concerning water quality standards. As part of its triennial review, the Board proposed to adopt the majority of EPA's new recommended water quality criteria. It also proposed substantial revisions to the antidegradation statement as applied to permits for aquatic resource alteration or habitat alteration. Many other revisions were proposed as well. *See* http://publications.tnsosfiles.com/rules_filings/05-05-18.pdf.

The Board of Water Quality proposed amendments to Tenn. Comp. R. & Regs. 0400-40-07. The proposed amendments would clarify that aquatic resource alteration permits are required only for alterations of streams and wetlands and remove all references to wet weather conveyances. *See* https://www.tn.gov/content/dam/tn/environment/water/documents/ppo_water_2018-05-04-rulemaking-hearing-0400-40-07-amendments.pdf.

TEXAS

AIR

The Commission on Environmental Quality proposed amendments to Chapter 116, control of air pollution by permits for new construction or modification. The revisions are necessary to reflect the option for the Commission to use an electronic method of providing renewal notifications. *See* http://www.sos.state.tx.us/texreg/archive/May252018/Proposed%20Rules/30.ENVIRONMENTAL%20QUALITY.html#19.

The Commission on Environmental Quality proposed amendments to Chapter 122, federal operating permits program. The revisions are necessary to reflect the option for the Commission to use an electronic method of providing renewal notifications. *See* http://www.sos.state.tx.us/texreg/archive/May252018/Proposed%20Rules/30.ENVIRONMENTAL%20QUALITY.html#29.

WASTE

The Texas Commission on Environmental Quality proposed amendments to 30-1 Tex. Admin. Code §§336.356, 336.1301, 336.1305, 336.1307, 336.1309-336.1311, 336.1313, and 336.1317. The proposed amendments would ensure compatibility with federal regulations promulgated by the Nuclear Regulatory Commission, adjust surcharge fees for compact waste disposal, and remove the annual requirement for rate adjustment for disposal of low-level radioactive waste to allow flexibility to incorporate rate adjustments on an as-needed basis. *See* https://www.sos.texas.gov/texreg/archive/June82018/Proposed%20Rules/30.ENVIRONMENTAL%20QUALITY.html#61.

VERMONT

WASTE

The Department of Environmental Conservation proposed amendments to 12-032-004-8 Vt. Code R. §8. The proposed amendments would clarify and update several sections and add new requirements that critical components be tested at least once every three years. *See* https://secure.vermont.gov/SOS/rules/#.

WEST VIRGINIA

AIR

The Division of Air Quality proposed amendments to W. Va. Code R. §§45-8, 45-16, 45-25, 45-34, 45-36, 45-38, and 45-43. *See* http://apps.sos.wv.gov/adlaw/registers/readpdf.aspx?did=39783 (p. 26).

WATER

The Water Resources Division of Water and Waste Management proposed amendments to W. Va. Code R. §47-2. The proposed amendments would revise provisions relating to overlapping mixing zones and harmonic mean flow to comply with changes made by the legislature to W. Va. Code R. §22-11-7(b), revise human health criteria to comply with nationally recommended water quality criteria, and revise the process for site-specific criterion to allow a streamlined process for developing site-specific revisions to copper. *See* http://apps.sos.wv.gov/adlaw/csr/readfile.aspx?DocId=50392&Format=PDF.

RECENT JOURNAL LITERATURE

"Recent Journal Literature" lists recently published law review and other legal periodical articles. Within subject-matter categories, entries are listed alphabetically by author or title. Articles are listed first, followed by comments, notes, symposia, surveys, and bibliographies.

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Arnold, Zachary C.M., *Preventing Industrial Disasters in a Time of Climate Change: A Call for Financial Assurance Mandates,* 48 ELR 10664 (Aug. 2018).

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Griffin, Collmann, *A Critical Companion: Why Climate Progressives Should Learn to Love the World Trade Organization*, 29 Geo. Envtl. L. Rev. 199 (2016).

Hawkins, Paul, *Waging War on the Rising Seas: Fashioning a Comprehensive Approach to Combating the Effects of Sea Level Rise on Hampton Roads, Virginia Military Installation Under Existing Frameworks*, 41 Wm. & Mary Envtl. L. & Pol'y Rev. 265 (2016).

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