

# The New York Environmental Lawyer

A publication of the Environmental Law Section  
of the New York State Bar Association

## Message from the Outgoing Chair

The Section's meetings this year covered a wide range of subject areas that have been thrusting themselves on the public as well as on the legal world in just the past couple of years, and which are likely to continue to do so, in various manners, as the future unfolds. All were the subject of in-depth discussion by panel participants, including our Section members who have become valued for their specializations.

The fall meeting was co-sponsored with the Municipal Law Section, which we have done before to the benefit of both memberships. The co-chairs for the En-

*(continued on page 2)*



**Kevin Reilly**

## Message from the Incoming Chair

As the newest Chair of the Environmental Law Section and a longtime Section member, I am looking forward to working this year with our team, Mike Lesser, Vice Chair; Laurie Silberfeld, Treasurer; and Larry Schnapf, Secretary. This Section has wonderful members, who are hardworking attorneys and are always available to pitch in and address complicated environmental issues. The members of this Section have welcomed law students and newly admitted attorneys to our ranks and we have long sought and continue to seek concrete ways to support diversity in membership, as well as in-



**Teresa Bakner**

*(continued on page 4)*

## Inside

From the Editor-in-Chief.....	5
(Miriam E. Villani)	
From the Issue Editor.....	6
(Justin Birzon)	
From the Student Editorial Board.....	7
(Mark Houston on behalf of the SEB)	
EPA Update.....	8
(Marla E. Wieder, Chris Saporita, Joseph A. Siegel and Mary McHale)	
DEC Update .....	18
(Randall C. Young)	
Section News	
Member Profiles:	
Long-Time Member: J. Kevin Healy .....	20
New Member: Genevieve M. Trigg.....	20
Joel Sachs Receives CLE Committee Award.....	21
In Memoriam: David Sive.....	22
2014 Annual Meeting.....	23
Recent New York State Water Regulations	
Not Ready for Prime Time.....	24
(David L. Ganje)	

Sustaining Sustainability: The Enforcement of Land Use Regulations and the Trend Toward Post-Occupancy Enforcement.....	26
(Drew Gamils)	
The Need for a Systemic and Coherent Federal Regulatory Framework for Effective Adaptation to Climate Change .....	30
(Paola Bettelli)	
The Changing Plans of New York's Cities in the Wake of Changing Climates: Is Enough Being Done? .....	48
(Ben Botelho, Bryan Gottlieb, David Iversen and Kelly O'Donovan)	
Adaptation to Climate Change and the Everglades Ecosystem .....	56
(Frank Piccininni)	
The New York Environmental Selfie: To Audit or Not to Audit? .....	67
(John Louis Parker)	
Shining Cities .....	73
(Judee Burr, Tony Dutzik, Jordan Schneider and Rob Sargent)	
Appendix A: Solar Energy in Major American Cities.....	98
Appendix B: City-by-City Data Sources.....	100
Recent Decisions and Legislation in Environmental Law.....	107

## Message from the Outgoing Chair

(Continued from page 1)

Environmental Law Section were Teresa Bakner and Mike Lesser, both of whom are active cabinet members with a long history of taking leading roles in Section activities, and Dominic Cordisco. Michael Kenneally and Steven Levantl co-chaired for the Municipal Law Section. Given the practical focus of many of our programs, important attention—and CLE accreditation—was devoted to updates relevant to environmental practices, which I'll mention momentarily. However, a substantial part of the program was addressed to superstorms and other natural disasters, events that are very much on all kinds of radar screens but which are posing significant challenges to municipalities and states, not to mention federal programs such as FEMA.

The unusual ferocity of meteorological disturbances in recent years likely results from several variables giving rise to different kinds of storms, but the evidence, of course, is clear that a major contributing factor is the excessive energy in the global system resulting in large part from the escalating layering of greenhouse gases in the atmosphere. While the credible scientific community is endeavoring to understand the relationship between those variables and the outcomes, too many of the various political systems around the globe are responding either reluctantly, or inadequately, or not at all. Just as not all storms, from tornadoes to cyclones, can be lumped together if meaningful conclusions are to be drawn, not all political systems can be realistically expected to respond coherently. However, the conclusion is inescapable that governments must take the lead in encouraging, or even imposing, discipline on the economic sectors that are significant causative factors in climate change. The American economy and its supportive political system have a long history of technological innovations that seem to spring up in the nick of time to stave off crises. While that may be a simplification, nevertheless the 20th century, through a crushing world war, with economic and financial systems unimaginable by prior generations, and the marriage of mechanics and physics that thrust the human handprint to worlds beyond, must be understood as a sequence of technological gestalts that would not have arisen as abruptly except for the pressing needs of the time. One can hope that technology—either cleaner or cleaning—will drive some of the responses to what is becoming understood by reasonable and intelligent people to be a quickening climate crisis.

If one hopes for a technological strategy, however, both the motivation—in part regulatory—and the complicated economics of technological innovations that will make a difference must be better understood by all sides in the climate debate. That there even is an unresolved climate debate as the evidence grows more dour suggests that a lot of work must be done quickly to understand the

economics of cleaner energy, cleaner industries, and even adjustments in lifestyles, and to hammer out effective agreements. We also have to accept the practical reality that while international conventions can be discussed and even negotiated, we have limited leverage with many governments, our own national track record is spotty, and the contributions to climate change by the several nations of the world are asymmetrical, dampening any argument by Western governments, and especially our national government, that a general reduction in greenhouse emissions will be necessary.

The role of knowledgeable lawyers, not just as regulators or in compliance roles or even in defense of industry, but, more importantly, as communicators will be pivotal. The Environmental Law Section, which includes attorneys from several fields and backgrounds, in cooperation with other NYSBA Sections (presently comprising the Climate Change Initiative), and diverse organizations, such as Columbia Law School's growing set of programs on Climate Change that is steered by our Section's former chair Mike Gerrard, is doing its part to play such a role. These, of course, are easy statements to make, and the devil, of course, is in the details. Some of those details were addressed in the Section's fall meeting during a panel addressing the environmental and municipal responses to natural disasters, with specific reference in this part of the nation to Sandy and Irene; how land use planning should change in anticipation of future storms; and the need for, and shape of, disaster preparedness planning. Section member Michael Bogin, of Sive Paget & Riesel, Schoharie County Treasurer William Cherry, and Neal Connolly and Kevin Crawford from the Insurance industry, provided perspectives from their particular backgrounds and experiences. All of these issues remain important, and strategies are evolving, as was evident in various other programs this year involving Section members, such as the Climate Change Initiative, for which Columbia Law School hosted a program in April. Although these kinds of discussions do not resolve the larger climate problem, they are integral to the process of directing the public's focus toward that problem and they, indeed, do start to address the more local problems with which coastal and riverside communities are grappling.

Also at the fall meeting, changes to the SEQRA regulations and forms, and recent case law, were brought to the attention of participants on Friday, and on Sunday DEC's new audit incentive policy was discussed by DEC's Monica Kreshnick, and EPA's self-audit policy was discussed by EPA's (and former Section chair) Carl Howard, which together were easily worth the price of admission. Eugene Kelly, DEC's Director for Region 4, gave a regional update on DEC's activities and goals on Friday evening, and Jack McEneny, a former Assembly member

and an Albany historian, took the Saturday dinner audience on an entertaining, and colorful, journey through the history of a town that is often defamed as being bland.

The annual meeting included a moot court addressing the land use controversy pitting municipalities against industry with respect to hydrofracking within municipal boundaries. The legal dispute presented the question whether traditional land use controls, including zoning, exercised by municipalities in New York are preempted by state statutory controls addressing mining and other extractive activities. Thus far, the Appellate Division has ruled for the municipalities—basically finding that while the *how* of these activities is governed by state statutory law, the *where* falls under local land use authority. The Court of Appeals ruling, which will likely be issued before the summer, likely will constitute landmark law regardless of the specific outcome. Tom West argued for industry in the Section's moot court, as he had before the Appellate Division and will before the Court of Appeals, and Debbie Goldberg represented the *Town of Dryden*, as she, too, did in the Appellate Division. The "court" was comprised of people known for their particular expertise and balance: Mike Gerrard, Joel Sachs, Gail Port, Adam Schultz and Bridget Lee. Ed McTiernan, General Counsel for DEC, was the luncheon speaker. Ed, who is well known to many Section members, provided an engaging, but also informative, discussion of DEC initiatives that was, as described by attendees, straightforward and frank, while also being helpful in articulating the Department's goals and limitations.

At the Executive Committee meeting following the luncheon, the issue of committee responsibilities arose again. While we have numerous committees that address the many subfields of environmental law, many of which have been very active and effective over the years, a malaise, as Jimmy Carter would say, has overtaken some committees. Committee work provides a valuable means of not only advancing programs, but involving newer members in those programs, so that they have a role and a presence, and a platform to get more involved

in the Section. Committees, too, provide some of the best marketing for the Section, in terms of committee output as well as attracting and retaining membership. As has been amply discussed at several meetings, in the increasingly competitive environment—so to speak—of bar association memberships, our Section needs to focus like a laser beam—as a young Bill Clinton might say—on more effective marketing. As has been discussed several times over the years, committees should be productive on an annual basis. That productivity might be achieved by a CLE program, legislative activity, other projects, or even a substantive *Journal* article. Not all subfields of environmental law are equally active all the time, so that committees should be free to find their own means of establishing their relevance. However, each committee should do something each year.

Committee chairs have that responsibility, in tandem with the committee members. Some have suggested that we institute an automatic rotation of committee chairs. I am not entirely comfortable with term limits. We are fortunate in having many very active chairs whom we do not want to lose. Others have been active in the past but are faced with other responsibilities and have recently asked for others to step up and assume the responsibility. One possible strategy for motivating committees, chairs and members, especially newer or younger members, might be to have a two- or three-year term for a chair, subject to renewal, with the default position more or less understood to be that the chair would be reappointed for another term if the committee had demonstrated activity during the prior term. That might be a means of ensuring that we retain active chairs, and allow others to consider whether they have the time to continue, or whether they want to groom other committee members to step up and assume responsibility. These are only ideas, but I hope that they generate some discussion about reviving our committee structure or even leading to some re-structuring as our Section continues to assert its relevance, but also seeks an enlarged and vital membership.

Kevin Reilly



**CHECK US OUT ON THE WEB**  
**<http://www.nysba.org/Environmental>**



## Message from the Incoming Chair

(Continued from page 1)

creased participation in our Fall, Annual and Legislative meetings.

One of the benefits of being an environmental lawyer is the constantly changing legal landscape resulting from the many novel issues that arise in our practice. From climate change and carbon regulation to new energy technologies such as hydraulic hydrofracking, wind and solar; each day brings new laws, regulations, and court decisions that prevent us from becoming intellectually complacent (or bored) as attorneys.

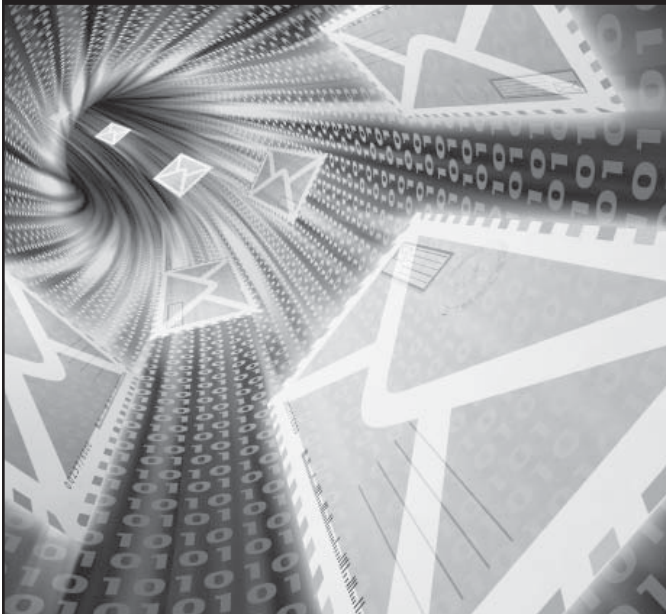
For those of us who appear before municipal boards, it is clear that any project of scale will have its advocates and detractors. With the recent and forthcoming changes to the forms and procedures necessary to comply with the New York State Environmental Quality Review Act, you can expect even greater public discourse on the merits of projects. As the Legislative Forum this past May demonstrated, critical environmental issues regarding the transport of oil in substandard railcars can arise in the 21st Century. How to better regulate this transport mode and meaningfully address the safety concerns of those

who reside near the railroad tracks is likely to consume a substantial portion of federal, State, and local agency time and effort over the coming months.

As this issue was going to press, we were finalizing plans for our Fall Meeting at the lovely Otesaga Hotel in Cooperstown, New York for the weekend of September 19, 20, and 21. The program will have many CLE credits available for newly admitted attorneys. The focus of the weekend will be on effectuating Brownfields reform, following a road map to the Clean Air Act and recent judicial rulings, surveying CERCLA and hot topics involving hazardous waste remediation, and many more issues of importance to environmental lawyers. The cabinet is also embarking on an effort to reorganize and reenergize the Section committees. Those efforts will be addressed at the Executive Committee meeting on Sunday, September 21. All of this and baseball and brewery tours too—many additional activities will be organized for the weekend so that your families can enjoy Cooperstown to the fullest.

**Terresa Bakner**

## Request for Articles



If you have written an article you would like considered for publication, or have an idea for one, please contact one of *The New York Environmental Lawyer* Editors:

**Miriam E. Villani**  
Sahn Ward Coschignano  
& Baker, PLLC  
333 Earle Ovington Blvd.,  
Suite 601  
Uniondale, NY 11553  
mvillani@swcblaw.com  
**Editor-in-Chief**

**Justin M. Birzon**  
259 State St.  
Albany, NY 12210  
birzon.law@gmail.com  
**Issue Editor**

**Prof. Keith Hirokawa**  
Albany Law School  
80 New Scotland Ave.  
Albany, NY 12208  
khiro@albanylaw.edu  
**Issue Editor**

**Aaron Gershonowitz**  
Forchelli Curto  
333 Earle Ovington Blvd.  
Uniondale, NY 11553  
agershonowitz@fcsmmc.com  
**Issue Editor**

Articles should be submitted in electronic document format (pdfs are not acceptable), along with biographical information.

[www.nysba.org/EnvironmentalLawyer](http://www.nysba.org/EnvironmentalLawyer)

# Message from the Editor-in-Chief

Since my last column, we survived a polar vortex, but are still hearing from the climate-change naysayers who pointed to the extended below-freezing temperatures as proof that global “warming” is a figment of the leftwing imagination. There is no explaining to them that the polar vortex is likely one of the impacts of climate change. We know that extreme weather can result from the overall warming of the planet, melting of the Arctic Sea, etc. It can include distortions of the jet stream, which can cause heat waves in summer and periods of extreme cold in winter.



An overwhelming 97% of scientists are in agreement that humans are causing climate change. The effects are being felt all over the world. Water is growing scarcer in some regions while torrential rains are drowning others. Heat waves are longer, more severe, and more frequent, leading to wildfires that are growing worse and more widespread. These are just a few examples of the myriad of devastating changes we are facing.

In March 2014, the Intergovernmental Panel on Climate Change (IPCC), a United Nations group that, for over two decades, has been issuing warnings about the consequences of climate change, released a new report. The report's conclusions suggest that the ultimate consequences could be catastrophic and that the window of opportunity for action is closing. The IPCC's report echoed one presented by the American Association for the Advancement of Science, the world's largest scientific society, a few weeks earlier. I am not confident that these reports, or that witnessing the extreme weather and resulting damage, will convince the deniers that climate change is a danger to the American public now and a serious threat to our future generations.

Fortunately, our representatives in government are getting the picture. If the businesses along the nation's coasts flood repeatedly until they are destroyed, and agriculture is forced north from its current regions, and industries like construction and tourism are wiped out by increasingly alarming levels of heat and humidity, the country's economy will suffer. With that picture in mind, a coalition of senior politicians and economic figures, including three Treasury Department secretaries going back as far as the Nixon administration, issued a bipartisan report in June 2014. The Treasury secretaries endorse putting a price on greenhouse gases. The report analyzes

the economic impact of climate change in the various regions of the country. Nevertheless, the coalition's risk analysis expert advised that the American public should not be thinking about economic risk, but rather should be thinking about the kind of world in which we want to live and leave to our children.

In an effort to address the effects of human-induced climate change, the Obama administration promulgated several new regulations under the Clean Air Act (CAA). The regulations curb coal pollution and cover cross-state air pollution. In a 6–2 ruling in April 2014, the U.S. Supreme Court upheld USEPA's authority to regulate coal-plant pollution that crosses state lines from the Midwest and Appalachia to the eastern states. *EPA v. EME Homer City Generation*, No. 12-1182, Slip op. (April 29, 2014). The decision left open the door for EPA to use the authority of the CAA to address carbon pollution.

In June 2014, EPA proposed a rule that would effectively cut carbon dioxide emissions from existing coal plants by as much as 30 percent by 2030, from 2005 levels. The proposed regulation was issued pursuant to Section 111(d) of the CAA. The plan relies on the states for implementation. It allows the states to meet emissions targets for power plants in several ways. Plants can undertake upgrades, switch from coal to gas, improve energy efficiency, or promote renewable energy off the plant site. The states will be given flexibility in designing plans to meet the targets, but if a state fails to come up with an effective implementation plan, EPA can impose a federal plan. There is a lot of criticism from industry and several states are expected to sue EPA over the rule. EPA will hold public hearings and take public comments over the next several months. The rule is expected to be finalized by June 2015, and the states are to submit their implementation plans for approval by June 30, 2016. Although the rule certainly will be challenged in the courts and Congress, there are past judicial decisions including the U.S. Supreme Court's April decision in *EPA v. EME Homer City Generation* that will assist the Obama administration in its defense. Environmentalists, renewable energy producers, utility companies, and the coal industry are all watching and weighing in on this proposed regulation. Some say it is the most important step President Obama has taken to address climate change.

We, as environmental lawyers, are entering interesting and challenging times as the climate change debate becomes ever more urgent, and immediate and effective action ever more necessary.

**Miriam E. Villani**

# Message from the Issue Editor

The summer of 2014 is going to be the stage on which many long-running environmental storylines will continue to play out: New York City is changing how its facilities store their hazardous waste; Albany is poised to become a major oil export port; the New York Legislature passed a measure to extend Brownfield tax credits, and also passed the Community Risk and Resiliency Act; the United States Bankruptcy Court made an environmentally conscious decision to require Kodak to continue funding cleanup and remediation costs even after filing for chapter 11 bankruptcy protection; and the New York Public Service Commission has embraced the concept of "Utility 2.0" in order to accommodate the changing energy landscape.

In response to increasing extreme weather events, the New York City Council passed Local Law 143, which requires operators of facilities that store hazardous substances to file additional information with the City under the Community Right to Know Program. The program's goal of providing citizens and first responders with the information needed to best prevent and mitigate a catastrophe is achieved by requiring certain facility operators to certify that all hazardous substances are stored in compliance with all applicable rules, subject to civil penalties of up to \$10,000 per violation. Additional reporting requirements are imposed on operators of facilities located within "special flood hazard area zones" and New York City Office of Emergency Management Coastal Storm and Hurricane Evacuation Zones.

In Albany it would not be uncommon to see dozens of black cylindrical rail cars lined up in rail yards along the highway waiting to unload their contents onto barges for transport down the Hudson River to the New York harbor. The trains are delivering shale oil from the Bakken formation which lies within North Dakota, Montana, and Canada. Recent advances in hydraulic fracturing technology have unleashed the shale's contents, which were previously uneconomical to extract. In response to public pressure to issue a complete environmental impact assessment for the port, Governor Cuomo issued an executive order requiring State agencies to produce a report on incident prevention and response capacity. The report highlighted the requirements triggering a full SEQRA review, the overall need to modernize our rail system, and the lifecycle environmental effects of extracting the oil, and is available on the DEC's website.

In June of this year, the New York State legislature voted to extend the New York Brownfield tax credit program, which was set to expire in 2015, for an additional 15 months. This is a common-sense approach for a program that often requires a multi-year commitment from the applicant.

Both houses of the legislature also passed the Community Risk and Resiliency Act, which is now awaiting the Governor's signature. The act seeks to achieve its goal of

planning for extreme weather events and of planning for the effects of global climate change by requiring that state agencies and departments consider such risks when funding projects or issuing permits. Mandatory considerations include sea level rise, storm surges and flooding, and opportunities for green infrastructure. Some state bodies, such as DEC, already incorporate climate change into their considerations, but many others do not. The largest effect of the bill will be on those state agencies that do not currently require consideration of climate change adaptation or mitigation because it will codify their requirement to do so. The act also requires the DEC and the New York Department of State ("DOS") to collaborate on model local laws and ordinances aimed at implementing storm resiliency measures for municipalities.

Pursuant to an approved bankruptcy settlement between the United States government and Kodak, the DEC will be responsible for administering a mandatory \$49 million environmental trust which will be funded by Kodak. The fund will be used to assess and remediate any contamination within the Eastman Business Park and the Genesee River in Rochester. Should the fund be depleted, the State has agreed to contribute up to \$50 million in supplemental funds, with any additional costs being split between the State and Kodak. In order to fulfill the purpose of the remediation, which is to utilize the remediated lands, the settlement also provides prospective redevelopers with an environmental liability release related to the historic contamination of the site.

And finally, the State Public Service Commission has set out to reform the energy vision of New York State. Through its Reforming Energy Vision (REV) proceeding (case 14-M-0101) the Commission has undertaken a complete soup-to-nuts evaluation of the technological, consumer, economical, environmental, and regulatory aspects of the modern American electricity generation and distribution model. The vision is split into two "tracks": the first track is already under way to examine the role of distribution utilities in enabling market-based deployment of distributed energy resources to promote load management, system efficiency, and peak load reductions; the second track will examine necessary changes to the regulatory, tariff, and market design and incentive structures to better align utility interests with the goals recognized in track one. The Commission expects a policy decision on track one by December 2014, and that track two will be implemented by separate proceeding in 2015. I, for one, am very excited to see how the Commission handles this opportunity.

As always, there is much work to be done. In that work we will determine the direction in which we are going to steer this great state.

**Justin Birzon**

# From the Student Editorial Board

New York is truly an environmental gem. Its rivers, lakes, streams, and ponds provide residents with everything a human could need. Its mountains, hills, and other bucolic landscapes continue to inspire generations. Yet, even gems can tarnish over time, and so can our environment.

I am thinking of Love Canal, which continues to impact my views of environmental law. I grew up in Western New York, so Love Canal is something of a dark period of my local history. It is also a lasting monument for the environmental protection goals of future generations. It was something of a surprise to learn in law school that this site was a catalyst in prompting Congress to pass the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The issues of the past leave me wondering about what issues the next generation of environmental lawyers may face.

Recently, the Haida, an indigenous group in Canada, dumped 100 tons of iron into the Pacific Ocean.<sup>1</sup> Their goals were both self-seeking and altruistic. They sought to generate an algae bloom to increase the salmon stock for their villagers.<sup>2</sup> The bloom would be created by fertilizing the ocean with iron, which in turn would promote the growth of algae and provide food for fish.<sup>3</sup> The algae would also absorb the carbon dioxide from the atmosphere as it grows.<sup>4</sup> When it dies it sinks to the bottom of the ocean sequestering the greenhouse gas.<sup>5</sup> Canadian officials, of course, raided the Haida and charged them with dumping.<sup>6</sup>

This recent case of geoengineering highlights a potential issue that future environmental lawyers will face. A new generation of engineers and scientists is coming into its own. They are the grandchildren of the environmental movement challenged by their predecessors to do better. This generation understands and values the environment differently, as is evidenced by the advancements in green technologies. It is also seen in recent discussions about the green harms of green projects.

Green projects in the broadest sense are endeavors that are meant to mitigate human impacts on the environ-

ment. They range in complexity and impact. New York has seen such projects in wind farms that dot New York. The goal of the wind farms is to diminish New York's use of fossil fuels. Projects can also have more aggressive goals, such as the Haida project, in attempting to alter the environment in order to mitigate past human impacts. Green projects, like any other human activity, must have impacts on the same environment they seek to improve.

They also seem to be more perplexing to communities. They are unlike traditional projects that impact the environment. They must either deny a project and keep the environment as status quo, or allow a project that will alter the current environment with the hope that a better future environment will result. Environmental lawyers must now help communities reassess the value they assign to the environment.

Green projects are not going to go away. On the federal level, the current administration favors green technologies which in turn generate green projects. New York State has a strong environmental conservation program and has seen a boom in the use of wind and solar technologies. The future for New York lawyers will involve helping communities reassess the value they place on the environment.

**Mark Houston on behalf of the SEB  
Albany Law School '14**

## Endnotes

1. Alister Doyle, *Experimental Climate Fixes Stir Hopes, Fears, Lawyers*, REUTERS, August 30, 2013, available at <http://www.reuters.com/article/2013/08/30/us-climate-geoengineering-special-report-idUSBRE97T0BZ20130830>.
2. *Id.*
3. *Id.*
4. *Id.*
5. *Id.*
6. *Id.*



# EPA Update

By Marla E. Wieder, Chris Saporita, Joseph A. Siegel and Mary McHale<sup>1</sup>

## I. Introduction

While we hate to sound like broken records (or damaged MP3 files?), it was another challenging year for EPA. Sequestration, furloughs, continuing resolutions, the government shutdown in October, and a less than generous fiscal 2014 budget are not helping us fulfill our mission. Not surprisingly, the Agency was forced to conduct fewer inspections in 2013 and pursued fewer civil and criminal enforcement cases.<sup>2</sup> Due to the myriad of resource issues, EPA has had to shift its enforcement strategy to focus on larger, more complex cases that will have the greatest impact on public health while cutting back on in-person inspections and investigations. In early 2014, the Agency set about implementing plans to achieve a reduction in force and restructure its offices to address certain imbalances while ensuring that the Agency's growing needs in other areas are met. The loss of institutional memory and continued resource issues will certainly take its toll on the Agency in the coming years.



Chris Saporita



Marla E. Wieder



Joseph A. Siegel

declined steadily since 2009.<sup>4</sup> In 2013, we experienced approximately 28% less business bankruptcies than in 2009. As has been the case historically, small businesses made up the majority of the filings in 2013 (approximately 83%).<sup>5</sup> While this decreasing trend is certainly good news on many fronts, the Agency continues to play a pivotal role in many bankruptcy matters that affect contaminated sites not only in New York State, but around the country as well.

One ongoing matter of particular importance involves the Tronox bankruptcy and the related fraudulent conveyance litigation. Tronox was created in 2005-2006 through a spin-off from Kerr-McGee Corporation ("Kerr-McGee"). Several months after the spin-off was completed, Anadarko Petroleum Corporation ("Anadarko") purchased Kerr-McGee for \$18 billion. Tronox commenced Chapter 11 bankruptcy proceedings on January 12, 2009. The United States filed proofs of claim on behalf of EPA to recover, among other things, past and future environmental response costs relating to 18 sites in seven Regions, including a \$335.5 million claim in connection with the Federal Creosote Superfund Site in Manville, N.J. Pursuant to a February 2011 bankruptcy settlement between Tronox, the United States, 22 states, six local governments, and the Navajo Nation (the "Governments"), the Governments received, among other consideration, approximately \$300 million in cash and an 88% stake in the fraudulent conveyance case against its former parent company, discussed below.<sup>6</sup>

In May 2009, Tronox initiated a fraudulent conveyance case against its former parent company, Kerr-McGee, and Kerr-McGee's current parent company, Anadarko. The United States intervened in the matter. The plaintiffs argued that this was a "classic fraudulent conveyance case" and alleged that Kerr-McGee and Anadarko fraudulently transferred assets out of Tronox and thereby left it with insufficient funds to pay billions of dollars of environmental liabilities under CERCLA, RCRA, and

## II. Superfund

### A. Still FUN Without the FUNDS?

While President Obama has proposed the reauthorization of the Superfund tax since fiscal year 2010, not surprisingly Congress has declined to reinstate it. A new bill (H.R. 3870) was introduced in January by Oregon Democrat Rep. Earl Blumenauer with 15 co-sponsors; however, given the current political climate and other congressional priorities, it is doubtful reauthorization is on the horizon. A package of other bills (H.R. 2279, H.R. 2226, and H.R. 2318) aimed at increasing the states' roles in cleanups has also been in circulation. With strong opposition from the environmental and public interest groups contending that the bills will hamper the cleanup process and add additional costs to already expensive cleanups, it is doubtful they will make it out of the Senate.

On the budget side of the house, we have witnessed about an 18% decrease in remedial funding over the past three years. In general, PRP funding at sites is down, fund-lead sites are on the rise and NPL listings were up over the past six years.<sup>3</sup> We hope this will not be a long-term trend.

### B. Bankruptcy and Superfund

While business bankruptcy filings spiked in 2007 as the country entered the recession, those numbers have



other environmental laws. The defendants, meanwhile, maintained that Kerr-McGee had legitimate reasons to spin Tronox off. The trial, which involved claims for actual fraudulent transfer, constructive fraudulent transfer, and breach of fiduciary duty stemming from Tronox's bankruptcy proceedings, featured 34 days of hearings, approximately 50 witnesses, and tens of thousands of pages of documents.<sup>7</sup> On December 12, 2012, the parties delivered their closing arguments in the matter. Precisely one year later, on December 12, 2013, the court issued its decision in favor of the plaintiffs. The judge found that defendants should pay between \$5 and \$14 billion, with the exact amount to be the subject of a further hearing (after briefings). Under a pre-existing agreement among the plaintiffs, 88% of the final amount would go to pay off environmental claims against Tronox.<sup>8</sup> Stay tuned.

## **C. Welcome to the National Priorities List**

On December 11, 2013, EPA announced that it was adding nine hazardous waste sites to the NPL. While none of these sites are in Region 2, the sites include former waste dumps, groundwater plumes and manufacturing facilities from North Carolina to Washington. At the same time EPA also proposed adding another eight sites to the NPL. Of the eight proposed sites, three are located in Region 2: 1) The Troy Chemical Corporation site (chemical manufacturer) in Newark, N.J.; 2) The Unimatic Manufacturing Corporation (former chemical manufacturer) in Fairfield, N.J.; and 3) The Wolff-Alport Chemical Company (former metal extraction facility) in Ridgewood, N.Y.<sup>9</sup>

The Wolff-Alport Chemical Company site is located in the Ridgewood section of Queens, New York, on the border of Brooklyn and Queens. The soil and certain nearby sewers are contaminated by residual radioactive contamination from past industrial activities at the site. Testing indicates that there is no immediate threat to nearby residents or employees and customers of businesses in the affected area; however, exposure to the radioactive contamination may pose a threat to health in the long term. In 2012, EPA began taking steps to reduce people's potential exposure to the radiation and to address the potential health risks from the site. Such steps included providing technical assistance to the State and City in conducting radiological surveys at the site and conducting investigations to better understand site conditions and to reduce the potential human exposure to the contamination. Where necessary, EPA took action to protect people from exposure in the short term.<sup>10</sup> For more information on this Site, see, [www.epa.gov/region02/waste/wolff/](http://www.epa.gov/region02/waste/wolff/).

## **D. Progress in New York**

### **1. The Hudson River PCBs Site and Related News**

In November, EPA announced that more than 612,000 cubic yards of river bottom sediment contaminated with PCBs were removed from the upper Hudson River

during 2013, exceeding the annual goal of 350,000 cubic yards for this dredging project. This is similar to the amount dredged in 2012 when more than 650,000 cubic yards were removed. The project began in 2009 and is nearly 75% complete, putting the dredging on track to be finished in two years. To date, about 1.9 million of the required 2.65 million cubic yards have been removed.<sup>11</sup>

In 2014, dredging will occur in several areas of the river that are logistically challenging, including those near dams, shallow areas in bays and near islands and the landlocked section of the river located between the Thompson Island Dam and Fort Miller Dam. For more information about this project, visit [www.epa.gov/hudson](http://www.epa.gov/hudson).

On related fronts, on December 27th, GE released a report on the dredging project prepared at the request of the New York State Comptroller. The GE report concluded that the "completion of the project...will fully resolve its remedial liabilities. Any liability for natural resource damages beyond the cleanup is speculative at best... because current scientific evidence shows that Hudson River wildlife populations are robust and thriving." The report states that no expansion of the dredging project is warranted.<sup>12</sup> The State and other involved parties have pushed for an expansion of the dredging into approximately 136 acres of river bottom that contain pockets of PCBs in the Champlain Canal. A separate natural resource damage assessment being undertaken by state and federal agencies is still several years away from completion.

In late December, GE also announced that it will be closing its Fort Edward capacitor plant in 2014 and sending about 200 manufacturing jobs south to Clearwater, Florida. While the loss of manufacturing jobs is a national trend, New York State has lost more than its fair share with a loss of about 42 percent from 1990 through 2006.<sup>13</sup> GE's cleanup of the Fort Edward facility is proceeding under NYSDEC's oversight.<sup>14</sup>

On January 14th, GE announced that it settled its CERCLA contribution claim against Niagara Mohawk Power Co. ("NiMo"). The suit claimed that NiMo, which was acquired by National Grid, caused approximately 1 million cubic yards of contaminated sediment to migrate down river when it removed the Fort Edward Dam in 1973. The terms of the settlement are confidential but under the "Stipulation of Discontinuance of Claims" approved by the U.S. District Court for the Northern District of New York, all claims against NiMo were dismissed with prejudice.<sup>15</sup>

### **2. Dewey Loeffel Landfill Superfund Site**

On November 26, 2013, EPA announced that GE and SI Group, Inc. (formerly Schenectady Chemical) have agreed to conduct comprehensive studies of the contamination at Dewey Loeffel Landfill Superfund site in Nassau, Rensselaer County. The site, which is located four miles northeast of the village of Nassau in southern

Rensselaer County, is contaminated with volatile organic compounds (VOCs) and other hazardous substances that have seeped out of the landfill and contaminated the groundwater. In addition, PCBs have also moved downstream, contaminating sediment and several species of fish in and near Nassau Lake. The EPA also announced that the construction of a new water treatment system (for collecting and treating liquid seeping from the landfill and groundwater) is nearly complete and is expected to begin operations in early 2014.<sup>16</sup>

Between 1952 until 1968, an estimated 46,000 tons of industrial waste material generated by several Capital District companies was sent to the site. The waste included industrial solvents, waste oil, PCBs, scrap materials, sludge and solids. From 1980 until the site was added to the federal Superfund list in 2011, numerous investigations and cleanup actions were performed at the site by GE and the NYSDEC. For more information on the agreements and recent investigations and cleanup at the Site, see: [www.epa.gov/region2/superfund/npl/dewey](http://www.epa.gov/region2/superfund/npl/dewey).

### **3. New Cassel/Hicksville Ground Water Contamination Superfund Site**

In November, EPA finalized its plan to clean up a portion of contaminated groundwater beneath the New Cassel/Hicksville Ground Water Contamination Superfund site in the towns of Hempstead, North Hempstead and Oyster Bay in Nassau County, New York. Groundwater at the site is contaminated with VOCs, which are often found in paint, solvents, aerosol sprays, cleaners, disinfectants, automotive products, and dry cleaning fluids.<sup>17</sup> While the Magothy aquifer, Nassau County's primary source of drinking water, has been contaminated by the VOCs, the drinking water has been treated since 1990 before it is provided to area residents.

Because of the nature and complexity of the contamination at the site, the EPA is dividing the investigation and cleanup into phases. The plan announced in November is the first EPA phase of the cleanup and specifically addresses one portion of the site.

Groundwater testing by the EPA in 2010 confirmed the presence of elevated levels of VOCs in the groundwater feeding 11 public water supply wells, six in Hicksville, four in Hempstead and one in Westbury. The site was added to the federal Superfund list of contaminated hazardous waste sites in 2011.

The cleanup plan for this portion of the cleanup includes construction of a plant to extract and treat contaminated groundwater. If used to full capacity, the treatment plant would treat up to 500,000 gallons per day. In some areas, a vapor stripper would be used on individual wells to force air through contaminated groundwater to remove the VOCs. Depending on the results of a study, the most

heavily contaminated groundwater would be treated using a process such as chemical oxidation to break down the harmful contaminants in the groundwater. The oxidants would be pumped into the groundwater at different depths in the contaminated area. EPA will also require periodic collection and analysis of groundwater samples to verify that the levels and extent of contaminants are declining.

The costs of this cleanup will be about \$22.9 million. Consistent with EPA policy, the EPA will seek to engage those parties legally responsible for the contamination in implementing the cleanup at the site. For more information on this Site, see: [www.epa.gov/region02/superfund/npl/newcassel/index.html](http://www.epa.gov/region02/superfund/npl/newcassel/index.html).

### **4. Eighteen Mile Creek Superfund Site**

On October 29, 2013, EPA finalized its plan to clean up nine residential properties on Water Street in Lockport, New York, which are contaminated with PCBs and other contaminants, including lead and chromium. The properties and the former Flintkote Company plant are part of the Eighteen Mile Creek Superfund site, which was added to the federal Superfund list in 2012. Under the plan, the EPA will permanently relocate residents from five of the nine properties, demolish the five homes and excavate contaminated soil from all nine properties. In addition, an old industrial building at the former Flintkote Company plant property will be demolished as part of the first phase of cleanup at the site.<sup>18</sup>

The contaminated residential properties, along with the former Flintkote plant, encompass an area of approximately 2.25 acres along Water Street. These properties contain contaminated dirt from the plant that was used as fill and may be further contaminated by periodic flooding of the adjacent creek.

The second phase of the cleanup will address contaminated creek sediment and soil at several industrial and commercial properties in Lockport, which is also known as the Creek Corridor. The third phase will address contaminated sediment in the creek north of the Creek Corridor, from Lockport to the creek's discharge location into Lake Ontario.

Eighteen Mile Creek has a long history of industrial use dating back to the 1800s when it was used as a source of power. The headwaters of the creek have an east and west branch that begin immediately north of the New York State Barge Canal in Lockport. The creek flows north for approximately 15 miles and discharges into Lake Ontario in Olcott, New York. The site was placed on the Superfund list in March 2012. Investigations at the site have revealed that sediment, soil and groundwater in and around the creek and nearby properties are contaminated with a combination of pollutants, including PCBs, lead and chromium.

The EPA is in the process of searching for parties that may be responsible for the contamination. For more information on this Site, see [www.epa.gov/region02/superfund/npl/18milecreek/](http://www.epa.gov/region02/superfund/npl/18milecreek/).

## **E. Toxics and Hazardous Waste**

### **1. The Annual Toxics Release Inventory Report**

The annual EPA report on the amount of toxic chemicals released to the land, air and water by industrial facilities in New York State in 2012 showed a slight decrease over the previous year's data. The Toxics Release Inventory report covers 633 New York facilities that are required to report their releases to the agency. Total releases to land, air and water reported in 2012 was 13.8 million pounds, which was a 6,000 pound reduction from 2011. Nationally, over 20,000 facilities reported on approximately 682 chemicals and chemical categories for calendar year 2012.<sup>19</sup> To view New York's TRI fact sheet, visit: <http://epa.gov/triexplorer/statefactsheet.htm>.

### **2. EPA Provides Updated Guidance to Schools on PCB-containing Lighting Fixtures**

In December, EPA provided important guidance to schools on how to properly maintain and manage fluorescent lighting with ballasts that contain PCBs. Lighting ballasts regulate the current to the lamps in fluorescent lights and provide sufficient voltage to start the lamps. Prior to 1979, PCBs were commonly used as an insulator in ballasts. While EPA banned the use of PCBs, many older ballasts are still in use and contain PCBs that can leak when the ballasts fail, leading to elevated levels of PCBs in the air of schools. While the elevated PCB levels should not represent an immediate threat, they could pose health concerns if they persist over time. Leaking ballasts must be removed and properly disposed of along with any part of the fixture that has been contaminated with PCBs. In schools across the country, most PCB-containing fluorescent light ballasts have exceeded their life span and are beginning to leak and smoke.<sup>20</sup>

As of December 2013, more than 150 incidents of leaking or smoking ballasts have been reported to the EPA from New York and New Jersey schools.<sup>21</sup> For more information and complete guidance on the proper maintenance, removal, and disposal of PCB-containing fluorescent light ballasts, visit: [www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/ballasts.htm](http://www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/ballasts.htm).

## **III. Air and Climate Change**

### **A. Climate Change Mitigation**

#### **1. EPA Issues Greenhouse Gas Standards (GHG) for New Power Plants**

In a January 8, 2014 Federal Register notice, EPA proposed greenhouse gas standards for new electric

utility units pursuant to the Clean Air Act's New Source Performance Standards (NSPS).<sup>22</sup> The proposal sets separate standards for new natural gas plants and new coal and petcoke-fired plants as well as other fossil fuel-fired power plants.<sup>23</sup> EPA proposed standards of performance for carbon pollution from new power plants in April 2012.<sup>24</sup> The Agency received more than 2.5 million comments on the proposal. On June 25, 2013, the President issued a Memorandum that specifically called on EPA to issue a new proposal on carbon dioxide emissions from new power plants by September 20, 2013.<sup>25</sup> In light of the President's Memorandum, the 2.5 million comments on the April 2012 proposal, and continuing changes in the electric utility sector, EPA repropose the carbon dioxide standards.<sup>26</sup> The Agency accepted comments on the new proposal through March 10.<sup>27</sup> A public hearing was held on February 6, 2014.<sup>28</sup>

#### **2. EPA Holds Listening Sessions on GHG Emissions from Existing, Modified, and Reconstructed Power Plants**

The June 2013 Presidential Memorandum also calls on EPA to issue a proposed rule, under Clean Air Act Section 111(d), for existing, modified, and reconstructed power plants by June 1, 2014 and a final rule by June 1, 2015.<sup>29</sup> The Memorandum also directs EPA to include in the proposal a requirement that states submit to EPA the implementation plans required under Section 111(d) no later than June 30, 2016.<sup>30</sup>

EPA held eleven public listening sessions throughout the Country in preparation for a proposed rule on existing, modified, and reconstructed electric utility generating units.<sup>31</sup> One of the listening sessions was held in EPA Region 2's New York office on October 23, 2014. Through these listening sessions, EPA solicited ideas and input from the public and stakeholders about the best Clean Air Act approaches for reducing carbon pollution from existing power plants.<sup>32</sup>

#### **3. EPA Grants Partial Review of Petition for Reconsideration of 2013 Renewable Fuel Standards**

By letter dated January 23, 2014 the Administrator provided a partial response to a petition for reconsideration of EPA's 2013 renewable fuels standard.<sup>33</sup> The Administrator partially granted the Petition, filed by the American Petroleum Institute and other parties, with respect to the cellulosic biofuel standard.<sup>34</sup> The Administrator's response also initiated notice and comment rulemaking to reconsider the cellulosic portion of the final action. The rule, "Regulation of Fuels and Fuel Additives: 2013 Renewable Fuel Standards; Final Rule," was finalized in August 2013.<sup>35</sup> The Agency was petitioned to reconsider the rule based on new information.



#### **4. Oral Argument Scheduled in Supreme Court GHG Case**

Oral argument was held on February 24, 2014 in *Utility Air Regulatory Group v. EPA*.<sup>36</sup> This case is an appeal of the D.C Circuit's 2012 decision, *Coalition for Responsible Regulation Inc., et al. v. EPA*, dismissing or denying a number of petitions challenging several EPA GHG rules.<sup>37</sup> The Supreme Court granted certiorari only with respect to one specific issue: "Whether EPA permissibly determined that its regulation of greenhouse gas emissions from new motor vehicles triggered permitting requirements under the Clean Air Act for stationary sources that emit greenhouse gases."<sup>38</sup> This narrow question leaves in place EPA's Endangerment Finding and Light Duty Vehicle Rules.

#### **5. EPA Announces Record High Fuel Economy of New Motor Vehicles**

On December 12, 2013, EPA issued an annual report, "Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 through 2013," which tracks fuel economy in the United States.<sup>39</sup> The report measures trends in average fuel economy, and reflects a 1.2 mile per gallon (mpg) increase in 2012 over 2011. This represents the second largest annual increase in the last 30 years and brings fuel economy to an all-time high of 23.6 mpg. The technologies largely responsible for this improvement include more efficient gasoline direct injection engines, turbochargers, and advanced transmissions. Fuel economy will continue to improve under the light, medium and heavy-duty vehicle rules promulgated by EPA to regulate GHGs from motor vehicles. In model year 2012, average carbon dioxide emissions fell to a new low of 367 grams per mile, and preliminary projections for model year 2013 suggest that the trend will continue. Under EPA's rules, GHG emissions from vehicles will be cut in half by 2025 when average fuel savings will be more than \$8,000 per vehicle and imports of OPEC oil will be cut in half.<sup>40</sup> The new report can be found at: <http://epa.gov/otaq/fetrends.htm>.

#### **B. Climate Change Adaptation**

##### **1. Public Comment Period Closes on EPA Region 2's Climate Adaptation Plan**

On January 3, 2014, the comment period closed on EPA Region 2's draft climate change adaptation plan.<sup>41</sup> In 2013, each EPA program office and Regional office, including Region 2, had prepared its own specific draft adaptation plan, which was offered for public comment. Earlier, in February 2013, EPA had released its Agency Draft Climate Change Adaptation Plan under Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, in coordination with other federal agencies and departments.<sup>42</sup> EPA's plans are consistent with the goals of the President's Executive Order, *Preparing the United States for the Impacts of Climate Change*, E.O. 13653, issued on November 1, 2013.<sup>43</sup>

Prior to publication, Region 2 conducted outreach with stakeholders to solicit input on its adaptation plan. In November 2013, EPA released, for public comment, proposed adaption plans for the seven Headquarters program offices and ten Regions, including Region 2.<sup>44</sup> EPA received approximately 45 comments on the 17 plans. Among the comments received were several that specifically addressed Region 2's plan. The Agency is currently reviewing the comments but has no timeline as yet for next steps.

##### **2. EPA Funds South Bronx Pollution Prevention Project, Builds Resilience**

EPA announced on November 19 an award of \$149,000 to the New York State Department of Environmental Conservation (NYSDEC) to reduce toxic pollution at car repair businesses in the South Bronx in a collaboration with the New York City Environmental Justice Alliance and the New York State Pollution Prevention Institute.<sup>45</sup> The grant will help build resilience in that it will reduce the threat of potential impacts to public health in the event of a severe storm. More than one year after Superstorm Sandy, many facilities that handle toxic chemicals remain unprepared. In addition, according to Region 2 Regional Administrator Judith Enck, "pollution prevention can also reduce emissions of harmful greenhouse gases that contribute to climate change."

##### **3. EPA Funds Wetlands Strategies to Adapt to Climate Change in New York**

EPA has awarded over \$345,000 to the New York State Adirondack Park Agency and the College of Environmental Science and Forestry to better protect wetlands throughout the state and identify strategies to deal with New York's changing climate.<sup>46</sup> In announcing the grant, Regional Administrator Judith Enck noted that wetlands reduce the effects of climate change and protect against flooding by absorbing stormwater, but they are threatened by development and the impacts of climate change in many areas of New York State. The grants to the Adirondack Park Agency and the College of Environmental Science and Forestry will be used to evaluate the effect of climate change on the Adirondack Park wetlands and examine the health of plants found in New York's wetlands.<sup>47</sup>

##### **4. EPA Releases Climate Assessment Update to National Stormwater Calculator**

On January 30, 2014, EPA released an update to the National Stormwater Calculator and Climate Assessment Tool that includes future climate vulnerability scenarios.<sup>48</sup> The calculator, which is a desktop application, estimates the annual stormwater runoff from a specific location. The update incorporates validated data from the Intergovernmental Panel on Climate Change on seasonal precipitation levels, more frequent high-intensity storms, and changing evaporation rates, and future climate change

scenarios. The tool will help us to “build safer, sustainable, and more resilient water infrastructure,” according to EPA Administrator Gina McCarthy.<sup>49</sup>

More information on the National Stormwater Calculator and Climate Assessment Tool package is available at <http://www.epa.gov/nrmrl/wswrd/wq/models/swc/>.

## **C. Clean Air Act Transport Issues**

### **1. D.C. Circuit Hears Oral Argument on Air Pollution Transport Rule Case**

On December 10, 2013, the Supreme Court heard oral argument in *USEPA v. EME Homer City Generation, L.P.*, a case involving EPA’s Cross State Air Pollution Rule (CSAPR), which the Agency finalized in July 2011.<sup>50</sup> CSAPR requires states to significantly improve air quality by reducing ozone and fine particle emissions from power plants that contribute to pollution in other states. The oral argument followed the Court’s August 2012 decision to grant certiorari of the D.C. Circuit’s vacatur of CSAPR.<sup>51</sup> EPA’s brief identified the questions presented as: (1) whether the court of appeals lacked jurisdiction to consider the challenges on which it granted relief; (2) whether States are excused from adopting state plans prohibiting emissions that “contribute significantly” to air pollution problems in other States until after the EPA has adopted a rule quantifying each State’s interstate pollution obligations; and (3) whether EPA permissibly interpreted the statutory term “contribute significantly” so as to define each upwind State’s “significant” interstate air pollution contributions in light of the cost-effective emission reductions it can make to improve air quality in polluted downwind areas, or whether the Act instead unambiguously requires the EPA to consider only each upwind State’s physically proportionate responsibility for each downwind air quality problem.<sup>52</sup>

CSAPR was issued in 2011 by EPA in response to a 2008 D.C. Circuit rejection of an earlier transport rule, the Clean Air Interstate Rule (CAIR). The D.C. Circuit initially vacated CAIR but, after rehearing, remanded it without vacatur<sup>53</sup> so it remains in place while CSAPR is being litigated.

### **2. New York and Other Eastern States Petition EPA to Expand the Ozone Transport Region**

On December 9, 2013, the day before the oral argument on CSAPR, eight members of the ozone transport commission (NY, CT, DE, MD, MA, NH, RI and VT) petitioned EPA pursuant to Section 176A of the Clean Air Act, which provides EPA with authority to establish interstate transport regions. The petition sought expansion of the ozone transport region (OTR) to include nine additional states (IL, IN, KY, MI, NC, OH, TN, VA, WV).<sup>54</sup> In their cover letter to the Administrator the petitioners assert that the states they propose be added to the OTR “are the most significant contributors to continued ozone standard

violations in the OTR and that expansion of the region will result in more emission reductions, a fairer distribution of the burdens of controlling air pollution (ozone), and a level economic playing field.”<sup>55</sup>

## **D. Other Air Pollution-Related Developments**

### **1. Proposed NSPS for Residential Wood Heaters**

On January 3, 2014 EPA proposed to amend the New Source Performance Standards (NSPS) for residential wood heaters.<sup>56</sup> The proposed rule, which was last revised in 1988, would tighten the emission standards for new wood stoves, while establishing standards for the first time for outdoor and indoor wood-fired boilers (also known as hydronic heaters), pellet stoves, forced-air furnaces, masonry wood heaters and previously unregulated single burn-rate stoves.<sup>57</sup> EPA’s proposed emissions limits would be phased in over five years but EPA is also taking comment on an alternative three-step process which would be phased in over eight years.<sup>58</sup> For new heaters covered by the rule, fine particle emissions are projected to be reduced by 80 percent and VOC emissions by 76 percent.<sup>59</sup>

### **2. EPA Proposes Redesignation of Ten Counties in New York**

Based on monitoring results from the past three years and other information provided by NYSDEC, the EPA proposed to redesignate ten counties in the New York State portion of the New York-Northern New Jersey-Long Island, NY-NJ-CT nonattainment area (including the five boroughs of New York City, Long Island, Orange, Rockland and Westchester) as meeting EPA’s health-based 1997 and 2006 fine particle standards.<sup>60</sup>

### **3. EPA Partners with Community Foundation on Indoor Air Quality in Buffalo, NY**

EPA has partnered with the Community Foundation for Greater Buffalo to reduce indoor air pollution that can trigger asthma attacks. Using a \$54,840 grant from EPA, the Community Foundation for Greater Buffalo is conducting an asthma intervention and education program in low-income Buffalo homes in conjunction with the Green & Health Homes initiative.<sup>61</sup>

The EPA grant provides financial assistance to the Buffalo Foundation to provide services to 80 families as part of a larger initiative to provide comprehensive home repair, rehabilitation and education services to low-income families in the City of Buffalo. To reduce exposure to indoor asthma triggers, EPA recommends that residents control household dust, control pet dander, refrain from smoking, eliminate cockroaches, and prevent mold.<sup>62</sup> According to EPA Regional Administrator Judith A. Enck, “It is vitally important that people understand the warning signs of an asthma attack, reduce asthma triggers in their homes and follow the advice of health-care providers. EPA applauds the efforts of community

organizations like the Community Foundation of Greater Buffalo to improve environmental conditions in people's homes and protect their health."<sup>63</sup>

## **IV. Water**

### **A. Science and Support**

#### **1. \$1.29 million Awarded for Community-Based Projects to Improve Health of Long Island Sound; More Than \$915,000 Awarded to Support Projects in Connecticut**

On October 24, 2013, EPA, the National Fish and Wildlife Foundation, the United States Fish and Wildlife Service and the Long Island Sound Funders Collaborative announced 23 grants totaling \$1,295,972 to local government and community groups in Connecticut and New York to improve the health of Long Island Sound. The projects, which are funded through the Long Island Sound Futures Fund, will open up 12.2 river miles for passage of native fish and restore 50 acres of critical fish and wildlife habitat including intertidal marsh, coastal forest, grasslands and freshwater wetlands. More than 989,000 citizens will be reached by environmental and conservation programs supported by the grants. Nearly 600,000 gallons of stormwater will be treated through the development of water pollution control projects. Thirteen grants totaling more than \$625,000 will be awarded to groups in Connecticut leveraged by \$590,000 from the grantees themselves, resulting in \$1.2 million in funding for on-the-ground, hands-on conservation projects in the state. Three projects, totaling \$290,000, have an environmental benefit to both Connecticut and New York.

The Long Island Sound Study (LISS) initiated the Long Island Sound Futures Fund in 2005 through EPA's Long Island Sound Office and NFWF. To date, the program has invested \$11.7 million in 285 projects in communities surrounding the Sound. With grantee matches of \$24 million, the Long Island Sound Futures Fund has generated a total of almost \$36 million for projects in both states. The Long Island Sound Study, developed under the EPA's National Estuary Program, is a cooperative effort between the EPA and the states of Connecticut and New York to protect and restore the Sound and its ecosystem. For more about the LISS, visit [www.longisland-soundstudy.net](http://www.longisland-soundstudy.net). For more about the Long Island Sound Futures Fund Grants, visit <http://longislandsoundstudy.net/about/grants/lis-futures-fund/>.

#### **2. EPA Funds Project to Promote Environmental Sustainability at New York City Restaurants**

In November 2013, EPA awarded \$60,000 to the New York State Restaurant Association Educational Foundation to help New York City restaurants reduce pollution from their operations. The foundation will assist new restaurants in efforts to reduce energy and water use and prevent pollution from hazardous substances. The grant is part of the approximately \$5 million in grants the EPA

awards each year to prevent pollution across the nation, and will build upon previous EPA-funded grants that supported pollution outreach to restaurants in New York City.

Under the grant, the foundation will work with the New York City New Business Acceleration Team to provide training to new restaurants on strategies to prevent pollution. In addition, the organization will distribute its green restaurant workbook to restaurants and provide guidance to established restaurants. Participating restaurants will also be provided with technical assistance on strategies to reduce food waste, limiting the amount of food that goes to landfills and saving restaurants money. For more information on EPA Region 2's pollution prevention program, visit: <http://www.epa.gov/region02/p2/>.

#### **3. EPA Awards Four Great Lakes Restoration Initiative Grants to Reduce Health Risks from Eating Great Lakes Fish**

On November 20, 2013, EPA announced the award of four Great Lakes Restoration Initiative grants totaling over \$3.6 million for projects designed to reduce the risk of exposure to mercury and other toxins for people who eat fish from the Great Lakes. EPA awarded almost a million dollars to state health departments in Michigan, Minnesota and Wisconsin, and awarded over \$600,000 to Cornell University for a project to reduce toxic exposure among urban anglers throughout the entire Great Lakes basin.

All of the grants will help develop educational campaigns targeted at subsistence anglers, and the Wisconsin Department of Health Services health care clinics on the south shore of Lake Superior will use a screening tool to assess patients' risk of exposure and test the mercury levels of patients who frequently eat Great Lakes fish.

Since 2010, EPA has awarded GLRI grants each year to states, municipalities, tribes, universities and nonprofit organizations. In July 2013, EPA announced the availability of up to \$9.5 million for competitive grants to fund a new round of projects to protect and restore the Great Lakes. This year, EPA received 63 applications requesting over \$25.6 million for GLRI projects. EPA will announce additional GLRI grants in the coming weeks.

For more information, visit: <http://www.glri.us/>.

### **B. Regulations and Guidance**

#### **1. USDA, EPA Partnership Supports Water Quality Trading To Benefit Environment, Economy**

In December 2013, EPA and the U. S. Department of Agriculture (USDA) announced an expanded partnership to support water quality trading and other market-based approaches that provide benefits to the environment and economy. The purpose of this policy is to support states, interstate agencies and tribes as they develop and imple-



ment water quality trading programs for nutrients, sediments and other pollutants where opportunities exist to achieve water quality improvements at reduced costs.

Water quality trading provides a cost-effective approach for regulated entities to comply with EPA Clean Water Act requirements, including water quality-based effluent limits in National Pollutant Discharge Elimination System permits. Trading would allow regulated entities to purchase and use pollutant reduction credits generated by other sources in a watershed. Cost savings and other economic incentives are key motivators for parties engaged in trading. Water quality trading can also provide additional environmental and economic benefits, such as air quality improvements, enhanced wildlife habitat, carbon capture and storage, and new income and employment opportunities for rural America.

Under the partnership, EPA and USDA will:

- Coordinate and enhance communications and outreach to states, agricultural producers, regulated sources, and interested third parties on water quality trading;
- Engage expertise across agencies in the review of grants, loans or technical assistance programs focused on water quality trading;
- Share information on the development of rules and guidance that have the potential to affect water quality trading;
- Collaborate on developing tools and information resources for states and credit generators to guide decision making, reduce costs in program design and implementation, improve environmental performance, and foster consistency and integrity across regional initiatives;
- Co-host a workshop by 2015 to share tools and resources available to assist in stakeholder decision making and opportunities.

## **C. Compliance and Enforcement**

### **1. EPA Orders Middletown, New York, to Remedy Clean Water Act Violations**

In October 2013, EPA ordered the city of Middletown, New York to comply with federal Clean Water Act requirements for reducing pollutants in the wastewater that flows from area industrial facilities to its wastewater treatment plant. Under the Clean Water Act, wastewater treatment plants of a certain size that receive wastewater from industrial facilities are required to develop pretreatment programs that reduce pollutants from industrial wastewater at their source. The city of Middletown meets these criteria, but has failed to establish a pretreatment program for the Middletown Sewage Treatment Plant. Under the order, Middletown must begin submitting details of a proposed pretreatment program to the EPA

by December 1, 2013, and meet further deadlines set forth in the order. Failure to meet the requirements of the EPA order could result in penalties.

The Clean Water Act's Industrial Pretreatment Program establishes standards that are designed to control pollutants from industrial facilities before they reach a city's sewage treatment plant. Without proper pretreatment, these pollutants have the potential to pass through a city's plant and into receiving rivers and streams without adequate treatment, posing serious threats to health, marine life, recreation and the consumption of fish and shellfish. The pollutants may also interfere with the effectiveness of the wastewater treatment process and contaminate a plant's sewage sludge. The EPA and the states enforce pretreatment regulations to ensure that industrial wastewater is properly treated before being discharged into local waterways.

For more information on the CWA Industrial Pretreatment Program, visit: [http://cfpub.epa.gov/npdes/home.cfm?program\\_id=3](http://cfpub.epa.gov/npdes/home.cfm?program_id=3).

### **2. EPA Reaches Settlement with Auto Crusher for CWA Industrial Stormwater Violations**

On December 18, 2013, EPA Region 2 issued a Consent Agreement and Final Order in the Matter of Otswego Auto Crushers, LLC, for violations of the Clean Water Act at its facility in Norwich, New York. On August 3, 2011, EPA inspected the facility and found that the facility was failing to comply with the New York State Department of Environmental Conservation State Pollutant Discharge Elimination System Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity, and therefore failing to control discharges of stormwater to the Chenango River. EPA issued an Administrative Complaint on August 24, 2012. In settlement of EPA's claims, Respondent agreed to pay a civil penalty of \$2,059 and perform a Supplemental Environmental Project ("SEP") costing \$33,800. The SEP consists of creating a gravel diversion swale designed to redirect stormwater runoff around the perimeter of the site, instead of through the site where the water is exposed to numerous contaminants, so that much of the stormwater will percolate into the groundwater, reducing the amount of discharges to surface waters.

### **3. Annual EPA Enforcement Results Highlight Focus on Sewer System Compliance**

On February 7, 2014, EPA released its annual enforcement and compliance results, which demonstrate the Agency's focus on violations that have the most impact on public health. Among the results were several major Clean Water Act settlements that will cut discharges of raw sewage and contaminated stormwater to the nation's waters through integrated planning, green infrastructure and other innovative approaches, help cities manage resources better, cut pollution and improve the quality of

life for local residents. Recent settlements with Seattle and King Co., WA and Wyandotte County, KS require cities to initially provide relief to overburdened communities most impacted by sewage discharges. Other recent sewer system settlements include those with San Antonio, TX, Jackson, MS, Shreveport, LA, West Haven, CT, Chicago, IL and Mishawaka, IN.

More information, visit: <http://www2.epa.gov/enforcement/enforcement-annual-results-fiscal-year-fy-2013>.

#### **4. Coal Companies and Subsidiaries to Pay Record \$27.5 Million Penalty and Spend an Estimated \$200 Million on Treatment and System-wide Upgrades to Reduce Water Pollution**

In March, 2014, in a case of national and historic significance, the United States, along with co-plaintiffs, West Virginia, Pennsylvania, and Kentucky, lodged a consent decree in their enforcement action against Alpha Natural Resources, Inc. (Alpha), one of the nation's largest coal companies, Alpha Appalachian Holdings (formerly Massey Energy), and 66 subsidiaries. Under the decree, which is subject to a 30-day public comment period, Defendants have agreed to spend an estimated \$200 million to install and operate wastewater treatment systems and to implement comprehensive, system-wide upgrades to reduce discharges of pollution from all of Alpha's coal mines and processing plants in Kentucky, Pennsylvania, Tennessee, Virginia, and West Virginia. Overall, the settlement covers approximately 79 active mines and 25 processing plants in these five states.

The government complaint alleged that, between 2006 and 2013, Alpha and its subsidiaries routinely violated limits in 336 of its state-issued CWA permits, resulting in the discharge of excess amounts of pollutants into hundreds of rivers and streams and also discharged pollutants without a permit. In total, EPA documented at least 6,289 violations of permit limits for pollutants that include iron, pH, total suspended solids, aluminum, manganese, selenium, and salinity. These violations occurred at 794 different outfalls, and most stemmed from the company's failure to properly operate existing treatment systems, install adequate treatment systems, and implement appropriate water handling and management plans.

EPA estimates that the upgrades and advanced treatment required by the settlement will reduce discharges of total dissolved solids by over 36 million pounds each year, and will cut metals and other pollutants by approximately nine million pounds per year. The companies will also pay a civil penalty of \$27.5 million for thousands of permit violations, which is the largest penalty in history under Section 402 of the Clean Water Act (CWA).

More information, visit: <http://www2.epa.gov/enforcement/alpha-natural-resources-inc-settlement>.

## **Endnotes**

1. Any opinions expressed herein are the authors' own, and do not necessarily reflect the views of the U.S. Environmental Protection Agency. This Update is based upon EPA Press Releases and information from approximately October 1, 2013 through February 28, 2014. All EPA Press Releases are available through the EPA Newsroom website at <http://www2.epa.gov/newsroom>.
2. Fiscal Year 2013 EPA Enforcement and Compliance Annual Results, Prepared by the Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, January 13, 2013, available at [www2.epa.gov/sites/production/files/2014-02/documents/fy-2013-enforcement-annual-results-charts-2-6-14\\_0.pdf](http://www2.epa.gov/sites/production/files/2014-02/documents/fy-2013-enforcement-annual-results-charts-2-6-14_0.pdf).
3. The number of new sites added to the NPL on an annual basis had been decreasing for several years (2004-2007 average = 13/year final listings), but increased again in the past six years (2008-2013 average = 20.5/year final listings).
4. Quarterly Report of Business Bankruptcy Filings, Quarter & Full Year Ending December 31, 2013, [Bankruptcydata.com](http://Bankruptcydata.com).
5. *Id.*
6. See U.S. EPA, Tronox Incorporated Bankruptcy Settlement at <http://www2.epa.gov/enforcement/case-summary-tronox-incorporated-bankruptcy-settlement>.
7. For more information about the case, see: <http://www.icis.com/Articles/2013/11/07/9723489/wait-on-decision-in-tronox-anadarko-19bn-lawsuit-nears-a-year.html>.
8. *Tronox et al. v. Kerr McGee et al.*, Case No. 09-10156 (ALG), Bankruptcy Court, SDNY, Dec. 12, 2013.
9. EPA Press Release, EPA Adds Nine Hazardous Waste Sites to Superfund's National Priorities List/Agency also proposes to add an additional eight sites, December 11, 2013. Federal Register notices and supporting documents for the final and proposed sites are available at [www.epa.gov/superfund/sites/npl/current.htm](http://www.epa.gov/superfund/sites/npl/current.htm).
10. EPA Press Release, EPA Proposes to Add Radioactive Site in Ridgewood, Queens to the Federal Superfund List; Defunct Company Dumped Radioactive Waste into Sewer System and on the Land, December 11, 2013.
11. EPA Press Release, EPA Completes Fourth Season of Hudson River Dredging; Project Now about 73% Complete with GE, Not Taxpayers, Paying the Full Cost of Cleanup; \$2 Billion Dredging Project Continues to Create Local Jobs, November 5, 2013.
12. News Releases, GE Issues Report on Hudson River Project, December 27, 2013, available at GE's The Hudson River Dredging Project website at [www.hudsondredging.com/category/news-releases/](http://www.hudsondredging.com/category/news-releases/).
13. Hill, Michael, Hudson River GE Plant is Latest Loss in New York, The Associated Press, December 28, 2013.
14. EPA's New York RCRA Cleanup Fact Sheet for the General Electric Company—Fort Edward facility, available at [www.epa.gov/region02/waste/fsgefert.htm](http://www.epa.gov/region02/waste/fsgefert.htm).
15. Silverman, Gerald B., Superfund—GE Drops Claims that Niagara Mohawk Should Share in Hudson River Cleanup Costs, Bloomberg, January 14, 2014.
16. EPA Press Release, \$2.5 Million Plant to Treat Contaminated Ground Water at the Dewey Loeffel Landfill Superfund Site in Nassau, New York Nears Completion; EPA Announces Agreements with Companies to Conduct Studies of Contamination at the Site; Total Actions Expected to Cost at Least \$4.5 Million, November 26, 2013.
17. EPA Press Release, EPA Finalizes Cleanup Plan for Ground Water Near the New Cassel Industrial Area in Nassau County, N.Y.; Cleanup Expected to Cost \$22.9 Million, November 5, 2013.

18. EPA Press Release, EPA Finalizes Plan for Cleanup at Eighteen Mile Creek Superfund Site in Lockport, New York; \$4 Million Cleanup Will Address Contamination, October 29, 2013.
19. EPA Press Release, EPA Issues Annual Report on Chemicals Released to Land, Air and Water in New York Data Finds Reduction from Previous Year, February 4, 2014.
20. EPA Press Release, EPA Provides Updated Guidance to Schools on PCB-containing Lighting Fixtures, December 12, 2013.
21. *Id.*
22. Proposed Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units 79 Fed. Reg. 1430 (Jan. 8, 2014).
23. *Id.* at 1432.
24. "Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units," 77 Fed. Reg. 22392 (April 13, 2012).
25. White House, Presidential Memorandum—Power Sector Carbon Pollution Standards (June 25, 2013), <http://www.whitehouse.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards>.
26. 79 Fed. Reg. at 1432.
27. *Id.* at 1430.
28. 79 Fed. Reg. 3557, 3558 (Jan. 22, 2014); *see* 79 FR 4439 (Jan. 28, 2014).
29. White House, Presidential Memorandum—Power Sector Carbon Pollution Standards (June 25, 2013), <http://www.whitehouse.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards>.
30. *Id.*
31. *See*, U.S. EPA, Public Listening Sessions, <http://www2.epa.gov/carbon-pollution-standards/public-listening-sessions>.
32. *Id.*
33. <http://www.epa.gov/otaq/fuels/renewablefuels/documents/afpm-01232014.pdf>.
34. *Id.*
35. 78 FR 29794 (Aug. 15, 2013).
36. Docket No. 12-1146.
37. *Coalition for Responsible Regulation, Inc., et al. v. EPA*, 684 F.3d 102 (D.C. Cir. 2012).
38. Docket No. 12-1146.
39. Press Release, U.S. Environmental Protection Agency, Fuel Economy of New Vehicles Sets Record High/Fuel Economy Gains to Continue Under President Obama's Clean Car Programs, Dec. 12, 2013.
40. *Id.*
41. <http://www.epa.gov/climatechange/impacts-adaptation/fed-programs/EPA-impl-plans.html>.
42. <http://www.epa.gov/climatechange/pdfs/EPA-climate-change-adaptation-plan-final-for-public-comment-2-7-13.pdf>.
43. <http://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change>.
44. <http://www.epa.gov/climatechange/impacts-adaptation/fed-programs.html>.
45. Press Release, U.S. Environmental Protection Agency, EPA Funds Project to Prevent Pollution from Car Repair Businesses in the South Bronx: EPA Provides \$149,000 to the New York State Department of Environmental Conservation, Nov. 19, 2013.
46. Press Release, U.S. Environmental Protection Agency, EPA Provides over \$345,000 to Protect Wetlands in New York; Citizen Science to be Used in the Adirondacks to Collect Environmental Data, Dec. 19, 2013.
47. *Id.*
48. Press Release, U.S. Environmental Protection Agency, EPA Releases Climate Assessment Update to National Stormwater Calculator, Jan. 30, 2014.
49. *Id.*
50. *See* <http://www.epa.gov/airtransport/CSAPR/index.html>.
51. *EME Homer City Generation, L.P. v. EPA*, 696 F.3d 7 (D.C. Cir. 2012).
52. [http://www.epa.gov/airmarkets/airtransport/CSAPR/pdfs/Homer\\_City\\_merits\\_brief.pdf](http://www.epa.gov/airmarkets/airtransport/CSAPR/pdfs/Homer_City_merits_brief.pdf).
53. *North Carolina v. EPA*, 531 F.3d 896 (2008); *see North Carolina v. EPA*, 550 F.3d 1176 D.C. Cir. 2008).
54. [http://www.dec.ny.gov/docs/air\\_pdf/otrpetition1213.pdf](http://www.dec.ny.gov/docs/air_pdf/otrpetition1213.pdf).
55. <http://www.dec.ny.gov/chemical/94770.html>.
56. 79 FR 6330 (Feb. 3, 2014).
57. *Id.*; *see* [http://www2.epa.gov/sites/production/files/2013-12/documents/proposed\\_wood\\_heater\\_nsps\\_overview\\_fact\\_sheet\\_1.pdf](http://www2.epa.gov/sites/production/files/2013-12/documents/proposed_wood_heater_nsps_overview_fact_sheet_1.pdf).
58. 79 FR at 6362-6363.
59. [http://www2.epa.gov/sites/production/files/2013-12/documents/proposed\\_wood\\_heater\\_nsps\\_overview\\_fact\\_sheet\\_1.pdf](http://www2.epa.gov/sites/production/files/2013-12/documents/proposed_wood_heater_nsps_overview_fact_sheet_1.pdf).
60. 79 FR 8133 (Feb. 11, 2014).
61. Press Release, U.S. Environmental Protection Agency, EPA and Buffalo Community Foundation Team Up to Prevent Asthma Attacks Results of \$55,000 EPA Asthma Education Grant Highlighted (Nov. 7, 2013).
62. *Id.*
63. *Id.*

**Marla E. Wieder is an Assistant Regional Counsel with the United States Environmental Protection Agency, Region 2, New York/Caribbean Superfund Program; Joe Siegel is an Assistant Regional Counsel with the Air Branch and an Alternative Dispute Resolution Specialist; Chris Saporita is an Assistant Regional Counsel with the Water and General Law Branch; Mary McHale is an Assistant Regional Counsel with the Air Branch.**



# DEC Update

By Randall C. Young

## DEC Begins Implementation of New Audit Policy

DEC's Environmental Audit Incentive Policy, CP-59, became effective on November 18, 2014. The policy provides for reduction or waiver of penalties for most violations that are promptly and voluntarily disclosed to the DEC. The policy can be found at <http://www.dec.ny.gov/regulations/93791.html>. The DEC's Office of General Counsel, Pollution Prevention Unit, and Regional offices have engaged in outreach and education to encourage the business community and local governments to take advantage of the policy. General questions regarding the policy can be directed to Monica Kreshik, Esq., NYSDEC Bureau of Enforcement, 625 Broadway Albany, NY 12233-1500, (518) 402-8555, or [mlkreshi@gw.dec.state.ny.us](mailto:mlkreshi@gw.dec.state.ny.us). Inquiries about potential audit agreements for specific facilities or self-disclosures should be directed to the appropriate Regional Contact:

### Region 1

Ajay Shah, PE  
Regional Engineer  
NYS Department of Environmental Conservation  
50 Circle Road  
Stony Brook, NY 11790-3409  
(631) 444-0375 • FAX (631) 444-0231  
[axshah@gw.dec.state.ny.us](mailto:axshah@gw.dec.state.ny.us)

### Region 2

Lou Oliva  
Regional Attorney  
NYS Department of Environmental Conservation  
One Hunter's Point Plaza  
47-40 21st Street  
Long Island City, NY 11101-5407  
(718) 482-4009 • FAX (718) 482-4962  
[lpoliva@gw.dec.state.ny.us](mailto:lpoliva@gw.dec.state.ny.us)

### Region 3

Zachary Knaub  
Regional Attorney  
NYS Department of Environmental Conservation  
21 South Putt Corners Road  
New Paltz, NY 12561-1620  
(845) 256-3164 • FAX (845) 255-3042  
[zdknaub@gw.dec.state.ny.us](mailto:zdknaub@gw.dec.state.ny.us)

### Region 4

Rich Ostrov  
Regional Attorney  
NYS Department of Environmental Conservation  
1130 North Westcott Road  
Schenectady, NY 12306-2014  
(518) 357-2048 • FAX (518) 357-2087  
[rxostrov@gw.dec.state.ny.us](mailto:rxostrov@gw.dec.state.ny.us)

### Region 5

Michelle Crew  
Regional Attorney  
NYS Department of Environmental Conservation  
1115 NYS Route 86, P.O. Box 296  
Ray Brook, NY 12977-0296  
(518) 897-1227 • FAX (518) 897-1394  
[macrew@gw.dec.state.ny.us](mailto:macrew@gw.dec.state.ny.us)

### Region 6

Paula Jacobs  
Regional Enforcement Coordinator  
NYS Department of Environmental Conservation  
317 Washington Street  
Watertown, NY 13601-3787  
(315) 785-2238 • FAX (315) 785-2242  
[pjjacobs@gw.dec.state.ny.us](mailto:pjjacobs@gw.dec.state.ny.us)

### Region 7

Joseph Sluzar  
Regional Attorney  
NYS Department of Environmental Conservation  
615 Erie Blvd West  
Syracuse, NY 13204-2400  
(315) 426-7405 • FAX (315) 426-7408  
[jjsluzar@gw.dec.state.ny.us](mailto:jjsluzar@gw.dec.state.ny.us)

### Region 8

Frank Ricotta  
Regional Engineer  
NYS Department of Environmental Conservation  
6274 East Avon-Lima Rd  
Avon, NY 14414-9519  
(585) 226-5454 • FAX (585) 226-5363  
[fttriccott@gw.dec.state.ny.us](mailto:fttriccott@gw.dec.state.ny.us)

### Region 9

Maureen Brady  
Regional Attorney  
NYS Department of Environmental Conservation  
270 Michigan Avenue  
Buffalo, NY 14203-2999  
(716) 851-7190 • FAX (716) 851-7296  
[mabrady@gw.dec.state.ny.us](mailto:mabrady@gw.dec.state.ny.us)

## Proposed General Permit

On January 15, 2014, DEC proposed a draft general permit that will facilitate the repair and replacement of functional bulkheads on portions of Long Island's south shore: GP-1-13-001. The draft general permit reflects DEC's experience gained through implementation of the Bulkhead Replacement general permit issued in October 2012, in response to Superstorm Sandy. That permit allowed accelerated repairs to shoreline areas and expires on October 31, 2014.

The proposed general permit provides for an expedited permit procedure for bulkhead projects on the south shore of Nassau and Suffolk counties, west of the Robert Moses Causeway where a large number of privately owned bulkheads exist.

The proposed general permit would allow the removal and replacement of functional lawfully existing bulkheads (including returns and parallel capping boardwalks) in the same location with limited maintenance dredging associated with the bulkhead replacement. The replacement bulkhead may be up to 18 inches higher in elevation than the existing bulkhead. Other changes in the configuration or location of the structure would require an individual permit.

The general permit will not be available in areas of vegetated tidal wetlands, along the ocean shoreline, the oceanfront of Long Beach Island, Jones Beach State Park or Robert Moses State Park barrier islands. Projects in these areas will need individual permits. The draft general permit can be found at DEC's [http://www.dec.ny.gov/enb/20140115\\_not1.html](http://www.dec.ny.gov/enb/20140115_not1.html).

### **Proposed Aquatic Invasive Species Regulations**

On January 9, 2014, DEC announced proposed regulations to control the introduction of aquatic invasive species through boat launch sites. The proposed regulations will require boaters to remove all visible plants and animals from boats, trailers, and associated equipment, and to drain boats before launching at or leaving a DEC boat launch or waterway access point. The full text of the proposed regulation can be found on DEC's website at [www.dec.ny.gov/regulations/proproregulations.html](http://www.dec.ny.gov/regulations/proproregulations.html).

Boaters can prevent the spread of aquatic invasive species by draining and drying their boats and all equipment before moving them between water bodies. Recommended drying times for each month of the year can be calculated at <http://100thmeridian.org/emersion.asp>.

### **Personnel Changes**

Career DEC employee Martin D. Brand has accepted a promotion to the position of Regional Director for DEC Region 3. Region 3 includes the counties of Sullivan, Ulster, Dutchess, Orange, Putnam, Rockland, and Westchester. Mr. Brand has over 30 years of experience working in different programs within the Department. Most recently, he supervised the materials management program in Region 3. He holds a Bachelor of Science in Geology from Texas A&M University, College Station, Texas.

Maureen Coleman accepted a promotion from Associate Counsel at DEC to Assistant Counsel for Energy and the Environment in the Governor's Office. Ms. Coleman worked at DEC from August 2000 until her promotion in October 2013. Prior to leaving DEC, Ms. Coleman served as the director of Water and Natural Resources Bureau within DEC's Office of General Counsel. Ms. Coleman is a graduate of Brooklyn Law School.

James Gennaro has accepted a position as Deputy Commissioner for New York City Sustainability and Resiliency, Region 2, where he will further DEC's efforts to make New York City more resilient and ready to meet the challenges associated with climate change and to rebuild after recent storm events. Prior to joining DEC, he served as a New York City Councilman from 2002 to 2013, representing portions of the Borough of Queens. He chaired the Council's Committee on Environmental Protection and authored many environmental laws. Mr. Gennaro received the 2013 Environmental Quality Award from the U.S. Environmental Protection Agency. He holds master's and bachelor's degrees from the State University of New York at Stony Brook.

In November 2013, Administrative Law Judge Richard R. Wissler was appointed Director of Mediation in the Office of Hearings and Mediation Services. Judge Wissler has been an administrative law judge with DEC since 2001, and developed a calendar call program that helped streamline DEC's hearing process. The calendar call system coupled with Judge Wissler's mediation skills have been instrumental in resolving many seemingly intractable matters. In addition to his new duties supervising mediation services, Judge Wissler will continue to serve as an ALJ.

Andrea D. Loguidice has joined the DEC's Office of General Counsel in Albany as a Senior Attorney. She is currently responsible for assisting in the development, pursuit, and negotiation of Natural Resource Damage (NRD) matters, cost recovery matters, and other enforcement matters for the Bureau of Remediation and Revitalization. Ms. Loguidice is the DEC attorney on several large NRD matters in New York State, including assessments at Newtown Creek, New Cassel Industrial Area, Brookhaven National Laboratory and Gowanus Canal. Originally from Island Park, New York, she received her bachelor's degree from Hofstra University in 2001 and her Juris Doctor from the Maurice A. Dean School of Law, Hofstra University in 2005. Ms. Loguidice later received an Environmental and Natural Resources Law and Policy LLM from the University of Denver Sturm College of Law.

Regrettably, the column ends on a sad note. Jeff Sama, retired Director of the Division of Environmental Permits & Pollution Prevention, died on Sunday, November 17, 2013. Jeff worked in the division for 32 years, starting out in 1978 as an analyst in the State Environmental Quality Review Unit. He also served as the Regional Permit Administrator for Region 4 before returning to the DEC's Central Office to become division director in 1996. Jeff retired in 2010. Many members of the environmental bar worked with Jeff during his long career and remember him as a principled and dedicated public servant.

**Randall C. Young is Regional Attorney for Region Six of the New York State Department of Environmental Conservation. This column is the work of the author and is not published by or on behalf of the New York State Department of Environmental Conservation.**

# Member Profiles

## Long-Time Member: J. Kevin Healy



For this issue we have focused the Long-Time Member Profile on J. Kevin Healy, a partner at Bryan Cave, LLP. Kevin was introduced to environmental law as a law student at Fordham in 1972, when he took a class taught by Phil Weinberg, another long-time member. Forty-two years later, they are both still at it. Kevin has been in private practice for many years, but he began his

career in government, first in the Enforcement Division of EPA Region II, and then as General Counsel to the New York City Department of Environmental Protection.

Kevin was among the first generation of enforcement lawyers in Region II. Although the bedrock statutes had just been enacted at the time, there were virtually no federal environmental regulations in place at the outset of his career. It was a very exciting time in the field of environmental law, according to Kevin, “because we were building it as we went along.” He helped launch the NPDES program and the Ocean Dumping Program in Region II, delegated the NESHAPS and NSPS programs to the Commonwealth of Puerto Rico, and represented EPA in the Westway matter.

Kevin moved over to local government in 1978, when he became the General Counsel of the New York City Department of Environmental Protection. He was one of the key negotiators for the City of New York in resolving a dispute among the City and the Delaware River Basin states over the City’s rights to take drinking water withdrawals during times of drought. The “Good Faith Agreement” signed by Mayor Koch and the river basin governors as a result of those negotiations remains in place today. Kevin also represented the City in a settlement that facilitated construction of the Red Hook and North River Sewage Treatment Plants and Riverbank Park.

Kevin has been in private practice since 1984. He has been a partner at Bryan Cave (and Robinson Silverman, its legacy firm in New York) since 1996. He has played a major role in the environmental review and approval process for several of the biggest projects in New York City, including the Atlantic Yards, IKEA’s brownfields project in Red Hook, Brooklyn, the Second Avenue Subway, Moynihan Station, East Side Access and East River Repowering projects in Manhattan. He served as special master in EPA’s ocean dumping lawsuit against the County of Westchester and as a mediator in a number of CERCLA cases.

Kevin is a prolific writer, with publications on a wide range of environmental issues. As co-chair of the Section’s Global Climate Change Committee, much of the focus of that writing has been on climate change. While he is proud of the accomplishments that he and his colleagues in the field have had over the years, he sees those accomplishments as being overwhelmed by the immensely important climate change issue. His hope is that during the course of his career we will, at the very least, put the legal infrastructure into place to address this issue in a meaningful way in the coming decades.

When not engaged in the practice of law, Kevin enjoys drawing and kayaking (although, he assures us, not at the same time). His wife and he are now finishing a project making their home one of the “greenest” in the Westchester County.

**Aaron Gershonowitz**

\*\*\*

## New Member: Genevieve M. Trigg



This issue of *The New York Environmental Lawyer* features Genevieve M. Trigg as one of its esteemed new members. Genevieve is no stranger to *The New York Environmental Lawyer*. Indeed, she played a pivotal role in facilitating and organizing student participation in the publication. Genevieve currently practices environmental, municipal, land use and zoning, and real estate law as an

associate at Whiteman Osterman & Hanna LLP, focusing largely on regulatory compliance and redevelopment.

During law school, Genevieve interned at the Department of Environmental Conservation in both the Spills and Remediation Bureau and the Water Bureau. Genevieve credits her experience at the DEC with fostering her deep interest in environmental law. In the years that followed, she committed her educational efforts to gaining practical experience with the New York State Public Service Commission’s Office of Industry and Government Relations and General Electric’s Environmental Health & Safety Department.

While at Albany Law School, Genevieve demonstrated her knack for leadership—a skill that undoubtedly will benefit this Section for many years. In her capacity as President of the Environmental Law Society, Genevieve organized student interest in environmental matters, recruited speakers and environmental professionals to Albany Law School to interact with students, and de-



veloped career connections between eager law students and seasoned veterans. She was also a founding member and the Executive Editor for Research and Writing of the Student Editorial Board for *The New York Environmental Lawyer*, and in this position she established herself as a tremendous asset to the Section.

Genevieve has not shed her enthusiasm and frequently takes time to serve as a role model to share her interests with others, and to develop awareness of environmental challenges. She served as a mentor at the inaugural Dare to Climb program sponsored by Girl Scouts of Northeastern New York, where she met with twenty-two high school aged girls to share her experience of becoming an environmental lawyer. She continues to serve as a mentor for Albany Law School students and as a lecturer at Albany Law School in Professor Keith Hirokawa's class in Environmental Law. Additionally, Genevieve is active in the Women's Forum at Whiteman Osterman & Hanna, which recognizes and promotes the important role of professional women in the Capital Region. Most recently, the Women's Forum provided fundraising and donation support to the Equinox Shelter.

In her conversation with me, Genevieve closed by remarking on her gratitude to the Section and specific members who have facilitated her professional development: "I have always had the mentality that every opportunity presented is what you make of it and for me it's about making the most of it. I am fortunate to have some truly inspiring mentors who have encouraged me to take advantage of each opportunity, whether at a breakfast networking event or giving a presentation to an environmental law class at my law school alma mater. I am committed to remaining active in the Section and hope to share my passion for environmental law as strongly as it has been shared with me by so many of my colleagues and fellow Section members."

Keith Hirokawa

## Joel Sachs Receives CLE Committee Award



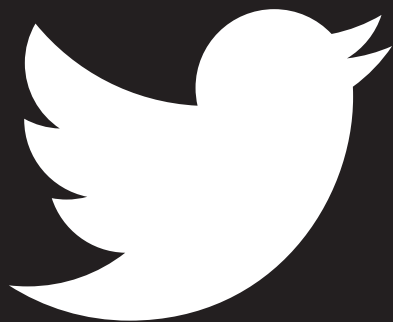
Joel Sachs receiving his award of recognition from Deborah Scalise, CLE Committee Chair, for his 28 years of service on the CLE Committee.

On Friday, July 11, former Environmental Law Section Chair Joel H. Sachs was presented with an award by the NYSBA CLE Committee, recognizing his 28 years of service. This is Joel's last year serving on the Committee.

Joel has served as a member of the NYSBA House of Delegates, past Chair of the Real Property Law Section, and member of the Task Force on Eminent Domain, as well.



Joel Sachs at the CLE Committee Meeting, which was held on Friday, July 11 in Saratoga Springs, NY.



## Follow NYSBA on Twitter

[www.twitter.com/nysba](http://www.twitter.com/nysba)

Stay up-to-date on the latest news from the Association

# *In Memoriam*

## **David Sive (1923–2014)**

**On March 12, 2014, the environmental community lost a leader and the Section lost a friend. David Sive's law firm remembers and honors him:**

Sive, Paget & Riesel mourns the loss of our founding partner, David Sive, who passed away on March 12, 2014. David was a great friend to his colleagues, an exceptional litigator, and a loving husband, father, and grandfather. As an intellectual and spiritual leader of the modern environmental law movement, he devoted his energies and passion to protecting the environment. Our hearts go out to David's family in this difficult time.

A veteran of World War II, David fought in the Battle of the Bulge. After graduating from Columbia Law School in 1948, he emerged as an authority on administrative law. However, his love of the wilderness soon led him into the then-nascent field of environmental law. He quickly became an authority in this new field, and was often referred to as the father of modern environmental law. His sustained success in the courtroom over decades established vitally important precedents for later generations of environmental lawyers.

David was one of the first lawyers to bring litigation effectuating the "forever wild" provisions of the New York State Constitution, and litigated a number of cases protecting the environment in his beloved Adirondack and Catskill Mountains. In the 1960s, he played a leading role in the administrative and judicial proceedings that prevented the construction of a power plant on Storm King Mountain along the Hudson River, and helped to establish aesthetics as a recognized environmental value.

In subsequent decades David litigated numerous important environmental cases. He prevented the construction of the proposed Hudson River Expressway (a precursor of the ill-fated Westway Project). He challenged up to the U.S. Supreme Court the Nuclear Regulatory Commission's testing of atomic weapons off Alaska's Amchitka Island, and litigated the principal case establishing that the military is subject to the National Environmental Policy Act. In a landmark case decided by the New York Court of Appeals, David established that the preservation of wilderness areas for the benefit of the public serves charitable, educational, and moral purposes and entitles nature preserves to the tax-exempt status that is essential to their survival.

David was proud of his role as a teacher, introducing generations of young lawyers to the emerging field of environmental law, both as a member of the adjunct faculty of Columbia and Pace Law Schools, and as the founder of several continuing legal education courses for the Environmental Law Institute and the American Law Institute-American Bar Association. David's lectures and written scholarship, including an environmental column in the *National Law Journal* and articles in numerous law reviews, helped to shape the field of environmental law.

David also played a critical role in the creation of the Environmental Law Institute, the Natural Resources Defense Council, and other prominent national environmental organizations, as well as scores of regional and local entities. His legacy is permanently embedded in innumerable precedent-setting cases. But to those who knew David well and worked with him closely, his gentle way and kind soul will be missed most of all.

We will miss David greatly.



**Deborah Goldberg, Earthjustice, acting as Counsel/Presenter during the CLE program entitled "The Gas Preemption Cases Before the New York State Court of Appeals: A Moot Court."**

## NYSBA Environmental Law Section Annual Meeting 2014 Friday, January 31, 2014 New York Hilton Midtown

The Section had a successful Annual Meeting in January. Thursday night events included the annual EPA Update CLE program, the Annual Business Meeting, and a cocktail reception. The Friday program included a morning CLE program, a luncheon with keynote speaker, NYSDEC General Counsel Ed McTiernan, and an Executive Committee meeting. Here are a few photographs from the event.



**Michael Gerrard as Presiding Judge and Moderator during the CLE program entitled, "The Gas Preemption Cases Before the New York State Court of Appeals: A Moot Court."**



**Carl Howard, John Greenthal, and Miriam Villani.**



**Carl Howard, Marla Wieder, Chris Saporita, and Mary McHale present the EPA Update.**



**Kevin Reilly, Section Chair, and Mike Lesser, Section Treasurer.**



**Walter Mugdan, former Section Chair, with Levan Thomas, winner of the Minority Fellowship Award.**



**Barry Kogut, former Section Chair, presents the Section Award to Carter Strickland, who accepted the award on behalf of the City of New York.**



**Kevin Bernstein, CLE Program Co-chair, and Alan Knauf, presenter, at the CLE program entitled "The Gas Preemption Cases Before the New York State Court of Appeals: A Moot Court."**



**Thomas West, Mike Gerrard, Gail Port, Joel Sachs, Adam Schultz and Bridget Lee participating in the CLE program "The Gas Preemption Cases Before the New York State Court of Appeals: A Moot Court."**



**Mike Lesser, Steven Russo, David Keehn, and David Vandor.**



# Recent New York State Water Regulations Not Ready for Prime Time

By David L. Ganje

Earlier this year, the DEC's new water withdrawal regulations came into effect. These regulations are designed *"to regulate the use of the water resources of the state... by implementing a water withdrawal permitting, registration and reporting program for water withdrawals equaling or exceeding a threshold volume."* Under the new regulations, the threshold volume refers to the withdrawal of a volume of one hundred thousand gallons of water or more per day.

In New York State, groundwater rights are based on land ownership rights. A property owner can withdraw as much water for use provided the rights of other property owners are not adversely affected. Water systems within the state require Water Supply Permits issued by the New York State Department of Environmental Conservation (DEC), if they have the capacity to withdraw 100,000 gallons per day, or more, of ground or surface water and they do not qualify for an exemption under state regulations.

The state draws fresh water from three sources, namely the Susquehanna River Basin, the Delaware River Basin, and the Great Lakes Basin.

The new regulations do not affect those in possession of DEC-issued water supply permits as of February 15, 2012, or those actions (e.g., withdrawals approved by the Delaware River Basin Commission or Susquehanna River Basin Commission, withdrawals of hydropower facilities under a valid Federal Energy Regulating Commission license, or withdrawals used for fire suppression or other public emergency purposes) exempt in accordance with 6 NYCRR 601.9. All other water withdrawal actions that meet or exceed the 100,000 gallons per day threshold will require a DEC permit. Power generating stations and municipal water systems are examples of operators that typically use more than 100,000 gallons of water per day.

Initial permits issued under the new regulations will be implemented using a staggered schedule that enables the largest water users to obtain permits with priority over small water users.

Efforts to preserve and manage an invaluable natural resource such as water are laudable. The regulations do, however, raise areas of concern including a failure to undertake a cumulative impact analysis of water usage in the state, including water usage for hydrofracking; and an inherent unfairness to small water users who are last in the pecking order when it comes to the issuance of withdrawal permits.

Hydraulic fracturing, "hydrofracking" or "fracking," is a process that forces a mix of water, sand, and chemicals down a gas or oil well under extremely high pressure with the goal of cracking previously impermeable rock (typically shale) to create fractures that will allow trapped oil and/or gas deposits to flow to the surface.

The Marcellus Shale, encompassing 104,000 square miles across Pennsylvania, West Virginia, Ohio, and parts of New York, is the largest source of natural gas in the United States. Since 2008, hydraulic fracturing has been used to release and capture the shale gas for energy consumption. However, New York does not permit the drilling of the Marcellus Shale formation. For the past five years, the DEC has had a ban on high-volume hydrofracking. The moratorium was put in force during the Paterson administration by executive order that called for revisions to the Draft Supplemental Generic Environmental Impact Statement, reflecting a comprehensive analysis of the environmental impacts associated with high-volume hydraulic fracturing combined with horizontal drilling. The DEC will not issue permits for hydrofracking until it obtains assurances from the NYS Department of Health that the process would be safe.

Hydrofracking uses water, but the volume used should be put in the context of other water uses currently in place. In the U.S. more water is used to cool power plants than for any other use pursuant to the United States Geological Survey. Over 53.7 billion gallons per day of water were used to cool power plants in the Great Lake states in the year 2000. By comparison, hydrofracking of the Marcellus Shale formation throughout Pennsylvania requires a total of 3 to 5 million gallons of water over a 2-to-5-day period per well based on Susquehanna River Basin Commission data.

The EPA estimates a horizontal well in a shale formation can use between 2 million to 5 million gallons of water. It must be noted that depending on the geological formation, technology used and type of well being drilled, water usage varies.

Horizontal hydrofracking is estimated to use five to ten times as much water as vertical hydrofracking. As Monika Freyman notes, "the whole drilling and fracking process is a well-orchestrated, moment-by-moment process requiring that one million to five million gallons of water are available for a brief period...they need an intense amount of water for a few days, and that's it." The overall amount of water used for hydrofracking, even in

states like Colorado and Texas that have been through severe droughts in recent years, is still small: in many cases 1 percent or even as little as a tenth of 1 percent of overall consumption, far less than agricultural or municipal uses.

The water used in the hydrofracking process in Pennsylvania comes primarily from fresh water obtained from surface sources such as rivers or recycled water from previous hydrofracking operations. Withdrawal of surface water should be undertaken when assurances are provided, supported by scientific evidence, that downstream water quality and quantity is sufficient to meet existing and anticipated needs of people, wildlife and ecosystems in the affected area.

The DEC initiated an environmental study on hydrofracking almost five years ago subject to a well-known longstanding moratorium. Governor Cuomo anticipates making a final decision on hydrofracking in the state before the 2014 elections. Business groups have expressed their frustration with the unresolved moratoriums, and the New York chapter of the National Federation of Independent Business has called for an end to “paralysis by analysis.” The Federation has also advocated the enactment of stringent standards to protect the environment and health while permitting the extraction of natural gas by hydrofracking.

The New York Farm Bureau is a non-governmental organization representing the agricultural sector. The Bureau takes the position that hydrofracking, with certain rules in place, can protect the environment and would provide an economic benefit for the state enabling farms to not only continue to operate but expand. The Bureau supports rules that would require gas drilling companies to disclose the composition of their hydrofracking mixture as a condition to obtaining DEC permits, in addition to strict measures that would prevent methane migration into wells and aquifers. The Bureau advocates payments on a per unit basis for right-of-way agreements with oil and gas companies. These are but a sample of the four dozen policy statements the Bureau advocates in its support of natural gas drilling in the state.

Conversely, studies by academics, including Professor Vengosh of Duke University, indicate that hydrofracking produces high concentrations of metals, salts, and radioactivity downstream from a wastewater treatment facility in Pennsylvania.

It is surprising that the DEC has proceeded to promulgate water withdrawal regulations that do not ad-

dress hydrofracking. Regulations were scheduled to be issued earlier this year, but the DEC continues to await the report of the New York State Commissioner of Health. It is hoped that the Health Commissioner’s report will soon address hydrofracking and horizontal drilling practices and their impacts.

Effective June 1, 2013, large water users (100 million gallons or more per day) were required to submit applications for DEC withdrawal permits. Each year thereafter, other users will be required to apply for DEC permits until all users withdrawing 100,000 gallons or more per day submit applications by February 2017.

While water availability in New York is sufficient to meet domestic and commercial requirements, concerns have been raised that large water users with permits may not be eager to adjust their withdrawals in times of scarcity to meet the needs of small users. Given the anticipated increase in human population, large-volume water uses such as those required in hydrofracking must be considered in light of the effects of global climate change and other increasing demands on the state’s water resource.

The DEC, upon digesting the long awaited environmental report on hydrofracking, should draft revised water withdrawal regulations that address the needs of all stakeholders. The economic opportunities and benefits of hydrofracking on the Marcellus Shale should, of course, be balanced against health and environmental concerns, but eight years of indecision is long enough.

As Cornell University researchers Rahm and Riha noted, rules and regulations are needed to ensure that water withdrawals are performed in a way that is considerate of natural conditions, existing withdrawals for other purposes, and ecological health.

**David L. Ganje is a natural resources law, commercial law, and commercial litigation attorney with his own practice. He practices in South Dakota, North Dakota, and New York. Mr. Ganje has grounded his experience as a practicing attorney, a former commodity arbitrator, a member of the board of directors of a bank, and an adjunct professor to hone his legal and business skills in these areas of practice. In his natural resources practice he handles matters related to mineral law, oil and gas law, environmental law, and water law and water rights.**

# Sustaining Sustainability: The Enforcement of Land Use Regulations and the Trend Toward Post-Occupancy Enforcement

By Drew Gamils

It is critical that municipalities adopt and enforce land use regulations to protect natural resources, create green buildings and infrastructure, and promote community resiliency. Today, many new regulations promote sustainable development, land and water conservation, and stormwater management. In New York, recent flooding caused by stormwater runoff from major storms is a primary concern in emerging land use regulations and has redoubled municipal adoption of green infrastructure laws requiring, for example, pervious surfaces, on-site retention, and enhanced vegetation. Local code enforcement officers must ensure that these new standards are met at the point of occupancy of residential and commercial buildings, but these standards create a new challenge: how to ensure that these green infrastructure components remain functional over time. The same can be said for a number of other green building requirements coming into vogue, including water-conserving indoor fixtures and appliances and energy-conserving features both inside and outside new and retrofitted buildings. There is a noticeable national trend toward post-occupancy inspections and enforcement, which is the subject of this article.

## I. Land Use Enforcement and Environmental Protection

In New York, local governmental land use bodies impose a number of conditions on land development projects to protect the environment. This is particularly true with conditions imposed under the State Environmental Quality Review Act (SEQRA). Under SEQRA, an environmental impact assessment is required for the majority of projects and activities proposed by a state agency or local government to mitigate the project's adverse impacts on natural resources. In addition, local governments that have adopted a number of their own environmental laws to protect slopes, wetlands, stream beds, and other resources also impose conditions on project approvals to enforce the standards in those laws. Typically, these conditions are noted in the planning board's approval of a special use permit, subdivision, or site plan application.

Pre-occupancy compliance with conditions imposed on developers to mitigate adverse environmental impacts, or ensure compliance with local environmental laws, is fairly well assured. Building permits may not be issued until the responsible local official certifies that the developer has obtained all required land use approvals, and Certificates of Occupancy may not be issued until the developer has complied with any conditions imposed by the planning board in its approval resolution that relate to the

construction of the project. These are powerful enforcement weapons and suffice, in most cases, to ensure that the conditions imposed are met at the point of construction and occupancy.

Increasingly, for the reasons noted above, environmentalists, planners, and lawyers have become interested in post-occupancy enforcement. As green building laws proliferate, professionals have noted that the environmental gains of these new standards can be lost if, over-time, building owners and occupants do not maintain pre-occupancy conditions. Pervious surfaces can become clogged, green roofs neglected, on site vegetation die out, and water and energy conservation fixtures removed and replaced. Slowly, in various parts of the nation, techniques are emerging to accommodate the need for the maintenance of green features and fixtures now required by law.

### A. Stormwater Management as an Example

Stormwater is water that runs off the land's surface as a result of rain or melting snow or ice. Naturally occurring surface runoff is a valuable ecosystem function, and over centuries has played a large part in shaping the landscape. Land development, however—particularly impervious surfaces, such as buildings, roads, and parking areas—can prevent stormwater from infiltrating the soil. This development increases the volume and velocity of runoff, causing flooding, and interferes with the natural processing of nutrients, sediments, and other contaminants.

Stormwater management has been described as “the process of controlling and cleansing excess runoff so it does not harm natural resources or human health.”<sup>1</sup> The inclusion of stormwater management plans as part of the site plan and subdivision review process is within the broad authority granted to municipalities in many states.<sup>2</sup> States have authorized local governments to enact stormwater programs and ordinances through comprehensive plans, zoning ordinances, and subdivision and site plan regulations. Some states have set up grant programs to aid local governments in stormwater management. In addition, some municipalities have created utility systems to fund stormwater programs.

In New York, stormwater management provides a good example of a critically important green development strategy that requires proper enforcement of locally adopted regulations and practices. Stormwater management encompasses the need for flood control, erosion and sediment control, water quality management, and



groundwater replenishment. It has also given birth to a movement toward green infrastructure including a large number of techniques that are capable of ensuring zero net increase in runoff after construction. EPA is particularly keen on using green infrastructure techniques to manage stormwater as a method of guiding and encouraging communities to comply with Phases I and II of its stormwater management regulations. For this purpose, land use laws and building codes are reformed to ensure that buildings have downspouts connected to drainage or retention facilities; are equipped with rainwater harvesting devices; and that sites are required to use permeable pavement, green parking, bioswales, planter boxes, and rain gardens. Site plan and subdivision regulations are amended to include a variety of low-impact development features, the most ambitious of which attempt to retain pre-development hydrological conditions on the site.

## **B. Post-Occupancy Enforcement**

It is obvious that many of the construction features that manage stormwater must be maintained over time for their benefits to be realized. To demonstrate how the benefits of green development features are being preserved in various contexts nation-wide, this article examines a variety of post-occupancy inspection and enforcement techniques.

### **1. Require Post-Occupancy Documentation**

Municipalities may require an applicant, performing new construction, to submit a document at several phases of construction and at various post-occupancy intervals to show the project is operating as planned. The specific intervals are for the municipality to decide, but some communities require post-occupancy documentation one year and five years after completion (such as in the example below). Others require documentation at 18 months and 24 months after completion, as recommended by the International Green Construction Code (IgCC).

Under Greenburgh New York's Green Building Initiative and Energy Construction Standards, applicants of relevant projects must submit documentation showing compliance with standards at several phases in the development process. Pre-permitting responsibilities include submitting checklists, worksheets, and other documentation that may be necessary to show compliance with the green building requirements. They must meet with the Town's Green Building Compliance Official (GBCO) to discuss proposed green building measures prior to any public hearing regarding the site plan application. Applicants may not obtain a building permit until the GBCO has approved this documentation. The applicant, owner, or tenant is also required to submit documentation: prior to the issuance of a certificate of occupancy, verifying the green building measures approved in the pre-permitting documentation were implemented; after one year of occupancy of the building, showing that the building is being operated according to the previously approved efficiency

and conservation standards; and again after five years of occupancy of the building, showing that the building is being operated according to the previously approved efficiency and conservation standards.

### **2. Develop Ordinance with Maintenance Guidelines and Inspections**

Water conservation is a major concern in the United States. In many areas, there is a growing trend to adopt water efficient landscapes to conserve water. These landscapes are designed to better survive droughts and conserve water. Some municipalities have developed an ordinance that requires or encourages water-efficient landscapes. In order to be effective towards post-occupancy enforcement, these water-efficient landscape ordinances include maintenance recommendations and guidelines, such as a maintenance checklist to help residents preserve their water-efficient landscapes. Regular inspections are also used to ensure compliance and measure the effectiveness of the landscape post-occupancy.

An example of this approach is the Water-Efficient Landscaping Regulation in Sarasota County, Florida. This regulation requires resourceful landscape planning and installation, water-efficient irrigation, and encourages appropriate maintenance measures to promote the conservation of water resources. In an attempt to enforce maintenance, the regulations ensure that property owners receive a maintenance checklist.<sup>3</sup> In addition, local law requires inspections by the Code Enforcement Officer or designated inspectors "at reasonable hours of all land uses or activities regulated by Water-Efficient Landscaping Regulations in order to insure compliance with the provisions" included in the Water-Efficient Landscaping Ordinance.<sup>4</sup> The code enforcement officer is also responsible for initiating the enforcement proceedings. The Board of County Commissioners of Sarasota County is authorized to select Special Magistrate candidates who can issue citations, assess fines against violators, and hold hearings as provided in the Sarasota County, Florida Code of Ordinances.

Another example is the Water Efficient Irrigation Ordinance in San Francisco, California. The purpose of this ordinance is to regulate landscape irrigation practices and plant use.<sup>5</sup> Property owners and developers are expected to design and build drainage facilities including, but not limited to, culverts, retention and detention basins, and drainage swales. The ordinance also requires irrigation audits for a landscaped area by a Certified Landscape Irrigation Auditor, the project applicant, or a Public Utilities Commission Water Service Inspector.<sup>6</sup> An irrigation audit includes inspections, system tests, precipitation rates, and runoff reports. If a site violates the waste water provision of the ordinance, property owners can be fined.<sup>7</sup>

San Francisco's Green Landscaping Ordinance seeks to achieve increased permeability through front yard and parking lot controls and encourages responsible water

use through increasing “climate appropriate” plantings. According to the San Francisco Planning Department, 20% of a front yard must be plant material, and 50% must be permeable. Examples of approved permeable surfaces include porous asphalt, in-ground planters, and loosely set paving. There is a full guide to help property owners maintain landscapes to comply with the ordinance and understand the benefits of such landscapes. In addition, the Code Enforcement team of the Planning Department helps maintain and improve the quality of San Francisco’s neighborhoods by operating programs that ensure compliance with the City’s Planning Code. Code enforcement officials will respond to any complaints regarding code violations. The complaint is logged and assigned to an Enforcement Planner in charge of the area. Each complaint is investigated in order of priority. If a violation occurs the Enforcement Planner sends a notice to the property owner. The Enforcement Planner may conduct a site visit to further investigate the violation.<sup>8</sup>

Also in San Francisco, the Public Utilities Commission is working on a water budget report program that provides a report to property owners with dedicated irrigation meters. These reports include information on how property owners can meet their calculated water budget. Sites that go over their designated water budget, after complying with the ordinance, are brought to the attention of enforcement officials.<sup>9</sup> The General Manager of the Public Utilities Commission may issue a written warning entered on the user’s water service record and delivered to the property owner by any reasonable means. The written warning may include information regarding the violation, educate the violator on restrictions, provide resources to assist with compliance, and set a deadline for corrective action. If violations are not corrected to the General Manager’s satisfaction, administrative penalties and other available legal remedies can be taken pursuant to San Francisco’s Administrative Code.

In areas where flooding and stormwater management are of great concern, it is also important to create ordinances that establish inspections and maintenance requirements to promote resource protection. Grand Traverse County, Michigan, has adopted both a construction and post-construction runoff control ordinance. The ordinance requires the preparation of an erosion and stormwater runoff control plan for earth-disturbing activities in order “to effectively reduce accelerated soil erosion and sedimentation during construction and after construction is completed.”<sup>10</sup> The ordinance further requires property owners to provide stormwater management easements for facility inspections and the maintenance or preservation of stormwater runoff infiltration and detention areas and facilities, including 100-year flood routes.

### **3. Create a Commercial Audit Program**

Municipalities may implement an irrigation inspection program by adopting ordinances that require mandatory audits and inspections of new irrigation systems and

commercial entities. Through such programs, commercial water users are required to submit an audit periodically, and must continue to follow audit requirements.

The City of Allen, Texas, implemented an Irrigation Inspection Program through an ordinance requiring mandatory audits and inspections of new irrigation systems and all commercial entities. Under this ordinance, all irrigation systems installed are required to comply with the Texas Commission of Environmental Quality’s Landscape Irrigation Standards and the city’s irrigation standards. Immediately following installation, an irrigation system audit and inspection is required for all new irrigation systems. For new developments, documentation of the audit and inspection must be submitted to the city prior to issuing a Certificate of Occupancy. The commercial account holder must hire a certified auditor and submit an audit every 3 years. They cannot be grandfathered from the audit requirements. In addition, all audits must be performed according to the latest edition of the Recommended Audit Guidelines, published by the Irrigation Association. Any person, firm, or corporation who violates any provision of this Code is guilty of a misdemeanor and upon conviction is subject to a fine of up to \$2,000. Each day that a violation exists or continues constitutes a separate and distinct offense. Overall, the Commercial Audit Program has contributed to a decrease in annual water consumption and repairs to irrigation systems.

### **4. Offer Financial Incentives and Disincentives**

Municipalities may develop an incentive program that encourages property owners to undergo substantial property changes to meet stringent water efficiency standards; for example, to convert conventional landscapes to xeriscapes. Municipalities may provide incentives for actions that deter the same or subsequent property owners from converting back to old landscapes because it is more cost effective to maintain water efficient changes than to convert back to conventional landscaping.

Through its WaterWise Landscape Rebate Program, Austin Water pays residents to swap out grass for more drought resistant native plants. According to Austin Water, the program maintains and enforces itself.<sup>11</sup> The program requires participants to convert automatic irrigation spray heads to drip irrigation or to cap-off the zone completely. In order to revert back to grass the homeowner would have to put added work and money to reinstall automatic irrigation systems; therefore, the program embodies a natural financial incentive to maintain these new landscaping features rather than converting them back at some point in the future. Education is an important element to the maintenance of the program. Residents are aware of the frequent droughts and realize that grass requires a lot of water that could be used for other important functions. The state legislature supports water-efficient landscapes and their growing popularity. In Austin, Texas it is common to see water-efficient landscapes more frequently than manicured lawns. As a result, the pro-

gram does not need to provide a large amount of rebate money to create a major incentive and new residents who move into the community are likely to follow the community and maintain these efficient landscapes.<sup>12</sup>

## **5. Offer Stormwater Management Fee Reductions**

Municipalities may create stormwater management programs that control runoff from residential properties through a fee and fee reduction approach. Under such programs, customers are charged a stormwater utility cost based on a property's total impervious surface. A reduction in costs is then offered to those who employ stormwater control measures.

The Northeast Ohio Regional Sewage District has an individual residential property credit. Customers receive a reduction in stormwater management fees if they take measures to reduce stormwater runoff from their property. Credits are obtained through the installation and continued use, operation, and maintenance of an approved stormwater control measure. Such measures include rain gardens, on-site stormwater storage, pervious pavement, and vegetated filter strips—all green infrastructure measures that aid in groundwater recharge. After three years, recertification is required to continue to receive credits. In addition, maintenance guidelines are provided to help ensure the effectiveness and longevity of each control measure. These guidelines include some simple maintenance measures to maintain efficiency such as cleaning gutters, checking hoses, and winterizing structures. If ownership of the property changes, a new application must be submitted in order to receive the credit.

## **6. Provide Property Tax Abatements**

Municipalities may provide a property tax abatement to incentivize the maintenance of water efficient landscapes. Through such programs, residents who alter their property to install water efficient landscapes and increase their property value can be eligible for a yearly tax abatement program that requires maintenance and inspections.

The City of Cincinnati and the Reinvestment Area Residential Tax Abatement offers a tax abatement for improvements to property that includes new construction and renovation. The abatement requires an annual exterior inspection for all new and existing tax abatements to ensure that the property is well maintained. Another example is the New York City Green Roof Property Tax Abatement Program. This program requires a maintenance plan that includes semi-annual inspection, plans for plant replacement, monthly inspections of drains, and maintenance of green roofs for a minimum of four years.<sup>13</sup>

## **C. Using Emerging Techniques to Sustain Sustainable Development**

Post-occupancy enforcement techniques ensure that the benefits of standards and conditions imposed by local

environmental laws and original project approvals continue into the future. It is imperative that municipalities promote the long-term enforcement of land use ordinances and environmental regulations to protect our natural resources and meet the needs of the local community. Throughout the country, water conservation, stormwater management, and sustainable development are key issues that must be addressed to ensure a livable future. This article demonstrates that gradually the law of the land is evolving to encompass sustainable development standards and to ensure that they can be sustained over time.

## **Endnotes**

1. Jim Gibbons et al., NEMO Project Fact Sheet 7 Reviewing Site Plans for Stormwater Management (December 1995).
2. N.Y. GEN. CITY LAW §§ 27-a, 32, 33; N.Y. TOWN LAW §§ 274-a, 276, 277; N.Y. VILLAGE LAW §§ 7-725-a, 7-728, 7-730.
3. Water-Efficient Landscaping Regulation Checklist, *available at* <http://sarasota.ifas.ufl.edu/Hort/WEL/ord/docs/ordchecklist.htm>.
4. Ordinance No. 2001-081. Water-Efficient Landscaping Regulation, *available at* <http://sarasota.ifas.ufl.edu/Hort/WEL/ord/docs/ord.htm>.
5. In accordance with California's State Water Conservation in Landscaping Act.
6. Water Efficient Irrigation Ordinance, *available at* <http://www.sfwater.org/index.aspx?page=689>.
7. Interview with Julie Ortiz, Water Conservation Manager, San Francisco Public Utilities Commission, September 20, 2013. Contact information: [jnortiz@sfwater.org](mailto:jnortiz@sfwater.org) (415) 551-4739.
8. San Francisco Planning Department, <http://sf-planning.org/index.aspx?page=2202>.
9. Water Efficient Irrigation Ordinance, *available at* <http://www.sfwater.org/index.aspx?page=689>.
10. Grand Traverse County Soil Erosion and Stormwater Runoff Control Ordinance, *available at* [http://www.stormwatercenter.net/Model%20Ordinances/Post%20Construction%20Stormwater%20Management/grand\\_traverse\\_county\\_soil\\_erosi.htm](http://www.stormwatercenter.net/Model%20Ordinances/Post%20Construction%20Stormwater%20Management/grand_traverse_county_soil_erosi.htm).
11. Christopher Charles, [Christopher.Charles@austintexas.gov](mailto:Christopher.Charles@austintexas.gov) (512) 972-0366, Conservation Program Associate, Austin Water, October 8, 2013.
12. WaterWise Rebate Program, *available at* <http://austintexas.gov/departments/waterwise-landscape-rebate>.
13. New York City Green Roof Property Tax Abatement Program, *available at* [http://www.nyc.gov/html/dob/html/sustainability/green\\_roofs.shtml](http://www.nyc.gov/html/dob/html/sustainability/green_roofs.shtml).

**Drew Gamils graduated from the State University of New York College of Environmental Science and Forestry in May 2013. She is currently a rising 2L working toward an Environmental Law Certificate at Pace Law School. She sits on the board of the National Environmental Moot Court Competition and is treasurer of the Land Use Law Society. She also volunteers at the Land Use Law Center.**



# The Need for a Systemic and Coherent Federal Regulatory Framework for Effective Adaptation to Climate Change

By Paola Bettelli

## Introduction

The latest report by the Intergovernmental Panel on Climate Change (IPCC) states that the “observed impacts of climate change are widespread and consequential.”<sup>1</sup> The IPCC concluded that climate change increases risks such as death, injury, ill health and disrupted livelihoods, as well as food and freshwater shortages, breakdown of infrastructure, and loss of terrestrial and inland water ecosystems.<sup>2</sup>

Despite these serious risks, adaptation to climate change had been neglected until recently both domestically and internationally.<sup>3</sup> But now, a great degree of attention is being paid to this issue. In this regard, the most recent IPCC report notes that between 2005 and 2010, “the number of scientific publications available for assessing climate change impacts, adaptation and vulnerability, more than doubled...allowing for a more robust assessment that supports policymaking.”<sup>4</sup>

In the United States, extreme weather events like hurricane Katrina and, more recently, hurricane Sandy forced the Federal government to look at adaptation to climate change more closely. Congress has passed laws to improve the efficacy of response measures to extreme weather events but, so far, has not adequately addressed broad-range preventive measures, known as “anticipatory adaptation” to diminish the Nation’s exposure to risks from climate change. The executive branch has acknowledged the need to mitigate the Nation’s exposure to climate change risks by adopting a “National Preparedness Goal” and by taking measures specifically directed to climate change. For example, through Executive Order 13653, President Obama established a Task Force on Climate Change Preparedness and Resilience to advise the administration on how the Federal government can respond to the needs of communities nationwide that are dealing with the impacts of climate change.<sup>5</sup> Executive Order 13653 also directed Federal agencies to take a series of steps to make it easier for communities to strengthen their resilience to extreme weather and to prepare for other impacts of climate change.<sup>6</sup>

This article examines whether selected Federal actions, including President Barack Obama’s Climate Action Plan<sup>7</sup> and Executive Order 13653 on Preparing the United States for the Impacts of Climate Change,<sup>8</sup> are sufficient to coherently and effectively address the issue of adaptation to climate change in the long term or whether a more ambitious Federal regulatory framework is necessary. While

indispensable to formulate a systemic and coherent Federal strategy on climate change, the aim of this article is not to examine the adaptation components of all existing Federal laws. Rather, the aim is to stress the importance of and need for this kind of an undertaking and assessment. Nonetheless, this article shall briefly discuss a selection of the most relevant environmental, disaster management and risk reduction Federal laws that are pertinent to adaptation to climate change. As we shall see, the boundaries of these laws are already being tested and pushed by legal controversies related to climate change. Several states and some cities are also taking actions to address climate change. This is important because the impacts of climate change will have to be addressed locally.

Section I of this article will discuss the importance of adaptation to climate change and scholarly work so far on the need for a systemic and coherent Federal regulatory framework to address the impacts of climate change. Regrettably, Congress does not seem to be inclined to discuss or consider any regulatory framework on climate change in the near term, even if restricted to adaptation without touching the more sensitive greenhouse gas reduction issues. Therefore, Section II will discuss the statutory and regulatory framework at the State level in the face of Congressional inaction. Section III will analyze the President’s Action Plan on Climate Change and Executive Order 13653; and Section IV will assess the adequacy of President Obama’s recent decisions and measures to address adaptation to climate change. Section V concludes with a brief overview of the findings of this article.

## I. The Importance and Complexity of Adaptation to Climate Change

### A. The Need to Combat Climate Change Through a Combination of Mitigation and Adaptation Measures

The IPCC came to the conclusion that “warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades or millennia.”<sup>9</sup> Concentrations of greenhouse gases have increased and sea level has risen because the atmosphere and oceans have warmed causing the snow and ice to melt.<sup>10</sup> The IPCC also found that 1983-2012 was likely the warmest 30-year period of the last 1400 years in the Northern Hemisphere.<sup>11</sup> For the first time in 2012, the IPCC used more detailed data to demonstrate connections between climate change and variability of extreme weather events.<sup>12</sup> The IPCC determined that “climate

change leads to changes in the frequency, intensity, spatial extent, duration, and timing of extreme weather and climate events, and can result in unprecedented extreme weather and climate events.”<sup>13</sup> More recently, the IPCC found that “recent changes in climate have caused impacts on natural and human systems on all continents and across oceans.”<sup>14</sup> Moreover, “for many natural systems on land and in the ocean, new or stronger evidence exists for substantial and wide-ranging climate change impacts.”<sup>15</sup>

In line with IPCC prognosis, the United States is currently experiencing the effects of climate change: 2012 was the warmest year on record, and the 12 hottest years on record have all come in the last 15 years.<sup>16</sup> In 2012, there were 11 different weather and climate disaster events with total estimated damages of \$110 billion—the second costliest year on record.<sup>17</sup> Communities throughout the United States are already experiencing a range of climatic changes, including more frequent and extreme rainfall and flooding, extended wildfire seasons, more frequent and intense heat waves, increasing ocean temperatures, and rising sea levels.<sup>18</sup> This means that our adaptation to climatic and atmospheric changes is inevitable and, therefore, there is growing consensus about the importance of adaptation as a component of any effective climate change strategy.<sup>19</sup>

Adaptation to climate change encompasses a broad range of measures varying from anticipatory to reactive. Anticipatory, or proactive, adaptation measures are aimed at reducing vulnerability and increasing resiliency, taking place before impacts of climate change are observed or have occurred.<sup>20</sup> On the other hand, reactive adaptation measures are used when impacts have already been observed or occurred, such as responses to and recovery from natural disasters.<sup>21</sup> Examples of anticipatory adaptation measures are adjustment of planting dates and crop variety, crop relocation, improved land management, managed retreat seawalls and storm surge barriers, dune reinforcement, land acquisition and creation of marshlands, heat-health action plans, improved climate sensitive disease surveillance and control, safe water and sanitation, design standards and planning for roads, rail infrastructure to cope with drainage, underground cabling for utilities, and diversification of commerce and tourism attractions.<sup>22</sup> Disaster management, which is a part of anticipatory adaptation, includes the design and implementation of strategies, policies and measures that promote and improve disaster preparedness, response and recovery practices at different government and societal levels.<sup>23</sup>

## **B. The Need for Anticipatory (Preventive) Adaptation Measures**

The lessons learned from Hurricanes Katrina and Sandy led to changes that enhanced coordination and coherence in emergency and disaster response measures at the Federal level, pointing to the need to seriously

consider a broader strategy that also encompasses longer-term anticipatory adaptation measures. The IPCC has noted that disaster risk management and adaptation to climate change combined can reduce vulnerability and increase resiliency to the impacts of extreme weather and climate events.<sup>24</sup>

The Federal government’s focus has mainly been on reactive adaptation measures, that is to say, in response to emergencies and major disasters, through the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act).<sup>25</sup> However, greater emphasis needs to be placed on preventive adaptation measures. In an attempt to also include anticipatory (preventive) adaptation measures, Congress amended the Stafford Act to authorize a pre-disaster mitigation program and to streamline disaster relief through the Disaster Mitigation Act.<sup>26</sup> At the time, Congress found that

greater emphasis needs to be placed on: identifying and assessing the risks to the States and local governments (including Indian tribes) from natural disasters; implementing adequate measures to reduce losses from natural disasters; and ensuring that the critical services and facilities of communities will continue to function after a natural disaster.<sup>27</sup>

The purpose of the Disaster Mitigation Act is to establish a hazard mitigation program to reduce the loss of life and property, human suffering and economic disruption, and to provide pre-disaster hazard mitigation funding to states, local governments and tribes.<sup>28</sup>

Nonetheless, White House and Congressional reports on the responses to Hurricane Katrina clearly trace our government’s shortcomings in this area. In a report ordered by President George W. Bush, the government recognized that Hurricane Katrina “was a deadly reminder that we can and must do better...”<sup>29</sup> This report acknowledged that “the transformation envisioned...will require a sustained commitment over time by the Federal government as well as by State and local governments that have essential duties in responding to disasters.”<sup>30</sup> A special report by the United States Senate Committee on Homeland Security and Governmental Affairs found that the suffering brought about by Hurricane Katrina continued longer than it should have “because of—and was in some cases exacerbated by—the failure of government at all levels to plan, prepare for, and respond aggressively for the storm.”<sup>31</sup>

In order to address some of the deficiencies in the government’s response to Hurricane Katrina at the Federal level, the Federal Emergency Management Agency (FEMA) was reformed in 2006 through the Post-Katrina Emergency Management Reform Act of 2006.<sup>32</sup> Additionally, in 2011 FEMA issued the National Disaster Recovery Framework (NDRF)<sup>33</sup> with the aim of effective Federal

recovery assistance to States, tribes and local jurisdictions that have been impacted by natural disasters.<sup>34</sup>

As a result of these Federal improvements in disaster response management after Hurricane Katrina, there is overall consensus that the responses to Hurricane Sandy were better.<sup>35</sup> It is noteworthy that the Post-Katrina Act “restores to FEMA the responsibility to lead and support efforts to reduce the loss of life and property and protect the nation from all hazards through a risk-based system.”<sup>36</sup> Nonetheless, further improvements to the response measures were necessary after Hurricane Sandy and, as a result, on January 29, 2013, President Obama signed into law the Sandy Recovery Improvement Act of 2013 (SRIA).<sup>37</sup> The law authorized several significant changes to the way FEMA may deliver disaster assistance under a variety of programs.<sup>38</sup> The law provided a \$50.7 billion package of disaster assistance largely focused on responding to Hurricane Sandy.<sup>39</sup> Additionally, Congress increased the National Flood Insurance Program’s borrowing authority by \$9.7 billion (from \$20.725 billion to \$30.425 billion).<sup>40</sup> However, it is noteworthy that the Sandy Recovery Improvement Act does not mention climate change anywhere.

Before 2013, the President had not addressed adaptation to climate change with emphasis. In 2009 President Obama began to address climate change by focusing on mitigation with Executive Order 13514 which calls on Federal agencies to reduce greenhouse gases in their operations and activities.<sup>41</sup> Four years later, in 2013, the President broadened his strategy on climate change beyond actions by Federal agencies with his Climate Action Plan. Finally, in 2013, President Obama issued Executive Order 13653 titled “Preparing the United States for the Impacts of Climate Change.”<sup>42</sup>

Aside from President, other parts of the Federal government were addressing climate change adaptation indirectly. These actions supplement the President’s efforts. For example, in May of 2013, Homeland Security issued a National Mitigation Framework<sup>43</sup> that “establishes a common platform and forum for coordinating and addressing how the Nation manages risk through mitigation capabilities.... Mitigation reduces the impact of disasters by supporting protection and prevention activities, easing response, and speeding recovery to create better prepared and more resilient communities.”<sup>44</sup>

Until Executive Order 13653, the Federal government had mostly focused on disaster recovery measures, which are a form of reactive adaptation but had, for the most part, disregarded preventive adaptation. As noted before, effective adaptation to climate change has to combine both short-term reactive measures, as well as longer-term proactive ones geared towards increasing resiliency and reducing vulnerability to the adverse effects of climate change.<sup>45</sup> These two types of measures are complementary. The longer-term proactive measures make the reactive

ones more cost-effective and efficient because planned adaptation measures reduce the risks associated with extreme weather events.<sup>46</sup> Planned adaptation is “the result of a deliberative policy decision, based on awareness that conditions have changed or are about to change and that action is required to return to, maintain, or achieve a desired state.”<sup>47</sup>

Preventive measures need to be strengthened because planned adaptation reduces the exposure to risks and, consequently, the costs of recovery. In this regard, it is noteworthy that on February 14, 2013, the nonpartisan Government Accountability Office (GAO) released its High Risk List, identifying the areas that pose the highest risk to the U.S. government.<sup>48</sup> The GAO added the fiscal exposure resulting from climate change to the High Risk List for the first time.<sup>49</sup> In doing so, the GAO recognized that climate change threatens to inflict huge costs to the U.S. taxpayer.<sup>50</sup> The addition of climate change to the GAO’s High Risk list demonstrated the serious financial risk that climate change poses and sharpened the focus on its threat to public health, the environment and the economy.<sup>51</sup>

The establishment of a National Framework on Mitigation (NFM) in 2013 is also aimed at enhancing our country’s resilience to different threats.<sup>52</sup> However, the NFM is not directed exclusively to climate change impacts but to a broader range of security threats including terrorism, cyber-terrorism, animal disease outbreaks, food contamination, armed assault and biological terrorism. The NFM is one of the five frameworks developed to enable achievement of the National Preparedness Goal<sup>53</sup> that was issued by Homeland Security in September 2011 in response to Presidential Policy Directive PPD-8 which sought “a secure and resilient Nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risks.”<sup>54</sup> This directive “describes the Nation’s approach to preparing for the threats and hazards that pose the greatest risk to the security of the United States.”<sup>55</sup>

All of the steps by the Federal government towards adaptation have been taken through Presidential initiatives and directives, not through statutory reforms, except those related to amendments to the Stafford Act that focus on disaster recovery and, as such, are mostly reactive in nature.<sup>56</sup> Hence, the question remains as to whether these Presidential directives and initiatives are sufficient to shift the country toward anticipatory adaptation in order to bolster our resilience and reduce our exposure to climate change risks in the long term.

### C. Adaptation to Climate Change Is a Complex Issue

Adaptation to climate change is also a complex concept because it involves a broader range of fields than just the environment and because it is a politically sensitive topic.<sup>57</sup> Adequate adaptation planning requires



risk assessments and measures to increase resiliency for all sectors including public health, agriculture, industry, commerce, infrastructure, land use zoning laws and easements, coastal zone management, improvements in urban and rural dwellings, transportation and commerce, and sufficient energy and freshwater availability.<sup>58</sup>

The acrimonious national political debate on the need for climate change measures has mostly centered on mitigation of greenhouse gases and has derailed any serious discussion on adaptation until recently. The recent developments toward a Federal strategy to confront the impacts of climate change perhaps have been partly driven by the difficulties and shortcomings in confronting the devastation wrought by Hurricanes Katrina and Sandy, as well as the long-term costly recovery process that they have entailed.

The thematic complexity and the political tensions regarding adaptation to climate change are also reflected at the international level within the framework of the UNFCCC negotiations. Since the United States is a Party to the Convention, it is bound by its agreements. Adaptation to climate change was not seriously considered by the UNFCCC Conference of the Parties (UNFCCC-COP) until 2007 when it was included in the Bali Action Plan.<sup>59</sup> The Bali Action Plan calls for enhanced action on adaptation.<sup>60</sup> As a result of which the UNFCCC-COP adopted the Cancún Adaptation Framework in 2010.<sup>61</sup> This framework invites Parties, *inter alia*, to plan, prioritize and implement adaptation actions at the national and subnational levels, to conduct impact, vulnerability and adaptation assessments and to strengthen institutional capacities and enabling environments for adaptation, including for climate-resilient development and vulnerability reduction.<sup>62</sup>

#### **D. Scholarly Consensus on the Need for a More Ambitious Federal Strategy on Adaptation to Climate Change**

Scholarly work prior to the decisions taken by President Obama in 2013 on climate change indicated that there had been insufficient progress in the United States developing a coherent policy and regulatory framework in response to the adverse effects of climate change.<sup>63</sup> Except for reactive adaptation components related to disaster risk reduction and management,<sup>64</sup> there had been a lack of a Federal regulatory framework to address the impacts of climate change. While the Interagency Climate Change Adaptation Task Force, instituted by President Obama in 2009, instructs agencies to strengthen their operations against climate impacts, its recommendations are not binding. Some states and cities had adopted adaptation plans and strategies, but most do not have one yet.<sup>65</sup>

Hence, consensus among scholars is that there is a need for a more systemic and structural approach to climate change at the Federal level through a combination of mitigation of greenhouse gases and adaptation regula-

tions, policies and measures.<sup>66</sup> There is also recognition of the need “to define an adaptation component of climate change law.”<sup>67</sup> However, acknowledging political resistance to any Federal climate change regulatory framework, scholars have suggested identifying very specific components of existing Federal legislation that need to be changed to address adaptation to climate change.<sup>68</sup>

Some scholars propose radical measures at the local level to decrease vulnerability to climate change impacts by avoiding reconstruction in high-risk zones such as coastal areas that have been consistently affected by storms through regulatory and economic disincentives.<sup>69</sup> For example, a handbook recently developed by the Center for Climate Change Law of Columbia Law School gathers a number of tools to assist federal, state and local governments in conducting managed retreat from vulnerable zones.<sup>70</sup> As a result of sea-level rise, some areas will be too vulnerable despite the best efforts to hold back the sea, and as a result, homes and infrastructure will have to be moved away from the threat.<sup>71</sup>

## **II. Statutory and Regulatory Framework**

The complexity of climate change adaptation—involving responses across disciplines including public health, social sciences, economics, and earth sciences—requires a systemic and coherent approach. The question is whether our Federal statutory and regulatory framework is sufficiently broad, coherent and enforceable to address the impacts of climate change or whether statutory reforms are required. While our current Federal regulatory framework covers each of these fields separately, it does not do so from the perspective of climate change. Also, the current regulatory framework does not sufficiently integrate Federal laws among each other to address climate change impacts in a systemic and coherent manner.

### **A. Federal Level**

While existing Federal laws and regulations are being used to address climate change, their boundaries are being tested in litigation and shifting in the face of climate change. Most of the current litigation focuses on climate change mitigation and barely any on adaptation.<sup>72</sup> This void is reflected in the cases discussed below and speaks volumes about how preventive adaptation is not being sufficiently addressed at the Federal level.<sup>73</sup> Unfortunately, the President’s actions cannot make up for the deficiencies in existing federal laws.

The Robert T. Stafford Disaster Relief and Emergency Act (Stafford Act), signed into law on November 23, 1988, constitutes the statutory authority for most Federal disaster response activities, especially for FEMA programs.<sup>74</sup> As noted above, in the wake of Hurricane Katrina a number of laws were enacted and changed to reform FEMA and to make the NDRF more effective. The issue of preparedness for climate change-related extreme weather events arose again in the wake of Hurricane Sandy. As

was mentioned before, a number of actions were taken by President Obama in 2013 in response to this.<sup>75</sup>

Another Federal law that is relevant to climate change adaptation is the National Environmental Policy Act (NEPA).<sup>76</sup> NEPA established national environmental policy goals for the protection, maintenance and enhancement of the environment and provides a process for implementing these goals with the Federal agencies based on environmental impact statements (EIS).<sup>77</sup> NEPA requires federal agencies to integrate environmental considerations into their decisions by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions.<sup>78</sup> To meet these requirements, Federal agencies prepare detailed environmental impact assessments (EIS).<sup>79</sup> EPA reviews and comments on the EISs prepared by other agencies, keeps a record of them and ensures that its own actions comply with NEPA.<sup>80</sup> Because of NEPA's broad scope, attempts have been made to use it as a statutory tool to regulate climate change. These attempts have been met with mixed results because all of the litigation under NEPA focuses on mitigation and none on adaptation.<sup>81</sup> Also, despite CEQ's draft NEPA Guidance on Considerations of the Effects of Climate Change and Greenhouse Gas Emissions,<sup>82</sup> most agencies have not included climate change considerations in their EIS.<sup>83</sup> According to a thorough assessment of climate change litigation conducted in 2012, "thirty-four cases—one sixth of all climate change litigation matters—involved claims brought under the National Environmental Policy Act (NEPA)...," on mitigation issues.<sup>84</sup> It is fairly easy to see how a claimant could bring an action under NEPA arguing that an agency must include in its EIS analysis how its proposed action can contribute to climate change, for example, by reducing emissions of GHGs (a mitigation action).<sup>85</sup> However, it is harder to envision how a claim could be brought against an agency for failing to assess how its actions could have an impact on climate change adaptation. The question here, rather, would be how agency inaction could entail a failure to prepare adequately for climate change impacts. Arguably, NEPA is not well suited to answer this question. That is perhaps the reason for which, thus far, there are no cases in the courts involving climate change adaptation under NEPA. While the CEQ has encouraged agencies to assess climate change impacts, "NEPA has simply not provided fertile ground for plaintiffs seeking to force agencies to do more with their climate change assessments."<sup>86</sup> However, there are differing views on this issue. Some scholars suggest that NEPA is sufficiently broad to cover climate change adaptation.<sup>87</sup> They indicate that since "climate change impacts may act as indirect effects that are "reasonably foreseeable,"" despite any remaining uncertainty..." they should be included in an EIS.<sup>88</sup> While CEQ guidance may evolve and courts in the future may begin to interpret NEPA from a broader perspective to include climate change adaptation considerations, the fact

of the matter is that up until now, NEPA has not been an effective tool to address climate change adaptation.<sup>89</sup>

Another statute that is relevant to climate change is the Clean Air Act (CAA). The CAA directs the EPA to set limits on certain air pollutants, limiting how much of these pollutants can be emitted.<sup>90</sup> Because of its nature, the CAA is more pertinent to greenhouse gas mitigation than to climate change adaptation. However, an important decision by the Supreme Court in *Massachusetts v. EPA*, on climate change mitigation, sheds light on how the judicial branch is interpreting the law to include climate change considerations within its scope.<sup>91</sup> Thus, this decision may also have a bearing on the degree of flexibility with which the courts, in the future, may interpret existing laws to decide whether climate change adaptation fits within their scope. In *Massachusetts v. EPA*, the Supreme Court held that the CAA authorizes EPA to regulate greenhouse gas emissions from motor vehicles in the event that it forms a judgment that such emissions contribute to climate change.<sup>92</sup> Plaintiffs, Massachusetts and 11 other states, as well as 13 environmental organizations, challenged EPA's decision not to add four greenhouse gases to the list of controlled motor vehicle emissions, arguing that the EPA had "abdicated its responsibility under the CAA to regulate emissions of four greenhouse gases, including carbon dioxide."<sup>93</sup> The Supreme Court directed the EPA to decide whether the emissions from new motor vehicles contribute to this air pollution, thereby overturning EPA's decision.

In response the Supreme Court's decision and after considering extensive scientific evidence, the EPA issued an Endangerment Finding in which it determined that greenhouse gases may "reasonably be anticipated to endanger public health or welfare."<sup>94</sup> The EPA then issued the Tailpipe Rule, which set emission standards for cars and light trucks. Lastly, the EPA determined that CAA requires major stationary sources of greenhouse gases to obtain construction and operating permits.<sup>95</sup> Nonetheless, in view of the fact that immediate regulation of all of these sources would result in overwhelming permitting burdens on authorities and sources, the EPA issued the Timing and Tailoring Rules that establish a phased approach according to which only the largest stationary sources would initially be subject to permitting requirements.<sup>96</sup>

In 2012, through *Coal for Responsible Regulation, Inc. v. EPA*, various State and industry groups challenged these rules issued by EPA, arguing that they are based on improper constructions of the CAA and are otherwise arbitrary and capricious.<sup>97</sup> On October 15, 2013 the Supreme Court granted certiorari to review EPA's authority to regulate greenhouse gases under the Clean Air Act in *Utility Air Regulatory Group v. EPA*.<sup>98</sup> While the Supreme Court maintained the application of the CAA to motor vehicles through *stare decisis*, it is still uncertain whether

the Court will rule in the same way for major stationary sources of greenhouse gases, which are some of the major contributors to pollution that causes global warming.<sup>99</sup> This decision by the Court will further define the scope of application of CAA to GHG mitigation and, by so doing, will provide pointers about how Federal statutes can be interpreted to include (or exclude) climate change considerations that were not originally contemplated when the statutes were enacted.

More recently, on June 2, 2014, the EPA released the Clean Power Plan proposal which, for the first time, cuts carbon pollution from existing power plants, the largest source of carbon pollution in the United States.<sup>100</sup> If adopted, this rule would be a landmark in climate change policy to address the serious threat of climate change.

The Clean Power Plan was developed by the EPA under the authority of CAA section 111 (d) and follows through on some of the steps laid out in President Obama's Action Plan and the June 2013 Presidential Memorandum. The Plan seeks to reduce carbon dioxide emissions from the power sector by 30% below 2005 levels by 2030.<sup>101</sup> The Plan will be implemented through a state-federal partnership according to which the EPA sets state-specific emission rate-based carbon dioxide emission limits but gives each state the flexibility to choose the compliance options best suited to its own unique circumstances and specificities.<sup>102</sup> To facilitate the achievement of each state's carbon intensity limit, the EPA identified some emission reduction practices that states can combine and apply to their electric generation fleet. These practices include: 1) improvements in efficiency at carbon-intensive power plants; 2) programs that enhance the dispatch priority of, and spur private investments in, low emitting and renewable power sources; and 3) programs that help homes and businesses use electricity more efficiently.<sup>103</sup> The proposal gives states up to two or three years for the submission of final plans and provides up to fifteen years for full implementation of all emission reduction measures, after the proposal is finalized.<sup>104</sup> The EPA will accept comments on the proposed rule for 120 days after publication in the Federal Register and held public hearings on the proposed Clean Power Plan during July.<sup>105</sup> President Obama has directed that the rule be finalized by June 2015. However, ultimately the validity of this rule is contingent on the upcoming ruling of the Supreme Court in *Utility Air Regulatory Group v. EPA*<sup>106</sup> regarding whether the EPA has the authority under the CAA to regulate GHG emissions from stationary sources.

An interesting aspect of the Clean Power Plan proposal, which could serve as a useful model for regulating adaptation to climate change, is the federal-state partnership that the Plan sets up. According to this model, the federal government sets the overall goals, provides guidelines and compliance options to the states, and each state chooses the means to meet those goals according to its specific circumstances and conditions.

Since freshwater scarcity is one of the foreseeable impacts of climate change, another relevant statute for climate change adaptation is the Clean Water Act (CWA).<sup>107</sup> The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulates quality standards for surface waters. The CWA's 40th anniversary in 2012 marked the great progress made in reducing water pollution.<sup>108</sup> Nonetheless, many challenges remain, especially in view of the unexpected changes that climate change may bring about in terms of clean water quality (e.g., salinization of underground water) and availability (e.g., scarcity due to prolonged droughts).<sup>109</sup>

Recognizing that "freshwater resources are critical to the health of people, the environment, and the economy," on October 11 the Interagency Climate Change Adaptation Task Force issued a National Action Plan for Managing Freshwater Resources in a Changing Climate.<sup>110</sup> The Plan makes a number of recommendations including: 1) establishing a planning process; 2) improving water resources and climate change information for decision-making; 3) strengthening of assessment of vulnerability of water resources to climate change; 4) expanding water use efficiency; 5) supporting integrated water resource management; and 6) supporting training and outreach to build response capabilities.<sup>111</sup>

Sea-level rise is one of the most worrisome projected climate change impacts.<sup>112</sup> Preparing for this through coastal management, zoning laws and storm-surge barrier protection systems is crucial. Therefore, the Coastal Zone Management Act (CZMA) is one of the most relevant statutes for climate change adaptation.<sup>113</sup> The CZMA encourages States and tribes to preserve, protect, develop and, where possible, restore or enhance valuable natural coastal resources such as wetlands, floodplains, estuaries, beaches, dunes, barrier islands and coral reefs, as well as wildlife using those habitats.<sup>114</sup> A feature of this law is that participation by States and tribes is voluntary. As an incentive for States or tribes to participate, Federal assistance is made available to any coastal State, tribe or territory that is willing to develop and implement a coastal zone management program. It is worth mentioning that the CZMA, enacted in 1972, was not drafted taking into account sea level rise as a result of climate change, hardly an issue at the time, and has not been amended to account for it.

Under the CZMA, coastal States have adopted and implemented coastal zone management plans and regulations. However, the use of State and local coastal zone management regulation has brought about controversies regarding eminent domain and just compensation for "takings."<sup>115</sup> The preeminent United Supreme Court case on the matter is *Lucas v. South Carolina Coastal Council*.<sup>116</sup> This case will be discussed in the next sub-section of this article on state action. In this regard, it is important to note that while the CZMA is a federal law, states are



the primary implementers and local communities have a strong role to play in its implementation.<sup>117</sup> *Lucas* has served as a warning to indicate that the use of coastal zone building permit requirements cannot be used for managed retreat from coastal areas unless the property owners are compensated for the loss in the economic value of their land.

The following case is an example of how the law's treatment of climate change adaptation measures, such as the use of sand dunes for protection from storm surges, may shift as severe weather events increase in frequency. In *Borough of Harveey Cedars v. Karan*,<sup>118</sup> the New Jersey Supreme Court held that "when a municipality takes private property for a public use, the property owner is entitled to 'just compensation' under our State and Federal Constitutions."<sup>119</sup> This case involves a beach-restoration and storm-protection project on Long Beach Island funded by Federal, State and local governments. The project involved the "construction of dunes along the entire length of the island sufficient to hold back storm-triggered waves capable of destroying or seriously damaging homes and businesses."<sup>120</sup> The dune that was built on petitioner's property is twenty-two feet high and thirty feet wide at the top and was built to replace an existing sixteen-foot-high dune.<sup>121</sup> The issue before the Court was "how to calculate 'just compensation' when the taking of a portion of the property for a public project may lessen in part and enhance in part the value of the remaining property."<sup>122</sup> The value may be "enhanced" by the fact that the sand dune protects the property from destruction from storm surges; it is "lessened" to the extent that the sand dune obstructs the view of the ocean and diminishes the beachfront. The Court held that "when a public project requires the partial taking of property, 'just compensation' to the owner must be based on a consideration of all relevant, reasonably calculable and non-conjectural factors that either decrease or increase the value of the remaining property."<sup>123</sup>

In response to the challenges posed by environmental threats to the ocean and coasts, on July 19, 2010 President Obama signed Executive Order 13747 on "Stewardship of the Ocean, Our Coasts, and the Great Lakes,"<sup>124</sup> adopting recommendations of the Interagency Ocean Policy Task Force and directing executive agencies to implement those recommendations under the guidance of the National Ocean Council.

Based on those recommendations, this order establishes a national policy to ensure the protection, maintenance, and restoration of the health of ocean, coastal and Great Lakes ecosystems and resources, enhance the sustainability of ocean and coastal economies, preserve our maritime heritage, support sustainable uses and access, provide for adaptive management to enhance our understanding of and ca-

capacity to respond to climate change and ocean acidification, and coordinate with our national security and foreign policy interests.<sup>125</sup>

Also related to sea-level rise, storm surges and flooding, in 2012 Congress enacted the Biggert-Waters Flood Insurance Reform Act which requires the National Flood Insurance Program (NFIP) to raise rates to reflect true flood risk, make the program more financially stable and change how the Flood Insurance Rate Map (FIRM) updates impact policyholders.<sup>126</sup> This Reform Act was scaled back with the Homeowner Flood Insurance Affordability Act, which was signed into law on March 21, 2014, with the aim of helping families maintain affordable flood insurance, and ensuring the financial stability of the NFIP.<sup>127</sup> Despite these changes, FEMA will continue to identify and publish special flood hazards and flood risk zones as authorized by Congress. As such, NFIP has "the potential of incrementally mainstreaming adaptation into preexisting legal frameworks."<sup>128</sup>

As discussed above, the federal statutes that are currently in place related to environmental issues, such as NEPA, CCA, CWA and CZMA are not entirely suited to deal with climate change because they were not designed or thought of with that objective in mind. The reality is that climate change impacts are occurring now and, as a result, federal courts are forced to confront the challenge. But the courts and the President can only do so much. Congress has not enacted comprehensive adaptation measures and federal agencies have not produced comprehensive adaptation regulations.<sup>129</sup> Given the breadth, magnitude and complexity of climate change impacts, Congress has to take commensurate action by identifying the gaps and inconsistencies of existing legislation and making the necessary changes. These changes should be aimed at addressing climate change in a systemic and coherent manner at the Federal level, and strengthening support for action at the State and local levels. Unfortunately, given the current gridlock in Congress, it is unlikely that it will take any measures related to climate change adaptation in the near future.

## **B. State and Local Plans, Policies and Regulations on Adaptation to Climate Change**

Partly due to Congressional inaction, States and cities around the country are taking measures to prepare themselves for climate change. The following is an assessment of what States and communities are doing to increase their resiliency. State and local measures are an essential component of any effective climate change strategy because the brunt of the impacts will be felt locally.

At the State level, only thirteen States (Alaska, California, Connecticut, Florida, Maine, Massachusetts, New Hampshire, New York, Oregon, Pennsylvania, Virginia, Washington and Wisconsin) have a statewide adaptation plans.<sup>130</sup> Seven States are in the process of completing

their statewide adaptation plans (Delaware, Michigan, Minnesota, New Jersey, Rhode Island, Vermont and Wisconsin).<sup>131</sup> Within the twelve that have adaptation plans, only six States (Connecticut, Florida, Massachusetts, Maine, Pennsylvania and Washington) have a legislative mandate on the matter.<sup>132</sup> Twenty-seven States have some form of strategies or plans with components related to adaptation to climate change.<sup>133</sup> The State that perhaps suffered the most as a result of Hurricane Katrina, Louisiana, adopted a Comprehensive Coastal Master Plan as the principal means for establishing a clear set of priorities for comprehensive coastal protection in Louisiana.<sup>134</sup> The Master Plan sets a number of principles as guidelines for fulfilling the plan's mission and objectives including: long-term solutions, seeking sustainability, systems approach, clear expectations, acknowledging residual risk and the public's role.<sup>135</sup> Alaska,<sup>136</sup> California,<sup>137</sup> Oregon,<sup>138</sup> Massachusetts,<sup>139</sup> and Washington<sup>140</sup> are some of the leaders in adopting climate change adaptation plans, recognizing the need both to assess the likely impacts of climate change and to identify and implement adaptation strategies.

Since States had not prepared for climate change impacts through planning in the past, options for this purpose have been debated in the courts. For example, in *Lucas v. South Carolina Coastal Council*,<sup>141</sup> petitioner Lucas was barred by the Beachfront Management Act from erecting permanent habitable structures on his parcels of land. Petitioner filed a suit against the State contending that the ban deprived him of all "economically viable use" of his property and therefore affected a "taking" under the Fifth and Fourteenth Amendments that required the payment of just compensation.<sup>142</sup>

The Supreme Court held that

South Carolina must identify background principles of nuisance and property law that prohibit the uses petitioner now intends in the circumstances in which the property is presently found...Only on this showing can the State fairly claim that, in proscribing all such beneficial uses, the Beachfront Management Act is taking nothing.<sup>143</sup>

On remand, the District Court found such a taking and ordered damages paid to the landowner.<sup>144</sup>

Given that States may not be putting in place adequate planning measures to prepare for climate change impacts, providing them with the necessary tools and assistance to consider their options is important. This is a role that the Federal government could fulfill by providing states with technical assistance, or through enabling legislation containing incentives for the States to adopt regulations and model ordinances oriented towards climate change adaptation. In this regard, however, it is im-

portant to stress that the Federal government needs to be careful about not over-stepping the Tenth Amendment's prohibition on the Federal government forcing states to regulate land-use and coastal zone management.<sup>145</sup> Adaptation to climate change involves many land-use planning components<sup>146</sup> and any federal action must recognize that the legal authority to regulate land use for such purposes is limited to incentives.<sup>147</sup>

Indeed, to confront the challenges of sea level rise, municipalities and local governments are increasingly resorting to land use reform and considering different options for managed retreat from shorelines, including: 1) coastal planning; 2) setbacks and rolling easements; 3) prohibiting coastal armoring; 4) rebuilding restrictions and 5) acquisitions.<sup>148</sup> Managed retreat "can limit a community's exposure to coastal hazards, save lives, and limit the expenditure of public funding on vulnerable infrastructure and response mechanisms."<sup>149</sup>

It is important to note, however, that in most states municipalities have no inherent power to legislate these issues, but derive their authority to do so through state land-use enabling statutes, home rule laws, and special laws directly aimed at environmental protection.<sup>150</sup> Local authorities can only exercise this legislative power if it is expressly granted by the states or is necessarily implied from, or incident to the power that has been granted to them.<sup>151</sup> State action is indispensable to empower local communities to prepare themselves for the impacts of climate change and federal support is necessary to this end. Therefore, all three levels of government need to be involved for effective adaptation to climate change and the degree of involvement of each level is framed by Tenth Amendment restrictions and by state laws that determine to what extent local communities can act directly.

At the local level, many cities and several counties have adopted comprehensive frameworks on adaptation to climate change.<sup>152</sup> One notable example is "PlaNYC," an unprecedented effort taken by Mayor Bloomberg in 2007 to prepare the city for different challenges and pressures, including population increase and climate change.<sup>153</sup> Adaptation-related initiatives include working with FEMA to update 100-year flood maps; updating building regulations; working with the insurance industry to encourage flood protection measures in buildings; mitigating urban heat island effect; integrating climate change projections into emergency management planning; and working with communities to increase their climate resilience.<sup>154</sup> In response to the loss of life and damage wrought by Hurricane Sandy, Mayor Bloomberg undertook an initiative to make New York City more climate resilient, leading to a report with very specific recommendations to increase the city's resiliency to climate change impacts in key areas. These areas include coastal and building protection, health, water and wastewater management and fuel supply.<sup>155</sup> The report also identifies means of funding the protective measures that need to be

taken.<sup>156</sup> This is a notable initiative that ought be replicated in other cities across the nation according to their own circumstances and specificities.

Acting on the recommendations of a task force convened after Hurricane Sandy, on November 14, 2013 the New York City Council approved new requirements to make buildings more resilient to emergency situations.<sup>157</sup> One requirement is that residential buildings five stories or higher add faucets in common areas like laundry rooms so that residents on higher floors have some access to water for drinking, flushing toilets and other purposes.<sup>158</sup> Another part of the legislation requires existing hospitals and nursing homes in flood zones to install hookups for easy connections to backup generators so that these facilities can maintain electricity and heating when the power is out.<sup>159</sup>

While several States and cities are taking important measures to prepare for the impacts of climate change, these efforts should be further supported and strengthened by the Federal government. To increase our nation's resiliency as a whole, the best strategy to confront climate change impacts is one that combines Federal, State, local and tribal actions.

### **III. Presidential Actions on Climate Change Adaptation**

This article examines a selection of the President's recent actions on climate change because of their significance in terms of steering the Federal government in the right direction.

#### **A. Climate Change Action Plan**

In June 2013, President Obama issued his Climate Action Plan making a pledge that by 2020, America would reduce its greenhouse gas emissions in the range of 17 percent below 2005 levels if all other major economies agreed to limit their emissions as well.<sup>160</sup> The Plan also seeks to prepare the nation for the impacts of climate change, acknowledges that climate change is one of the greatest challenges of our time, but indicates that it is particularly suited to America's strengths in terms of scientific and technological innovation.<sup>161</sup> Preceding his Action Plan, the President established an Interagency Climate Change Adaptation Task Force and required that it make recommendations to improve the Nation's response climate change.<sup>162</sup> In May 2010, the Task Force hosted the first National Climate Change Adaptation Summit, convening local and regional stakeholders and decision-makers to identify challenges and opportunities for collaborative action.<sup>163</sup> The Task Force released two reports in 2010 and 2011.<sup>164</sup> In its October 2010 Progress Report, the Task Force called for collaborative approaches within the government to address key cross-cutting issues related to climate change preparedness and resilience.<sup>165</sup> Upon a recommendation by the Task Force, in February 2013, Federal agencies released, for the first time, Climate

Change Adaptation Plans outlining strategies to protect their operations, missions and program from the effects of climate change.<sup>166</sup>

President Obama's Climate Action Plan aims to expand these agency efforts in three major interrelated initiatives: i) building stronger and safer communities and infrastructure; ii) protecting our economy and natural resources; and iii) using sound science to manage climate impacts. Additionally, in August 2013, President Obama's Hurricane Sandy Rebuilding Task Force<sup>167</sup> delivered a rebuilding strategy to be implemented in Sandy-affected regions and establishing precedents that can be followed elsewhere. The Task Force and Federal agencies are also piloting new ways to support resilience in the Sandy-affected region.<sup>168</sup>

#### **B. Presidential Executive Order 13653: Preparing the United States for the Impacts of Climate Change**

This Executive Order is meaningful because it is the first time that adaptation to climate change is regulated at the Federal level. This is the reason for which this article discusses it at length.

On November 1, 2013 President Obama signed an Executive Order 13653 "to prepare the Nation for the impacts of climate change by undertaking actions to enhance climate preparedness and resilience."<sup>169</sup> The order recognizes that

Managing these risks requires deliberate preparation, close cooperation, and coordinated planning by the Federal government, as well as by stakeholders, to facilitate Federal, State, local, tribal, private-sector and non-profit sector efforts to improve climate preparedness and resilience, help safeguard our economy, infrastructure, environment and natural resources; and provide for the continuity of executive department and agency operations, services and programs.<sup>170</sup>

With this in mind, the order seeks to: i) modernize Federal programs to support climate resilient investment; ii) manage lands and waters for climate preparedness and resilience; iii) provide information, data and tools for climate change preparedness and resilience; iv) establish a high-level inter-agency Council on Climate Preparedness and Resilience; and v) establish a State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience.<sup>171</sup>

The Council on Climate Preparedness and Resilience shall work across agencies and offices, and in partnership with State, local and tribal governments, academic and research institutions and the private and nonprofit sectors to: i) develop, recommend, coordinate interagency efforts on, and track implementation of priority Federal



government actions related to climate preparedness and resilience; ii) support regional, State, local and tribal action to assess climate change-related vulnerabilities and cost-effectively increase climate preparedness and resilience of communities; and iii) facilitate the integration of climate science in policies and planning of government agencies.<sup>172</sup>

The State, Local and Tribal Leaders Task Force on Climate Preparedness and Resilience has one year to make recommendations to the President and the Council:

for how the Federal government can: i) remove barriers, create incentives, and otherwise modernize Federal programs to encourage investments, practices and partnerships that facilitate increased resilience to climate impacts, including those associated with extreme weather; ii) provide useful climate preparedness tools and actionable information for States, local communities, and tribes, including through interagency collaboration...and iii) otherwise support State, local, and tribal preparedness for and resilience to climate change.<sup>173</sup>

The President's Climate Change Action Plan and Executive Order are moving the Federal government in the right direction because, among other things, the order seeks to modernize Federal programs to support climate resilient investment and to support efforts in this regard by States, local and tribal communities. Nonetheless, a comprehensive assessment of existing Federal laws to determine their adequacy to confront the impacts of climate change effectively is still missing, as well as recommendations to address regulatory gaps or inconsistencies in a systemic and coherent manner.

#### **IV. The Need for a Systemic and Coherent Federal Regulatory Framework for Effective Adaptation to Climate Change**

Research for this article indicates that action on adaptation to climate change at the Federal level is being led by the executive branch, followed by the judiciary, while Congress seems to be lagging far behind both. Congress has enacted laws that focus on reactive adaptation measures, such as responses to extreme weather-related events. This is but a facet of an effective systemic adaptation strategy that ought to also include preventive measures.

President Obama's decisions on adaptation to climate change in 2013 through his Climate Action Plan and Executive Order 13653<sup>174</sup> to prepare the United States for the impacts of climate change are certainly moves in the right direction, particularly considering the persistent political resistance by Congress to any form of regulatory strategy or framework on climate change at the Federal level.

Perhaps these decisive moves by the President were also prompted by Hurricane Sandy, which made America realize that it could no longer neglect adaptation to climate change because it would be more costly to do so than otherwise.

Overall, scholars agree that the Federal government must exercise leadership to identify the most significant adaptation risks and opportunities and to foster a more coordinated and effective national response.<sup>175</sup> Based on scientific consensus through the IPCC assessments on the importance of adapting to climate change impacts, the Federal government also needs to place more emphasis on anticipatory (preventive) adaptation measures and should combine them with the reactive disaster management responses that it has used traditionally.<sup>176</sup>

On the need to shift to a more holistic and anticipatory approach, the high-level interagency Council on Climate Preparedness and Resilience, which has the major Federal departments and agencies as its members, is likely to bring about increased coherence and cohesion among the policies in the different fields relevant to climate change adaptation.<sup>177</sup> This is due to the fact that, through the Council, the different agencies will come together to engage in discussions and make joint recommendations on climate change adaptation. The Council will also support regional, State, local and tribal actions to assess climate change related vulnerabilities to increase communities' climate preparedness and resilience.<sup>178</sup> However, a presidential Executive Order does not rise to the level of a Federal statute, which is why the next President of the United States could easily amend or reverse it. In the same vein, the recommendations, as such, issued by the Council on Climate Preparedness and Resilience, do not amount to rules and may not be subject to judicial review. Therefore, the question remains whether these recent decisions by the President are sufficient. It is also uncertain whether the Council will recommend any Federal legislative or regulatory changes to improve the nation's preparedness for climate change. As this article suggests, a systemic and coherent strategy for effective adaptation to climate change is required instead of a piecemeal, reactive approach.

While Federal agencies issued plans on climate change adaptation in 2013, these plans do not rise to the level of regulations. This is not to say that these plans are irrelevant or inconsequential. To the contrary, the development of these plans has prompted Federal departments and agencies to consider what needs to be done to improve their responses to climate change and to make the necessary changes to that effect. For example EPA's Office of International and Tribal Affairs released a draft climate change adaptation proposal that would focus on sharing climate change information with vulnerable populations, including in remote isolated regions and addressing threats to tribal lifestyles.<sup>179</sup> Proposed priority actions include increasing coordination between tribal program

managers and EPA's regional and program offices and expanding access to funding mechanisms. This is constructive, but is it enough?

As we have seen, the boundaries of Federal legislation such as NEPA, the CAA, and the CZMA are currently being tested in the courts and shifting in the face of climate change.<sup>180</sup> However, these statutes may not be expanding quickly or broadly enough through case law to meet the imminent demands of climate change. As the United States Court of Appeals for the District of Columbia Circuit reminds us in *Florida Audubon Soc. v. Bentsen* "the federal judiciary is not a back-seat Congress nor some sort of super-agency...."<sup>181</sup> It is also unlikely that the courts' interpretations of those statutes are sufficiently broad to address the complexities of climate change adaptation covering a range of issues.

All of this taken together seems to clearly indicate that, while we are moving in the right direction, more needs to be done to structurally change our Federal regulatory system to effectively reduce our risks and vulnerabilities to climate change in a systemic and coherent manner in the long term. More integration and consistency among the different Federal laws need to be achieved and more emphasis needs to be placed on anticipatory (preventive) adaptation.

An assessment of the adequacy of current Federal laws and regulations is indispensable in order to determine their strengths and deficiencies from the perspective of climate change adaptation. The assessment is also necessary to find ways to better integrate these laws and regulations both horizontally (among each other) and vertically (with State and local plans and regulations) to make them more coherent and effective.

An encouraging sign is the fact that Executive Order 13653 provides for both vertical and horizontal assessments.<sup>182</sup> In terms of a horizontal assessment, the order directs the heads of the Departments of Defense, the Interior and Agriculture, EPA, NOAA, FEMA, the Army Corps of Engineers and other agencies as recommended to

work with the CEQ and the Director of the Office of Management and Budget (OMB) to complete an inventory and assessment of proposed and completed changes to their land and water-related policies and programs, and *regulations*, necessary to make the Nation's watersheds, natural resources and ecosystems, and the communities and economies that depend on them, more resilient in the face of a changing climate.<sup>183</sup>

The order also provides that "the assessment shall include a timeline and plan for making changes to policies, programs and *regulations*."<sup>184</sup> Although this is a start, the

assessment should extend beyond land and water-related policies to include other fields that are also relevant to climate change adaptation including public health, infrastructure, transportation, and commerce. The assessment should also consider the inter-linkages between these different policies, programs and regulations to determine their complementarities, contradictions and gaps in terms of designing a coherent Federal policy and regulatory framework for climate change adaptation.

Regarding a vertical assessment, the State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience is tasked with providing recommendations to the President and the Council for how the Government can modernize Federal programs that facilitate increased resilience to climate impacts.<sup>185</sup> Although Executive Order 13653 does not mention this, these recommendations should also be aligned with the Federal policies, programs and objectives on climate change adaptation in order to increase their overall coherence and effectiveness.<sup>186</sup> On the other hand, whatever Federal policies and regulations result from this assessment should be carefully crafted around Tenth Amendment restrictions regarding the States' jurisdiction over their land, coasts and natural resources.<sup>187</sup> States and local governments are leading the way in adopting plans and policies towards effective adaptation to climate change and their efforts should be supported by Federal policies and regulations. The majority of climate change adaptation initiatives have been in states on the East and West coasts.<sup>188</sup> Many inland states have not adopted such plans and policies. The Federal government ought to provide incentives and assistance to States that are lagging behind and vulnerable local communities to make climate change adaptation a priority.

The assessments tasked to the Council and to the State, Local and Tribal Leaders Task Force on Climate Preparedness and Resilience by Executive Order 13653 will hopefully result in concrete recommendations to improve not only our policies and programs but also and, perhaps more importantly, our Federal regulatory framework to make it more coherent and effective, both horizontally and vertically, in terms of addressing the impacts of climate change nationally. It will then be up to the President and to Congress to act upon those recommendations.

To achieve sufficient horizontal and vertical coherence of laws and regulations for effective adaptation to climate change and to better coordinate the roles of the Federal, State and local governments, Congress could enact a legal framework for enhanced preparedness for climate change impacts. This could be one of the recommendations that the interagency Council on Climate Preparedness and Resilience makes.

Framework legislation usually lays down the basic legal principles without any attempt at codification.<sup>189</sup> It normally entails the declaration of objectives and policies,

the establishment of the necessary institutions and the definition of common procedural principles for decision-making applicable to all sectors.<sup>190</sup> Scholars have already outlined some of the principles that could be included in this framework, including the precautionary approach according to which “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”<sup>191</sup> Another of the guidelines could be principled flexibility<sup>192</sup> according to which “to deal effectively with adaptation and climate change impacts, the law will need to differentiate aspects of flexibility and discretion... However, it will simultaneously need to limit an actor’s discretion to do nothing or to deviate materially from general regulatory and management precepts and goals.”<sup>193</sup>

The Council for Climate Preparedness and Resilience<sup>194</sup> should make the following recommendations and proposals to Congress and to the President as necessary steps to develop a systemic and coherent Federal regulatory framework for effective adaptation to climate change:

1. Identify the priority fields or areas that need to be safeguarded from negative climate change impacts including, for instance, food and drinking water availability and security, health, disaster risk management, sustainable resource management, education, employment, productivity, communications and infrastructure.
2. Set specific adaptation goals according to the key priority areas needed to safeguard the Nation against the impact of climate change.
3. Invest in the further development and improvement of climate change impact models to make them more reliable.
4. Make a comprehensive and thorough vertical and horizontal assessment of existing Federal laws with adaptation to climate change components or that could be used to that effect. The objective of the assessment would be to determine the valuable aspects of these laws to strengthen the Nation’s climate change preparedness as a whole and, more importantly, to identify any gaps, weaknesses or inconsistencies towards that end.
5. Address these gaps, weaknesses or inconsistencies through proposals for legislative or regulatory reforms bearing in mind any Tenth Amendment restrictions or limitations.

Based on all of the above:

6. Stress the urgent need to develop a systemic and coherent Federal legal framework for effective adaptation to climate change with the aim of pro-

viding overall guidance and enhanced consistency among all relevant laws and improved coordination among the different levels of government and the various stakeholders.

7. Establish processes and institutions through which the roles of governmental entities and the various stakeholders can evolve and consolidate. Congress could, for example, decide to give the interagency Council on Climate Preparedness and Resilience and the State, Local and Tribal Leaders Task Force on Climate Preparedness and Resilience (both created through Presidential Executive Order 13653), a permanent position and role.

Furthermore, the high-level interagency Council on Climate Change Preparedness and Resilience should also consider proposing the following principles and guidelines to Congress for inclusion in a Federal legal framework on adaptation to climate change.<sup>195</sup>

1. **The National Preparedness Goal:**<sup>196</sup> defined as “a secure and resilient Nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to and recover from the threats and hazards that pose the greatest risks.”<sup>197</sup>
2. **The precautionary principle:** promotion of adaptation must proceed on the basis of the best knowledge available at the time and should not be delayed because of lack of scientific certainty.<sup>198</sup>
3. **Anticipatory adaptation policies, plans and measures:** climate change requires that the Nation be better able to cope with an uncertain future by increasing its resilience to the impacts through long-term planning and anticipatory action. Planning can prevent increasing vulnerability to climate change impacts and provide threatened communities, especially the most vulnerable ones, with assistance to bolster their resilience.<sup>199</sup>
4. **Adequate human and institutional capacity and mobilization of resources:** adaptation planning and implementation requires the development of adequate human and institutional capabilities and the mobilization of resources at the local, state and federal levels. All levels of government need to evaluate the overall costs of adaptation in the short, medium and long term and identify sources of financing them.
5. **Alignment with other national processes related to climate change:** adaptation strategies and planning mechanisms need to be aligned and coordinated with other national planning processes such as disaster risk reduction.



6. **Minimization of conflicts with other national priorities and maximizing synergies:** adequate planning should aim to increase the synergies while minimizing the potential incompatibilities between adaptation and other national priorities.
7. **Local community involvement:** adaptation planning needs to take place at the local and community levels in order to ensure effective implementation. The involvement of local stakeholders in mapping vulnerability and agreeing to local adaptation measures is crucial to ensure successful implementation of adaptation strategies. The Federal government should provide incentives to states for support of local communities so that they acquire the necessary capabilities and means to prioritize adaptation to climate change and to plan accordingly. Local governments should also find ways of creating incentives to promote anticipatory adaptation through land-use techniques that reduce exposure to climate change impacts, including managed retreat from high-risk zones.<sup>200</sup>
8. **Continued sharing of information and knowledge:** climate change is a dynamic process that responds to changing circumstances. Hence, continuous sharing of relevant information and knowledge in a timely manner enhances the capabilities of communities and other relevant stakeholders to prepare for uncertain circumstances.<sup>201</sup>
9. **Facilitation of joint efforts by and contributions from a broad range of stakeholders:** adaptation to climate change is a complex process—impact and vulnerability assessment, policy setting, planning, capacity building and implementation on the ground. This requires contributions and participation from numerous and varied stakeholders ranging from scientists, policymakers and corporations to ordinary people. Means of facilitating stakeholder dialogue and communication should be identified, including through open chat rooms, blogs and use of other forms of social media.<sup>202</sup>

The above-stated principles and guidelines for a coherent Federal regulatory framework for effective adaptation to climate change are but a few of the ones that Congress should consider.

Additionally, the framework could establish a federal-state partnership model according to which the federal government would set the overall goals, provide guidelines and support to the states, and the states would determine the means to meet those goals according to their unique circumstances and conditions. This would be similar to the federal-state partnership approach taken by the EPA under section 111 (d) of the CAA, in its recently released Clean Power Plan proposal to curb carbon emissions from electric utility generating facilities.<sup>203</sup>

## Conclusion

Significant progress has been made since Hurricane Katrina and then Sandy to increase America's preparedness and resiliency to climate change effects, including extreme weather events at the local, State and Federal levels. The poor coordination, confusion, delay and lack of leadership at all levels of government in the wake of Hurricane Katrina prompted radical regulatory changes to FEMA and to the NDRF.<sup>204</sup> Overall, scholars agreed that a more systemic and cohesive Federal strategy to confront the impacts of climate change was necessary.<sup>205</sup>

Responses to Hurricane Sandy in 2012 made clear that these changes had been insufficient and that the threats of climate change require a stronger response at the Federal level. Significant economic loss and damage in New York and New Jersey have caused reconstruction efforts to be lengthy and expensive. The Federal government took steps to address these shortcomings, including the Sandy Recovery Improvement Act of 2013. These Congressional actions, however, do not sufficiently address anticipatory (preventive) adaptation that is indispensable for an effective and systemic strategy to confront the impacts of climate change in the long term.

State and local governments also stepped up their efforts to confront climate change impacts. Several states and cities are leading the way to prepare for climate change impacts, but many others are still in the process of finding their way.<sup>206</sup> One notable example of an initiative to increase preparedness and resilience to climate change impacts is New York City's "PlaNYC: A Stronger More Resilient New York," which identifies key areas that need to be protected against adverse climate change impacts and proposes concrete measures to that end.<sup>207</sup> This initiative could be adapted in other cities throughout the country to address their own needs and specificities, with support from the federal government channeled through state governments. However, while states and cities need assistance and support, any intervention by the Federal government should be mindful of the Tenth Amendment.

Despite Congress' persistent political opposition to address climate change, President Obama took decisive measures to tackle preparedness and resilience to climate change impacts through his Climate Action Plan<sup>208</sup> and then through Executive Order 13653;<sup>209</sup> by doing so, he has paved the way for a more robust federal strategy to address the threats of climate change. Nonetheless, in the long term, the President's Climate Action Plan and his Executive Order cannot make up for deficiencies in existing federal laws which were not thought of or designed to address climate change and are proving to be inadequate to that end.

The interagency Council on Climate Change Preparedness and Resilience recently established by President Obama through Executive Order 13653<sup>210</sup> can

provide useful recommendations to Congress on the steps that need to be taken to develop a systemic and coherent Federal regulatory framework for effective adaptation to climate change and can also make proposals on the principles and guidelines that should inform that framework. The recommendations should include: setting specific adaptation goals according to the key priority areas needed to safeguard the Nation against the impacts of climate change, undertaking a comprehensive vertical and horizontal assessment of existing laws to determine their adequacy and effectiveness to address climate change related impacts, and considering institutional mechanisms that guarantee the cohesiveness, coherence, effectiveness and continuity of policies. The inter-agency Council established by the President has a critical role to play in making such recommendations.<sup>211</sup> Ultimately, however, Congress will have to step up to that challenge in no uncertain terms. Procrastination to confront this challenge is untenable.

## Endnotes

1. Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2014: Adaptation and Vulnerability*, IPCC WGII AR5 Technical Summary, 6 (2013); available at [http://ipcc-wg2.gov/AR5/images/uploads/WGIIAR5-TS\\_FGDall.pdf](http://ipcc-wg2.gov/AR5/images/uploads/WGIIAR5-TS_FGDall.pdf).
2. IPCC WGII AR5, *Summary for Policy Makers* 12 (2014); available at [http://ipcc-wg2.gov/AR5/images/uploads/IPCC\\_WG2AR5\\_SPM\\_Approved.pdf](http://ipcc-wg2.gov/AR5/images/uploads/IPCC_WG2AR5_SPM_Approved.pdf).
3. See IPCC WGII AR5 Technical Summary, 2.
4. *Id.*
5. THE WHITE HOUSE, OFFICE OF THE PRESS SECRETARY, FACT SHEET: EXECUTIVE ORDER ON CLIMATE PREPAREDNESS (2013), <http://www.whitehouse.gov/the-press-office/2013/11/01/fact-sheet-executive-order-preparedness>.
6. *Id.*
7. EXEC. OFFICE OF THE PRESIDENT, THE PRESIDENT'S ACTION PLAN (2013), <http://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf>.
8. EXEC. ORDER NO. 13653, 78 FR 668 (2013), available at <http://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change>.
9. Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2013: The Physical Science Basis*, Contribution of Working Group I to The Fifth Assessment Report of the IPCC (2013), Executive Summary, <http://www.climatechange2013.org/report/>.
10. *Id.*
11. *Id.*
12. Intergovernmental Panel on Climate Change (IPCC), *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*, Summary For Policy Makers (2012), <http://www.ipcc.ch/index.htm#Uo6WUo2hBz8>.
13. *Id.*
14. IPCC WGII AR5, Technical Summary, 6.
15. *Id.*
16. EXEC. OFFICE OF THE PRESIDENT, THE PRESIDENT'S ACTION PLAN, 4 (2013), <http://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf>.
17. *Id.*
18. INTERAGENCY CLIMATE CHANGE ADAPTATION TASK FORCE, PROGRESS REPORT, FEDERAL ACTIONS FOR A CLIMATE RESILIENT NATION (2011), p. 2, [http://www.whitehouse.gov/sites/default/files/microsites/ceq/2011\\_adaptation\\_progress\\_report.pdf](http://www.whitehouse.gov/sites/default/files/microsites/ceq/2011_adaptation_progress_report.pdf).
19. See Intergovernmental Panel on Climate Change, Summary for Policy Makers: Managing the Risks of Extreme Events and Disasters to Advance Climate Adaptation (2012), p. 1-19, Cambridge University Press, Cambridge UK, and New York, USA, [http://www.ipcc-wg2.gov/SREX/images/uploads/SREX-SPMbrochure\\_FINAL.pdf](http://www.ipcc-wg2.gov/SREX/images/uploads/SREX-SPMbrochure_FINAL.pdf).
20. See IPCC Fourth Assessment Report, Working Group II: Impacts, Adaptation and Vulnerability, Glossary of Terms (2007); available at <http://www.ipcc.ch/pdf/glossary/ar4-wg2.pdf>; Jared T. Brown, Congressional Research Service, *Analysis of the Sandy Recovery Improvement Act of 2013*, 7-5700 (2013), available at <https://www.fas.org/sgp/crs/misc/R42991.pdf>; Tim Starks, *Katrina's Lessons Seen in Response to Sandy*, Congressional Quarterly (2012); available at <http://public.cq.com/weeklyreport/weeklyreport-000004197197.html>.
21. *Id.*
22. See IPCC Fourth Assessment Report, Synthesis for Policymakers—Adaptation And Mitigation Options (2007); available at [http://www.ipcc.ch/publications\\_and\\_data/ar4/wg2/en/contents.html](http://www.ipcc.ch/publications_and_data/ar4/wg2/en/contents.html).
23. *Id.*
24. *Id.* at 2.
25. See The Robert T. Stafford Disaster Relief and Emergency Act, 42 U.S.C. § 5121 (2013). The overall purpose of the Act is to provide an orderly and continuing means of assistance by the Federal Government to State and local governments in carrying out their responsibilities to alleviate the suffering and damage which result from disasters. [http://www.fema.gov/media-library-data/1383153669955-21f970b19e8eaa67087b7da9f4af706e/stafford\\_act\\_booklet\\_042213\\_508e.pdf](http://www.fema.gov/media-library-data/1383153669955-21f970b19e8eaa67087b7da9f4af706e/stafford_act_booklet_042213_508e.pdf).
26. Disaster Mitigation Act of 2000, Pub.L 106-390. § 101 (a) (2000); available at <http://www.fema.gov/media-library-data/20130726-1524-20490-1790/dma2000.pdf>.
27. *Id.* § 101(a)(2)(A), (B), (C).
28. *Id.* § 101 (b) (1),(2).
29. FRANCES FARGOS, TOWNSEND, ASSISTANT TO THE PRESIDENT FOR HOMELAND SECURITY AND COUNTERTERRORISM, THE FED. RESPONSE TO HURRICANE KATRINA: LESSONS LEARNED (2006), White House, <http://georgewbush-whitehouse.archives.gov/reports/katrina-lessons-learned/>.
30. *Id.*
31. COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS, U.S. SENATE, SPECIAL REPORT, S. Rept. 109-322, 109th Congress, 2nd session, <http://hsgac.senate.gov/>.
32. Post-Katrina Emergency Management Reform Act of 2006, 6 U.S.C.A. § 701 (2006).
33. FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), NAT'L DISASTER RECOVERY FRAMEWORK (2011), <http://www.fema.gov/pdf/recoveryframework/ndrf.pdf>; <http://www.fema.gov/national-disaster-recovery-framework>.
34. *Id.*
35. Tim Starks, *Katrina's Lessons Seen in Response to Sandy*, Congressional Quarterly Weekly, In Focus, Dec. 29, 2012, <http://public.cq.com/docs/weeklyreport/weeklyreport-000004197197.html>.
36. FEMA, FEDERAL EMERGENCY MANAGEMENT POLICY CHANGES AFTER HURRICAN KATRINA: A SUMMARY OF STATUTORY PROVISIONS, CRS-7; <http://www.training.fema.gov/emweb/edu/docs/Federal%20EM%20Policy%20Changes%20After%20Katrina.pdf>.

37. Sandy Recovery Improvement Act of 2013 (SRIA), P.L. 113-2 (HR 152) (2013).
38. See <http://www.fema.gov/about-agency/sandy-recovery-improvement-act-2013>. The passage of SRIA represents the most significant legislative change to the Federal Emergency Management Agency's (FEMA) substantive authorities since the enactment of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.
39. See Jared T. Brown et al., CONGRESSIONAL RESEARCH SERVICE, ANALYSIS OF THE SANDY RECOVERY IMPROVEMENT ACT OF 2013, SUMMARY (2013). [www.crs.gov](http://www.crs.gov).
40. *Id.*
41. EXEC. ORDER NO. 13514 (October 15, 2009); available at [http://www.whitehouse.gov/assets/documents/2009fedleader\\_eo\\_rel.pdf](http://www.whitehouse.gov/assets/documents/2009fedleader_eo_rel.pdf).
42. EXEC. ORDER NO. 13653, 78 FR 66819 ((November 1, 2013); available at <http://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change>.
43. HOMELAND SEC., NAT'L MITIGATION FRAMEWORK, May 2013. <http://www.fema.gov/media-library/assets/documents/32209?id=7363>.
44. *Id.* EXECUTIVE SUMMARY, p. i.
45. See IPCC Fourth Assessment Report: Impacts, Adaptation, and Vulnerability: Contribution of Working Group II; Chapter 17.2.1 on Adaptation Practices (2007); available at [http://www.ipcc.ch/publications\\_and\\_data/ar4/wg2/en/ch17s17-2.html#17-2-1](http://www.ipcc.ch/publications_and_data/ar4/wg2/en/ch17s17-2.html#17-2-1).
46. *Id.*
47. *Id.*
48. U.S. GOVERNMENT ACCOUNTABILITY OFFICE (GAO), 2013 HIGH RISK LIST, GAO-13-283 (2013). <http://www.gao.gov/products/GAO-13-283>.
49. *Id.*
50. *Id.*
51. *Id.*
52. HOMELAND SEC., NAT'L MITIGATION FRAMEWORK, May 2013. <http://www.fema.gov/national-mitigation-framework>.
53. HOMELAND SEC., NAT'L PREPAREDNESS GOAL (2011), <http://www.fema.gov/national-preparedness-goal>.
54. PRESIDENTIAL POLICY DIRECTIVE/PPD-8, March 30, 2011. <http://www.dhs.gov/presidential-policy-directive-8-national-preparedness>. This directive describes the Nation's approach to preparing for the threats and hazards that pose the greatest risk to the security of the United States.
55. *Id.* at 1.
56. E.g., Sandy Recovery Improvement Act of 2013 (SRIA), P.L. 113-2 (HR 152) (2013). See James Brown et al., *Analysis of the Sandy Recovery Improvement Act of 2013*, Congressional Research Service, 7-5700, March 11, 2013. [www.crs.gov](http://www.crs.gov).
57. See IPCC WGII AR5, Summary for Policy Makers, *Climate Change 2014: Impacts, Adaptation and Vulnerability* (2014); available at [http://ipcc-wg2.gov/AR5/images/uploads/IPCC\\_WG2AR5\\_SPM\\_Approved.pdf](http://ipcc-wg2.gov/AR5/images/uploads/IPCC_WG2AR5_SPM_Approved.pdf). This report covers the different fields affected by climate change impacts and discusses the decision-making processes required for adaptation to those impacts.
58. *Id.*
59. UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC), Decision 1/CP.13, FCCC/CP/2007/6, Add.1, 1(c) (2007), <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf#page=3>. Before this decision, the COP held in Marrakech, Morocco in 2001 set forth the guidelines for National Adaptation Programs of Action (NAPAs), but the program was not a structured framework of assessment or implementation. The principal goal of the program was to assist the least developed countries (LDCs) in identifying activities to respond to urgent climate change adaptation needs and fund them through the LDC fund.
60. *Id.* at § 1 (c) (i-v).
61. UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC), FCCC/CP/2010/7/Add.1, § II (2007), <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=4>.
62. *Id.* § II paras. 14 (a)-(i).
63. See, e.g., Alejandro E. Camacho, *Adapting Governance to Climate Change: Managing Uncertainty Through a Learning Infrastructure*, 59 EMORY L. J. 1 (2009); Rachel Deming et al., *The New Regulatory Climate: Greenhouse Gas Regulation in the Obama Administration—Climate Change Adaptation: Fostering Progress through Law and Regulation*, 18 N.Y.U. ENVTL. L.J., 55, 2010; Daniel A. Faber, *Climate Change, Federalism and the Constitution*, 50 ARIZ. L. REV. 879; Victor B. Flatt, *Adapting Laws for a Changing World: A Systemic Approach to Climate Change Adaptation*, 64 FLA. L. REV. 269 (2012); Robert L. Glicksman, *Climate Change Adaptation: A Collective Action Perspective on Federalism Considerations*, 40 ENVTL. L. 1159, 1164-65 (2010); Robin Kundis and Craig, "Stationary is Dead"—Long Live Transformation: Five Principles for Climate Change Adaptation Law, 34 HARV. ENVTL. L. REV. 9, 23 (2010); J.B. Ruhl, *Climate Change Adaptation and the Structural Transformation of Environmental Law*, 40 ENVTL. L. 363, 426 (2010).
64. I.e., Post-Katrina Emergency Management Reform Act of 2006, 6 USCA § 701 (2006); NDRF, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), NAT'L DISASTER RECOVERY FRAMEWORK (2011), <http://www.fema.gov/pdf/recoveryframework/ndrf.pdf>.
65. See Section II (2) of this article.
66. See, e.g., J.B. Ruhl, *Climate Change Adaptation and the Structural Transformation of Environmental Law*, ENVTL. LAW, Vol. 40, 365 (2010).
67. *Id.* at 375.
68. See Victor B. Flatt, *supra* note 63.
69. See Anne Siders *infra*, note 70.
70. Anne Siders, *Managed Coastal Retreat: A Legal Handbook on Shifting Development away from Vulnerable Areas*, CENT. FOR CLIMATE CHANGE LAW, COLUMBIA LAW SCHOOL (2013). Some of the tools proposed include coastal planning, setbacks and rolling easements, prohibiting coastal armoring, rebuilding restrictions and acquisitions.
71. *Id.* Executive Summary.
72. See David Markell & J.B. Ruhl, *An Empirical Assessment of Climate Change in the Courts: A New Jurisprudence or Business as Usual*, 64 FLA. L. REV. 15, 39 (2012). According to this assessment, virtually all of the litigation focuses on substantive mitigation regulation. Out of 201 cases that were analyzed, 84 fit into this category (42% of the total amount of cases), whereas zero cases qualify as substantive adaptation cases.
73. *Id.*
74. The Robert T. Stafford Disaster Relief and Emergency Act, 42 U.S.C. 5121 (2013).
75. See, e.g., Climate Action Plan and an Executive Order to prepare the United States for the impacts of climate change CEQ website at <http://www.whitehouse.gov/administration/eop/ceq/initiatives/resilience>. Discussed in Section I (b) *supra*.
76. National Environmental Policy Act of 1969 (NEPA), 42 U.S.C.A. §§ 4321-4370 (2006).
77. *Id.*
78. See EPA, available at <http://www.epa.gov/compliance/nepa/>.
79. *Id.*
80. *Id.*



81. See David Markell & J.B. Ruhl, *An Empirical Assessment of Climate Change in the Courts: A New Jurisprudence or Business as Usual?* 68 FLA. L. REV. 15, 38, 58-67. Markell & Ruhl's study shows that virtually all of the action to date qualifies as substantive *mitigation* regulation and zero cases qualify as substantive *adaptation* cases; See generally Robert Railey, *The Evolution of NEPA in the Fight Against Climate Change*, 5 PITT. J. ENVTL. PUB. HEALTH L. (2011). Railey recounts cases where petitioners denounce federal agencies under NEPA for not considering the implications, in terms of GHG emissions, of their actions. Railey argues that NEPA is broad enough to encompass such actions but petitioners often fail for lack of standing to sue.
82. CEQ Memorandum for Heads of Federal Departments and Agencies, Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions (February 18, 2010); available at [http://ceq.hss.doe.gov/nepa/regs/Consideration\\_of\\_Effects\\_of\\_GHG\\_Draft\\_NEPA\\_Guidance\\_FINAL\\_02182010.pdf](http://ceq.hss.doe.gov/nepa/regs/Consideration_of_Effects_of_GHG_Draft_NEPA_Guidance_FINAL_02182010.pdf).
83. See Aimee Delach, et al., Defenders of Wildlife, *Climate Change White Paper: Reasonably Foreseeable Futures: Climate Change Adaptation and the National Environmental Policy Act* (2012). This study analyzed 154 final EISs released between July 2011 and April 2012, and found that very few incorporated the climate change adaptation elements of the CEQ draft guidance. Even the best-performing EIS tended to incorporate climate change into a limited number of elements that affected the environment; available at <http://www.defenders.org/sites/default/files/publications/reasonably-foreseeable-futures-climate-change-adaptation-and-the-national-environmental-policy-act.pdf>.
84. See David Merkel & J.B. Ruhl, *supra* note 88 at 57.
85. *Id.* at 58.
86. *Id.* at 62.
87. See Robert Railey, *supra* note 81 and Aimee Delach, *supra* note 83.
88. See e.g., Katherine M. Baldwin, *NEPA and CEQA: Effective Legal Frameworks for Compelling Consideration of Adaptation to Climate Change*, 82 S. CAL. L. REV. 769, 802 (2009); Aimee Delach, et al., *supra* note 83.
89. See Section I (b) of this article.
90. Clean Air Act, 42 U.S.C.A. § 7401 (1955).
91. Massachusetts v. EPA, 549 U.S. 497, 167 L.Ed.2d 248 (2007).
92. *Id.*
93. *Id.* at 501.
94. See 42 U.S.C. § 7521 (a)(1).
95. See Coal for Responsible Regulation Inc. v. Env'tl. Protection Agency, 648 F.3d 102, 113 (2012).
96. *Id.*
97. *Id.*
98. See Supreme Court of the United States Docket; available at <http://www.supremecourt.gov/Search.aspx?FileName=/docketfiles/12-1146.htm>.
99. See <http://ghgdata.epa.gov/ghgp/main.do>. For data on emissions of GHGs in the US per type of fuel (i.e. petroleum, coal and natural gas), see [http://www.eia.gov/environment/emissions/ghg\\_report/ghg\\_overview.cfm](http://www.eia.gov/environment/emissions/ghg_report/ghg_overview.cfm).
100. See Press Release "EPA Proposes First Guidelines to Cut Carbon Pollution from Existing Power Plants" (June 2, 2014); available at <http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule>.
101. *Id.* at 14.
102. *Id.* at 16 to 17.
103. *Id.* at 16.
104. *Id.* at 18.
105. *Id.* at 2.
106. See Petition of Ceriorari at <http://sblog.s3.amazonaws.com/wp-content/uploads/2013/07/CCC-Final-GHG-Cert-Petition-c1.pdf>.
107. The Clean Water Act, 33 U.S.C. §§ 1251 et seq. (1972).
108. See EPA on CWA, available at <http://water.epa.gov/action/cleanwater40/>.
109. See IPCC WGII AR5, *Climate Change 2014: Impacts, Adaptation and Vulnerability*, Summary for Policy Makers (2014); available at [http://ipcc-wg2.gov/AR5/images/uploads/IPCC\\_WG2AR5\\_SPM\\_Approved.pdf](http://ipcc-wg2.gov/AR5/images/uploads/IPCC_WG2AR5_SPM_Approved.pdf).
110. INTERAGENCY CLIMATE CHANGE ADAPTATION TASK FORCE, NATIONAL ACTION PLAN: PRIORITIES FOR MANAGING FRESHWATER RESOURCES IN A CHANGING CLIMATE, EXECUTIVE SUMMARY (2011), [http://www.whitehouse.gov/sites/default/files/microsites/ceq/2011\\_national\\_action\\_plan.pdf](http://www.whitehouse.gov/sites/default/files/microsites/ceq/2011_national_action_plan.pdf).
111. *Id.* Table 1. Summary of Recommendations and Actions.
112. See IPCC WGII AR5, *supra* note 3.
113. Coastal Zone Management Act of 1972, 16 USCA § 1451 (1972).
114. *Id.*
115. See John R. Nolon & Patricia E. Salkin, *Land Use and Sustainable Development Law*, Cases and Materials, 8th edition, 839-851 (2012).
116. Lucas v. South Carolina Coastal Council, 505 U.S. 1003 (1992).
117. See EPA on CZMA at: <http://www.epa.gov/agriculture/lzma.html>.
118. Borough of Harvey Cedars v. Karan, 70 A. 3d 524 (N.J. 2013).
119. *Id.* at 526.
120. *Id.* at 527.
121. *Id.*
122. *Id.* at 526.
123. *Id.* at 527.
124. EXEC. ORDER 13747 (2010), <http://www.whitehouse.gov/the-press-office/2010/07/26/executive-order-stewardship-ocean-our-coasts-and-great-lakes>.
125. *Id.* at § 6.
126. Briggert-Waters Flood Insurance Reform Act, 42 U.S.C.A. § 4001 (2012).
127. See J.B. Ruhl, *Adaptation Law*, in *Global Climate Change and U.S. Law*, 677, 687 (Michael Gerard & Jody Freeman eds., forthcoming 2014).
128. *Id.*
129. J.B. Ruhl, *Adaptation Law*, in *Global Climate Change and U.S. Law*, 677, 686 (Michael Gerard & Jody Freeman eds., forthcoming 2014). Ruhl indicates that there is little to report in the way of law for climate change adaptation, relative to the scale of the adaptation challenge: "No legislature has enacted comprehensive adaptation legislation; no agency has promulgated comprehensive adaptation regulations; and no court has had to grapple in a meaningful way with claims based on adaptation."
130. See Georgetown Climate Center, *Adaptation Clearinghouse*, available at <http://www.georgetownclimate.org/adaptation/State-and-local-plans>. Last checked on October 30, 2013.
131. *Id.*
132. *Id.*
133. *Id.*
134. STATE OF LOUISIANA, LOUISIANA'S 2012 COASTAL MASTER PLAN (2012), <http://www.lacpra.org/assets/docs/2012%20Master%20Plan/Final%20Plan/2012%20Coastal%20Master%20Plan.pdf>.
135. *Id.*
136. See STATE OF ALASKA, ALASKA'S CLIMATE CHANGE STRATEGY ADDRESSING IMPACTS IN ALASKA (201), [http://www.climatechange.alaska.gov/aag/docs/aag\\_all\\_rpt\\_27jan10.pdf](http://www.climatechange.alaska.gov/aag/docs/aag_all_rpt_27jan10.pdf).

137. See STATE OF CALIFORNIA, CALIFORNIA CLIMATE ADAPTATION STRATEGY (2009), [http://resources.ca.gov/climate\\_adaptation/docs/Statewide\\_Adaptation\\_Strategy.pdf](http://resources.ca.gov/climate_adaptation/docs/Statewide_Adaptation_Strategy.pdf).
138. See STATE OF OREGON, THE OREGON CLIMATE CHANGE ADAPTATION FRAMEWORK (2010).
139. See STATE OF MASSACHUSETTS, MASSACHUSETTS CLIMATE ADAPTATION REPORT (2011) <http://www.georgetownclimate.org/resources/massachusetts-climate-change-adaptation-report>.
140. See STATE OF WASHINGTON, Preparing for a Changing Climate, Washington State's Integrated Response Strategy (2012), <http://fortress.wa.gov/ecy/publications/publications/1201004.pdf>.
141. *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003 (1992).
142. *Lucas* at 1009.
143. *Id.* at 1031.
144. *Lucas v. South Carolina Coastal Council*, 309 S.C. 424, 424 S.E.2d 484 (1992).
145. See John R. Nolon, *In Praise of Parochialism: the Advent of Local Environmental Law*, 26 HARV. ENVTL. L. REV. 365, 367 (2002).
146. E.g., zoning, floodplain control, storm water management, stream and watercourse protection, steep slopes, erosion and sediment control, groundwater/aquifer resource protection, environmentally sensitive area protection, tree protection, vegetation protection and wetlands.
147. *Id.* at 368.
148. See Anne Siders, *Managed Coastal Retreat, A Legal Handbook on Shifting Development Away from Vulnerable Areas*, Center for Climate Change Law, Executive Summary, i-v, Columbia Law School (2013); available at [https://web.law.columbia.edu/sites/default/files/microsites/climate-change/files/Publications/Fellows/ManagedCoastalRetreat\\_FINAL\\_Oct%2030.pdf](https://web.law.columbia.edu/sites/default/files/microsites/climate-change/files/Publications/Fellows/ManagedCoastalRetreat_FINAL_Oct%2030.pdf).
149. See *id.*
150. *Id.*
151. *Id.*
152. See Georgetown Climate Center, Adaptation Clearinghouse at <http://www.georgetownclimate.org/node/3325>.
153. See Michael R. Bloomberg, CITY OF NEW YORK, PLAN NYC, 2011, available at <http://www.nyc.gov/html/planyc2030/html/theplan/the-plan.shtml>.
154. *Id.*
155. Michael R. Bloomberg, *A Stronger, More Resilient New York* (2013), <http://www.nyc.gov/html/sirr/html/report/report.shtml>.
156. *Id.*
157. The New York Times, N.Y. Region, *New Building Codes Passed after Lessons from Hurricane Sandy*, November 18, 2013.
158. *Id.*
159. *Id.*
160. EXECUTIVE OFFICE OF THE PRESIDENT, THE PRESIDENT'S CLIMATE ACTION PLAN (2013), p. 4, <http://www.whitehouse.gov/sites/default/files/image/president27climateactionplan.pdf>.
161. *Id.* at p. 5.
162. See Council on Environmental Quality, Climate Change Resilience web site at: <http://www.whitehouse.gov/administration/eop/ceq/initiatives/resilience>.
163. See White House, Office of Science and Technology Policy; available at <http://www.whitehouse.gov/blog/2010/05/24/climate-adaptation-summit-week>.
164. *Id.*
165. <http://www.whitehouse.gov/sites/default/files/microsites/ceq/Interagency-Climate-Change-Adaptation-Progress-Report.pdf>.
166. *Id.*
167. HURRICANE SANDY REBUILDING TASK FORCE, HURRICANE SANDY REBUILDING STRATEGY (2013), [http://portal.hud.gov/hudportal/HUD?src=/press/press\\_releases\\_media\\_advisories/2013/HUDNo.13-125](http://portal.hud.gov/hudportal/HUD?src=/press/press_releases_media_advisories/2013/HUDNo.13-125).
168. EXECUTIVE OFFICE OF THE PRESIDENT, THE PRESIDENT'S CLIMATE ACTION PLAN (2013). <http://www.whitehouse.gov/sites/default/files/image/president27climateactionplan.pdf>.
169. EXEC. ORDER NO. 13653, 78 FR 668 (2013), <http://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change>.
170. *Id.* § 1 (Policy).
171. *Id.* §§ 1-7.
172. *Id.* § 6.
173. *Id.* § 7.
174. EXEC. ORDER NO. 13653, 78 FR 668 (2013), <http://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change>.
175. See, e.g., Victor B. Flatt, *Adapting for a Changing World: A Systemic Approach to Climate Change Adaptation*, 64 FLA. L. REV. 269 (2012); Robert L. Glicksman, *Climate Change Adaptation: A Collective Action Perspective on Federalism Considerations*, 40 ENVTL. L. 1159 (2010); Robin Kundis and Craig, "Stationary is Dead"—Long Live Transformation: Five Principles for Climate Change Adaptation Law, 34 HARV. ENVTL. L. REV. 9, 23 (2010); J.B. Ruhl, *Climate Change Adaptation and the Structural Transformation of Environmental Law*, 40 ENVTL. L. 363, 2010. Compare to John Nolon, *In Praise of Parochialism: The Advent of Local Environmental Law*, 26 HARV. ENVTL. L. 365 (2002).
176. See Section I (b) of this article, *supra*.
177. EXEC. ORDER NO. 13653, § 6 (e) (ii) (2013); <http://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change>.
178. See *id.*
179. Emily Holden, *EPA Releases Draft Climate Change Plan for International, Tribal Affairs*, CONGRESSIONAL QUARTERLY, November 29, 2013.
180. See Section II (a) of this article, *supra*.
181. *Florida Audubon Soc. v. Bentsen*, 94 F.3d 658, 672 (D.C. Cir. 1996).
182. EXEC. ORDER NO. 13653, § 3, § 7 (c)(i) (2013). (emphasis added), <http://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change>.
183. *Id.*, 78 FR 668 (2013) (emphasis added), <http://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change>.
184. *Id.* (emphasis added).
185. *Id.* § 7 (c) (i).
186. See EXEC. ORDER NO. 13653, § 3.
187. See Section II (b) of this article, *supra*.
188. See Georgetown University Climate Center data and maps, available at <http://www.georgetownclimate.org/adaptation/state-and-local-plans>.
189. See United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), Virtual Conference on Integrating Environmental Considerations into Economic Policy Making Processes, [http://www.unescap.org/drpad/vc/orientation/legal/2F\\_frame\\_intro.htm](http://www.unescap.org/drpad/vc/orientation/legal/2F_frame_intro.htm).
190. *Id.*
191. Agenda 21: The United Nations Programme of Action From Rio (1992), Principle 15.

192. See Robin Kundis Craig, "Stationary is Dead"—Long Live Transformation: Five Principles for Climate Change Adaptation Law, 34 HARV. ENVTL. L. REV. 9, 23 (2010).
193. *Id.* at 17.
194. Created through EXEC. ORDER NO. 13653, § 3, 78 FR 668 (2013), <http://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change>.
195. See United Nations System, Chief Executives Board for Coordination, *Advancing Work on Adaptation to Climate Change: A UN System Perspective* (2009); available at [http://www.unsceb.org/CEBPublicFiles/adaptation\\_policy\\_brief.pdf](http://www.unsceb.org/CEBPublicFiles/adaptation_policy_brief.pdf).  
In this policy brief, the UN recommended many of the regulatory principles and guidelines for adaptation referred to in this article.
196. HOMELAND SEC., NAT'L PREPAREDNESS GOAL (2011), p. 1. <http://www.fema.gov/pdf/prepared/npg.pdf>.
197. *Id.*
198. See Earth Summit, United Nations Program of Action, Agendal 21, Principle 15 (1992); United Nations Framework Convention on Climate Change, Article 3 § 3 (1992).
199. See IPCC Fourth Assessment Report, Synthesis for Policymakers—Adaptation and Mitigation Options (2007).
200. See United Nations System, Chief Executives Board for Coordination, *Advancing Work on Adaptation to Climate Change: A Un System Perspective*, 9 (2009); available at [http://www.unsceb.org/CEBPublicFiles/adaptation\\_policy\\_brief.pdf](http://www.unsceb.org/CEBPublicFiles/adaptation_policy_brief.pdf).
201. See *id.* at 8.
202. *Id.* at 9.
203. See generally EPA Carbon Pollution Guidelines for Existing Stationary Sources: Electric Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (June 2, 2014), available at <http://www2.epa.gov/sites/production/files/2014-05/documents/20140602proposal-cleanpowerplan.pdf>
204. See Section I (b) of this article, *supra*.
205. See *supra* notes 69 and 171.
206. *Id.*
207. See Michael Bloomberg, the City of New York *PlanNYC: A Stronger, More Resilient New York*, available at <http://www.nyc.gov/html/sirr/html/report/report.shtml>.
208. EXECUTIVE OFFICE OF THE PRESIDENT, THE PRESIDENT'S CLIMATE ACTION PLAN (2013), p. 4, <http://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf>.
209. EXEC. ORDER NO. 13653, § 3, 78 FR 668 (2013), <http://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change>.
210. *Id.*
211. See EXEC. ORDER NO. 13653, § 3, 78 FR 668 (2013), <http://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change>.

Paola Bettelli is a sustainable development professional with extensive experience with climate change issues. She headed the Climate Change Office of the government of Colombia and designed policies to achieve national climate change objectives on mitigation and adaptation. With support from the United Nations, she spearheaded the design of a national plan on adaptation to climate change, the first of its kind at the time in Latin America. She was a lead negotiator for the Colombian government at meetings of the Conference of the Parties of the UNFCCC, with a focus on adaptation issues. Ms. Bettelli worked for the United Nations Regional Commissions where she actively participated in high-level task forces led by the UN Secretary-General on climate change issues and the Millennium Development Goals. Ms. Bettelli was admitted to the New York Bar in 2002. She was trained as an attorney in Colombia, South America, holds an LL.M from Fordham Law School, and is currently pursuing a JD degree at Pace Law School.

Ms. Bettelli would like to thank Professor John R. Nolon for his guidance and advice in writing this article, Professors J.B. Ruhl and Nicholas Robinson for their comments, and Edward P. Tyber for his editorial suggestions. She would also like to thank her husband, David Mahe, and her daughter, Catalina Mahe, for their love, understanding, and continued support.

# Looking for Past Issues of *The New York Environmental Lawyer*?

<http://www.nysba.org/EnvironmentalLawyer>





# The Changing Plans of New York's Cities in the Wake of Changing Climates: Is Enough Being Done?

By Ben Botelho, Bryan Gottlieb, David Iversen and Kelly O'Donovan

## I. Introduction

Climate change has, after many years of resistance, finally begun to garner acceptance as a stark reality.<sup>1</sup> As mankind comes to terms with its self-made reckoning, steps are being taken to prepare for the new reality which we will face in the coming years. Of particular interest is how individual municipalities have chosen to answer the questions that climate change has begun to present.

How these local governments choose to address climate change is important, as they have the power to reduce many of its main causes. "Locally emitted CO<sub>2</sub> does not cause local climate change; it contributes to global climate change, which, in turn, is consequential at the local level."<sup>2</sup> Local governments not only have the power to deal with many of the causes of climate change, but will also feel its effects most acutely, as local governments can impact such pollution through influencing energy use in buildings, transportation, and land-use decisions, developing local climate action plans, and steering the community towards renewable energy.<sup>3</sup> Municipalities have the ability to promote efficiency and sustainability with residents and, being the largest collective government consumer of buildings, infrastructure, and products, can make progress through sustainable, energy-efficient practices itself, like replacing municipal vehicles with green vehicles and using LED bulbs in traffic lights.<sup>4</sup>

Local governments must also change land use patterns and encourage green development through changes in building codes and zoning. Through changing zoning laws and municipal codes, local governments can encourage a shift to more urban, energy-efficient living and work to reduce vehicle emissions by reducing miles traveled.<sup>5</sup> Additionally, municipalities can adopt zoning ordinances that ease the introduction of renewable energy sources into the community, such as solar panels and wind turbines.<sup>6</sup>

Furthermore, if climate change creates consequences such as widespread population displacement, reduced food supply, and extreme weather,<sup>7</sup> it will be the local government's responsibility to ensure its municipality is prepared for such outcomes.

The potential problems and solutions that climate change forces into the consciousness of municipalities have begun to effectuate varying levels of change. Within New York, the tactics employed by the cities of the state are as diverse as the metropolises themselves. Some of these cities are readying for a substantial change in almost every facet of daily life, while others institute policies that seem like little more than lip service. This article will seek

to explore the climate change plans put in place by three major metropolitan areas in New York—Buffalo, New York City, and Albany—and both contrast them with one another and postulate on their overall effectiveness.

## II. New York's Climate Smart Communities Program

New York is one of the most heavily populated states in the country, and has more than its fair share of communities that are threatened by the continuously worsening effects of global climate change. In 2009, the State recognized that it was necessary for its communities to prepare for climate change, and to change their practices in an effort to mitigate their contribution to the global problem. During that year, the State unveiled its Climate Smart Communities program—a voluntary, state-wide program intended to promote climate change readiness in local governments and communities throughout the state.

Developed under the direction of Governor Paterson, the Climate Smart Communities program is a joint effort of the New York State Department of Environmental Conservation, the Energy Research and Development Authority, the Department of State, and the Public Service Commission. The program is completely voluntary, and depends on the local governments in New York to adopt a pledge, which includes a number of clauses. The ten elements of the pledge are:

1. Pledge to combat climate change by becoming a Climate Smart Community
2. Set goals, inventory emissions, move to action
3. Decrease energy demand for local government operations
4. Encourage renewable energy for local government operations
5. Realize benefits of recycling and other climate smart solid waste management practices
6. Promote climate protection through community land use tools
7. Plan for adaptation to unavoidable climate change
8. Support a green innovation economy
9. Inform and inspire the public
10. Commit to an evolving process<sup>8</sup>

As it sounds, these are rather vague pledges for the communities in the state to adopt, and given that it is a

voluntary program, it is safe to say that the leadership of the state as a whole is deciding to keep its claws retracted when it comes to climate change preparedness. According to the Department of Environmental Conservation (DEC) website dedicated to the program, there are a number of benefits that communities stand to earn when they adopt the pledge and become a Climate Smart Community. However, these benefits range from things like “enjoying statewide recognition for their climate leadership and successful actions,” to “saving taxpayer dollars through lower operating costs, improved efficiency and resource-conserving land use policies.”

The State is attempting to provide incentives for communities to take the pledge, but these incentives may not be attractive enough to draw communities, which are reluctant to take on climate change readiness programs themselves, to the Climate Smart Communities program. Aside from benefits that communities would receive from developing climate change action plans, the State also offers the support of community coordinators, access to a listserv, webinars, a local action guide, notification when state or federal assistance becomes available, and advantaged access to some State programs. One of the most definite benefits given to communities adopting the pledge is the help of “community coordinators,” and even their responsibilities are limited to helping communities “access information, expertise and funding.” Though Climate Smart Communities will be notified of funding opportunities and may be in a better position for entrance into other State programs, there are no direct monetary incentives for communities to take the Climate Smart Communities Pledge, whether in the form of tax-breaks, funding, or even any concrete promises for expert analysis of communities’ programs and readiness.

New York’s Climate Smart Communities program is a start towards readying our communities for the inevitable challenges, but as will become obvious in the analysis of three of New York’s biggest cities’ responses to climate change, more is needed. At the end of this article, it will become clear that cities’ responses to climate change are proportionate to the immediately perceptible risks that particular community is experiencing. New York’s Climate Smart Communities program could be more successful at spurring resistant local communities to action on climate change readiness if it had more incentives for these communities to join and more defined criteria for community action, but currently, even the communities that are part of the program are only required to meet vague pledge criteria and receive no push to continue developing local responses to climate change after initially meeting pledge elements.

#### **A. Buffalo**

The city of Buffalo has taken what can only be realistically described as an extremely limited approach to climate change preparedness. The guiding principles of the City of Buffalo’s approach to the issue are laid out in

the City of Buffalo Comprehensive Plan (“Comprehensive Plan”).<sup>9</sup> Most tellingly, the Comprehensive Plan is not legislation and is not binding. It is intended to function only as a guide for development, zoning, and private organizations. It implements no actual programs and, as such, is unlikely to prepare the city and its residents for the potentially dramatic impact of climate change. In the absence of a clear plan, we are left to derive Buffalo’s approach to a very serious problem from a mishmash of vague goals and cursory mentions of the topic.

The Comprehensive Plan’s direct acknowledgement of climate change is contained within Section 1.5.1’s five brief paragraphs.<sup>10</sup> These paragraphs acknowledge the occurrence of climate change, and acknowledge the “broad scientific consensus” that this occurrence can likely be tied to manmade emissions.<sup>11</sup> It also is aware of the potential catastrophe looming for the city and its residents: “The Great Lakes regional report of the U.S. National Assessment Climate Change Research Program (2000) concluded there may be drastic changes in store for Buffalo including significant variations in Lake Erie water levels, erratic weather patterns, changes in vegetation and wildlife, and a wide range of other impacts on human health, economy, society and environment.”<sup>12</sup>

In light of such awareness, one would postulate that the city must have enacted thorough measures designed to alleviate the impact of climate change. And indeed, Buffalo has thrown its support behind the United Nation’s International Council on Local Environmental Initiatives’ “Climate Protection Campaign.”<sup>13</sup> This campaign requires that member cities follow a five-step climate change plan in which they “inventory current emissions, set targets for reduction, establish action plans and carry them out.”<sup>14</sup> Buffalo’s fervor to address climate change has seemingly been squelched by simple membership in this plan, however, and, despite this plan being adopted in 2006, as of now Buffalo has only completed an inventory of its current emissions—noting that further steps in the plan remain to be taken.<sup>15</sup> Furthermore, this inventory was problematically completed via a comparison with 1996 emissions totals.<sup>16</sup> And with that ends the City of Buffalo’s direct addressing of climate change policies.

Further elements of the plan appear to at least hint at concepts that could have a mitigating effect on both the occurrence and impact of future climate change. The plan is strongly enamored with ideals of sustainability. As stated in the Comprehensive Plan:

The idea of sustainability has also been embraced in our region. The Buffalo Niagara Sustainability Council was formed in December 2001 to promote community dialogue on sustainability and focus attention on the links among the environment, the economy and society. Since then, the Council has worked at formulating sustainable develop-

ment principles, increasing public awareness of these principles and their importance, applying sustainable development concepts in the region, and creating indicators to measure regional progress toward sustainability. The Council also intends to put in place a "Regional Sustainability Plan" by 2010.<sup>17</sup>

While not directly addressing climate change, one could easily see how embracing concepts of sustainability would be a positive step towards mitigating the problems climate change will cause. Unfortunately, the council never followed through with plans to execute the "Regional Sustainability Plan," and there still is not such a plan in place.

The Comprehensive Plan also calls for Buffalo to take a leading role in so-called "Green Building."<sup>18</sup> Seeking to ensure future building is completed with the environment in mind, Buffalo created the "Green Code," a "historic revision of Buffalo's land use and zoning policies that will promote investment, facilitate job creation, and improve the environment." This code was slated to be introduced and finalized in 2012.<sup>19</sup> Unsurprisingly, this has not occurred.<sup>20</sup>

Buffalo as a city seems to be acutely aware of the problems that climate change will bring to the table. Despite this, it has been unable, for reasons of either political gridlock or sheer indifference, to implement the type of changes required to protect its city and citizens through what is virtually certain to be a challenging time.

## **B. New York City**

With a population of roughly 8.3 million in an area of about 302.6 square miles, New York City holds more than forty percent of New York State's population, and fits them all in an area that is less than one percent of the total space in the state.<sup>21</sup> The sheer population size of NYC is enough to make it a significant contributor to the climate change problem, with millions of people driving their cars daily, thousands of factories spewing waste into the air, and many other sources of pollution adding up to a huge carbon footprint. In addition, the density of the tremendous population living in NYC, combined with its vulnerable geographic location, make New York City the climate change-based equivalent of a ticking time bomb.

Hurricane Sandy, the destructive force that tore through NYC last hurricane season, is definitive proof of this last point: people living in the city are very vulnerable, as is the infrastructure that keeps the entire city productive and thriving. Subways were flooded, roads were closed, power was lost in almost two million homes in NYC and the surrounding area, and there were countless injuries and almost fifty deaths.<sup>22</sup> Although Hurricane Sandy was an enormously destructive and costly force in NYC and elsewhere, recent studies have reported that the

impact of future storms will be even worse.<sup>23</sup> According to projections in a report by the New York City Panel on Climate Change, by 2050, almost a quarter of NYC could be inundated by rising floodwaters, having grave effects on hundreds of thousands of homes, and up to ninety-seven percent of the power generating capacity of the city.<sup>24</sup> These reports have assured that New York City, in stark contrast to Buffalo, is both aware of and active in addressing climate change.

In June of 2013, Mayor Michael Bloomberg unveiled an ambitious new climate change action plan. This plan, which Bloomberg announced would cost \$20 billion, and "eventually far more,"<sup>25</sup> is probably one of the most ambitious and expensive climate-change plans unveiled by the administration of a single city anywhere in the world. The plan, known as "A Stronger, More Resilient New York," includes a number of recommendations and proposals to be carried out during the Bloomberg administration, and long after the current mayor has left the office.<sup>26</sup> The proposals in Bloomberg's plan range from coastal protection measures to building fortifications, insurance overhauls, and infrastructure protection.<sup>27</sup>

According to the report outlining the plan, New York City has over 520 miles of coastline; more coastline than the cities of Miami, Boston, Los Angeles, and San Francisco combined.<sup>28</sup> To help protect the nearly 400,000 residents currently living within the 100-year floodplain, Bloomberg's plan calls for a number of coastal protection measures. First, the plan proposes the installation of adaptable floodwalls and levees. These will reduce the risk of flooding throughout the whole city during storm surges, and other specific areas, such as Staten Island and the Rockaway Peninsula, will receive special fortifications. Other coastal protection projects in Bloomberg's plan include the installation and repair of many bulkheads throughout the city, the restoration and maintenance of various beaches, and the installation of reefs in specified areas to break larger waves further offshore.<sup>29</sup>

The report outlining Bloomberg's plan elaborated on what types of buildings are most at risk in the City. The report explained that although buildings erected in the 1960s comprised only 18% of buildings within the Hurricane Sandy inundation zone, they represented almost 75% of those destroyed or structurally compromised during the storm.<sup>30</sup> In order to protect the most vulnerable buildings from future storm damage and to fortify even the most resilient of today's designs, the plan includes many strategies. First, the City will loan out over \$1 billion to building owners to complete flood-resiliency measures as they see fit, with a focus on critical structures designed to keep buildings standing in the face of a flood. The plan also calls for the update of zoning and construction codes to allow for buildings to be elevated without being penalized for height limitations, and to require storm-resiliency in new constructions.<sup>31</sup> The plan also includes expenditures



of over half a billion dollars to go towards further repairs of buildings and areas damaged by Sandy.

According to Bloomberg's official report, flood-insurance policies leave a lot to be desired in New York City and elsewhere, and the plan calls for some insurance overhauls to ensure that residents of New York City are protected. The biggest insurance-related aspect of the plan involves cooperation with the Federal Emergency Management Agency (FEMA) to change federal guidelines concerning flood-insurance. Under the current guidelines, flood-insurance costs can only be reduced if buildings are elevated—not an easy thing to do to existing homes and other buildings. Bloomberg's plan calls for an overhaul of these guidelines to provide for premium reductions for those who have undertaken effective mitigation and resiliency measures that don't include outright elevation. The plan also calls for the creation of more flexible pricing options for flood-insurance, designed to encourage more people to purchase plans. This, in turn, should greatly reduce the number of those needing public help when the next storm causes damage to neighborhoods and residences.

Arguably the most important part of the plan is the fortification and protection of infrastructure within the city—especially power and telecommunications infrastructure. Some of the most promising of these policies include the imposition of strict requirements on these utilities. First, the plan will require utilities to actually take a look at their vulnerabilities and shortcomings, and to establish their own plans to protect themselves and their customers from loss. Second, the plan would call for the creation of power restoration standards that would apply during severe weather events, as most utilities are currently not held to any restoration requirements during such events. The plan will also establish resiliency standards for telecommunications utilities, thereby insuring that fewer people will be out of contact with their families and loved ones during emergencies. Another area which is addressed by Bloomberg's plan is the lack of diversity in energy sources that NYC depends on, focusing on the necessity of future integration of renewable resources into the City.<sup>32</sup>

The coastal protection, building resiliency, building/insurance/infrastructure overhauls that are called for by Bloomberg's plan are a huge step forward in preparing for an increasingly grim future for a New York City sure to be plagued by the various effects of climate change. This plan, announced in June 2013, is integrated into the City's more comprehensive PlaNYC, which is an overall plan to "prepare the city for one million more residents, strengthen our economy, combat climate change, and enhance the quality of life for all New Yorkers."<sup>33</sup> PlaNYC was released in 2007, but after the damage caused by Hurricane Sandy and in response to many eye opening studies, which found that worse damage is inevitable, Bloomberg and his administration felt something more was needed to protect

the city and integrated the aforementioned plans. While much work is left to be done to adapt New York City for the new reality it will face, the plans are in place, and the City appears committed to implementing them with the haste and vigor appropriate in the face of an oncoming crisis.

## C. Albany

Unlike the other cities explored in this piece, Albany's primary effort to prepare for climate change has been effectuated via its membership in New York State's Climate Smart Communities program, which partners local communities and the State to reduce GHG emissions and address situations created by changing climate.<sup>34</sup> In doing so, Albany has addressed each of the ten pledge elements outlined in the Climate Smart Communities pledge and it is worth exploring how the City of Albany has sought to meet each of these individual elements in kind.

### 1. Pledge to Combat Climate Change by Becoming a Climate Smart Community

In meeting the first pledge element, Albany has established a Sustainability Working Group (made up of city staff which meet regularly to identify ways to reduce energy consumption in government operations), adopted the Climate Smart Communities Pledge, established a program where department heads appoint Sustainability Ambassadors to identify and implement methods for making their departments sustainable, and established the Community Advisory Committee to assist in completion of the Climate Action Plan.<sup>35</sup> Albany will also introduce formal legislation to create a Sustainable Advisory Committee which will replace the Sustainability Working Group and Community Advisory Committee.<sup>36</sup> It is important that Albany is establishing ways for community leaders to discuss climate change strategies and encouraging different government departments to take matters into their own hands, as local responses to climate change, and even climate change readiness itself, is something that is not embraced by a lot of communities.

### 2. Set Goals, Inventory Emissions, Move to Action

In 2010, Albany created a community and government GHG inventory and reduction targets for 2030.<sup>37</sup> It is important for Albany to address community energy efficiency and renewable energy opportunities because most of the GHG emissions in Albany are related to large institutions or industries.<sup>38</sup> Albany is home to many state government buildings, hospitals, and universities, among other institutions, which it will have to collaborate with to reduce GHG emissions.<sup>39</sup>

Albany also created a Climate Action Plan.<sup>40</sup> This plan details ways that Albany can be better protected from the dangers wrought by climate change, including increasing the supply of local food, identifying areas where landslides may present a problem, modernizing the port to account for the rise in sea level, increasing the resilience of

the current housing stock through means such as pooled insurance, and reducing the number of impermeable surfaces to better deal with increased rainfall.<sup>41</sup>

### **3. Decrease Energy Demand for Local Government Operations**

To decrease energy in government operations, Albany trained employees on the newly adopted Energy Conservation Policy.<sup>42</sup> The city is also working towards a Green Purchasing Policy and an Energy Master Plan, which would address opportunities for better energy efficiency and renewable energy.<sup>43</sup>

### **4. Encourage Renewable Energy for Local Government Operations**

Albany has encouraged renewable energy in government operation by completing a feasibility study for a hydrokinetic generator to be installed at the water department.<sup>44</sup> Albany is also working towards installing renewable energy systems, which will likely be solar, at the Department of General Services, Loudonville Reservoir, and in Coeymans.<sup>45</sup>

### **5. Realize Benefits of Recycling and Other Climate Smart Solid Waste Management Practices**

For pledge element five, Albany established a Yard Waste Program, offering weekly curbside yard waste pick-up and free mulch for residents from the City's compost facility, and offers single stream recycling to residents and employees.<sup>46</sup> The Climate Action Plan also proposes strategies such as Pay-As-You-Throw programs, a green demolition program, and an organic diversion program.<sup>47</sup>

### **6. Promote Climate Protection Through Community Land Use Tools**

The City has taken numerous steps to address climate protection. The City wants to create a transit center for regional and local bus services with connections to the Rensselaer Amtrak Station and the Albany International Airport.<sup>48</sup> A study on the feasibility of electric vehicles in Albany was also recently conducted, identifying the actions which need to be taken to support electric vehicle use in Albany and recommending several ideal locations for electric vehicle charging stations.<sup>49</sup> Albany anticipates that the installation of multiple charging stations will be funded by a one million dollar grant which the New York State Energy Research and Development Authority received from the U.S. Department of Energy to promote electric vehicle use.<sup>50</sup> A bicycle share program feasibility study was also completed in 2013 and a twenty-year bicycle master plan has been implemented, which aims to identify a network of bicycle routes to improve cycling as a viable mode of transportation.<sup>51</sup> A feasibility study has also been conducted on whether a bike share program could be established in Albany.<sup>52</sup> A park on North Swan St. with green infrastructure elements is being designed, with completion planned for Spring 2014.<sup>53</sup> On State Street, the City will implement a rain garden demonstration project,

which will help to manage stormwater runoff.<sup>54</sup> The City is also currently implementing the Quail Street Complete Streets Project, between Madison and Central Avenue, which will incorporate green infrastructure improvements, like street trees in tree box filters, vegetated planted areas, and permeable pavements which allow for the movement of stormwater through the surface of the pavement.<sup>55</sup> Albany's Climate Action Plan also seeks to develop an Urban Forestry Program, but the city did not receive the funding it had applied for through the United States Forest Service, so the program is on hold until funding is obtained.<sup>56</sup>

### **7. Plan for Adaptation to Unavoidable Climate Change**

To meet pledge element seven, Albany developed a Climate Vulnerability Assessment and Adaptation Plan.<sup>57</sup> This plan identified the impacts of climate change that Albany will be facing in coming years, identifies strategies for dealing with these impacts, and also delegates the responsibility for implementing these strategies to certain government departments.<sup>58</sup> Albany addresses the health consequences associated with higher temperatures and lower air quality, public transportation, the water supply, energy sources, property damages, and damage to natural resources.<sup>59</sup>

### **8. Support a Green Innovation Economy**

To support a green innovation economy, Albany created an energy matching grant program for local businesses, which provides incentives to qualifying businesses to reduce energy consumption by improving such things as insulation and windows, and using renewable energy and energy star products.<sup>60</sup> The City is also currently developing a Green Business Program, which would be a voluntary partnership between business leaders, government agencies, and nonprofit organizations aimed at improving efficiency, saving money, and reducing environmental footprints.<sup>61</sup> Members of the program would receive support from the City of Albany including funding opportunities, training for staff on how to track and assess energy and water consumption, and networking opportunities.<sup>62</sup> Members will also be able to advertise that they are program members and would be recognized for their accomplishments by the City.<sup>63</sup>

### **9. Inform and Inspire the Public**

Albany has taken steps to inform and inspire the public by establishing a sustainability website and Facebook and Twitter accounts.<sup>64</sup> The City also established the Neighborhood Energy Challenge, which allows residents to take a home energy assessment and make upgrades based on the recommendations.<sup>65</sup> The neighborhood with the highest percentage of participants would receive a green enhancement package.<sup>66</sup>

### **10. Commit to an Evolving Process**

For pledge element ten, Albany became the lead coordinator for the Capital District Regional Sustainability

Plan under the Cleaner, Greener Communities Program and is also a pilot community for the STAR Community Index, a national rating system for community sustainability.<sup>67</sup>

## 11. Overview

The elements of the pledge are vast, and have pushed Albany towards adopting a swath of policies, all of which have their eye on, in some fashion, either dealing with the oncoming burden of climate change or attempting to slow down the oncoming catastrophe. While it is encouraging that the city has identified problem areas, many of the proposed studies and actions are still in the planning stages, and it will be essential that the political regime in Albany follow through with its fairly well-laid plans and continue to seek funding.

## III. Conclusions

Approaches to climate change preparedness and prevention are far from uniform. In our research, we determined that different cities in New York have drastically different reactions to the oncoming hardships. Buffalo's program, as mentioned before, can be described as an "extremely limited approach" to climate change readiness. On the opposite end of the spectrum sits New York City, which has shown a real dedication to preparing for the impending dangers and threats associated with climate change. Albany's response sits somewhere in between these two cities' responses, in line with the state's overarching Climate Smart Communities program.

Local governments, no matter where they are located, will have to deal with the severe weather effects and rising sea levels associated with climate change. It is important for local communities to develop their own climate change readiness programs because the severe weather effects associated with climate change will vary among geographical areas.<sup>68</sup> As climate change progresses, communities will be dealing with more disasters; as a result of rises in sea level, more severe storms with greater precipitation, and more frequent and severe storm surges, there will be increased flooding, both inland and along the coast, erosion, and damage to property.<sup>69</sup> Flooding and sea-level rise may also result in public health issues, as flood water can become contaminated by hazardous waste disposal sites, landfills, and sewage treatment facilities.<sup>70</sup> Overall, temperatures will be more extreme, meaning there will be an increase in heat waves, wildfires, and droughts.<sup>71</sup> Local water supplies may also be in danger, as they may decrease as a result of drought or saltwater intrusion from flooding and rising sea levels.<sup>72</sup>

Local communities must be able to recognize the unique climate change consequences that will affect their geographic area and how those consequences can be dealt with. While low-lying areas along coasts and in floodplains will suffer from rising sea levels and increased precipitation, areas that are further inland may also have to deal with the consequences of climate change in the

form of higher temperatures, droughts, and other severe weather effects.<sup>73</sup> Cities will suffer from heat island effect "a result of decreased vegetation, dark surfaces (like roofs and asphalt) that absorb heat, reflected heat by tall buildings, and localized heat sources, including waste heat from cars, power plants, and industry."<sup>74</sup> Areas that experience high temperatures may also experience reduced air quality as ozone pollution and particulate pollution tend to increase as temperature increases.<sup>75</sup> Communities may also find that changes in temperature will cause economic effects across the community, as temperatures may affect tourism and agricultural industries.<sup>76</sup> There may also be a rise in the cost of water where it is scarce, and there may be higher energy costs where high temperatures are being combatted by air conditioning and fans.<sup>77</sup>

The vastly different changes that local communities must make to address their own climate change related problems are illustrated in the three New York cities examined in this paper. The most severe consequences facing New York City result from its proximity to water and its many low-lying coastal areas, which make it vulnerable to flooding and storm surges. Though Albany and Buffalo may not have to be concerned about the same type of severe impacts that New York City faced after Sandy, both because of their smaller populations, different infrastructure, and their inland locations, they cannot escape the impacts of climate change.

Though Buffalo is an inland city which is relatively cold, it will still experience a raise in temperature, which will bring with it summer heat waves, poor air quality, and lower water levels in Lake Erie and the Niagara River, which could affect shipping, hydropower, and water-dependent industries.<sup>78</sup> The area may take an economic hit as well—the winter recreation industry may suffer as its season becomes shorter and Buffalo area farmers may see their crops and livestock suffer from increased heat.<sup>79</sup> Not only will there be increased dryness and heat, but these episodes will be punctuated with more extreme storms with heavier precipitation, causing flash floods which may pollute the water supply and damage property and infrastructure.<sup>80</sup>

Albany will see many of the same consequences as Buffalo. Increases in precipitation and sea level rise along the Hudson River will increase flooding and may overwhelm Albany's stormwater system.<sup>81</sup> When this system is overloaded untreated sewage and stormwater are released into the Hudson River.<sup>82</sup> Albany's downtown area is especially vulnerable to flooding as a result of its proximity to the Hudson River. In 2011, Tropical Storm Irene caused significant flooding in the downtown area with the river measuring at 15.4 feet above its base elevation.<sup>83</sup> Vector-borne illnesses may also increase in these areas. Shortly after Tropical Storm Irene hit Albany, the first human case of West Nile virus was reported in Albany County.<sup>84</sup> The County Health Commissioner stated that the case was directly related to the unprecedented amount of flood-



ing caused by Irene, which increased mosquito breeding sites.<sup>85</sup>

There is a lot to learn from the differences in these three cities' climate change readiness plans. First, it is extremely clear that the seriousness of each city's reaction is commensurate with the immediately perceptible threats that each city will be facing in the upcoming years. Buffalo, sitting more inland than either Albany or New York City, has very little to "worry about" concerning climate change. Buffalo's streets are not expected to flood as a result of climate change anytime soon; its infrastructure is not particularly exposed to any climate change-related threats; overall, the city is not directly threatened, from a pragmatic standpoint, by climate change. Furthermore, it has not been hit by a wayward hurricane in recent years. New York City, on the other hand, stands to lose a lot in the next few years if no drastic changes are made. Many streets will be inundated, power plants will be flooded, and millions of people will be ousted from their homes. Billions of dollars are at stake in New York City, and their climate readiness program reflects that very clearly. Albany, as its climate readiness response illustrates, sits somewhere in the middle with regard to threats and risks in the upcoming years. Though many of the more severe consequences of climate change will not hit Albany for many years, the city has begun to see the effects of climate change, especially in flooding, caused by severe storms, at the Hudson River waterfront. Unlike the other cities, though, Albany chose to subscribe to the statewide climate readiness program, and so far, has set ambitious goals for itself.

The pragmatic nature of responses in New York's cities, while predictable, is a little troubling. Threats from climate change extend beyond what is immediately perceptible. In addition, the responsibility of slowing climate change is carried by all municipalities—not only those near bodies of water. The failure of cities such as Buffalo to take adequate action highlights the need for binding regulations on municipalities with regard to climate change. Currently, the Climate Smart Communities program is voluntary, and it is up to each city to draft a response in alignment with that overarching program. As Buffalo has proven, though, some cities are not adopting this program right now, and are instead crafting responses that seem to merely pay lip-service to the idea of climate change preparedness. Just as people will "vote with their pocketbooks," New York's cities are responding to climate change in a manner that suits their individual needs and worries, not in a way that helps to make the entire State prepare for and mitigate the effects of climate change.

Cities across the state must prepare for the approaching hardship of climate change, as all will bear the burden of the mess humanity has made. While it is important to slow down future damage to the planet, climate change preparedness must also focus on protecting citizens and cities from surely approaching danger, and functioning under a new set of environmental threats.

## Endnotes

1. Lisa Alexander et al., *Working Group I Contribution to the IPCC Fifth Assessment Report, Climate Change 2013: The Physical Science Basis, Summary for Policymakers* (Sept. 23, 2013), [http://www.climatechange2013.org/images/uploads/WGIAR5\\_WGI-12Doc2b\\_FinalDraft\\_All.pdf](http://www.climatechange2013.org/images/uploads/WGIAR5_WGI-12Doc2b_FinalDraft_All.pdf).
2. John R. Nolon, *Climate Change and Sustainable Development: The Quest for Green Communities*, 61 PLANNING & ENVTL. L. 3 (2009).
3. Patricia E. Salkin, *Cooperative Federalism and Climate Change: New Meaning to "Think Globally—Act Locally,"* 40 ENVTL. L. REP. NEWS & ANALYSIS 10562, 10563–64 (2010).
4. *Id.* at 10565.
5. John R. Nolon, *The Land Use Stabilization Wedge Strategy: Shifting Ground to Mitigate Climate Change*, 34 WM. & MARY ENVTL. L. & POL'Y REV. 1, 23–24 (2009).
6. Salkin, *supra* note 3 at 10568.
7. See Andrew C. Revkin, *A Closer Look at Climate Panel's Findings on Global Warming Impacts*, N.Y. TIMES (Nov. 2, 2013), [http://dotearth.blogs.nytimes.com/2013/11/02/a-closer-look-at-climate-panels-findings-on-global-warming-impacts/?\\_r=0](http://dotearth.blogs.nytimes.com/2013/11/02/a-closer-look-at-climate-panels-findings-on-global-warming-impacts/?_r=0).
8. DEP'T OF ENV'T'L CONSERVATION, *Climate Smart Communities*, <http://www.dec.ny.gov/energy/50845.html>. There are further explanations for the vague terms in the DEC's Guide for Local Officials. *Climate Smart Communities: A Guide for Local Officials*, (Feb. 2009) [http://www.dec.ny.gov/docs/administration\\_pdf/cscguide.pdf](http://www.dec.ny.gov/docs/administration_pdf/cscguide.pdf).
9. CITY OF BUFFALO, *BUFFALO'S COMPREHENSIVE PLAN* (2006), available at [http://www.ci.buffalo.ny.us/files/1\\_2\\_1/Mayor/COB\\_Comprehensive\\_Plan/sitemap.html](http://www.ci.buffalo.ny.us/files/1_2_1/Mayor/COB_Comprehensive_Plan/sitemap.html).
10. *Id.* § 1.5.1.
11. *Id.*
12. *Id.*
13. *Id.*
14. *Id.*
15. *Id.*
16. *Id.*
17. *Id.* § 1.5.
18. *Id.* § 1.5.9.
19. *Id.*
20. *Id.*
21. UNITED STATES CENSUS BUREAU, *STATE AND COUNTY QUICK FACTS: NEW YORK, NEW YORK*, available at <http://quickfacts.census.gov/qfd/states/36/3651000.html> (last visited Nov. 25, 2013).
22. *Superstorm Sandy: More than 7 Million Without Power*, CBSNEWS (Oct. 30, 2012, 2:43 PM), [http://www.cbsnews.com/8301-201\\_162-57542015/](http://www.cbsnews.com/8301-201_162-57542015/); *Hurricane Sandy's Deadly Toll*, N.Y. TIMES (Nov. 17, 2012), <http://www.nytimes.com/2012/11/18/nyregion/hurricane-sandys-deadly-toll.html>.
23. Lakis Polycarpou, *Climate Effects on NYC May Move Faster Than Previously Forecast*, STATE OF THE PLANET (June 12, 2013, 4:30 PM), <http://blogs.ei.columbia.edu/2013/06/12/climate-effects-on-nyc-may-move-faster-than-previously-forecast/>.
24. *Id.*; New York City Panel on Climate Change, *Climate Risk Information 2013: Observations, Climate Change Projections, and Maps* (June 2013), available at [http://www.nyc.gov/html/planyc2030/downloads/pdf/npsc\\_climate\\_risk\\_information\\_2013\\_report.pdf](http://www.nyc.gov/html/planyc2030/downloads/pdf/npsc_climate_risk_information_2013_report.pdf).
25. Kia Gregory & Marc Santora, *Bloomberg Outlines \$20 Billion Storm Protection Plan*, N.Y. TIMES (June 11, 2013), <http://www.nytimes.com/2013/06/12/nyregion/bloomberg-outlines-20-billion-plan-to-protect-city-from-future-storms.html>.
26. THE CITY OF NEW YORK MAYOR MICHAEL R. BLOOMBERG, *PLANYC: A STRONGER, MORE RESILIENT NEW YORK* (June 2013), available at

- [http://nytelecom.vo.llnwd.net/o15/agencies/sirr/SIRR\\_singles\\_Lo\\_res.pdf](http://nytelecom.vo.llnwd.net/o15/agencies/sirr/SIRR_singles_Lo_res.pdf).
27. *Mayor Bloomberg Outlines Ambitious Proposal To Protect City Against The Effect Of Climate Change To Build a Stronger, More Resilient New York* (June 11, 2013), <http://www1.nyc.gov/office-of-the-mayor/news/201-13/mayor-bloomberg-outlines-ambitious-proposal-protect-city-against-effects-climate-change>.
  28. *Id.*
  29. THE CITY OF NEW YORK MAYOR MICHAEL R. BLOOMBERG, *supra* note 26.
  30. *Id.*
  31. *Id.*
  32. *Mayor Bloomberg Presents The City's Long-term Plan to Further Prepare For The Impacts of a Changing Climate*, (June 11, 2013), <http://www1.nyc.gov/office-of-the-mayor/news/200-13/mayor-bloomberg-presents-city-s-long-term-plan-further-prepare-the-impacts-a-changing>.
  33. THE CITY OF NEW YORK MAYOR MICHAEL R. BLOOMBERG, *supra* note 26.
  34. *Climate Smart Communities Profile: City of Albany*, (Oct. 2013) [http://www.cdrpc.org/CSCCommunities/CSC\\_Profile\\_City\\_of\\_Albany.pdf](http://www.cdrpc.org/CSCCommunities/CSC_Profile_City_of_Albany.pdf).
  35. *Id.*
  36. *Id.*
  37. *Id.*
  38. *Albany 2030, The City of Albany Comprehensive Plan: Appendix D. Climate Action Plan, Draft*, [http://albany2030.org/sites/default/files/AppendixD\\_ClimateActionPlan\\_0.pdf](http://albany2030.org/sites/default/files/AppendixD_ClimateActionPlan_0.pdf) (last visited Nov. 25, 2013).
  39. *Id.*
  40. *Climate Smart Communities Profile: City of Albany*, *supra* note 34.
  41. *Albany 2030*, *supra* note 38.
  42. *Climate Smart Communities Profile: City of Albany*, *supra* note 34.
  43. *Id.*
  44. *Id.*
  45. *Id.*
  46. *Id.*
  47. *Id.*
  48. *Id.*
  49. VHB Eng'g, Surveying & Landscape Architecture, P.C., *Albany Electric Feasibility Study*, 23–28, 32–34 (June 2012), [http://www.albanysustainability.org/documents/Albany\\_EV\\_Final%20Plan.pdf](http://www.albanysustainability.org/documents/Albany_EV_Final%20Plan.pdf).
  50. *Id.* at 16.
  51. Capital Dist. Transp. Comm., *City of Albany Bicycle Master Plan* (Dec. 2009), <http://www.cdtpmpo.org/linkage/albanybmp.pdf>.
  52. *Climate Smart Communities Profile: City of Albany*, *supra* note 34.
  53. *Id.*
  54. *Id.*
  55. *Id.*
  56. *Id.*
  57. *Id.*
  58. MAYOR'S OFFICE OF ENERGY & SUSTAINABILITY, ALBANY CLIMATE CHANGE VULNERABILITY AND ADAPTATION PLAN, *available at* <http://www.albany2030.org/files/Albany%20Vulnerability%20Assessment%20%26%20Adaptation%20Plan.pdf>.
  59. *Id.*
  60. MAYOR'S OFFICE OF ENERGY & SUSTAINABILITY, *Downtown Commercial Energy Efficiency Matching Grant Program*, <http://www.albanyny.org/Files/EnergyEfficiencyConservationBlockGrantSmallBusinessProgram3912May22012.pdf> (last visited Nov. 25, 2013).
  61. MAYOR'S OFFICE OF ENERGY & SUSTAINABILITY, *City of Albany Green Business Program*, [http://www.albanysustainability.org/documents/City%20of%20Albany%20Green%20Business%20Program\\_Overview.pdf](http://www.albanysustainability.org/documents/City%20of%20Albany%20Green%20Business%20Program_Overview.pdf) (last visited Nov. 25, 2013).
  62. *Id.*
  63. *Id.*
  64. *Climate Smart Communities Profile: City of Albany*, *supra* note 34.
  65. *Id.*
  66. *Id.*
  67. *Id.*
  68. Maxine Burkett, *Duty and Breach in an Era of Uncertainty: Local Government Liability for Failure to Adapt to Climate Change*, 20 GEO. MASON L. REV. 775, 779 (2013).
  69. Alice Kaswan, *Domestic Climate Change Adaptation and Equity*, 42 ENVTL. L. REP. NEWS & ANALYSIS 11125, 11128 (2012).
  70. *Id.* at 11130.
  71. *Id.* at 11128.
  72. *Id.* at 11133.
  73. *Id.*
  74. *Id.* at 11135.
  75. *Id.* at 11136.
  76. *Id.* at 11137.
  77. *Id.*
  78. SAM MAGAVERN, PARTNERSHIP FOR THE PUBLIC GOOD, *WHAT CLIMATE CHANGE MEANS FOR BUFFALO 3* (2011), *available at* <http://www.ppgbuffalo.org/wp-content/uploads/2010/06/What-Climate-Change-Means-for-Buffalo.pdf>.
  79. *Id.*
  80. *Id.*
  81. MAYOR'S OFFICE OF ENERGY & SUSTAINABILITY, ALBANY CLIMATE CHANGE VULNERABILITY AND ADAPTATION PLAN 9, *available at* <http://www.albany2030.org/files/Albany%20Vulnerability%20Assessment%20%26%20Adaptation%20Plan.pdf>.
  82. *Id.* at 51.
  83. *Id.* at 30.
  84. *Id.* at 42.
  85. *Id.*

**Benjamin Botelho received his Juris Doctorate from Albany Law School in May 2014. He received his B.A. in Employment Relations from the State University of New York at Potsdam.**

**Bryan Gottlieb graduated summa cum laude from Albany Law School where he served as Editor-in-Chief of the *Albany Law Review*. He will begin practice in the litigation department of Milbank Tweed Hadley & McCloy in October 2014.**

**David Iversen received his Juris Doctorate from Albany Law School in May 2014. He was Associate Editor for the *Albany Law Review*. Mr. Iversen received his B.A. in Classical Archaeology from the State University of New York at Albany.**

**Kelly O'Donovan received her Juris Doctorate from Albany Law School in May 2014. She was the Managing Editor for Business & Production, *Albany Government Law Review*, 2013–2014. Ms. O'Donovan graduated from the State University of New York at Geneseo with a B.A. in English and a B.A. in Philosophy.**

# Adaptation to Climate Change and the Everglades Ecosystem

By Frank Piccininni

*Water management, development and farming continue to degrade the structure and function of the Florida Everglades. Global climate change is expected to exacerbate these anthropogenic impacts. This article explores the historical and current adulteration of the Everglades, reviews the expected effects of climate change on the ecosystem, and recommends an amendment to the Farm Bill to support the implementation of adaptive management to increase climate resilience.*

## I. Introduction

The Florida Everglades are a vast and dynamic landscape characterized by pulsing flows of water, iconic wildlife, tree islands, and a complex mosaic of floral assemblages.<sup>1</sup> The Everglades ecosystem was referred to as Pay-hay-okee, or grassy lake, by the Seminole Indians and has been designated as a World Heritage Site, a Ramsar Convention Wetland of International Importance, and a World Biosphere Reserve.<sup>2</sup> Unfortunately, the “grassy lake” has been transformed into a highly managed network of canals and water management structures designed to “reclaim” the Everglades for agricultural use and settlement.<sup>3</sup> Recognizing the deleterious impact of water management in the Everglades, the state of Florida and the U.S. Federal government have agreed to an ambitious attempt to revive natural flow regimes called the Comprehensive Everglades Restoration Plan (hereinafter, “CERP”).<sup>4</sup> Policymakers and researchers are realizing that conservation and management efforts, including the CERP, must incorporate the reality of global climate change into their planning efforts.<sup>5</sup>

---

*“Recognizing the deleterious impact of water management in the Everglades, the state of Florida and the U.S. Federal government have agreed to an ambitious attempt to revive natural flow regimes called the Comprehensive Everglades Restoration Plan....”*

---

Wetlands such as the Everglades ecosystem are particularly vulnerable to changes in water quality, water quantity, and hydrological regimes, all of which are expected to be adversely impacted by climate change.<sup>6</sup> Given the internationally recognized importance of the Everglades ecosystem and the extent of the Federal and state’s investment in the CERP, it behooves the relevant administrative authorities to adapt their restoration efforts to increase resilience to climate change.<sup>7</sup> Accordingly, CERP planners have begun to incorporate projected short- and long-term impacts of climate change into their planning. These ef-

forts are, however, in the preliminary stages and it has been difficult to evaluate their effectiveness.<sup>8</sup>

Scholars have recommended that adaptive management should be used to respond to the uncertainty associated with climate change.<sup>9</sup> Adaptive management is an iterative process in which information garnered from past management efforts is explicitly incorporated into future decision-making.<sup>10</sup> Yet, adapting the CERP to climate change is difficult because of the political and legal complexity of regulation regarding the Everglades.<sup>11</sup> Adaptive management in the Everglades must work within the complex management criteria mandated by law and engage the participation of contentious stakeholders such as Everglades farmers and environmentalists.<sup>12</sup>

---

*“Policymakers and researchers are realizing that conservation and management efforts, including the CERP, must incorporate the reality of global climate change into their planning efforts.”*

---

This article seeks to help incorporate adaptive management strategies into the CERP to improve climate resilience. Specifically, this article recommends that Congress amend the Farm Bill<sup>13</sup> to encourage Everglades farmers to adapt to the reality of climate change by restoring agricultural fields to native habitat. Part II provides the context of the recommendations by reviewing the baseline conditions of the Everglades ecosystem including efforts to manage water, the current legal apparatus governing Everglades agriculture, and the projected impact of climate change on the system. Part III then provides a spatially explicit adaptive management plan for Everglades farmers, and describes amendments to the Farm Bill that support efforts to adapt Everglades farming practices to the reality of climate change. To facilitate this process, I argue that a direct subsidy should be extended to Everglades farmers that plant and adaptively manage stands of native vegetation (hereinafter, “Everglades Custard Apple Restoration Area”) in order to increase water quality and climate resilience.



**Figure 1: A Map of the Everglades Ecosystem and the Proposed Everglades Custard Apple Restoration Area<sup>14</sup>**



Used by permission. Copyright © 2012 Esri, Esri, DeLorme, NAVTEQ, TomTom, Source: Esri DigitalGlobe, GeoEye, i-cubed, USDA, USCS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community.

## II. Farming and Water Management in the Everglades

The history of the Everglades is often described as consisting of two stages, i.e., before and after drainage.<sup>15</sup> Draining of the Everglades has impacted patterns of natural hydrology,<sup>16</sup> damaged the structure and function of Everglades flora,<sup>17</sup> and had a pernicious impact on the Everglades fauna.<sup>18</sup> Moreover, mitigating water management on the ecosystem is expected to become more difficult as global warming progresses.<sup>19</sup> Accordingly, researchers and policymakers have sought to address these issues with adaptive management.<sup>20</sup>

Adaptive management considers the landscape to be the result of complex and ongoing biological and sociopolitical interactions.<sup>21</sup> Adaptive managers seek to develop plans that are as dynamic as the system for which they are designed.<sup>22</sup> This interdisciplinary framework is particularly difficult to implement in the context of the Everglades restoration because of large-scale water

management efforts and local resistance to Clean Water Act regulation.<sup>23</sup> Any effort to adapt the CERP to climate change must explicitly consider the history and current status of water management and regulation of Everglades agriculture. Thus, the following provides a detailed description of past and present water management efforts, summarizes the current legal apparatus governing agriculture in the Everglades, and reviews the expected impact of climate change on the Everglades Ecosystem.

### A. From the Swamp and Overflowed Lands Act to the South Florida Water Management District

The natural hydrology of the Everglades was influenced by topography, precipitation, and low velocity pulses of water overflowing from Lake Okeechobee (i.e., sheet flow).<sup>24</sup> Due to seasonal inundation, the Everglades could not support agriculture or settlement and was, therefore, considered of little use. In 1850, the U.S. Congress passed the Swamp and Overflowed Lands Act in order to encourage the several states to “reclaim” wetlands that were not suitable for agriculture due to flooding.<sup>25</sup> Florida was admitted into the union five years later and the Florida legislature resolved to drain the Everglades to profit from what they believed to be “wholly valueless in consequence of being covered by water....”<sup>26</sup> Accordingly, Congress dispatched an attorney, Buckingham Smith, to study the feasibility of Everglades drainage. Mr. Smith reported that drainage is possible and that without drainage, the Everglades is only suitable as a “haunt of noxious vermin” or a “resort of pestilent reptiles.”<sup>27</sup>

State-level water management in south Florida began in 1856 when the Board of Trustees of the Internal Improvement Fund of the state of Florida resolved to take control of large portions of the Everglades.<sup>28</sup> The state encouraged private landowners to “improve” the land by draining and making it suitable for agriculture. One notable land transfer was the purchase of 4 million acres for 1 million dollars by Hamilton Disston.<sup>29</sup> Disston’s efforts resulted in an 11-mile long canal and the drainage of large tracks of the Everglades.<sup>30</sup>

The wholesale modification of Everglades hydrology began in earnest in 1907 when the Florida legislature, urged by then-governor Napoleon Bonaparte Broward, passed the organic statute for the Everglades Drainage District.<sup>31</sup> Funded by the levying of “drainage taxes,” the Everglades Drainage District dissected the Everglades with 433 miles of canal, and constructed 54 miles of levy and 14 canal locks.<sup>32</sup>

In 1929, two hurricanes killed approximately 2,500 people on the south shore of Lake Okeechobee, prompting the Florida Legislature to create the Okeechobee Flood Control District.<sup>33</sup> Supported by U.S. Army Corps of Engineers (hereinafter, “USACE”), the Okeechobee Flood Control District installed hurricane gates and built a large dike along the southern rim of Lake Okeechobee.<sup>34</sup>

Hurricanes once again decimated south Florida from 1947-1948 causing a great deal of flooding throughout the entire Everglades ecosystem.<sup>35</sup> After the second flood, the U.S. Congress responded by enacting the Flood Control Act of 1948, which authorized a renewed effort to drain the Everglades called the Central and Southern Florida Project for Flood Control and Other Purposes (hereinafter, "C&SF").<sup>36</sup> To better coordinate state-level participation in the C&SF, the Florida legislature subsumed the Everglades Drainage District and the Okeechobee Flood Control District into one agency called the Central and Southern Florida Flood Control District.<sup>37</sup> The Central and Southern Florida Flood Control District was later renamed the South Florida Water Management District (hereinafter, "WMD"). The WMD is currently the agency administering water management in the Everglades.<sup>38</sup>

The WMD and the USACE administered the C&SF by dredging existing canals, creating levees, employing pumps, and managing sheet flow with enormous impoundments called water conservation areas.<sup>39</sup> Although the state and Federal regulatory agencies successfully dealt with flooding in the Everglades, the WMD continuously struggles to balance environmental issues associated with water management and human land use.<sup>40</sup>

## **B. Law, Agriculture, and Water Quality in the Everglades Ecosystem**

Adaptation of the CERP to climate change necessitates consideration of the current legal regime governing agriculture and water quality in the Everglades. One of the first ambitions of the C&SF was to control flooding in this area to take advantage of the relatively fertile soil and create the Everglades Agricultural Area (hereinafter, "EAA").<sup>41</sup> Farmers utilizing the EAA supplemented the CS&F by excavating their own ditches that were connected to major canals.<sup>42</sup> This on-farm water control infrastructure allows farmers to control water levels on their fields in order to deal with flooding and drought but also contributes to water quality issues.<sup>43</sup> The following details the evolution of water quality and agricultural regulation in the Everglades in order to underscore the legal and political complexity of adaptive management planning in the Everglades.

Currently, farmers in the EAA predominately grow sugarcane, vegetables, rice and sod.<sup>44</sup> The farming of sugarcane in the Everglades has been particularly profitable because sugar plants are flood tolerant,<sup>45</sup> and the sugar industry has a long history of benefiting from governmental price controls and subsidies.<sup>46</sup>

Farmers in the EAA, especially the sugar corporations, have not enjoyed a complimentary reputation for environmental responsibility and stewardship.<sup>47</sup> This is due to the environmental impacts that farming has on the Everglades ecosystem.<sup>48</sup> The Everglades are naturally an oligotrophic (i.e., nutrient poor) ecosystem; runoff of nu-

trients associated with agricultural practices has adversely impacted the unfarmed portions of the Everglades.<sup>49</sup>

Eutrophication of the Everglades has led to an abundance of litigation, an amendment to the Florida State Constitution,<sup>50</sup> the enactment of a major statutory scheme, and numerous state regulations.<sup>51</sup> Attempts to use the Clean Water Act to improve water quality have been cumbersome because farmers and environmentalists have fought protracted legal battles over the Act's application.<sup>52</sup> Moreover, onerous regulatory burdens placed cause the U.S. Environmental Protection Agency (hereinafter, "USEPA") and the WMD to be hesitant to enforce water quality standards mandated by the Clean Water Act.<sup>53</sup> Ultimately, it took the intervention of environmental advocates, such as the Miccosukee Tribe of Indians and the Friends of the Everglades, to compel the USEPA and the WMD to enforce water quality standards of the Clean Water Act.<sup>54</sup>

Modern Everglades litigation began in 1988. The U.S. Attorney filed suit against the WMD and the Florida Department of Environmental Regulation<sup>55</sup> in Federal Court,<sup>56</sup> alleging that the defendants were in violation of water quality standards promulgated pursuant to state implementation of the Clean Water Act.<sup>57</sup> The parties in this lawsuit reached an agreement, memorialized as a consent decree in 1992, which mandated the reduction of nutrient input into the Everglades.<sup>58</sup> To implement the decree, the Florida legislature passed the Everglades Protection Act, thereby delegating authority to the WMD to implement the Surface Water Improvement and Management Plan (hereinafter, "SWIM Plan").<sup>59</sup>

The implementation of the SWIM Plan was fraught with controversy due to opposition from farmers.<sup>60</sup> Accordingly, Federal and state agencies and agricultural groups convened in an attempt to end the litigation with a document called the Statement of Principles.<sup>61</sup> Parties to the Statement of Principles pledged to end litigation, increase water quality, commit to a detailed implementation schedule, and to adopt Best Management Practices. In 1994, to codify many of the pledges included in the Statement of Principles, the Florida legislature amended the Everglades Protection Act and renamed it the Everglades Forever Act. Notably, the Everglades Forever Act mandated the implementation of Best Management Plans,<sup>62</sup> levied an agricultural privilege tax,<sup>63</sup> extended a compliance period through 2006, and authorized the construction of storm water treatment areas to treat runoff from the EAA.<sup>64</sup>

A little over a month after the enactment of the Everglades Forever Act, the Miccosukee Tribe of Indians of Florida (hereinafter, "Miccosukee") notified the U.S. Environmental Protection Agency that the Act changed Florida's water quality standards and created a mandatory duty of review by the USEPA.<sup>65</sup> In an attempt to force review, the Miccosukee brought an action under the



citizen suit provision of the Clean Water Act, in which the U.S. Sugar Corp., Sugar Cane Growers Cooperative of Florida, and the Secretary of Florida's Department of Environmental Protection (hereinafter, "DEP") intervened.<sup>66</sup> The District Court held that the Everglades Forever Act indeed changed the water quality standards, found the USEPA's decision to allow a 12-year compliance period arbitrary and capricious, and remanded the case back to the USEPA to decide if the changes to Florida's water quality standards were in violation of the Clean Water Act.<sup>67</sup>

In 2003, the Florida Legislature once again amended the Everglades Forever Act and set the default effluent limit of phosphorus at 10 ppb (parts per billion) unless the DEP adopted numeric criterion for phosphorus discharge from the Everglades that would not "cause an imbalance in the natural populations of flora and fauna."<sup>68</sup> Pursuant to the amended Everglades Forever Act, the DEP initiated rulemaking to develop the so-called "phosphorus rule," and submitted portions of the rule to the USEPA for review. The USEPA subsequently approved the "phosphorus rule" on January 24, 2005.<sup>69</sup> Judge Gold of the Southern District of Florida found that USEPA's decision to approve the phosphorus rule was arbitrary and capricious, and issued a summary judgment that required the immediate enforcement of the 10 ppb standard.<sup>70</sup>

After inaction by the USEPA and the WMD, the Miccosukee and the Friends of the Everglades then filed a motion for contempt or to otherwise compel in the Southern District of Florida.<sup>71</sup> In a detailed finding of fact issued in 2010, Judge Gold held that although the state of Florida and the U.S. have spent considerable resources constructing storm water treatment areas, they only partially mitigate pollution of phosphorus from the EAA.<sup>72</sup> Thus, he found the USEPA in contempt of the summary judgment order and in violation of the Clean Water Act.<sup>73</sup>

In 2011, the USEPA filed a motion in the Southern District of Florida to modify the injunction granted in the 2010 order.<sup>74</sup> The USEPA sought to enhance water quality by modifying existing NPDES permits to incorporate water quality based effluent limits and pursuing administrative action against parties that were violating those limits.<sup>75</sup> The USEPA and the WMD have developed a water quality regulatory plan that includes the creation of new storm water treatment areas over a 12-year time frame.<sup>76</sup> The state of Florida and the USEPA are currently working to promulgate water quality criteria that comply with the Clean Water Act, but water quality in the Everglades is far from a settled matter.<sup>77</sup>

Scientists believe that the success of the Everglades restoration is dependent on "getting the water right."<sup>78</sup> Getting the water right, however, will become increasingly difficult due to the impacts of global climate change.<sup>79</sup> The litigious history of the Clean Water Act's application in the Everglades suggests that implementing adaptive

management will be difficult due to tension between environmentalists and EAA farmers.<sup>80</sup> Farm Bill incentive measures to improve water quality as an adaptation to climate change may reduce conflict by aligning the interests of farmers and environmental advocates.<sup>81</sup>

### C. The Projected Impacts of Climate Change on the Everglades Ecosystem

According to the Intergovernmental Panel on Climate Change (hereinafter, "IPCC"), the warming of our climate system is unequivocal.<sup>82</sup> Scientists also find it likely that extreme weather events, such as heat waves and heavy precipitation, have become more frequent and intense over the last 50 years.<sup>83</sup> Moreover, regional climate change models predict that air temperature in southern Florida will rise 3-5° F by the end of the century.<sup>84</sup> This increase in temperature is likely to correspond with: 1) a decrease of precipitation in all seasons but for the fall; 2) more frequent and destructive fires associated with drought; 3) flooding associated with intense, frequent hurricanes; 4) saltwater intrusion as a result of rising sea level and; 5) changes in the hydrological cycle.<sup>85</sup> Despite the challenges associated with climate change, scientists have concluded that the CERP is not a futile effort provided that changing conditions are incorporated into the planning process.<sup>86</sup>

### III. Adaptation to Climate Change

Although efforts to mitigate climate change are essential, the IPCC has recognized the need to adapt in order to reduce risks that are certain to occur, even if the most stringent mitigation efforts are employed.<sup>87</sup> Adapting the CERP to climate change will require a massive coordinated effort between the U.S. Federal Government and the state of Florida to respond to uncertainty through adaptive management.<sup>88</sup> Successful implementation of adaptive management relies on the efficient integration of science into statutory and regulatory regimes.<sup>89</sup> Yet, predicting the specific impact of climate change on any given place is fraught with uncertainty.<sup>90</sup> Local leaders are often concerned that uncertainty associated with climate science makes legally mandated adaptation requirements subject to political or legal challenge.<sup>91</sup> Moreover, agencies have the propensity to use uncertainty as a tool to dodge burdensome legal requirements.<sup>92</sup> As evidenced by contentious litigation over water quality in the Everglades, these concerns are particularly relevant in the context of adapting the CERP to climate change. Delays in implementing adaptive management, however, will make the challenge of adapting the CERP to climate change more difficult.<sup>93</sup>

Agencies charged with adapting the CERP to climate change must find compromises between stakeholders, such as sugar corporations and environmentalists.<sup>94</sup> Towards that end, the WMD acquired a fee interest in approximately 26,800 acres of farms, with an option to buy the rest over the next ten years.<sup>95</sup> The WMD plans to



use this land to construct stormwater treatment areas.<sup>96</sup> Yet, stormwater treatment areas may not be a sustainable long-term solution due to climate change. Flooding due to climate-related weather would force emergency discharges of lake water into the Everglades, which can quickly overwhelm the capacity of the stormwater treatment areas.<sup>97</sup> Ultimately, the state of any wetland, such as the Everglades, is closely tied to the health of the surrounding upland environment.<sup>98</sup> This section argues that the Farm Bill should be amended to subsidize efforts to plant and monitor native trees in the EAA.

### A. Farmers as Stewards of the Land

The organic soils of the EAA were formed by an interaction between long hydroperiods, microorganisms, and Everglades vegetation.<sup>99</sup> Once drained, the EAA began to experience subsidence at a rate of about one inch of soil per year.<sup>100</sup> Although the rate of subsidence has been reduced due to legally mandated best management practices, it has not been eliminated entirely.<sup>101</sup> Likewise, Best Management Practices have led to decreased rates of phosphorus discharge into the Everglades from the EAA, but the eutrophication of the Everglades is ongoing and is likely to result in future litigation.<sup>102</sup> The efficacy of these measures is further complicated by the projected impacts of climate change. Farming in the Everglades is not a sustainable endeavor; once the Everglades soil subsides beyond a critical threshold, the EAA can no longer support agriculture.<sup>103</sup> Ultimately, the practices of farmers in the EAA must evolve to deal with the reality of subsidence, stringent water quality standards, and climate change.<sup>104</sup>

One potential adaptive mechanism for farmers lies within the conservation programs of the Farm Bill, which is administered by the United States Department of Agriculture (hereinafter, "USDA").<sup>105</sup> The first Farm Bill, the Agricultural Adjustment Act,<sup>106</sup> was passed in 1933 in response to overproduction of crops caused by overplanting and new farming innovations.<sup>107</sup> This New Deal legislation was designed to protect the farmers' and the nations' food supply.<sup>108</sup> What began as an attempt to stabilize crop prices and ensure continued success of small farms has morphed into a legislative package of subsidies that favors large-scale corporate farming and results in environmental degradation.<sup>109</sup> These subsidies favoring agribusiness have been maintained throughout numerous iterations of the Farm Bill due to the considerable political influence wielded by large corporate farms.<sup>110</sup>

In addition to the subsidies favoring corporate farming, the omnibus Farm Bill amendments have also created various conservation programs in an attempt to reduce environmental impacts of farming.<sup>111</sup> The USDA administers numerous conservation programs including the Conservation Reserve Program,<sup>112</sup> the Wetland Reserve Program,<sup>113</sup> the Environmental Quality Incentives Program,<sup>114</sup> and the Wildlife Habitat Incentives Program.<sup>115</sup>

Farm Bill conservation programs are often touted as an extremely effective means to incentivize farmers to pursue sustainable farming practices.<sup>116</sup> Yet, traditional commodity programs are known to undercut enrollment incentives for these conservation programs.<sup>117</sup> For example, U.S. sugar farmers have a significantly reduced incentive to enroll in conservation programs because they profit from a number of Federal sugar subsidies.<sup>118</sup> The interaction of different Farm Bill provisions creates a perverse incentive for farmers to continue sugar production at the expense of both consumers and the Everglades ecosystem.<sup>119</sup>

Attempts to reform the subsidy problem in the Farm Bill have been met with staunch opposition.<sup>120</sup> This is true, in part, because large corporate farms and their employees have become dependent on Farm Bill subsidies to generate revenue and provide jobs.<sup>121</sup> Moreover, for better or worse, campaign financing and industry capture appear to be a reality of our political system.<sup>122</sup> Thus, ending the subsidies to EAA farmers would likely require significant lobbying efforts by environmentalists and may not be politically or economically feasible. I, therefore, argue that Congress should amend the Farm Bill to reallocate direct payments for specific crops to farmers who adopt spatially explicit adaptive management plans, such as the Everglades Custard Apple Restoration Area. This approach would likely be politically feasible for legislators who are influenced by corporate farm lobbying efforts, and provide an incentive for farmers to be active stewards of the land. In this way, sugar producers can still benefit from their subsidies while simultaneously restoring the Everglades Ecosystem and increasing resilience to climate change.

In this plan, farmers receive direct payments whose amount is contingent upon the current market price of the crop that would have otherwise been grown at the site. For example, each year the USDA can calculate the value of sugar per acre, and award Everglades sugar farmers that value for every acre in which they implement adaptive management. In order to qualify for the direct payment, EAA farmers would be required to hire biological consultants to plant native vegetation,<sup>123</sup> monitor the experiment,<sup>124</sup> and explicitly incorporate information garnered from the experiment into future management regimes.<sup>125</sup> For example, it would be prudent to study the Everglades Custard Apple Restoration Area to ascertain the relative flood- and shade-tolerances of the tree species planted.<sup>126</sup> The vegetation and environmental variables collected as part of this research can also be used to elucidate how animals respond to environmental gradients.<sup>127</sup> Through their efforts, farmers will be able to reduce scientific uncertainty, restore the Everglades ecosystem, and be compensated at fair market rates.

To ensure the long-term environmental benefits of this program, Everglades farmers who take advantage of the proposed Farm Bill provision should be required to establish a perpetual conservation easement on the tracts of land that are to be used for adaptive management.<sup>128</sup> This would ensure that the “conservation purpose” of entering into the Farm Bill program is a permanent and worthwhile use of direct payment subsidies. Since farmers would most likely be hesitant to agree to take on the responsibility of pursuing adaptive management objectives in perpetuity, the adaptive management contracts should be on a term basis to provide sufficient flexibility. Thus, sugar farmers will continue to benefit from sugar subsidies by restoring the EAA to its historic conditions.

## B. Everglades Custard Apple Restoration Area

Historically, the south shore of Lake Okeechobee, now part of the EAA, was comprised of a swamp forest dominated by custard apple (*Annona glabra* L.).<sup>129</sup> The custard apple trees develop extremely large trunks and massive buttressed roots.<sup>130</sup> These features helped to protect the forest from damaging flows of water from Lake Okeechobee.<sup>131</sup> In fact, custard apple has been shown to exhibit increased growth and photosynthesis in response to flooding.<sup>132</sup> Unfortunately, the original custard apple forest has been entirely eliminated for agricultural purposes.<sup>133</sup>

In 2002, Everglades researchers experimentally constructed tree islands in order to study the feasibility of re-vegetation of the Everglades.<sup>134</sup> This experiment provided unique insights into the structure and function of vegetation in the Everglades. Once the nascent tree islands were formed, soil began to accrue (i.e., accretion), thereby improving the substrate on which the trees were originally established.<sup>135</sup> The root structure of these planted trees also helped to maintain an increased water table relative to the surrounding marsh.<sup>136</sup> Essentially, these young tree islands demonstrate that re-vegetating the Everglades can be an extremely successful endeavor.<sup>137</sup> I, therefore, propose that replanting custard apple and other flood-tolerant species in the EAA is an invaluable first step in adapting the CERP to the reality of climate change.

Establishing the Everglades Custard Apple Restoration Area on the south shore of Lake Okeechobee will likely increase the ecosystem’s critical resilience to climate change.<sup>138</sup> The thick growth and buttressed roots of custard apple trees can help to buffer overflow from Lake Okeechobee during extreme rainfall events, stabilize soil, and help reverse subsidence.<sup>139</sup> Re-vegetation may also help to absorb nutrients and reduce eutrophication of the Everglades ecosystem, which will improve water quality and help farmers comply with the standards of the Clean Water Act.<sup>140</sup> The Everglades Custard Apple Restoration Area can also moderate the local environment during drought,<sup>141</sup> and provide critical habitat for Everglades wildlife.<sup>142</sup>

## IV. Conclusion

President Barack Obama, in his 2013 State of the Union Address, urged Congress to “pursue a bipartisan, market-based solution to climate change.”<sup>143</sup> One such market that can be utilized to help mitigate climate change is farming in the EAA. Research has demonstrated that trees can provide the valuable ecosystem service of carbon sequestration;<sup>144</sup> and soils of freshwater marshes are known to be carbon sinks.<sup>145</sup> Thus, establishing the Everglades Custard Apple Restoration Area can be viewed as both an adaptation and mitigation measure. Moreover, granting an incentive for farmers to pursue adaptive management will provide a broad array of employment opportunities for affiliated professionals such as biologists, attorneys, computer scientists, and laborers. To achieve this, the Farm Bill should be amended to support the Everglades Custard Apple Restoration Area.<sup>146</sup>

## Endnotes

1. See MARJORY S. DOUGLAS, *THE EVERGLADES: RIVER OF GRASS* (Pineapple Press, Inc., 1997) (1947) (“They are unique also in the simplicity, the diversity, the related harmony of the forms of life they enclose. The miracle of the light pours over the green and brown expanse of saw grass and of water, shining and slowmoving below, the grass and water that is the meaning and central fact of the Everglades of Florida. It is a river of grass.”).
2. *Everglades is Internationally Significant*, NPS.GOV, <http://www.nps.gov/ever/parknews/internationaldesignations.htm> (last visited April 12, 2012).
3. See generally STEPHEN S. LIGHT & J. WALTER DINEEN, *Water Control In The Everglades: A Historical Perspective*, in *EVERGLADES: THE ECOSYSTEM AND ITS RESTORATION* 47-84 (Steven M. Davis & John C. Ogden eds., 1994) (describing the history of water management in the Everglades).
4. 114 Stat. 2681 (seeking to “restore, preserve, and protect the South Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection”); 62 Stat. 1176 (mandating the construction of stormwater treatment areas for “hydroperiod restoration” according to specified deadlines). The National Research Council, an independent scientific review board charged with monitoring the Everglades restoration, has reported that, twelve years into CERP, little progress towards restoring the hydrology of the central Everglades has been made. Stumbling blocks include scientific uncertainty, congressional inaction, local conflicts between species management and restoration management, and water quality issues. COMM. ON INDEP. SCIENTIFIC REVIEW OF EVERGLADES RESTORATION PROGRESS, NAT’L RESEARCH COUNCIL, *PROGRESS TOWARD RESTORING THE EVERGLADES: THE FOURTH BIENNIAL REVIEW* 8 (2012).
5. See ROBERT L. GLICKSMAN, *Governance of Public Lands, Public Agencies, And Natural Resources*, in *THE LAW OF ADAPTATION TO CLIMATE CHANGE, U.S. AND INTERNATIONAL ASPECTS* 446-447 (Michael B Gerrard & Katrina F. Kuh, eds., 2012) (discussing an “adaptation policy vacuum” and a lack of coordinated efforts among agencies charged with management of land); see also S. FLA. NATURAL RES. CTR., NAT’L PARK SERV., *POTENTIAL ECOLOGICAL CONSEQUENCES OF CLIMATE CHANGE IN SOUTH FLORIDA AND THE EVERGLADES* 22 (2008) (finding that the variability associated with climate change necessitates the use of adaptive research and management techniques to achieve the goal of restoring the Everglades ecosystem).
6. See Kevin L. Erwin, *Wetlands and Global Climate Change: The Role of Wetland Restoration in a Changing World*, 17 *Wetlands Ecology*

- and Mgmt. 71, 71 (2009) (describing the vulnerability of wetlands to various ecosystem stressors associated with rising global temperatures); *see also* INT'L GOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT, *available at* [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf) (maintaining that climate change will likely lead to increased frequency of floods, droughts, runoff, and significant precipitation events).
7. *See* S. FLA. NATURAL RES. CTR., *supra* note 5, at 22.
8. *See* COMM. ON INDEP. SCIENTIFIC REVIEW OF EVERGLADES RESTORATION PROGRESS, NAT'L RESEARCH COUNCIL, PROGRESS TOWARD RESTORING THE EVERGLADES: THE THIRD BIENNIAL REVIEW 227 (2010).
9. *See, e.g.*, ROBERT L. FISCHMAN & JILLIAN R. ROUNTREE, *Adaptive Management, in THE LAW OF ADAPTATION TO CLIMATE CHANGE*, U.S. AND INTERNATIONAL ASPECTS 27-29 (Michael B Gerrard & Katrina F. Kuh, eds., 2012).
10. *Id.*
11. *See* Alfred R. Light, *Tales of the Tamiami Trail: Implementing Adaptive Management in Everglades Restoration*, 22 J. Land Use & ENVTL. L. 59, 96 (2006). The effective implementation of adaptive management in CERP has been hindered by, *inter alia*, conflicting agency mandates, regulatory ossification, legal challenges, and inefficient mechanisms to incorporate public input. *Id.* at 96.
12. *See* J.B. Ruhl & Robert L. Fischman, *Adaptive Management in the Courts*, 95 MINN. L. REV. 424, 427 (2010).
13. Food, Conservation, and Energy Act of 2008, 7 U.S.C.A. §§ 8701-8793 (2008).
14. The map was created with ArcGIS version 10.1. Basemap used by permission. Copyright © 2012 Esri, Esri, DeLorme, NAVTEQ, TomTom, Source: Esri DigitalGlobe, GeoEye, i-cubed, USDA, USCS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community. All shapefiles, with the exception of the boundaries of the Everglades Custard Apple Restoration Area, are freely available on the website of the South Florida Water Management District. The shapefile of the proposed Everglades Custard Apple Restoration Area is available upon request from the author. *See* *Geographical Information Systems*, <http://www.sfwmd.gov/portal/page/portal/levelthree/GIS> (last visited, April 12, 2013).
15. *See, e.g.*, John C. Ogden, *Everglades Ridge and Slough Conceptual Ecological Model*, 25 Wetlands 810, 810 (2005).
16. *See id.* at 810 (describing changes in the "depth, distribution, and duration" of water and its negative effects on the "Ridge and Slough" region of the Everglades); *see also* Judson W. Harvey & Paul V. McCormick, *Groundwater's Significance to Changing Hydrology, Water Chemistry, and Biological Communities of a Floodplain Ecosystem, Everglades, South Florida, USA*, 17 Hydrogeology J. 185, 185 (2009) (detailing the degradation of groundwater due to the installation of canals).
17. *See* M.S. Ross et al., *Vegetation: Environment Relationships and Water Management in Shark Slough, Everglades National Park*, 11 Wetlands Ecology and MGMT. 291, 291 (2003) (concluding that compartmentalization and water management practices impact natural gradients of vegetation); *see also* Yegang Wu et al., *The Spatial Pattern and Dispersion of Lygodium microphyllum in the Everglades Wetland Ecosystem*, 8 Biological Invasions 1483, 1483 (2006) (finding that approximately 11.6% of tree islands in the Loxahatchee National Wildlife Refuge has been invaded by Old World Climbing Fern); Paul R. Wetzel et al., *Landscape Analysis of Tree Island Head Vegetation in Water Conservation Area 3, Florida Everglades* 28 Wetlands 276, 277 (2008) (explaining that increased drainage leads to fires that destroy tree island vegetation).
18. *See, e.g.*, G. Thomas Bancroft et al., *Relationships Among Wading Bird Foraging Patterns, Colony Locations, And Hydrology In The Everglades*, *IN EVERGLADES: THE ECOSYSTEM AND ITS RESTORATION* 615-652 (Steven M. Davis & John C. Ogden eds., 1994) (concluding that water management has degraded wading bird foraging and nesting habitats).
19. *See* Leonard G. Pearlstine, *A Review of the Ecological Consequences and Management Implications of Climate Change For the Everglades*, 29 J. North American Benthological Society, 1510, 1521 (2010) ("The ecological consequences of climate change will reshuffle vegetation and wildlife composition, distributions, and abundance in unpredictable ways.").
20. *See* S. FLA. NATURAL RES. CTR., *supra* note 5, at 22.
21. *See* FISCHMAN & ROUNTREE, *supra* note 9, at 23.
22. *Id.*
23. *See* LIGHT & DINEEN, *supra* note 3, at 96.
24. OGDEN, *supra* note 15, at 810.
25. 9 Stat. 519-520.
26. S. Doc. No. 87, at 34 (1911).
27. *See id.* at 54.
28. Bd. Tr. Internal Improvement Fund (Fla. 1856), [http://digitalcollections.fiu.edu/iif/volumes/volume1/FI06013201\\_body.pdf](http://digitalcollections.fiu.edu/iif/volumes/volume1/FI06013201_body.pdf) ("all the swamp and overflowed lands selected by the State shall be subject to private entry on the terms heretofore fixed from and after this date."). The Board of Trustees of the Internal Improvement Trust Fund is now comprised of the Governor and Cabinet of Florida and staffed by the Florida Department of Environmental Protection. *See* FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION [HTTP://WWW.DEP.STATE.FL.US/LANDS/STATELANDS\\_CONT.HTM](http://www.dep.state.fl.us/lands/statelands_cont.htm) (last visited Apr. 13, 2013).
29. Bd. Tr. Internal Improvement Fund (Fla. 1881), [http://digitalcollections.fiu.edu/iif/volumes/volume3/FI06013203\\_body.pdf](http://digitalcollections.fiu.edu/iif/volumes/volume3/FI06013203_body.pdf) (setting forth the payment plan for the purchase of portions of the everglades).
30. LIGHT & DINEEN, *supra* note 3, at 53. Disston's ambition to drain the Everglades was thwarted by an economic depression that destroyed his enterprise and eventually caused him to take his own life. *Id.*
31. 1913 Fla. Laws 129 ("for the purpose of draining and reclaiming the lands hereinafter described and protecting the same from the effects of water, for agricultural and sanitary purposes, and for the public convenience and welfare, and for the public utility and benefit, a drainage district is hereby established to be known and designated as the Everglades Drainage District").
32. 1913 Fla. Laws. 160 (levying a tax of five cents per acre of Everglades land to finance the draining of the Everglades); *See also* Bd. Tr. Internal Improvement Fund (Fla.1907), [http://digitalcollections.fiu.edu/iif/volumes/volume7/FI06013207\\_body.pdf](http://digitalcollections.fiu.edu/iif/volumes/volume7/FI06013207_body.pdf) ("...the work done has been something marvelous, and the achievements far beyond the most sanguine or hopeful expectation of those in charge of its inauguration"); G.H. SNYDER & J.M. DAVIDSON, *Everglades Agriculture: Past, Present, And Future, in EVERGLADES: THE ECOSYSTEM AND ITS RESTORATION* 615-652 (Steven M. Davis & John C. Ogden eds., 1994) (describing the extent of the drainage work completed by the Everglades Drainage District).
33. *See* LIGHT AND DINEEN, *supra* note 3, at 57 (demonstrating the spatial extent of area devastated by hurricanes in 1926 and 1928).
34. *Id.* at 55.
35. *Id.* at 58.
36. 62 Stat. 1171 (1948).
37. 1949 Fla. Laws 514 (1949).
38. Fla. Stat. Ann. § 373.069 (West, 2009) (setting forth the current state level administrators of water management in Florida).
39. *See* LIGHT AND DINEEN, *supra* note 3, at 63-67.
40. *See* Alfred R. Light, *Beyond the Myth of Everglades Settlement: The Need for A Sustainability Jurisprudence*, 44 Tulsa L. Rev. 253 (2008) (finding that the current adaptive management plan in the Everglades fails to focus on dispute resolution).



41. See SOIL CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL SURVEY OF PALM BEACH COUNTY AREA, FLORIDA 41 (1978), available at [http://soildatamart.nrcs.usda.gov/manuscripts/FL611/0/Palm\\_Beach.pdf](http://soildatamart.nrcs.usda.gov/manuscripts/FL611/0/Palm_Beach.pdf) (finding that once drained, Torrey muck (the name of the soil on the south shore of lake Okeechobee) is “well suited” for agriculture and, notably, that there are no longer any portions of this soil “with native vegetation”).
42. See SNYDER & DAVIDSON, *supra* note 32, at 99-100.
43. See Timothy A. Lang et al., *Environmental and Management Factors that Influence Drainage Water P Loads from Everglades Agricultural Area Farms of South Florida*, 138 AGRIC., Ecosystems and Env’t. 170, 170 (2010). During the dry season, water is pumped from Lake Okeechobee to irrigate the farms, whereas during the wet season, water is pumped off the farms into the Everglades and back pumped into Lake Okeechobee. *Id.*
44. *Id.*
45. See Barry Glaz et al., *Sugarcane Cultivar Response to High Summer Water Tables in the Everglades*, 94 Agronomy J. 624, 624-629 (2002) (using field experiments to demonstrate that flooding had little effect on the yield of *Saccharum* spp.).
46. See Jeff LeBlanc, *A Sweet Deal for Sugar*, 15 Mo. Env’tl. L. & Pol’y Rev. 67, 69 (2007) (reviewing various subsidies enjoyed by sugar farmers); see also Katherine Mohr, *How Sweet It Isn’t: Big Sugar’s Power Politics and the Fate of the Florida Everglades*, 7 Fla. A. & M U. L. Rev. 329, 338 (2012) (finding that tax laws have protected sugar producers since 1789).
47. See *id.* at 331 (“Despite continued and varying attempts to try and stop the degradation of the Everglades, it seems that no law has been successful; the destruction continues ‘almost unabated,’ while Big Sugar and agriculture reap the benefits”).
48. SNYDER AND DAVIDSON, *supra* note 32, at 110-112 (describing the “vilification” of the sugar industry).
49. See Paul V. McCormick et al., *Influence of Changing Water Sources and Mineral Chemistry on the Everglades Ecosystem*, 41 Critical Reviews in Env’tl. Sci. And Tech. 28, 39 (2011) (demonstrating a decreased concentration of phosphorus with increased distance from canals); see also Steven M. Davis, PHOSPHORUS INPUTS AND VEGETATION SENSITIVITY IN THE EVERGLADES, in EVERGLADES: THE ECOSYSTEM AND ITS RESTORATION 615-652 (Steven M. Davis & John C. Ogden eds., 1994) (documenting the conversion of native sawgrass marshes into invasive cattail monocultures near anthropogenic input of phosphorus).
50. Fla. Const. art. II, § 7; Fla. Const. art. X, § 17. In 1995, the people of the state of Florida voted to amend the Florida State Constitution to hold the farmers of the EAA responsible for the destruction and degradation of the Everglades. The Supreme Court of Florida, however, issued an advisory opinion holding, *inter alia*, that the so-called “polluter pays” amendments were not self-executing and that existing statutes remained in effect until the passage of implementing legislation. *Advisory Opinion to Governor—1996 Amendment 5 (Everglades)*, 706 So. 2d 278, 283 (Fla. 1997).
51. See Keith W. Rizzardi, *A Recent History of Everglades Regulation and Litigation*, Fla. B.J., March 2001, at 18, 25.
52. See generally Alfred R. Light, *Miccosukee Wars in the Everglades: Settlement, Litigation, and Regulation to Restore an Ecosystem*, 13 St. Thomas L. Rev. 729 (2001).
53. *Id.*
54. *Id.* at 731.
55. The Florida Department of Environmental Regulation later became known as the Florida Department of Environmental Protection. Rizzardi, *supra* note 51, at 19.
56. *U.S. v. S. Fla. Water Mgmt. District*, No. 88-1886 CIV-HOEVELER (S.D. Fla.).
57. Under the statutory scheme of the Clean Water Act, states are predominately responsible for developing and implementing water quality standards. Each state classifies each body of water’s intended use, and then promulgates qualitative or quantitative standards to protect such use. These plans are then reviewed and approved by the U.S. Environmental Protection Agency. See generally 33 U.S.C.A. § 1313 (West).
58. See *U.S. v. S. Fla. Water Mgmt. District*, 88-1886-CIV-WMH (order entering settlement agreement as consent decree), [http://www.law.miami.edu/library/everglades/litigation/federal/usdc/88\\_1886/orders/1205\\_847FSupp1567.html#I](http://www.law.miami.edu/library/everglades/litigation/federal/usdc/88_1886/orders/1205_847FSupp1567.html#I) (agreeing to the creation of storm water treatment areas and the implementation of various nutrient control programs).
59. See 1991 Fla. Laws Ch. 91-80 (“It is the intent of the Legislature to facilitate the surface water improvement and management process, to assist the district and the Department of Environmental Regulation in the performance of their duties and responsibilities, and to provide funding mechanisms which will contribute to the implementation of the strategies incorporated in the Everglades Surface Water Improvement and Management Plan or contribute to projects or facilities determined necessary to meet water quality requirements established by rulemaking or permit proceedings”).
60. See *Miccosukee Tribe of Indians of Fla. v. United States*, 95-0533-CIV-DAVIS, 1998 WL 1805539 (S.D. Fla. Sept. 14, 1998) (finding that 36 lawsuits were filed challenging the clean-up plan).
61. *Id.*
62. See 1994 Fla. Laws Ch. 94-115 (Best Management Plans were to be “determined by the district, in cooperation with the department, based on research, field-testing, and expert review, to be the most effective and practicable, including economic and technological considerations, on-farm means of improving water quality in agricultural discharges to a level that balances water quality improvements and agricultural productivity”).
63. *Id.* The legislature determined that practicing agriculture in the Everglades was a privilege and constituted a reasonable basis for the imposition of an Agricultural Privilege Tax consisting of \$24.89-\$35.00/acre, depending on when the tax notice was mailed. *Id.*
64. *Id.*
65. See *Miccosukee Tribe of Indians of Fla v. U.S., E.P.A.*, 105 F.3d 599, 601 (11th Cir. 1997).
66. *Id.* The District court originally dismissed the complaint after determining that subject matter jurisdiction was lacking. On appeal, the U.S. Court of Appeals for the 11th Circuit reversed the district court decision regarding subject matter jurisdiction and remanded to decide the case on the merits. *Id.*
67. See *Miccosukee Tribe of Indians of Fla. v. U.S.*, 95-0533-CIV-DAVIS, 1998 WL 1805539 (S.D. Fla. Sept. 14, 1998) at 19 (holding that allowing farmers to discharge phosphorus was in violation of narrative standards set forth in the Everglades Forever Act was a “de facto suspension of, and therefore a change in, water quality standards”).
68. 2003 Fla. Laws 2003-12.
69. *Id.*
70. See *Miccosukee Tribe of Indians of Fla. v. United States*, 04-21448-CIV, 2008 WL 2967654 (S.D. Fla. July 29, 2008) at 1 (finding that the USEPA turned a “blind eye” to the Everglades Forever Act and the regulations promulgated thereunder and simply read “words of specific sections” rather than “connecting the dots to analyze its true effect.”).
71. *Miccosukee Tribe of Indians of Fla. v. United States*, 706 F. Supp. 2d 1296, 1298 (S.D. Fla. 2010), modified in part, 04-21448-CIV, 2011 WL 1624977 (S.D. Fla. Apr. 26, 2011).

72. *Id.* Citing a 2005 USEPA study, Judge Gold noted that the spatial area of the Everglades degraded by phosphorus increased from 33.7% to 49.3% from 1995-2005. Moreover, testimony at the contempt hearing revealed that five storm water treatment areas had no effluent limits in effect at all. He maintained that the state of Florida was “loosening the standards of compliance” by implementing moderating provisions that pushed the target date of compliance to 2016. *Id.*
73. *Id.* at 1296.
74. *Miccosukee Tribe of Indians of Fla v. United States*, 04-21448-CIV, 2011 WL 1624977 (S.D. Fla. Apr. 26, 2011) (“It is time now for this next significant step to occur. The USEPA has represented that it wants to act. It must be given the opportunity to do so. The USEPA may well have to enforce the objectives as set forth in the Amended Determination, as it has recently stated it would, through further administrative and court actions—which are apparently likely since the opposing parties and interveners are even now presently before the Eleventh Circuit seeking yet another set of appeals on various orders in this litigation.”).
75. *Id.*
76. See COMM. ON INDEP. SCIENTIFIC REVIEW OF EVERGLADES RESTORATION PROGRESS, NAT’L RESEARCH COUNCIL, *supra* note 4, at 30.
77. *Id.* at 31 (finding that numerical nutrient criteria will not contribute to the restoration of the Everglades because it does not address ditches and canals and does not cover estuaries).
78. See Daniel P. Loucks, *Modeling and Managing the Interactions Between Hydrology, Ecology and Economics*, 328 J. of Hydrology 408, 415 (2006).
79. See generally S. FLA. NATURAL. RES. CTR., *supra* note 5.
80. See generally Alfred R. Light, *supra* note 52.
81. See Erin Morrow, *Agri-Environmentalism: A Farm Bill for 2007*, 38 TEX. TECH L. REV. 345, 346-347 (2006) (finding that farmers generally have a “deep love of the land” and “but for American farm policy, many farmers would be able to produce with a more ecological bent in mind.”).
82. INT’L GOVERNMENTAL PANEL ON CLIMATE CHANGE, *supra* note 6, at 30 (noting that measured increases in sea level are consistent with the increases in temperatures).
83. *Id.*
84. COMM. ON INDEP. SCIENTIFIC REVIEW OF EVERGLADES RESTORATION PROGRESS, *supra* note 8, at 48.
85. *Id.*; see also Thomas H. Huntington, *Evidence for Intensification of the Global Water Cycle: Review and Synthesis*, 319 J. of Hydrology 83 (2006).
86. COMM. ON INDEP. SCIENTIFIC REVIEW OF EVERGLADES RESTORATION PROGRESS, *supra* note 8, at 53.
87. See INT’L GOVERNMENTAL PANEL ON CLIMATE CHANGE, *supra* note 6, at 65.
88. See generally FISCHMAN & ROUNTREE, *supra* note 9, at 20-21.
89. See Clinton T. Moore et al., *Adaptive Management in the U.S. National Wildlife Refuge System: Science-Management Partnerships for Conservation Delivery*, 92 J. of Env’tl. Mgmt. 1395, 1395 (2011).
90. See FISCHMAN & ROUNTREE, *supra* note 9, at 43.
91. See VICKI ARROYO & TERRI CRUCE, *State And Local Adaptation, in THE LAW OF ADAPTATION TO CLIMATE CHANGE*, 569, 569 (Michael B. Gerrard & Katrina F. Kuh, eds., 2012).
92. FISCHMAN & ROUNTREE, *supra* note 9, at 43.
93. See COMM. ON INDEP. SCIENTIFIC REVIEW OF EVERGLADES RESTORATION PROGRESS, *supra* note 8, at 3 (“climate change should not be an excuse for delay or inaction in the restoration but instead provides further motivation to restore the resilience of the ecosystem”); see also Glicksman, *supra* note 5, at 446 (emphasizing the need for adaptive measures to deal with the near-term impacts of climate change).
94. See FISCHMAN & ROUNTREE, *supra* note 9, at 43.
95. See So. Fla. Water Mgmt. District, *Acquisition Documents: Contracts and Due Diligence*, [http://www.sfwmd.gov/portal/page/portal/pg\\_grp\\_sfwmd\\_koe/pg\\_sfwmd\\_koe\\_riverofgrass\\_acquisition](http://www.sfwmd.gov/portal/page/portal/pg_grp_sfwmd_koe/pg_sfwmd_koe_riverofgrass_acquisition) (last visited Apr. 14, 2013). The WMD originally agreed to acquire all 153,000 acres in 2008, but “economic difficulties” made this large of a purchase difficult. Instead, in 2010 the WMD purchased 26,800 acres with an option to buy approximately 153,200. Notably, the WMD has also agreed to lease 8,900 acres of the purchased land back to the farmers for \$150/acre/year until it “needs land for restoration purposes.” *Id.*
96. *Id.*
97. See LIGHT AND DINEEN, *supra* note 3, at 74 (explaining that heavy rains often necessitate undesirable regulatory releases of water in the Everglades); see also Alfred R. Light, *Reducing Nutrient Pollution in the Everglades Agricultural Area through Best Management Practices*, 25 Nat. Resources and the Env’t Fall, 2011 (describing the eutrophication of Lake Okeechobee and its potential impact on the Everglades); DEBRA L. DONAHUE, *Agriculture And Forestry, in THE LAW OF ADAPTATION TO CLIMATE CHANGE, U.S. AND INTERNATIONAL ASPECTS* 351, 352 (Michael B. Gerrard & Katrina F. Kuh, eds., 2012) (predicting increased erosion of topsoil from farms due to stormwater runoff).
98. See Paul R. Wetzel et al., *Maintaining Tree Islands in the Florida Everglades: Nutrient Redistribution is the Key*, 3 Frontiers in Ecology and the ENV’T 370, 370 (2005) (identifying tree islands as a critical component of the Everglades Ecosystem); see also J.M. Buttle, *Rethinking the Donut: The Case for Hydrologically Relevant Buffer Zones* 16 Hydrological Processes 3093, 3093 (2002) (reviewing the role of upland “buffer zones” in protecting the health of wetlands).
99. See SNYDER & DAVIDSON, *supra* note 32, at 107. Frequent inundation causes anaerobic (oxygen poor) conditions, which leaves microorganisms unable to break down dead plant matter fully; over time plant matter accumulates to create deep soil. *Id.*
100. *Id.* In 1924, as part of a long term study of subsidence in the EAA, researchers drove a nine foot long graduated concrete post into the underlying bedrock so that the top of the post was level with the soil. In 2009, the depth of the soil at the site was 37 inches. Alan L. Wright & George H. Snyder, *Soil Subsidence in the Everglades Agricultural Area*, no. 551 Vegetarian Newsletter, Nov. 2009, <http://ufdcimages.uflib.ufl.edu/UF/00/08/73/99/00541/Binder2.pdf>.
101. See Samira H. Daroub et al., *Best Management Practices and Long-Term Water Quality Trends in the Everglades Agricultural Area* 41 Critical Reviews in Env’tl. Sci. and Tech. 608, 608 (2011) (noting that best management practices may have contributed to a decreased rate of soil subsidence).
102. See *id.* at 613.
103. See SNYDER & DAVIDSON, *supra* note 32, at 107 (explaining that EAA soil is relatively shallow and underlain by limestone bedrock).
104. See *id.* (describing the uncertain future of agriculture in the Everglades); see also Martin Reeves et al., *Sustainability as Adaptability*, 24 J. of Applied Corp. Fin. 14 (2012) (“To adapt, a company must have its antennae attuned to signals of change from the external environment, decode those signals, and then act quickly to refine or reinvent its business model and even reshape the information landscape of its industry.”).
105. See generally DEBRA L. DONAHUE, *supra* note 97, at 361 (highlighting the potential use of the Farm Bill to support adaptation to climate change).
106. 48 Stat. 31.
107. William S. Eubanks II, *A Rotten System: Subsidizing Environmental Degradation and Poor Public Health with Our Nation’s Tax Dollars*, 28 Stan. Env’tl. L.J. 213, 219 (2009).

108. *Id.* (“In essence, the 1933 Farm Bill was designed to save small farming in America and it signaled a return to the Jeffersonian ideal of an agrarian democracy.”).
109. *Id.* at 223. In the 1970s, for example, the United States Department of Agriculture encouraged farmers to focus on increasing the yield of crops and increasing in size regardless of the resulting environmental degradation. These subsidies allowed large corporations to outcompete smaller operations, which has resulted in the decimation of family farming operations and the “depopulation” of rural America. *Id.*
110. *Id.* at 229-231 (finding that corporate farms help shape the legislative process through campaign financing and other lobbying efforts).
111. See DEBRA L. DONAHUE, *supra* note 97, at 361.
112. 16 U.S.C. §§ 3831-3836; see also Kevin C. Rigdon, *Stop the Planting! The 1985 Farm Bill, Conservation Compliance, and America’s Agricultural Conservation Failure*, 16 Drake J. Agric. L. 487, 491 (2011). Farmers enrolled in the Conservation Reserve program agree to leave fallow highly erodible land in exchange for government payments. *Id.*
113. 16 U.S.C. §§ 3831-3835a. The Wetland Reserve Program offers cost-share or easement payments to farmers that restore wetlands. See Erin Morrow, *Agri-Environmentalism: A Farm Bill for 2007*, 38 Tex. Tech L. Rev. 345, 355 (2006).
114. 16 U.S.C. §§ 3839aa-3839aa-9; see also 7 C.F.R. § 1466.1 (“The purposes of the Environmental Quality Incentives Program (EQIP) are to promote agricultural production, forest management, and environmental quality as compatible goals, and to optimize environmental benefits.”).
115. 16 U.S.C. §§ 3837-3837f (providing technical and cost-share assistance for protecting wildlife habitat).
116. See generally Brian J. Oakey, *The Wetlands Reserve Program: Charting A Course Through the WRP*, 8 Drake J. Agric. L. 631, 632 (2003) (calling the Wetlands Reserve Program the “self proclaimed premier wetlands restoration program in the United States”); see also Press Release, Exec. Office of the President, Council on Env’tl. Quality, Administration Releases Report on Progress and Next Steps in Restoring the Everglades, Announces Additional \$80 Million in Project Funding (Jul. 13, 2012), available at [http://www.whitehouse.gov/administration/eop/ceq/Press\\_Releases/July\\_13\\_2012](http://www.whitehouse.gov/administration/eop/ceq/Press_Releases/July_13_2012) (announcing 80 million dollars in funding to establish easements on tracts of land north of lake Okeechobee pursuant to the Wetland Reserve Program).
117. See Mary Beth Blauser, *The 2008 Farm Bill: Friend or Foe to Conservationists and What Improvements Are Needed?*, 12 Vt. J. Env’t. L. 547, 561 (2011) (describing how direct payments and non-recourse loans reward farmers for growing specified crops).
118. See generally Jeff LeBlanc, *supra* note 46, at 69. Sugar producers enjoy subsidies in the form of tariffs on imported sugar and non-recourse loans. When the loan becomes due, farmers can chose to repay the loan or simply forfeit the crops without penalty. If the market value of sugar is less than the loan rate, farmers simply default on the loans and surrender the crops. If the market value is higher than the loan rate, sugar companies harvest the crops and sell it at a profit. Additionally, the Tariff Rate Quota restricts the importation of foreign sugar, which artificially inflates the price of domestic sugar. *Id.*
119. See *id.*; see also UNITED STATES GENERAL ACCOUNTING OFFICE, SUGAR PROGRAM: SUPPORTING SUGAR PRICES HAS INCREASED USER’S COSTS WHILE BENEFITING PRODUCERS 20 (2000), available at <http://www.gao.gov/archive/2000/rc00126.pdf>.
120. See Melanie J. Wender, *Goodbye Family Farms and Hello Agribusiness: The Story of How Agricultural Policy Is Destroying the Family Farm and the Environment*, 22 Vill. Env’tl. L.J. 141, 162 (2011).
121. See Samira H. Daroub et al., *supra*, note 101, at 609 (noting that sugar farming in the EAA contributes \$2 billion a year to Florida’s economy).
122. See, e.g., *Citizens United v. Fed. Election Comm’n*, 558 U.S. 310, 310 (2010) (finding that campaign financing undertaken by corporations is free speech that is protected by the First Amendment); cf. Rachel E. Barkow, *Insulating Agencies: Avoiding Capture Through Institutional Design*, 89 Tex. L. Rev. 15 (2010) (discussing the seemingly ubiquitous problem of industry capture).
123. Planting native vegetation in the Everglades would provide an opportunity for scientists to experiment with planting different species in various densities to measure the impact on the Ecosystem. E.g., Susana L. Stoffella et al., *Survival and Growth Responses of Eight Everglades Tree Species Along an Experimental Hydrological Gradient on Two Tree Island Types*, Applied Vegetation Sci., 2010, at 1, 2; Pamela L. Sullivan et al., *Hydrologic Processes on Tree Islands in the Everglades (Florida, USA): Tracking the Effect of Tree Establishment and Growth*, 19 Hydrogeology J. 367 (2011).
124. Everglades researchers have developed a myriad of computer models that could be employed to model the impact of the experimental planting on the Everglades ecosystem. See, e.g., Robert J. Fennema et al., *A Computer Model To Simulate Natural Everglades Hydrology*, in EVERGLADES: THE ECOSYSTEM AND ITS RESTORATION 249-252 (Steven M. Davis & John C. Ogden eds., 1994); see also Monica Palaseanu & Leonard Pearlstine, *Estimation of Water Surface Elevations for the Everglades, Florida*, 34 Computer and Geosciences 815, 815 (2008); Fred H. Sklar et al., *South Florida: The Reality of Change and the Prospects for Sustainability: The Design of Ecological Landscape Models for Everglades Restoration*, 37 Ecological Econ. 379, 379 (2001); Steven R. Beissinger, *Modeling Extinction in Periodic Environments: Everglades Water Levels and Snail Kite Population Viability*, 5 Ecological Applications 618 (1995).
125. See Carl J. Walters & C.S. Holling, *Large-Scale Management Experiments and Learning by Doing*, 71 Ecology 2060, 2061 (1990).
126. See Caroline E. Farrior et al., *Competition for Water and Light in Closed-Canopy Forests: A Tractable Model of Carbon Allocation with Implications for Carbon Sinks*, 181 The American Naturalist, 314, 314 (2013) (modeling the influence of water and light on above- and below-ground tree biomass); see also Loretta L. Battaglia & Rebecca R. Sharitz, *Responses of Floodplain Forest Species to Spatially Condensed Gradient: A Test of the Flood-Shade Tolerance Tradeoff Hypothesis*, 147 Oecologia 108, 108 (2006) (demonstrating that flooding, microtopography, and intra-specific competition interact to influence the spatial structure and function of forests); Rosine W. Hall & Paul A. Harcombe, *Flooding Alters Apparent Position of Floodplain Saplings on a Light Gradient*, 79 Ecology 847, 850-852 (1998) (using indirect and direct gradient analyses to quantify flood- and shade- tolerance gradients).
127. See Michael W. Palmer, *Putting Things in Even Better Order: The Advantages of Canonical Correspondence Analysis*, Ecology, 2215 (1993) (describing the usefulness of ordination in comparing species and environmental data); see also Frank Piccininni, *The Habitat Selection of the Marbled Salamander (Ambystoma opacum): A Site Specific Approach* (May 7, 2008) (unpublished M.S. thesis, Marshall University) (on file with author) (using a combination of multivariate and spatial analyses to compare plant and animal data).
128. See Shea B. Airey, *Conservation Easements in Private Practice*, 44 Real Prop. Tr. & Est. L.J. 745, 748 (2010). Some scholars feel that perpetual easements are not always appropriate because changed conditions reduce or eliminate the public value provided by such easements. Easements established for the purposes of restoring the Everglades, however, will increase in value by increasing the ecosystem’s resilience to climate change. See Nancy A. McLaughlin, *Rethinking the Perpetual Nature of Conservation Easements*, 29 Harv. Env’tl. L. Rev. 421 (2005); see also Nancy A. McLaughlin, *Conservation Easements: Perpetuity and Beyond*, 34 Ecology L.Q. 673, 708 (2007).
129. Before the ecosystem was modified by water management, farming and human settlement, the area south of Lake Okeechobee was characterized by dense stands of custard apple and mineral



rich soils known as “Torrey muck.” SNYDER AND DAVIDSON, *supra* note 32, at 89 (describing the historical vegetation and soils of the area directly south of Lake Okeechobee).

130. *Id.*
131. *Id.*
132. Marcelo S. Mielke et al., *Some Photosynthetic and Growth Responses of Annona glabra L. Seedlings to Soil Flooding*, 19 Acta Botanica Brasilica 905, 907 (2005).
133. Steven M. Davis et al., *Landscape Dimension, Composition, And Function In A Changing Everglades Ecosystem*, in EVERGLADES: THE ECOSYSTEM AND ITS RESTORATION 419-425 (Steven M. Davis & John C. Ogden eds., 1994).
134. Arnold G. van der Valk et al., *Restoring Tree Islands in the Everglades: Experimental Studies of Tree Seedling Survival and Growth*, 16 Restoration Ecology 281 (2008).
135. Susana L. Stoffella et al., *supra* note 123, at 440.
136. *Id.* at 446.
137. See van der Valk et al., *supra* note 134, at 281 (identifying custard apple (*Annona glabra* L.), Dahoon holly (*Ilex cassine* L.), and Carolina willow (*Salix caroliniana* Michx.) as the most suitable species for establishing tree islands in the Everglades).
138. Custard apple, for example, is tolerant to both flooding and drought, the frequencies of which are expected to increase with climate change. See Gerhard Zotz et al., *Hydraulic architecture and water relations of a flood-tolerant tropical tree, Annona glabra*, 17 Tree Physiology 359 (1997).
139. See *id.*
140. Everglades tree islands have been shown to be “nutrient hotspots.” Researchers believe that tree islands soil is nutrient rich partially because trees absorb phosphorus through subsurface water flows generated by evapotranspiration. Thus, tree islands can be effective phosphorus filters serving to remove phosphorus from the water column. See Paul R. Wetzel et al., *supra* note 98, at 370.
141. See Steven D. Faccio, *Postbreeding Emigration and Habitat Use by Jefferson and Spotted Salamanders in Vermont*, 37 J. of Herpetology 479 (2003) (finding that canopy cover helps to moderate local temperature and maintains moist refugia).
142. See Noel F.R. Snyder et al., *Reproduction and Demography of the Florida Everglades (Snail) Kite*, 91 The Condor 300, 305 (detailing high nesting success rates in custard apple and Carolina willow trees relative to cattail); see also Laura A. Brandt & Frank J. Mazzotti, *Nesting of Alligators at the Arthur R. Marshall Loxahatchee National Wildlife Refuge*, 28 Fla. Field Naturalist 122, 123 (2000) (describing alligator nesting locations on tree islands); Randy Kautz et al., *How Much is Enough? Landscape-Scale Conservation for the Florida Panther*, 130 Biological Conservation 118, 127 (using radio-telemetry to determine that forested habitat is a critical component of Florida Panther habitat).
143. See Barack Obama, *State of the Union Address*, <http://www.nytimes.com/2013/02/13/us/politics/obamas-2013-state-of-the-union-address.html?pagewanted=all&r=0> (last visited Apr. 14, 2013) (“But if Congress won’t act soon to protect future generations, I will. I will direct my Cabinet to come up with executive actions we can take, now and in the future, to reduce pollution, prepare our communities for the consequences of climate change, and speed the transition to more sustainable sources of energy.”).
144. See Kathryn R. Kirby & Catherine Potvin, *Variation in Carbon Storage Among Tree species: Implications for the Management of a Small-Scale Carbon Sink Project*, 246 Forest Ecology and Mgmt. 208, 214 (2007) (finding that above- and below-ground storage of carbon was significantly greater in forests than in agricultural fields).
145. Jianghus Wu et al., *Simulation of Six Years of Carbon Fluxes for a Sedge-Dominated Oligotrophic Minerogenic Peatland in Northern Sweden using the McGill Wetland Model (MWM)*, 118 J. of Geophysical Research Biogeosciences, 795 (2013); see also R. Lal, *Soil Carbon Sequestration to Mitigate Climate Change*, 123 Geoderma 1 (2004).
146. Cf. Peter H. Gleick et al., *Letters: Climate Change and the Integrity of Science*, 328 Sci. 489, 489-490 (2010) (“Society has two choices: We can ignore the science and hide our heads in the sand and hope we are lucky, or we can act in the public interest to reduce the threat of global climate change quickly and substantively. The good news is that smart and effective options are possible. But delay must not be an option.”).

**Frank Piccininni, M.S. recently graduated from Maurice A. Deane School of Law at Hofstra University. In his prior graduate studies, Frank conducted field biological research in numerous localities, including the Everglades ecosystem. Frank aspires to integrate his expertise of empirical research and data analysis with his passion for effective and informed statutory and regulatory regimes. The author would like to extend his gratitude to Professor Katrina F. Kuh whose comments and insights greatly improved the form and substance of this article. Additionally, thank you to Professor Courtney L. Selby for assistance in ferreting out historical legal citations. Finally, thank you to Kristin A. Perret for her support and for tirelessly reviewing numerous drafts of this article. Mr. Piccininni won second place in the NYSBA Environmental Law Section’s 2013 Prof. William R. Ginsberg Memorial Essay Contest for this article. Address correspondence to Frank Piccininni, 301-C Main St., Roslyn, NY 11576.**

# The New York Environmental Selfie: To Audit or Not to Audit?<sup>1</sup>

## *DEC Self Audit Policy*

### *Commissioner Policy 59 / Environmental Audit Incentive Policy*

By John Louis Parker

The Department of Environmental Conservation has amended and changed some policies and procedures over the past year.<sup>2</sup> Commissioner Policy 59—the Environmental Audit Incentive Policy—colloquially referred to as the *DEC Self Audit Policy*—came into effect on October 16, 2013.<sup>3</sup> The policy gives penalty reductions and other incentives for regulated entities to systematically identify violations at their facilities and to act promptly to address and correct the violations. The *DEC Self Audit Policy* has similarities to the federal Environmental Protection Agency *Self-Policing* policy that was originally introduced in the mid-1990s and updated in 2000.<sup>4</sup> The *DEC Self Audit Policy* incentives will no doubt impact its ultimate success. Now that the policy is in effect, it is expected to be encouraged by departmental regional staff with the help and assistance of other state agencies.<sup>5</sup>



#### **Introduction to the DEC Self Audit Policy**

The stated goal for Department staff under the *DEC Self Audit Policy* is “to recognize entities that are willing to take affirmative steps to maintain compliance, and engage in environmental management practices and/or pollution prevention.”<sup>6</sup> The policy “reduces or waives penalties for violations that are discovered and disclosed voluntarily,” and simultaneously requires and encourages compliance audits by facility owners. In specified scenarios, the policy identifies and can prioritize state-funded financial incentives for entities to come into the program. Environmental management practices are defined as those “management processes, procedures, and auditable performance objectives” for regulated facilities that allow it to “continuously analyze, control, and reduce the environmental impact of its activities, products, and services.”<sup>7</sup> The environmental management systems use “pollution prevention, performing beyond minimum compliance levels, or integrating sustainable business practices to achieve their stated goals.”<sup>8</sup> The Department has provided a model environmental audit agreement that clearly sets forth the expectations of the Department and of the entity seeking the audit. The model agreement requires violations to be

corrected and to provide a disclosure report to the Department “indicating completion of the corrective action” and clearly indicating that “no further action concerning that condition, or the status of the corrective action, is required.”<sup>9</sup>

The *DEC Self Audit Policy* is interconnected with and relies upon other Department Commissioner policies and practices to encourage adopting environmental audits. A notable incentive is the reduction of payable penalties for violations discovered at facilities that meet policy requirements.<sup>10</sup> In conjunction with the Department’s Civil Penalty Policy, for violations that are self-disclosed, are remedied, and for which reoccurrence is prevented, the penalty will be reduced.<sup>11</sup> Implementing the policy also relies upon bureaucratic coordination among Divisions of the Department and other New York state agencies. Specifically, this policy cross-references and relies upon at least four other Department policies, including:

- DEE-1: Civil Penalty Policy;<sup>12</sup>
- Commissioner Policy No. 29—Environmental Justice and Permitting;<sup>13</sup>
- Commissioner Policy No. 34—Using EMSs and Other Environmental Performance Improvement tools in Department Programs;<sup>14</sup> and
- Commissioner Policy No. 40—New York Environmental Leaders.<sup>15</sup>

Implementing the policy requires input and action by multiple components of the Department’s bureaucracy in both Central Office and in the Regional Offices, including:

- Office of General Counsel which will “oversee the implementation and interpretation of this Policy to ensure consistent implementation,” and periodically update it;<sup>16</sup>
- Office of Environmental Justice which will “review requests for penalty waivers in potential environmental justice areas,” and will make outreach recommendations;<sup>17</sup>
- Pollution Prevention Unit which will “serve as a resource and clearinghouse” for policy implementation and use of “environmental management systems and pollution prevention.”<sup>18</sup>

- Regional staff which “identify eligibility under this Policy, negotiate an environmental audit agreement, as necessary, and execute a return to compliance form.”<sup>19</sup>

The policy also encourages environmental audits for facilities that do not otherwise meet the qualification requirements—the goal is for these facilities to implement management systems through individually negotiated enforcement agreements with the Department.<sup>20</sup> The *DEC Self Audit Policy*’s financial incentives that go beyond penalty policy changes are to be provided by the Environmental Facilities Corporation, the New York State Research and Development Authority, and by Empire State Development.<sup>21</sup>

### The Policy: What Entities Are Eligible

The policy requires consideration of the regulatory compliance history of the entity seeking to benefit from the policy. Specifically, those entities that are excluded from the policy, whether public or private, are those who in the previous five years have not:

- received a Notice of Violation,
- received an Environmental Conservation Appearance Ticket,
- received a Notice of Hearing and Complaint,
- were subject to an administrative or judicial order or
- were subject to a penalty demand;<sup>22</sup> and
- those entities that were uncooperative in remedying past violations.<sup>23</sup>

The *DEC Self Audit Policy* excludes those entities that either ignored or were untimely in correcting violations brought to their attention by the Department. In these cases, Department staff can seek an environmental audit for such a facility through traditional enforcement.<sup>24</sup> Finally, entities that own or operate multiple facilities in New York can still be covered by the policy and its penalty mitigation if violations at one of the facilities for which the entity seeks coverage meet the requirements of the policy. This is true even if the entity’s other facilities do not meet the policy requirements.<sup>25</sup>

### The Policy: What Violations Are Eligible

The *DEC Self Audit Policy* focuses on the “discovery” of the violation as a key precursor for inclusion under the policy. Specifically those violations found through the environmental audit process, which is “intended to assess a regulated entity’s operations and processes to determine compliance with environmental regulations.”<sup>26</sup> The environmental audit activities include a “formal audit by a third party; an informal compliance review by a facility employee; and a compliance assessment conducted pur-

suant to a facility’s environmental management systems” and violations discovered during this process would be covered by the policy.<sup>27</sup> Violations are also covered by the policy if discovered by the “Department, its contractors, or other state, federal or local governmental agencies *during pollution prevention or compliance assistance*” activities which may be by telephone or through on-site assistance.<sup>28</sup> However, there are specified violations that are not eligible for the policy. Among others are those violations “discovered through *Department inspection activities, including information requests and review of records related to inspection activities.*”<sup>29</sup> The violations excluded from the policy are those:

- within the past 5 years—receiving a Notice of Violation, Environmental Conservation Appearance Ticket or Notice of Hearing and Complaint, administrative or judicial order or was subject to a penalty demand for the same requirement;<sup>30</sup>
- within the past 5 years and received a penalty waiver under the *DEC Self Audit Policy* for violating the same requirement;<sup>31</sup>
- violations of an administrative or judicial order;<sup>32</sup>
- violations of the terms of any response, removal or remedial action covered by a written agreement;<sup>33</sup>
- violations that involves alleged criminal conduct;<sup>34</sup>
- violations discovered through Department inspection activities;<sup>35</sup>
- violations reported to a Federal, State or local agency by a member of the public or a “whistleblower” employee;<sup>36</sup>
- violations required to be self-reported pursuant to Federal or State statute, regulation, permit or order, except for violations disclosed by new owners pursuant to Section V.J. and state agencies pursuant to ECL § 3-0311;<sup>37</sup> and
- violations resulting in a natural resources damage claim, serious actual harm, or one that may have presented an imminent and substantial endangerment to human health or the environment.<sup>38</sup>

The policy excludes violations identified by New York state, local government agencies, and federal agencies such as the Environmental Protection Agency.<sup>39</sup> The *DEC Self Audit Policy* also specifically addresses violations that *may be excluded* even if they are deemed priorities under a number of federal environmental laws. These include the Clean Water Act and the Resource Conservation and Recovery Act—if they are characterized as Significant Non-Compliance.<sup>40</sup> This is also true for the Clean Air Act—if the violations are characterized as High Priority Violations.<sup>41</sup> In either of these situations, the Department will make an eligibility determination based upon the *Eligible Criteria* set forth in the policy, but these exclusions



would not apply to new owners under the terms of the policy.<sup>42</sup>

### **The Policy: When to Disclose and When to Correct**

The policy explicitly requires an entity to audit its operations, identify any problems that exist, and expeditiously address those problems. An entity must disclose a “violation or suspected violation” to the Department in writing “consistent with any applicable time frame prescribed by law or regulation,” and if there is no such time frame, within 30 days of discovery.<sup>43</sup> The written disclosure must be made to the Regional Office where the violation occurred and regional staff will make a determination of eligibility under the policy within 30 days.<sup>44</sup> An environmental audit agreement can extend these timeframes “at the discretion of the Department.”<sup>45</sup> Discovery in this provision is “deemed” to have happened “when any officer, director, employee, or agent of the facility knows or has reason to believe that a violation has, or may have, occurred.”<sup>46</sup> The *DEC Self Audit Policy* places significance on the timeliness of the entity’s actions, specifically requiring that violations be disclosed prior to announcement or commencement of an inspection or investigation (including an information request) by a Federal, State, or local agency and the “reporting of such a violation or filing of a complaint with a Federal, State or local agency by a member of the public or a “whistle-blower” employee.”<sup>47</sup>

### **The Policy: New Owners**

There are also disclosure time frames for new owners of regulated entities that meet the eligibility criteria. A new owner must disclose violations “within 60 calendar days after acquisition or within 30 calendar days after the entity discovered the violation, whichever is later.”<sup>48</sup> A new owner must verify to the Department that before the acquisition the new owner “was not responsible for environmental compliance at the facility, being disclosed and could not have prevented their occurrence,” and the new owner “had no connection to the facility or significant relationship to the prior owner.”<sup>49</sup> A new owner’s prior “history of non-compliance” does not disqualify its participation under the Policy.

### **Incentives Under the DEC Self Audit Policy**

The clear goal of the policy is for the Department to work with regulated entities to enter into environmental audit agreements and for use of environmental management systems and pollution prevention practices to reduce environmental impacts of facility operations. The policy sets forth incentives that go beyond penalty reduction under terms of the Civil Penalty Policy; these include, among others:

- receive recognition on the Department’s public website for implementing measures that go beyond environmental compliance, where recognition is requested.<sup>50</sup>
- be eligible to apply for a cost share of up to fifty percent of audit activities related to energy reduction through New York State Energy Research and Development Authority’s Flexible Technical Assistance (Flextech) program.<sup>51</sup>
- be given priority for assistance from the Small Business Environmental Assistance Program implemented by Environmental Facilities Corporation and the Small Business Ombudsman Program implemented by Empire State Development (ESD).<sup>52</sup>
- meet the compliance requirements for ESD’s Environmental Investment Program, provided that any environmental compliance issues are fully resolved prior to the date on which final application decisions are made.<sup>53</sup>
- meet the record of compliance standard required for entrance into the Entry Tier of the Department’s New York Environmental Leaders (NYEL) program;<sup>54</sup> and
- although eligible for inspection at any time, not be prioritized for inspection during the limited audit period, unless Department staff receive a complaint concerning the regulated entity; is required to inspect under federal or state requirements; have reason to believe that a violation has occurred resulting in serious actual harm, or which may have presented an imminent and substantial endangerment to human health or the environment; or suspect criminal activity.<sup>55</sup>

The policy provides an addendum that fully details these and other incentives that the Pollution Prevention Unit of the Department will keep updated.<sup>56</sup>

### **An Example: Environmental Management Practices Asset Management at Wastewater Facilities**

There are a number of both large and small wastewater facilities around New York state. These facilities provide a good example of what could be accomplished under the “environmental management” programs that are contemplated under the *DEC Self Audit Policy*. Estimates put the number of public wastewater systems in the United States at 16,000 with more than 70 percent of those serving 10,000 or less.<sup>57</sup> Further complicating matters, many of these systems are either older or have many key components reaching the end of their service life. Full implementation of policy can keep the operation of these facilities both economically sustainably and in regulatory

compliance, which are additional incentives to use the policy.

In the small village of Weedsport in Cayuga County, population 2,000, an asset management program was undertaken to assess and to determine steps necessary to keep the facility operating properly.<sup>58</sup> Although not the subject of the *DEC Self Audit Policy*, the audit specifically sought to review the system, which went online in the 1960s, and its assets, including the “equipment, pipes, machinery and supplies” for the purpose of operating the facility in a cost effective way with a plan to repair and replace assets over time.<sup>59</sup> The undertaking by the Village met the stated purposes and goals regarding environmental management practices at its facility, carefully looking at the management processes, procedures, and approach needed to keep the equipment performing optimally. The audit sought to determine the answers to 5 specific questions:

- What is the current state of the utility’s assets?
- What is the required level of service (LOS)?
- Which assets are critical to sustained performance?
- What are the best operation and maintenance (O&M) and capital investment plan (CIP) investment strategy?
- What is the best long-term funding strategy?<sup>60</sup>

In this case, without financial assistance, the audit paid for itself in one year— principally because items were replaced under warranty.<sup>61</sup> The effort produced an accurate picture of the condition and replacement needs of the entire wastewater facility and all its systems and that data is updated and used regularly.<sup>62</sup> The success of the audit encouraged local officials to seek State funding from EFC to take the additional step of mapping the water distribution system.<sup>63</sup> Thus, the goal of keeping the facility operating in compliance, due to the asset management program, has produced a plan to keep an aging facility in compliance with law and regulation.

Despite the fact that the village example did not fully take advantage of the *DEC Self Audit Policy*, and its bevy of incentives, it demonstrates what is possible in one regulated sector. The policy could positively address the significant challenges ahead for the aging water infrastructure systems—necessary for our modern lifestyle and for protecting the environmental quality gains made over the past forty years. New York estimates that over \$36 billion is necessary to maintain operation of water treatment systems in New York by 2030.<sup>64</sup> Significant storm damage caused by Superstorm Sandy has, among other things, rendered some large existing wastewater systems inoperable and in need of significant repair—

which climate change will further complicate.<sup>65</sup> The “beyond compliance performance” concept of the policy can be an important Department tool for keeping these facilities operating efficiently and effectively. The scope and scale of a large facility operating in New York City or a significantly smaller facility in upstate New York could each benefit from the terms and conditions of the *DEC Self Audit Policy*.

## Conclusion

There is no way to predict the efficaciousness of a potentially complicated policy initiative. In this case, a comparison to the Environmental Protection Agency’s *Self-Policing* policy may prove beneficial. The stated goal of reducing pollution and deterring future problems by having entities commit, in legally binding ways, to achieve results over and above current compliance requirements is a noteworthy state undertaking. The requirements for timely disclosure and correction of underlying violations is significant at a time when the Department has lost considerable budgetary and staffing resources.<sup>66</sup>

In the context of achieving “beyond compliance,” it remains unclear what the Department will negotiate into environmental management and pollution prevention regimens under the *DEC Self Audit Policy* with the myriad of regulatory scenarios and diversity of facilities and entities located in the State. This is particularly true at a time when extreme weather events and sea level rise threaten the everyday operation of a number of environmental facilities, small and large, located in vulnerable areas. Such facilities are located throughout the State, and the vulnerability of Long Island, New York City and upstate through the Hudson Valley was made plainly apparent during Hurricane Irene, Tropical Storm Lee, and Superstorm Sandy in the past couple of years. It is unclear if the beyond-compliance goals of the policy will address these challenges.

There will always be those who benefit from new policies. Entities in New York that acquire new properties, if they move to identify problems quickly and to address them in a timely fashion, will clearly benefit from the *DEC Self Audit Policy*. Addressing violation issues at smaller facilities, particularly those where petroleum and other chemicals can pollute groundwater and adjacent property, would produce long-term benefits; the source of the pollution and its impacts can be timely addressed without fear of significant environmental penalties. However, the incentives intended for entities under the *DEC Self Audit Policy* must come from limited state funding. If the policy is widely implemented, it is unclear the extent to which the incentives under the policy will compete with or impact state funding for other environmental priorities.

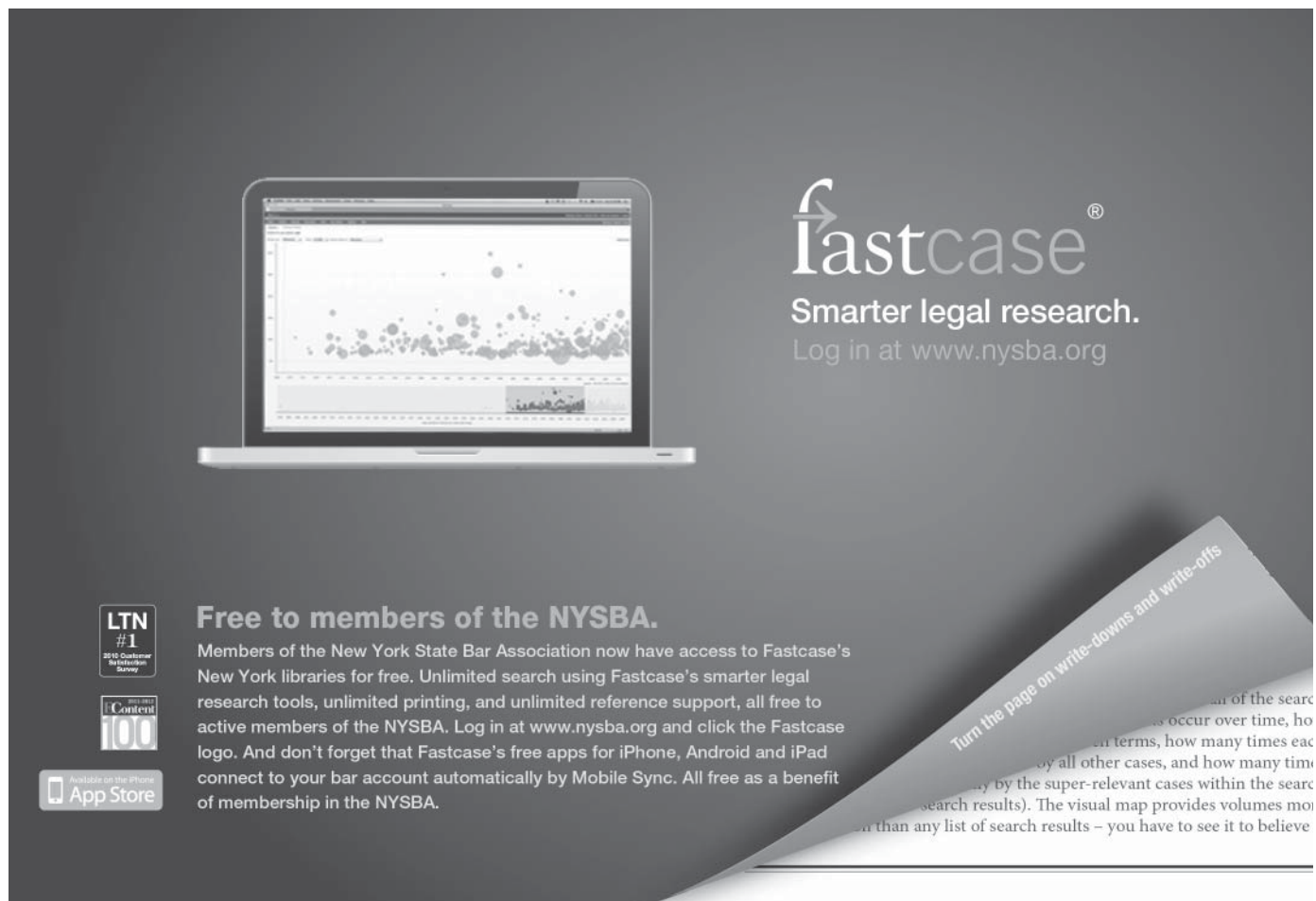
## Endnotes

1. A selfie is a type of self-portrait photograph, a snapshot in time, tracing its origins to the first self-photograph taken in 1839. Today, in the digital age, selfies are photos usually taken with a cell-phone and posted on-line. See *Selfie*, available at [en.wikipedia.org](http://en.wikipedia.org).
2. Recent procedural changes include the Environmental Easement checklist commonly required to finalize remedial projects. See *Environmental Easement Checklist*, available at <http://www.dec.ny.gov/chemical/65118.html>. Another proposed change is to the Department's Environmental Monitor program which is currently subject to a 60 day public comment period that ended on April 14, 2014. See *DEC Proposes Updated Policy Governing Use of Environmental Monitors Update Will Provide Clarity, Establish Uniformity and Limit Need for Monitors*, available at <http://www.dec.ny.gov/press/95619.html>.
3. *Commissioner Policy 59 / Environmental Audit Incentive Policy*, available at <http://www.dec.ny.gov/regulations/93791.html> ("DEC Self Audit Policy"); see also [http://www.dec.ny.gov/docs/legal\\_protection\\_pdf/cp59.pdf](http://www.dec.ny.gov/docs/legal_protection_pdf/cp59.pdf).
4. *Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations*, 65 FR 19,618 (04/11/00), available at <http://www.epa.gov/compliance/resources/policies/incentives/auditing/auditpolicy51100.pdf>. See also <http://www.epa.gov/compliance/incentives/auditing/auditpolicy.html>. A direct comparison between the EPA Self-Policing Policy and the DEC Self-Audit Policy is beyond the scope of this article.
5. The *DEC Self Audit Policy* provides a list of contacts for questions in Central office and for each of the nine Departmental Regional Offices.
6. The policy supersedes *Commissioner Policy 19, Small Business Self-Disclosure Policy* which has been repealed. *Id.*
7. The facility is regulated by "environmental requirements," as defined in the policy by "federal, regional, state and local environmental statutory and regulatory requirements and the requirements of any permits, licenses, or administrative orders that were issued pursuant to those laws and regulations to which the facility is subject." See *CP34 / Using EMSs and Other Environmental Performance Improvement Tools in Department Programs* (2004), *Section C(1)*. Pollution prevention includes "practices that reduce or eliminate the creation of pollutants. This includes source reduction practices which reduce the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and reduce the hazards to public health and the environment." *Id.* at *Section III(C)(5)*.
8. *CP34, Section II(C)(2)*. "Beyond Compliance Performance" is defined as "performance that either exceeds regulatory minimums or is focused on improvement in areas that have environment impact that are not currently regulated." *Id.* at *II(C)(6)*.
9. *Environmental Audit Agreement* (Sample updated September 13, 2013), available at [http://www.dec.ny.gov/docs/legal\\_protection\\_pdf/auditagreetemplate.pdf](http://www.dec.ny.gov/docs/legal_protection_pdf/auditagreetemplate.pdf).
10. *DEC Self Audit Policy, Section V(F)*.
11. Under the Civil Penalty Policy, for these violations, the gravity component of the policy will be waived. *DEE-1 Civil Penalty Policy, Section IV*. (June 20, 1990), available at <http://www.dec.ny.gov/regulations/25227.html>. Further, the regulated entity engaged in environmental audits and environmental management systems can have the economic benefit component of the penalty waived if it is de minimis (equal to or less than \$5,000) or in an amount not to exceed the cost of pollution prevention efforts that would not otherwise be required by law and that are in excess of \$5,000. *DEC Audit Policy, Section V(F)*.
12. *DEE-1 Civil Penalty Policy*, available at <http://www.dec.ny.gov/regulations/25227.html>.
13. *CP-29—Environmental Justice and Permitting* (March 19, 2003), available at <http://www.dec.ny.gov/regulations/36951.html>.
14. *CP-34—Using EMSs and Other Environmental Performance Improvement Tools in Department Programs* (April 5, 2004), available at [http://www.dec.ny.gov/docs/administration\\_pdf/cp34.pdf](http://www.dec.ny.gov/docs/administration_pdf/cp34.pdf).
15. *CP-40 Commissioner Policy on New York Environmental Leaders* (December 26, 2006), available at <http://www.dec.ny.gov/chemical/29981.html>.
16. *DEC Self Audit Policy, Section IV*.
17. *Id.*
18. *Id.*
19. *DEC Self Audit Policy, Section V(G)*.
20. *DEC Self Audit Policy, Section V(A)(2)*.
21. See *Addendum A* for a list of the assistance programs offered by New York State, available at [http://www.dec.ny.gov/docs/legal\\_protection\\_pdf/cp59addenduma.pdf](http://www.dec.ny.gov/docs/legal_protection_pdf/cp59addenduma.pdf).
22. *DEC Self Audit Policy, Section V(A)(1)*.
23. *DEC Audit Policy, Section V(A)(2)*. Specifically, the "term "uncooperative" includes, but is not limited to, such conduct as failing to respond to Department correspondence (e.g., Environmental Conservation Appearance Ticket, Notice of Hearing and Complaint), or failing to take good faith steps to remedy violations within time frames prescribed by law and as may be directed by the Department in an administrative order."
24. *DEC Audit Policy, Section V(A)(2)*.
25. *DEC Audit Policy, Section V(B)(3)*.
26. *DEC Audit Policy, Section V(B)*.
27. *Id.*
28. *Id. Emphasis added.*
29. *DEC Audit Policy, Section V(B)(1)(f). Emphasis added.*
30. *DEC Audit Policy, Section V(B)(1)(a)*.
31. *DEC Audit Policy, Section V(B)(1)(b)*.
32. *DEC Audit Policy, Section V(B)(1)(c)*.
33. *DEC Audit Policy, Section V(B)(1)(d)*.
34. *DEC Audit Policy, Section V(B)(1)(e)*. Note that under this subdivision "Referral for criminal prosecution is not necessary for culpability to disqualify an entity."
35. *DEC Audit Policy, Section V(B)(1)(f)*. Note that such Department activities include "information requests and review of records related to inspection activities."
36. *DEC Audit Policy, Section V(B)(1)(g)*.
37. *DEC Audit Policy, Section V(B)(1)(h)*.
38. *DEC Audit Policy, Section V(B)(1)(i)*.
39. *DEC Audit Policy, Section V(B)*.
40. *DEC Audit Policy, Section V(B)(3)*.
41. *Id.*
42. *DEC Audit Policy, Section V(B)*.
43. *DEC Audit Policy, Section V(C)*.
44. *DEC Audit Policy, Section V(G)*.
45. *DEC Audit Policy, Section V(C)*.
46. *Id.*
47. *DEC Audit Policy, Section V(C)(1), (2), respectively.*



48. DEC Audit Policy, Section V(j). Of note are violations that are required to be "self-reported" by a "federal or state statute, regulation, permit or order; or categorized as an SNC or HPV," and if such violations are disclosed within the 60-day disclosure period, the new owner is eligible for penalty waiver. *Id.*
49. DEC Audit Policy, Section V(j).
50. DEC Audit Policy, Section V(l)(1)(a).
51. DEC Audit Policy, Section V(l)(1)(b).
52. DEC Audit Policy, Section V(l)(1)(c).
53. DEC Audit Policy, Section V(l)(1)(d).
54. DEC Audit Policy, Section V(l)(1)(e).
55. DEC Audit Policy, Section V(l)(1)(f).
56. Addendum A Assistance with Compliance & Pollution Prevention, available at [http://www.dec.ny.gov/docs/legal\\_protection\\_pdf/cp59addendum.pdf](http://www.dec.ny.gov/docs/legal_protection_pdf/cp59addendum.pdf).
57. Asset Management for Small Communities—The Village of Weedsport Story, Timothy Taber and James Saroodis, Clean Waters, Winter 2013 at 8, available at <http://nywea.org/clearwaters/13-4-Winter/>.
58. *Id.*
59. Asset Management for Small Communities - The Village of Weedsport Story, Timothy Taber and James Saroodis, Clean Waters, Winter 2013 at 8.
60. *Id.* at 9.
61. *Id.* at 13.
62. *Id.*
63. *Id.*
64. The report notes that this sum for repairing, replacing, and updating wastewater infrastructure is a conservative estimate. Wastewater Infrastructure Needs of New York State (March 2008), New York State Department of Environmental Conservation, available at [http://www.dec.ny.gov/docs/water\\_pdf/infrastructure rpt.pdf](http://www.dec.ny.gov/docs/water_pdf/infrastructure rpt.pdf).
65. Extreme Weather and Its Consequences: Adaptation and Resilience Are Needed to Address a Changing World, John Louis Parker, 24 Env'tl. Law in N.Y. Vol. 24, No. 8, August 2013 (Part 1 of 2); see also Extreme Weather and Its Consequences: Adaptation and Resilience Are Needed to Address a Changing World, John Louis Parker, 24 Env'tl. Law in N.Y. Vol. 24, No. 9, September 2013 (Part 2 of 2).
66. The challenges, implications, and realities of budget constraints upon Department capability have been a regularly occurring theme in the Section's DEC Update column dating to 2008.

**John Louis Parker is an environmental attorney, advisor, and consultant. Currently in private practice, he was formerly the Regional Attorney for DEC Region 3, the Lower Hudson Valley-Catskill Region. Mr. Parker was the author of the quarterly DEC Update column in The New York Environmental Lawyer between 2008 and 2012.**



**fastcase®**  
Smarter legal research.  
Log in at [www.nysba.org](http://www.nysba.org)

**Free to members of the NYSBA.**

Members of the New York State Bar Association now have access to Fastcase's New York libraries for free. Unlimited search using Fastcase's smarter legal research tools, unlimited printing, and unlimited reference support, all free to active members of the NYSBA. Log in at [www.nysba.org](http://www.nysba.org) and click the Fastcase logo. And don't forget that Fastcase's free apps for iPhone, Android and iPad connect to your bar account automatically by Mobile Sync. All free as a benefit of membership in the NYSBA.

LTN #1  
2012 Customer Satisfaction Survey

Content  
100

Available on the iPhone  
App Store

Turn the page on write-downs and write-offs

of the search  
occur over time, ho  
terms, how many times eac  
by all other cases, and how many tim  
by the super-relevant cases within the searc  
search results). The visual map provides volumes mo  
than any list of search results – you have to see it to believe

# Shining Cities

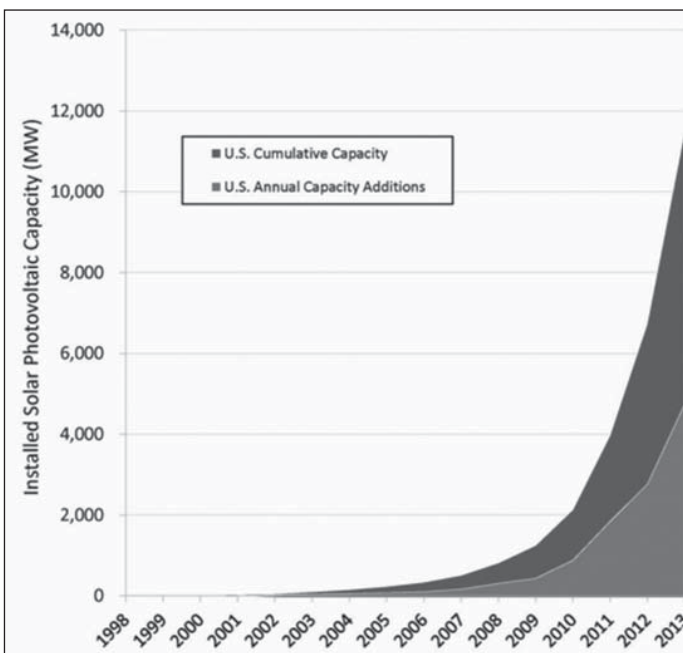
## At the Forefront of America's Solar Energy Revolution

By Judee Burr, Tony Dutzik and Jordan Schneider of Frontier Group; Rob Sargent of Environment America Research & Policy Center

### Executive Summary

Solar power is on the rise across the country. The United States has more than 200 times as much solar photovoltaic (PV) capacity installed today as it did in 2002. With solar module prices coming down, increasing national awareness of solar energy, and a growing legion of solar businesses large and small, solar power is emerging as a mainstream energy solution with widespread benefits for our health, our economy and the environment.

**Figure ES-1. Annual and Cumulative Installed Photovoltaic (PV) Capacity through 2013, United States**



America's major cities are helping to lead this clean energy revolution. Forward-thinking local governments and large cities in leading states are benefiting from smart policies that encourage investment in solar PV installations and the growth of local jobs.

This report provides a first-of-its-kind comparative look at the growth of solar power in major American cities. **Just 20 cities, representing just 0.1 percent of the land area of the United States, account for 7 percent of solar PV capacity in the United States.** These top 20 cities contain more solar power today than was installed in the entire U.S. just six years ago.

#### **Solar energy brings important benefits to cities.**

- **Solar energy avoids pollution**—Pollution-free energy from the sun displaces fossil fuel-powered en-

ergy sources, reducing a major source of pollution that contributes to urban smog and global warming. Outdoor air pollutants endanger the health of city residents, and many urban centers are vulnerable to the global warming-induced threats of sea-level rise, increasingly frequent and severe extreme weather events, and the public health impacts of heat waves. Rooftop solar energy also increases city resilience to extreme weather events, which are only due to get worse with increased global warming. For example, solar energy can power cities when drought strikes without diverting precious water resources and help prevent blackouts by reducing strain on the grid. As the electric system evolves, solar panels will be able to provide backup power during power outages caused by storms or other disasters.

---

*"With solar module prices coming down, increasing national awareness of solar energy, and a growing legion of solar businesses large and small, solar power is emerging as a mainstream energy solution with widespread benefits for our health, our economy and the environment."*

---

- **Solar energy protects consumers**—Cities often depend on electricity transmitted from power plants hundreds of miles away to meet local demand. Using local solar energy reduces the need for electricity transmission and the need for costly and inefficient "peaking" power plants. Solar energy also typically supplies electricity on hot, sunny days when grids are under the most strain and electricity is most expensive. In addition, since there are no fuel costs associated with solar energy, it can reduce the vulnerability of city economies to price increases for fossil fuels.
- **Solar energy helps the economy**—Solar power creates local jobs in solar installations and manufacturing. Solar industry employment grew 10 times faster than the national average growth in employment in 2013 and employed 142,000 Americans as of November 2013.

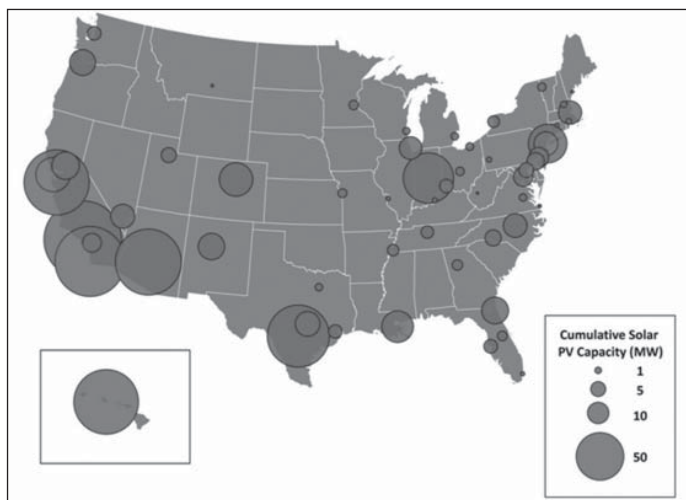
The top 20 cities have a total installed solar PV capacity of over 890 MW and are located in almost every region of the U.S.

**Table ES-1. Top 20 Solar Cities by Total Installed Solar PV Capacity, End of 2013\***

Principal City	State	Cumulative Solar PV Capacity (MW)	Cumulative Solar PV Capacity Rank
Los Angeles	CA	132	1
San Diego	CA	107	2
Phoenix	AZ	96	3
San Jose	CA	94	4
Honolulu	HI	91	5
San Antonio	TX	84	6
Indianapolis	IN	56	7
New York	NY	33	8
San Francisco	CA	26	9
Denver	CO	25	10
New Orleans	LA	22	11
Sacramento	CA	16	12
Jacksonville	FL	16	13
Albuquerque	NM	16	14
Portland	OR	15	15
Austin	TX	13	16
Las Vegas	NV	13	17
Newark	NJ	13	18
Raleigh	NC	12	19
Boston	MA	12	20

\*This includes all solar PV capacity (rooftop and utility-scale solar installations) within the city limits of each city. See methodology for an explanation of how these rankings were calculated. See Appendix B for city-specific sources of data.

**Figure ES-2. Map of 57 Principal Cities Ranked by Cumulative Installed Solar PV Capacity, End of 2013**

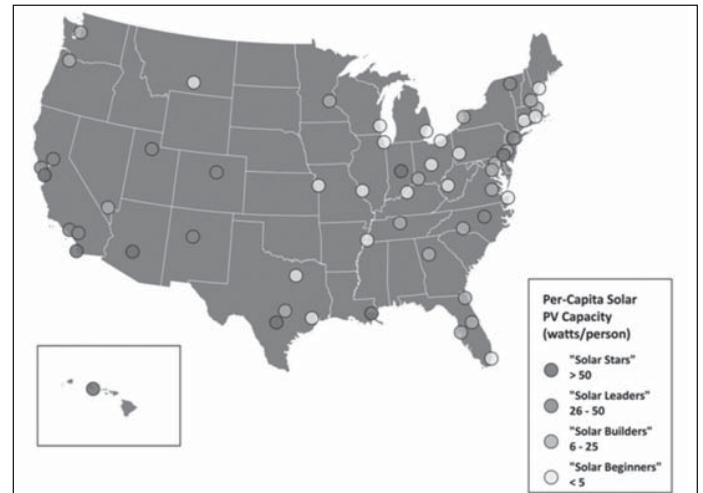


On a per-capita basis, Honolulu is the leading solar city, followed by San Jose, and Wilmington, Delaware.

**Table ES-2. The “Solar Stars” (Cities with More Than 50 Watts of Installed Solar PV Capacity per Person, End of 2013)**

Principal City	State	Cumulative Solar PV Capacity (MW)	Solar PV Capacity per Capita (watts/Person)	Solar PV Capacity per Capita Rank
Honolulu	HI	91	265	1
San Jose	CA	94	97	2
Wilmington	DE	7	96	3
San Diego	CA	107	81	4
Indianapolis	IN	56	68	5
Phoenix	AZ	96	65	6
San Antonio	TX	84	62	7
New Orleans	LA	22	60	8

**Figure ES-3. Map of 57 Principal Cities Ranked by Installed Solar PV Capacity per Person, End of 2013**



America’s leading solar cities are increasing their use of solar energy in a variety of ways. Some cities are focusing on distributed solar PV on homes and small businesses, others are building utility-scale solar power plants, while still others are developing solar energy at the neighborhood scale or through community projects. What makes these top cities solar leaders?

- **Commitment from local governments.** Cities can lead and catalyze local markets by installing solar power on city buildings and setting ambitious but achievable targets for solar energy. Leading solar cities, including Denver and Portland, are driving solar growth starting with their public buildings.
- **Support from city policies and programs.** Cities can create policies that promote solar power in their communities. Cities can encourage local lending for solar projects, provide predictable and accessible tax incentives that make solar energy more affordable and welcoming to businesses, and adopt solar-



friendly permitting policies and building codes. New York City, for example, has a property tax credit for residents who install solar panels. Cities can also run “Solarize” programs that use collective purchasing and educational campaigns to help neighbors “go solar” together, as Portland, Oregon did, or create programs to facilitate solar project financing like Property Assessed Clean Energy (PACE) financing.

- **Partnership with local utilities.** Municipal utilities in several cities have driven the growth of solar power by setting renewable energy goals and offering attractive financial incentives for solar projects. Austin Energy, the municipal utility serving Austin, has set a goal of installing 200 MW of solar power by 2020 and offers an array of solar financing options and monetary incentives to its customers. Seattle City Light allows its customers to invest in community solar projects that are not located on their properties but whose output is still credited on their utility bill. Other cities have effectively partnered with investor-owned utilities to incentivize solar power. New York City partnered with Con Edison, its local investor-owned utility, to connect solar power to the city grid for the first time and create designated “Solar Empowerment Zones” where solar power could deliver the most benefits.
- **Strong state-level policies.** New Jersey, Delaware and Massachusetts have among the strongest standards in the country, boosting the solar capacity of cities such as Newark, New Jersey, Wilmington, Delaware and Boston, Massachusetts. Hawaii, California, Arizona and New York also benefit from strong state policies that make them home to some of the most prominent solar cities. Net metering policies that allow solar producers to receive the full benefits of their solar power production are important for a robust solar market; states should also allow for virtual net metering that facilitates shared solar projects.
- **Support from federal programs.** Federal renewable energy tax credits and funding from federal programs like the Solar America Cities program, the Energy Efficiency and Conservation Block Grant program and the U.S. Department of Energy’s Sunshot Initiative provide support for local solar power growth and valuable technical assistance to local governments.

America’s leading cities have made significant progress but have just begun to tap solar energy’s immense potential. **Strong public policies at every level of government can help America continue to harness clean solar energy and overcome legislative and regulatory barriers to distributed generation.** To achieve America’s full solar potential:

- **Local governments** should follow the lead of America’s top solar cities by adopting programs that promote the rapid expansion of solar power and by demanding that state and federal officials and investor-owned utilities facilitate that expansion.
- **State governments** should set ambitious goals for solar energy and adopt policies to meet them. State governments should also use their role as the primary regulators of electric utilities to encourage utility investments in solar energy and implement rate structures that maximize the benefits of solar energy to consumers. States can streamline permitting, inspections and net metering rules to reduce the non-equipment costs of getting solar power on rooftops. States should require that upcoming investments in the electric grid are designed to ensure that clean, distributed energy such as solar power plays a larger role.
- **The federal government** should continue to provide long-term support for solar power through tax credits and other incentives. The federal government should continue to support research, development and deployment efforts designed to reduce the cost of solar energy and related storage and smart grid technologies; this will enable more solar energy to be reliably incorporated into the electric grid. The federal government should continue to offer programs like the Solar America Cities program, the Energy Efficiency Conservation Block Grant program and the U.S. Department of Energy’s Sunshot Initiative, which provide support and technical assistance while fostering innovations that drive solar development at the state and local levels.
- **All levels of government** should lead by example by installing solar energy technologies on government buildings.

## Introduction

Portland, Oregon is not known for its sunshine. Portland’s reputation for rainy weather is only partially deserved—summers are often sunny, compensating for the frequently cloudy winters. Nonetheless, the city with the reputation for gray skies has emerged as one of the nation’s bright spots for solar energy—largely due to the creative efforts of local residents and city officials.

Portland’s path to solar leadership began in 2007 when the city was selected for the federal government’s “Solar America Cities” program. This program provided the city with funding and support for its efforts to develop local solar power.<sup>1</sup> Two years later, when a neighborhood in Portland wanted to install solar panels, it partnered with the non-profit Energy Trust of Oregon to hold workshops, select a contractor and purchase the panels collectively, cutting costs for residents and their solar installer.<sup>2</sup>

The successful collective purchasing model was quickly replicated citywide. Portland's Bureau of Planning and Sustainability worked with Portland's Neighborhood Coalition network, the Energy Trust of Oregon and Solar Oregon to establish the "Solarize Portland" program.<sup>3</sup> Between 2009 and 2011, six Solarize Portland campaigns empowered neighborhood associations to work with residents. These campaigns helped residents learn about solar incentives and provided them access to solar panels, supplied by contractors that obtained a large volume of business at low marketing costs.<sup>4</sup>

As a result of these campaigns, Portland added 1.7 megawatts (MW) of solar power on 560 homes in the city between 2009 and 2011.<sup>5</sup> The "solarize" model has since been adopted by other cities, such as Boston and Seattle.<sup>6</sup>

However, the city of Portland didn't stop with collective purchasing. City officials are working to streamline the solar permitting process by launching online permitting in 2016 and have launched "Solar Forward," a crowd-sourcing initiative that asks community members to donate money to fund solar projects on community facilities.<sup>7</sup> Portland's efforts have been supported by state-level policies, including a renewable energy standard with specific requirements for solar energy, tax credits for residential and some commercial solar energy installations, and a pilot feed-in tariff program.

Overall, city action strengthened by state policy has allowed Portland to jump from less than 1 MW of installed solar PV capacity in 2007 to more than 15 MW of solar PV capacity at the end of 2013.<sup>8</sup> This puts Portland in the top 15 of the 57 major cities we surveyed in this report.

Portland is not the only U.S. city to use creative and strong public policies to vault into solar leadership. Other cities in every region of the United States have experienced dramatic progress in recent years in expanding solar energy.

In July 2013, we released *Lighting the Way*, which identified the nation's top states for solar energy and linked their success to the adoption of smart public policies that have fueled the growth of solar energy. In this report, we provide the first national-scale comparison of solar photovoltaic (PV) installations in some of America's largest cities.

The lesson of cities like Portland is clear: cities that take effective action to lower the barriers to solar energy development for their residents and businesses can make a dramatic leap toward a cleaner energy economy.

That pathway is open to any city that wishes to pursue it. For the sake of the environment, public health and the health of local economies, the time has come for all states and local governments to follow the example of the nation's leading "solar cities" by finding new and creative

ways to encourage their residents, businesses and local utilities to "go solar."

## Solar Energy Is Good for the Environment, Consumers and the Economy in America's Cities

Solar energy makes sense for America—especially American cities. Each new solar panel helps to clean our air, fight global warming, boost the economy, and create jobs. American cities have vast potential for solar power, with millions of empty rooftops, parking lots and brown-fields ideal for solar energy development.

## Solar Power Prevents Smog and Global Warming Pollution

America's cities bear the brunt of much of the environmental damage caused by our reliance on fossil fuels. According to the American Lung Association, more than 131 million people live in counties with dangerous levels of ozone. In these areas, many of them urban, simply breathing the air puts residents at increased risk for asthma and cardiovascular issues.<sup>9</sup> The Institute of Physics estimates that human-caused outdoor air pollution causes more than 2 million deaths worldwide each year.<sup>10</sup>

Similarly, many American cities face significant threats from global warming:

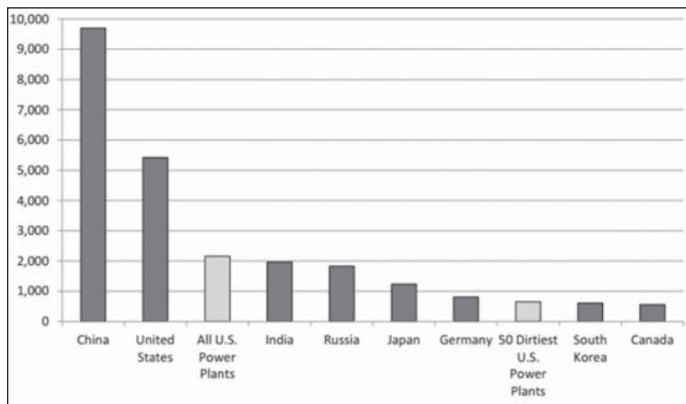
- Coastal cities will experience the impacts of **rising sea levels**. Five feet of sea level rise, which could happen in the next century if global warming pollution continues unabated, could flood almost 90 percent of New Orleans, 95 percent of Miami Beach, Florida, and 11 percent of Wilmington, Delaware.<sup>11</sup>
- Global warming is expected to increase the severity of **extreme weather events** that threaten cities. More than 76 million Americans live in counties affected by weather-related disasters in 2012. There were at least 11 disasters in 2012 that each inflicted more than \$1 billion in damage, including Hurricane Sandy, which caused estimated damages of at least \$50 billion.<sup>12</sup>
- More **severe heat waves and fire seasons** will affect America's cities. More than 1.2 million homes in the western United States, representing \$189 billion in property value, are at risk for wildfire damage, with Los Angeles containing the most properties at risk.<sup>13</sup>

Fossil fuel power plants are significant contributors to both of these threats. Power plants emit dangerous air pollutants including nitrogen oxides, which contribute to the formation of ozone "smog"; sulfur dioxide, which contributes to the formation of small particles in the air that can trigger respiratory diseases such as bronchitis and emphysema; and mercury, a potent neurotoxicant.<sup>14</sup> Producing more electricity with clean solar power instead

of fossil-fueled power plants is an important step toward reducing emissions of these air pollutants.

Power plants are also America's largest source of carbon dioxide, the leading global warming pollutant. If the 50 dirtiest U.S. power plants were an independent nation, they would be the seventh-largest emitter of carbon dioxide pollution in the world.<sup>15</sup> (See Figure 1.) In 2011, U.S. power plants were responsible for one-third of the nation's greenhouse gas emissions, which include carbon dioxide emissions.<sup>16</sup>

**Figure 1. Carbon Dioxide Pollution Emitted by the 50 Dirtiest Power Plants Compared to Other Countries, 2011 (MMT CO<sub>2</sub>)<sup>17</sup>**



Solar power generation produces no global warming pollution. Even when emissions from manufacturing, transportation and installation of solar panels are included, solar power produces 96 percent less global warming pollution than coal-fired power plants over their entire life-cycle, and 91 percent less global warming pollution than natural gas-fired power plants.<sup>18</sup>

By reducing the need for electricity from fossil fuel-fired power plants, solar power reduces the threat posed by global warming and helps to clean the nation's air.

### **Solar Energy Increases City Resiliency**

Rooftop solar energy also increases city resiliency to severe storms and heat waves, which global warming will worsen. If transmission lines are disrupted from a severe storm or heat wave, solar energy attached to batteries or generators can help avoid blackouts.<sup>19</sup> During Hurricane Sandy, solar power systems with attached batteries or generators continued to produce energy while the electric grid was offline, providing hard-hit communities with heat and light during the storm.<sup>20</sup> Solar power also helps prevent blackouts by reducing strain on the grid, and as the electric system evolves, solar panels will be able to provide backup power during power outages caused by storms or other disasters.

Drought also creates difficult conditions for cities dependent on fossil fuels or nuclear power. During the

Midwest drought of 2012, many fossil-fuel power plants that require cooling water to operate were forced to limit or suspend electricity production.<sup>21</sup> Texas had to divert water away from farmers and ranchers in order to keep lights on at the height of the drought of 2011.<sup>22</sup> Unlike fossil fuel and nuclear power plants that consume vast amounts of water for cooling, solar PV installations consume virtually no water in everyday operation, reducing the strain on water supplies in arid regions of the country and those experiencing drought.<sup>23</sup> This can be a significant benefit in times of drought. The California drought caused a drop in hydroelectricity generation at the beginning of 2014, but the state's solar energy helped to compensate and guard against electricity outages across the state.<sup>24</sup> Climate change will only exacerbate these types of issues and fossil fuel plants could face real limitations as a result.

### **Solar Energy Is Good for City Residents and the Local Economy**

Cities that encourage investments in solar energy offer their residents many important economic and other benefits.

Homeowners and businesses who install solar panels can offset major portions—in some cases all—of their electric bills and see double-digit returns on their investment. Because energy from the sun is free (after the initial investment is made), consumers who invest in solar panels are insulated from the volatile prices of fossil fuel markets. Solar energy can also be a near-term economic winner for consumers and businesses—especially in states where electricity prices are high, owners of solar panels are allowed to recoup the full benefits of the electricity they produce, and there are other strong, pro-solar policies in place.

The benefits of solar energy extend far beyond the home or commercial building where solar panels are installed—solar energy benefits all consumers by reducing many of the costs of operating the electricity system. Among the benefits of distributed solar electricity to the grid are:

- **Reduced need for expensive “peaking” power**—Solar panels usually produce the most electricity on sunny days when demand for power is at its highest. These are the times when utilities must generate or purchase power from expensive, often inefficient “peaking” power plants that may operate only a few hours each year. Expanding solar power can reduce the cost of providing power during these peak periods.<sup>25</sup>
- **Reduced need for investment in transmission capacity**—Similarly, generating more electricity closer to the locations where it is used reduces the need to construct or upgrade expensive transmission capacity.



- **Reduced energy losses**—Many cities depend on electricity transmitted from hundreds of miles away to meet local needs. Roughly 5 to 7 percent of the electricity transmitted over long distance transmission lines is lost.<sup>26</sup> Distributed solar energy avoids these losses by generating electricity at or near the location where it is used.

### Solar Energy Creates Jobs

Solar energy also helps the economy by boosting employment. More than 142,000 Americans worked in the solar energy industry as of November 2013, a 20 percent increase from the previous year, and these numbers are expected to grow.<sup>27</sup> In 2013, the number of solar jobs grew 10 times faster than the national average growth in employment.<sup>28</sup> Most of these jobs are in the installation and maintenance of solar panels, while about 20 percent of all solar workers are in manufacturing.<sup>29</sup> Because most solar energy is located onsite, jobs installing and maintaining solar projects are created in the communities where solar panels are sited and cannot be outsourced.

### Solar Power Is on the Rise

The amount of solar power in the United States is rising rapidly—reducing America’s dependence on dirty sources of energy. America’s solar revolution is occurring most dramatically in cities where strong clean energy policies are leading to the rapid adoption of solar energy by homeowners, businesses and electric utilities.

### The Promise of Solar Energy Is Increasingly Within Reach

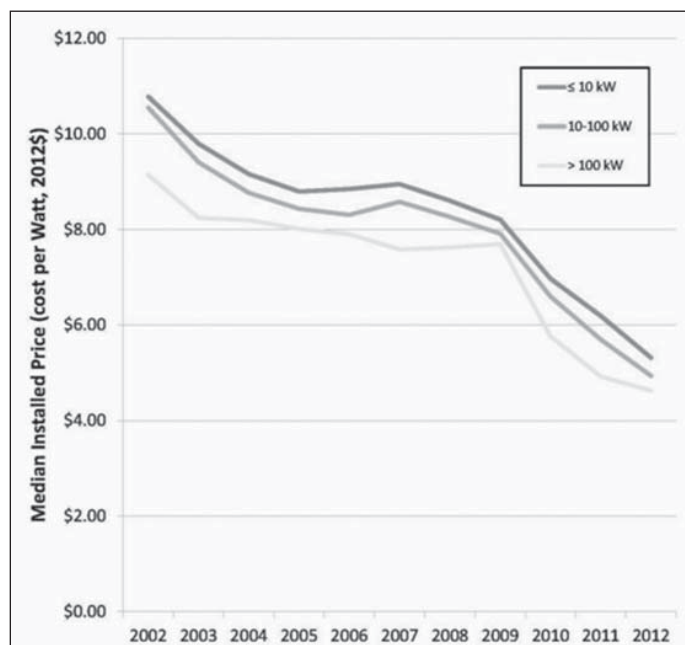
Solar energy is evolving quickly into a mainstream energy source. That evolution has been made possible by a series of innovations that have taken place throughout the solar energy industry and economies of scale that have driven down the cost of solar equipment.

Decades of research have resulted in solar cells that are more efficient than ever at converting sunlight into energy—enabling today’s solar energy systems to generate more electricity using the same amount of surface area as those of a decade ago.<sup>30</sup> Researchers continue to discover new ways to make solar panels more efficient at converting sunlight to electricity, which will make solar panels even more powerful tools for electricity generation.<sup>31</sup>

Innovations in manufacturing, the creation of new financing and business models, and improvements in other areas have also helped solar energy become more accessible and less costly over time. An analysis by the National Renewable Energy Laboratory (NREL) shows that large-scale solar manufacturing operations can produce solar equipment at a lower cost, creating opportunities to develop further economies of scale and achieve greater cost reductions.<sup>32</sup>

As a result of these innovations and growing economies of scale, the cost of solar energy has plummeted in recent years and continues to fall. The average cost of solar PV panels less than 10 kilowatts (kW) in size fell by 14 percent between 2011 and 2012, and the cost of solar panels of all sizes continues to drop.<sup>33</sup> (See Figure 2.) In Hawaii, solar energy has already achieved “grid parity”—that is, solar electricity is cheaper than electricity from the grid, even without government incentives.<sup>34</sup>

**Figure 2. The Median Installed Price of Residential and Commercial Solar Photovoltaic Systems Continues to Fall<sup>35</sup>**



Evidence from elsewhere in the world suggests that solar energy prices still have room to fall further. The cost per watt of an installed solar energy system in Germany is roughly half that of the United States due to a variety of factors, including larger average system size, but primarily due to lower “soft costs”—costs such as those associated with attracting customers, installing the systems, completing paperwork, and paying taxes and permitting fees. Installations in Germany had quicker project development timelines and lower overhead.<sup>36</sup> Another recent analysis found that the same set of non-panel related solar project installation costs were nearly four times higher in the U.S. than in Germany, adding an additional 90 cents/watt to the cost of solar installations.<sup>37</sup>

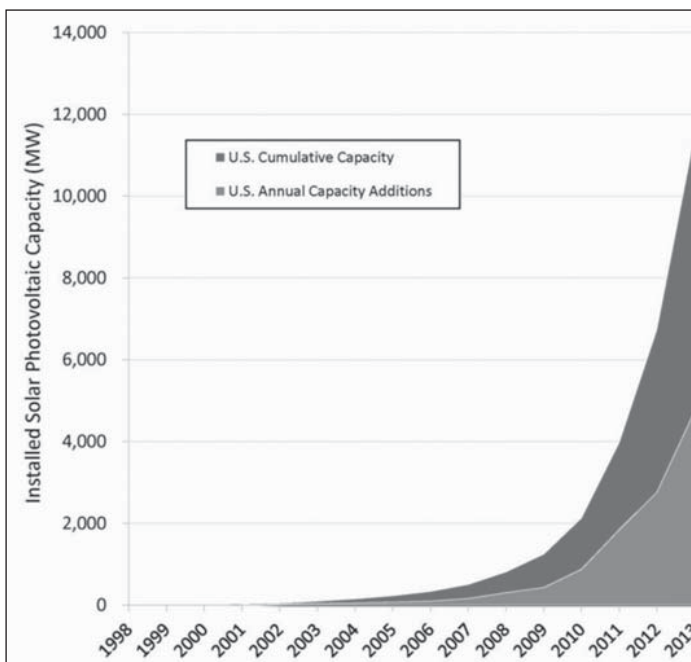
While there are still opportunities to reduce the cost of solar panels, the greatest immediate savings can be achieved by reducing these soft costs.<sup>38</sup> Soft costs in the U.S. have remained relatively consistent—even while panel prices have dropped 60 percent between 2011 and 2013—and can make up to 64 percent of the total cost of an installed solar energy system as of 2013.<sup>39</sup> The U.S.

Department of Energy's (DOE) SunShot Initiative, which seeks to lower the cost of installing a solar project to \$1 a watt by 2020, is working with the solar industry and other stakeholders in a comprehensive effort to reduce soft costs. If successful, and the DOE recently announced it is 60 percent of the way toward its goal for cost-competitiveness of utility-scale solar projects, solar energy will be even more cost competitive in the years to come.<sup>40</sup>

### America's Solar Energy Capacity Tripled in Two Years

The year 2013 was a historic year for solar power. The United States passed the 10 gigawatt (GW) mark for solar electric capacity mid-year and installed 4.75 GW of solar PV in 2013 alone, which is the most solar power the United States has ever installed in a single year.<sup>41</sup> (See Figure 3.) The solar power installed in the U.S. in 2013 was worth \$13.7 billion and was the second-largest source of new generating capacity in the U.S. that year.<sup>42</sup> The amount of solar PV capacity in the United States tripled between 2011 and 2013 and increased over 200-fold from 12 years ago to the more than 12,000 MW installed by the end of 2013.<sup>43</sup>

**Figure 3. Annual and Cumulative Installed Photovoltaic (PV) Capacity through 2013, United States<sup>44</sup>**



A notable portion of America's solar growth is happening in America's cities. Leadership from municipal utilities, solar-friendly city policies and statewide renewable electricity standards are allowing residents, businesses and solar developers to shift urban electricity sources to clean solar power. While still accounting for a relatively small percentage of America's energy needs, the recent phenomenal growth rate of solar power indicates that,

with smart public policies, solar energy can continue to emerge as an important source of electricity in America's cities.

### America's Top Solar Cities Are Leading the Way

America's cities have made a major contribution to the solar boom. With hundreds of thousands of rooftops that can host solar energy systems, cities have a unique opportunity to be leaders in America's clean energy revolution.

In this report, we review solar photovoltaic (PV) installations in 57 American cities. Each of these cities is within a state that had a substantial amount of installed solar energy capacity (more than 1.5 MW) at the end of 2012.<sup>45</sup> Cities in those states were selected for inclusion in this report if they were:

- The principal city of one of the 50 largest metropolitan areas in the United States, or
- For states with a significant amount of solar capacity but without a city in the 50 largest metropolitan areas nationwide, the state's largest city.<sup>46</sup>

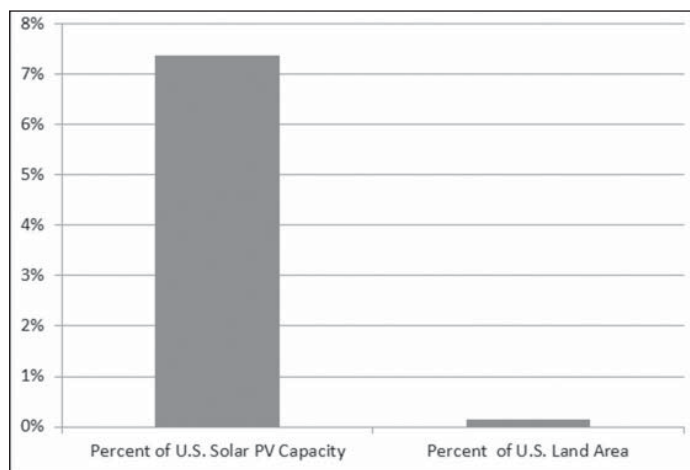
This report represents, to the authors' knowledge, the first national-scale comparison of its kind of solar PV installations in major American cities. There is no uniform national data source that tracks solar energy by municipality, so the data for this report come from a wide variety of sources—municipal and investor-owned utilities, city and state government agencies, operators of regional electric grids, non-profit organizations, and the National Renewable Energy Laboratory's "Open PV" database. (See Methodology.) The use of multiple data sources leads to the possibility of variation among cities in how solar capacity is quantified and in the comprehensiveness of the data. While we endeavored to correct for many of these inconsistencies, readers should be aware that some discrepancies may remain and should interpret the data accordingly.

### America's Leading Solar Cities Span the Country

As of the end of 2013, the 57 cities considered in this report had installed 1 gigawatt (GW) of solar PV capacity—more solar PV capacity than existed in the entire United States at the end of 2008.<sup>47</sup> The solar PV capacity installed within these 57 major cities generates more electricity than is consumed in more than 100,000 average U.S. homes in a year.<sup>48</sup>

America's top 20 solar cities—led by Los Angeles, San Diego, Phoenix, San Jose and Honolulu—take up 0.1 percent of the land area of the United States, but account for 7 percent of solar power capacity in the United States.<sup>49</sup> (See Figure 4.)

**Figure 4. America's Top 20 Solar Cities as a Percent of U.S. Land Area and U.S. Solar PV Capacity**

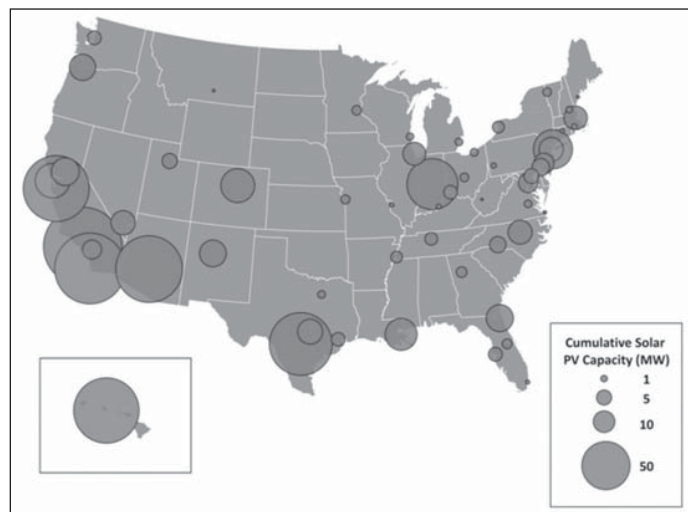


These top 20 cities have a total installed PV capacity of over 890 MW, containing more solar power today than was installed in the entire U.S. just six years ago.<sup>50</sup> These leading cities are located in almost every region of the U.S. (See Table 1 and Figure 5.)

**Table 1. Top 20 Solar Cities by Cumulative Installed Solar PV Capacity, End of 2013**

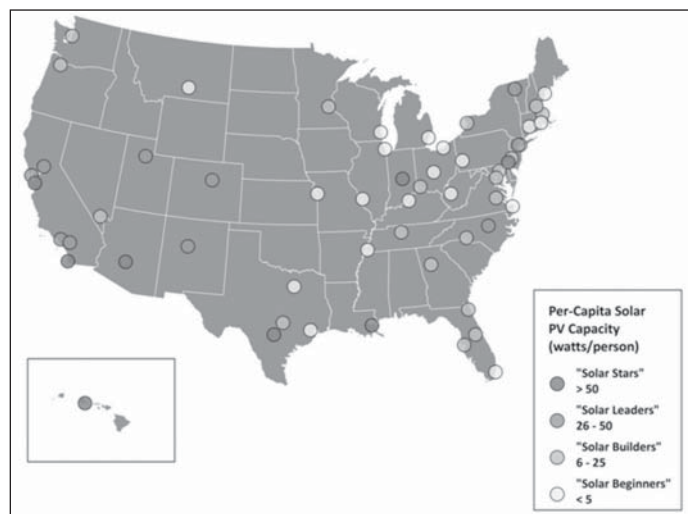
Principal City	State	Cumulative Solar PV Capacity (MW)	Cumulative Solar PV Capacity Rank
Los Angeles	CA	132	1
San Diego	CA	107	2
Phoenix	AZ	96	3
San Jose	CA	94	4
Honolulu <sup>51</sup>	HI	91	5
San Antonio	TX	84	6
Indianapolis	IN	56	7
New York	NY	33	8
San Francisco	CA	26	9
Denver	CO	25	10
New Orleans	LA	22	11
Sacramento	CA	16	12
Jacksonville	FL	16	13
Albuquerque	NM	16	14
Portland	OR	15	15
Austin <sup>52</sup>	TX	13	16
Las Vegas	NV	13	17
Newark	NJ	13	18
Raleigh	NC	12	19
Boston	MA	12	20

**Figure 5. Map of 57 Principal Cities Ranked by Cumulative Installed Solar PV Capacity, End of 2013**



On a per-capita basis, Honolulu is the leading solar city, followed by San Jose and Wilmington, Delaware. (See Figure 6 and Table 2.)

**Figure 6. Map of 57 Principal Cities Ranked by Installed**



### Solar PV Capacity per Person, End of 2013

By comparing solar capacity per-capita, one can group the cities into several categories.

#### Stars

Solar Stars are cities with more than 50 watts of installed solar PV capacity per person. They are cities that have experienced dramatic growth in solar energy in recent years and are setting the pace nationally for solar energy development.



**Table 2. The “Solar Stars” (Cities with More Than 50 Watts of Installed Solar PV Capacity per Person, End of 2013)**

Principal City	State	Cumulative Solar PV Capacity (MW)	Solar PV Capacity per Capita (watts/Person)	Solar PV Capacity per Capita Rank
Honolulu	HI	91	265	1
San Jose	CA	94	97	2
Wilmington	DE	7	96	3
San Diego	CA	107	81	4
Indianapolis	IN	56	68	5
Phoenix	AZ	96	65	6
San Antonio	TX	84	62	7
New Orleans	LA	22	60	8

### Leaders

Solar Leaders are cities that have more than 25 and less than 50 watts per person. These cities include several of those (such as Los Angeles, San Francisco and Denver) that lead the nation for total solar capacity.

**Table 3. The “Solar Leaders” (Cities with Between 25 and 50 Watts of Installed Solar PV Capacity per Person, End of 2013)**

Principal City	State	Cumulative Solar PV Capacity (MW)	Solar PV Capacity per Capita (watts/Person)	Solar PV Capacity per Capita Rank
Newark	NJ	13	46	9
Denver	CO	25	40	10
Burlington	VT	2	37	11
Sacramento	CA	16	35	12
Los Angeles	CA	132	34	13
San Francisco	CA	26	31	14
Raleigh	NC	12	30	15
Albuquerque	NM	16	28	16
Salt Lake City	UT	5	27	17
Riverside	CA	8	26	18

### Builders

The Solar Builders are those with at least 5 and no more than 25 watts of solar PV capacity per person. This diverse group of cities includes cities that have a history of solar energy leadership as well as cities that have only recently experienced significant solar energy development.

**Table 4. The “Solar Builders” (Cities with Between 5 and 25 Watts of Installed Solar PV Capacity per Person, End of 2013)**

Principal City	State	Cumulative Solar PV Capacity (MW)	Solar PV Capacity per Capita (watts/Person)	Solar PV Capacity per Capita Rank
Portland	OR	15	24.8	19
Las Vegas	NV	13	22	20
Jacksonville	FL	16	19	21
Boston	MA	12	19	22
Austin	TX	13	16	23
Cincinnati	OH	4	14	24
Washington	DC	8	13	25
Tampa	FL	4	12	26
Buffalo	NY	3	12	27
Manchester	NH	1	9	28
Orlando	FL	2	9	29
Charlotte	NC	6	8	30
Baltimore	MD	5	8	31
Seattle	WA	4	7	32
Richmond	VA	1	6	33
Atlanta	GA	3	6	34
Philadelphia	PA	9	6	35
Nashville	TN	4	6	36
Minneapolis	MN	2	5	37

### Beginners

The Solar Beginners include cities with less than 5 watts of installed solar PV capacity per person. Many of these cities are just beginning to experience significant development of solar energy, while a few have experienced little solar energy development at all. New York, with its preponderance of high-rise buildings and more people than many states, has a lower per-capita ranking, but ranks seventh in the nation for total solar capacity and has experienced substantial growth in solar energy in recent years.

**Table 5. The “Solar Beginners” (Cities with Less Than 5 Watts of Installed Solar PV Capacity per Person, End of 2013)**

Principal City	State	Cumulative Solar PV Capacity (MW)	Solar PV Capacity per Capita (watts/Person)	Solar PV Capacity per Capita Rank
Memphis	TN	3	4.6	38
Providence	RI	1	4	39
Chicago	IL	11	4	40
New York	NY	33	4	41
Kansas City	MO	2	4	42
Cleveland	OH	1	4	43
Portland	ME	< 1	3	44
Hartford	CT	< 1	3	45
Charleston	WV	< 1	3	46
Pittsburgh	PA	1	2	47
Milwaukee	WI	1	2	48
Columbus	OH	2	2	49
Billings	MT	< 1	2	50
Detroit	MI	1	2	51
Houston	TX	4	2	52
St. Louis	MO	< 1	1	53
Dallas	TX	1	1	54
Miami	FL	< 1	1	55
Louisville	KY	1	1	56
Virginia Beach	VA	< 1	1	57

#### **Little Cities That Could: Lancaster, Sebastopol, Gainesville and New Bedford Drive Solar Power with Strong Policies**

We focus on 57 major cities in this report, but smaller cities have taken noteworthy steps to promote the growth of solar power.

##### **Lancaster and Sebastopol, California**

Two California cities—Lancaster and Sebastopol—have adopted requirements that all newly built and renovated homes and commercial buildings incorporate solar energy.<sup>53</sup> These cities were the first in the country to enact such a requirement, and these forward-looking policies were driven by determined local officials. The Sebastopol City Council unanimously voted to pass the policy, which requires 2 watts of solar power per square foot for new buildings, or enough solar power to offset 75 percent of the building’s annual electricity usage.<sup>54</sup>

Lancaster City Council passed a similar law requiring every new housing development to install an average of 1 kilowatt (kW) of solar power per home.<sup>55</sup> According to Lancaster Mayor Rex Parris, 26 percent of the city’s electrical needs were met with solar power as of January

2014.<sup>56</sup> This includes 7.5 MW of solar power installed on 25 schools and 8 MW of solar power installed at Lancaster High School and Antelope Valley College.<sup>57</sup> Lancaster’s program to buy solar power back from schools will save these schools \$43 million in energy bills over the next 25 years.<sup>58</sup> Lancaster is creating a model for other cities to follow, according to Mayor Parris, who said, as quoted by *The Planning Report*: “The goal is to create a template for other cities. Ultimately the world is going to wake up and realize that climate change threatens the very existence of the species. Once people wake up to that fact, they’ll want a template set—so this is what you do to do your part. Each city can do this to lower their carbon footprint.”<sup>59</sup>

##### **Gainesville, Florida**

Officials in Gainesville, Florida, have implemented several effective policies making solar energy more accessible to its citizens. The most prominent program contributing to Gainesville’s solar success was the city’s feed-in tariff (FiT) for solar photovoltaic systems, which was offered until the end of 2013.<sup>60</sup>

The city was first in the nation to introduce per-kilowatt hour incentive payments for solar power. The city’s municipal utility, Gainesville Regional Utilities (GRU), provided predetermined rate payments to owners of qualified residential and commercial photovoltaic (PV) systems based on the amount of electricity they generated. In March 2014, GRU’s total solar capacity reached 18 MW from its FiT program and 2 MW from net metering, for a total of 20 MW of installed solar capacity in GRU’s service area.<sup>61</sup> While Gainesville accounts for only 0.7 percent of Florida’s population, the service area of the Gainesville utility (which includes some outlying areas around Gainesville) accounted for 9 percent of the state’s total installed solar energy capacity at the end of 2013.<sup>62</sup> Gainesville is no longer offering the FiT in 2014 but will continue to offer net metering to its customers; this means Gainesville solar producers can no longer receive above-retail rate FiT payments for solar power production but will receive credit for the electricity they deliver to the electric grid through net metering.<sup>63</sup>

##### **New Bedford, Massachusetts**

New Bedford is a powerful example of smart solar policies at work. The city has faced high levels of poverty and low average incomes, but, despite these challenges, the city has adopted aggressive local policies to promote renewable energy and energy efficiency and reduce its electricity spending. Scott Durkee, director of the New Bedford Energy Office, said that the city’s ability to spur solar energy despite economic troubles shows that any city can “go solar.”<sup>64</sup>

New Bedford created its Energy Office in 2010 and set a goal of installing 10 MW of solar power in the city within five years. The city is currently on track to hit that goal more than a year early.<sup>65</sup> Currently, 5.2 MW of solar power are installed within the city, with 7 MW set to

come online in areas in and around the city by the summer of 2014.<sup>66</sup> New Bedford also offers a “Clean Energy Results” program to promote solar farms on unusable “brownfields,” or environmentally contaminated land, thereby creating a sustainable energy source from an otherwise unusable area.<sup>67</sup> New Bedford has contracted with Con Edison Solutions and Blue Wave Capital to construct a solar farm on a brownfield site adjacent to a middle school and high school, which is helping teachers at these schools develop clean energy curricula and connect students to jobs in the solar industry. New Bedford’s public buildings with solar installations include three schools, a public gym and their Department of Public Infrastructure Building.<sup>68</sup> The city of New Bedford signed a power purchase agreement with Con Edison Solutions, the firm that will own the solar projects, to purchase all the solar power generated by these installations.<sup>69</sup>

The Massachusetts State Energy Office recognized New Bedford with a “Leading by Example Award” in 2013, as a city that has “established and implemented policies and programs resulting in significant and demonstrable energy and environmental benefits.”<sup>70</sup>

### **Smart Policies Have Fueled Growth in America’s Top Solar Cities**

Those cities that have opened the door for solar energy with the adoption of strong, smart public policies are building the nation’s most successful solar markets, not necessarily the cities that receive the most sunlight. Cities where homeowners are paid a fair price for the energy they supply to the grid, where installing solar panels is easy and hassle-free, where there are attractive options for solar financing, and where there has been a strong commitment to support solar energy development, are seeing explosive growth in solar power.

Top solar cities have followed a variety of paths in developing solar energy. In some cases, city governments have played an important role in jump-starting local solar growth by setting goals for installed solar capacity, implementing solar-friendly laws, and welcoming solar businesses. Cities with municipal utilities have had an even more direct influence on solar power adoption by establishing ambitious requirements for solar energy and implementing effective financial incentives. Some cities have taken steps to increase the use of solar energy on public facilities, while, in other cities, strong state policies are driving local solar power growth.

Cities can most effectively promote solar power when city, state and utility policies work together. This section will describe policies and practices that have encouraged solar power growth in leading solar cities.

### **City Policies Set an Example and Encourage Solar Growth**

Local governments have a special role in fostering the growth of solar energy. City governments can promote

solar power by streamlining the permitting and installation process, offering financial management options, and installing solar power on city property. By establishing pro-solar policies, cities can create local installation and manufacturing economies of scale that drive solar development.

### ***City Governments Lead by Example***

Many government buildings—from schools to libraries to government offices—are excellent candidates for solar energy. Installing solar power on city buildings can model environmentally responsible behavior and demonstrate city leadership with the adoption of technologies that benefit residents.

Leading solar cities, including Denver and Portland, are driving solar power growth starting with their public buildings. Denver has installed 9.4 MW of solar power on city and county buildings, and the city has partnered with the Denver Public Schools to install solar power on 28 school buildings.<sup>71</sup> To encourage community participation and support for city solar power, Portland has also launched “Solar Forward,” an initiative that asks community members to chip in to fund city solar projects.<sup>72</sup>

### ***Cities Streamline Solar Permitting and Protect Residents’ “Solar Rights”***

Helping reduce the “soft costs” of installing solar PV is a crucial step in making a community hospitable to solar power. Some of the most significant expenses and hurdles faced by potential solar power installers are fees for permitting, inspection and interconnection.<sup>73</sup> Local governments can play an important role in preparing the way for solar energy through the adoption of smart permitting and zoning rules that eliminate unnecessary obstacles to solar development. Local building codes can also help spark the widespread adoption of solar energy, either by requiring new homes and businesses to be “solar-ready” or by requiring the use of small-scale renewable energy in new or renovated buildings.

Leading solar cities have taken significant steps to streamline the permitting and installation process for solar power.

- Chicago’s “Green Permit Program” allows solar PV projects to receive permits in less than 30 days.<sup>74</sup> The cities of Portland and San Francisco have also streamlined the permitting process by reducing wait times for solar PV applications and creating online permitting tools.<sup>75</sup>
- San Jose and Philadelphia have reduced permitting fees and streamlined the application process for solar PV installations. In San Jose, the solar permit application is only one page long, and, in Philadelphia, solar permitting fees are reduced to include only the cost of labor, not labor and equipment costs.<sup>76</sup>



In addition to adopting solar-friendly zoning ordinances and streamlining permitting requirements for solar PV systems, local governments can also adopt “solar rights policies,” which protect access to solar power by overriding local ordinances or homeowners’ association policies that bar residents from installing solar power equipment on their properties. Cities including Austin have passed laws to allow solar installations to exceed height restrictions stated in the city zoning code.<sup>77</sup> Solar rights policies have also been passed at the state level to stop homeowners’ associations from interfering with the installation of solar panels; states that have passed such policies include Hawaii, New Jersey, Virginia and Texas.<sup>78</sup>

As highlighted in the introduction, collective purchasing programs can also drive solar power in cities. “Solarize” programs streamline the process of purchasing solar power and can bring down the cost for solar installers and consumers installing solar panels. Portland, Oregon was the first to offer this program, and city and state programs—like Solarize Boston, Solarize Massachusetts and Solarize Connecticut—have followed suit.<sup>79</sup>

### **America’s Leading Solar Cities Are Bringing the Benefits of Solar Power to Residents**

Solar power offers an array of environmental, public health and economic benefits for cities—benefits that some of the nation’s leading solar cities are working to realize.

Since Hurricane Katrina, New Orleans has been a symbol of the disastrous impacts of extreme weather events. As a “Solar Star” city, New Orleans is doing its part to help mitigate the adverse impacts of global warming by generating more electricity with solar power and less with fossil-fueled energy sources. The solar PV capacity installed in New Orleans at the end of 2013 can produce more energy than 2,500 average homes consume in a year, and this is clearly just a start in a city of 370,000 people.<sup>80</sup>



*A rooftop solar installation generates clean energy in New Orleans. Credit: Gulf South Solar*

In cities vulnerable to drought or prone to water shortages, solar power is also a water-saver. In drought-stricken Texas, for example, San Antonio and Austin are avoiding millions of gallons of water waste by transitioning to solar power.<sup>81</sup> In California, where more than 90 percent of the state was experiencing severe to exceptional drought conditions as of February 2014, solar PV capacity in California cities will be an important energy solution in a state that cannot needlessly waste water on electricity generation.<sup>82</sup>

Solar power can also save city governments money. In Neptune Beach, Florida, right outside the city of Jacksonville, energy bills for city hall have been dropping rapidly thanks to the 140 solar panels that have been installed on top of the city building. Harnessing solar energy has reduced electricity costs for the Neptune Beach city hall by \$7,300 in 2013, as compared to 2012.<sup>83</sup> Like Neptune Beach, Jacksonville encourages sustainable city buildings; it established a “Sustainable Building Program” in 2009 that required all new city buildings to meet green building certification standards, which can include solar panel installations on buildings.<sup>84</sup>

Cities and states that install a significant amount of solar power are attracting solar jobs. Los Angeles’s “100 MW Feed-in Tariff” program is expected to create more than 2,000 local jobs within the city.<sup>85</sup> As California leads the country in solar capacity, it is also home to the largest number of solar jobs in the country, with more than 47,000 statewide jobs in solar installation and solar manufacturing.<sup>86</sup> A study of Colorado’s solar industry also revealed statewide economic benefits. Since 2007, the Colorado solar industry has created the equivalent of 10,790 full-time jobs, and solar employees have amassed over \$500 million in earnings.<sup>87</sup>

### **Financing Options Make Solar Power Viable**

Often, the biggest hurdle standing in the way of solar energy adoption is not the total cost, but rather the up-front cost of solar power, the amount due at the time of installation. For many homeowners and small businesses, the prospect of buying 20 years’ worth of electricity up-front is daunting—particularly if there is a chance that one might move during that time. Creative financing options at the local level can help home and business owners manage the expenses associated with installing solar power.<sup>88</sup>

Local governments can partner with local lending institutions to provide solar financing options that help community members manage the up-front cost of solar power. City governments can facilitate this process by educating the public on solar PV financing options and offering Solarize programs that connect community members directly with lending programs.<sup>89</sup> In Milwau-

kee, the city “Milwaukee Shines” program partnered with Summit Credit Union to offer low-interest loans of up to \$20,000 for eligible solar PV installations. Austin has partnered with Velocity Credit Union to provide a solar loan program that can lend customers up to \$20,000.<sup>90</sup>

Cities can also offer tax breaks for solar power. New York City offers a property tax credit for homeowners who install solar panels and exempts residential solar panels from sales tax.<sup>91</sup> Ohio cities Cleveland and Cincinnati offer property tax abatements for buildings that are certified as “green,” including many that incorporate solar energy.<sup>92</sup>

### **Commercial PACE Programs Help Communities Finance Solar Power**

Property Assessed Clean Energy (PACE) financing is a tool that cities can use to make solar power affordable. PACE programs can be established and run directly by a local government, or sponsored locally and administered by an outside third-party organization. PACE financing allows property owners to borrow money from a specially created fund for clean energy projects. The loan is paid off on property tax bills over a number of years; thus, future repayment of the loan is assured, even if the property changes hands.<sup>93</sup>

Communities are beginning to make commercial PACE programs a reality. Connecticut has launched a statewide commercial PACE program, managed by the Clean Energy Finance and Investment Authority and endorsed by the Connecticut Bankers Association.<sup>94</sup> This program has given commercial property owners loans to install onsite renewable energy or undergo energy efficiency upgrades, and enabled them to pay back these loans over a number of years on their property taxes.<sup>95</sup> South Florida communities have also taken steps to create a financing district for commercial PACE. Cities including Miami and Coral Gables have joined the “Green Corridor District,” where a PACE program backed by Lockheed Martin, Barclays Capital and Ygrene Energy Fund is slated to fund \$550 million in energy retrofits, which can include solar installations.<sup>96</sup>

Residential PACE programs have the same potential to unlock investments in solar energy and energy efficiency improvements. Unlike commercial PACE programs, however, residential PACE programs are largely on hold due to opposition from the Federal Housing Finance Agency and the mortgage lenders Fannie Mae and Freddie Mac.<sup>97</sup>

### **Cities Can Partner with Utilities to Drive Solar Development**

City governments with control over their electric utilities are able to implement policies that directly en-

courage solar power growth, and, with a large percentage of utility customers, cities can use their negotiating power to influence the investor-owned utilities that serve them. Cities with municipal utilities, including Los Angeles, Austin, San Antonio and Jacksonville (along with New Orleans, which has regulatory authority over its investor-owned utility) have taken strong action to promote local solar power. New York City has also effectively partnered with Con Edison, an investor-owned utility, to promote local solar power.

### **Los Angeles Establishes a Feed-In Tariff**

Municipal utilities may set up a feed-in tariff (FiT), which gives energy producers a fixed and long-term contract for the solar electricity produced. These are also known as CLEAN (Clean Local Energy Available Now) contracts, and their effectiveness depends on a number of factors including how quickly customers can get a return on their investment in solar power.

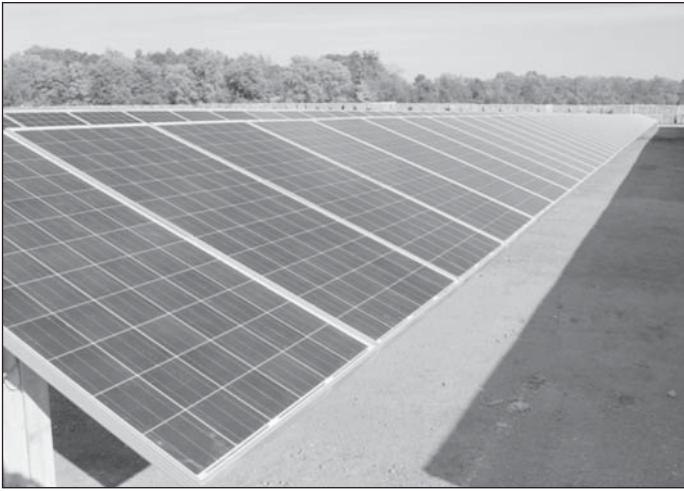
The Los Angeles Department of Water and Power launched the nation’s largest FiT program in July 2013, which will bring 100 MW of solar power online.<sup>98</sup> This program will help the Los Angeles Department of Water and Power meet its state-mandated requirement of generating 33 percent of its energy with renewable sources by 2020.<sup>99</sup> It is projected to create more than 2,000 jobs and generate \$300 million of investment in Los Angeles.<sup>100</sup> A University of California Los Angeles report from February 2014 shows that the first 100-MW component of the FiT is on target to meet its capacity and solar jobs goals.<sup>101</sup>

### **Indianapolis Goes Solar: Indianapolis Power & Light Creates a Feed-In Tariff Program**

In 2012, Indiana had only a little over 4 MW of solar capacity installed in the entire state—one 600th the amount installed in California and only about 2 percent as much as was installed in Massachusetts.<sup>102</sup> But Indianapolis Power & Light’s feed-in tariff program changed the picture for solar energy in Indianapolis.

In 2010, Indianapolis Power and Light (IP&L) took the first step toward diversifying its energy sources, which largely consisted of coal at the time, by instituting a voluntary feed-in tariff program.<sup>103</sup> This program pays solar power producers fixed, above-market rates for solar power generated. Once this program was running, Indianapolis became an attractive place for solar developers to generate power. In 2013, a 12 MW solar installation came online at the Indianapolis airport and three utility-scale installations—over 25 MW in capacity—came online, with the power sold to IP&L.<sup>104</sup> Over 59 MW of additional solar PV is in development in Indianapolis as of the beginning of 2014—which will bring the city’s solar PV capacity to 98 MW.<sup>105</sup>





*The “Indy I” Solar Array depicted is one of three utility-scale solar projects owned by Dominion Energy Resources—these projects represent a combined 28.6 MW of solar power in Indianapolis. Credit: Dominion*

IP&L’s FiT was discontinued in March 2013, which may mean slower solar power growth going forward.<sup>106</sup> IP&L continues to offer net metering and a small-scale solar PV incentive program that provides rebates for qualifying residential solar installations.<sup>107</sup> For Indianapolis, solar energy has meant reduced reliance on polluting coal-fired power plants, valuable new investments in the city, and jobs created through construction of these large-scale solar projects.<sup>108</sup>

#### ***San Antonio and Austin Set Solar Goals and Offer Incentive Programs***

In Texas, the cities of San Antonio and Austin have led solar development through their respective municipal utilities, Austin Energy and CPS Energy. Both utilities have set high goals for solar power adoption. CPS Energy has adopted a goal of using renewable energy to meet 20 percent of its electricity demand by 2020, with at least 100 MW of energy derived from non-wind renewable sources.<sup>109</sup> The city of Austin enacted a renewable electricity standard in 2011 that requires its municipal utility, Austin Energy, to get 35 percent of its energy from renewable sources by 2020, including 200 MW from solar power.<sup>110</sup>

With these goals to drive them, CPS Energy and Austin Energy have offered an array of solar financing options and incentives from which residents can choose. To help residential customers overcome the up-front costs of installing solar power, Austin Energy offers a solar rebate program that pays qualifying customers \$1,250 per kilowatt of solar PV capacity installed and has partnered with Velocity Credit Union to provide a solar loan program that can lend customers up to \$20,000.<sup>111</sup> CPS Energy also offers a solar PV rebate program, with tiered incentives for residential, school and commercial installations and extra funding for those customers that use local solar in-

stallers.<sup>112</sup> Austin Energy also offers a performance-based incentive for commercial and multi-family installations; this is a payment from the utility to the commercial or multi-family customer per kilowatt-hour of solar power produced for up to 10 years.<sup>113</sup>

Austin Energy is offering a “value-of-solar” tariff in place of net metering, and CPS Energy is considering the same transition. Austin Energy’s value of solar tariff sets a fixed rate each year at which the utility will credit customers for the solar power they generate—this rate is based on energy savings and environmental benefits that are meant to quantify the value of solar power to the electricity grid and compensate solar producers accordingly.<sup>114</sup> While the tariff does provide compensation to owners of solar energy systems, it lacks the long-term predictability of net metering and is unlikely to capture the environmental benefits of solar power.<sup>115</sup>



*A solar energy system installed on the roof of a house in San Antonio with the help of CPS Energy. Credit: Solar San Antonio*

At the end of 2012, solar power in the city limits of San Antonio and Austin accounted for over 44 percent of all utility-supported solar power in Texas.<sup>116</sup>

#### ***Seattle City Light Supports Community Solar Gardens***

Community solar programs make solar power a viable option for every resident in a utility’s service territory. These programs work when utilities allow their customers to fund ideally situated community solar projects that are not necessarily connected to every customer; customers funding the project then receive credit for the output of the solar project on their utility bills.<sup>117</sup> Community solar, which may offer ratepayers lower upfront costs, economies of scale and more optimally sited facilities, are an attractive alternative for homeowners or renters who cannot site solar on their residences.



Seattle City Light allows customers to invest in community solar projects that are not located on their properties but whose output is still credited on their utility bill. The utility's community solar program recently funded an installation on the Seattle Aquarium.<sup>118</sup>



*A community solar project atop the Seattle City Aquarium. Credit: NW Wind & Solar*

### **Jacksonville Electric Authority Supports a 15 MW Solar PV Facility**

Jacksonville Electric Authority (JEA), the municipal electric utility serving Jacksonville, Florida, has taken action to get more power from clean energy sources. JEA signed an agreement in 2010 to buy all solar power from a 15 MW solar power facility in Jacksonville for 30 years, thereby avoiding 22,430 tons of global warming pollution each year and bringing online enough energy to power 1,400 homes annually.<sup>119</sup> At the time, this was the largest solar PV facility in northern Florida, and it created 70-75 direct jobs for Floridians.<sup>120</sup> This large solar project is an important start toward cleaning up Jacksonville's energy sources; by encouraging more onsite solar on city buildings, JEA can bring more benefits to the city's citizens and businesses. JEA also offers net metering to its customers, which helps to incentivize rooftop solar power development in the city.<sup>121</sup>

### **New Orleans Goes Solar: State and Local Policies Work Together to Rebuild a Clean Energy Community**

New Orleans is a national leader in installed solar power thanks to strong city regulations.

New Orleans had no solar power capacity in 2007, and less than 1 MW was installed by the end of 2010.<sup>122</sup> Today, however, the city is ranked eleventh on our list of cities for total installed solar PV capacity and has the eighth most installed solar PV capacity per person of the 57 major cities we analyzed. New Orleans is emerging as one of the nation's leading solar cities thanks in large part to the actions of local officials in regulating the city's electric utility, Entergy New Orleans.

With the help of a Solar America Cities grant, city government action brought solar power to New Orleans. The utility serving New Orleans, Entergy New Orleans, is an investor-owned utility regulated by the city of New Orleans.<sup>123</sup> The city of New Orleans worked with Entergy to streamline the application process for solar panels, reducing the application length from 50 pages to two pages. In 2007, the city also required Entergy to offer net metering to its customers, standards that would ensure small renewable energy generators receive full, fair credit for the excess energy they deliver back to the utility grid.<sup>124</sup> After Hurricane Katrina devastated the city, government funds also helped rebuild some communities, like the St. Thomas Housing Project, in a sustainable manner; the solar arrays on the rooftops of this revitalized area save residents about \$50 per month on utility bills.<sup>125</sup>

State policies also combined with these city initiatives to help make New Orleans an attractive place for solar power. In 2007, Louisiana passed legislation creating statewide solar tax incentives. Two years later, legislation passed that allowed third parties to own residential renewable energy credits and allowed for the creation of renewable energy financing districts.<sup>126</sup> Louisiana has no renewable energy standard, however, making New Orleans' actions at the city level particularly important to drive local solar development.

The city of New Orleans now has almost three times as much solar power as was present in Mississippi, Alabama, South Carolina and Arkansas combined at the end of 2012.<sup>127</sup>

### **New York City and Con Edison Create Solar Power in the Big Apple**

In New York City, partnership with Con Edison, the investor-owned utility serving the city, was a key driver of the pro-solar policies that helped solar power take off in the city. In 2007, New York City was designated a "Solar America City" by the U.S. Department of Energy (DOE), helping to kick off a collaboration between the City University of New York, Con Edison, the New York City Department of Builders, the New York State Energy Research and Development Authority (NYSERDA) and the DOE's Solar America Cities program.<sup>128</sup> This collaboration proved fruitful—from 1 MW of installed solar PV capacity in 2007, New York City met its Solar America Cities goal of 8.1 MW in mid-2012, three years ahead of schedule.<sup>129</sup>

Effective partnership with Con Edison was a significant contributor to this success. Con Edison introduced a new net metering policy in 2009 that allowed more solar installations to connect to the grid and receive credit for the excess energy they fed back into it.<sup>130</sup> In 2010, Con Edison also worked with NYSERDA and city agencies to launch the "100 Days of Solar" initiative to streamline the process of issuing a solar permit, interconnecting custom-

ers to the grid, and issuing them a rebate.<sup>131</sup> That year, Con Edison also developed “solar empowerment zones” through its partnership with the city and other stakeholders; these are geographic regions in the city identified to be ideal for solar power production, in which solar projects are eligible for additional solar incentives.<sup>132</sup> The collaboration between Con Edison and NYC solar stakeholders has helped bring New York City into the top 10 cities for cumulative installed solar PV.

### **Strong State Policies Enable the Creation of Solar Cities**

State-level policies to promote solar energy have been critical to building successful solar energy markets in several of America’s cities. States can set statewide solar energy requirements and establish standardized incentive programs to help residents finance solar projects. As the nation’s primary regulators of electric utilities, state governments have a critical role to play in ensuring that interconnection rules and net metering policies are clear and fair and that utilities are considering renewable energy technologies such as solar power in their own resource investment decisions.

In addition, as solar power comes to supply an increasing share of the nation’s energy supply, state governments will need to be at the forefront of designing policies that transition the nation from a power grid reliant on large, centralized power plants to a “smart” grid where electricity is produced at thousands of locations and shared across an increasingly nimble and sophisticated infrastructure. The development of policies that allow for the integration of high percentages of solar energy in the electric grid will present the next challenge to the growth of solar energy.

### **Statewide Renewable Energy Standards with a Meaningful Solar Carve-Out**

Setting specific, statewide requirements for the adoption of solar power can create an attractive environment for solar investments in a given state, including in its major cities.

#### ***New Jersey and Delaware***

New Jersey and Delaware have among the strongest solar-specific renewable electricity standards (RES) in the country.<sup>133</sup> New Jersey’s standard aims to have solar energy provide 4.1 percent of the state’s electricity use by 2028, and Delaware’s standard is ramping up to get 3.5 percent of its utilities’ electricity supply from solar PV by 2026.<sup>134</sup> These strong policies have made these states—and the cities of Newark, New Jersey and Wilmington, Delaware—national solar leaders. Wilmington ranked third out of the 57 cities we surveyed for per-capita solar PV capacity with 96 watts installed per person, and Newark ranks among the “Solar Leaders.” Wilmington boasts more solar power capacity than Houston, Texas, which is 55 times its size.<sup>135</sup>

### **Massachusetts**

In Massachusetts, a strong renewable energy standard is paired with state government policies to make solar power an attractive investment. These policies have helped to bolster Boston’s city-level programs.

Massachusetts requires that investor-owned utilities and retail electric suppliers generate 21.1 percent of their power from renewable energy sources by 2020, including 1,600 MW of solar power.<sup>136</sup> Utilities demonstrate compliance with the solar power requirement by purchasing solar renewable energy credits (SRECs). These SRECs are accumulated by owners of solar panels for every megawatt-hour (MWh) of power those panels produce. To ensure that those investments retain their value, the state has established an auction mechanism with a floor price.<sup>137</sup>

Massachusetts also offers solar rebates to residents and businesses through its “Commonwealth Solar II” program. This is a rebate program that provides money back to approved residential, commercial and industrial solar projects.<sup>138</sup> In addition to these incentives, qualifying solar power installations can be exempt from sales and property taxes for 20 years in Massachusetts, and Massachusetts offers net metering and interconnection policies that make it easier for small generators to connect to the grid.<sup>139</sup>

These policies combine to support solar power development in Boston—putting it in the top 20 cities for total installed solar PV capacity and ranking it 22nd of the 57 cities reviewed in this report for per-capita solar PV capacity.

### **Net Metering and Interconnection Standards**

Most small solar generators do not use all of the electricity that their solar panels generate. In order to make solar power an affordable option, small clean energy producers must be able to get credit for the excess power that they return to the utility grid. Net metering allows utility customers who install solar panels to be treated fairly for the excess electricity they provide to the grid, only charging them for their net electricity usage. The best net metering policies allow customers to get credit for excess electricity they send back to the grid at the same retail rate at which they purchased electricity from their utility. The most solar-friendly states have established requirements for net metering that apply to all utilities; this ensures that solar power producers are not charged unfair fees when benefiting from the energy they produce.

### **Weakening Net Metering Regulations Could Jeopardize Solar Power Growth in Cities**

The growth of solar power is empowering residents and businesses to look beyond the dirty energy alternatives of the past. Yet some utilities, as more and more of their customers generate their own electricity, have begun to see solar energy as a threat to their business model. As

a result, some utilities have begun to attack net metering policies designed to help solar power generators recoup the cost of their solar installations.

Arizona, for example, was recently the site of such a battle between Arizona Public Service Company (APS) (one of the utilities that serve Phoenix) and Arizona solar power net metering customers. APS campaigned to charge solar power generators a large fee. Following an outpouring of opposition from the public to APS's proposal, the Arizona Corporation Commission approved a small fee, and otherwise net metering remained unchanged.<sup>140</sup> Net metering has helped Phoenix rank third on our list for cumulative solar PV capacity and sixth for watts of solar power installed per person.

Net metering is an essential policy for encouraging distributed solar power on residential rooftops. It is an important protection for solar producers who are using a beneficial technology to reduce their electricity bills; solar producers should receive the full benefits of power production and utilities should not be able to penalize customers for generating clean energy. Utility attacks on strong net metering policies will only unfairly prevent viable homes and otherwise eager residents from taking part in the solar revolution.

It is also important for states to have clear interconnection standards that do not impose additional expenses on people wishing to install solar power. Interconnection standards clarify how and under what conditions utilities must connect solar panels to the grid while preserving the reliability and safety of the electricity system. Good interconnection policies reduce the time and hassle required for individuals and companies to connect solar energy systems to the grid. California, Massachusetts, New Mexico, Oregon, Utah and Virginia have received an "A" grade for their net metering and interconnection policies from the Vote Solar Initiative and Interstate Renewable Energy Council's joint "Freeing the Grid" assessment, meaning these states have regulations in place that make it easier and more economical for customers to connect their rooftop solar panels to the grid.<sup>141</sup>

"Virtual net metering" is another important state policy to encourage solar power in apartments and multi-tenant housing facilities. Once states approve this policy, electricity customers in apartment buildings or multi-tenant homes can share the benefits of a rooftop solar installation, even if their meters are not directly connected to the solar project. Credits from solar power produced at one location can offset energy bills at another location. Currently, virtual net metering is available in eleven states, including Minnesota and D.C., which passed virtual net metering policies in 2013.<sup>142</sup>

### Statewide Solar Energy Rebate Programs

Like cities, states can offer incentive programs that reduce the upfront cost of solar PV installations. Hawaii,

California, New York and Massachusetts offer successful statewide programs that have helped residents take advantage of solar power. While rebates were essential for incentivizing new solar markets in years past, now they are expanding to make solar power accessible to low income communities and other underserved sectors.

### Hawaii

Hawaii has the highest rates of solar PV grid penetration in the country, likely due to high electricity prices on the islands, the falling costs of solar equipment and the state's strong renewable energy goals.<sup>143</sup> Hawaii has one of the strongest renewable energy standards in the country, with a requirement of meeting 40 percent of its energy needs with renewables by 2030. In 2008, it formed the "Hawaii Clean Energy Initiative"—a partnership between the State of Hawaii and the U.S. Department of Energy—to help meet this goal.<sup>144</sup>



*Solar panels on the roof of the non-profit Easter Seals Society building with downtown Honolulu in the background. Credit: Hawaiian Electric Company*

Hawaii has taken other steps to bring more renewable energy to the state. In 2013, the Hawaii Legislature adopted a measure that enables "on-bill financing" for solar energy and other forms of clean energy technology.<sup>145</sup> On-bill financing allows customers to pay for solar projects over time on their utility bills. Hawaii also offers a statewide feed-in tariff that credits small solar power producers with 21.8 cents per kilowatt-hour of energy generated, with slightly lower rates available for solar PV projects more than 20 kW but less than 5 MW.<sup>146</sup> Hawaii continues to grapple with the challenge of transitioning the small islands' electric grids to accommodate more rooftop solar generation, but Hawaiian solar power is only growing in popularity.<sup>147</sup> The state and its electric utilities should continue to be innovators and leaders in making this transition to a smarter, cleaner electric grid, as the rest of the country can learn from its example.



## California

Five of the six California cities included in this report are among the top 15 cities nationally for installed total solar PV capacity—and this dominance is due in large part to California's statewide solar incentive program. In 2006, the California Legislature created the Million Solar Roofs Initiative, now part of the "Go Solar California" campaign, to direct the investment of \$3.3 billion in small-scale solar electric power systems. The initiative is on track to reach its 2016 goal of increasing the state's solar generation capacity by 3,000 MW, which will help cut the cost of solar power in half and create a mainstream market for solar power.<sup>148</sup>

The Million Solar Roofs Initiative is composed of three main parts:

1. *The California Solar Initiative*, managed by the state Public Utilities Commission, which seeks to expand the number of solar energy systems installed on existing homes in investor-owned utility territories.
2. *Programs led by publicly-owned utilities*, such as the Sacramento Municipal Utility District or the Los Angeles Department of Water and Power.
3. *The New Solar Homes Partnership*, managed by the California Energy Commission, which seeks to expand the number of solar energy systems installed on new homes in investor-owned utility territories.

California's efforts are working. With 132 MW of solar power, the city of Los Angeles now has more solar power capacity than 39 states had installed at the end of 2012.<sup>149</sup> Its solar power has grown rapidly—Los Angeles had almost three times as much solar PV capacity at the end of 2013 as it had at the end of 2011.<sup>150</sup>

San Diego is hot on Los Angeles' trail with the second highest total solar PV capacity. San Jose ranks second for per-capita solar PV capacity and fourth for cumulative solar PV capacity.

## New York

Solar power has also exploded in New York, following the implementation of the "NY-SUN Initiative." This initiative was launched in 2012 and provides cash incentives for residential and commercial customers looking to install solar panels. The program has \$800 million to spend on these incentives and on research that will bring down the cost of solar power.<sup>151</sup> In his State of the State address in January 2014, Governor Andrew Cuomo pledged another \$1 billion to this program in order to support clean energy development in New York.<sup>152</sup> There are 299 MW of solar power under development in New York State as of January 2014, more than the state had

installed in the 10 years prior to the launch of the NY-Sun Initiative.<sup>153</sup> This strong state solar policy has helped place New York City squarely in the top 20 cities for total installed solar PV capacity.

## Policy Recommendations

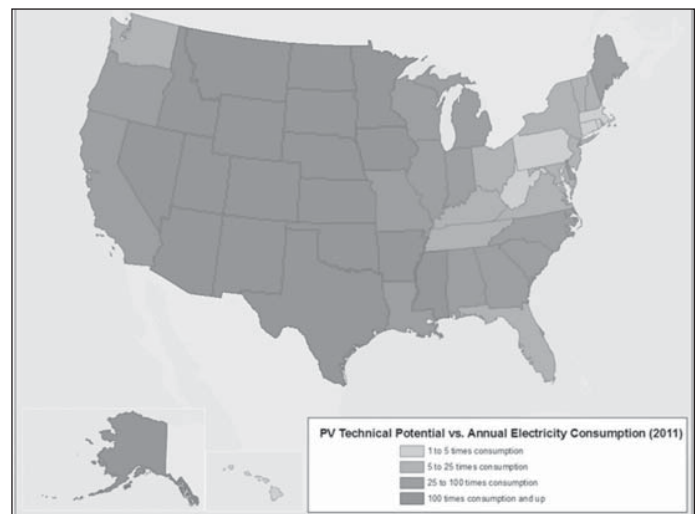
American cities are increasingly leaders in the nation's move toward adoption of clean, affordable solar energy. But there is much remaining that cities can do to take advantage of their solar energy potential.

As solar power continues to grow and thrive, cities should develop good policies to manage distributed generation and work with local utilities to prepare the electric grid to handle more solar power. Cities that begin to incorporate solar power into the grid now will protect residents' health, build more resilient communities and create stronger local economies. In coming years, solar-ready cities will also be ideally situated to benefit from innovative new solar technologies. Adopting strong solar policies at the local, state and federal levels will continue to promote solar energy in leading cities and encourage solar development in those lagging behind, allowing cities to take full advantage of the benefits of clean solar power.

## Taking Advantage of America's Solar Energy Potential

America has enough solar energy potential to power the nation several times over. Every one of the 50 states has the technical potential—through both utility-scale and rooftop solar energy systems—to generate more electricity from the sun than it uses in the average year. In 19 states, the technical potential for electricity generation from solar PV exceeds annual electricity consumption by a factor of 100 or more.<sup>154</sup> (See Figure 7.)

**Figure 7. Solar PV Technical Potential versus Annual Electricity Consumption by State<sup>155</sup>**



An analysis by researchers with the National Renewable Energy Laboratory estimated that rooftop photovoltaic (PV) systems could generate more than 20 percent of the electricity used in the United States each year.<sup>156</sup> Harnessing available rooftop potential is especially important for America's cities, where millions of empty rooftops could be used to generate clean energy. Cities in every region of the United States have enough solar energy potential to power a large share of the economy. The city of Orlando, for example, has 163 million square feet of rooftop space available to support solar power—taking full advantage of that potential would produce enough solar energy to supply 52 percent of the city's electricity demand.<sup>157</sup>

The path to a clean energy future powered increasingly by solar energy is open to every city and state. By adopting strong policies to remove barriers to solar energy and providing individuals and businesses with incentives and financing tools, cities across the country can take part in America's clean energy revolution. State and federal government actions can also support cities in their efforts to "go solar."

### Recommendations for Local Government

Cities should take the lead in installing solar power. Local governments should set an example by putting **solar panels on public property**.

Local governments should ensure that every homeowner and business with access to sunlight can exercise the option of generating electricity from the sun. **Solar access ordinances**—which protect homeowners' right to generate electricity from the sunlight that hits their property, regardless of the actions of neighbors or homeowners' associations—are essential protections.

Local governments can also eliminate red tape and help residents to go solar by **reforming their permitting processes**—reducing fees, making permitting rules clear and readily available, speeding up permitting, and making inspections convenient for property owners.<sup>158</sup> The Vote Solar Initiative has laid out a series of best practices that local governments can follow in ensuring that their permitting process is solar-friendly, and the U.S. Department of Energy's SunShot Solar Outreach Partnership provides online tools and case studies to help cities streamline their permitting processes for solar power.<sup>159</sup> Local governments can also ensure that their zoning regulations are clear and unambiguous in allowing solar energy installations on residential and commercial rooftops. **Solarize programs** can facilitate the solar installation process by connecting solar installers with a number of solar customers at once.

Cities can also provide **financial or zoning incentives** to encourage the construction of green buildings that incorporate small-scale renewable energy technologies

such as solar power. **Property tax credits or abatements** for solar power can effectively incentivize rooftop solar PV installations. Cities can encourage **local lenders to offer financing options** for solar installations. **Building codes** can also help spark the widespread adoption of solar energy, either by requiring new homes and businesses to be "solar-ready" or by requiring the use of small-scale renewable energy in new or renovated buildings. Cities in states where **property assessed clean energy (PACE)** financing is an option for commercial establishments can allow for property tax bills to be used for the collection of payments toward a solar energy system.

Cities with municipal utilities have even greater potential to encourage solar energy. The establishment of **local renewable electricity standards**, strong **net metering and interconnection policies**, **local incentive and rebate programs**, and other pro-solar policies can help fuel the rapid spread of solar energy in the territories of municipal utilities. Regulations allowing for **community solar gardens** also create a significant boost in the local solar market by allowing residents who live in shaded homes or who cannot afford their own rooftop solar projects to invest in community solar projects whose output is credited on their utility bill.

### Recommendations for State Government

State governments should set **ambitious targets** for the growth of solar energy, and revisit these targets on a regular basis. For many states, a goal of getting 10 percent of their energy from the sun would set an ambitious standard and make a major difference in reducing the state's dependence on fossil fuels well into the future.

To help achieve those goals, local officials should support states' adoptions of **renewable electricity standards with solar carve outs** that require a significant and growing share of that state's electricity to come from the sun. States should also adopt strong statewide **interconnection and net metering policies**, along with **community solar policies** and **virtual net metering**, to ensure that individuals and businesses are able to sell their excess power back to the electric grid and receive a fair price when they do. **CLEAN contracts** and **value-of-solar credits** can play an important role in ensuring that consumers receive fair compensation for solar energy, so long as the credits fully account for the benefits of solar energy and are sufficient to spur participation in the market. Finally, states should allow **third-party sales** of power to customers; third-party sales allow customers to lease rooftop space to a solar developer for a solar PV installation and then purchase the power from that third-party solar developer. This allows customers who do not wish to own solar panels to participate in the solar market and benefit from doing so with lower electricity bills.<sup>160</sup> States should also take action now to begin planning for the integration of high percentages of solar energy in the electric grid.

## Recommendations for Federal Government

The federal government is also responsible for developing the nation's solar energy potential. Strong and thoughtful federal policies lay an important foundation on which state and local policy initiatives are built. Among the key policy approaches that the federal government should take are the following:

- **Continue policies that work**—The federal government has often taken an “on-again/off-again” approach to its support of renewable energy. With federal tax credits for residential solar installations now scheduled to expire and federal tax incentives for business solar installations ramping down from 30 percent to 10 percent at the end of 2016, the federal government should extend these tax credits and ensure that they are sufficiently long-term to provide investor confidence to encourage the development of solar energy markets.<sup>161</sup> The federal government should also continue to offer funding to cities for solar development, as it has been effective in the past: according to a survey from the U.S. Conference of Mayors, funding from the Energy Efficiency and Conservation Block Grant (EECBG) program was effectively used to promote city-level solar projects, with 31 percent of cities using EECBG funding for solar power projects on public buildings. Cities also used funding to advance clean energy financing strategies including PACE and on-bill financing.<sup>162</sup> The U.S. Department of Energy's Solar America Cities program was another effective federal initiative which allowed the federal government to directly incentivize solar power in cities. In 2007 and 2008, the U.S. Department of Energy designated 25 cities as “Solar America Cities,” providing \$200,000 of financial assistance and \$250,000 in technical assistance to remove barriers to the proliferation of solar power in these cities.<sup>163</sup> Many of the “Solar America Cities” in this program are also the top ranked cities in this report.<sup>164</sup> The federal government should continue to offer funding and support for local solar development through programs like Solar America Cities.
- **Continue to set high standards and goals for solar energy**—The U.S. Department of Energy's SunShot Initiative has served as a rallying point for federal efforts to bring the cost of solar energy to competitiveness with electricity from fossil fuel systems, and the federal government should continue to support it. The SunShot Initiative recognizes that while traditional research and development efforts for solar energy remain important, a new set of challenges is emerging around the question of how to bring solar energy to large-scale adoption. This initiative builds on lessons learned from the Solar America Cities program; by continuing to inves-

tigate how to best integrate solar energy into the grid, how to deliver solar energy more efficiently and cost-effectively, and how to lower market barriers to solar energy, the SunShot Initiative and other efforts play a key supporting role in the nation's drive to embrace the promise of solar energy.

- **Lead by example**—In December 2013, President Obama signed an executive order directing federal agencies to obtain 20 percent of their annual electricity use from renewable sources by 2020.<sup>165</sup> Solar energy will likely be a major contributor to reaching that goal. The U.S. military has been particularly aggressive in developing its renewable energy capacity, committing to getting one-quarter of its energy from renewable sources by 2025. The military has already installed more than 130 megawatts of solar energy capacity and has plans to install more than a gigawatt of solar energy by 2017.<sup>166</sup> Federal agencies should continue to invest in solar energy. In addition, agencies such as the Department of Housing and Urban Development and Department of Education should work to encourage the expanded use of solar energy in schools and in subsidized housing.

## Methodology

This report represents, to the authors' knowledge, the first national-scale comparison of its kind of solar photovoltaic installations in major American cities. There is no uniform national data source that tracks solar energy by municipality and there are only a handful of states that compile this information in a comparable format. As a result, the data for this report come from a wide variety of sources—municipal and investor-owned utilities, city and state government agencies, operators of regional electric grids, non-profit organizations, and the National Renewable Energy Laboratory's “Open PV” database. The data on solar energy installations included in this report come from data sources of various levels of comprehensiveness, with various levels of geographic precision, and that often use different methods of quantifying solar photovoltaic capacity (e.g., alternating current (AC) versus direct current (DC) capacity).

We have worked to obtain data that are as comprehensive as possible, to resolve discrepancies in various methods of estimating solar PV capacity, to limit the solar facilities included to only those within the city limits of the municipalities studied, and, where precise geographic information could not be obtained, to use reasonable methods to estimate the proportion of a given area's solar energy capacity that exists within a particular city. The data are sufficiently accurate to provide an overall picture of a city's adoption of solar power and to enable comparisons with its peers. Readers should note, however, that the data-related challenges described here could have



minor impacts on individual cities' rankings. We look forward to building on and further developing our methodology and data sources in future reports and encourage other researchers to do the same. The full list of sources of data for each city is provided in Appendix B along with the details of any data manipulations made.

### Selecting the 57 Major Cities

We selected the cities for this report from the 38 states (including the District of Columbia) shown to have installed more than a negligible amount of solar energy (1.5 MW) by the end of 2012, per L. Sherwood, Interstate Renewable Energy Council, *U.S. Solar Market Trends 2012*, July 2013. Cities were selected from within those states that were:

- The principal city of one of the 50 largest metropolitan areas in the United States, or
- For states with a significant amount of solar capacity but without a city in the 50 largest metropolitan areas nationwide, the state's largest city.

We did not include a city from South Carolina.

### Collecting Data on Installed Solar PV Capacity

This report compares the capacity of all solar PV installations within the city limits of the chosen 57 cities as of the end of 2013. See Appendix B for a detailed account of the sources of data for each city.

### Using the "Open PV" Dataset

In cases where we could not obtain a reliable estimate of solar installations for a particular city, we used the solar capacity estimate reported in Open PV, an open online database of solar energy installations operated by the National Renewable Energy Laboratory (NREL) and funded by the U.S. Department of Energy's Sunshot Initiative. The data in Open PV comes from a variety of sources. Much of it comes in aggregate form from state-level PV incentive programs or utilities. NREL then screens these data for obvious errors before uploading it. A much smaller portion of their data comes from public contributors (installers and other individuals) who create an account on the website and upload information for an installation. These are not initially screened in the same way as other data, but there is a function allowing users to "flag" installations that look suspicious. NREL also has a scheduled automated screen for duplicates that flags potential duplicate installations, which they then follow up on.

NREL performs a thorough update of the Open PV data once a year in which NREL and the Lawrence Berkeley National Laboratory (LBNL) jointly solicit updated information from their data contributors. At the time we

conducted our data search, NREL and LBNL had not yet done this update for 2013, meaning the city numbers from Open PV are likely conservative and missing solar PV capacity. Data in the "Open PV" dataset are reported in DC watts.

To calculate city totals from the "Open PV" dataset, we downloaded the full dataset from the website and used the latitude and longitude coordinates associated with each installation to map them in ArcMap. We then "joined" these installations with a layer of Census designated places provided by ESRI to calculate the total solar PV capacity for each city. The vast majority of the data received by Open PV do not have an address, only a zip code. As a result, the totals for some cities may include some PV systems that are outside a city's boundaries but still within the boundaries of a zip code that includes part of a city.

We also used Open PV data when these solar PV capacity totals captured more solar power than other available sources of data. We used the Open PV solar capacity estimate for the following cities: Boston, MA; Dallas, TX; Las Vegas, NV; and Washington, D.C.

**NREL's Open PV Website:** National Renewable Energy Laboratory, *The Open PV Project*, downloaded from <https://openpv.nrel.gov/> 6 March 2014.

### Converting from AC watts to DC watts

Jurisdictions and agencies often use different methods of quantifying solar photovoltaic capacity (e.g., alternating current (AC) and direct current (DC)). Solar PV panels produce energy in DC, which is then converted to AC in order to enter the electric grid. Solar capacity reported in AC watts accounts for the loss of energy that occurs when DC is converted to AC.<sup>167</sup>

We attempted to convert all data to DC watts for the sake of accurate comparison. When we could not determine whether the data were reported in AC watts or DC watts, we made the conservative estimate that the data were in DC watts.

To convert the numbers to DC MW, we used NREL's PV watts default derate factor of 0.77. See NREL's website for a detailed explanation of this conversion factor: <http://rredc.nrel.gov/solar/calculators/pvWatts/system.html>.

The data for the following cities were reported in AC watts and were converted to DC watts: Burlington, VT; Charlotte, NC; Houston, TX; Indianapolis, IN; Los Angeles, CA; Louisville, KY; Manchester, NH; New Orleans, LA; New York City, NY; Raleigh, NC; Sacramento, CA; San Diego, CA; San Jose, CA; and Virginia Beach, VA.

## Endnotes

1. U.S. Department of Energy, *Solar in Action: Portland, OR*, October 2011.
2. Linda Irvine, Alexandra Sawyer and Jennifer Grove, Northwest Sustainable Energy for Economic Development, *The Solarize Guidebook: A Community Guide to the Collective Purchasing of Residential PV Systems*, May 2012.
3. *Id.*
4. *Id.*
5. *Id.*
6. Boston: Renew Boston Solar, *Switch to Solar*, accessed at [www.renewboston.org/solar](http://www.renewboston.org/solar), 6 February 2014; Seattle: Solarize Washington, *Home*, accessed at [www.solarizewa.org](http://www.solarizewa.org), 17 March 2014.
7. Streamlined solar permitting: U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: City of Portland: Streamlined Building Permits for Residential Solar Systems*, 26 November 2012, available at [www.dsireusa.org](http://www.dsireusa.org); The City of Portland Planning and Sustainability, *Community Energy Meets Crowdsourcing*, accessed at [www.portlandoregon.gov](http://www.portlandoregon.gov), 6 March 2014.
8. See note 1.
9. American Lung Association, *State of the Air 2013: Key Findings*, 2013, accessed at [www.stateoftheair.org/2013/key-findings/ozone-pollution.html](http://www.stateoftheair.org/2013/key-findings/ozone-pollution.html).
10. Raquel A. Silva et al., "Global premature mortality due to anthropogenic outdoor air pollution and the contribution of past climate change," *Environmental Research Letters* 8 (2013), doi:10.1088/1748-9326/8/3/034005.
11. Sea Level Rise: A. Dutton and K. Lambeck, "Ice Volume and Sea Level During the Last Interglacial," *Science*, 337 (6091):216-219, doi: 10.1126/science.1205749; analysis of which cities are in danger: Baden Copeland, Josh Keller and Bill Marsh, "What Could Disappear," *New York Times*, 24 November 2012.
12. Tony Dutzik, Elizabeth Ridlington and Tom Van Heeke, Frontier Group and Nathan Wilcox, Environment America Research & Policy Center, *In the Path of the Storm: Global Warming, Extreme Weather and the Impacts of Weather-Related Disasters in the United States from 2007 to 2012*, April 2013.
13. CoreLogic, *2013 CoreLogic Wildfire Hazard Risk Report*, 10 October 2013.
14. Power plants are responsible for 23 percent of U.S. emissions of nitrogen oxides and produce two-thirds of the nation's emissions of sulfur dioxide: U.S. Environmental Protection Agency, *Clean Energy: Air Emissions*, accessed at [www.epa.gov/cleanenergy](http://www.epa.gov/cleanenergy), 14 June 2013; health effects of sulfur dioxide: U.S. Environmental Protection Agency, *Sulfur Dioxide: Health*, accessed at [www.epa.gov/oaqps001/sulfurdioxide/health.html](http://www.epa.gov/oaqps001/sulfurdioxide/health.html), 14 June 2013; Dangers of mercury: U.S. Environmental Protection Agency, *Mercury: Basic Information*, accessed at [www.epa.gov/hg/about.htm](http://www.epa.gov/hg/about.htm), 14 June 2013.
15. Jordan Schneider and Travis Madsen, Frontier Group, and Julian Boggs, Environment America Research & Policy Center, *America's Dirtiest Power Plants: Their Oversized Contribution to Global Warming and What We Can Do About It*, September 2013.
16. U.S. Environmental Protection Agency, *National Greenhouse Gas Emissions Data*, accessed at [www.epa.gov/climatechange/ghgemissions/usinventoryreport.html](http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html), 14 June 2013.
17. U.S. sources of carbon dioxide emissions: U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2011*, 12 April 2013; worldwide carbon dioxide emissions: European Commission, Joint Research Center and PBL Netherlands Environmental Assessment Agency, *Emission Database for Global Atmospheric Research (EDGAR)* (v. 4.2), 2011.
18. Based on harmonized data for all energy sources other than natural gas (for which published data were used) from National Renewable Energy Laboratory, *LCA Harmonization*, accessed at [en.openei.org/apps/LCA/](http://en.openei.org/apps/LCA/), 14 June 2013.
19. Richard Perez, University at Albany, Ken Zweibel, George Washington University, and Thomas Hoff, Clean Power Research, *Solar Power Generation in the US: Too Expensive, or a Bargain?*, 2011, available at <http://www.asrc.cestm.albany.edu/perez/2011/solval.pdf>.
20. Diane Cardwell, "Q. and A.: In a Blackout, Solar Exceptions," *The New York Times*, 21 November 2012.
21. Joe Eaton, "Record Heat, Drought Pose Problems for U.S. Electric Power," *National Geographic News*, 17 August 2012.
22. Paul Faeth, "In Drought-Prone Texas, A Threat to the Energy Supply," *Dallas News*, 20 December 2013.
23. U.S. Department of Energy, SunShot Vision Study, *Solar Power Environmental Impacts and Siting Challenges*, February 2012.
24. Dana Hull, "Drought Threatens California's Hydroelectricity Supply, But Solar Makes Up the Gap," *San Jose Mercury News*, 11 February 2014.
25. Keyes, Fox and Wiedman, LLP, Interstate Renewable Energy Council, *Unlocking DG Value: A PURPA-Based Approach to Promoting DG Growth*, May 2013.
26. Based on California data from Lana Wong, California Energy Commission, *A Review of Transmission Losses in Planning Studies*, August 2011.
27. The Solar Foundation, *National Solar Jobs Census 2013: A Review of the U.S. Solar Workforce*, 27 January 2014.
28. *Id.*
29. *Id.*
30. National Renewable Energy Laboratory, *Best Research Cell Efficiencies*, accessed at [www.nrel.gov/ncpv/images/efficiency\\_chart.jpg](http://www.nrel.gov/ncpv/images/efficiency_chart.jpg), 8 July 2013.
31. Tracey Peake, North Carolina State University, *Researchers Find Simple, Cheap Way to Increase Solar Cell Efficiency* (media advisory), 2 January 2014.
32. Alan C. Goodrich et al., "Assessing the Drivers of Regional Trends in Solar Photovoltaic Manufacturing," *Energy & Environmental Science* 6 (2013): 2811-2821, doi: 10.1039/c3ee40701b.
33. Galen Barbose, Naïm Darghouth, Samantha Weaver and Ryan H. Wiser, Lawrence Berkeley National Laboratory, *Tracking the Sun VI: The Installed Price of Photovoltaics in the United States from 1998 to 2012*, July 2013, data downloaded from <http://emp.lbl.gov/publications/tracking-sun-vi-historical-summary-installed-price-photovoltaics-united-states-1998-201>.
34. John Farrell, Institute for Local Self-Reliance, *Hawaiian Sunblock: Solar Facing Unexpected Barriers Despite Low Cost*, July 2012.
35. See note 33.
36. Joachim Seel, Galen Barbose and Ryan Wiser, Lawrence Berkeley National Laboratory, *Why Are Residential PV Prices in Germany So Much Lower than in the United States?*, revised version, February 2013.
37. Jesse Morris et al., Rocky Mountain Institute, *Reducing Solar PV Soft Costs: A Focus on Installation Labor*, December 2013, 9, available at [http://www.rmi.org/PDF\\_reducing\\_solar\\_pv\\_soft\\_costs](http://www.rmi.org/PDF_reducing_solar_pv_soft_costs).
38. See note 36.
39. Dropped 60 percent: Solar Energy Industries Association, *Solar Energy Facts: 2013 Year in Review* (factsheet), 5 March 2014; 64 percent: U.S. Department of Energy, SunShot Initiative, *Reducing Non-Hardware Costs*, 14 November 2013, available at [www1.eere.energy.gov/solar/sunshot/nonhardware\\_costs.html](http://www1.eere.energy.gov/solar/sunshot/nonhardware_costs.html).

40. U.S. Department of Energy, *U.S. Utility-Scale Solar 60 Percent Towards Cost-Competition Goal* (press release), 12 February 2014.
41. Past 10 GW: Silvio Marcacci, "U.S. Passes 10 GW Installed Solar PV Capacity Milestone," *Clean Technica*, 9 July 2013; 4.75 GW: Solar Energy Industries Association, *Solar Market Insight 2013 Year in Review* (executive summary), downloaded from <http://www.seia.org/research-resources/solar-market-insight-report-2013-year-review>, 7 March 2014.
42. *Id.*, "Solar Energy Industries Association."
43. The cumulative U.S. grid-connected solar PV capacity reported by the Solar Energy Industries Association (SEIA) as of 2013, 12,100 MW, is higher than the cumulative solar PV capacity displayed in Figure 3, which represents year-by-year data from the Lawrence Berkeley National Laboratory's *Tracking the Sun VI* report through 2012, and SEIA's reported 2013 capacity additions. SEIA does not provide a year-by-year breakdown of its reported cumulative U.S. grid-connected solar PV capacity, so we used a combination of LBNL and SEIA data to produce Figure 3. U.S. grid-connected PV capacity through 2012: see note 33; installed solar PV capacity at the end of 2013: *Id.*
44. *Id.*
45. Data on solar capacity by state were obtained from Larry Sherwood, Interstate Renewable Energy Council, *U.S. Solar Market Trends 2012*, July 2013.
46. We did not include a major city from South Carolina.
47. 817 MW of solar PV was installed at the end of 2008; see note 33.
48. Average energy consumption of a U.S. home: U.S. Energy Information Administration, *Short-Term Energy Outlook*, 7 January 2014.
49. See Appendix B for sources of solar PV capacity; installed solar PV capacity: see "Solar Energy industries Association," note 41; Land area of the top 20 cities and the United States: U.S. Census Bureau State and County Quickfacts, "Land Area in Square Miles, 2010," downloaded from <http://quickfacts.census.gov>, 27 January 2014.
50. Installed solar PV capacity of the U.S. in 2008; see note 33.
51. "Honolulu" is defined as the census-designated place "urban Honolulu": U.S. Census Bureau State and County Quickfacts, Urban Honolulu CDP, HI, downloaded from <http://quickfacts.census.gov>, 11 March 2014.
52. Austin Energy, the municipal utility serving Austin, TX, also generates solar power at a 30-MW solar facility that exists partially in Austin's "extraterritorial jurisdiction" (ETJ). Austin's ETJ includes unincorporated land within 5 miles of Austin's city limits, per [www.austintexas.gov](http://www.austintexas.gov), Planning and Development Review Department, Extraterritorial Jurisdiction: What Is It?, downloaded from <http://www.austintexas.gov/faq/extraterritorial-jurisdiction-etj-what-it>, 5 March 2014. Because this solar farm lies outside what are technically the city limits of Austin, we did not include it in Austin's solar total.
53. Matt Hickman, "Sebastopol Is Second California City Requiring Solar on New Homes," *Mother Nature Network*, 13 May 2013.
54. Guy Kovner, "Sebastopol Council Votes to Require Solar Power on New Homes, Buildings," *The Press Democrat*, 7 May 2013.
55. Herman K. Trabish, "Lancaster, CA Becomes First U.S. City to Require Solar," *GreenTech Solar*, 27 March 2013.
56. The Planning Report, *Lancaster, California's Mayor Rex Parris Leads City to Become First to Mandate Residential Solar Energy*, 24 January 2014, available at [www.planningreport.com](http://www.planningreport.com).
57. Felicity Barringer, "With Help from Nature, A Town Aims to Be a Solar Capital," *New York Times*, 8 April 2013.
58. John Farrell, Institute for Local Self-Reliance, *City Power Play: 8 Practical Local Energy Policies to Boost the Economy*, September 2013.
59. See note 56.
60. Christopher Curry, "City Commission Will Not Add to Feed-in Tariff in 2014," *The Gainesville Sun*, 19 December 2013.
61. Jim Gilmartin, Gainesville Regional Utilities, personal communication, 13 March 2014.
62. Florida had installed 213 MW at the end of 2013: Solar Energy Industries Association, *State Solar Policy: Florida Solar*, accessed at [www.seia.org/state-solar-policy/florida](http://www.seia.org/state-solar-policy/florida), 14 March 2014; Population: U.S. Census Bureau State and County Quickfacts, *State and County Quickfacts: Gainesville (city), Florida*, accessed at <http://quickfacts.census.gov>, 14 March 2014.
63. Gainesville Regional Utilities, *Net Metering for Solar PV Systems for Homes*, accessed at [www.gru.com](http://www.gru.com), 11 March 2014.
64. New Bedford has high poverty levels and low income as compared to the state average: Southcoast Urban Indicators Project, *Poverty—New Bedford*, accessed at <http://southcoastindicators.org/economy/poverty-new-bedford/>, 14 March 2014; Scott Durkee, Director of the New Bedford Energy Office, personal communication, 14 March 2014.
65. WilmerHale, Publications and News, *City of New Bedford Launches Groundbreaking Solar Power Initiative*, 21 October 2011.
66. See "Scott Durkee," note 64.
67. Naomi Arenberg, Living on Earth, *PowerShift: New Bedford Goes Solar* (radio transcript), 25 October 2013.
68. *Id.*
69. *Id.*, and see note 65.
70. Massachusetts Department of Energy Resources, Leading by Example Program, *2013 Leading by Example Awards*, accessed at <http://www.mass.gov/eea/docs/eea/lbe/2013-lbe-award-winners.pdf>, 14 March 2014.
71. Greenprint Denver, *Solar*, accessed at [www.greenprintdenver.org/energy-emissions/solar/](http://www.greenprintdenver.org/energy-emissions/solar/) 28 January 2014.
72. See "The City of Portland Planning and Sustainability," note 7.
73. U.S. Department of Energy SunShot Vision Study, *Solar Power Environmental Impacts and Siting Challenges*, February 2012.
74. City of Chicago, *Overview of the Green Permit Program, 2010-2014*, available at [www.cityofchicago.org](http://www.cityofchicago.org).
75. San Francisco: SF Environment, *San Francisco's Streamlined Solar Permitting*, downloaded from [www.sfenvironment.org/download/san-franciscos-streamlined-solar-permitting](http://www.sfenvironment.org/download/san-franciscos-streamlined-solar-permitting), 17 February 2014; Portland; see "U.S. Department of Energy," note 7.
76. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: City of San Jose: Photovoltaic Permit Requirements*, 9 July 2012, available at [www.dsireusa.org](http://www.dsireusa.org); U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: City of Philadelphia: Streamlined Solar Permitting and Fee Reduction*, 2 April 2013, available at [www.dsireusa.org](http://www.dsireusa.org).
77. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: City of Austin: Zoning Code*, 15 May 2012, available at [www.dsireusa.org](http://www.dsireusa.org).
78. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: Incentives/Policies for Renewable Energy: Solar/Wind Access Policy*, downloaded from [www.dsireusa.org](http://www.dsireusa.org), 16 March 2014.
79. See "Boston," note 6.
80. Average yearly energy consumption of a U.S. home; see note 48; This assumes solar PV operates at 15 percent capacity: U.S. Department of Energy, *2010 Solar Technologies Market Report (Chapter 3.2.3)*, November 2011; 370,000 people: U.S. Census Bureau State and County Quickfacts, *New Orleans (city), Louisiana*, downloaded from <http://quickfacts.census.gov>, 7 March 2014.



81. Elizabeth Ridlington and Judee Burr, Frontier Group, Luke Metzger, Environment Texas Research & Policy Center, *Keeping Water in Our Rivers: Strategies for Conserving Limited Water Supplies*, March 2013.
82. California drought: National Drought Mitigation Center, *U.S. Drought Monitor: California*, 11 February 2014.
83. Jim Schoettler, "Electric Bills Plummet, Thanks to Solar Panels in Neptune Beach," *The Florida-Times Union*, 11 January 2014.
84. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: City of Jacksonville: Sustainable Public Buildings*, 21 September 2012, available at [www.dsireusa.org](http://www.dsireusa.org).
85. J.R. DeShazo and Alex Turek, Luskin Center for Innovation, *FiT 100 in Los Angeles: An Evaluation of Early Progress*, February 2014.
86. See note 27.
87. The Solar Foundation, *An Assessment of the Economic, Revenue and Societal Impacts of Colorado's Solar Industry*, October 2013.
88. U.S. Department of Energy and Meister Consultants Group, *Local Lending for Solar PV: A Guide for Local Governments Seeking to Engage Financial Institutions*, November 2013; U.S. Department of Energy, *Solar Powering Your Community: A Guide for Local Governments, Second Edition*, January 2011.
89. See "Local Lending," *id.*
90. *Id.*
91. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: New York City: Property Tax Abatement for Photovoltaic Equipment Expenditures*, 30 August 2012, available at [www.dsireusa.org](http://www.dsireusa.org); U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: New York City: Residential Solar Sales Tax Exemption*, 18 February 2012, available at [www.dsireusa.org](http://www.dsireusa.org).
92. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: City of Cincinnati: Property Tax Abatement for Green Buildings*, 21 February 2013, available at [www.dsireusa.org](http://www.dsireusa.org); U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: City of Cleveland – Property Tax Abatement for Green Buildings*, 30 April 2012, available at [www.dsireusa.org](http://www.dsireusa.org).
93. PACE Now, *What Is PACE?*, accessed at [www.pacenow.org/about-pace/what-is-pace](http://www.pacenow.org/about-pace/what-is-pace), 18 March 2014.
94. Justin Gerdes, "Connecticut to Launch First Statewide Commercial Clean Energy PACE Program," *Forbes*, 28 June 2012.
95. PACE Now, *Case Study No. 4: Connecticut PACE Program Completes Its First Project*, 2013.
96. Justin Gerdes, "Greater Miami To Launch \$550 Million Energy Retrofit Fund; Billions In Unfunded Projects Wait Nationwide," *Forbes*, 27 April 2012.
97. Renewable Funding, Clinton Climate Initiative, and the Lawrence Berkeley National Laboratory, *Policy Brief: Property Assessed Clean Energy (PACE) Financing: Update on Commercial Programs*, 23 March 2011.
98. See note 85.
99. Los Angeles Department of Water and Power, *Feed-in Tariff (FiT) Program*, downloaded from [www.ladwp.com](http://www.ladwp.com), 6 March 2014.
100. See note 85.
101. *Id.*
102. State cumulative solar PV capacity at the end of 2012, see note 45.
103. Dependent on coal at the time: John Haselden, Indianapolis Power and Light, Corporate Affairs, personal communication, 4 February 2014.
104. Kari Lydersen, "Indianapolis Solar Shines, but Will the Boom Continue," *Midwest Energy News*, 23 April 2013.
105. 98 MW in AC watts.
106. See note 104.
107. Indianapolis Power & Light, *Renewable Energy Incentive Program*, downloaded from [www.iplpower.com](http://www.iplpower.com), 14 March 2014.
108. Permanent jobs created were not available, but 220 people were employed during construction of Indy I, II, and III: Dan Genest, Media Relations, Dominion, personal communication, 6 February 2014.
109. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: San Antonio City Public Service (CPS Energy): Renewables Portfolio Goal*, 20 November 2012, available at [www.dsireusa.org](http://www.dsireusa.org).
110. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: City of Austin: Renewable Portfolio Standard*, 5 October 2012, available at [www.dsireusa.org](http://www.dsireusa.org).
111. Austin Energy, *Solar Photovoltaics (PV) Rebate*, accessed at [www.austinenenergy.com](http://www.austinenenergy.com), 6 February 2014; Austin Energy, *Solar Photovoltaics (PV) Loan*, accessed at [www.austinenenergy.com](http://www.austinenenergy.com), 6 February 2014.
112. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: CPS Energy—Solar PV Rebate Program*, 27 September 2013, available at [www.dsireusa.org](http://www.dsireusa.org).
113. Austin Energy, *Solar Photovoltaics, Commercial*, accessed at [www.austinenenergy.com](http://www.austinenenergy.com), 6 February 2014.
114. Austin Energy, News, *New Value of Solar Rate Takes Effect January*, 6 December 2013; Karl R. Rabago, Leslie Libby and Tim Harvey, Austin Energy, *Designing Austin Energy's Solar Tariff Using a Distributed PV Value Calculator*, downloaded from [http://www.cleanpower.com/wp-content/uploads/090\\_DesigningAustinEnergySolarTariff.pdf](http://www.cleanpower.com/wp-content/uploads/090_DesigningAustinEnergySolarTariff.pdf), 8 March 2014.
115. Amy Smith, "Then There's This: Clouds Over Solar," *The Austin Chronicle*, 10 January 2014.
116. Elizabeth Ridlington and Judee Burr, Frontier Group, Luke Metzger, Environment Texas Research and Policy Center, *Reaching for the Sun: How San Antonio and Austin Are Showing that Solar Is a Powerful Energy Option for Texas*, February 2013.
117. Seattle City Light, *Community Solar: Community Solar Project at the Seattle Aquarium Is Now Online*, accessed at [www.seattle.gov](http://www.seattle.gov), 9 March 2014.
118. *Id.*
119. Jacksonville Electric Authority, *JEA Facilities*, accessed at [www.jea.com](http://www.jea.com), 17 February 2014.
120. PSEG Energy Holdings, *PSEG Jacksonville Solar Farm*, accessed at [www.pseg.com](http://www.pseg.com), 17 February 2014.
121. Jacksonville Electric Authority, *Tier 1 and 2 Program*, accessed at [www.jea.com](http://www.jea.com), 11 March 2014.
122. U.S. Department of Energy, Solar America Cities, *Solar in Action: Challenges and Successes on the Path toward a Solar-Powered Community, New Orleans, Louisiana*, October 2011.
123. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: City of New Orleans: Net Metering*, 1 August 2012, available at [www.dsireusa.org](http://www.dsireusa.org).
124. See note 122, 4.
125. James Ayre, "Largest Solar Power Neighborhood in Southeast Built in New Orleans," *CleanTechnica*, 7 November 2012.
126. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: Louisiana: Tax Credit for Solar Energy Systems on Residential Property*, 10 July 2013, available at [www.dsireusa.org](http://www.dsireusa.org); see note 122, 4.

127. Mississippi, Alabama, South Carolina and Arkansas had a combined 7.9 MW-DC of solar PV installed at the end of 2012, see note 45.
128. The City University of New York, *NYC Reaches DOE Solar America City Goal 3 Years Early* (press release), 4 April 2012; The City University of New York, *Sustainable CUNY: Strategic Zones*, accessed at [www.cuny.edu](http://www.cuny.edu), 7 March 2014.
129. See “NYC Reaches DOE Solar America City Goal 3 Years Early,” *id.*
130. Con Edison Media Relations, *Con Edison to Customers: Let the Sun Shine In* (press release), 28 January 2009.
131. Meister Consultants Group, *New York City’s Solar Energy Future: 2011 Update*, March 2011.
132. See “Sustainable CUNY: Strategic Zones,” note 128.
133. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: Renewable Portfolio Standard Policies with Solar/Distributed Generation Provisions*, March 2013, available at [www.dsireusa.org](http://www.dsireusa.org).
134. *Id.*
135. Wilmington, DE is 10.9 square miles while Houston, TX is 599.6 square miles: U.S. Census Bureau State and County Quickfacts, *Wilmington (city), Delaware and Houston (city), Texas*, accessed at <http://quickfacts.census.gov>, 27 January 2014.
136. Massachusetts Energy and Environmental Affairs, *Solar*, accessed at [www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/solar](http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/solar), 6 March 2014.
137. SREC Trade, *Massachusetts*, accessed at [www.srectrade.com/srec\\_markets/massachusetts](http://www.srectrade.com/srec_markets/massachusetts), 11 March 2014.
138. Massachusetts Clean Energy Center, *Commonwealth Solar II—Block 17*, accessed at [www.masscec.com/solicitations/commonwealth-solar-ii-block-17](http://www.masscec.com/solicitations/commonwealth-solar-ii-block-17), 19 February 2014.
139. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: Massachusetts: Incentives/Policies for Renewables & Efficiency, Financial Incentives*, 30 July 2013, available at [www.dsireusa.org](http://www.dsireusa.org).
140. Chris Meehan, “APS Wins Solar Net Metering Battle—Kind Of,” *Renewable Energy World*, 18 November 2013.
141. Vote Solar and IREC, *Freeing the Grid: Best Practices in State Net Metering Policies and Interconnection Procedures*, accessed at [www.freeingthegrid.org](http://www.freeingthegrid.org), 10 February 2014.
142. Emily Hois, Clean Energy Collective, *Virtual Net Metering and the Future of Community Solar Energy*, accessed at [www.theenergycollective.com](http://www.theenergycollective.com), 9 March 2014.
143. Scott Cooney, “Hawaii’s Test Case for Solar Grid Penetration,” *Huffington Post*, 22 February 2014.
144. Kevin Eber and David Corbus, National Renewable Energy Laboratory, *Hawaiian Solar Integration Study: Executive Summary*, June 2013.
145. State of Hawaii, Public Utilities Commission, *On-Bill Financing*, accessed at <http://puc.hawaii.gov/energy/on-bill-financing/>, 11 March 2014.
146. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: Hawaii: Feed-in Tariff*, 26 September 2012, available at [www.dsireusa.org](http://www.dsireusa.org).
147. Mileka Lincoln, “Lawmakers Call Hearing to Discuss HECO’s Solar Policy Changes,” *Hawaii News Now*, 14 October 2014; see note 143.
148. Travis Madsen, Frontier Group, Michelle Kinman and Bernadette Del Chiaro, Environment California Research & Policy Center, *Building a Brighter Future: California’s Progress Toward a Million Solar Roofs*, November 2011.
149. See note 45.
150. Benjamin Davis and Travis Madsen, Frontier Group, Michelle Kinman, Environment California Research and Policy Center, *California Solar Cities 2012: Leaders in the Race Toward a Clean Energy Future*, January 2012.
151. The NY-SUN Initiative, *Programs and Incentives*, accessed at [www.ny-sun.ny.gov/programs-incentives](http://www.ny-sun.ny.gov/programs-incentives), 10 February 2014.
152. James Burgess, “Governor of New York Pledges Another \$1 Billion to NY-Sun Initiative,” *OilPrice*, 13 January 2014.
153. Dayle Zatlin, NYSEDA, Assistant Director of Communications, personal communication, 22 January 2014.
154. Technical potential: Anthony Lopez, et al., National Renewable Energy Laboratory, *U.S. Renewable Energy Technical Potentials: A GIS-Based Analysis*, July 2012; annual electricity sales for 2011: U.S. Department of Energy, Energy Information Administration, *Retail Sales of Electricity by State by Sector by Provider, 1990-2011* (Excel workbook), 1 October 2012.
155. *Id.*
156. See “Anthony Lopez, et al.,” note 154.
157. 52 percent of Orlando’s 2011 electricity demand: Orlando Runs on Sun, *Solar Rooftop Analysis*, accessed at [www.orlandorunsonsun.com/solar-resources/solar-rooftop-analysis/](http://www.orlandorunsonsun.com/solar-resources/solar-rooftop-analysis/), 23 January 2014.
158. Vote Solar Initiative and Interstate Renewable Energy Council, *Project Permit: Best Practices in Solar Permitting*, May 2013; U.S. Department of Energy SunShot Solar Outreach Partnership, *Resources*, accessed at [www.solaroutreach.org/resources](http://www.solaroutreach.org/resources), 7 March 2014.
159. See “Vote Solar Initiative,” *id.*
160. U.S. Department of Energy, Interstate Renewable Energy Council and North Carolina Solar Center, *DSIRE Solar: Summary Maps: 3rd Party Solar PV Power Purchase Agreements*, February 2013, downloaded from [www.dsireusa.org](http://www.dsireusa.org).
161. U.S. Department of Energy, *Residential Renewable Energy Tax Credit*, downloaded from <http://energy.gov/savings/residential-renewable-energy-tax-credit>, 11 March 2014; U.S. Department of Energy, *Business Energy Investment Tax Credit (ITC)*, accessed at <http://energy.gov/savings/business-energy-investment-tax-credit-itc>, 11 March 2014.
162. The United States Conference of Mayors, *Successful City Initiatives with Energy Efficiency and Conservation Block Grant (EECBG) Funding: A 204-City Survey*, February 2014.
163. Dick Fate, Sandia Tiger Team Lead, U.S. Department of Energy, *Solar America Cities: Accelerating Solar on a Local Level* (powerpoint), downloaded from [http://www.epa.gov/region6/6sf/pdffiles/lrb2g\\_fate.pdf](http://www.epa.gov/region6/6sf/pdffiles/lrb2g_fate.pdf), 5 March 2014.
164. These “Solar America Cities” are Ann Arbor, Austin, Berkeley, Boston, Denver, Houston, Knoxville, Madison, Milwaukee, Minneapolis, New Orleans, New York, Orlando, Philadelphia, Pittsburgh, Portland (OR), Sacramento, Salt Lake City, San Antonio, San Diego, San Francisco, San Jose, Santa Rosa, Seattle and Tucson.
165. The White House, Office of the Press Secretary, *Presidential Memorandum—Federal Leadership on Energy Management*, 5 December 2013.
166. Solar Energy Industries Association, *Enlisting the Sun: Powering the U.S. Military with Solar Energy*, 17 May 2013.
167. National Renewable Energy Laboratory, *PVWatts: Changing System Parameters*, downloaded from <http://rredc.nrel.gov/solar/calculators/pvWatts/system.html>, 4 February 2014.

## Appendix A

### Solar Energy in Major American Cities

Table A-1: Installed Cumulative and Per-Capita Solar PV Capacity by City, End of 2013

Principal City	State	Cumulative Solar PV Capacity (MW)	Cumulative Solar PV Capacity Rank	Solar PV Capacity per Capita (Watts/Person)	Solar PV Capacity per Capita Rank
Albuquerque	NM	16	14	28	16
Atlanta	GA	3	36	6	34
Austin	TX	13	16	16	23
Baltimore	MD	5	28	8	31
Billings	MT	< 1	56	2	50
Boston	MA	12	20	19	22
Buffalo	NY	3	34	12	27
Burlington	VT	2	41	37	11
Charleston	WV	< 1	57	3	46
Charlotte	NC	6	26	8	30
Chicago	IL	11	21	4	40
Cincinnati	OH	4	31	14	24
Cleveland	OH	1	42	4	43
Columbus	OH	2	40	2	49
Dallas	TX	1	44	1	54
Denver	CO	25	10	40	10
Detroit	MI	1	43	2	51
Hartford	CT	< 1	52	3	45
Honolulu	HI	91	5	265	1
Houston	TX	4	32	2	52
Indianapolis	IN	56	7	68	5
Jacksonville	FL	16	13	19	21
Kansas City	MO	2	39	4	42
Las Vegas	NV	13	17	22	20
Los Angeles	CA	132	1	34	13
Louisville	KY	1	50	1	56
Manchester	NH	1	47	9	28
Memphis	TN	3	35	5	38
Miami	FL	< 1	53	1	55
Milwaukee	WI	1	46	2	48



Principal City	State	Cumulative Solar PV Capacity (MW)	Cumulative Solar PV Capacity Rank	Solar PV Capacity per Capita (Watts/Person)	Solar PV Capacity per Capita Rank
Minneapolis	MN	2	38	5	37
Nashville	TN	4	33	6	36
New Orleans	LA	22	11	60	8
New York	NY	33	8	4	41
Newark	NJ	13	18	46	9
Orlando	FL	2	37	9	29
Philadelphia	PA	9	22	6	35
Phoenix	AZ	96	3	65	6
Pittsburgh	PA	1	49	2	47
Portland	OR	15	15	25	19
Portland	ME	< 1	55	3	44
Providence	RI	1	48	4	39
Raleigh	NC	12	19	30	15
Richmond	VA	1	45	6	33
Riverside	CA	8	24	26	18
Sacramento	CA	16	12	35	12
Salt Lake City	UT	5	27	27	17
San Antonio	TX	84	6	62	7
San Diego	CA	107	2	81	4
San Francisco	CA	26	9	31	14
San Jose	CA	94	4	97	2
Seattle	WA	4	29	7	32
St. Louis	MO	< 1	51	1	53
Tampa	FL	4	30	12	26
Virginia Beach	VA	< 1	54	1	57
Washington	DC	8	23	13	25
Wilmington	DE	7	25	96	3

## Appendix B

### City-by-City Data Sources

In the descriptions below, we detail the sources of our solar PV capacity totals for each city. We note when the data were reported in AC watts and converted to DC watts. Unless otherwise mentioned, the data were either reported in DC watts, or we made the conservative assumption that the data were in DC watts.

Where we or our data source used zip codes or postal addresses to determine what amount of solar capacity fell within the city limits, the result may be a small overestimation or underestimation of the total solar capacity within the city limits. Estimates based on zip codes or postal addresses may contain a small number of installations that are not within the city limits or miss some installations that are within the city limits.

#### Albuquerque, New Mexico—16 MW

This number is based on the U.S. Energy Information Administration's report on utility-scale solar PV in Albuquerque as of 2012, plus an estimate of distributed solar PV capacity based on the total amount of customer distributed solar PV capacity in the Public Service Company of New Mexico's (PNM's) service territory (which covers the city of Albuquerque) as of 31 December 2013.<sup>1</sup>

According to PNM, their customers had installed 31 MW of solar PV as of 31 December 2013. PNM was unable to provide an Albuquerque-specific solar capacity total.<sup>2</sup> We scaled this number based on the number of households in Albuquerque in relation to the total number of PNM customers:<sup>3</sup>

**Solar PV Capacity in Albuquerque Estimate (MW)** = Total Known Solar PV Capacity in Albuquerque + (Total Distributed Solar PV Capacity in PNM Service Territory)\*(Households in Albuquerque/Number of PNM Customers in Service Territory)

**Solar PV Capacity in Albuquerque Estimate (MW)** = 2 MW + ((31 MW)\*(222,584/507,000))

#### Atlanta, Georgia—3 MW

Southface (<http://www.southface.org/>) provided us with a list of solar PV installations in DeKalb and Fulton counties through 31 December 2013, with latitude and longitude information for each installation. Southface maintains a map of "Georgia Energy Data" at [www.georgiaenergydata.org/solarmap](http://www.georgiaenergydata.org/solarmap), which is believed to be the most comprehensive source of data on solar energy installations in the state of Georgia. These data are believed to be largely in DC watts, but some sources of data relied on by

Southface did not specify whether capacity was in DC or AC watts.<sup>4</sup>

The information provided by Southface allowed us to map the solar PV installations using ArcMap, and isolate the capacity within the city limits of Atlanta.

#### Austin, Texas—13 MW

Austin Energy provided us with a list of customer-rebated solar PV installations and utility-scale solar PV projects with zip codes as of 31 December 2013. They also reported that there is "at least another 700 kW-DC of privately owned non-rebated solar in the city."<sup>5</sup> Within the customer-rebated systems, there were municipal installations that were not listed by zip code, but Austin Energy identified these as almost certainly falling within Austin city limits.

We used ArcMap to determine which zip code points were centered within the city limits of Austin, and counted only installations within those zip codes. The total amount of solar PV in Austin was calculated by adding the customer generation within zip codes centered in Austin (as determined using ArcMap) to the utility-scale projects in Austin to the 0.7 MW of non-rebated solar PV in the city.

Austin Energy, the municipal utility serving Austin, Texas, also generates solar power at a 30-MW solar facility that exists partially in Austin's "extraterritorial jurisdiction" (ETJ). Austin's ETJ includes unincorporated land within 5 miles of Austin's city limits, per [AustinTexas.gov](http://www.austintexas.gov/faq/extraterritorial-jurisdiction-etj-what-it), Planning and Development Review Department, *Extraterritorial Jurisdiction: What Is It?*, downloaded from <http://www.austintexas.gov/faq/extraterritorial-jurisdiction-etj-what-it>, 5 March 2014. Because this solar farm lies outside what are technically the city limits of Austin, we did not include it in Austin's solar total.

#### Baltimore, Maryland—5 MW

Data on solar PV installed in the city of Baltimore was taken from the SREC registry PJM-GATS.<sup>6</sup> These data only include solar PV installations that are registered in the system before 31 December 2013, but the 4.7 MW included in the GATS report downloaded on 6 March 2014 is larger than the 3.45 MW of solar PV reported in Open PV, and so the larger and more comprehensive estimate was used here.

#### Billings, Montana—0.2 MW

Northwestern Energy, the utility serving Billings, provided the known amount of solar PV capacity installed in Billings as of 31 December 2012 (0.191 MW), and an estimate of the solar PV capacity installed in Billings during 2013 (0.016 MW).

### **Boston, Massachusetts—12 MW**

The solar PV capacity installed in Boston is taken from NREL's Open PV database. See the Methodology for a description of the data from Open PV.

Data for Boston were also calculated using data from the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) in its worksheet, "RPS Solar Carve-Out Qualified Renewable Generation Units," last updated 20 December 2013, downloaded from <http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/solar/rps-solar-carve-out/current-status-of-the-rps-solar-carve-out-program.html>. This worksheet tracks solar energy projects that receive SREC credit through the state's RES solar carve-out. Because the amount of solar capacity reported to the Massachusetts EOEEA data set was lower than reported in Open PV, the larger and more comprehensive estimate was used here.

### **Buffalo, New York—3 MW**

Data on solar PV capacity in the city limits of Buffalo as of 31 December 2013 was provided by the New York State Energy Research and Development Authority (NYSERDA). This includes only solar PV installations that were funded through NYSERDA, which manages New York's solar PV financial incentive program.

### **Burlington, Vermont—2 MW**

Data were obtained from the Vermont Energy Atlas (<http://www.vtenergyatlas.com>), a project of the Vermont Sustainable Jobs Fund, the Vermont Center for Geographic Information, Fountains Spatial and Overit Media. Data for the map are provided by the Vermont Clean Energy Development Fund, the Vermont Public Service Board and other sources. Installations were sorted by town name, and we totaled the installations labeled with "Burlington." The data were last updated 16 December 2013. A review of several of the installations found them to be reported in AC watts, so we assumed the total was in AC watts and converted it to DC watts (see Methodology).

### **Charleston, West Virginia—0.2 MW**

The Appalachian Power Company provided an aggregate sum of solar PV capacity within Charleston zip codes.<sup>7</sup> These data were provided through 8 January 2014, so solar PV capacity installed in the first eight days of 2014 may be included.

### **Charlotte, North Carolina—6 MW**

Solar PV capacity within Charlotte was determined by identifying solar PV projects in North Carolina from the North Carolina Utilities Commission (NCUC) worksheet, "New Renewable Energy Facility Registrations Accepted by the North Carolina Utilities Commission, 2008-2013," last updated 31 December 2013. The NCUC docket for each registered solar PV installation was then reviewed, using the NCUC's electronic docket, to determine whether the

location of the system was within the city of Charlotte. The NCUC docket for several of the projects referred to their capacity in terms of AC watts, and it was assumed that this held true for the other projects as well. We converted these capacity figures to DC watts (see Methodology).

### **Chicago, Illinois—11 MW**

Commonwealth Edison, the power company serving Chicago, provided us with data on solar PV capacity within the city limits of Chicago.<sup>8</sup> The data includes all installations within the city limits of Chicago through 31 December 2013. Two installations with a combined capacity of 0.8 MW were excluded because the capacity was reported as "a combination of wind and solar PV," and we could not isolate the solar PV capacity. These data were reported in DC watts.

### **Cincinnati, Ohio—4 MW**

The Public Utilities Commission of Ohio provided us with a list of certified renewable energy installations, with address information, updated as of 31 December 2013.<sup>9</sup> We isolated the solar PV capacity of installations within the city limits of Cincinnati by mapping the installation addresses in ArcMap, joining them to the "USA Census Populated Places" layer, and choosing the Cincinnati total. It is important to note that these are "certified" installations; some may have completed the certification process but are not yet online, making this possibly an overestimate of installed solar PV capacity as of 31 December 2013.

### **Cleveland, Ohio—1 MW**

See "Cincinnati, Ohio."

### **Columbus, Ohio—2 MW**

See "Cincinnati, Ohio."

### **Dallas, Texas—1 MW**

The solar PV capacity installed in Dallas is taken from NREL's Open PV database. See the Methodology for a description of the data from Open PV.

Data for Dallas were also provided by Clean Energy Associates (CEA), a clean energy consulting company that ran Dallas-electric utility Oncor's solar PV incentive program through 2012. This solar PV capacity total for Dallas provided by CEA only reflects solar PV installations with the city label "Dallas" through 31 December 2012.<sup>10</sup> The authors requested data for 2013 from Oncor, which now manages its own solar PV incentive program in Dallas, but the company declined to provide Dallas-specific data.<sup>11</sup> That solar PV capacity total is therefore missing a year of solar PV, and a small number of installations listed as "Dallas" may actually fall outside the Dallas city limits. Because the Open PV total was larger than the 1.24 MW reported by Clean Energy Associates, we used the more comprehensive Open PV total.



## Denver, Colorado—25 MW

This solar PV capacity total for Denver is an estimate provided by Xcel Energy, the utility that serves the city of Denver. Aside from this estimate, Xcel declined to provide more detailed data on solar PV capacity in Denver as of the end of 2013.<sup>12</sup>

## Detroit, Michigan—1 MW

DTE Energy Company provided us with the solar PV capacity within the city limits of Detroit as of 29 January 2014.<sup>13</sup>

## Hartford, Connecticut—0.4 MW

This total is the sum of the solar PV capacities of solar facilities listed as approved under Connecticut's Renewable Portfolio Standard, based on a worksheet obtained from the Connecticut Public Utilities Regulatory Authority (PURA) labeled "RPS," obtained from <http://www.ct.gov/pura/lib/pura/rps/rps.xls>, and last updated on 13 November 2013.

## Honolulu, Hawaii—91 MW

We estimated the amount of solar PV capacity in urban Honolulu from county-level data released by Hawaiian Electric, the company serving the county of Honolulu (which is coterminous with the island of Oahu).<sup>14</sup> Within the island of Oahu, the census designated place "urban Honolulu" is the place most comparable with other U.S. cities.<sup>15</sup> Data that would allow for more precise identification of PV facilities within urban Honolulu were requested from Hawaiian Electric Company, the city of Honolulu permitting department, and the Hawaii State Energy Office, but none of these sources could provide data more geographically specific than the county level.

We used the total capacity of solar PV installations within Honolulu County to estimate what percent of this capacity would fall in urban Honolulu.<sup>16</sup>

**Solar PV Capacity in urban Honolulu Estimate (MW)** = Total Solar PV Capacity in Honolulu County\*(Urban Honolulu Households/Honolulu County Households)

**Solar PV Capacity in Honolulu Estimate (MW)** = 221 MW \*(127,652/308,490)

## Houston, Texas—4 MW

Centerpoint Energy, the electric utility serving the city of Houston, provided us with solar PV capacity installed in its service area broken down by city.<sup>17</sup> These city breakdowns were compiled using addresses, not city limits, so a small number of installations included in the Houston total may fall outside of the city limits. The data were up to date through 31 December 2013. These data were reported in AC watts, and were converted to DC watts (see Methodology).

## Indianapolis, Indiana—56 MW

Indianapolis Power & Light, the investor-owned utility serving Indianapolis, provided us with an aggregate total of solar PV capacity installed within the city limits.<sup>18</sup> The data were up to date through 31 December 2013. These data were reported in AC watts, and were converted to DC watts (see Methodology).

## Jacksonville, Florida—16 MW

Jacksonville Electric Authority (JEA), the municipal utility serving the city, provided us with 1) JEA net metering subscriptions with zip codes, and 2) JEA's identified systems within Jacksonville, which included the 15 MW Jacksonville Solar facility where JEA receives energy through a power purchase agreement.<sup>19</sup> Data were complete through 31 December 2013.

Using ArcMap, we identified zip codes that are centered in the city limits of Jacksonville, and summed the capacity of solar PV installations in those zip codes to estimate the solar capacity in Jacksonville. The total amount of solar PV in Jacksonville was calculated by adding the customer generation within Jacksonville zip codes to the other projects JEA identified as being within Jacksonville.

## Kansas City, Missouri—2 MW

This solar PV capacity total is based on data that Kansas City Power & Light (KCP&L) reported to the U.S. Energy Information Administration on net metered solar PV installed in its service territory as of September 2013.<sup>20</sup> The solar PV capacity in Kansas City was estimated based on the total net metered solar PV capacity in KCP&L's service territory using the ratio of households in Kansas City to customers in KCP&L's service territory.<sup>21</sup> KCP&L declined to provide more detailed data on solar capacity within Kansas City.<sup>22</sup>

**Solar PV Capacity in Kansas City Estimate (MW)** = (Total Non-Located Solar PV Capacity in KCP&L Service Territory)\*(Households in Kansas City/Number of KCP&L Customers in Service Territory)

**Solar PV Capacity in Kansas City Estimate (MW)** = (4.81 MW)\*(192,048/511,100)

## Las Vegas, Nevada—13 MW

The solar PV capacity installed in Las Vegas is taken from NREL's Open PV database. See the Methodology for a description of the data from Open PV.

Nevada Energy provided us with data on solar PV installations, broken down by zip code, as of 2 January 2014.<sup>23</sup> Using ArcMap, we identified zip codes that are centered in the city limits of Las Vegas, and summed the capacity of solar PV installations in those zip codes to estimate the solar

PV capacity in Las Vegas. Using this method and the data from NV Energy, the solar PV capacity in Las Vegas was found to be 12.7 MW. Because this total was smaller than that reported in Open PV, we used the more comprehensive Open PV total.

#### **Los Angeles, California—132 MW**

The Los Angeles Department of Water and Power provided us with the solar PV capacity total within the city of Los Angeles.<sup>24</sup> This includes solar PV installed through the Solar Incentive Program, Los Angeles' Feed-in Tariff Program, and its community solar program, through 31 December 2013. These data were reported in AC watts, and were converted to DC watts (see Methodology).

#### **Louisville, Kentucky—1 MW**

Louisville Gas & Electric provided us with an aggregate total of installed solar PV capacity within the city limits of Louisville, through 31 December 2013.<sup>25</sup> These data were reported in AC watts, and were converted to DC watts (see Methodology).

#### **Manchester, New Hampshire—1 MW**

Public Service of New Hampshire, the electric utility company serving the city of Manchester, provided us with an aggregate total of installed solar PV capacity within the city limits of Manchester, through 31 December 2013.<sup>26</sup> These data were reported in AC watts, and were converted to DC watts (see Methodology).

#### **Memphis, Tennessee—3 MW**

The Tennessee Valley Authority renewables program provided us with an aggregate total for solar PV capacity within the city limits of Memphis as of 31 December 2013.<sup>27</sup>

#### **Miami, Florida—0.4 MW**

Florida Power & Light provided us with solar PV installed in their service area, broken down by zip code, as of 31 December 2013.<sup>28</sup> We used ArcMap to isolate those zip codes that are centered within the city limits of Miami and counted only solar PV installations in those Miami zip codes in the solar PV capacity total for the city.

#### **Milwaukee, Wisconsin—1 MW**

As reported on the website of the city of Milwaukee, the city has "more than 1.25 MW of solar energy being produced in Milwaukee."<sup>29</sup> Our use of 1.25 MW is therefore an underestimate, but we were unable to determine how much over 1.25 MW of solar power the city had installed.<sup>30</sup>

#### **Minneapolis, Minnesota—2 MW**

The city of Minneapolis provided us with an aggregate solar PV capacity total as of the end of 2012.<sup>31</sup> This total was aggregated by Xcel, the electric utility serving Minneapolis, which declined to provide us data from 2013.<sup>32</sup> Solar PV installations in 2013 are, therefore, not included in this estimate.

#### **Nashville, Tennessee—4 MW**

See "Memphis, Tennessee."

#### **New Orleans, Louisiana—22 MW**

Entergy New Orleans, the electric utility serving New Orleans, provided us with this solar PV capacity total, as of 31 December 2013.<sup>33</sup> These data were reported in AC watts, and were converted to DC watts (see Methodology).

#### **New York, New York—33 MW**

Data on solar PV capacity in the city limits of New York as of 31 December 2013 were provided by Con Edison, the utility serving New York City.<sup>34</sup> These data were reported in AC watts, and were converted to DC watts (see Methodology).

#### **Newark, New Jersey—13 MW**

The solar PV installations supported by New Jersey's Clean Energy Program (NJCEP) are made available online in "NJCEP Solar Installations Report" with city and zip code information.<sup>35</sup> When we collected the data, information was available through 31 December 2013. We found the Newark solar PV total by filtering "city name" for Newark.

#### **Orlando, Florida—2 MW**

Orlando Utilities Commission, the municipal utility serving the city of Orlando, provided us with a spreadsheet of solar installations in OUC's service territory, with address information and updated as of 31 December 2013.<sup>36</sup> We filtered this list for "solar PV" projects only, and filtered out any "discontinued" or "pending" projects. We then mapped the qualifying projects in ArcMap and found the capacity of those installations within the city limits of Orlando, as was delimited by the "U.S. Census Populated Places" layer.

#### **Philadelphia, Pennsylvania—9 MW**

This solar PV capacity total was found using the SREC-tracker PJM-GATS dataset.<sup>37</sup> We downloaded this list and summed the solar PV capacity within "Philadelphia County" registered before 31 December 2013.

#### **Phoenix, Arizona—96 MW**

These data were obtained from the Arizona "Go Solar" website, managed by the Arizona Corporation Commission with information provided by regulated electric utilities.<sup>38</sup> Spreadsheets of solar PV installations are downloadable by utility by zip code on this website. The electric utilities Arizona Public Service (APS) and the Salt River Project (SRP) serve the city of Phoenix. We downloaded their spreadsheets of installations, and selected those installations that were assigned the status of "installed," were listed as "PV," were installed before 31 December 2013, and fell into zip codes centered in the Phoenix city limits. We used ArcMap to identify zip codes that are centered in the city limits of Phoenix, and we used only installations in those zip codes to determine the solar PV capacity in Phoenix.

### **Pittsburgh, Pennsylvania—1 MW**

We received data on the solar PV capacity within the city limits of Pittsburgh from the Office of the Mayor.<sup>39</sup> These data were collected by PennFuture from the Pennsylvania Public Utilities Commission. The data are current to the middle of December 2013.

### **Portland, Maine—0.2 MW**

The solar PV capacity installed in Portland was provided by Central Maine Power.<sup>40</sup> These data are up to date through December 2013.

### **Portland, Oregon—15 MW**

The Portland Bureau of Planning and Sustainability provided us with a solar PV capacity total for the city of Portland (based on Portland zip codes), as of 31 December 2013.<sup>41</sup> The solar PV installations included in this total were part of the two mutually exclusive Oregon solar incentive programs, Energy Trust of Oregon and the Oregon Volumetric Incentive Rate pilot program. This number was reported in DC watts.

### **Providence, Rhode Island—1 MW**

The Rhode Island Office of Energy Resources provided us with a spreadsheet of solar installations by city, taken from National Grid's net metering spreadsheet, as of 31 December 2013.<sup>42</sup> We included only those installations within "Providence."

### **Raleigh, North Carolina—12 MW**

See "Charlotte, North Carolina."

### **Richmond, Virginia—1 MW**

The city of Richmond obtained a list of net metered solar PV installations from the Virginia Department of Mines, Minerals and Energy as of 21 January 2014.<sup>43</sup> We used installations listed with the "city name" of Richmond.

### **Riverside, California—8 MW**

The installed solar PV capacity total for Riverside was taken from a solar map maintained by the Riverside Power District: <http://www.greenriverside.com/Green-Map-9>. This map is updated daily, and the total we used was recorded on 9 January 2014; therefore, some solar PV capacity in this total may have been installed in the first nine days of 2014.

### **Sacramento, California—16 MW**

The Sacramento Municipal Utility District (SMUD) provided us with spreadsheets of individual solar PV installations within the SMUD service area, including address information.<sup>44</sup> These installations included residential and commercial installations that had been incentivized by SMUD and solar PV installed through the Solar Smart new homes program. These installations were mapped in

ArcMap using the addresses provided, and joined with the city limits of Sacramento to determine the solar PV capacity within the city limits. The data were provided in AC watts, and were converted to DC watts (see Methodology).

### **Salt Lake City, Utah—5 MW**

The Rocky Mountain Power Company, the electric utility serving Salt Lake City, provided us with solar PV capacity installed as of 31 December 2013 within Salt Lake City.<sup>45</sup>

### **San Antonio, Texas—84 MW**

Solar San Antonio, a non-profit organization in San Antonio, provided us with data on solar installations by zip code as of 31 December 2013.<sup>46</sup> These data are from CPS Energy, the municipal utility serving the city of San Antonio. We used ArcMap to identify zip codes that are centered in the city limits of San Antonio, and we used only installations in those zip codes to determine the solar PV capacity in San Antonio.

### **San Diego, California—107 MW**

San Diego Gas and Electric provided us with this total, which includes net metered installations and non-net metered solar projects within the city limits of San Diego, through 31 December 2013.<sup>47</sup> These data were reported in AC watts, and were converted to DC watts (see Methodology).

### **San Francisco, California—26 MW**

The City and County of San Francisco provided us with the installed solar PV capacity within the city limits of San Francisco, which includes "everything connected to the grid" in San Francisco. They could only provide data through August 2013.<sup>48</sup>

### **San Jose, California—94 MW**

This solar PV capacity total for San Jose was provided by Pacific Gas & Electric within the city limits of San Jose as of 5 January 2014.<sup>49</sup> These data were reported in AC watts, and were converted to DC watts (see Methodology).

### **Seattle, Washington—4 MW**

Seattle City Light (SCL), Seattle's municipal utility, and Seattle's Department of Planning and Development estimate that there are 6 MW of solar PV capacity installed within SCL's service territory as of the end of 2013, which is larger than the city of Seattle. Seattle City Light and Seattle's Department of Planning and Development did not have a more specific number available.<sup>50</sup> We scaled this number based on the number of homes in Seattle and the number of total customers in Seattle City Light's service territory.<sup>51</sup>

**Solar PV Capacity in Seattle Estimate (MW)** = (Total Non-Located Solar PV Capacity in Seattle City Light's Service



Territory)\*(Households in Seattle/Number of Seattle City Light Customers in Service Territory)

**Solar PV Capacity in Seattle Estimate**  
(MW) = 6 MW \* (285,476/403,000)

#### St. Louis, Missouri—0.4 MW

The Missouri Department of Economic Development maintains a list of “Certified Solar Renewable Generation Facilities,” which includes information on customer solar generation in Ameren Missouri’s service territory (Ameren is the utility serving St. Louis, Missouri).<sup>52</sup> As of 17 April 2013, Ameren had 3.66 MW of solar PV installed within its service territory. We scaled that figure to St. Louis using the number of households in St. Louis as compared to the total number of customers in Ameren Missouri’s service territory.<sup>53</sup>

**Solar PV Capacity in St. Louis Estimate**  
(MW) = (Total Non-Located Solar PV Capacity in St. Louis City Light’s Service Territory)\*(Households in St. Louis/Number of Ameren Customers in Service Territory)

**Solar PV Capacity in St. Louis Estimate**  
(MW) = 3.66 MW\*(139,840/1,200,000)

#### Tampa, Florida—4 MW

Tampa Electric provided a spreadsheet of installed solar PV capacity, with city name and zip code information.<sup>54</sup> We used ArcMap to determine which zip codes are centered within the city limits of Tampa and used only the reported solar capacity within those zip codes to estimate the capacity within the city limits.

#### Virginia Beach, Virginia—0.3 MW

Dominion Virginia Power provided us with data on solar PV installed in the city limits of Virginia Beach as of 31 December 2013.<sup>55</sup> These data were reported in AC watts, and were converted to DC watts (see Methodology).

#### Washington, D.C.—8 MW

The solar PV capacity installed in Washington, D.C. is taken from NREL’s Open PV database. See the Methodology for a description of the data from Open PV.

PJM GATS also tracks solar PV installed in Washington D.C., but its total was less complete than the solar PV capacity reported in Open PV.

#### Wilmington, Delaware—7 MW

The Delaware Public Service Commission maintains a downloadable spreadsheet of certified renewable energy facilities.<sup>56</sup> We used this spreadsheet to find the solar PV capacity in Wilmington, based on postal address, as of 31 December 2013.

## Endnotes

1. EIA Utility-Scale Report: U.S. Energy Information Administration, *Form EIA-860 detailed data (2012 data)*, 13 October 2013, available at <http://www.eia.gov/electricity/data/eia860/>; estimate of PNM’s distributed solar PV capacity: Kumiko Styes, Manager of Retail Renewable Energy Programs, Public Service of New Mexico, personal communication, 6 February 2014.
2. See “Kumiko Styes,” *Id.*
3. Total Number of PNM customers: Public Service Company of New Mexico, *About PNM*, accessed at [www.pnm.com](http://www.pnm.com), 3 February 2014; Total Number of Households in Albuquerque: U.S. Census Bureau, Quickfacts, *Albuquerque (city)*, accessed at <http://quickfacts.census.gov>, 7 January 2014.
4. Shan Arora, Southface, personal communication, 28 January 2014.
5. Tim Harvey, Austin Energy, Conservation Program Coordinator, personal communication, 16 January 2014.
6. PJM Environmental Information Services, *Public Reports: Renewable Generators Registered in GATS*, downloaded from <https://gats.pjm-eis.com/gats2/PublicReports/RenewableGeneratorsRegisteredinGATS>, 6 March 2014.
7. Terry Hansworth, Appalachian Power Company, personal communication, 8 January 2014.
8. Robyn I. Mackey, ComEd, Senior Business Analyst, personal communication, 17 January 2014.
9. Sarah Parrot, Public Utilities Commission of Ohio, Legal Department, personal communication, 20 February 2014.
10. Steve Wiese, Clean Energy Associates, personal communication, January 2013.
11. Darryl Nelson, Oncor Electric Delivery, Manager Load Research and Regulatory Affairs, personal communication, 29 January 2014.
12. Jaclyn Webb, Xcel Energy, Associate Product Manager, personal communication, 21 January 2014.
13. Scott Simons, DTE Energy, personal communication, 29 January 2014.
14. Hawaiian Electric Company, Quarterly Installed PV Data, *Cumulative Installed PV—As of December 31, 2013*, downloaded from <http://www.hawaiianelectric.com/heco/Clean-Energy/Going-Solar/More-Solar-Information>, 7 March 2014.
15. See note 51.
16. Urban Honolulu and Honolulu County Population Figures: US Census Quickfacts, *2008-2012 Survey Household Estimates*, accessed at <http://quickfacts.census.gov>, 11 March 2014.
17. Bruce Raborn, Centerpoint Energy, personal communication, 10 January 2014.
18. Anita Johnson, Indianapolis Power & Light, Administrative Assistant, personal communication, 10 January 2014.
19. Jay Worley, Jacksonville Electric Authority, Director Environmental Programs, personal communication, 27 January 2014.
20. KCP&L net metered solar PV capacity: U.S. Energy Information Administration, *Form EIA-826 detailed data, Net Metering*, September 2013.
21. Customers in KCP&L service territory: Bloomberg Businessweek, *Company Overview of Kansas City Power & Light Company*, accessed at <http://investing.businessweek.com/research/stocks/private/snapshot.asp?privcapId=3097815>, 5 February 2014; households in Kansas City: US Census State and County Quickfacts, *Kansas City (city), Missouri*, accessed at <http://quickfacts.census.gov>, 5 February 2014.
22. Brad Lutz, Kansas City Power & Light, Manager Regulatory Affairs, personal communication, 15 January 2014.
23. Sean Sullivan, NV Energy, Renewable Generations, personal communication, 14 February 2014.
24. Kimberly Hughes, Los Angeles Department of Water and Power, Communications, personal communication, 22 January 2014.

25. Tim Melton, Louisville Gas and Electric, Manager Customer Commitment, personal communication, 13 January 2014.
26. Martin Murray, Public Service of New Hampshire, Media Relations, personal communication, 14 January 2014.
27. Ashley Dickens, Tennessee Valley Authority, Renewable Energy, personal communication, 8 January 2014.
28. John McComb, Florida Power & Light, personal communication, 9 January 2014.
29. The City of Milwaukee, Milwaukee Shines, *About Us*, accessed at <http://milwaukee.gov/milwaukeeeshines/AboutUs.htm>, 16 March 2013.
30. The Office of Environmental Sustainability and the Milwaukee Shines program failed to return our calls, despite repeated attempts.
31. Gayle Prest, City of Minneapolis, personal communication, 4 February 2014.
32. John Wold, Xcel Energy, Consumer Product Marketing, personal communication, 13 February 2014.
33. Dayle Zatlin, NYSERDA, Assistant Director of Communications, personal communication, 22 January 2014.
34. Allan Drury, Con Edison, personal communication, 11 February 2014.
35. New Jersey's Clean Energy Program, *New Jersey Solar Installations Update: Solar Installations Report*, downloaded from <http://www.njcleanenergy.com/renewable-energy/project-activity-reports/installation-summary-by-technology/solar-installation-projects>, 20 January 2013.
36. Jennifer Szaro, Orlando Utilities Commission, Renewables Manager, personal communication, 28 January 2014.
37. See note 6.
38. Arizona Goes Solar, Utility Incentives, *Salt River Project and Arizona Public Service: Installations*, downloaded from <http://arizonagoessolar.org>, 17 March 2014.
39. Matthew Barron, Policy Manager, Office of Mayor William Peduto, personal communication, 6 March 2014.
40. Richard Hevey, Legal Department, Central Maine Power, personal communication, 4 March 2014.
41. Jaimes Valdez, Portland Bureau of Planning and Sustainability, Renewable Energy Specialist, personal communication, 17 January 2014.
42. Danny Musher, Rhode Island Office of Energy Resources, Programming Services Officer, personal communication, 3 February 2014.
43. Amy George, City of Richmond, Sustainability Management Analyst, personal communication, 21 January 2014. She received the data from Ken Jurman at the Virginia Department of Mines, Minerals and Energy.
44. Jim Barnett, Sacramento Municipal Utility District, Principal Architect, personal communication, 8 January 2014.
45. Rocky Mountain Power, Net Metering Department, personal communication, 22 January 2014.
46. Devon Rood, Solar San Antonio, Research Associate, personal communication, 8 January 2014.
47. Ken Parks, San Diego Gas & Electric, Manager Customer Generation, personal communication, 27 January 2014.
48. Charles Sheehan, City and County of San Francisco, personal communication, 8 January 2014.
49. David Eisenhauer, Pacific Gas & Electric, personal communication, 12 February 2014.
50. Jack Brautigam, Seattle City Light, personal communication, 9 January 2014; Duane Jonlin, Seattle's Department of Planning and Development, personal communication, 21 January 2014.
51. Seattle City Light Customers: Seattle City Light, *Annual Report 2012*, 2012.
52. Missouri Department of Economic Development, *Table 2 Certified Solar Renewable Energy Generation Facilities (as of December 10, 2013)*, downloaded from <http://ded.mo.gov/energy/docs/Solar%20List.pdf>, 10 February 2014.
53. St. Louis households: U.S. Census Bureau State and County Quickfacts, *St. Louis (City), Missouri*, accessed at <http://quickfacts.census.gov>, 5 February 2014; Ameren Customers: Ameren Missouri, *About Us*, downloaded from [www.ameren.com](http://www.ameren.com), 5 February 2014.
54. Shelly Aubuchon, TECO Energy, personal communication, 15 January 2014.
55. James Tew, Program Manager, Dominion Virginia Power, personal communication, 12 March 2014.
56. Delaware Public Service Commission, *Delaware's Renewable Portfolio Standard, "List of Certified Eligible Energy Resources,"* downloaded from <http://dep.sc.delaware.gov/electric/delrps.shtml>, 17 February 2014.

**Environment America Research & Policy Center is a 501(c)(3) organization dedicated to protecting America's air, water and open spaces. It investigates problems, crafts solutions, educates the public and decision makers, and helps Americans make their voices heard in local, state and national debates over the quality of our environment and our lives. For more information about Environment America Research & Policy Center or for additional copies of this report, please visit [www.environmentamericacenter.org](http://www.environmentamericacenter.org).**

**Frontier Group conducts independent research and policy analysis to support a cleaner, healthier and more democratic society. Its mission is to inject accurate information and compelling ideas into public policy debates at the local, state and federal levels. For more information about Frontier Group, please visit [www.frontiergroup.org](http://www.frontiergroup.org).**

**Environment America Research & Policy Center sincerely thanks Kevin Armstrong, The Vote Solar Initiative; Justin Baca, The Solar Energy Industries Association; John Farrell, The Institute for Local Self-Reliance; Chad Laurent and Wilson Rickerson, Meister Consultants Group; DeWitt Jones and Emily Rochon, Boston Community Capital/Solar Energy Advantage; Kevin McCarty, U.S. Conference of Mayors; Ted Quinby, National Renewable Energy Laboratory; Karl Rabago, Rabago Energy, LLC.; Amit Ronan, George Washington University Solar Institute; and Anya Schoolman, Community Power Network, for their review of drafts of this document, as well as their insights and suggestions. Thanks to everyone who went out of their way to provide data for this report. Thanks also to Benjamin Davis of Frontier Group for editorial support and to ESRI for its grant of ArcGIS software that was used for data analysis in this report.**

**Environment America Research & Policy Center thanks the Tilia Fund, the John Merck Fund, the Energy Foundation, the Arntz Family Foundation, the Scherman Foundation, Fred and Alice Stanback, the Meyer Memorial Trust and the Cynthia and George Mitchell Foundation for making this report possible.**

**The authors bear responsibility for any factual errors. The recommendations are those of Environment America Research & Policy Center. The views expressed in this report are those of the authors and do not necessarily reflect the views of the funders or those who provided review.**

© 2014 Environment America Research & Policy Center

# Recent Decisions and Legislation in Environmental Law

## Recent Decisions

### *Association of Battery Recyclers, Inc. v. U.S. E.P.A.*, 716 F.3d 667 (D.C. Cir. 2013)

#### Facts

Section 112 of the Clean Air Act requires the EPA to set emissions standards for major sources of hazardous air pollutants (HAPs).<sup>1</sup> In order to find these standards, the EPA looks at the amount of emissions reduction achieved in practice by the best performing sources.<sup>2</sup> Using this, the EPA sets certain minimum stringency requirements.<sup>3</sup> In addition, the EPA is allowed to determine if “stricter standards, known as beyond the floor limits, are achievable.”<sup>4</sup>

The Clean Air Act also requires the EPA to review and revise these emissions standards in order to take into account developments in practice and technology.<sup>5</sup> In accordance with this law, the EPA revised the emissions standards for secondary lead smelting facilities in 2012, reducing the allowable emissions by 90% (called the Secondary Lead Rule).<sup>6</sup> The new rules also required smelters to totally enclose “fugitive” emission sources.<sup>7</sup> Both industry and environmental groups challenged the Rule.<sup>8</sup>

#### Issues

1. Whether the EPA’s regulation of elemental lead as an HAP is permissible under the Clean Air Act.
2. Whether the EPA’s methodology for estimating fugitive emissions at secondary lead smelting facilities allowed it to conclude that total enclosure of these emissions was warranted.

#### Rationale

The EPA is required to regulate lead compounds as an HAP.<sup>9</sup> However, the Clean Air Act states that the EPA cannot treat elemental lead as an HAP under Section 112.<sup>10</sup> Therefore, the industry petitioners claim that the Secondary Lead Rule is impermissible because it specified a testing method that measures the mass of elemental lead (rather than lead compounds) and set HAP emissions standards at levels designed to attain primary national ambient air quality standards (NAAQS).<sup>11</sup>

The Court held that the first contention is time-barred because the 1995 emissions standards employed an identical test and was not challenged back then.<sup>12</sup> As for the second contention, the Rule is not designed to alter the NAAQS in any way.<sup>13</sup> It does not change the level or

impose an earlier attainment date.<sup>14</sup> Essentially, the Rule in no way interferes with the NAAQS.

The industry petitioners challenge the methodology used by the EPA in determining that certain fugitive sources need to be fully enclosed.<sup>15</sup> However, the EPA points out that the petitioners “suggested in comments that any error in EPA’s methodology resulted in an underestimation of emissions from completely unenclosed facilities.”<sup>16</sup> Thus, even if the petitioners were correct, the data used would only further support the use of an enclosed facility.<sup>17</sup> Since the petitioners have not shown that, absent the error, there is a substantial probability that they would not be injured and that the injury would be removed by the Court’s relief, the petitioners did not have standing.<sup>18</sup>

#### Conclusion

The Court found that a challenge to the Secondary Lead Rule was time-barred because it was not originally challenged under the 1995 emissions standards. Furthermore, the Court found that the petitioners failed to show that there would not have been an injury absent the alleged methodological error.

Brian Eisner

St. John’s University School of Law ‘15

#### Endnotes

1. *Ass’n of Battery Recyclers, Inc. v. U.S. E.P.A.*, 716 F.3d 667, 670 (D.C. Cir. 2013) (quoting 42 U.S.C. §7412 (d) (1)).
2. *Ass’n of Battery Recyclers, Inc.*, 716 F.3d at 670 (discussing the MACT, or the maximum achievable control technology.)
3. *Id.*
4. *Id.*
5. *Id.*
6. *Id.*
7. *Id.*
8. *Id.*
9. *Id.* (citing 42 U.S.C. §7412 (b) (1)).
10. *Id.* (citing *National Lime Association v. EPA*, 233 F.3d 625 (D.C. Cir. 2000)).
11. *Id.*
12. *Id.*
13. *Id.* at 671.
14. *Id.*
15. *Id.*
16. *Id.*
17. *Id.*
18. *Id.*

\* \* \*



## Facts

This case involves the acquisition of eight properties by adverse possession.<sup>1</sup> The plaintiffs stopped paying rent on the properties in dispute under a claim that their use was hostile under a claim of right.<sup>2</sup> Although no written lease existed, the plaintiffs showed a landlord/tenant relationship in the form of two letters.<sup>3</sup> The defendants argued that the plaintiffs used the properties by permission, thus negating any hostile claim.<sup>4</sup>

## Procedural History

Defendants appealed from the Supreme Court, Kings County judgments dated July 12, 2011, which held that plaintiffs are the fee simple absolute owners of the properties in dispute, and dismissed the defendants’ counterclaims.<sup>5</sup> The Supreme Court, Appellate Division affirmed the decisions, with one bill of costs.<sup>6</sup>

## Issue

Whether the plaintiffs’ use of the properties was hostile, thus fulfilling the first element of the common-law requirements of adverse possession?

## Rationale

The Supreme Court held that the plaintiffs established ownership of the properties by adverse possession.<sup>7</sup> The court found the first element in question was satisfied by clear and convincing evidence, thus establishing ownership of the properties by the plaintiffs.<sup>8</sup>

The court found clear and convincing evidence of ownership, even absent a written lease.<sup>9</sup> However, further admissible evidence revealed letters between the parties indicating a landlord/tenant relationship, thus invoking Real Property Actions and Proceedings Law (RPAPL) § 531.<sup>10</sup> Neither the plaintiffs nor their predecessor had paid rent since July 21, 1981.<sup>11</sup> The court decided that even if any permission to use the property had been granted to the plaintiffs or their predecessor, it effectively ended after 10 years.<sup>12</sup> Under RPAPL § 531, the plaintiffs adversely possessed the properties beginning on July 21, 1991.<sup>13</sup>

## Conclusion

The court affirmed the judgments of the Supreme Court.<sup>14</sup> The plaintiffs satisfied the hostile element of adverse possession 10 years after the expired permissive period, thus declaring them owners of the properties in fee simple absolute.<sup>15</sup> The defendants’ remaining claims were found without merit as their counterclaims to recover the

fair value of the use and occupancy of the subject properties were dismissed.<sup>16</sup>

Pamela Lowe  
Albany Law School ‘15

## Endnotes

1. *Auto Gobbler Parts, Inc., et al. v Serpico, et al.* 109 A.D.3d 943, (App. Div. 2d Dep’t 2013).
2. *Id.*
3. *Id.*
4. *Id.*
5. *Id.*
6. *Id.*
7. *Id.*
8. *Id.*
9. *Id.*
10. *Id.*
11. *Id.*
12. *Id.*
13. *Id.*
14. *Id.*
15. *Id.*
16. *Id.*

\* \* \*

## ***Cnty. Ass’n for Restoration of the Env’t, Inc. v. R & M Haak, LLC, 2013 WL 3188855 (E.D. Wash. June 21, 2013)***

## Facts

The defendant, R & M Haak, LLC, a Washington limited liability company, operates a large dairy farm in eastern Washington.<sup>1</sup> With many cows comes much manure.<sup>2</sup> The defendant made use of this manure in several ways, including transforming it into compost in order to sell it, applying it as fertilizer, and storing it in large liquid manure lagoons for future use as fertilizer.<sup>3</sup> The plaintiffs, the Community Association for Restoration of the Environment, a Washington non-profit corporation, and the Center for Food Safety, Inc., a Washington D.C. non-profit corporation, alleged that the defendant’s overuse of manure in the fields, as well as leakage from storage lagoons of the defendant’s stored manure, caused elevated levels of nitrates in the groundwater rendering it “discarded” for the purposes of the Resource Conservation and Recovery Act (RCRA).<sup>4</sup> The plaintiffs further asserted that the defendant’s actions cause “imminent and substantial danger to public health and the environment,” and that the defendant is engaged in “illegal open dumping.”<sup>5</sup> The plaintiffs argued that the defendant is, therefore, in violation of RCRA.<sup>6</sup>

## Procedural History

On February 20, 2013, the plaintiffs filed suit in the Eastern District of Washington.<sup>7</sup> Pending before the court was the defendant's motion to dismiss.<sup>8</sup>

## Issue

Whether manure falls outside the scope of RCRA's beneficial reuse exception and thus qualifies as "solid waste" when it leaks into groundwater due to overflowing storage lagoons or over-application in fields.<sup>9</sup>

## Rationale

The court explained that "'RCRA...governs the treatment, storage, and disposal of solid and hazardous waste.'" <sup>10</sup> The plaintiffs had not alleged that manure is hazardous waste, thus the focus of the court's analysis was specifically on whether manure constitutes "solid waste." <sup>11</sup> Under RCRA, "'solid waste' is defined as 'any garbage, refuse, sludge...and other discarded material.'" <sup>12</sup> However, RCRA does not explicitly define the term "discarded material." <sup>13</sup> The court looked to *Safe Air for Everyone v. Meyer*, a Ninth Circuit decision in which the court assigned a plain-meaning definition to the term. <sup>14</sup> According to the Ninth Circuit, to discard material is "'to cast aside; reject; abandon; give up.'" <sup>15</sup> The court in *Safe Air for Everyone* also outlined factors to consider in determining whether a material constitutes "solid waste." These factors are:

(1) whether the material is "destined for beneficial reuse or recycling in a continuous process by the generating industry itself;" (2) whether the materials are being actively reused, or whether they merely have the potential of being reused; (3) whether the materials are reused by its original owner, as opposed to use by a salvager or reclaimer. <sup>16</sup>

The defendant contended that the manure is not "solid waste" because it is not "discarded," rather it is reintroduced to the soil as fertilizer. <sup>17</sup> The defendant further asserted that finding that manure qualifies as "solid waste" in this case would be akin to "requiring every dairy in the nation to operate as a sanitary landfill." <sup>18</sup>

The plaintiffs argued that when manure leaks into the groundwater it "is 'discarded' because it has been abandoned and no longer serves a useful purpose." <sup>19</sup> Thus, in essence, the plaintiffs' primary argument was that manure may be considered "solid waste" when its use ceases to be beneficial due to over-application in the fields and leakage from storage lagoons. <sup>20</sup> The court agreed. <sup>21</sup>

In so ruling, the court noted that it did not "disregard the express finding by Congress that '[a]gricultural wastes which are returned to the soil as fertilizers or soil conditioners are not considered discarded materials in

the sense of this legislation.'" <sup>22</sup> However, the court found it "untenable that...manure that was initially intended to be used as fertilizer can never become 'discarded' merely because it is 'unintentionally' leaked or over-applied." <sup>23</sup> Thus the question of whether animal waste qualifies as "solid waste" calls for a factually driven determination based on how the waste is used. <sup>24</sup> Ultimately the court held that "[i]t would be premature at this stage of the proceedings to dismiss this case without any argument or evidence as to whether the manure was put to its intended use and/or used for beneficial purposes by defendant under the circumstances unique to this case." <sup>25</sup>

## Conclusion

The court found that the plaintiffs had pleaded sufficient factual allegations to plausibly state a claim for which relief can be granted, allegations which, on a 12(b)(6) Motion to Dismiss, are entitled to a presumption of truth. <sup>26</sup> As such, the defendant's Motion to Dismiss was denied. <sup>27</sup>

**Michael R. Lieberman**  
Albany Law School '15

## Endnotes

1. *Cnty. Ass'n for Restoration of the Env't, Inc. v. R & M Haak, LLC*, No. 13-CV-3026-TOR, 2013 WL 3188855, at \*1 (E.D. Wash. June 21, 2013).
2. *Id.* In fact, a 1,500 pound cow produces approximately eighteen tons of manure each year. See *Approximate Manure Production and Value Table*, PAFFA (last accessed Nov. 12, 2013), <http://www.paffa.state.pa.us/paffa2/files/specialrecords/manuretable.pdf>.
3. *Id.*
4. *Id.*
5. *Id.* (citing 42 U.S.C. §§ 6972(a)(1)(B), 6945(a)).
6. *Cnty. Ass'n for Restoration of the Env't, Inc.*, 2013 WL 3188855, at \*1.
7. *Id.* at \*1.
8. *Id.*
9. *Id.* at \*1-3.
10. *Id.* at \*2 (quoting *Meghrig v. KFC Western, Inc.*, 516 U.S. 479, 483 (1996)).
11. *Cnty. Ass'n for Restoration of the Env't, Inc.*, 2013 WL 3188855, at \*2.
12. *Id.* at \*3 (quoting 42 U.S.C. § 6903(27)).
13. *Cnty. Ass'n for Restoration of the Env't, Inc.*, 2013 WL 3188855, at \*3.
14. *Id.*; see *Safe Air for Everyone v. Meyer*, 373 F.3d 1035, 1041 (9th Cir. 2004).
15. *Cnty. Ass'n for Restoration of the Env't, Inc.*, 2013 WL 3188855, at \*3 (quoting *Safe Air*, 373 F.3d at 1041).
16. *Id.* at 1043 (citations omitted).
17. *Cnty. Ass'n for Restoration of the Env't, Inc.*, 2013 WL 3188855, at \*3.
18. *Id.*
19. *Id.* at \*4 (citing *Zands v. Nelson*, 779 F. Supp. 1254, 1261-62 (S.D. Cal. 1991)).
20. *Cnty. Ass'n for Restoration of the Env't, Inc.*, 2013 WL 3188855, at \*4.
21. *Id.*

22. *Id.* (quoting *Safe Air*, 373 F.3d at 1045-46).
23. *Cnty. Ass'n for Restoration of the Env't, Inc.*, 2013 WL 3188855, at \*4.
24. *Id.* at \*5 (citing *Water Keeper Alliance, Inc., v. Smithfield Foods, Inc.*, No. 4:01-CV-27, 2001 WL 1715730 at \*4 (E.D.N.C. Sept. 20, 2001)).
25. *Cnty. Ass'n for Restoration of the Env't, Inc.*, 2013 WL 3188855, at \*5 (citing *Water Keeper*, 2001 WL 1715730, at \*4-5).
26. *Cnty. Ass'n for Restoration of the Env't, Inc.*, 2013 WL 3188855, at \*5.
27. *Id.*

\* \* \*

## ***Defenders of Wildlife v. U.S. Dep't of the Navy*, No. 12-15680, 2013 WL 5434774 (11th Cir. Oct. 1, 2013)**

### **Facts**

This case involved the Navy's proposal to build an Undersea Warfare Training Range (USWTR) fifty miles off the coast of the Florida/Georgia border.<sup>1</sup> The range proposed by the Navy will consist of "undersea, fiber optic telecommunications cables and up to 300 nodes over a 500-square-nautical-mile area of ocean."<sup>2</sup> These fiber optic cables will send and receive signals from nearby ships and submarines operating in the range, providing an exact location of such vessels for training and diagnostic analysis.<sup>3</sup> The body of water in question is significant because it is the only known calving grounds of the endangered North Atlantic right whale.<sup>4</sup>

In order to go through with the USWTR project, the Navy must comply with the Endangered Species Act (ESA), among other statutes.<sup>5</sup> The ESA prohibits agencies from "taking" "any member of a listed endangered or threatened species."<sup>6</sup> Also, the ESA requires federal agencies to "insure that any action authorized, funded, or carried out by such agency...is not likely to jeopardize the continued existence of any endangered species or threatened species."<sup>7</sup> In furtherance of that requirement, the ESA mandates that the agency consult with one of two applicable agencies (in this case, the National Marine Fisheries Service (NMFS)) if the acting agency finds that its proposal "may affect" a listed species.<sup>8</sup> During this consultation process, if the NMFS finds that the proposed action would violate the taking prohibition of the ESA, but that it would not jeopardize the continued existence of that species, it must issue an incidental take permit to the agency proposing the action.<sup>9</sup> With that incidental take permit, the acting agency is allowed to "take" an established number of the listed species in connection with its action.<sup>10</sup> Incidental take permits expire after five years.<sup>11</sup>

Here, the Navy consulted with the NMFS, and the latter agency found that the Navy's proposal, particularly its operating phase, would result in the taking of some right whales, but that this taking would not jeopardize the continued existence of the species.<sup>12</sup> However, since the

construction phase of the project was slated to last much longer than the five-year expiration date of the permit, and because the NMFS found that no incidental taking of any listed species would occur during this first phase of the project, the NMFS declined to issue an incidental take permit to the Navy, and the Navy commenced construction of the USWTR.<sup>13</sup> The Navy and the NMFS have formally agreed to recommence the consultation process closer to the actual date that the operational phase begins, merely postponing the date that the Navy would receive the incidental take permit.<sup>14</sup>

The appellants in this case allege that it was arbitrary and capricious for the Navy to commence construction of the proposed project without the incidental take permit from the NMFS.<sup>15</sup>

### **Procedural History**

Appellants brought this case to the U.S. District Court for the Southern District of Georgia, in which both parties filed cross motions for summary judgment.<sup>16</sup> The district court granted the Navy's motion for summary judgment, finding that the Navy's actions were in compliance with the ESA, as well as NEPA.<sup>17</sup>

### **Issue**

The primary issue presented in this case is whether an incidental take permit must be issued at the very onset of a project that will eventually cause an incidental taking of a listed species, or if the permit can be issued only when the takings themselves are bound to occur.

### **Rationale**

The United States Court of Appeals, 11th Circuit, held that it was neither arbitrary nor capricious for the NMFS to not issue an incidental take permit before the construction phase of the Navy's proposal began.<sup>18</sup> Primarily, the court focused on the fact that incidental take permits expire every five years, and that the construction phase of this particular project was determined to last much longer than that.<sup>19</sup> Since the NMFS, after its consultation with the Navy, found that there would be no incidental takings during the construction phase of the project, it was reasonable for the NMFS and the Navy to put off the incidental take permit aspect of the consultation.<sup>20</sup>

The court noted that it was a reasonable goal for the NMFS to save money and time by not issuing a permit that would be useless, since there would be no incidental takings of any listed species during the construction phase, which was to last well over five years.<sup>21</sup> The court reasoned that issuing the incidental take permit for the entirety of the project would be an empty, wasteful gesture, and the NMFS's and Navy's decision should be granted deference.<sup>22</sup> The court explained:



[W]e read the ESA as only requiring the incidental take [permit] to be included in the biological opinion if take of listed species is likely in the first place. Here, no take is likely because no take is expected from installation and because the Navy will not operate the range without first engaging in further environmental analysis with the NMFS.<sup>23</sup>

## Conclusion

The Court of Appeals, 11th Circuit, affirmed the decision of the U.S. District Court for the Southern District of Georgia, that the commencement of construction of the USWTR without the prior issuance of an incidental takings permit was not arbitrary and capricious, and upheld the District Court's grant of summary judgment to the Navy.<sup>24</sup>

**Benjamin Botelho**  
Albany Law School '14

## Endnotes

1. *Defenders of Wildlife v U.S. Dep't of the Navy*, No. 12-15680, 2013 WL 5434774, at \*1 (11th Cir. Oct. 1, 2013).
2. *Id.* at \*3.
3. *Id.*
4. *Id.*
5. *Id.* at \*4.
6. *Id.* (defining "taking" to include "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any listed species).
7. *Id.* (quoting 16 U.S.C. § 1536(a)(2) (2012)).
8. *Id.*
9. *Id.* at \*5.
10. *Id.*
11. *Id.*
12. *Id.* at \*6.
13. *Id.*
14. *Id.*
15. *Id.* at \*7.
16. *Id.*
17. *Id.*
18. *Id.* at \*11.
19. *Id.* at \*14.
20. *Id.*
21. *Id.*
22. *Id.*
23. *Id.* at \*16.
24. *Id.*

\* \* \*

## ***Green Thumb Lawn Care, Inc. v. Iwanowicz*, 107 A.D.3d 1402, 967 N.Y.S.2d 542 (4th Dep't 2013)**

### Facts

Environmental Conservation Law (ECL) 33-1001 requires pesticide applicators and property owners to enter into written contracts prior to pesticide application, specifying the cost of services and the approximate dates of application.<sup>1</sup> The New York State Department of Environmental Conservation (DEC) promulgated regulations with respect to ECL 33-1001, requiring that both the pesticide applicator and the property owner sign the contract (6 NYCRR 325.40).<sup>2</sup> A dispute arose when DEC commenced an administrative proceeding against Green Thumb Lawn Care ("Green Thumb"), alleging violations of ECL 33-1001 and the regulation promulgated pursuant to it.<sup>3</sup> The Acting Commissioner ruled against Green Thumb and ordered penalties.<sup>4</sup> Green Thumb subsequently filed two CPLR article 78 proceedings, which are consolidated on appeal. The first challenges the Acting Commissioner's findings of violations and the second challenges a policy statement issued by DEC in 2005 relating to "Compliance with Certain Provisions of Commercial Lawn."<sup>5</sup>

### Procedural History

The Onondaga County Supreme Court confirmed the Acting Commissioner's determination that Green Thumb violated both ECL 33-1001 and the regulation promulgated pursuant to it.<sup>6</sup> As for Green Thumb's second CPLR article 78 proceeding, the court found it was not ripe for review and dismissed the proceeding.<sup>7</sup>

### Issues

- (1) Whether the Acting Commissioner's ruling was arbitrary and capricious such that the Supreme Court erred in upholding it?
- (2) Whether the Supreme Court erred in upholding the Acting Commissioner's dismissal of Green Thumb's challenge to the 2005 DEC policy statement?

### Rationale

Green Thumb alleged that the Acting Commissioner acted arbitrarily and capriciously in ruling that it violated the statute and regulation.<sup>8</sup> In determining whether Green Thumb was in compliance with the statute and regulation, the court looked to both the plain language and legislative history.<sup>9</sup> The legislative history established that the statute was enacted for two purposes. The first was to ensure that lawn care businesses would not apply

their products until consumers were aware of the full price of the services.<sup>10</sup> The second purpose was “to ensure that residents were aware when possibly hazardous chemicals were going to be applied to their properties.”<sup>11</sup> Green Thumb’s contract did not include the full price of services and, rather than stating the specific dates of application, provided a range of dates, which included half of the calendar year.<sup>12</sup> Therefore, because Green Thumb’s contract violated the plain language of the statute as well as ran contrary to the legislative intent of the statute, the Acting Commissioner’s determination was not arbitrary and capricious.<sup>13</sup>

The court next examined whether Green Thumb’s challenge to DEC’s 2005 policy concerning commercial lawn application was properly dismissed. The court explained that a challenge to an agency determination is ripe if the determination is not yet final.<sup>14</sup> An agency determination is final when (1) the agency has reached a definitive position that causes an actual, concrete injury, and (2) the injury cannot be prevented or lessened by administrative actions or self-help.<sup>15</sup> The Acting Commissioner found that Green Thumb suffered no actual, concrete injury from DEC’s 2005 policy statement because it was finalized after Green Thumb applied the pesticides in issue.<sup>16</sup> Therefore, the Acting Commissioner’s dismissal was proper because the matter was not ripe for review.<sup>17</sup>

## Conclusion

The Onondaga County Supreme Court did not err in upholding the Acting Commissioner’s finding that Green Thumb violated ECL 33-1001 and 6 NYCRR 325.4. Additionally, Green Thumb’s challenge to DEC’s 2005 policy statement was not ripe for review and was properly dismissed.

Alexis Kim  
Albany Law School ‘15

## Endnotes

1. *Green Thumb Lawn Care, Inc. v. Iwanowicz*, 107 A.D.3d 1402, 1403–1404, 967 N.Y.S.2d 542, 545 (4th Dep’t 2013).
2. *Id.* at 1404, 967 N.Y.S.2d at 545.
3. *Id.* at 1402, 967 N.Y.S.2d at 544.
4. *Id.* at 1403, 967 N.Y.S.2d at 544.
5. *Id.*
6. *Id.*
7. *Id.*
8. *Id.*
9. *Id.*
10. *Id.* at 1404, 967 N.Y.S.2d at 545.
11. *Id.*
12. *Id.*

13. *Id.*
14. *Id.* at 1405, 967 N.Y.S.2d at 546.
15. *Id.*
16. *Id.* at 1406, 967 N.Y.S.2d at 546.
17. *Id.*

\* \* \*

## ***Highview Estates of Orange County, Inc. v. Town Board of Town of Montgomery, Orange County, 101 A.D.3d 716 (App. Div. 2d Dep’t 2012)***

### Facts

Taylor Holdings Group, Inc. (“Taylor”) owned property in Montgomery, New York where it operated a construction and demolition debris processing and recycling facility.<sup>1</sup> On May 1, 2008, Taylor petitioned the Town Board of the Town of Montgomery (“Town Board”) to amend the Town Zoning Law to allow for the development of a biomass gasification-to-energy facility on Taylor’s property.<sup>2</sup> A small portion of the property was zoned for residential/agricultural uses, while the majority of the property was “included in an Interchange Development District.”<sup>3</sup> Taylor sought to have the residentially zoned property to be included in the Interchange Development District.<sup>4</sup>

The Town Board approved a final environmental impact statement on the project in November 2010, amended and enacted the local law (“Local Law No. 5”) to create a new “Biomass Gasification-to-Energy District” (“BGTE District”), and modified the Town’s Zoning Map to rezone Taylor’s site as a BGTE District.<sup>5</sup> The Town found that the project “avoided or minimized adverse environmental impacts to the maximum extent practicable by incorporating, as conditions, those mitigative measures that were identified as practicable in the final environmental impact statement” pursuant to the State Environmental Quality Review Act (“SEQRA”).<sup>6</sup>

By December 2010, the Town Board granted a special use permit and site-plan approval of the first phase of construction and the New York State Department of Environmental Conservation (“DEC”) issued a SEQRA findings statement and a solid waste facility permit for the site.<sup>7</sup>

The petitioner, the owner of residential property adjacent to Taylor’s site, commenced proceedings against the Town Board and DEC under CPLR article 78.<sup>8</sup> Petitioner sought a court review of the determinations of the Town Board, and an annulment of Local Law No. 5, the SEQRA findings, the special use permit, and site-plan approval.<sup>9</sup> Petitioner alleged the Town Board’s findings were arbitrary and capricious and affected by an error of law

due to failure to comply with SEQRA and the Municipal Home Rule Law.<sup>10</sup>

## Procedural History

The Supreme Court granted the petitions and annulled the determinations of the Town Board and DEC based on violations of SEQRA and the Municipal Home Rule Law.<sup>11</sup> Taylor, the Town Board, and the DEC all appealed the decision.<sup>12</sup>

## Issue

Whether the Town Board and DEC's determinations to grant the Taylor property site-plan approval, a special use permit, and positive SEQRA findings comply with SEQRA and the Municipal Home Rule Law?

## Rationale

Under SEQRA, a court can review an agency decision only to determine if the agency procedures were lawful and whether the agency took a "hard look" at "identified relevant areas of environmental concern" and "made a 'reasoned elaboration' of basis for its determination."<sup>13</sup> Only arbitrary and capricious determinations and those unsupported by evidence can be annulled.<sup>14</sup> The Appellate Division found that, pursuant to SEQRA, the Town Board "identified the relevant areas of environmental concern, took a hard look at them, and made a reasoned elaboration of the basis for its determination," thus holding that the Town Board's determination was not arbitrary and capricious.<sup>15</sup>

The court also held that the SEQRA findings could not be invalidated, as the Supreme Court did, for not addressing final design details for subsequent phases of site-plan approval.<sup>16</sup> Design details that were not finalized at the time of the Town Board's SEQRA findings and were not reviewed in the final environmental impact statement could not undermine the SEQRA review.<sup>17</sup> The court also noted that the final environmental impact statement makes it clear that any "environmentally significant modifications" to the project need a supplemental impact statement, thus, any design detail changes that fall in this category would require further environmental impact assessments.<sup>18</sup> However, the possibility that final design details could require a supplemental environmental impact statement does not mean the SEQRA findings here should be invalidated.

Lastly, the Appellate Division found that the Municipal Home Rule Law § 20(3), which requires that local laws "embrace only one subject" and possess titles that "brief[ly] refer to the subject matter," was not violated because Local Law No. 5 contains "naturally connected" elements under a title that informs the reader of its contents.<sup>19</sup>

## Conclusion

The court reversed the Supreme Court's decision and dismissed the case on the merits confirming the Town Board and DEC's determinations.<sup>20</sup>

Kelly E. Moynihan  
St. John's University School of Law '15

## Endnotes

1. *Highview Estates of Orange Cnty., Inc. v. Town Bd. of Town of Montgomery, Orange Cnty.*, 101 A.D.3d 716, 717 (App. Div. 2d Dep't 2012).
2. *Id.*
3. *Id.*
4. *Id.*
5. *Id.* at 718.
6. *Id.*
7. *Id.*
8. *Id.* at 717.
9. *Id.* at 718.
10. *Id.*
11. *Id.* at 719.
12. *Id.*
13. *Id.* (citing *Matter of Jackson v. New York State Urban Dev. Corp.*, 67 N.Y.2d 400, 417.).
14. *Id.* at 719.
15. *Id.*
16. *Id.* at 720.
17. *Id.*
18. *Id.*
19. *Id.*
20. *Id.* at 717.

\* \* \*

## Kentucky Riverkeeper, Inc. v. Rowlette, 714 F.3d 402 (6th Cir. 2013)

### Facts

Two nationwide general permits were issued by the Army Corps of Engineers ("Corps") in 2007.<sup>1</sup> Both permits "authorized coal-mining operations to discharge dredged and fill material into the waters of the United States"; permit 21 applied to surface operations and permit 50 to underground operations.<sup>2</sup> The permits expired in 2012; however, "the Corps extended the permits until March 18, 2013, for projects started before the 2012 expiration date" and granted five-year extensions of the permit 21 authorizations to approximately 70 surface coal-mining operations.<sup>3</sup> In attempting to satisfy its procedural duties under the National Environment Policy Act (NEPA), the Corps issued an environmental assessment, rather than an environmental impact statement, that addressed



the adverse environmental impacts of the permits.<sup>4</sup> The environmental assessment concluded that the cumulative impacts of the permits would be reduced to a minimal level due to compensatory mitigation.<sup>5</sup>

Kentucky Riverkeeper, Inc. (Riverkeeper) and others sued the Corps, alleging that the permits' environmental assessments violated NEPA by neglecting the present effects of past permit authorizations.<sup>6</sup> Riverkeeper also alleged that the Corps failed—in violation of NEPA, the Clean Water Act (CWA), and the Administrative Procedure Act (APA)—“to properly explain how compensatory mitigation would ensure cumulatively minimal impacts.”<sup>7</sup> The Corps argued that Riverkeeper's claims were rendered moot because the permits had expired.<sup>8</sup>

## Procedural History

The district court granted summary judgment to the Corps, holding that the Corps sufficiently analyzed “the present effects of past...permit authorizations and properly relied on compensatory mitigation to ensure minimal cumulative impacts.”<sup>9</sup> Riverkeeper appealed, raising the same arguments.<sup>10</sup>

## Issues

1. Whether Riverkeeper's claim was moot?<sup>11</sup>
2. Whether the Corps satisfied its obligations to analyze cumulative impacts in the permitting process or the Corps' reauthorization was arbitrary and capricious?<sup>12</sup>

## Rationale

With respect to the Corps' mootness argument, the court stated that “when an expired permit's conditions remain in effect, so too does the case and controversy.”<sup>13</sup> While the permits in question had expired, the Corps grandfathered permit 21 operations for five years.<sup>14</sup> Permit 21 projects remained reliant on the Corps' challenged environmental assessment; therefore, Riverkeeper's claims remained justiciable.<sup>15</sup> The court did not address Riverkeeper's challenges to permit 50, however, because the Corps no longer relied on that permit's cumulative impacts analysis.<sup>16</sup>

In addressing the sufficiency of the environmental assessment's analysis of present effects of past permits, the court noted that “the [a]ssessment expressly disclaim[ed] consideration of past impacts.”<sup>17</sup> The court rejected the Corps' argument that its divisions and districts will enhance environmental protections because any additional, local assessments “occur after the reauthorization of the nationwide permit...and therefore presume that the [a]ssessment satisfied...NEPA.”<sup>18</sup> In addition, the court rejected the Corps' argument that Council on Environ-

mental Quality (CEQ) guidance overrode the requirement to consider past impacts; rather, the court noted, the CEQ guidance affirmatively requires such consideration.<sup>19</sup> The court found that the Corps “used past impacts to forecast future impacts, but not to assess cumulative impacts,” and, therefore, did not satisfy its obligations.<sup>20</sup> The court held that, “[b]ecause the [environmental] [a]ssessment failed to comply with NEPA..., the Corps' reauthorization of permit 21 [was] arbitrary and capricious.”<sup>21</sup> Furthermore, the Corps provided no documentation supporting its finding that mitigation procedures would sufficiently minimize cumulative impacts. Thus, the Corps violated both the CWA and NEPA in that respect.<sup>22</sup>

## Conclusion

The court reversed the district court's grant of summary judgment, remanded for further proceedings, and stayed its ruling for sixty days to allow the parties and the lower court to assess the effects of this ruling on existing projects and possible remedies.<sup>23</sup>

Tyler Wolcott  
Albany Law School '15

## Endnotes

1. *Ky. Riverkeeper, Inc. v. Rowlette*, 714 F.3d 402, 405 (6th Cir. 2013).
2. *Id.*
3. *Id.*
4. *Id.*
5. *Id.*
6. *Id.* at 405–06.
7. *Id.* at 406.
8. *Id.*
9. *Id.*
10. *Id.*
11. *Id.*
12. *Id.* at 407.
13. *Id.* at 406.
14. *Id.*
15. *Id.* at 406–07.
16. *Id.* at 407.
17. *Id.* at 408.
18. *Id.* at 409.
19. *Id.* at 410.
20. *Id.* at 410–11.
21. *Id.* at 411.
22. *Id.* at 413 (“[T]he Corps leaves us with nothing more than its say-so that it meets CWA and NEPA standards [and] [w]e may not supply a reasoned basis for the agency's action that the agency itself has not given.”) (citation omitted).
23. *Id.*

\* \* \*

## ***In Re Methyl Tertiary Butyl Ether ("MTBE") Prods. Liab. Litig.*, 725 F.3d 65 (2d Cir. 2013)**

### **Facts**

New York City (the "City") has a high volume water-supply system that provides potable water to over nine million people.<sup>1</sup> In order to guarantee future service, the City assessed its long term supply needs and possible plans to meet those needs in the late 1980s.<sup>2</sup> The City identified the Brooklyn-Queens Aquifer System, a local potable groundwater source, as a future source to meet the City's projected needs.<sup>3</sup> In 1996, the City purchased a well cluster in Jamaica, Queens known as Station Six ("Station Six Wells") that draw from the Brooklyn-Queens Aquifer System.<sup>4</sup>

During this period, Congress amended the Clean Air Act which established the Reformulated Gasoline Program (the "RFG Program").<sup>5</sup> The goal of the RFG Program was to reduce ozone emissions in metropolitan areas.<sup>6</sup> It did this by requiring reformulated gasoline to consist of at least two percent oxygen.<sup>7</sup> Refiners and suppliers met the two percent requirement by adding oxygenates to their gasoline.<sup>8</sup> The statute did not mandate any particular oxygenate to be added to the gasoline.<sup>9</sup>

Methyl Tertiary Butyl Ether ("MTBE") was one of the oxygenate additives listed in the statute and used by industry.<sup>10</sup> MTBE was widely used in the United States to reduce tailpipe emissions.<sup>11</sup> However, as desirable as MTBE effects were on reducing tailpipe emissions, its chemical properties allow it to enter groundwater easily if spilled.<sup>12</sup> Low level contamination by MTBE renders drinking water unacceptable for consumption, and it is suspected of being a possible mutagen.<sup>13</sup> The State of New York banned MTBE in 2004 and Congress eliminated MTBE as an additive in the RFG Program in 2005.<sup>14</sup> The City detected MTBE in its Station Six Wells in 2000.<sup>15</sup> It also projected that MTBE would stay in the groundwater until at least 2040.<sup>16</sup>

### **Procedural History**

The City filed suit against Exxon Mobil Corporation, Exxon Mobil Oil Corporation, and Mobil Corporation ("Exxon") and twenty-eight other petroleum companies for injuries to its water supply in 2003.<sup>17</sup> All defendants except Exxon settled before trial.<sup>18</sup> The City in its amended complaint asserted ten causes of action sounding in strict liability, negligence, civil conspiracy, public and private nuisance, trespass, violations of the N.Y. Navigation Law, N.Y. State General Business Law, and the federal Toxic Substances Control Act.<sup>19</sup> The City sought \$300 million in compensatory damages and punitive damages to be determined by a jury.<sup>20</sup>

In 2009, the strict liability, negligence, civil conspiracy, nuisance, and trespass claims went to a multiphase jury trial.<sup>21</sup> In Phase I, the jury was asked to determine

whether the City intended to use the Station Six Wells since they were not being used at the time of the trial.<sup>22</sup> The jury found the City in good faith intended to use the Station Six Wells.<sup>23</sup> The jury in Phase II determined that the City showed that MTBE would be in the groundwater at the time the City planned to draw from the wells.<sup>24</sup> The jury in Phase III found that the City was injured by the contamination and that Exxon was a cause of the injury as a "direct spiller," manufacturer, refiner, and seller.<sup>25</sup> In total, the jury found for the City on its failure-to-warn, trespass, public nuisance, and negligence claims, but not on a private nuisance or a strict liability claim.<sup>26</sup> The jury awarded the City \$104.69 million in compensatory damages.<sup>27</sup> Exxon successfully motioned to preclude the jury from considering punitive damages.<sup>28</sup>

At the conclusion of the Phase III trial, Exxon moved for judgment as a matter of law and in the alternative for a new trial or remittitur.<sup>29</sup> The District Court denied the motion, holding that because the City's claims were not preempted by federal law, the injury was cognizable, and the jury verdicts were supported by sufficient evidence, it was reasonable for the jury to reject Exxon's statute of limitations defense.<sup>30</sup> Exxon appealed the District Court's decision.<sup>31</sup>

### **Issue**

1. Whether the Clean Air Act Amendments preempted the City's state law tort claims against Exxon?
2. Whether the contamination which did not exceed the maximum containment level (MCL) that prohibits service to a community gave the City standing and whether such contamination was an injury as a matter of New York Law?
3. Whether the City's claim was ripe?

### **Rationale**

With regard to preemption, Exxon contended that the RFG Program required it to use MTBE in its gasoline and the City's state law claims were preempted by federal law.<sup>32</sup> There are three typical settings where a court may find that Congress preempted state law.<sup>33</sup> The first way is by Congress expressly saying so and the state law conflicts with the intent of the federal law.<sup>34</sup> A court may also find a law preempted if it finds that Congress has comprehensively legislated to allow a court to infer preemption.<sup>35</sup> Finally, there is preemption if 1) a state law directly conflicts with federal law so as to make compliance with both state and federal law a "physical impossibility," or 2) state law becomes an obstacle to objectives of the federal law.<sup>36</sup> Here, Exxon only put forth the third argument for preemption.<sup>37</sup>

The court then examined conflict preemption through the impossibility branch of analysis.<sup>38</sup> Preemption may be found under this branch when a court finds that the state

law penalizes a requirement under federal law or if the state claims directly conflict with the federal law.<sup>39</sup> Here, the court did not find in favor of Exxon's argument that it had to use MTBE in its products.<sup>40</sup> While at trial the jury found that there was insufficient evidence to show that a safer alternative existed, it did not find that MTBE was the safest available product.<sup>41</sup> The jury also found that Exxon could have met the RFG Program requirements by use of ethanol instead of MTBE.<sup>42</sup> Thus, Exxon failed to prove that state law liability claims made it impossible to achieve the federal goals.<sup>43</sup>

Obstacle analysis is an intermediate step to impossibility preemption.<sup>44</sup> It is used when unrelated state and federal statutory laws are claimed to conflict.<sup>45</sup> Under this branch, the court must look to the intent of both statutes and there must not be mere tension, but an actual conflict so direct that the two acts cannot be reconciled.<sup>46</sup> Here, Exxon relied on the cost-considering provisions of the Clean Air Act and evidence of the economic feasibility of alternatives to MTBE.<sup>47</sup> The court found that while Congress expressed concern over cost, it did not establish a "clear and manifest intent" to preempt state tort claims premised on the use of one oxygenate over the other.<sup>48</sup>

The court affirmed the finding that the City had standing and was injured.<sup>49</sup> The court agreed with the District Court that the MCL was a guidepost, but does not define if an injury occurred.<sup>50</sup> While the MCL sets the level of contamination at which water could no longer be served for drinking, at trial it was shown that people may detect MTBE contamination at lower levels.<sup>51</sup> The court also agreed with the District Court that this was an injury as a matter of New York Law.<sup>52</sup>

The court found that the City's claim was ripe.<sup>53</sup> Ripeness requires a showing of both Constitutional and prudential ripeness.<sup>54</sup> A finding of standing overlaps with a finding of Constitutional ripeness.<sup>55</sup> The court also concluded it was prudent to hear the case because the evidence was not speculative.<sup>56</sup>

## Conclusion

The court affirmed the District Court's finding on Exxon's motion.<sup>57</sup> The court also found that the evidence presented at the trial was sufficient to show causation and sustain the City's claims.<sup>58</sup>

**Mark Houston**  
**Albany Law School '14**

## Endnotes

1. *In Re Methyl Tertiary Butyl Ether ("MTBE") Prods. Liab. Litig.*, 725 F.3d 65, 81 (2d Cir. 2013).
2. *Id.*
3. *Id.* at 81–82.
4. *Id.* at 82.

5. *Id.* at 81 (citing Pub. L. No. 101-549 § 219, 104 Stat. 2399, 2492-2500 (1990)).
6. *Id.* (citing 42 U.S.C. § 7545(k) (2000)).
7. *Id.* (citing § 7545(k)(2)(B)).
8. *Id.*
9. *Id.*
10. *Id.* at 80–81.
11. *Id.* at 80.
12. *Id.*
13. *Id.*
14. *Id.* at 80–81.
15. *Id.*
16. *Id.* at 86.
17. *Id.* at 82.
18. *Id.*
19. *Id.* 83–83.
20. *Id.*
21. *Id.* at 83.
22. *Id.*
23. *Id.* at 84.
24. *Id.* at 85–86.
25. *Id.* at 91.
26. *Id.*
27. *Id.*
28. *Id.* at 94.
29. *Id.* at 95.
30. *Id.*
31. *Id.*
32. *Id.* at 96.
33. *Id.*
34. *Id.* at 96–97 (citing *Medtronic, Inc. v. Lohr*, 518 U.S. 470, 484 (1996)).
35. *Id.* at 97 (citing *Crosby v. Nat'l Foreign Trade Council*, 530 U.S. 363, 372 (2000)).
36. *Id.* (citing *Arizona v. United States*, 132 S. Ct. 2492, 2501 (2012)).
37. *Id.*
38. *Id.*
39. *Id.* (citing *Florida Lime & Avocado Growers Inc. v. Paul*, 373 U.S. 132, 142–43 (1963); *Geier v. American Honda Motor Co.*, 529 U.S. 861, 873 (2000)).
40. *Id.* at 101.
41. *Id.* at 98.
42. *Id.* at 100.
43. *Id.* at 100–01.
44. *Id.* at 101 (citing *Mary Jo C. v. N.Y. State & Local Ret. Sys.*, 707 F.3d 144, 162 (2d Cir. 2013)).
45. *Id.*
46. *Id.* at 101–02.
47. *Id.* at 102–03.
48. *Id.*
49. *Id.* at 104.
50. *Id.* at 105.
51. *Id.* at 105–06.
52. *Id.* at 107–08.



53. *Id.* at 110, 112.  
54. *Id.* at 109.  
55. *Id.* at 110.  
56. *Id.* at 111 (quoting *Thomas v. Union Carbide Agric. Prods. Co.*, 473 U.S. 568, 581 (1985)).  
57. *Id.* at 130.  
58. *Id.* at 116, 119, 120, 123, 125.

\* \* \*

## **Minard Run Oil Co. v. U.S. Forest Serv., 2013 WL 5357066 (3d Cir. Sept. 26, 2013)**

### **Facts**

This case is over a dispute of the split-estate property rights of private mineral rights owners and the federal surface owner in the Allegheny National Forest (ANF).<sup>1</sup> The United States owns the surface estates of the ANF, which are managed by the U.S. Forest Service (“Forest Service”).<sup>2</sup> Until recently, the private mineral rights owners worked cooperatively with the Forest Service to manage access to and use of surface estates to drill for oil and gas.<sup>3</sup> This process involved a mineral rights owner to provide 60-day notice to the Forest Service on planned drilling, and the Forest Service would then issue a Notice to Proceed (NTP).<sup>4</sup> In 2008, environmental groups filed a lawsuit claiming that the process “of issuing NTPs constituted a ‘major federal action [] significantly affecting the quality of the human environment, under the National Environmental Policy Act of 1969’” (NEPA), which would require the Forest Service to conduct an environmental impact study (EIS) before issuing an NTP.<sup>5</sup> The parties entered a settlement agreement in 2009, stating that the Forest Service would conduct the proper NEPA analysis before issuing any further NTPs.<sup>6</sup> The Forest Service notified “oil and gas companies operating in the forest, stating that no new drilling would be authorized until the forest-wide EIS was completed.”<sup>7</sup>

### **Procedural History**

In 2009, the Western District of Pennsylvania granted a motion for preliminary injunction on behalf of Minard Run Oil Company and Pennsylvania Independent Oil and Gas Association (“Appellees”) who claimed that “the de facto ban on drilling in the ANF exceeded the authority of the [Forest] Service because a NEPA analysis was not required as a matter of law.”<sup>8</sup> Appellees then moved for summary judgment, requesting the preliminary injunction be converted into a final declaratory judgment and a permanent injunction against the Forest Service.<sup>9</sup> The Allegheny Defense Project and Sierra Club (“Appellants”) filed a cross-motion for summary judgment seeking judgment in their favor and to vacate the preliminary injunction.<sup>10</sup> The district court granted Appellees’ motion in part, denying the request for permanent injunction, “concluding that the arguments advanced by Appellants

were ‘precluded by the application of the law of the case doctrine’...because our prior opinion had decided the very issue before it.”<sup>11</sup> The court converted the preliminary injunction into a final declaratory judgment and vacated the settlement agreement.<sup>12</sup>

Appellants appealed the District Court’s order granting summary judgment for Appellees arguing that the court improperly applied the law of the case doctrine in *Minard Run III*.<sup>13</sup>

### **Issue**

Whether the district court properly applied the law of the case doctrine in precluding Appellants’ arguments raised in their motion for summary judgment?

### **Rationale**

Appellants asserted that the district court misapplied the law of the case doctrine because: (1) the court did not indicate that the “ruling on the preliminary injunction motion would reach the merits; (2)...the standard for a preliminary injunction [decision] is the ‘likelihood of success,’ not actual success” so such a decision does not constitute the law of the case; (3) the *Minard Run III* court only decided “the specific question of whether the [Forest] Service’s moratorium was required by NEPA and consistent with the APA”; and (4) an exception to the law of the case doctrine applies to *Minard Run III* because “‘reconsideration is necessary to prevent clear error or manifest injustice.’”<sup>14</sup>

The court rejected Appellants’ first two arguments because the *Minard Run III* court “had decisively resolved the legal claims presented on appeal.”<sup>15</sup> While a court is only required to establish a moving party’s likelihood of success in evaluating a preliminary injunction, “a panel is not always required to take this narrow approach... [and] may decide the merits of the claim.”<sup>16</sup> The court found this precedent served as sufficient notice to Appellants that the preliminary injunction ruling may reach the merits.<sup>17</sup>

The court in *Minard Run III* “could not have been clearer in indicating that it was...ruling on the underlying legal claims” and not stopping after addressing only one legal issue as Appellants contend in their third argument.<sup>18</sup>

Finally, Appellants argued that the *Minard Run III* ruling improperly interpreted that “Section 9 of the Weeks Act provides that reserved mineral rights are subject *only* to regulations in the instrument of conveyance.”<sup>19</sup> Appellants asserted that this was clear error and requires this court to revisit the previous determination of law in *Minard Run III*. The Circuit Court found this interpretation was not clear error and the *Minard Run III* court provided “ample reasoning for [its] statutory interpretation.”<sup>20</sup>

## Conclusion

The Circuit Court found that since the court in *Minard Run III* properly applied the law of the case to its opinion, the district court order of the conversion of the preliminary injunction into a declaratory judgment and the vacation of the settlement agreement was affirmed.<sup>21</sup>

Max Lindsey  
Albany Law School '15

## Endnotes

1. *Minard Run Oil Co. v. U.S. Forest Serv.*, 2013 WL 5357066, at \*1 (3d Cir. Sept. 26, 2013) [hereinafter *Minard Run*].
2. *Id.*
3. *Id.*
4. *Id.*
5. *Id.* (quoting 42 U.S.C. § 4332(c) (2013)).
6. *Id.*
7. *Id.*
8. *Id.* This preliminary injunction was affirmed in *Minard Run Oil Co. v. U.S. Forest Serv.*, 670 F.3d 236 (3d Cir. 2012) [hereinafter *Minard Run III*].
9. *Minard Run*, 2013 WL 5357066, at \*2.
10. *Id.*
11. *Id.* (quoting *Minard Run Oil Co. v. U.S. Forest Serv.*, 894 F. Supp. 2d 642, 654 (W.D.Pa. 2012) [hereinafter *Minard Run II*]).
12. *Id.*
13. *Id.* at \*1.
14. *Id.* at \*2 (quoting *ACLU v. Mukasey*, 534 F.3d 181, 188 (3d Cir. 2008)).
15. *Id.*
16. *Id.* (quoting *Pitt News v. Pappert*, 379 F.3d 96, 105 (3d Cir. 2004)).
17. *Id.* at \*3.
18. *Id.*
19. *Id.* at \*4.
20. *Id.*
21. *Id.*

\* \* \*

## **Nat'l Ass'n of Clean Water Agencies v. Env'tl. Prot. Agency, No. 11-1131, 2013 WL 4417438 (D.C. Cir. Aug. 20, 2013)**

### Facts

This case involves the determination by U.S. Environmental Protection Agency (EPA) that sewage sludge incinerators are to be regulated under § 129 of the Clean Air Act (CAA) as solid waste incineration units.<sup>1</sup> In March 2011, a final rule establishing emissions standards for sewage sludge incinerators under § 129 of the CAA was released by EPA.<sup>2</sup> EPA determined that sewage sludge incinerators were, for purposes of the CAA, solid waste incineration units and as a result it promulgated maxi-

mum achievable control technology (MACT) standards.<sup>3</sup> Section 129 (g)(1) of the CAA defines solid waste incineration units as "a distinct operating unit of any facility which combusts any solid waste material from...the general public."<sup>4</sup>

The Petitioners assert that sewage sludge incinerators do not fall under the definition of solid waste incineration units as defined by § 129(g)(1), and claim that EPA lacks authority to regulate sewage sludge incinerators under § 129.<sup>5</sup> The D.C. Circuit court denied the Petitioners request to review EPA's authority to regulate sewage sludge incinerators as solid waste incineration units under § 129.<sup>6</sup>

### Procedural History

EPA began to develop standards for sewage sludge incinerators after a D.C. district court held that EPA was failing to carry out its non-discretionary duty under § 112 of the CAA by not regulating these facilities.<sup>7</sup> The district court decided that EPA must promulgate the final rule by February 21, 2011.<sup>8</sup> On October 14, 2010, EPA issued a proposed rule to regulate these incinerators and a final rule, with minor changes, was promulgated on March 21, 2011.<sup>9</sup> The Petitioners then filed a petition for reconsideration of EPA's final rule and EPA denied the petitions.<sup>10</sup> Petitioners then filed for review in the D.C. Circuit court.<sup>11</sup>

### Issue

Whether EPA's assertion that sewage sludge incinerators can be regulated under § 129 of the CAA because they fall under § 129(g)(1) of the CAA, which defines solid waste incineration units, was a reasonable interpretation entitled to *Chevron* deference?<sup>12</sup>

### Rationale

In order to qualify for *Chevron* deference an agency must satisfy the test set forth in *Chevron v. NRDC*.<sup>13</sup> The *Chevron* test is satisfied if a statute is silent or ambiguous on the subject and the agency's interpretation is based on a permissible construction of the statute.<sup>14</sup> The court concluded that the definition of solid waste incineration units under § 129(g)(1) is ambiguous because the word "from" in § 129(g)(1) is susceptible to different meanings and the court considered the phrase "from...the general public" standing alone to be textually ambiguous.<sup>15</sup> The court then determined that the second element of the *Chevron* test—whether EPA's determination is based on a permissible construction of the statute—was met because EPA's reasoning was based on a reasonable interpretation of two sections of the CAA, which EPA explained in its final rule, and because nothing in the legislative history would lend credence to the assertion that Congress would not have sanctioned EPA's interpretation of § 129(g)(1).<sup>16</sup> Therefore, the court gave *Chevron* deference to EPA's decision and upheld EPA's authority to regulate sewage sludge incinerators under § 129 of the CAA.<sup>17</sup>

## Conclusion

The court upheld EPA's determination that sewage sludge incinerators can be regulated under § 129 of the CAA and remanded the case, on other grounds, to EPA for further proceedings.<sup>18</sup>

Leonard M. Gryskewicz Jr.  
Albany Law School '15

## Endnotes

1. *Nat'l Ass'n of Clean Water Agencies v. Env'tl. Prot. Agency*, No. 11-1131, 2013 WL 4417438, at \*1 (D.C. Cir. Aug. 20, 2013).
2. *Id.*
3. *Id.*
4. *Id.* at \*7.
5. *Id.*
6. *Id.*
7. *Id.* at \*3.
8. *Id.*
9. *Id.* at \*3-6.
10. *Id.* at \*7.
11. *Id.*
12. *Id.* at \*1.
13. *Id.* at \*8.
14. *Id.*
15. *Id.* at \*11.
16. *Id.* at \*12.
17. *Id.* at \*13.
18. *Id.* at \*1.

\* \* \*

## ***Native Village of Chickaloon v. National Marine Fisheries Service*, 2013 WL 2319341 (9th Cir. May 28, 2013)**

### Facts

In 2011, the National Marine Fisheries Service (NMFS) granted Apache Alaska Corporation (Apache) permission to conduct seismic oil and gas exploration in Cook Inlet, Alaska.<sup>1</sup> The area is home to a highly unique ecosystem<sup>2</sup> that is already affected by hundreds of active oil and gas leases.<sup>3</sup> The plaintiffs allege that NMFS' decision to allow Apache's surveying in Cook Inlet violated the National Environmental Policy Act (NEPA).<sup>4</sup> NEPA requires federal agencies to prepare an Environmental Assessment (EA) to determine whether an action will have a "significant effect" on the environment.<sup>5</sup> If the EA determines that there will be a significant effect, the agency must also prepare an environmental impact statement (EIS).<sup>6</sup> Here, NMFS prepared an EA and concluded that an EIS was not necessary. Plaintiffs assert that NMFS' analysis was inadequate, and that an EIS should have been prepared.<sup>7</sup>

Cook Inlet is designated as a critical habitat for the endangered Cook Inlet beluga whale (whale),<sup>8</sup> which is protected by the Endangered Species Act (ESA)<sup>9</sup> and the Marine Mammal Protection Act (MMPA).<sup>10</sup> NMFS granted Apache permission to explore in the form of an "Incidental Harassment Authorization" (IHA), which allowed the harassment of up to 30 whales during the first year.<sup>11</sup> To reach the calculation that only 30 whales would be harassed, Apache used whale density figures gathered from annual aerial surveys conducted by NMFS. However, Apache analyzed the density figures differently than NMFS.<sup>12</sup>

### Procedural History

The plaintiffs are challenging the adequacy of NMFS's EA determining that no EIS was required by NEPA, as well as the issuance of an IHA that relied on what they believe to be miscalculations of whale density.<sup>13</sup>

### Issues

- (1) Whether NMFS's conclusion in the EA that surveying would not have a significant effect on the environment was inadequate, necessitating the preparation of an EIS?
- (2) Whether the calculation of whale density was arbitrary and capricious, thereby questioning the legality of the activity under the MMPA and the issuance of an IHA?

### Rationale

- (1) When reviewing an agency decision under NEPA, a court applies the arbitrary and capricious standard to determine whether the agency has taken a "hard look" at the consequences of its actions to determine that a project's environmental effects will be insignificant.<sup>14</sup> Plaintiffs note that they do not need to show that significant effect will in fact occur, but instead must only raise "substantial questions whether a project may have a significant effect on the environment."<sup>15</sup> One such question the plaintiffs claim should have warranted an EIS is whether the effects on the quality of the human environment are likely to be highly controversial.<sup>16</sup> In the context of NEPA, "'controversial' is 'a substantial dispute [about] the size, nature, or effect'" of an action rather than a mere opposition to a use.<sup>17</sup> Plaintiffs point to bioacoustic (a combination of biology and acoustic) criticisms of the project as demonstrative of this substantial dispute.<sup>18</sup> However, the Ninth Circuit has held that if an agency "based a finding of no significant impact upon relative and substantial data, the fact that the record also contains evidence supporting a differ-



ent scientific opinion does not render the agency's decision arbitrary and capricious."<sup>19</sup> Therefore, the court found that this question was not highly controversial and did not necessitate an EIS.

Plaintiffs also assert that the EA is inadequate because it did not take a "hard look" at the cumulative effects of Apache's surveying, merely summarizing, rather than analyzing, the impacts.<sup>20</sup> However, the court found that while an EA "must fully assess the cumulative impacts of a project,"<sup>21</sup> under NEPA courts will defer to agencies' determination of the scope of cumulative impacts.<sup>22</sup>

- (2) The MMPA imposes a moratorium on the harassment of marine mammals, but an exception can be made if the NMFS finds that the harassment "will have a negligible impact" on the species in question.<sup>23</sup> Plaintiffs allege that NMFS was arbitrary and capricious in accepting Apache's erroneous whale density calculation, violating the MMPA. Under the Administrative Procedural Act, an agency's actions may be reviewed to determine whether it was "arbitrary [and] capricious."<sup>24</sup> On review, the Ninth Circuit directs a court to treat an agency's decision with "great deference,"<sup>25</sup> "as long as [it is] reasonable."<sup>26</sup>

In reviewing the disputed number of whales that stood to be harassed, the court stated that significant mathematical errors could render an agency decision arbitrary and capricious. It looked to a D.C. circuit standard that judges "the validity of the order by examining whether the [agency] in fact calculated that which it sought to calculate[.]"<sup>27</sup> To reach the calculation that only 30 whales would be harassed, Apache used density estimates gathered from annual aerial surveys conducted by NMFS over the past decade. However, Apache counted only the whales that were actually seen during the aerial surveys, whereas NMFS historically adjusted the count upwards between 50%-70% to make up for whales that were not visible.<sup>28</sup> The court concluded that NMFS' calculations were arbitrary and capricious because they mixed NMFS corrected population figures with Apache's uncorrected density estimates, thereby failing to calculate what it sought to calculate—the number and percentage of whales estimated to be harassed.<sup>29</sup>

## Conclusion

The court granted the plaintiffs' motion for summary judgment in part and denied it in part. It found that NMFS's analysis in the EA took the requisite "hard look," but that it ultimately relied on inaccurate calculations of whale density, which may affect whether an EIS was needed.<sup>30</sup> The court also found that NMFS erroneously determined the number and percentage of whales that would be harassed during Apache's seismic activity, and that "the agency arbitrarily and capriciously relied upon this erroneous determination in the issuance of the IHA."<sup>31</sup>

Graham Gibbs

St. John's University School of Law '15

## Endnotes

1. *Native Village of Chickaloon v. National Marine Fisheries Service*, 2013 WL 2319341 at \*1 (9th Cir. May 28, 2013).
2. *Id.*
3. *Id.* at 29.
4. *Id.* at \*1.
5. *Id.* at \*26 (quoting *Natl. Parks & Conservation Ass'n v. Babbitt*, 241 F.3d 722, 730 (9th Cir. 2001)).
6. *Id.* at \*26.
7. *Id.*
8. *Id.* at 1.
9. *Id.* at \*2.
10. *Id.* at \*10.
11. *Id.* at \*3.
12. *Id.* at \*4.
13. *Id.* at \*1.
14. *Id.* at \*26 (quoting *Natl. Parks v. Babbitt*, 241 F.3d at 730).
15. *Id.* (quoting *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1211 (9th Cir. 1998)).
16. *Id.* at \*27.
17. *Id.* at \*21 (quoting *Blue Mountains v. Blackwood*, 161 F.3d at 1212).
18. *Id.* at \*27.
19. *Id.* (quoting *Wetlands Action Network v. U.S. Army Corps of Engineers*, 222 F.3d 1105, 1120-21 (9th Cir. 1988)).
20. *Id.* at 24.
21. *Id.* (quoting *Center for Biological Diversity v. Salazar*, 695 F.3d 893, 917 (9th Cir. 2012)).
22. *Id.* at \*24.
23. *Id.* at \*10 (quoting 16 U.S.C. § 1371(a)(5)(D)(i)(I)).
24. *Id.* at \*9 (quoting 5 U.S.C. § 706(2)(A)).
25. *Id.* at \*9 (quoting *Env'tl. Def. Ctr., Inc. v. U.S. E.P.A.*, 344 F.3d 832, 869 (9th Cir. 2003)).
26. *Id.* at \*9 (quoting *The Lands Council v. McNair*, 537 F.3d 981, 993 (9th Cir. 2008)).
27. *Id.* at \*15 (quoting *Alabama Power Co. v. F.C.C.*, 773 F.2d 362, 367 (D.C. Cir.1985)).
28. *Id.* at \*4.
29. *Id.* at \*16.
30. *Id.* at \*31.
31. *Id.* at \*31.

\* \* \*

## ***N.D. v. United States EPA*, 2013 U.S. App. LEXIS 19442 (8th Cir. 2013)**

### **Facts**

This case involves the U.S. Environmental Protection Agency's (EPA) treatment of and rulings on two North Dakota State Implementation Plans (SIPs) submitted under §§ 110 and 169A of the Clean Air Act (CAA).<sup>1</sup> The EPA Proposed Ruling, Final Ruling, and the resulting Federal Implementation Plan (FIP), concern the SIPs for a haze issue which falls under the Best Available Retrofit Technology (BART) evaluations in § 169A of the CAA.<sup>2</sup> BART evaluations concern "major stationary sources built between 1962 and 1977 that are reasonably anticipated to cause or contribute to visibility impairment."<sup>3</sup>

Petitioner, North Dakota (the "State"), submitted an interstate transport SIP and a regional haze SIP for EPA approval.<sup>4</sup> EPA issued a Proposed Rule "proposing to disapprove the State's regional haze SIP regarding its determination of BART for the Coal Creek Station," among others, and to "disapprove the State's interstate transport SIP for failure to satisfy the visibility component."<sup>5</sup> The EPA simultaneously proposed its FIP to address the issues it identified with the SIPs.<sup>6</sup>

### **Procedural History**

While many groups were involved as parties or intervening parties, the main issue concerns the Coal Creek Station and is between the state and the EPA. Other Stations were contended by various environmental groups and owners of the Stations, as well as various parties representing the owners' interests. These issues were all ultimately dismissed by the court.

### **Issue**

The main issue addressed by the court is whether EPA's Final Rule was "'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law,' or 'in excess of statutory jurisdiction, authority, or limitations, or short of statutory right.'"<sup>7</sup> Specifically, did EPA violate this standard by determining that the State's SIP for Coal Creek Station failed to properly consider the cost of compliance?

### **Rationale**

The court considered the Coal Creek Station and EPA's determination that the State's SIP failed to properly consider the cost of compliance in any meaningful sense as required by 40 C.F.R. § 51.308(e)(1)(ii)(A), and subsequent promulgation of a FIP.<sup>8</sup> The cost consideration at issue was the inclusion of the lost profit from, and disposal cost of, fly ash. The court held this situation to be similar to that in the recent case of *Oklahoma v. EPA*.<sup>9</sup> The court considered the flawed estimates of the State

in this case to be analogous to the flawed estimate in the persuasive 10th Circuit case and held that as a result of the disapproval of the SIP, the EPA had no choice but to promulgate a FIP.<sup>10</sup>

A second issue regarding the Coal Creek Station was EPA's refusal to consider existing pollution control technology as statutorily mandated under 42 U.S.C. § 7491(g)(2).<sup>11</sup> EPA claimed that by interpreting "existing pollution control technology in use at the source" (42 U.S.C. § 7491(g)(2)) to mean "'incorporated into emission limits in an approved SIP or specified in a Clean Air Act permit for the facility and...adopted to meet Clean Air Act requirements,'"<sup>12</sup> EPA was not required to consider voluntary installations of pollution control technology—as was the case at Coal Creek.<sup>13</sup> EPA argued that its interpretation of § 7491(g)(2) is entitled to deference under *Chevron*,<sup>14</sup> which held that deference is appropriate "when an agency exercises its generally conferred authority to resolve a particular statutory ambiguity and the resulting interpretation is based on a permissible construction of the statute."<sup>15</sup> The court held that EPA's interpretation failed the first step of the *Chevron* analysis, as there was "no reason to contravene the clause's obvious meaning," and further held that as a result EPA's refusal to consider the voluntary pollution control was arbitrary and capricious and, therefore, vacated.<sup>16</sup>

### **Conclusion**

The court granted the State's and Great River Energy's petitions for review to the extent that they challenge EPA's BART determination for the Coal Creek Station promulgated in EPA's FIP, and vacated and remanded that portion of the Final Rule to EPA for further proceedings consistent with the ruling.<sup>17</sup>

**Calumn James Yeaman**  
Albany Law School '15

### **Endnotes**

1. *N.D. v. United States EPA*, 2013 U.S. App. LEXIS 19442, at \*3 (8th Cir. 2013).
2. *Id.* at \*6–7.
3. *Id.* at \*7.
4. *Id.* at \*9–10.
5. *Id.* at \*10.
6. *Id.*
7. *Id.* at \*12.
8. *Id.* at \*15–17.
9. 2013 U.S. App. LEXIS 14634 (2013).
10. *Id.* at \*21–22.
11. *Id.* at \*25.
12. *Id.* at \*26–27.
13. *Id.*
14. *Chevron, U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984).

15. *N.D.*, 2013 U.S. App. LEXIS 19442, at \*27.

16. *Id.* at \*30.

17. *Id.* at \*57.

\* \* \*

***New York State, et al. v. Next Millennium Realty, et al.*, 2013 WL5614000 (2d Cir. October 15, 2013)**

**Facts**

The State of New York commenced an action against defendants to recover costs associated with investigation and cleanup of contaminated groundwater.<sup>1</sup> The defendants' businesses were located directly above a sole source aquifer.<sup>2</sup> In 1989, the Town of Hempstead discovered that its water supply was contaminated at a level that neared the maximum level allowed by the state government for safe consumption.<sup>3</sup> In response, the Town of Hempstead installed a granulated activated carbon absorption system (GAC) to remove the harmful pollutants in order to ensure a potable water supply for its residents.<sup>4</sup> However, the level of contaminants in the water increased drastically between the years of 1990 and 1995. The GAC was not designed to absorb the increased contaminants, so in 1995, the Town of Hempstead began constructing an air-stripper to support the operation of the GAC.<sup>5</sup>

In 1995, suspicions arose that the industrial activities in the New Cassel Industrial Area could be the source of the contamination.<sup>6</sup> A 1999 report from the N.Y.S. Department of Environmental Conservation (DEC) confirmed this suspicion.<sup>7</sup> In 2003, DEC published a Record of Decision (ROD) selecting the permanent remedial action for the groundwater contamination.<sup>8</sup> Pursuant to the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA), the state was authorized to commence cleanup of the contamination before pursuing cost recovery against the potentially responsible parties (PRPs).<sup>9</sup> The state entered into tolling agreements with PRPs over a period of time commencing in 2001. In 2006, it filed a cost-recovery action in the District Court for the Eastern District of New York against the PRPs.<sup>10</sup>

"Removal" and "remedial" actions are governed by different statutes of limitations.<sup>11</sup> A "removal" action's statute of limitations is 3 years and is triggered by the completion of the removal activities. A "remedial" action's statute of limitations is 6 years and is triggered by the initial "on-site construction of the remedial action."<sup>12</sup> Actions are deemed "removal" when they are in response to "immediate threats to public health and safety."<sup>13</sup> Actions are deemed "remedial" when they are intended to permanently remedy the hazardous contamination.<sup>14</sup>

The defendants asserted several defenses to the state's claims. Three of those focused on the statute of lim-

itations issue and why the state's action was remedial and not removal. The defendants argued that the definition of "remedial" set out in CERCLA does not require that an action "address the underlying source of contamination" to be considered "remedial."<sup>15</sup> The defendants also asserted that the duration and cost of the cleanup actions taken by the Town of Hempstead fell within the scope of "remedial" actions as that term is defined in CERCLA.<sup>16</sup> Finally, defendants relied on the fact that DEC repeatedly referred to the air stripper as "part of the 'remediation' of the groundwater."<sup>17</sup>

**Procedural History**

The New York State District Court for the Eastern District of New York granted the defendants' motion to dismiss on the grounds that the statute of limitations had tolled. Plaintiffs appealed and the United States Court of Appeals granted certiorari.<sup>18</sup>

**Issues**

- (1) Whether the Town of Hempstead's installation and use of a GAC and an air stripper were remedial actions or removal actions for the purpose of determining the appropriate statute of limitations?
- (2) Whether an action must address the underlying source of the contamination to be deemed a remedial action?
- (3) Whether the statutory provisions limiting the cost and duration allowable for a cleanup action to be deemed "removal" are applicable in this case?
- (4) Whether a state engineer's conversational reference to cleanup actions as 'remediation' are substantial in determining the legal definition of those actions?

**Rationale**

The U.S. Court of Appeals held that installation of the GAC and air-stripper tower were removal measures because they were in response to the town's contaminated drinking water, which posed "an imminent public health hazard."<sup>19</sup> Additionally, the systems removed the contaminants after they had polluted the water, as opposed to remediating the source of the contamination as a permanent measure to prevent future contamination.<sup>20</sup> The Court found that when the Town of Hempstead installed the GAC and the air stripper, it was not yet aware of the source of the contamination. Since it did not know the source of the contamination, neither of these systems could have been put in place with the intention of permanently remedying the cause.<sup>21</sup>

The Court addressed the defendants' assertion that the cost and duration of operating the GAC and air stripper fell outside of CERCLA's provision that removal ac-



tions “shall not continue after \$2,000,000 has been obligated for response actions or 12 months has elapsed from the date of initial response.”<sup>22</sup> However, the statute provides two exceptions to this provision, which the Court applied to this case. The exceptions allow for “continued response action” when the contamination poses an “immediate risk to public health.”<sup>23</sup> The Court confirmed that the risks to public health were immediate and in order to “prevent... an emergency,” the response actions would need to be continued.<sup>24</sup> The Court also stated that U.S. Environmental Protection Agency guidance confirms that the cost and duration of cleanup activities do not necessarily apply to all analyses to determine whether an action is “remedial” or “removal.”<sup>25</sup>

Lastly, the Court addressed the defendants’ claim that an engineer from the DEC stated the air-stripper installed by the Town of Hempstead was “part of the ‘remediation’ of the groundwater.”<sup>26</sup> The court discussed the use of the word “remedial,” clarifying that its statutory meaning is not the same as the industry’s common usage of the term or the general colloquial use.<sup>27</sup> The Court further resolved the semantic discrepancy by restating the New York legal definition of “interim remedial measure” which includes the description, “activities to address both emergency and non-emergency site conditions.”<sup>28</sup> This definition describes what CERCLA considers to be a “removal” action.<sup>29</sup>

## Conclusion

The Court held that the defendant’s activities were categorically removal during all applicable time periods, and the state claim was governed by the three year statutory period. Subsequently, the plaintiffs’ suit was not tolled. The court vacated the judgment of the district court and the case was remanded for further proceedings.<sup>30</sup>

**Stacey Lococo**  
**Albany Law School ‘16**

## Endnotes

1. *New York State, et al. v. Next Millennium Realty, et al.*, 2013 WL5614000, at \*1–10 (2d Cir. October 15, 2013).
2. *Id.* at \*1.
3. *Id.*
4. *Id.* at \*2.
5. *Id.* at \*1–2.
6. *Id.* at \*2.
7. *Id.*
8. *Id.*
9. *Id.* at \*1 (citing 42 U.S.C. § 9601 *et. seq.*).
10. *Id.*
11. *Id.* at \*4.
12. *Id.* at \*4 (citing 42 U.S.C § 9613(g)(2)(B)).

13. *Id.*
14. *Id.*
15. *Id.* at \*6.
16. *Id.* at \*8.
17. *Id.* at \*9.
18. *Id.* at \*3.
19. *Id.* at \*5.
20. *Id.* at \*6.
21. *Id.*
22. *Id.* at \*8 (citing 42 U.S.C. § 9604(c)(1)).
23. *Id.* at \*8.
24. *Id.*
25. *Id.*
26. *Id.* at \*9.
27. *Id.*
28. *Id.*
29. *Id.*
30. *Id.* at \*10.

\* \* \*

## ***Simmons v. Sabine River Authority, State of Louisiana*, 732 F.3d 469 (5th Cir. 2013)**

### Facts

There is a river that flows between Texas and Louisiana, known as the Sabine.<sup>1</sup> In 1963, the Federal Power Commission, now called the Federal Energy Regulatory Commission (FERC), granted a fifty-year license to the Sabine River Authority of Louisiana and the Sabine River Authority of Texas for the “construction, operation and maintenance” of a dam, reservoir, and hydroelectric plant.<sup>2</sup> Under the terms of the license, the Sabine River Authorities agreed to keep the level of the water in the reservoir between a minimum level of 162.2 feet, and a maximum level of 172 feet.<sup>3</sup>

Under the Federal Power Act of 1935, FERC is authorized to issue licenses for projects that are “necessary or convenient,” and each licensee shall conform to the conditions that FERC places in the license.<sup>4</sup> The one exception to the broad discretion given to FERC is listed in section 27 of the Federal Power Act, which provides that the states have power over anything relating to appropriation, use, control, or distribution of water or any vested water right in the state.<sup>5</sup>

Between the years 2000 and 2003, FERC considered requests to modify the operations of the Sabine River dam.<sup>6</sup> One of these requests, from plaintiff-appellants—28 homeowners in the area—sought stricter regulations about when the floodgates could be opened, as they were worried about their properties getting flooded due to the operation of the dam.<sup>7</sup> FERC declined to make the changes that appellants requested.<sup>8</sup>

## Procedural History

Appellants sued in Louisiana state court, bringing claims of negligence, nuisance, trespass, and unconstitutional takings.<sup>9</sup> Plaintiffs in the original suit sought a permanent injunction against the Sabine River Authority of Louisiana to enjoin the authority from opening the gates of the dam in a way that would cause flooding of the plaintiffs' properties.<sup>10</sup>

The Defendant, Sabine River Authority of Louisiana, filed a motion to dismiss the suit on the basis of federal preemption, pursuant to Federal Rules of Civil Procedure 12(b)(6).<sup>11</sup> The District Court granted the Defendant's motion to dismiss, finding that the Federal Power Act preempted the state law claims brought by the Plaintiffs.<sup>12</sup> The Plaintiffs then appealed to the Fifth Circuit. The Court of Appeals for the Fifth Circuit affirmed.<sup>13</sup>

## Issue

Whether the Federal Power Act preempts property damage claims under state law?<sup>14</sup>

## Rationale

The court explained that federal preemption occurs where "compliance with both federal and state regulations is a physical impossibility, and those instances where the challenged state law stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."<sup>15</sup> The Federal Power Act clearly evinces a Congressional intent to give FERC broad power in developing and licensing dams and hydroelectric facilities.<sup>16</sup> The broad range of authority given FERC by the Federal Power Act over the operation of the type of facility in question here was enough for the Fifth Circuit to hold that FERC "occupie[s] the field" of these operations.<sup>17</sup> Thus, state tort law cannot set the appropriate duty of care to be taken with the operation of such a facility.<sup>18</sup> The court also stressed the fact that the Federal Power Act explicitly carves out a small area over which states have authority with such industries, expressing a congressional intent to limit state control over the industry to property rights and water use issues.<sup>19</sup>

## Conclusion

The court held that the appellant's claims were preempted by the Federal Power Act, and explained that to hold otherwise would abrogate and stand as an obstacle to the "purposes and objectives" of that act.<sup>20</sup> The court explained that this state law claim was merely an attempt to use state law to prevent the licensee from doing something that FERC has ordered it to do, and that to allow such a claim to stand would "constitute a veto of the project that was approved and licensed by FERC."<sup>21</sup>

Benjamin Botelho  
Albany Law School '14

## Endnotes

1. *Simmons v. Sabine River Auth., La.*, 732 F.3d 469, 471 (5th Cir. 2013).
2. *Id.* at 471–72.
3. *Id.* at 472.
4. *Id.* at 474 (quoting 16 U.S.C. § 797(e) (2012)).
5. *Id.*
6. *Id.* at 472.
7. *Id.*
8. *Id.*
9. *Id.*
10. *Id.*
11. *Id.*
12. *Id.* at 473.
13. *Id.*
14. *Id.* at 471.
15. *Id.* at 473–74 (citing *Arizona v. United States*, 132 S. Ct. 2494, 2501 (2012)).
16. *Id.* at 474.
17. *Id.* at 475.
18. *Id.* at 476.
19. *Id.*
20. *Id.* at 477.
21. *Id.* (quoting *California v. Fed. Energy Regulatory Comm'n*, 495 U.S. 490, 507 (1990)).

\* \* \*

## ***Southern Wine & Spirits of Am., Inc. et al. v. Impact Env'tl. Eng'g, PLLC, et al.*, 104 A.D.3d 613, 962 N.Y.S.2d 118 (1st Dep't 2013)**

## Facts

This case involves an alleged failure to identify thirty-eight drywells containing possible contaminants.<sup>1</sup> Impact Environmental Engineering, PLLC ("Defendant") entered into a contract with Southern Wine & Spirits of America, Inc. ("Southern America" or "Plaintiff"), agreeing to perform an environmental site assessment (ESA) on Plaintiff's property.<sup>2</sup> Upon completion of the ESA, Defendant failed to alert Plaintiff of some thirty-eight possibly contaminated drywells located on Plaintiff's property.<sup>3</sup> Public records contained information about these drywells.<sup>4</sup> Plaintiff then commenced this suit.<sup>5</sup>

## Procedural History

Defendant filed a motion for summary judgment that sought dismissal of Plaintiff's claims for negligence and gross negligence<sup>6</sup> and dismissal of Southern Wine & Spirits of New York, Inc.<sup>7</sup> ("Southern New York") and Syosset Property Partners, LLC ("Syosset Property") as parties to the case.<sup>8</sup> The Supreme Court of New York County denied the motion as to the first branch and granted it as to the second branch concerning the dismissal of Southern New York and Syosset Property.<sup>9</sup> Defendant appealed.<sup>10</sup>

## Issues

- (1) Whether the negligence claim was timely; and
- (2) Whether the trial court was correct in declining to enforce Defendant's contractual limitation on liability, and whether the trial court properly dismissed Southern New York and Syosset Property as parties to the case.<sup>11</sup>

## Rationale

The court found that the negligence claim was timely because it was filed within the three-year statute of limitations.<sup>12</sup>

The court found that the Defendant's contractual limitations on liability were rendered null due to public policy concerns.<sup>13</sup> In its analysis, the court indicated that Defendant, though not held to particular licensing requirements, would be held to a "professional" standard of care: "[p]rofessionals...may be subject to tort liability for failure to exercise reasonable care, irrespective of their contractual duties."<sup>14</sup>

The court found that neither a privity of contract nor a functional equivalent existed between either Southern New York or Syosset Property and Defendant; further, neither party was an intended beneficiary of the contractual agreement between Southern America and Impact.<sup>15</sup> Thus, Southern New York and Syosset Property were properly dismissed as parties.<sup>16</sup>

## Conclusion

The court unanimously affirmed the decision of the New York County Supreme Court, with costs.<sup>17</sup>

**Kelsey L. O'Brien**  
Albany Law School '14

## Endnotes

1. *Southern Wine & Spirits of Am., Inc. v. Impact Envtl. Eng'g, PLLC*, 104 A.D.3d 613, 614, 962 N.Y.S.2d 118,\* (2013).
2. *Id.* at 614, 962 N.Y.S.2d at \*118.
3. *Id.*
4. *Id.*
5. *Id.*
6. *Id.* at 613, 962 N.Y.S.2d at \*118.
7. *Id.*
8. *Id.*
9. *Id.*
10. *Id.*
11. *Id.*
12. *Id.*
13. *Id.* at 614, 962 N.Y.S.2d at \*118.

14. *Id.* (quoting *Sommer v. Fed. Signal Corp.*, 79 N.Y.2d 540, 551 (1992)).
15. *Id.*
16. *Id.*
17. *Id.* at 613, 962 N.Y.S.2d at \*118

\* \* \*

## ***Travelers Indem. Co. v. Orange and Rockland Utils., Inc.*, No. 603601/2202, 2013 WL 3810123 (N.Y. Sup. Ct. N.Y. Co. July 12, 2013)**

## Facts

This case involves a dispute over the timing of notice from Orange and Rockland Utilities, Inc. (ORU) to its insurance provider, The Travelers Indemnity Company ("Travelers") of ORU's potential liability for environmental remediation concerning pollution and contaminants produced at seven of its former Manufactured Gas Plants (MGPs).<sup>1</sup>

In April of 1995, ORU notified Travelers of its potential environmental liabilities at MGP sites after notice that the New York State Department of Environmental Conservation (DEC) was planning to require ORU to investigate and, if necessary, remediate contamination at the sites of its MGPs.<sup>2</sup> Travelers initially withheld its determination of coverage under policies issued to ORU between 1955 and 1978, and later denied coverage alleging that ORU had not given notice of the occurrences "as soon as practicable" and notice of the potential claim or suit "immediately," as was required under the policy.<sup>3</sup> Travelers cited a number of incidents that evidenced that ORU was aware of its potential liability as early as 1981, such as correspondence between ORU and the EPA regarding possible contamination in 1981, notice given to ORU's primary insurance carrier at the time of an investigation and remediation in 1985, and numerous communications with the DEC throughout the early 1990s.<sup>4</sup>

ORU asserted that it was under no obligation to provide notice to Travelers, as it had "performed diligent investigations of each MGP site, which [gave ORU] no reason to believe that the Travelers policies would be implicated, since the policies exclude coverage for damage solely to ORU property."<sup>5</sup> ORU took the position that a notice obligation did not exist because of a lack of knowledge that third-party sites were contaminated, and, therefore, timely notice was submitted to Travelers in accordance with the policy.<sup>6</sup>

## Procedural History

The matter was presented to the court on six consolidated motions for summary judgment, one motion for summary judgment entered by Travelers, and six partial motions for summary judgment filed by ORU.<sup>7</sup>



## Issues

- (1) Whether the timing of ORU's notice to Travelers "vitiated its coverage under the insurance policies?"<sup>8</sup>
- (2) Whether Travelers "breached its duty to defend ORU against the environmental claims asserted against it for the sites?"<sup>9</sup>

## Rationale

The court in this case applied an earlier ruling by the First Department. In the previous case,<sup>10</sup> the same issues were presented regarding an individual contamination site, and the court in that case concluded that ORU's notice was not timely.<sup>11</sup> The First Department, after examining the facts presented to establish that ORU was aware of a potential claim, stated that ORU was on notice prior to 1994 and thus had a duty to provide Travelers with notice before April of 1995.<sup>12</sup>

The First Department had rejected a requirement of "some realistic and certain action" for notice to be required, but adopted a standard of "simple awareness of reasonable possibility."<sup>13</sup> The court in the current case again referred to the multiple site inspections by ORU and "internal reports and contacts with regulatory agencies" to conclude that ORU was aware of a reasonable possibility that remediation efforts would be required.<sup>14</sup> The court also noted that even if it ignored the discussed reports and regulatory contacts, ORU had waited over seven months to notify Travelers after a DEC order dated September 6, 1994, confirmed that ORU "would have to address all of the MGP sites under a single Consent Order."<sup>15</sup> Since ORU did not provide a justification for its delay in providing notice, the delay rendered notice late as a matter of law.<sup>16</sup>

Having made the determination that Travelers did not receive timely notice, the court did not have to address whether Travelers breached its duty to defend, as ORU had not fulfilled its condition precedent.<sup>17</sup>

## Conclusion

The court granted Travelers' motion for summary judgment and denied ORU's motions for partial summary judgment as moot.<sup>18</sup>

Elizabeth M. Stapleton  
Albany Law School '14

## Endnotes

1. *Travelers Indem. Co. v. Orange and Rockland Utils., Inc.*, No. 603601/2202, 2013 WL 3810123, at \*1-2 (N.Y. Sup. Ct. N.Y. Co. July 12, 2013).
2. *Id.* at \*2.
3. *Id.*

4. *Id.* at \*2-4.
5. *Id.* at \*5.
6. *Id.*
7. *Id.* at \*1.
8. *Id.* at \*5.
9. *Id.* at \*6.
10. *Travelers Indem. Co. v. Orange & Rockland Util.*, 73 A.D.3d 576, 576 (1st Dep't 2010).
11. *Travelers Indem. Co.*, 2013 WL 3810123 at \*6.
12. *Id.* at \*7.
13. *Id.* at \*9.
14. *Id.*
15. *Id.* at \*10.
16. *Id.*
17. *Id.* at \*12.
18. *Id.*

\* \* \*

## Recent Legislation

### American-Made Energy Infrastructure and Jobs Act, H.R. 2784

House of Representatives Bill 2784 is a bill to amend the Outer Continental Shelf Lands Act.<sup>1</sup> It is known as the American-Made Energy Infrastructure and Jobs Act (the "Bill"). Representative Steven "Steve" Stivers (OH-15) sponsored the Bill.<sup>2</sup> Representative Cedric Richmond (LA-2) co-sponsored the Bill.<sup>3</sup>

The main purpose of the proposed legislation is to "require the Secretary of the Interior to conduct offshore oil and gas leasing."<sup>4</sup> In addition to requiring the Secretary of the Interior to conduct offshore leasing, the Bill provides the requirements for a new 5-Year Oil and Gas Leasing Program in order to meet production goals by 2032 of "no less than 3,000,000 barrels in the amount of oil produced per day" and "no less than 10,000,000,000 cubic feet in the amount of natural gas produced per day."<sup>5</sup> The Bill also requires the Secretary of the Interior to conduct proposed oil and gas leasing on the Outer Continental Shelf offshore of Virginia (Lease Sale 220), South Carolina, and Southern California.<sup>6</sup>

The American-Made Energy Infrastructure and Jobs Act provides for the abolition of the Minerals Management Service (MMS).<sup>7</sup> All completed actions from the MMS, in addition to pending ruling and civil actions, will remain in place notwithstanding the Bill.<sup>8</sup> The Bill also provides for the establishment of an Under Secretary for Energy, Lands, and Minerals, an Assistant Secretary of Ocean Energy and Safety, and an Assistant Secretary of Land and Minerals Management.<sup>9</sup>

Pursuant to the Bill, the Under Secretary will be responsible for the safe and responsible development of en-

ergy and mineral resources on federal lands in accordance with U.S. energy demands, and for ensuring multiple-use missions of the Department of the Interior that promote safe and sustained development of energy and mineral resources on public lands (as that term is defined in the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.)).<sup>10</sup>

The Bill provides that the Assistant Secretary of Ocean Energy and Safety will be responsible for ensuring safe and efficient development of energy and minerals on the Outer Continental Shelf of the United States.<sup>11</sup>

The Assistant Secretary of Land and Minerals Management also will be responsible for ensuring safe and efficient development of energy and minerals on public lands and other federal onshore lands under the jurisdiction of the Department of the Interior, including implementation of the Mineral Leasing Act (30 U.S.C. 181 et seq.) and the Surface Mining Control and Reclamation Act (30 U.S.C. 1201 et seq.) and administration of the Office of Surface Mining.<sup>12</sup>

Representative Stivers introduced this Bill on July 22, 2013, and referred it to the Committee on Natural Resources.<sup>13</sup> At the same time, Representative Stivers referred the Bill to the Committees on Ways and Means, Transportation and Infrastructure, and Energy and Commerce.<sup>14</sup> Subcommittees that are within Natural Resources, Ways and Means, Transportation and Infrastructure, and Energy and Commerce are currently considering the Bill.<sup>15</sup> There is a related bill before Congress, H.R. 2231.<sup>16</sup>

**Calumn James Yeaman**  
Albany Law School '15

## Endnotes

1. American-Made Energy Infrastructure and Jobs Act, H.R. 2784, 113th Cong. (2013), available at <http://www.gpo.gov/fdsys/pkg/BILLS-113hr2784ih/pdf/BILLS-113hr2784ih.pdf>.
2. The Library of Congress, *Bill Summary & Status: 113th Congress (2013-2014): H.R. 2784. All Information*, <http://thomas.loc.gov/cgi-bin/bdquery/z?d113:HR02784:@@L&summ2=m&>.
3. *Id.*
4. American-Made Energy Infrastructure and Jobs Act at § 101.
5. *Id.* at § 102(2).
6. *Id.* at § 201-203.
7. *Id.* at § 406(a).
8. *Id.*
9. *Id.* at § 401(1)-(3).
10. *Id.*
11. *Id.*
12. *Id.*
13. The Library of Congress, *Bill Summary & Status: 113th Congress (2013-2014): H.R. 2784. All Information*, <http://thomas.loc.gov/cgi-bin/bdquery/z?d113:HR02784:@@L&summ2=m&>.
14. *Id.*

15. *Id.*

16. *Id.*

\* \* \*

## An Act to Amend the Public Health Law, in Relation to the Protection of Public Health From Exposure to Radon in Natural Gas, S.4921

On May 1, 2013, Senator Savino introduced Senate bill S.4921 (the "Bill") to amend the N.Y. Public Health Law (PHL) in order to protect the public from exposure to radon in natural gas.<sup>1</sup> The Bill was cosponsored by Senators Addabbo, Avella, Carlucci, Hoylman, Krueger, Latimer, and Serrano.<sup>2</sup>

The justification for the Bill is that natural gas contains radon, and those exposed to it are exposed to an increased likelihood of developing lung cancer.<sup>3</sup> The legislation "seek[s] to ensure that radon levels at the point of use are kept at a safe minimum of 2.0 picoCuries per liter."<sup>4</sup> This level of radon is consistent with what the Environmental Protection Agency recommends for mitigation and safe exposure.<sup>5</sup>

The Bill, if enacted, would add Article 35-B to New York's Public Health Law.<sup>6</sup> The Department of Health, acting through its Bureau of Environmental Radiation Protection, would call on the assistance of the N.Y.S. Department of Environmental Conservation and the N.Y. Public Utilities Commission to enforce, monitor, and to execute a permitting, monitoring, and compliance system.<sup>7</sup> Additionally, the Bill grants standing to natural persons to commence a civil action against a distributor or the bureau if compliance with the system is not achieved.<sup>8</sup> The Bill would also establish acceptable levels of radon at "any city gate," and would provide a series of consequences if those levels are exceeded.<sup>9</sup>

**Elizabeth M. Stapleton**  
Albany Law School '14

## Endnotes

1. N.Y. State Senate, *Bill S4921-2013, Protects the Public from Exposure to Radon in Natural Gas*, Open Legislation, <http://open.nysenate.gov/legislation/bill/S4921-2013>.
2. *Id.*
3. *Id.*
4. *Id.*
5. *Id.*
6. *Id.*
7. *Id.*
8. *Id.*
9. *Id.*

\* \* \*

## **An Act to Amend the Public Service Law, in Relation to Incorporating Environmental Justice Considerations into Major Utility Transmission Facility Siting, S.05417**

On May 16, 2013, Senator Parker introduced bill S05417 (the “Bill”) to amend the Public Service Law (PSL) in order to ensure that the siting process for major utility transmission facilities includes considerations of environmental justice issues.<sup>1</sup> On the same day, the Bill was read twice, ordered to be printed, and once printed, to be referred to the Senate Energy and Telecommunications Committee.<sup>2</sup>

The Bill, if enacted, would amend the current PSL to require an application for a certificate of environmental compatibility and public need to include “an evaluation of any significant and adverse disproportionate environmental impacts resulting from construction and operation of the [] facility on any environmental justice area, including any studies...used in the evaluation.”<sup>3</sup> The Bill would also mandate that if the commission decides a facility causes or contributes to a significant and adverse disproportionate environmental impact in an environmental justice area, “the applicant will avoid, offset or minimize the impacts caused by the facility...to the maximum extent practicable.”<sup>4</sup> The analysis of environmental justice issues would be done in accordance with rules and regulations promulgated by the Department of Environmental Conservation (DEC).<sup>5</sup> The Bill also states that the rules and regulations promulgated by the DEC must include the definition of environmental justice area and requires that “a comprehensive demographic, economic, and physical description of any environmental justice area” that will be impacted by the proposed facilities construction and operation be compared and contrasted with the county and adjacent communities in which the facility would be sited.<sup>6</sup> This evaluation would also include any reasonably available data pertaining to population, racial characteristics, income, open space, and public health data such as the incidence of asthma and cancer.<sup>7</sup> The Bill would also allow the DEC to make distinctions between different types of transmission facilities if appropriate.<sup>8</sup>

**Leonard M. Gryskewicz Jr.**  
Albany Law School '15

### **Endnotes**

1. S.5417, 2013 Leg., 235th Sess. (N.Y. 2013), *available at* <http://open.nysenate.gov/legislation/bill/S.5417-2013>.
2. *Id.*
3. *Id.* at § 1.
4. *Id.* (explaining the mandate in the bill memo).
5. *Id.*
6. *Id.* at § 4(2).

7. *Id.*

8. *Id.*

\* \* \*

## **An Act to Amend the Public Service Law, the Public Buildings Law, the Real Property Tax Law and the Public Authorities Law, in Relation to the Expansion of Natural Gas Service, S.5536A-2013**

On May 16, 2013, Senator George D. Maziarz introduced bill S.5536 (the “Bill”) to “[enact] provisions to provide for and assist in the expansion of natural gas service in this state for environmental and economic benefit.”<sup>1</sup> The Bill was cosponsored by Senators Greg Ball, John A. DeFrancisco, Mark Grisanti, William J. Larkin, Jr., Kevin S. Parker, Patty Ritchie, and John L. Sampson.<sup>2</sup> The Bill was committed to the Committee on Energy and Telecommunications, amended, ordered reprinted as amended, and recommitted to the Committee.<sup>3</sup>

The proponents of the Bill advance that there are several households, small businesses, and commercial operations within the state that are situated near existing natural gas distribution lines or utility franchises.<sup>4</sup> Because of the current all-time low prices of natural gas, proponents of the Bill suggest that the extension of natural gas lines would stimulate economic growth and create jobs.<sup>5</sup> In addition to the economic advantages the expansion of natural gas service would provide, it is suggested that such expansion would have environmental benefits as well.<sup>6</sup> Natural gas is the cleanest burning fossil fuel, thus expansion of lines will reduce emissions of particulate matter and protect the state’s natural resources.<sup>7</sup>

The purpose of the Bill is “[t]o provide incentives aimed at encouraging the extension of existing gas lines to unserved and underserved areas.”<sup>8</sup> To enable such incentives, the Bill would amend the Public Service Law to require the Public Service Commission (PSC) to “facilitat[e] contacts with state agencies and local governments” in order to provide for a more efficient permit application process.<sup>9</sup> The Public Service Law would also be amended to require the PSC to “dedicate no less than twenty-five percent of the amounts of the surcharge for the System Benefit Charge collected by gas corporations... from their...customers to the extension and expansion of natural gas facilities.”<sup>10</sup>

The Bill would amend the Public Buildings Law to require the Commissioner of General Services to undertake a study of conversion to natural gas heating whenever a public building project includes the installation or replacement of a heating boiler.<sup>11</sup> The Bill would amend the Real Property Tax Law to give certain municipalities the option to exempt natural gas distribution facilities from



increased real property assessment taxes.<sup>12</sup> Lastly, the Bill would amend the Public Authorities Law to enable the Public Authority to extend loans to gas corporations to achieve the extension of natural gas lines.<sup>13</sup>

Abigail Sardino  
Albany Law School '14

## Endnotes

1. New York State Senate, *Bill S. 5536A-2013, Relates to the Expansion of Natural Gas Service in this State*, Open Legislation, <http://open.nysenate.gov/legislation/bill/S5536A-2013>. Last visited Nov. 10, 2013.
2. *Id.*
3. *Id.*
4. *Id.*
5. *Id.* at § 1.
6. *Id.*
7. *Id.*
8. *Id.* at Memo, Purpose or General Idea of Bill.
9. *Id.* at § 2.
10. *Id.* at § 3.
11. *Id.* at § 4.
12. *Id.* at § 5.
13. *Id.* at § 7.

\* \* \*

## An Act Relating to Requiring Certain Municipalities to Mitigate Certain Property Damage Caused by Environmental Issues Which are Caused by Acts or Omissions of Such Municipality, A.7976

On June 12, 2013, Assemblyman Scarborough introduced bill A.7976 (the "Bill") requiring municipalities with a population over one million to mitigate property damage resulting from the acts or omissions of that municipality with regard to environmental issues and crises.<sup>1</sup> The Bill was cosponsored by Assemblymen Cook, Jaffee, Lavine, Titone and Titus; it was multi-sponsored by Senators Brennan, Perry, Robinson, and Steck.<sup>2</sup> On June 20, 2013, the Bill was delivered to the Senate, passed the Assembly, and subsequently referred to the Senate Rules Committee.<sup>3</sup>

The creation of the Bill was triggered by issues of water levels in Southwest Queens.<sup>4</sup> For over a century, until 1996, the area obtained drinking water from privately owned Jamaica Water Supply Company (JWS).<sup>5</sup> JWS also pumped 60 million gallons of underground water daily from 69 different wells around the community.<sup>6</sup> However, this system stopped in 1996 when New York City purchased JWS.<sup>7</sup> Since the transfer of ownership, water levels have risen to the point of flooding the Jamaica MTA Bus

Depot, the Parsons Boulevard subway, Springfield Gardens, PS37, and many homes, schools, and churches.<sup>8</sup>

The Bill, if enacted, would likely provide relief to many affected homeowners and business owners.<sup>9</sup>

Kelsey O'Brien  
Albany Law School '14

## Endnotes

1. A.7976-A, 236th N.Y. Leg. Sess. § 1.
2. N.Y. State Senate, *Bill A7976 -2013, Requires Certain Municipalities to Mitigate Certain Property Damage Caused by Environmental Issues Which are Caused by Acts or Omissions of Such Municipality*, Open Legislation, <http://open.nysenate.gov/legislation/bill/A7976-2013>.
3. *Id.*
4. N.Y. State Assembly, *Bill A7976-2013, A07976 Summary*, [http://assembly.state.ny.us/leg/?default\\_fld=&bn=A07976&term=&Summary=Y&Memo=Y](http://assembly.state.ny.us/leg/?default_fld=&bn=A07976&term=&Summary=Y&Memo=Y).
5. *Id.*
6. *Id.*
7. *Id.*
8. *Id.*
9. *Id.*

\* \* \*

## Environmental Access to Justice Act, A.7155

On May 3, 2013, Assemblyperson Daniel J. O'Donnell introduced bill A.7155 ("the Bill") to amend the Environmental Conservation Law (ECL), in order to ensure that a person instituting an article 78 proceeding "shall not be denied standing solely on the grounds that the injury alleged...does not differ in kind or degree from the injury that would be suffered by the public at large."<sup>1</sup> The Bill was referred to the Committee on Environmental Conservation on May 3, 2013, and to the Committee on Codes on May 20, 2013.<sup>2</sup>

The Bill seeks to counteract rulings by the New York Court of Appeals which effectively bar individuals from bringing legal actions alleging violations of the State Environmental Quality Review Act (SEQRA).<sup>3</sup> In 1991, the Court of Appeals ruled that in order to have standing to sue over alleged SEQRA violations, the individual's injury must differ in kind or degree from that which the public at large would suffer.<sup>4</sup> Despite the Court of Appeals modifying this standing rule in 2009, the case law still alters the original legislative intent of SEQRA.<sup>5</sup> The Bill is intended to restore SEQRA's original legislative purpose by allowing individuals to bring suit over injuries suffered in the wake of SEQRA violations.<sup>6</sup>

Tyler Wolcott  
Albany Law School '15

## Endotes

1. N.Y. State Assemb., A.7155, 2013 Leg., 236th Sess. § 2 (2013).
2. *Bill A7155*, NEW YORK STATE ASSEMB., [http://assembly.state.ny.us/leg/?default\\_fld=&bn=A07155&term=2013&Summary=Y&Action=s=Y&Memo=Y](http://assembly.state.ny.us/leg/?default_fld=&bn=A07155&term=2013&Summary=Y&Action=s=Y&Memo=Y) (last visited Oct. 19, 2013).
3. N.Y. State Assemb. Comm. Report, 236-A.7155 (2013).
4. *Id.* (citing *Soc’y of the Plastics Indus. v. Suffolk Cnty.*, 77 N.Y.2d 761 (1991)).
5. *Id.* (citing *Save the Pine Bush v. Common Council of Albany*, 13 N.Y.3d 297 (2009)).
6. *Id.*

\* \* \*

## Hudson-Mohawk River Basin Act of 2013, H.R.2973

On August 1, 2013, Representative Paul Tonko (NY-20) introduced House of Representative bill 2973<sup>1</sup> (the “Bill”) to the Committee on Natural Resources and the Committee on Transportation and Infrastructure, “to carry out projects and conduct research on water resources in the Hudson-Mohawk River Basin, to establish a Hudson-Mohawk River Basin Commission, and for other purposes.”<sup>2</sup> In order to achieve these purposes, the Bill proposes to establish a Hudson-Mohawk River Basin Commission (“Commission”) to prepare and implement a comprehensive plan for development and uses of the waters, as well as for development and adopting an annual water resource program.<sup>3</sup>

The “Hudson-Mohawk River Basin” (“Basin”) refers to “the area of drainage of the Hudson, Mohawk, Passaic and Raritan Rivers and their tributaries into the New York-New Jersey Harbor Estuary.”<sup>4</sup> The Basin includes areas within New York, New Jersey, Vermont, Massachusetts, and Connecticut.<sup>5</sup> The Commission would be established by the President, and include the governors of each of the five states, a federal representative designated by the President, and the Secretary of the Interior.<sup>6</sup> The Commission is responsible for preparing plans, policies, and projects for the management and conservation of the Basin.<sup>7</sup> The focus of the Commission is to coordinate policies among the five states in order to ensure uniformity.<sup>8</sup>

The Commission must prepare a comprehensive plan for the development and use of the Basin within 18 months of the Bill’s enactment.<sup>9</sup> The plan requires the Commission to identify: the Basin’s water resource needs; the historical and cultural resources the Basin provides; the current status of the Basin; and additional information needed for its management.<sup>10</sup> Based on the plan, the Commission will adopt annual water resource programs stating the specific projects the Commission will undertake in the next five years.<sup>11</sup> Each water resource program must state: (1) the specific needs the program addresses; (2) the studies or projects needed to satisfy the specific needs; (3) the projects and studies that will be undertaken in the five year period; and (4) the necessary budget.<sup>12</sup>

The Commission would have a proposed \$25 million budget for each of fiscal years 2015–2021 for projects identified in the water resource program.<sup>13</sup>

Congressional findings describe the reasons why an interstate commission is necessary for managing, conserving, and developing the Basin. For example, recent hurricanes and storms have had a basin-wide impact, showing that there is a “need for integrated, basin-wide planning to address water management challenges and vulnerability to flooding.”<sup>14</sup> The Commission could develop “floodplain management strategies based upon improved understanding of the Basin’s hydrology” and address the issue using a holistic approach.<sup>15</sup> Congress also found that each of the five states have histories of successfully managing natural resource issues through memberships in interstate commissions (e.g., Delaware River Basin Commission).<sup>16</sup>

Alexis Kim  
Albany Law School ‘15

## Endnotes

1. H.R. 2973, 113th Cong. (2013) (Thomas).
2. *Id.* (identifying sponsor of the bill).
3. *Id.* at §§ 4–6.
4. *Id.* at § 3(a).
5. *Id.*
6. *Id.* at § 4.
7. *Id.* at § 4(c).
8. *Id.* at § 3(c).
9. *Id.* at § 5(a).
10. *Id.* at § 5(b).
11. *Id.* at § 6.
12. *Id.*
13. *Id.* at § 3(b).
14. *Id.* at § 2(15).
15. *Id.* at § 2(10).
16. *Id.* at § 2 (14).

\* \* \*

## National Flood Research and Education Center Act, H.R.3034

On August 2, 2013, Representative David Loebsack introduced bill H.R.3034 (the “Bill”) to establish a National Flood Research and Education Center (NFREC).<sup>1</sup> The Bill was cosponsored by Representatives Robert E. Andrews, Bruce L. Braley, Jim Cooper, and Steve Israel.<sup>2</sup> The Bill was referred to several House committees for consideration and finally, on September 24, 2013, was referred to the House Subcommittee on Environment.<sup>3</sup>

If enacted, the Bill will establish an NFREC, which will “consist of an office within the National Oceanic and

Atmospheric Administration; [and] public universities or colleges...to fulfill specific purposes of NFREC.”<sup>4</sup> The purpose of establishing an NFREC is “[t]o plan, conduct, and arrange for competent public research, data, education, and recommendations...as they relate to flooding issues nationwide, regionally, and locally.”<sup>5</sup> NFREC would identify regions throughout the country and categorize them based on their specific flood-related issues, identify areas that require increased efficiency in allocation of resources, coordination, cooperation, and consolidation of flood-related efforts, and improve university and college degree programs in flooding-related fields.<sup>6</sup>

If enacted, the Bill will require the Administrator of NOAA to select the lead partner institution and consortium member universities based on specified qualifications.<sup>7</sup> The Bill further requires NFREC to collaborate with the United States Geological Survey and the Army Corps of Engineers on federal flood-related issues.<sup>8</sup> The Bill also requires NOAA, the lead partner institution, and the consortium members to publish reports regarding NFREC activities, collaborations, findings, and other pertinent information.<sup>9</sup>

Abigail Sardino  
Albany Law School ‘14

## Endnotes

1. National Flood Research and Education Center Act, H.R. 3034, 113th Cong. (Thomas) (All Information).
2. *Id.*
3. *Id.*
4. National Flood Research and Education Center Act, H.R. 3034, 113th Cong. (Thomas) (Text of Legislation).
5. *Id.*
6. *Id.*
7. *Id.* at § 3.
8. *Id.* at § 4.
9. *Id.* at § 5.

\* \* \*

## Safe Hydration is an American Right in Energy Development Act of 2013, H.R.2983

On August 2, 2013, Representative Schakowsky, on behalf of Mr. Cartwright, Mr. Blumenauer, Mr. Conyers, Mr. Huffman, and Mr. Nadler, introduced the Safe Hydration is an American Right in Energy Development Act of 2013 (“Bill”) to the House of Representatives.<sup>1</sup> The Bill, currently in the Subcommittee on Energy and Commerce, seeks to amend the Safe Drinking Water Act to require testing of drinking water from underground sources in connection with hydraulic fracturing (“fracking”) operations.<sup>2</sup>

If enacted, the Bill would prohibit the underground injection of fracking fluid unless the entity conducting the fracking operation agreed to conduct testing and report data in accordance with the Safe Drinking Water Act.<sup>3</sup> This would require testing before starting a new injection site or before renewing injection an existing site.<sup>4</sup> For all fracking injection sites, testing would be required at least once every six months during the period that fracking operations are occurring and at least once every twelve months for the five-year period following cessation of fracking operations.<sup>5</sup> These testing requirements would not apply to fracking operations that have no drinking water source within one mile from the fracking operation site.<sup>6</sup>

The required sampling locations would be from each accessible source of drinking water within one-half mile of the fracking operation.<sup>7</sup> The samples would be tested for any hazardous substance that would indicate damage associated with the fracking operation and must be conducted by a laboratory “certified pursuant to the Environmental Protection Agency’s program for certifying laboratories for analysis of drinking water contaminants[.]”<sup>8</sup>

Max Lindsey  
Albany Law School ‘15

## Endnotes

1. Safe Hydration is an American Right in Energy Development Act, H.R. 2983, 113th Cong. (2013) (Thomas).
2. *Id.*
3. *Id.* at § (2)(a)(3).
4. *Id.* at § 1421A(a).
5. *Id.* at § 1421A(a)(1).
6. *Id.* at § 1421A(b).
7. *Id.* at § 1421A(c).
8. *Id.* at § 1421A(d)(1).

\* \* \*

## The Responsible Electronics Recycling Act, H.R. 2791

House Bill 2791 (the “Bill”) amends the Solid Waste Disposal Act (42 U.S.C. §§ 6921 et seq.) by adding Section 3025 “Electronic Waste Export Restrictions.”<sup>1</sup> The Bill, which was first introduced on July 23, 2013, is sponsored by Representative Gene Green ((D)-TX) and cosponsored by Representatives Dan Benishek ((R)-MI); Susan W. Brooks ((R)-IN); Mike Coffman ((R)-CO); Blake Farenthold ((R)-TX); Michael T. McCaul ((R)-TX); Richard B. Nugent ((R)-F); C.A. Dutch Ruppersberger III ((D)-MD); Louise M. Slaughter ((D)-NY); Steve E. Stivers ((R)-OH); Mike Thompson ((D)-CA); and Frederica S. Wilson ((D)-FL).<sup>2</sup> In a sharply partisan House this Bill has significant bipartisan support and sponsorship.



The Bill prohibits exporting restricted electronic waste from the United States to countries that are not members of the Organization for Economic Co-Operation and Development or the European Union.<sup>3</sup>

The law would become effective 30 months after enactment.<sup>4</sup> Moreover, not longer than 18 months after enactment, the Administrator of the U.S. Environmental Protection Agency may develop and promulgate a procedure for increasing the scope of covered items and materials, as well as for refining certain parameters such as acceptable de minimis levels.<sup>5</sup> In addition, not longer than 18 months after enactment, the Administrator must issue regulations for carrying out this section.<sup>6</sup>

Under the Bill, covered electronic equipment includes: computers and their component parts and accessories; mobile electronic devices of all kinds; digital imaging devices; digital cameras and projectors; networking devices; a broad range of video and audio equipment; and other used electronic products the Administrator determines to be similar under the procedures promulgated in accordance with subsection (c).<sup>7</sup> However, the Bill specifies that motor vehicle parts are not included.<sup>8</sup>

The Bill provides that electronic waste is restricted when it consists of an item of "covered electronic equipment" containing, derived from, or consisting of cathode ray tubes, cathode tube glass, or cathode tube phosphor residues or dusts, as well as a lamp or other device containing mercury phosphor, and batteries containing lead, cadmium, mercury, or certain ignitable organic solvents.<sup>9</sup> Also restricted is any "covered electronic equipment" that has switches or devices containing mercury, hexavalent chromium, and items containing antimony, barium, cadmium, lead, thallium, beryllium, arsenic, or selenium such as circuit boards, printer drums, liquid crystal displays, flat screen glass, or light emitting diodes.<sup>10</sup>

There is an exception for "covered electronic materials" containing "restricted electronic waste" in amounts

not exceeding de minimis levels set by the Administrator.<sup>11</sup> There is also a reuse exception for "covered electronic equipment" that has been tested for functionality and appropriately packed and labeled for shipping, and in certain other limited circumstances.<sup>12</sup> In addition, licenses may be obtained from the Administrator that would allow for the export of otherwise prohibited materials.<sup>13</sup>

The Bill also proposes to amend Section 3008(d) of the Solid Waste Disposal Act (42 U.S.C. § 6928(d)) by including, *inter alia*, criminal penalties for anyone who "knowingly exports restricted electronic waste in violation of section 3025."<sup>14</sup>

Michael R. Lieberman  
Albany Law School '15

## Endnotes

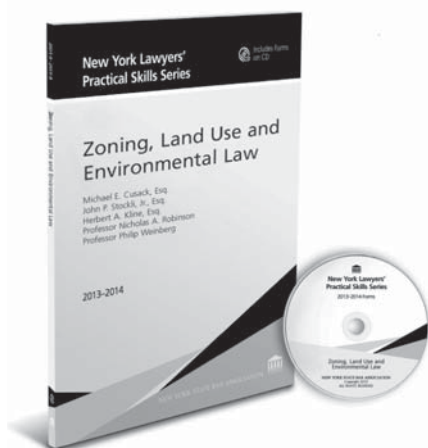
1. The Library of Congress, Bill Summary & Status: 113th Congress (2013 - 2014): H.R.2791: Text of Legislation, § 2, THOMAS, [http://thomas.loc.gov/cgi-bin/bdquery/z?d113:HR02791:@@L&summ2=m&";](http://thomas.loc.gov/cgi-bin/bdquery/z?d113:HR02791:@@L&summ2=m&) *Id.* (All Information).
2. *Id.* (All Information). The Bill also provides an exception for Liechtenstein.
3. *Id.* (Text of Legislation).
4. *Id.*
5. *Id.*; 42 U.S.C. § 6903(1) (2013).
6. *Id.*
7. *Id.*
8. *Id.*
9. *Id.*
10. *Id.*
11. *Id.*
12. *Id.*
13. *Id.*
14. *Id.* at § 3(a)(3).

\* \* \*

# From the NYSBA Book Store

Section  
Members get  
20%  
discount\*  
with coupon code  
PUB2232N

## Zoning, Land Use and Environmental Law\*\*



### PRODUCT INFO AND PRICES\*

2013-2014 / 227 pp., softbound  
PN: 423913

<b>NYSBA Members</b>	<b>\$110</b>
Non-members	\$125

Order multiple titles to take advantage of our low flat rate shipping charge of \$5.95 per order, regardless of the number of items shipped. \$5.95 shipping and handling offer applies to orders shipped within the continental U.S. Shipping and handling charges for orders shipped outside the continental U.S. will be based on destination and added to your total.

\*Discount good until October 10, 2014

### Authors

**Herbert Kline, Esq.**

**Michael E. Cusack, Esq.**

**John P. Stockli, Jr., Esq.**

**Professor Nicholas A. Robinson**

**Professor Philip Weinberg**

This practice guide is devoted to practitioners who need to understand the general goals, framework and statutes relevant to zoning, land use and environmental law in New York State. This publication covers traditional zoning laws and land use regulations and highlights environmental statutes enforced by federal, state and local agencies.

The numerous practice guides provided throughout and the accompanying CD of forms provide valuable reference material for those working in this area of practice.

The *Zoning, Land Use and Environmental Law* practice guide has been updated and is an entire reprint current through the 2013 New York State legislative session

\*\*The titles included in the **NEW YORK LAWYERS' PRACTICAL SKILLS SERIES** are also available as segments of the *New York Lawyer's Deskbook* and *Formbook*, a seven-volume set that covers 27 areas of practice. The list price for all seven volumes of the *Deskbook* and *Formbook* is \$750.

## Get the Information Edge

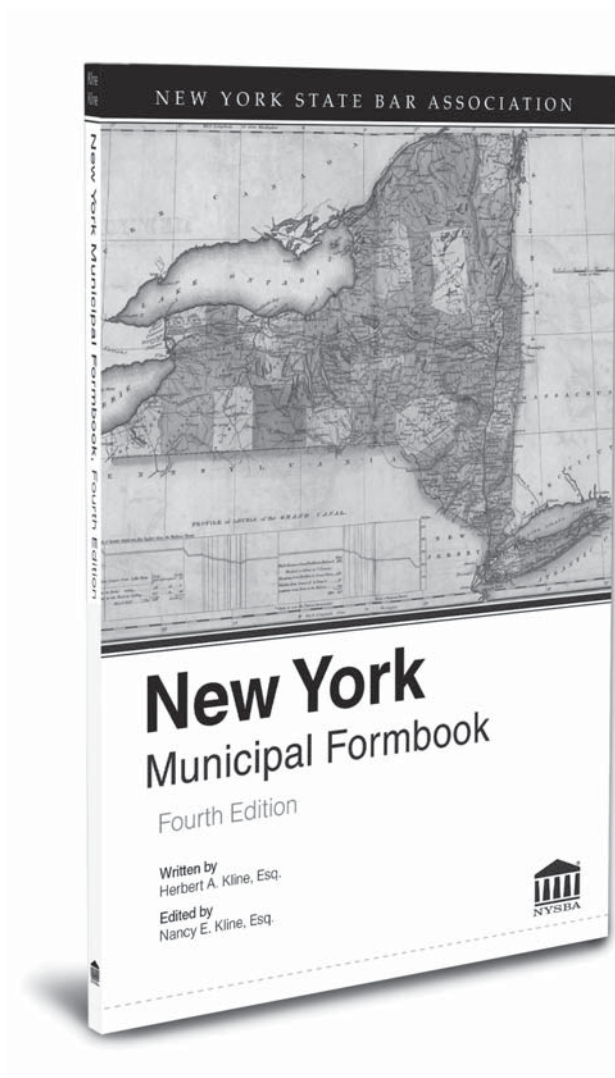
NEW YORK STATE BAR ASSOCIATION

1.800.582.2452 [www.nysba.org/pubs](http://www.nysba.org/pubs)

Mention Code: PUB2232N



# From the NYSBA Book Store >



## Author

**Herbert A. Kline, Esq.**

Coughlin & Gerhart LLP, Binghamton, NY

## Editor

**Nancy E. Kline, Esq.**

Coughlin & Gerhart LLP, Binghamton, NY

*"The Municipal Formbook is an invaluable and unique publication which includes information not available from any other source."*

**Gerard Fishberg, Esq.**

*"Many more forms than my prior edition. Bravo! Already found a form I need for my village today."*

**Chauncey J. Watches, Esq.**

## Product Info and Prices

Book and CD

PN: 41603 | 2013 | 228 pages | softbound

**NYSBA Members \$155**

Non-Members \$190

Order multiple titles to take advantage of our low flat rate shipping charge of \$5.95 per order, regardless of the number of items shipped. \$5.95 shipping and handling offer applies to orders shipped within the continental U.S. Shipping and handling charges for orders shipped outside the continental U.S. will be based on destination and added to your total.

**\*Discount good until October 10, 2014**

For more information, go to  
**[www.nysba.org/MunicipalFormbook](http://www.nysba.org/MunicipalFormbook)**



# New York Municipal Formbook Fourth Edition

The *New York Municipal Formbook*, Fourth Edition, is the premier compendium of forms for anyone whose practice touches on municipal law. For years, this has been the book that practitioners turn to for all the forms used in the broad range of issues that involve municipal law—agreements, property assessments, FOIL requests, bidding, employment, the environment, special districts and zoning. If you work as a municipal attorney, this is the go-to guide for the forms used in developing local laws; shared services and outsourcing agreements; utility contracts; easements and rights-of-way; highways and fire districts; and a host of other circumstances.

This edition of the *New York Municipal Formbook* replaces the three-volume forms compendium with a compact book and disk package. All of the more than 1500 forms are on the CD, which also includes a searchable Table of Forms and Index. The Fourth Edition adds more than 200 new and revised forms.

*New York Municipal Formbook* was compiled by Herbert A. Kline, Esq., a renowned municipal attorney with more than 50 years' experience, and edited by his law partner, Nancy E. Kline, Esq.

## Table of Forms

- |                                |                                |
|--------------------------------|--------------------------------|
| 1. Agreements                  | 8. Highways                    |
| 2. Assessment Process          | 9. Litigation                  |
| 3. Budget Process              | 10. Local Law Adoption Process |
| 3A. Building Permit            | 11. Local Laws                 |
| 4. Clerk's Documents           | 12. Miscellaneous              |
| 4A. Condemnation               | 12A. Municipal Boards          |
| 4B. Criminal Prosecutions      | 12B. Notices                   |
| 5. Deeds/Easements             | 12C. Permits                   |
| 5A. Disciplinary Proceedings   | 13. Planning Board             |
| 5B. Economic Development Zones | 14. Reserve Fund               |
| 5C. Elections/Referendums      | 14A. Resolutions               |
| 5D. Employment Matters         | 15. Sealed Bids                |
| 6. Environmental Review        | 16. Special District           |
| 7. Finance                     | 17. Unsafe Buildings           |
| 7Aa. Fire District Matters     | 18. Zoning                     |
| 7A. Foreclosure Of Tax Liens   |                                |
| 7B. Freedom Of Information     |                                |
| 7C. Group Homes                |                                |

## Get the Information Edge

1.800.582.2452 [www.nysba.org/pubs](http://www.nysba.org/pubs)

Mention Code: PUB2233N



# Section Committees and Chairs

*The Environmental Law Section encourages members to participate in its programs and to contact the Section Officers or Committee Chairs for information.*

## **Adirondacks, Catskills, Forest Preserve and Natural Resource Management**

Thomas A. Ulasewicz  
FitzGerald Morris Baker Firth PC  
16 Pearl Street, Suite 101  
Glens Falls, NY 12801  
tau@fmbf-law.com

John W. Caffry  
Caffry & Flower  
100 Bay Street  
Glens Falls, NY 12801-3032  
jcaffry@caffrylawoffice.com

## **Agriculture and Rural Issues**

David L. Cook  
LeclairRyan PC  
70 Linden Oaks, Suite 210  
Rochester, NY 14625  
david.cook@leclairryan.com

Ruth A. Moore  
Cornell Cooperative Extension  
Dutchess Co.  
2715 Rt 44  
Millbrook, NY 12545  
rmoore49@nycap.rr.com

## **Air Quality**

Robert R. Tyson  
Bond, Schoeneck & King, PLLC  
One Lincoln Center  
Syracuse, NY 13202-1355  
rtyson@bsk.com

## **Biotechnology, Nanotechnology and the Environment**

David W. Quist  
New York State Department of Health  
Division of Legal Affairs  
Empire State Plaza, Corning Tower  
Albany, NY 12237-0026  
davidquist@earthlink.net

Peter C. Trimarchi  
Nixon Peabody LLP  
677 Broadway, 10th Floor  
Albany, NY 12207  
ptrimarchi@nixonpeabody.com

## **Brownfields Task Force**

David J. Freeman  
Gibbons, P.C.  
1 Pennsylvania Plaza, 37th Floor  
New York, NY 10119-3701  
dfreeman@gibbonslaw.com

Lawrence P. Schnapf  
Schnapf, LLC  
55 East 87th Street, Suite 8b  
New York, NY 10128  
larry@schnapflaw.com

## **Coastal and Wetland Resources**

Reed Super  
Super Law Group, LLC  
Suite 1033  
131 Varick Street  
New York, NY 10013-1417  
reed@superlawgroup.com

Erica Levine Powers  
Po Box 38023  
Albany, NY 12203-8023  
Erica.Powers@gmail.com

Dominic R. Cordisco  
Drake Loeb Heller Kennedy Gogerty  
Gaba & Rodd, PLLC  
555 Hudson Valley Avenue, Suite 100  
New Windsor, NY 12553  
cordisco@gmail.com

## **Continuing Legal Education**

James P. Rigano  
Rigano, LLC  
425 Broad Hollow Road, Suite 217  
Melville, NY 11747  
jrigano@riganollc.com

James J. Periconi  
Periconi, LLC  
260 Madison Avenue, 17th Floor  
New York, NY 10016  
jpericoni@periconi.com

Maureen F. Leary  
NYS OAG  
Environmental Protection Bureau  
The Capitol  
Albany, NY 12224  
maureen.leary@ag.ny.gov

## **Corporate Counsel**

Robert M. Hallman  
227 E. 57th Street  
New York, NY 10022  
rmhallman@gmail.com

George A. Rusk  
Ecology and Environment, Inc.  
368 Pleasantview Drive  
Lancaster, NY 14086-1316  
grusk@ene.com

## **Energy**

Kevin M. Bernstein  
Bond, Schoeneck & King, PLLC  
One Lincoln Center  
Syracuse, NY 13202-1325  
kbernstein@bsk.com

## **Enforcement and Compliance**

Craig B. Kravit  
Kravit Partners LLC  
79 Madison Avenue, Front 2  
New York, NY 10016-7800  
cbk@kravit.com

George F. Bradlau  
George F. Bradley PLLC  
One North Lexington Avenue  
7th Floor  
White Plains, NY 10601  
gbradlau@gfbalaw.com

Dean S. Sommer  
Young Sommer LLC  
Executive Woods  
5 Palisades Drive  
Albany, NY 12205  
dsommer@youngsommer.com

## **Environmental Business Transactions**

Robert H. Feller  
Bond, Schoeneck & King, PLLC  
111 Washington Avenue  
Albany, NY 12210  
RFeller@bsk.com

Jeffrey B. Gracer  
Sive Paget & Riesel PC  
460 Park Avenue, 10th Floor  
New York, NY 10022  
jgracer@sprlaw.com

**Environmental Impact Assessment**

Kevin G. Ryan  
Ryan Law Group, LLC  
693 Weaver Street  
Larchmont, NY 10538-1015  
kgr@ryanlawgrouppllc.com

Mark A. Chertok  
Sive Paget & Riesel PC  
460 Park Avenue, 10th Floor  
New York, NY 10022  
mchertok@sprlaw.com

**Environmental Insurance**

Daniel W. Morrison III  
Jones Morrison, LLP  
670 White Plains Road, Penthouse  
Scarsdale, NY 10583  
dmorrison@jonesmorrisonlaw.com

Gerard P. Cavaluzzi  
Malcolm Pirnie, The Water Division of  
ARCADIS  
44 South Broadway, 15th Floor  
White Plains, NY 10601  
gerard.cavaluzzi@arcadis-us.com

**Environmental Justice**

Peter M. Casper  
New York State Thruway Authority  
Legal Department  
200 Southern Blvd; PO Box 189  
Albany, NY 12201-0189  
peter.casper@thruway.ny.gov

Yelann L. Momot  
605 Kayleigh Drive  
Webster, NY 14580  
yelannyu@gmail.com

**Ethics**

Yvonne E. Hennessey  
Hiscock & Barclay LLP  
80 State Street  
Albany, NY 12207  
yhennessey@hblaw.com

Randall C. Young  
New York State Department of  
Environmental Conservation  
Region 6  
317 Washington Street  
Watertown, NY 13601-3744  
randall.young@dec.state.ny.gov

**Global Climate Change**

Virginia C. Robbins  
Bond, Schoeneck & King, PLLC  
One Lincoln Center  
Syracuse, NY 13202  
vrobbins@bsk.com

Carl R. Howard  
US Environmental Protection Agency  
290 Broadway  
Office of Regional Counsel  
New York, NY 10007-1866  
howard.carl@epa.gov

Michael B. Gerrard  
Columbia Law School  
435 West 116th Street  
New York, NY 10027  
michael.gerrard@aporter.com

J. Kevin Healy  
Bryan Cave LLP  
1290 Avenue of the Americas  
New York, NY 10104  
jkhealy@bryancave.com

**Hazardous Waste/Site Remediation**

David J. Freeman  
Gibbons, P.C.  
1 Pennsylvania Plaza, 37th Floor  
New York, NY 10119-3701  
dfreeman@gibbonslaw.com

Amy Lynn Reichhart  
Nixon Peabody LLP  
1300 Clinton Square  
Rochester, NY 14604  
areichhart@nixonpeabody.com

**Historic Preservation Parks and Recreation**

Jeffrey S. Baker  
Young Sommer LLC  
5 Palisades Drive  
Albany, NY 12205  
jbaker.9118q@youngsommer.com

**International Environmental Law**

Andrew D. Otis  
Curtis, Mallet-Prevost, Colt  
& Mosle LLP  
101 Park Avenue  
New York, NY 10178-0061  
aotis@curtis.com

John French III  
435 East 52nd Street  
New York, NY 10022  
frenchiii.john@gmail.com

**Internet Coordinating**

Alan J. Knauf  
Knauf Shaw LLP  
2 State Street  
1400 Crossroads Building  
Rochester, NY 14614-1314  
aknauf@nyenvlaw.com

Robert S. McLaughlin  
Bond, Schoeneck & King, PLLC  
One Lincoln Center  
Syracuse, NY 13202  
rmclaughlin@bsk.com

**Land Use**

Edward F. Premo II  
Harter Secrest & Emery LLP  
1600 Bausch & Lomb Place  
Rochester, NY 14604  
epremo@hselaw.com

Michael D. Zarin  
Zarin & Steinmetz  
81 Main Street  
Suite 415  
White Plains, NY 10601  
mzarin@zarin-steinmetz.net

**Legislation**

Jeffrey D. Brown  
Mackenzie Hughes LLP  
101 South Salina Street, Ste 600  
P.O. Box 4967  
Syracuse, NY 13221  
jbrown@mackenziehughes.com

John L. Parker  
157 Stone Meadow Road  
South Salem, NY 10590  
parkerjl@me.com

Jillian Kasow  
Harris Beach PLLC  
677 Broadway, Suite 1101  
Albany, NY 12207  
jkasow@harrisbeach.com

Michael J. Lesser  
50F Knights Bridge  
Guilderland, NY 12084-9434  
mlesser@nycap.rr.com

**Membership**

Robert Alan Stout Jr.  
Whiteman Osterman & Hanna LLP  
1 Commerce Plaza  
Albany, NY 12260  
rstout@woh.com

Jason Lewis Kaplan  
16 Woodtree Dr.  
Woodbury, NY 11797-3027  
jkaplan215@gmail.com

**Mining and Oil & Gas Exploration**

Thomas S. West  
The West Firm PLLC  
677 Broadway, 8th Floor  
Albany, NY 12207  
twest@westfirmlaw.com



Dominic R. Cordisco  
Drake Loeb Heller Kennedy Gogerty  
Gaba & Rodd, PLLC  
555 Hudson Valley Avenue, Suite 100  
New Windsor, NY 12553  
cordisco@gmail.com

#### **Pesticides**

Telisport W. Putsavage  
Sullivan & Wocester LLP  
1666 K Street, NW  
Washington, DC 20006  
tputsavage@sandw.com

#### **Petroleum Spills**

Gary S. Bowitch  
Bowitch & Coffey LLC  
17 Elk Street  
Albany, NY 12207  
bowitch@bcalbany.com

Jason Lewis Kaplan  
16 Woodtree Dr.  
Woodbury, NY 11797-3027  
jkaplan215@gmail.com

Douglas H. Zamelis  
Law Office of Douglas H. Zamelis  
7629A State Highway 80  
Cooperstown, NY 13326-3315  
dzamelis@windstream.net

Wendy A. Marsh  
Hancock Estabrook, LLP  
100 Madison Street, Suite 1500  
Syracuse, NY 13202-2791  
wmarsh@hancocklaw.com

#### **Pollution Prevention**

Megan Rose Brillault  
Beveridge & Diamond PC  
477 Madison Ave., 15th Floor  
New York, NY 10022-7380  
mbrillault@gmail.com

#### **Public Participation, Intervention and ADR**

John L. Parker  
157 Stone Meadow Road  
South Salem, NY 10590  
parkerjl@me.com

Gary A. Abraham  
Law Office of Gary A. Abraham  
170 North 2nd Street  
Allegany, NY 14706  
gabraham44@eznet.net

Glen T. Bruening  
New York State Court of Claims  
PO Box 7344  
Capitol Station  
Albany, NY 12224  
gbruening@nycourts.gov

Jan S. Kublick  
McMahon, Kublick & Smith, P.C.  
500 South Salina St., Suite 800  
Syracuse, NY 13202-3371  
jsk@mkms.com

#### **Solid Waste**

John Francis Lyons  
Grant & Lyons, LLP  
PO Box 370  
Rhinecliff, NY 12574  
jlyons@grantlyons.com

Marla E. Wieder  
U.S. Environmental Protection Agency  
Region II  
290 Broadway, 17th Floor  
New York, NY 10007-1823  
wieder.marla@epa.gov

#### **State Professionals Task Force**

Kevin G. Ryan  
Ryan Law Group, LLC  
693 Weaver Street  
Larchmont, NY 10538-1015  
kgr@ryanlawgroupllc.com

#### **Toxic Torts**

Cheryl P. Vollweiler  
Traub Lieberman Staus  
& Shrewsbury LLP  
Mid-westchester Executive Park  
7 Skyline Drive  
Hawthorne, NY 10532  
cvollweiler@traublieberman.com

#### **Transportation and Infrastructure**

John Fehrenbach  
Winston & Strawn LLP  
1700 K Street, Nw  
Washington, DC 20006-3817  
jfehrenbach@winston.com

Richard J. Brickwedde  
Brickwedde Law Firm  
211 W. Jefferson Street, Suite 20  
Syracuse, NY 13202  
rbrickwedde@brickwedde.com

#### **Water Quality**

George A. Rodenhausen  
Rodenhausen Chale LLP  
20 Spring Brook Park  
Rhinebeck, NY 12572-1194  
grodenhausen@rodenhausenchale.com

Melody Scalfone  
Scalfone Law PLLC  
131 Robineau Road  
Syracuse, NY 13207-1645  
scalfone@scalfonelaw.com

## Section Officers

### Chair

Terresa M. Bakner  
Whiteman Osterman & Hanna LLP  
One Commerce Plaza  
Albany, NY 12260-2015  
tbakner@woh.com

### Vice-Chair

Michael J. Lesser  
50F Knights Bridge  
Guilderland, NY 12084-9434  
mlesser@nycap.rr.com

### Treasurer

Laurie Silberfeld  
Consolidated Edison Company of New York  
4 Irving Place  
New York, NY 10003  
silberfeldl.@coned.com

### Secretary

Lawrence P. Schnapf  
Schnapf, LLC  
55 East 87th Street, Suite 8b  
New York, NY 10128  
larry@schnapflaw.com

## Publication—Editorial Policy—Subscriptions

Persons interested in writing for this *Journal* are welcomed and encouraged to submit their articles for consideration. Your ideas and comments about the *Journal* are appreciated.

**Publication Policy:** All articles should be submitted to me and must include a cover letter giving permission for publication in this *Journal*. We will assume your submission is for the exclusive use of this *Journal* unless you advise to the contrary in your letter. If an article has been printed elsewhere, please ensure that the *Journal* has the appropriate permission to reprint the article. Authors will be notified only if articles are rejected. Authors are encouraged to include a brief biography.

For ease of publication, articles should be e-mailed or submitted on a CD, preferably in Microsoft Word or WordPerfect. Please spell-check and grammar-check submissions.

**Editorial Policy:** The articles in this *Journal* represent the authors' viewpoints and research and not that of the *Journal* Editorial Staff or Section Officers. The accuracy of the sources used and the cases cited in submissions is the responsibility of the author.

**Non-Member Subscriptions:** *The New York Environmental Lawyer* is available by subscription to law libraries. The subscription rate for 2014 is \$155.00. For further information contact the Newsletter Dept. at the Bar Center, (518) 463-3200.

**Publication Submission Deadlines:** On or before the 1st of March, June, September and December each year.

**Miriam E. Villani, Editor-in-Chief**

This publication is published for members of the Environmental Law Section of the New York State Bar Association. Members of the Section receive a subscription to the publication without charge. The views expressed in articles in this publication represent only the authors' viewpoints and not necessarily the views of the Editor or the Environmental Law Section.

Copyright 2014 by the New York State Bar Association  
ISSN 1088-9752 (print) ISSN 1933-8538 (online)

## THE NEW YORK ENVIRONMENTAL LAWYER

### Editor-in-Chief

Miriam E. Villani  
Sahn Ward Coschignano & Baker, PLLC  
333 Earle Ovington Blvd., Suite 601  
Uniondale, NY 11553  
mvillani@swcblaw.com

### Issue Editors

Justin M. Birzon  
259 State St.  
Albany, NY 12210  
birzon.law@gmail.com

Prof. Keith Hirokawa  
Albany Law School  
80 New Scotland Ave.  
Albany, NY 12208  
khiro@albanylaw.edu

Aaron Gershonowitz  
Forchelli Curto  
333 Earle Ovington Boulevard  
Uniondale, NY 11553  
agershonowitz@fcsbcc.com

### Law Student Editorial Board

**Albany Law School and St. John's University School of Law**

#### Student Editors:

Max Lindsey  
Alexis Kim  
Lenny Gryskevicz

Caroline Thompson  
Tyler Wolcott

#### Contributing Members:

Brian Eisner  
Pamela Lowe  
Michael R. Lieberman  
Benjamin Botelho  
Kelly E. Moynihan  
Mark Houston

Graham Gibbs  
Calumn James Yeaman  
Stacy Lococo  
Kelsey L. O'Brien  
Elizabeth M. Stapleton  
Abigail Sardino

### Accommodations for Persons with Disabilities:

NYSBA welcomes participation by individuals with disabilities. NYSBA is committed to complying with all applicable laws that prohibit discrimination against individuals on the basis of disability in the full and equal enjoyment of its goods, services, programs, activities, facilities, privileges, advantages, or accommodations. To request auxiliary aids or services or if you have any questions regarding accessibility, please contact the Bar Center at (518) 463-3200.



NEW YORK STATE BAR ASSOCIATION  
**ENVIRONMENTAL LAW SECTION**

One Elk Street, Albany, New York 12207-1002

ADDRESS SERVICE REQUESTED

NON PROFIT ORG.  
U.S. POSTAGE  
**PAID**  
ALBANY, N.Y.  
PERMIT No. 155

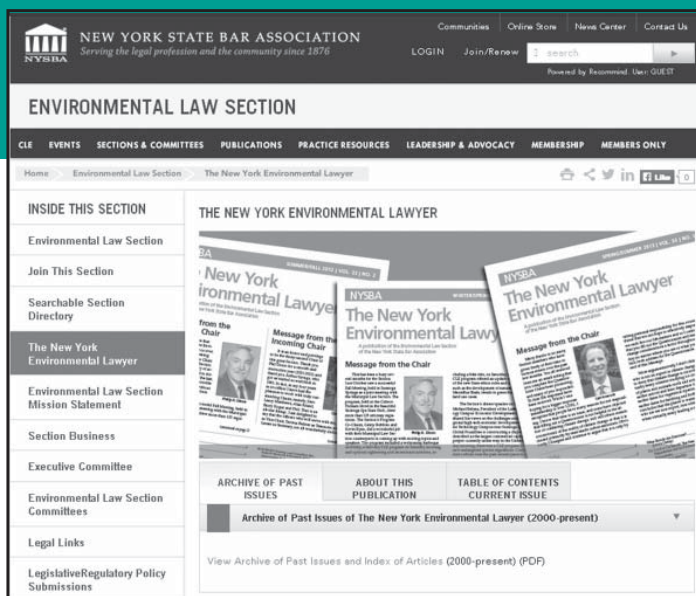
# The *New York Environmental Lawyer* is also available online

Go to [www.nysba.org/EnvironmentalLawyer](http://www.nysba.org/EnvironmentalLawyer) to access:

- Past Issues (2000-present) of *The New York Environmental Lawyer*\*
- *The New York Environmental Lawyer* Searchable Index (2000-present)
- Searchable articles from *The New York Environmental Lawyer* that include links to cites and statutes. This service is provided by Loislaw and is an exclusive Section member benefit\*

\*You must be an Environmental Law Section member and logged in to access.

Need password assistance? Visit our Web site at [www.nysba.org/pwhelp](http://www.nysba.org/pwhelp). For questions or log-in help, call (518) 463-3200.



NEW YORK  
STATE BAR  
ASSOCIATION



Printed on 100% Recycled Paper