

The New York Environmental Lawyer



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

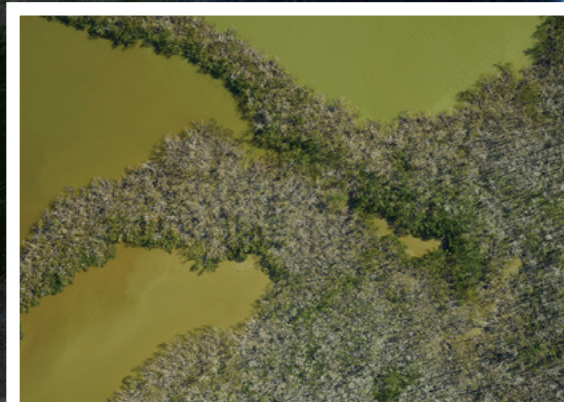


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North Carolina after Hurricane Florence and nearly a year before the storm. The Trent River (upper left) reached a record high of 29 feet (9 meters) on Sept. 17, more than twice the level at which the river overflows. The images are in false color and were taken by the Operation Land Imager on the Landsat 8 satellite.

Inside

- What Land Use Practitioners Need to Know About the SEQRA Amendments
- Proposed Federal Framework to Reduce Community Greenhouse Gas
- EPA Should Regulate GHG Emissions
- 1,4-dioxane: The Emerging Crisis

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The Ten Thousand Islands mangrove ecosystem of Florida's Everglades before and after hurricanes Irma and Maria tore through the area in September 2017. A NASA research team found that 60 percent of their study areas were heavily damaged. Images taken by airborne Goddard Lidar, Hyperspectral and Thermal Imager.

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THE NEW YORK ENVIRONMENTAL LAWYER

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Message from the Chair

Love the Catskills

First, a sincere thank you to everyone, especially our co-chairs/moderators, **Hayley Carlock** and **Dan Ruzow** (also our official photographer), and our panel moderators, **Gary Bowitch** and **Dan Krainin**, who helped pull together the Fall Meeting.



While our panels were heavy on water issues (WOTUS, NYC watershed, emerging contaminants, etc.), we also focused on current issues in the toxic torts realm and evolving environmental and ethical issues concerning cannabis production (which seemed appropriate as we were just a stone's throw away from Woodstock). Thank you to **Telisport Putsavage** and **Sara Payne** for pulling together a thought-provoking cannabis dialogue. We received excellent feedback both on the program's content and the picture-perfect location. This was the first time the EELS had an event at the Emerson Resort & Spa in the picturesque Catskills. By all accounts the only issues were WiFi/cell service (which we knew was an issue going in) and that the Section should have reserved a bigger block of rooms. Thankfully the foliage did not disappoint. We had sunny, seasonal weather for our side tours including the Ashokan Center (thank you, **Rosemary**), the reservoir biking challenge (Biking with Bowitch) and a challenging Catskill hike (Climbing with Carl). Thanks to **Sarah Lobe** and **Christine Leas** for organizing our interactive cocktail hour that helped to mix things up. And finally, thank you to **Lori Nicoll** and **Lisa Bataille**, the cabinet, and all the EELS who pitched in with ideas and suggestions along the way. It was truly a group effort to pull the conference together.

Our dinner speakers, **Michael Hein**, Ulster County Executive, and **Ramsay Adams**, Catskill Mountain-keeper, offered different perspectives on issues facing the Catskills and the balancing act the area has had to and continues to face. Through our programs, discussions, and off-site activities I hope that our members left with a good sense of the history, political complexities (especially in connection with the protection of the New York City watershed), and the intrinsic beauty of the area. And by the way, who knew Ulster County was the first carbon-neutral county government? Go Ulster! For more details, see: <https://ulstercountyny.gov/environment/sustainability-energy>.

Changes and Priorities

As one of the upgrades to the EELS website we recently added a Photo Gallery. Pictures from the Fall Meeting, the Environmental Insurance Conference, and from a few prior events were recently posted. If you have others you'd like posted, please send them to: Brandon Vogel, Social Media & Web Content Manager, NYSBA at bvogel@nysba.org. Older pictures are welcome, as well.

We have a long list of priorities. We are continuing to revitalize our Section committees and have recently welcomed **Sarah Lobe** and **Christine Leas** as the new co-chairs of the Diversity Committee and **Jose Almanzar** and **Marthe Ngwashi** as the new co-chairs of the Environmental Justice Committee. With their help we hope to increase our CLE offerings in the **Diversity, Inclusion & Elimination of Bias** category and pull together some timely, interesting programs and panels. Our **Minority Fellowship Award** is back on track for 2019 and if all goes well with this award we will seek to increase funding for the following year. Our **Social Media and Electronic Communications Committee** took a hit when Meaghan Colligan left for D.C., but we have found two newer members who are willing to take on the responsibility for posting, tweeting, and publicizing events and issues of import to the envi-



ronmental legal community. And while we are on the subject of social media, please join the NYSBA Environmental and Energy Law group on LinkedIn and follow the EELS on Twitter (@NYSBAEELS).

In the upcoming months we'll be further discussing our Section's support for an **Environmental Amendment to New York State Constitution**. This would involve an amendment to Article 1 of the state constitution to establish, in the Bill of Rights, a right to a clean and healthy environment. For more on what New York and other states are doing on the green-amendment front, see: <https://forthe generations.org/resources/states-pursuing-green-amendments/>.

On the **membership** front we continue to expand our offerings in the energy sector in order to attract new members. We are also hoping to encourage more student members by offering opportunities to attend conferences and events for free and to require that they join EELS (at no charge) if they are applying for the Fellowship or participating in meetings and contests. It's then up to our members to connect with them and encourage their involvement so we can retain them after graduation.

We will continue to push forward on **rebranding, marketing**, and a creation of a Section logo in order to create better name recognition and attract new members

to the Section. We hit a bit of speedbump on our efforts as a dated, pre-social media NYSBA policy forbids the creation of individual Section logos. We'll continue to work with NYSBA on this issue in light of current realities.

And in speaking of low-hanging fruit, we have requested that **recycled paper** be used not only for *TNYEL*, but also for Section brochures, mailings, conference materials, etc. We have also begun ordering the various awards from an eco-friendly company that offers recycled glass awards, bamboo plaques, and other promotional products made from sustainable materials.

Never, Never, Never...

And lastly, but most importantly, the past two years have been a struggle for many and the current administration's policies and priorities, in one way or another, have had a significant impact on many of our members. There has been no shortage of issues for the Section's **Future of Federal Environmental Policy (FFEP) Task Force** to deal with. Please contact one of the Task Force members if you'd like to assist in the Section's efforts on this front. In the meantime, stay motivated, stay focused, and, in the immortal words of Sir Winston Churchill, never, never, never, give up.

Marla E. Wieder

NEW YORK STATE BAR ASSOCIATION ENVIRONMENTAL & ENERGY LAW SECTION

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Message from the Editor-in-Chief

Continuing Marla's thought as expressed at the end of her Message from the Chair, and beginning with Sir Winston Churchill's immortal and very appropriate words, "Never, never, never give up," below is a list of steps advocated by the federal government's National Climate Assessment Report (the "Report"), we, as EELS members and citizens of the planet Earth, can take to help keep CO2 levels from rising further and to defend against the effects of climate change. We must encourage our governments, firms, companies, offices, colleagues, clients, friends, and family to take and/or support these steps. We know that climate change is happening now, and each of us is responsible for doing what we can to address it.



It is in this spirit that I offer the following steps from the Report for each of us to take and/or support:

1. Move away from the coast. Don't build or rebuild in coastal areas. Global sea levels are expected to rise 1 to 4 feet this century according to the Report. While global sea-level rise is a fact and has been reported before, the federal, state, and local governments are not taking it seriously enough and, instead, continue to support policies that promote coastal development. Let's work to change those policies.
2. Develop and learn new ways to farm. The Report warns that food supplies are being threatened as

warming trends continue. Crop yields decline with the increase in number of extremely hot days. Cows produce less milk in the heat and droughts reduce supplies of irrigation water. The number and variety of pests are increasing. Developments in irrigation techniques, climate-controlled buildings for crops and livestock, and drought- and pest-resistant seed varieties are things that we can find ways of supporting.

3. Use climate forecasts in infrastructure planning. The nation's existing infrastructure has become overwhelmed in areas hard hit by extreme weather. Flooding and rising tides have left roads impassable and bridges unsafe. Sewer systems overflow more frequently with the heavier rainfall caused by climate change. We can find ways to encourage city planners to consider climate forecasts when undertaking infrastructure planning projects.
4. Plant trees. The Report outlines ways that nature can be managed as a defense against climate change. Planting trees in urban areas will help lower temperatures and protect people from extreme heat. Protecting and restoring wetlands and marshlands will improve water quality. The protection of pollinators will provide a resilient agricultural system.

Bonus: Read Carl Howard's blog posts.

By taking, encouraging, and supporting these actions, we will be doing our part in the effort to slow climate change and its impacts while we wait for this country to come to its senses and elect an administration that recognizes science and will dedicate its energies to addressing the threats to the environment.

Miriam E. Villani



EELS Fall Meeting in Mt. Tremper

The Section's Fall Meeting featured a panel of speakers, as well hiking and bike excursions in the beautiful Mt. Tremper area of New York.

Turn to pages 50 and 51 for color photos of the events.

Message from the Issue Editor

This issue contains two articles authored by students. I always enjoy reading the student essays because they focus on what ought to be more than we practitioners tend to.

The students focused on climate change as the problem that needs to be addressed and each student addressed it from a different perspective.

Rachel Manning's essay, which was the winning essay in the William R. Ginsberg Memorial Essay Contest, discusses incentives for individuals to reduce greenhouse emissions. The article was of personal interest to me because one of her suggestions was that local governments should "incentivize individuals to travel by bicycle or alternative fuel vehicle." I commute by bicycle and the roads on Long Island are not particularly hospitable to bicycles. I have spoken with a variety of local government officials and while they think commuting by bicycle is nice, there is not nearly enough interest in it to attract attention. Changing the way individuals think and act will be a hard sell because even those who recognize the enormity of the problem tend to think that we should look to someone else to solve it.



Sarah Kam, a lawyer who wrote her article for her M.S. in Sustainability Management from Columbia University, makes the case for regulating GHG emissions from ships. While noting that a significant percentage of global GHG emissions come from ships, the article lists a number of hurdles that must be overcome to implement such regulation. A key portion of the article addresses the possibility of a citizen's suit to compel EPA to regulate.

This issue also contains two practitioner articles. Jim Rigano, Alyse Delle Fave and Nicholas Rigano address regulation of emerging contaminants, particularly 1,4 dioxane. 1,4 dioxane was present in a wide variety of products and also may be associated with solvent plumes in groundwater. Regulators and the regulated community are both gearing up for more stringent regulation.

Andrea Curto and Jessica Leis, with assistance from Sara Moriarty, authored an article on the SEQRA regulations. The SEQRA process is a key element of zoning and land use applications and the authors address specific elements of the revisions to the regulations codified at 6 N.Y.C.R.R. Part 617 that should be of interest to developers.

I want to thank the Editor-in-Chief for all the work she put into the issue and the guidance she provided along the way. Also, thanks to Keith Hirokawa and Justin Birzon who played important roles in the development of the issue and their efforts are greatly appreciated.

Aaron Gershonowitz

Message from the Student Editorial Board

The Fourth National Climate Assessment, a 1,656-page report produced by 13 federal agencies, was released on November 23, and warns of potentially dire consequences if the threat of climate change is not addressed. These consequences include the reduction of the U.S. economy by up to 10 percent, increased risk of wildfires in the wildland-urban interface, and increased flooding in both coastal and landlocked regions. The report includes a number of Representative Concentration Pathways (RCPs) as predictive models based on different atmospheric concentrations of greenhouse gases and notes a likely trajectory toward the worst-case scenario (RCP8.5), absent massive efforts on a global scale to mitigate greenhouse gas emissions.

Up to \$1 trillion in national wealth held in coastal real estate is at risk due to ongoing increases in the frequency and severity of coastal flooding. Coastal cities

have already seen higher rainfall amounts, sea level rise, and high tide flooding. Additionally, higher temperatures—both generally and from extreme heat events—stress urban infrastructure and can lead to power-grid failures, increasing the exposure of residents to heat and limiting access to social services. Here in the Northeast, the problem of an aging water infrastructure will be exacerbated by more frequent flood events (the report notes that increases in rainfall intensity here exceed increases in other regions of the country). Under the worst-case scenario, higher temperatures are projected to increase premature deaths related to extreme heat by as many as 2,300 deaths per year by 2090—and by approximately 650 deaths per year even if action to mitigate climate change is taken.

Continued on page 8

Student Board

Continued from page 7

In the face of the range of scenarios presented by the report, the report's catalogue of climate-driven changes that are already occurring, the high degree of confidence and the near-unanimous agreement among scientists that climate change is real, contributed to in a significant way by human activities, and potentially catastrophic in its consequences (economic and otherwise)—President Trump responded by saying he doesn't believe it when asked what he thought of the report. This in itself is not surprising. The Trump administration has acted to open formerly federally protected lands for oil and gas drilling as well as coal mining, repeal or weaken the Clean Water Act, and repeal the Clean Power Plan.

The other piece of President Trump's response is more interesting. He added that even if the United States acted on climate change, it would not matter if other countries ("China and Japan and all of Asia and all of these other countries") failed to make the same commitment. This is something of a self-fulfilling prophecy—many of those other countries are looking to the United States and wondering if action on climate change is worth it, given that one of the world's largest sources of greenhouse gases is running in the other direction. More-


over, the United States' inaction provides cover for other countries to act in environmentally unsound ways. For instance, Brazil's recently elected president, Jair Bolsonaro, has pledged to limit fines for those caught illegally logging in the Amazon rainforest and to weaken his government's environmental agency (this comes after the worst year for illegal logging there in a decade).

This feedback loop, in which no one will act unless someone else does first, is like a bad game of chicken that puts the entire world at risk (and those most vulnerable don't have the option not to play). It also has the potential to unleash a series of other feedback loops. Deforestation of the Amazon degrades one of the world's largest carbon sinks, keeping greenhouse gases in the atmosphere, leading to higher temperatures, droughts, and increased risk of forest fires, leading to further degradation of forests acting as carbon sinks, and so on. The disappearance of sea ice from the arctic leads to methane releases into the atmosphere, again leading to higher temperatures and the further disappearance of sea ice.

In order to mitigate and adapt, someone must be the first to act—but first, someone has to believe action is necessary.

David Dickinson
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NEW YORK STATE BAR ASSOCIATION



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

REQUEST FOR ARTICLES



Outside the EPA Update

By James L. Simpson

Congratulations to those who had July 6, 2018, as Pruitt's last day in their office pool. Well done. After a tumultuous tenure as EPA Administrator, and trying to weather through a series of ethical scandals, Scott Pruitt resigned July 5, 2018, and left office the next day. Apparently the numerous and well documented ethical issues surrounding his tenure were too much for even the Trump Administration.¹ Ultimately, even conservatives had called for him to step down.² Regardless, Pruitt's time as EPA Administrator will be remembered for his secrecy, ethical lapses, and rollback of EPA regulations, some successful, some not. He will likely go down in EPA lore with former EPA Administrator Anne Gorsuch for his work done (and undone) at EPA.³

This *Outside the EPA Update* is designed to be read cafeteria style: take what you want and leave the rest. First, the column discusses some general EPA goings-on, including the new acting administrator. Second, the column discusses EPA's important hurricane response work. Third, the column discusses climate change and the Trump administration's continuing efforts to reverse work done during the Obama administration. Fourth, the column addresses air issues, including changes to the New Source Review program. Fifth is a discussion of Superfund, including changes to the NPL and updates for the Gowanus Canal and the Hudson River cleanups. Sixth, the column discusses the thorny issue of "waters of the United States." Finally, the column discusses enforcement.

General EPA Goings-On

EPA Transition – Take Two

As of this writing, Andrew Wheeler is EPA's Acting Administrator. President Trump appointed Wheeler as the new Acting Administrator on July 5, 2018.⁴ While there weren't the significant transition issues associated with the Trump administration taking over from Obama, there have been some notable differences in the short time since Wheeler assumed the Acting Administrator position.

Acting Administrator Wheeler—Fishbowl Memo

In a stark change from Pruitt, Wheeler issued what is known as a "fishbowl memo" to all EPA employees.⁵ In these memos EPA Administrators have stressed the need for the agency to "operate openly and transparently for all to see, as if it were in a fishbowl."⁶ Wheeler reaffirmed these commitments to EPA employees. Administrator Ruckelshaus issued the first such fishbowl memo in 1983, when he took over the agency for the second time following the resignation of Anne Gorsuch. Pruitt did not issue a fishbowl memo; his penchant for secrecy is well known.

Wheeler Reverses Pruitt's Last Day Action on Gliders

On his last day in office Pruitt issued a no-action assurance regarding glider vehicles.⁷ Gliders are essentially new trucks that use old diesel engines. These older engines do not meet new emission standards and typically emit 55 times the air pollution as trucks with modern emission controls. Pruitt's no-action letter expressed that EPA would use its enforcement discretion and not seek enforcement actions for gliders. Wheeler reversed this no-action assurance just a few weeks later.⁸

EPA Proposes "Secret Science" Rule for Data Used in EPA Regulations

On April 24, 2018, EPA announced a proposed rule, Strengthening Transparency in Regulatory Science, to force EPA to make data it relies upon in developing regulations publicly available.⁹ House Republicans have tried to pass a similar bill into law for many years. In its press release EPA asserts this rule will "strengthen the science used in regulations issued by EPA" and ensure that "the regulatory science underlying Agency actions is fully transparent, and that underlying scientific information is publicly available in a manner sufficient for independent validation."¹⁰

Scientists view the proposed rule differently, pointing out that this innocuous sounding rule would prohibit EPA from relying upon studies with confidential health data and clinical data.¹¹ Others fear it would be "waging a war on the war on lead."¹² EPA relies upon many health studies while developing regulations to further its mission to protect human health and the environment. Many of these health studies use personal data that laws like HIPAA (the Health Insurance Portability and Accountability Act of 1996) require be kept private. Under the proposed rule, EPA would not be allowed to rely upon these studies while crafting regulations. Critics also note that the proposed rule would not force pesticide companies to release data relied upon in their FIFRA registration applications.¹³

EPA initially scheduled a 30-day public comment period to close on May 30, 2018,¹⁴ but extended it to August 16, 2018, and added a public hearing at EPA headquarters.¹⁵ At the public hearing, David Michaels, the head

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of the Occupational Safety and Health Administration under President Obama, said: “[t]he cynical approach proposed by EPA can best be described as weaponized transparency.”¹⁶ Michaels compared EPA’s rule to a strategy the tobacco industry used decades ago and said the agency wants to create “a caricature of how science really works” to stymie new public health safeguards.

EPA Names Top Cities for ENERGY STAR Certified Buildings Amid Potential Budget Cut of Program

EPA announced its tenth annual “Top Cities” list, which ranks the 25 U.S. metropolitan areas with the most ENERGY STAR certified buildings in the preceding calendar year.¹⁷ Los Angeles is on top this year and New York City in fifth place, with more than 400 ENERGY STAR-certified buildings.¹⁸

This year’s Top Five Cities are:

<u>Rank</u>	<u>Metro Area</u>	<u>Building Count</u>
1	Los Angeles	716
2	Washington, DC	661
3	Dallas	468
4	Atlanta	441
5	New York	434

According to EPA, commercial buildings account for 19 percent of the nation’s energy use and cost more than \$100 billion per year in energy bills. By the end of 2017, more than 32,000 buildings nationwide had earned EPA’s ENERGY STAR certification, saving more than \$4.5 billion on energy bills and preventing greenhouse gas emissions equal to the annual electricity use of more than three million homes. Since 1992 Energy Star and its partners have helped save over \$450 billion and over 3.5 trillion kilowatt-hours of electricity while also achieving significant emission reductions.¹⁹

Despite these substantial savings, the Trump administration has once again proposed to eliminate the Energy Star program from federal funding and instead wants to fund the program through fees charged to companies that use it.²⁰ The program costs \$42 million.²¹

Hurricane Response

Sadly, the government in Puerto Rico acknowledged that more than 1,400 people died following Hurricane Maria, more than 20 times the number reported previously.²²

In early 2018, EPA Region 2 continued its active response to Hurricanes Irma, and Maria, focusing on environmental impacts and potential threats to human health and safety of those in the affected areas. It’s important to remember that these two massive hurricanes occurred just 10 days apart, and prior to the hurricanes Puerto Rico was essentially bankrupt and had lost 10 percent of its population over the past decade. The hurricanes were a classic case of kicking someone when they are down. The entire island of Puerto Rico lost power after Maria, and 2 percent of the island is still without power as of this writ-

ing (June 2018). Cleaning up with no way to communicate and even travel across roads was a monumental task.

To state the obvious, hurricanes generate substantial amounts of debris, some hazardous. EPA estimates that Hurricanes Irma and Maria generated enough debris to fill Yankee Stadium seven times. As of May 1, 2018, over 700 EPA personnel had deployed in support of Irma and Maria response efforts. In addition, in Puerto Rico and the USVI, EPA collected more than 500,000 items of household hazardous waste, white goods (air conditioners, refrigerators, etc.), and electronic waste.²³

On January 5, 2018, EPA reported that 375 EPA personnel were on the ground in Puerto Rico and USVI.²⁴ EPA also reported that it worked closely with the U.S. Coast Guard in the recovery of submerged or damaged vessels in Puerto Rico and the USVI. As of January 5, 2018, EPA and the U.S. Coast Guard had assessed 375 vessels in Puerto Rico, and 465 in the USVI.²⁵

EPA Finishes Collection of Hazardous Household Material in Puerto Rico

On April 13, 2018, EPA finished its island-wide sweep of hazardous household waste in Puerto Rico.²⁶ EPA reported that the volume of waste collected had decreased significantly, and noted its transition from response to long-term recovery.²⁷ EPA collected household hazardous waste, electronics, and abandoned containers, such as drums, tanks, and cylinders that were found floating in or near water bodies. In Puerto Rico, EPA collected about 248,100 drums, propane tanks, cylinders and other containers, thereby preventing them from reaching Puerto Rico’s landfills.²⁸

Puerto Rico Energy Recovery Stymied

Recovery efforts in Puerto Rico continue but restrictions on the use of federal funds from the Stafford Act has prevented the island from modernizing energy equipment.²⁹ The Stafford Act provides federal funds for disaster relief, but these funds cannot be used for long-term improvements. For example, both the USVI and Puerto Rico have pushed for micro-grids to power the islands and to bury power lines, but the Stafford Act stands in the way. In early 2018, EPA Region 2 Administrator Pete Lopez was working with other federal agencies to remedy this.

Climate Change

For the first part of 2018, EPA continued its march to roll back climate change regulations. In a telling sign, at the biennial Key Environmental Issues in EPA Region 2 Conference (held June 6, 2018, at Columbia Law School), EPA Region 2 did not have a speaker during the climate and air pollution segment – for the first time since the conference started in 1994. The current EPA administration has not been shy about its intentions regarding climate regulations.

Repeal of Clean Power Plan

EPA proposed repeal of the Clean Power Plan on October 16, 2017, and it is still pending after an extended comment period that ran until April 26, 2018.³⁰ As of this writing, EPA has received over 1.3 million comments on the proposed repeal.³¹

Clean Power Plan Replacement—Affordable Clean Energy Rule

On August 21, 2018, EPA announced the proposed replacement of the Clean Power Plan—the Affordable Clean Energy (“ACE”) Rule.³² This self-titled “Rule” is not yet a final rule, just a proposed rule. While the Clean Power Plan is based on federally determined emission rates for different power plant categories, the ACE call for each state to establish its own standards of performance for coal-fired power plants. The proposed rule sets guidelines to identify a list of “candidate technologies” states can use when developing their plans. In addition, there is a significant proposed change to the New Source Review program (NSR).³³ EPA is proposing to change its NSR rules for all power plants to use an hourly emissions test, instead of an annual one, in determining whether a facility upgrade constitutes a “major modification” triggering NSR. This proposed NSR change would undoubtedly face a certain court challenge.

EPA Issued Advance Notice of Proposed Rulemaking to Replace Clean Power Plan

On December 28, 2017, EPA published an advance notice of proposed rulemaking to announce it was considering proposing a rule to replace the Clean Power Plan.³⁴ The notice solicits comments on what the EPA should include in a potential new rule to regulate GHG emissions from existing power plants under CAA section 111(d). The notice foreshadowed the proposed ACE rule. Specifically, EPA requested comment on potential new existing source regulation under CAA Section 111(d), including (i) the roles and responsibilities of the states and EPA as EPA replaces the Clean Power Plan for existing power plants; (ii) the best system of emission reduction that can be deployed at or to an existing power plant, at the source-specific level, consistent with the agency’s new interpretation of CAA section 111; and (iii) potential interactions between this regulation and the new source review program and new source performance standards under CAA Section 111(b).³⁵

Republican Senators Urge Trump to Support Kigali Amendment

The Kigali amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer in the upper atmosphere seeks to curb emissions from air conditioners and other white goods to reduce global warming by an additional 0.5 degrees Celsius by 2100. The Kigali amendment, finalized in the Rwandan capital, would phase out hydrofluorocarbons (HFCs) that are very potent greenhouse gases. Because the Montreal Protocol is a treaty,

any amendments need Senate ratification. As of this writing, EPA and the Trump Administration have shown little interest in moving this forward.

However, on June 4, 2018, a group of Republican Senators urged President Trump to send this amendment to the Senate for approval.³⁶ These Senators highlighted the economic importance of this bill, including increased U.S. manufacturing jobs and increased exports. The Senators wrote that “[b]y sending this amendment to the Senate, you will help secure America’s place as the global leader in several manufacturing industries, and in turn give American workers an advantage against their competitors in the international marketplace.”

There is wide support for the Kigali amendment among industry and environmentalists.³⁷

EPA Publishes Notice Announcing It Will Not Enforce 2015 HFC Alternatives Rule

On April 27, 2018, EPA published a notice of guidance regarding EPA’s Significant New Alternatives Policy (SNAP) program following the D.C. Circuit’s decision in *Mexichem Fluor, Inc. v. EPA*, 866 F.3d 451 (2017).³⁸ SNAP identifies acceptable substitutes for ozone-depleting substances, pursuant to Section 605 of the Clean Air Act and the Montreal Protocol. A 2015 SNAP final rule changed the listings for certain HFCs in aerosols and white goods. In *Mexichem Fluor*, the court vacated the portion of the 2015 rule requiring manufacturers to phase out the use of HFCs with high global warming potentials and remanded the rule to EPA for further proceedings. In response, EPA’s notice clarifies that based on the court’s partial vacatur, EPA will not enforce the HFC listing in the 2015 rule, and announced EPA’s intent to begin a notice-and-comment rulemaking process to address the remand of the rule.³⁹

EPA Has No Records Supporting Pruitt’s Climate Change Denial

On June 1, 2018, Chief Judge Beryl Howell of the U.S. District Court for the District of Columbia ruled that EPA must respond to a FOIA request seeking records Pruitt relied upon in making certain statements regarding climate change, and any agency documents that support Pruitt’s conclusions that human activity is not the largest factor driving climate change. Plaintiffs submitted the FOIA request in response to Pruitt’s March 9, 2017 statement on CNBC that: “I would not agree that [carbon dioxide] is a primary contributor to the global warming that we see,” adding, “there’s a tremendous disagreement about the degree of the impact” of “human activity on the climate.”⁴⁰

The plaintiffs filed the FOIA request on March 10, 2017. EPA refused to provide the requested information, and did not search for it even after a year of back and forth between the plaintiffs and EPA.⁴¹ EPA argued that the FOIA request was an impermissible interrogatory to

compel EPA and Pruitt “to answer questions and take a position on the climate change debate.”⁴² The court was particularly troubled that the premise of EPA’s challenge to the FOIA request seemed to be that “the evidentiary basis for a policy or factual statement by an agency head, including about the scientific factors contributing to climate change, is inherently unknowable.”⁴³ The court called EPA’s refusal an “epistemological smokescreen,” characterized plaintiffs’ request as straight forward, and ordered EPA to complete the records search by July 2, 2018.⁴⁴

As of August 7, 2018, EPA had not produced any scientific evidence to support Pruitt’s claims that humans are not primary contributors to climate change. EPA appeared to acknowledge that it did not have any records supporting Pruitt’s claims, and produced 12 pages of emails showing his staff’s correspondence with CNBC producers. According to an EPA FOIA attorney, “EPA presented the twelve pages of material ... to the former administrator before his departure from the agency and asked him if he was aware of any other agency records that he relied upon to make the statement on the [CNBC] appearance. The former administrator identified no additional responsive records.”⁴⁵

Pruitt Determines GHG Emissions Standards for Cars and Light Trucks Should Be Revised

On April 2, 2018, EPA announced it had completed the Midterm Evaluation (MTE) process for the greenhouse gas (GHG) emissions standards for cars and light trucks for model years 2022-2025.⁴⁶ Perhaps not surprisingly, Pruitt made his final determination that “the current standards are not appropriate and should be revised” [spoiler alert: not upwards].⁴⁷ Pruitt also announced a joint process with the National Highway Traffic Safety Administration (NHTSA) to develop a notice and comment rulemaking to “set more appropriate GHG emissions standards” and Corporate Average Fuel Economy (CAFE) standards.⁴⁸

Under the Clean Air Act, EPA sets national standards for vehicle tailpipe emissions of certain pollutants. Through a Clean Air Act waiver granted by EPA, California can impose stricter standards for vehicle emissions of certain pollutants than federal requirements. However, EPA also announced it is reexamining California’s long-held waiver to impose stricter standards for vehicle emissions (12 other states follow California’s standards, including New York).⁴⁹ According to Pruitt: “Cooperative federalism doesn’t mean that one state can dictate standards for the rest of the country.”⁵⁰

Pursuant to a 2012 rulemaking setting standards for 2017-2025 light duty vehicle GHG standards, EPA committed to conduct the mid-term evaluation no later than April 1, 2018. The Obama Administration issued this evaluation on January 12, 2018, about a week before the Trump Administration came into office. EPA had re-

opened the docket for this rulemaking in August 2017, and requested additional information to reassess the standards.

On April 13, 2018, EPA published notice that EPA determined the current standards are “based on outdated information, and that more recent information suggests that the current standards may be too stringent.”⁵¹

Proposed Withdrawal of California’s Clean Air Act Preemption Waiver

On August 24, 2018, EPA formally proposed withdrawing California’s 2009 waiver of Clean Air Act preemption for its greenhouse gas emission standards for motor vehicles, and sought comment on a range of alternative CAFE standards for passenger cars and light trucks for all model years 2012 through 2026.⁵² EPA’s preferred alternative is to freeze the 2020 standards, as opposed to the year-by-year increases that automakers agreed to under President Obama.

According to EPA, “the Administration is focused on correcting the current standards that restrict the American people from being able to afford newer vehicles with more advanced safety features, better fuel economy, and associated environmental benefits.”⁵³

President Trump’s Executive Order Revoking Federal Sustainability Plan

On May 17, 2018, President Trump issued an Executive Order “Regarding Efficient Federal Operations” revoking President Obama’s Federal Sustainability Plan, and replaced it with an order that prioritizes energy efficiency at federal facilities instead of cutting GHG emissions.⁵⁴ Obama’s Federal Sustainability Plan had a goal of cutting the federal government’s GHG emissions by 40 percent over 10 years, and was a big part of Obama’s Climate Change Action Plan. In contrast, Trump’s new executive order does not contain the word “climate.” Rather than set numerical goals, the order requires federal agencies to meet existing statutory requirements “in a manner that increases efficiency, optimizes performance, eliminates unnecessary use of resources, and protects the environment.”⁵⁵

Air Issues

New Source Review Reform

EPA has taken steps to amend the New Source Review (NSR) permitting program.⁵⁶ The NSR program requires facilities to obtain a preconstruction permit before constructing (i) a new major stationary source or (ii) making a major modification to an existing source of air emissions. Generally, EPA issues prevention of significant deterioration (PSD) permits for sources emitting into a NAAQS attainment area for certain pollutants, and non-attainment NSR (NNSR) permits for sources emitting into nonattainment areas.

EPA stated it is committed to streamlining the NSR process. EPA announced its long-term NSR reform goal is to “have in place permitting requirements that will no longer operate to stifle a company’s ability to invest in the latest and greatest technologies or make continued improvements to their operations, all the while protecting the environment as is mandated under the Clean Air Act.”⁵⁷ To that end, EPA issued several memoranda announcing significant changes to the NSR program, discussed below.

Enforceability and Use of the Actual-to-Projected-Actual Applicability Test in Determining Major Modification Applicability

In its first big change, on December 7, 2017, Pruitt released a memorandum to Regional Administrators regarding enforceability and use of the actual-to-projected-actual applicability test to determine major modifications during NSR permitting. The memo clarifies that under existing regulations if a facility complies with procedural requirements for making a “projected actual emissions” analysis, EPA will no longer “second guess” that analysis.⁵⁸ EPA wrote the memo in response to the DTE Energy litigation and two decisions from the Sixth Circuit, with EPA essentially adopting DTE’s position.⁵⁹ In essence, EPA stated it would use its enforcement discretion and not follow the first DTE decision that held EPA could pursue enforcement based on a source’s failure to properly project future emissions.⁶⁰ The memo also stated EPA would now allow owners and operators to factor in active management of emissions when determining projected future emissions, in order to prevent a significant increase.⁶¹

Project Emissions Accounting Under NSR Permitting—Project Netting

In another about-face of NSR regulatory interpretation, on March 13, 2018, EPA announced its new position that NSR regulations provide that emissions *decreases* as well as increases can be considered during Step 1 of the NSR applicability process (i.e., calculating whether the proposed project will result in a significant emissions increase). However, there must be a “causal link between the physical or operational change at issue—i.e., the project—and any change in emissions that may ensue.”⁶² This change rewrites existing EPA conclusions and regulatory interpretations regarding “project netting.”

Step 1 in NSR analysis is a determination of whether the project alone will result in a significant emissions increase. Step 2 is an evaluation of whether the project will result in a significant net emissions increase, taking into account any other creditable increases and decreases in actual emissions at the source. Step 2 is referred to frequently as “netting” while Step 1 had been referred to as “project netting” but EPA henceforth will refer to it as “project emissions accounting.”⁶³

Revised Interpretation of “Common Control” for Title V and NSR Permitting

In a nonbinding document, EPA explained its new interpretation of “common control” in the context of Title V and NSR permitting.⁶⁴ This issue arises when two facilities are closely related and whether they should, together, be considered one stationary source. This often involves a primary facility that is wholly or partially dependent on a support facility. A common example is a landfill and a landfill gas-to-energy plant. Under both programs, on a case-by-case basis permitting authorities assess three factors: (i) same industrial grouping; (ii) location on contiguous or adjacent property; and (iii) common control.

The last factor is the most problematic, and EPA has never defined this term but in past practice left it up to permitting authorities to interpret it based on a number of factual considerations such as shared management, shared pollution control responsibilities, and support/dependency relationships, among others. In this new interpretation, EPA decided that the large number of different factual considerations that have grown from prior EPA common control determinations has resulted in the potential for inconsistency in these determinations, and “an overall lack of clarity and certainty for sources and permitting authorities.”⁶⁵

EPA’s new interpretation restores “clarity and consistency” to source determinations. The new test focuses the assessment of common control “on the power or authority on one entity to dictate decisions of the other that could affect the applicability of, or compliance with, relevant air pollution control requirements.”⁶⁶

The issue arose from a permitting question involving a planned biogas facility that will collect and convert landfill gas into biogas, and whether the existing landfill and the new biogas facility should constitute one “major source” for Title V permitting and one “stationary source” for NSR permitting. Here, EPA decided that the two facilities were *not* under “common control” and thus should not be considered as one facility, largely because even though the landfill supplied gas to the co-located biogas facility it did not have the power to dictate environmental compliance decisions, among other factors.

EPA’s “Once-In-Always-In” Policy No Longer In

On January 25, 2018, EPA withdrew its long-standing “once-in-always-in” policy. This policy held that any facility subject to major source hazardous air pollutant (“HAP”) standards (i.e., MACT standards) must always remain subject to those standards, even if production processes changed or the facility implemented controls to reduce its potential to emit HAPs below the 10 and 25 major source thresholds. Under EPA’s new guidance, sources previously classified as “major sources” may now be reclassified as “area” sources when the facility limits its potential to emit below major source thresholds.⁶⁷ A facility is a major source if it emits 10 tons per year of

any single HAP or 25 tons per year of any combination of HAPs; everything else is an area source.

Furthermore, EPA not only published notice of this guidance in the federal register,⁶⁸ but the agency also expects to take public comment on making regulatory changes to reflect this new policy.⁶⁹ This latter action would be consistent with Pruitt's expressed desire to not make guidance documents carry the force of law, which he stated at his introductory speech to EPA employees on February 21, 2017. This new interpretation represents a sea-change in EPA's MACT enforcement. Previously, EPA struck a hard line on this issue to prevent any backsliding on HAP emissions.

MATS Rule Reconsideration

EPA has decided to reconsider the Mercury and Air Toxics Standards (MATS) rule and will most likely issue a proposed revision later in 2018 or early 2019. In 2017, EPA asked the DC Circuit to delay oral argument in a case challenging EPA's supplemental finding on the costs and benefits of MATS; the court suspended the case indefinitely. In its brief, EPA stated that its political appointees were reviewing the MATS rule to determine whether to reconsider it.⁷⁰ In August 2018, EPA confirmed it will reconsider the MATS rule.⁷¹

At issue are the co-benefits of MATS. EPA, in part, used co-benefits to justify the rule's cost, finding that \$9.6 billion in annual compliance costs should result in monetized benefits of \$37 billion to \$90 billion.⁷² Critics of this rule, and others, have long sought for EPA to not use co-benefits to in cost-benefit analyses. Here, EPA concluded that co-benefits of the rule included significant reductions in SO₂ and particulate matter emissions, reducing human mortality. EPA also estimated the MATS rule would reduce power plant mercury emissions by 90 percent and, dramatically reduce emissions of other toxics like arsenic, nickel, dioxins, and acid gases.

In a surprise move, on July 20, 2018, energy industry trade groups and unions sent a letter to EPA air chief Bill Wehrum urging EPA to leave the MATS rule in place and finish a residual risk review "as expeditiously as possible." The letter stressed that all covered power plants have implemented required pollution controls.⁷³

EPA Proposes Rule to Reconsider Risk Management Program under CAA 112(r)

On May 17, 2018, EPA announced a proposed rule to amend the chemical accident prevention provisions under section 112(r) of the CAA that EPA issued on January 13, 2017 (during the previous administration's last week in office).⁷⁴ Two industry groups and a group of Republican-led states had petitioned EPA to reconsider the rule. Industry groups lauded the proposed rule. According to Pruitt: "[t]he rule proposes to reduce unnecessary regulatory burdens, address the concerns of stakeholders and

emergency responders on the ground, and save Americans roughly \$88 million a year."⁷⁵

EPA is proposing "to rescind amendments relating to safer technology and alternatives analyses, third-party audits, incident investigations, information availability," and other minor changes.⁷⁶ EPA is also proposing to modify amendments relating to local emergency coordination and emergency exercises, and to change the compliance dates for these provisions.

Trump Directs EPA Administrator to Utilize Transparent Science in Future NAAQS Reviews

On April 12, 2018, President Trump issued a memorandum to Pruitt regarding future national ambient air quality standards (NAAQS) review and the Regional Haze program.⁷⁷ The memo indicates that while the Trump administration acknowledges the progress under the NAAQS, it believes standards set too low will stifle economic growth. The memo states: "These actions are intended to ensure that EPA carries out its core missions of protecting the environment and improving air quality in accord with statutory requirements, while reducing unnecessary impediments to new manufacturing and business expansion essential for a growing economy."⁷⁸ Regarding future NAAQS reviews, Trump directed: "the Administrator shall examine the current NAAQS review process and develop criteria to ensure transparency in the evaluation, assessment, and characterization of scientific evidence in such reviews. The Administrator shall also develop clear guidance for differentiating the role of science and policy considerations in establishing NAAQS."⁷⁹

Pruitt followed up on Trump's directive with a memorandum to EPA Assistant Administrators entitled "Back-to-Basics Process for Reviewing [NAAQS]."⁸⁰

Superfun! [sic] Update

EPA Released List of Superfund Sites Targeted for Immediate, Intense Attention

On December 8, 2017, EPA released a list of 21 Superfund sites that former Administrator Pruitt targeted for "immediate and intense attention."⁸¹ New Jersey has three sites on this list, but none are in New York. EPA advised that this "immediate attention list" is meant to be dynamic with sites moving on and off this list, with no commitment of additional funding for sites on this list.⁸²

Pruitt stated he wanted to "restore Superfund to its rightful place at the center of the Agency's mission" and the agency will have a renewed focus on accelerating work and progress at all Superfund sites across the country.⁸³ Pruitt was to be directly engaged with these sites; indeed, headquarters staff are now participating directly in negotiations that ordinarily would have had regional staff only, and some dispute clauses in certain orders at these sites now go to Pruitt directly rather than a regional section chief or branch chief. The "immediate and intense attention" list is the result of work from EPA's Superfund

Task Force. A full list of sites is available at the Task Force website.⁸⁴

The three sites in New Jersey are: (i) American Cyanamid in Bridgewater Township, (ii) the Berry's Creek Study Area in Bergen County (part of the Ventron/Velsicol Superfund site), and (iii) the Upper Nine Miles of the Lower Passaic River (part of the Diamond Alkali Superfund Site).

Superfund Task Force—2018 Update

On July 23, 2018, Acting Administrator Wheeler released EPA's Superfund Task Force Recommendations, 2018 Update.⁸⁵ Former administrator Pruitt had made Superfund a priority of the agency; the report provides an update on identifying barriers that delay cleanup and redevelopment of contaminated sites. The update highlights accomplishments to date, and outlines next steps. The Superfund task force report had recommendations in five goal areas: (i) Expediting Cleanup and Remediation; (ii) Re-Invigorating Responsible Party Cleanup and Re-use; (iii) Encouraging Private Investment; (iv) Promoting Redevelopment and Community Revitalization; and (v) Engaging Partners and Stakeholders.

EPA Deletes Fulton Terminals Site in Fulton, New York from Federal Superfund list

July 26, 2018, EPA announced the full removal of the Fulton Terminals Superfund site from the National Priorities List (NPL).⁸⁶ EPA cleaned up more than 10,000 cubic yards of contaminated soil and approximately nine million gallons of contaminated groundwater, at the site located in the City of Fulton, New York in Oswego County. The City of Fulton, the current owner of the property, intends to develop the land for community use.⁸⁷

EPA first listed this site on the NPL in 1983 and delisted a large portion in 2015. Now, a mere 35 years after first joining the NPL, the NPL bids adieu to an old friend.

This site was contaminated with volatile organic compounds due to spills and leaks from storage tanks. Fulton Terminals, Inc. used the property as a staging area for solvents and other materials for processing at a chemical waste incineration facility in Oswego (this incinerator is a separate Superfund site).⁸⁸

Gowanus Canal—EPA and National Grid Reach \$100 Million Agreement on Cleanup

EPA announced a \$100 million agreement with National Grid for cleanup of the Gowanus Canal Superfund site in Brooklyn, New York.⁸⁹ Under this settlement, National Grid will, among other things: (i) build a bulkhead/barrier wall on the east side of the canal between Butler and Union Streets to prevent coal tar from spreading to the canal and to support dredging; (ii) address contamination at Thomas Greene Park through excavation and mixing cement into contaminated soil; (iii) design, site, and construct a temporary swimming pool to operate

while the park is closed; and (iv) design and permanently replace the pool and impacted park areas.⁹⁰

Construction of the bulkhead was expected to begin later in 2018. The remaining work may take up to six years, depending on the city's acquisition of certain properties.

The area underneath Thomas Greene Park is contaminated with coal tar. The park is part of the New York state-designated Former Fulton Manufactured Gas Plant Site, many parts of which are being addressed under a separate agreement between the State and National Grid. More than a dozen contaminants, including polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and heavy metals, including mercury, lead, and copper, were found at high levels in the Gowanus Canal sediment.⁹¹ PAHs and heavy metals were also found in the canal water.

The final cleanup plan of the Gowanus Canal site includes dredging to remove contaminated sediment from the bottom of the Canal.⁹² The plan also includes controls to reduce CSO discharges and other land-based sources of pollution. EPA expects that the implementation of the final remedy will be covered by a future agreement with, or order by, EPA.⁹³ Full-scale dredging of the remainder of the Canal is expected to start in 2020.⁹⁴

Cleanup Proposal for American Cyanamid Superfund Site in Bridgewater Township, N.J.

On May 23, 2018, EPA announced the cleanup proposal for the final portion of the American Cyanamid Superfund site in Bridgewater Township, N.J. The \$74 million proposal involves excavation and dewatering of contaminated material within two waste disposal areas (impoundments), followed by shipment to a treatment and disposal facility.⁹⁵ Soil or clay impacted by the impoundment contaminants would also be treated, using on-site stabilization or solidification.⁹⁶ It is estimated that more than 44,000 tons of hazardous waste would be permanently destroyed, and approximately 2.3 million gallons of contaminated liquid would be collected and treated.⁹⁷ This site is on former Administrator Pruitt's list of Superfund sites targeted for "immediate and intense attention" discussed above.⁹⁸

The American Cyanamid Superfund Site has a history of industrial pollution dating back to 1915.⁹⁹ For nearly 100 years, prior owners used the location for manufacturing chemicals. Several impoundments were constructed and used for waste storage and disposal throughout this period, which eventually resulted in the contamination of soil and groundwater with chemicals and heavy metals.¹⁰⁰ The site was placed on the federal Superfund list in 1983.

In 1999, EPA removed a portion of the Superfund site from the NPL. In 2012, EPA selected a cleanup plan to address contaminated soil, groundwater and six waste

disposal areas at the site. That phase of cleanup, ongoing now, involves collecting and treating groundwater contaminated primarily with benzene.¹⁰¹ The groundwater pump and treat system prevents contaminated water from seeping into the nearby Raritan River, Cuckles Brook, and Middle Brook.¹⁰²

EPA Proposes to Add Abandoned Landfill in Peñuelas, Puerto Rico to National Priorities List

On May 15, 2018, EPA proposed adding the PROTECO site in Peñuelas, Puerto Rico, which operated as a hazardous waste landfill, to the National Priorities List (NPL), thus making it eligible to receive federal funding for long-term cleanup.¹⁰³ From 1975 through 1999, the landfill accepted a variety of wastes, including electroplating sludge, pesticides, and pharmaceutical and manufacturing waste from multiple sources. Groundwater under the site is contaminated with mercury and solvents. PROTECO, the now defunct owner, closed the landfill in the 1990s, abandoned it in 2009, and has not conducted required maintenance or monitoring.

The private and public drinking water supply wells surrounding the site may be threatened by contaminated groundwater underneath the PROTECO facility. EPA will first thoroughly investigate the site to determine the nature and the extent of the contamination and to develop an analysis of the most feasible ways to address it. There will be numerous opportunities in the Superfund investigation and cleanup phases for the local community to participate.

Further information read the site's NPL narrative.¹⁰⁴

Construction Work Scheduled to Resume in Massena, N.Y. in Preparation for Cleanup of the Grasse River Superfund Site

EPA announced that construction work was expected to resume in May 2018, on a facility in Massena, N.Y. to support the \$243 million dredging project to clean up PCBs from the Grasse River.¹⁰⁵ Once constructed, this facility will be used as a staging area to support dredging and capping operations. Arconic Inc. (formerly Alcoa) will perform the cleanup work under an EPA order.¹⁰⁶ EPA, the New York State Department of Environmental Conservation, and the Saint Regis Mohawk Tribe are working together on the oversight and coordination of the various components of the cleanup project.¹⁰⁷

Community meetings will be held monthly in Massena or Akwesasne while the construction work is underway.

In 2013, EPA selected a plan to clean up PCB-contaminated river sediment by dredging and capping contaminated sediment in a 7.2-mile stretch of the Grasse River.¹⁰⁸ In the river's main channel, approximately 59 acres of sediment will be covered with an armored cap and another approximately 225 acres of contaminated sediment will

be capped with a mix of clean sand and topsoil to isolate the contamination from the surrounding environment.¹⁰⁹

EPA Proposes Interim Plan to Address Contamination for Berry's Creek Portion of Ventron/Velsicol Superfund Site in N.J.

On April 30, 2018, EPA proposed a \$332 million clean-up plan to address contamination in the Berry's Creek Study Area, which is part of the Ventron/Velsicol Superfund site in Bergen County, N.J.¹¹⁰ This portion of the site is on former Administrator Pruitt's "Emphasis List" of Superfund sites discussed above.

Berry's Creek is a tributary to the Hackensack River, and includes approximately six miles of waterway, tributaries, and approximately 750 acres of marshes. The major contaminants in the Berry's Creek Study Area are mercury, PCBs, and chromium, which are at high levels in the water and sediment and are also found in the plant and animal life.¹¹¹

The proposed cleanup plan includes bank-to-bank removal of sediment down to 2 feet in portions of the creek with backfilling and capping equal to the depth removed.¹¹² EPA views this as an interim step and will issue a final plan after further studies evaluate whether the cleanup has been effective.¹¹³ EPA also plans to develop a future plan to clean up the marsh.

EPA Moves Forward with Plan to Clean Up Contaminated Groundwater at Old Roosevelt Field Superfund Site on Long Island

On April 11, 2018, EPA announced it had finalized its \$13.14 million plan to clean up contaminated groundwater in the eastern area of the Old Roosevelt Field Contaminated Groundwater Area Superfund site in Garden City, New York on Long Island.¹¹⁴ A treatment process will be used to remove trichloroethylene (TCE) and tetrachloroethylene (PCE) from groundwater, thereby reducing potential threats to people's health.¹¹⁵

The cleanup approach expands on a previous 2007 cleanup plan, which included extraction of groundwater contamination predominantly in the western portion of the site. In 2011, EPA constructed the groundwater treatment system called for in the 2007 cleanup that pulls groundwater beneath the site, treats it to remove contamination, and discharges the treated groundwater to a nearby basin.¹¹⁶ The Garden City water district tests the public water supply routinely to ensure it meets all federal and state drinking water standards. As described in the cleanup plan, groundwater monitoring will be conducted to ensure the effectiveness of the cleanup technology.¹¹⁷

EPA Expands Scope of Hudson River Cleanup Analysis

On January 29, 2018, EPA announced it will evaluate, in coordination with the State of New York, approximately 1,800 sediment samples NYSDEC took in 2017 from the Upper Hudson River.¹¹⁸ EPA expects to collaborate with

the state in order to make joint findings and conclusions about the data.

Secondly, EPA announced it is continuing a study of the floodplain in the Upper Hudson River.¹¹⁹ This floodplain work first began in October 2014, when General Electric agreed to conduct a Remedial Investigation/Feasibility Study of PCB contamination. This study investigates the PCB contamination in the 43-mile stretch of the Hudson River floodplain from Hudson Falls to Troy, New York.¹²⁰ According to EPA, the study has collected approximately 8,000 soil samples on more than 500 properties in the floodplain.¹²¹

In addition to these efforts, EPA is preparing to further assess the Lower Hudson River stretching from Albany to New York City.¹²² The initial assessment—from the 1990s—indicated that PCBs from the GE plant sites had migrated downstream and into the Lower Hudson River.¹²³ Since then, EPA and NYSDEC have continued collection and evaluation of water and fish data throughout the Lower Hudson River.¹²⁴ EPA and NYSDEC share this data and evaluate it collaboratively. EPA believes that fish recoveries in a portion of the Lower Hudson River may be slower than expected, and will begin conducting supplemental studies to include collection of additional sediment samples and other information necessary to better understand PCB contamination in the Lower Hudson River.¹²⁵

Water

Defining “Waters of the United States”

It turns out defining “waters of the United States” is not so easy. Most of the litigation on this issue centers on wetlands and whether particular wetlands constitute waters of the United States. However, the definition has broad implications. The Clean Water Act relies upon the definition of “waters of the United States” (WOTUS) for many programs, including: (i) water quality standards and TMDLs under CWA § 303; (ii) oil spill programs under CWA § 311; (iii) water quality certifications under CWA § 401; (iv) NPDES permits under CWA § 402; and (v) dredge and fill permits under CWA § 404. Many more regulations implementing these programs, and others, also rely upon the WOTUS definition. Many are well familiar with the Supreme Court decisions leading to the current uncertainty with defining WOTUS, most recently *Rapanos v. United States*, 547 U.S. 715 (2006). Following *Rapanos*, Justice Kennedy’s “significant nexus” test seemed to carry the day.

However, those seeking legal clarity on what constitutes “waters of the United States” may have to sit tight for a bit longer. After a multi-year process, on June 9, 2015, the Obama administration finalized the Clean Water Rule that defined WOTUS. Unsurprisingly, many were unhappy with this definition and promptly sued. On October 9, 2015, the Sixth Circuit issued a national stay of the Clean Water Rule (the Sixth Circuit lifted this stay on

February 28, 2018). In early 2017, the Trump administration announced a two-step process to address the legal definition of WOTUS. Step 1 is to repeal the Obama administration rule, and Step 2 to replace it.

To complicate a complicated topic, the Clean Water Rule is stayed in 24 states, per federal district court cases in North Dakota and Georgia that each challenge the Clean Water Rule on its merits. New York is not one of these 24 states.

On February 6, 2018, EPA issued a final rule adding an applicability date of February 6, 2020, for the Obama Clean Water Rule (the original Clean Water Rule did not have an applicability date, only an effective date of August 27, 2015).¹²⁶ EPA explained it wanted the extra time as it worked on a replacement.

As of this writing, on August 16, 2018, the U.S. District Court for the District of South Carolina enjoined EPA’s delay of the Clean Water Rule implementation for failure to comply with the Administrative Procedure Act.¹²⁷ This decision means that the Clean Water Rule is in effect in 26 states where federal district court judges have not stayed it.

EPA appears to be moving ahead with Step 1 of its WOTUS plan despite Pruitt’s resignation. On July 12, 2018 (almost a week after Pruitt left), EPA and the Army Corp issued a supplemental notice of proposed rulemaking to their July 2017 proposed repeal of the 2015 Clean Water Rule.¹²⁸ The supplemental notice clarifies that the agencies propose to permanently repeal the entire Clean Water Rule and intend to re-codify the pre-2015 WOTUS regulations while they finalize a new definition of “waters of the United States.”¹²⁹

Pruitt Makes EPA Administrator in Charge of “Special Case” Wetland Determinations

On March 30, 2018, then-Administrator Pruitt signed a memo revoking delegation of authority to regional administrators for WOTUS jurisdictional determinations in CWA Section 404 dredge and fill permitting.¹³⁰ The Army Corps makes the decision on most of these, but EPA has authority to take over jurisdictional determinations in “special cases.” Practically, EPA does this rarely, and typically only in very contentious cases. However, the EPA administrator revoking the authority of the regional administrators and retaining this power is an unusual move, and will consolidate decision making at EPA’s highest levels.

Enforcement

EPA and Southern District of New York Sue City of Mount Vernon

On June 28, 2018, EPA Region 2 and the U.S. Attorney’s Office for the Southern District of New York announced a civil lawsuit against the City of Mount Vernon, New York for violating the Clean Water Act.¹³¹ EPA and

the SDNY allege that Mount Vernon has long failed to comply with the CWA storm sewer permit requirements (MS4) designed to prevent raw sewage and other pollutants from flowing into the Hutchinson and Bronx rivers. The lawsuit alleges Mount Vernon has failed to comply with the MS4 obligations since 2012, and also failed to comply with two EPA Administrative Orders to compel compliance.¹³²

Dredging Company Settlement, Cleaner Diesel Engines on Floating Crane in NY/NJ Harbor as Part of a SEP

On June 26, 2018, EPA announced Northeast Dredging Equipment Company, LLC had completed installation of two cleaner diesel engines on a floating crane as part of a legal settlement reached in April of 2017, for alleged violations of the Marine Protection, Research, and Sanctuaries Act.¹³³ In addition to a \$100,000 penalty, Northeast Dredging LLC invested at least \$250,000 to replace two old diesel engines from its floating crane with cleaner models, resulting in improved water and air quality. The crane operates in or around the New York and New Jersey Harbor.

Among the alleged violations were placement of dredged materials in an unauthorized location in the Atlantic Ocean.

The purchase and installation of these engines is considered by EPA to be a “supplemental environmental project” (SEP) which is an environmentally beneficial project that a defendant voluntarily agrees to undertake in partial settlement of violations. The new cleaner diesel engines installed emit 71 percent less nitrogen oxides and 86 percent less particulate matter than the 1972 diesel engines they replaced. Interestingly, EPA reached settlement of this case in April 2017 and it’s unclear how the June 5, 2017 memorandum from Attorney General Sessions regarding the prohibition on settlement payments to third parties would have affected this outcome.¹³⁴

EPA and HUD Announced \$1.2 Billion Settlement with NYCHA and Appointment of Federal Monitor

On June 12, 2018, EPA, HUD, and the U.S. Attorney for the Southern District of New York announced the simultaneous filing of a complaint against and a proposed consent decree with the New York City Housing Authority (NYCHA) and New York City.¹³⁵ The complaint alleges that NYCHA for years violated basic federal health and safety regulations, including regulations requiring NYCHA to protect children from lead paint and otherwise to provide decent, safe, and sanitary housing.¹³⁶ The complaint further alleges that NYCHA has repeatedly made false statements to HUD and the public regarding its lead paint compliance, and has intentionally deceived HUD inspectors.

The consent decree provides comprehensive relief, requiring NYCHA to address lead paint hazards, remedy mold and pest infestations, and provide adequate heat

and elevator service. To fundamentally reform NYCHA and ensure that it provides housing that complies with federal law, the consent decree (subject to court approval) imposes a federal Monitor and requires the city, among other things, to provide \$1.2 billion of additional capital funding to NYCHA over the next five years, and \$200 million every year thereafter until the problems are fixed and the consent decree is no longer necessary.¹³⁷

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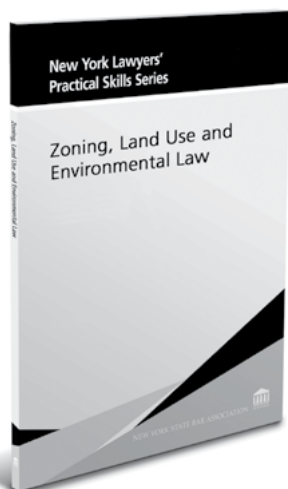
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What Developers and Land Use Practitioners Need to Know About the New SEQRA Amendments

By Andrea Tsoukalas Curto and Jessica A. Leis

The first major State Environmental Quality Review Act (SEQRA) revisions since 1996 will be taking effect January 1, 2019. The following are key points.

SEQRA Overview

The first step in the SEQRA process is classifying an “action” or project, which then determines the extent of environmental review under the regulations. There are three types of actions that a project will continue to be classified under: Type I, Type II, and Unlisted.

A Type I SEQRA action is one that is more likely to have an adverse impact on the environment. If an action meets the criteria listed in 6 N.Y.C.R.R. Section (“Section”) 617.4,¹ then it is Type I and a Full Environmental Assessment Form (FEAF) must be prepared. If it is determined from the FEAF that a significant adverse impact is likely to occur, then an Environmental Impact Statement (EIS) is prepared to explore ways to avoid or reduce the adverse environmental impacts or to identify a potentially less damaging alternative.

On the other hand, if an action meets the criteria for a Type II action pursuant to Section 617.5, then it is not subject to the SEQRA process—thus saving time and expenses related to preparing environmental assessments and impact statements to comply with SEQRA.

If an action does not meet either the Type I or Type II criteria, it is Unlisted, but this does not excuse an action from SEQRA. Initially, an Unlisted action is only required to prepare a Short Environmental Assessment Form (SEAF), rather than a FEAF. Type I and Unlisted actions alike, however, are subject to the same “hard look” test.² To fulfill the “hard look” standard, an agency must (1) identify relevant areas of environmental concern, (2) thoroughly analyze them for significant adverse impact, and (3) support the determination with reasoned elaboration.³ Failure on the part of the agency to take a “hard look” at the potential environmental impacts can result in a nullified action.⁴

If an Unlisted action is found to have potential and significant environmental concerns, the action may ultimately need to undergo the same SEQRA process as a Type I action. For all Type I actions, all actions that require an EIS, and all Unlisted actions subject to a Conditioned Negative Declaration, coordinated review is necessary. The coordinated review process involves choosing a lead agency for the project and coordinating with other involved agencies to ensure that their concerns are considered.⁵

Revisions to SEQRA Categories

Though the three (3) classification categories will not change, the Department of Environmental Conservation (DEC) has adopted amendments that will impact how projects are now classified.

The January 2019 amendments will expand upon the list of Type II actions—actions that “have been determined not to have a significant impact on the environment.”⁶ These are the actions that are not subject to the SEQRA process and do not require an EIS. The goal of the DEC in adopting these amendments was to support policies that favor green infrastructure, renewable energy and smart growth.⁷

The list is becoming more extensive to encourage “green infrastructure” and the reuse of existing buildings. In particular, Section 617.5(c)(18), which will be in effect January 2019, states:

Reuse of a residential or commercial structure, or of a structure containing mixed residential and commercial uses, where the residential or commercial use is a permitted use under the applicable zoning law or ordinance, including permitted by special use permit, and the action does not meet or exceeds any of the thresholds in Section 617.4 [Type I actions] of this Part.⁸

Further, where the Type II list previously allowed for upgrading buildings to meet building or fire codes, the amendment now also provides for upgrades to meet energy codes.⁹ Additionally, a new Type II category involves the retrofitting of an existing structure and its appurtenant areas to incorporate green infrastructure.¹⁰ The DEC has also adopted a new definition of “green infrastructure”¹¹ to remove any subjectivity and allow for an exhaustive list for the purposes of Type II actions.¹²

While development of a single-family, two-family, or three-family residence is already classified as a Type II action, the new amendments will include the conveyance of land in connection therewith.¹³ The sale and conveyance of real property by public action pursuant to Article

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11 of the Real Property Tax Law will also now be considered a Type II action.¹⁴

With these new regulations, a project that involves redevelopment of an existing building could be classified as a Type II action and, as such, would not require the SEQRA process. This is a significant change because currently, the reuse of an existing building for residential or commercial uses would either be considered an Unlisted action or a Type I action, subject to review to determine any potential adverse environmental impact. Once the new regulations take effect, a project involving retrofitting and reusing old buildings could potentially be removed from the SEQRA process.

“The January 2019 amendments will expand upon the list of Type II actions—actions that ‘have been determined not to have a significant impact on the environment.’ These are the actions that are not subject to the SEQRA process and do not require an EIS.”

Another significant addition to the list of Type II actions includes the granting of lot line adjustments.¹⁵ The installation of telecommunication cables in existing highways or utility rights of way that utilize trenchless burial or aerial placement on existing poles have also been added to the list.¹⁶

Further, a new Type II category will include the installation of solar panels on 25 acres or less of physically altered land where the site is: (i) a closed landfill, (ii) a brownfield site, (iii) sites that have received an inactive hazardous waste disposal fill liability release, (iv) currently disturbed areas at publicly owned wastewater treatment facility, (v) currently disturbed areas at sites zoned for industrial use, or (vi) parking lots or parking garages.¹⁷ Installation of solar energy arrays on an existing structure will be considered a Type II action where the structure is not: (i) listed on the National or State Register of Historic Places, (ii) located within a district listed in the National or State Register of Historic Places, (iii) been determined by the Commissioner of the Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places, or (iv) within a district that has been determined by the Commissioner of the Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places.¹⁸

But while factors like retrofitting, reusing and “going green” could move an action from Unlisted to Type II once the amendments take effect, other factors named in the new amendments may cause an action to fall under Type I.

Some Type I thresholds have been lowered, meaning that more projects may be classified as Type I. Among the revisions to Type I actions, Section 617.4(b)(5)(iii), will now include projects involving the connection of 200 units to a public water or sewage system “in a city, town, or village having a population of 150,000 persons or less.” This is a reduction from the current threshold, set at 250 units.¹⁹ Similarly, for populations of greater than 150,000 persons but less than 1,000,000, the threshold lowered from 1,000 units to 500 units,²⁰ and for populations of greater than 1,000,000, the threshold lowered from 2,500 units to 1,000 units.²¹

Additionally, certain types of projects have been added as Type I, including activities relating to non-residential construction that involves parking for 500 vehicles in a city, town or village having a population of 150,000 persons or less,²² or parking for 1,000 vehicles in a city, town or village having a population of more than 150,000 persons.²³ These thresholds are reduced by half for projects involving the expansion of existing nonresidential facilities.²⁴

The adopted rule corrects a longstanding issue with the Type I category. As currently drafted, any Unlisted action, *regardless of size*, (a) within the vicinity of a listed property on the National Register of Historic Places, or (b) that has been proposed for inclusion on the National Register, or (c) that is listed on the State Register of Historic Places, is classified as a Type I action.²⁵ Under the new regulations, projects that do not meet the 25 percent threshold would instead continue to be classified as Unlisted, which provides some relief to developers.

To the detriment of developers, however, the criteria for properties included in this section have broadened. While the DEC has removed properties that have been proposed by the State for nomination for inclusion in the National Register, Type I actions will now capture those actions occurring wholly or partially within or substantially contiguous to properties that the Commissioner of Parks, Recreation and Historic Preservation has determined to be *eligible for inclusion* on the State Register of Historic Places.²⁶ Previously, this Section only touched upon properties that were actually listed on the State Register, rather than just eligible for inclusion.

This amendment has previously been considered by the DEC and was finally adopted for the January 2019 amendments due to the ease of quickly identifying eligible properties using the Office of Parks, Recreation and Historic Preservation’s Cultural Resource Information System (CRIS).²⁷ While this revision adds protections and review for potentially historic properties, it ultimately

becomes an additional hurdle for developers and property owners alike. In regard to historic properties, Section 617.4(b)(9) has been amended as follows (new requirements in bold):

Any Unlisted action (unless the action is designed for the preservation of the facility of site), **that exceeds 25 percent of any threshold established in this section**, occurring wholly or partially within, or substantially contiguous to, any historic building, structure, facility, site or district or prehistoric site that is listed on the National Register of Historic Places. . . or that is listed on the State Register of Historic Places **or that has been determined by the Commissioner of the Office of Parks, Recreation, and Historic Preservation to be eligible for listing on the State Register of Historic Places pursuant to sections 14.07 or 14.09 of the Parks, Recreation, and Historic Preservation Law. . .**

“While scoping was previously optional, the January 2019 amendments now make it mandatory for all Environmental Impact Statements.”

Revisions to SEQRA Scoping

In addition to the 2019 SEQRA amendments affecting categorizing properties as either Type I, Type II, or Unlisted, there are new scoping requirements.²⁸ Scoping comes into play right after a positive declaration is made. While scoping was previously optional, the January 2019 amendments now make it **mandatory** for all Environmental Impact Statements.²⁹

Mandatory scoping adds an additional hurdle to the SEQRA process. This in turn makes the SEQRA process more cumbersome for developers.

Scoping serves to narrow the significant and relevant issues before completing a draft EIS. Each involved agency participates in scoping, providing written comments to “ensure that the EIS will be adequate to support their SEQRA findings.”³⁰ Public participation is also required; the lead agency must provide time for public review and comments on a draft scope, or provide for some form of public meetings.³¹

The written final scope compiled by the lead agency should include all that is relevant or significant for inclusion in the EIS. Where the regulations currently require the lead agency to list the prominent issues raised during scoping that were determined to not be relevant or environmentally significant, the amendment expands upon this requirement. Under the amendments, the final scope must now also provide a brief description of the prominent issues considered and provide reasons why those issues were not included in the final scope.³² This amendment places more accountability—and requires more labor—on the part of the lead agency. While initially scoping will be more time-consuming, the requirement to detail prominent issues that were determined to be neither relevant nor environmentally significant will serve to create a solid record, should an Article 78 appeal ever ensue.

Revisions to Publication Requirements

In an effort to make the SEQRA process more transparent to the general public, Section 617.12(c)(5) has been added to require that all draft and final scopes, and draft and final EISs’ must be published on a publicly available website. The posting must remain on the website for at least one year after all necessary federal, state and local permits have been issued or after the action is funded or undertaken.

Take Away Points

The DEC has made efforts to modernize the SEQRA process and to make it more transparent for developers, lead agencies, and the general public. Most notably, the amendments have expanded on the list of Type II actions with a goal of encouraging “green” building and the reuse of existing buildings in an effort to reduce waste. Developers will now benefit from the new list of projects that are no longer subject to SEQRA review.

However, where actions are considered Type I or Unlisted and have received a Positive Declaration, the process will become more labor-intensive and developers should be prepared for the additional time and costs that can result.

Endnotes

1. SEQRA Express Terms (new amendments taking effect 2019), available at https://www.dec.ny.gov/docs/permits_ej_operations_pdf/617fnlexprms.pdf.
2. State Environmental Quality Review Act Findings Statement for Amendments to 6 N.Y.C.R.R. Part 617 (“Findings Statement”) (2018) at 7, available at https://www.dec.ny.gov/docs/permits_ej_operations_pdf/617fnlfindings.pdf.
3. See SEQR Handbook, at 207, citing *H.O.M.E.S. v. UDC* hard look test. In the *H.O.M.E.S.* case, the agency failed to consider the increased traffic from a proposed sports stadium. Therefore, the agency did not meet the “hard look” standard, so their negative declaration could not be upheld and the action was nullified.

http://www.dec.ny.gov/docs/permits_ej_operations_pdf/seqrhandbook.pdf.

4. *Id.*
5. SEQR Handbook, at 58.
6. SEQR Handbook, C. What are the Key Elements?, available at <https://www.dec.ny.gov/permits/57238.html>.
7. See Finding Statement, at 1.
8. State Environmental Quality Review Act- Adopted Amendments 2018, available at https://www.dec.ny.gov/docs/permits_ej_operations_pdf/617fnlexptrms.pdf.
9. 2019 amended 6 N.Y.C.R.R. § 617.5(c)(2).
10. 2019 amended 6 N.Y.C.R.R. § 617.5(c)(3).
11. 2019 amended 6 N.Y.C.R.R. § 617.2(r) (“Green infrastructure” means practices that manage storm water through infiltration, evapo-transpiration and reuse including only the following: the use of permeable pavement; bio-retention; green roofs and green walls; tree pits and urban forestry; storm water planters; rain gardens; vegetated swales; downspout disconnection; or storm water harvesting and reuse”).
12. See Finding Statement, at 10.
13. 2019 amended 6 N.Y.C.R.R. § 617.5(c)(11).
14. 2019 amended 6 N.Y.C.R.R. § 617.5(c)(40).
15. 2019 amended 6 N.Y.C.R.R. § 617.5(c)(16).
16. 2019 amended 6 N.Y.C.R.R. § 617.5(c)(7).
17. 2019 amended 6 N.Y.C.R.R. § 617.5(c)(14).
18. 2019 amended 6 N.Y.C.R.R. § 617.5(c)(15).
19. 6 N.Y.C.R.R. § 617.4(5)(iii).
20. 6 N.Y.C.R.R. § 617.4(b)(5)(iv).
21. 6 N.Y.C.R.R. § 617.4(b)(5)(v).
22. 2019 amended 6 N.Y.C.R.R. § 617.5(4)(b)(iii).
23. 2019 amended 6 N.Y.C.R.R. § 617.4(b)(6)(iv).
24. 2019 amended 6 N.Y.C.R.R. § 617.4(b)(6)(iii) & (iv).
25. Findings Statement, at 7.
26. *Id.* at 6.
27. *Id.* at 7-8.
28. See SEQRA 617.8, available at https://www.dec.ny.gov/docs/permits_ej_operations_pdf/617fnlexptrms.pdf.
29. 2019 amended 6 N.Y.C.R.R. § 617.8(a).
30. 6 N.Y.C.R.R. § 617.8(c).
31. 6 N.Y.C.R.R. § 617.8.
32. 2019 amended 6 N.Y.C.R.R. § 617.8(e)(7).



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Reaching the Individual: A Proposed Federal Framework to Reduce Community-Based Greenhouse Gas Emissions

By Rachel Manning

Introduction

Federal regimes that aim to reduce greenhouse gas emissions (GHG) have largely focused on major polluters and energy generators. Market incentives, such as cap and trade programs and command and control regulatory efforts, generally target large industry players. However, this approach ignores the power of shifting behavior at the grassroots level and fails to engage the general public in adopting sustainable practices. The cumulative effect of individual and organizational emissions reductions on a national scale would be significant. A cultural shift of this nature requires more than education and awareness initiatives. Similar to corporations, individuals respond to financial incentives. Some such programs have already been implemented, but there is no coordinated regime in place to encourage individual behavior change at the federal or state level.

Federal legislation that encourages states to adopt incentives tailored to geographic and demographic needs could fill this gap. By drawing on principles of cooperative federalism, as in the Clean Air Act, nationwide goals may be achieved through plans devised at the state level. States and local governments are best suited to craft effective programming for their residents. Policies that work well in urban areas may be ineffective in rural communities, and vice versa. The strength of the cooperative federalism approach lies in giving states the flexibility to design and administer programs catered to the needs of local populations, as compared with a one-size-fits-all approach.

This article will explore existing and potential incentives for grassroots behavior changes and propose a framework to incorporate them into a federal regulatory regime using the Clean Air Act as a model. The ideas in this article will build upon existing literature regarding how the government should address the role of individuals and households in controlling national GHG emissions.

Section I of this article describes the need for increased engagement of individuals in national climate change efforts and the shortcomings of legislation that focuses exclusively on major polluters. It then explores incentive programs that have been implemented in the United States and Europe, as well as suggestions for novel incentives. Two types of programs will be discussed: those that reach individuals directly and those that operate via a conduit, such as an employer. This section will also make recommendations based on lessons learned from existing grassroots incentive programs, including the role of geography and demography in crafting effective policies.

Section II outlines a legislative approach based on the Clean Air Act in which the federal government encourages states to adopt policies that in turn incentivize individuals to reduce their GHG emissions. This discussion will incorporate the incentives outlined in Section I to describe how such legislation could be implemented at the federal and state levels. Thus, Section I lays the foundation for how grassroots incentives could operate, and Section II ties those programs into a holistic federal scheme with an overarching incentive structure.

Section III discusses policy implications of the proposed legal framework, compliance concerns, potential legal challenges, and how those challenges may be addressed. The article concludes by emphasizing the promise of cooperative federalism as a tool to engage individuals across the country in reducing our collective carbon footprint.

I. Increased Engagement of Individuals

A. The Overlooked Individual

Individual behaviors comprise a large portion of U.S. pollution and greenhouse gas (GHG) emissions.¹ The cumulative effect of daily activities, such as driving a car, disposing of garbage, and using electronics, is significant. According to some estimates, carbon dioxide emissions from individuals and households make up one third or more of national GHG emissions.² Yet, individuals have been largely excluded from domestic and international efforts to abate climate change. Indeed, no environmental statute or regulation recognizes individuals as a source category of pollution or emissions.³ National environmental laws, such as the Clean Air Act, have targeted industrial polluters, such as power plants and factories, as the largest sources of GHG emissions. Market-based incentives, such as cap and trade programs, focus on major emitters as well. This approach ignores the role individuals can play in reducing national GHG emissions and renders their participation optional. Rather than focusing solely on major polluters, federal and local policies

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should encourage individuals to contribute to climate change efforts. This article proposes a holistic regulatory framework that incorporates grassroots participation in reducing national GHG emissions. Scholars have advocated for increased attention to the role of individual GHG emissions, and this article will contribute to this ongoing discussion by proposing a regulatory solution. In addition to reducing GHG emissions from individuals, this approach may reduce apathy toward climate change and engage the public in important conversations about the future of our planet.

B. Proposed Incentives

This section will describe and analyze the strengths and weaknesses of incentives implemented in the U.S. and abroad. It will also propose new incentives based on existing models and programs. The incentives discussed target renewable energy, waste diversion, and alternative transportation. According to research from the International Panel on Climate Change, the transportation, buildings, electricity and heat production, and other energy sectors combined comprise 55 percent of global GHG emissions.⁴ In addition, the United Nations reported in 2013 that food waste ranks as the third largest GHG emitter after the U.S. and China.⁵ Food waste discarded in landfills produces methane,⁶ a GHG that traps radiation in the atmosphere at least 25 times more efficiently than carbon dioxide over a 100-year period.⁷ Thus, these sectors should be prioritized when crafting incentive programs. Subsections 1 and 2 will focus on financial incentives that reach individuals directly. Subsection 3 will discuss indirect incentives that use the workplace as a conduit.

1. Energy Conservation

There are some U.S. government incentives in place to reward certain individual behaviors, but these efforts are scattered and disconnected from each other. Financial incentives to promote clean energy include tax deductions for producing renewable energy and installing energy-efficient appliances. Variations of such policies can be found across the country, along with state grant programs that promote energy-efficient technology and green building design.⁸ Depending on one's state, an individual may be eligible for a tax credit or rebate if they install renewable energy systems or energy-efficient appliances in their home.⁹ The Internal Revenue Service also offers tax credits for purchasers of electric vehicles and plug-in hybrid vehicles.¹⁰

Similar to the U.S., the European Union has also targeted household electric appliances as a means to increase energy-efficiency and reduce GHG emissions.¹¹ Germany in particular has served as a model for incentivizing individual and household behavior change. German insurance companies offer reduced premiums to residential building owners who have made improvements to conserve energy.¹² The government offers low-interest

loans to homeowners who modernize existing buildings, construct new energy-efficient buildings, or install solar generation systems.¹³ An ordinance requires owners of multi-occupancy residential buildings to bill tenants for heat and hot water costs according to their usage; tenants are entitled to claim 15 percent of their energy consumption costs from their landlord if they fail to follow this procedure.¹⁴ This billing scheme effectively raises tenants' awareness of their energy consumption and encourages them to conserve. Germany has also implemented an ecological fuel tax that has successfully reduced carbon dioxide emissions from the transportation sector.¹⁵

Another way to reduce household energy consumption is to encourage residents to participate in renewable energy delivery systems, such as community solar projects and energy service companies (ESCOs). ESCOs generate renewable energy and sell the electricity to a utility for distribution to regional or national subscribers, while community solar projects may limit participation to local residents. Community solar projects make renewable energy accessible to residents in multi-occupancy buildings, making them ideal for urban communities or rural residences that lack adequate sunlight. Customers can pay to support a local solar project and receive a credit on their electricity bill depending on the amount paid and energy generated.¹⁶ This model has flourished in Minnesota, due in part to favorable government policies. The state's 2013 Solar Energy Legislation requires investor-owned utilities to source one and a half percent of their electricity from solar by 2020, and at least 10 percent of this energy must be generated by facilities with a maximum capacity of 40 kilowatts.¹⁷ Further, at least 20 percent of electricity sales must be generated by renewable energy sources by 2020, and at least 25 percent by 2025.¹⁸ Since that law passed, Minnesota's solar market has grown nearly 20 times larger, increasing support for power generated by grassroots solar projects.¹⁹ Another factor in Minnesota's solar success is that the state does not cap community solar output,²⁰ and the state's program reached a record 300 megawatts of operational capacity in March, 2018.²¹ Electricity generated in excess of the needs of community solar participants may be sold to the grid.²²

In addition, residents of states with deregulated energy markets can subscribe to an ESCO that delivers energy from renewable sources. Thus, a subscriber in New York City may receive wind energy from Nebraska or solar energy from Arizona delivered via an ESCO. State governments could encourage residents to subscribe to a renewable energy ESCO or community solar project by providing a tax credit or rebate for each year of participation. The government could also subsidize renewable energy ESCOs to ensure that residents' electricity bills will not exceed the amount spent under a non-renewable energy provider, if there is a price difference.

One concern with this proposal is that local governments may not be willing to provide such incentives if

the renewable energy is not generated in their own state. Because ESCOs source energy from across the country, participants are often contributing to national, not local, GHG emissions reduction. However, states would be rewarded for incentivizing their residents to enroll in ESCOs regardless of where the emissions are reduced. Nevertheless, states may have ideological objections to participating in renewable energy schemes; states in which fossil fuel production comprises a large sector of the local economy may resist renewable energy initiatives on principle. In addition, customers in some states have been the

agement to the states within the bounds of minimum federal requirements,³⁰ and many states promote or require recycling of various materials.³¹ More than half of the states have adopted e-waste recycling policies, at least 10 have container redemption programs, and many have laws that impose a penalty for recycling solid waste improperly.³² In addition, a program called Recyclebank partners with municipalities and brands to reward individuals and households for recycling,³³ among other sustainable behaviors. Individuals in participating municipalities receive points each time their recyclables are

“There are some potential drawbacks to waste diversion incentive schemes. One concern is illegal diversion; residents may burn or dump trash illegally to reduce their garbage collection costs in a PAYT system.”

victims of unscrupulous ESCO practices. For example, in New York a service company made false promises of lower prices to lure customers, enrolled people without their consent, and made it difficult for them to unsubscribe.²³ Negative publicity about unscrupulous ESCOs could be a deterrent. State governments should monitor and vet ESCOs serving their residents to ensure that they do not put them at risk for exploitation.

2. Waste Diversion

Another category of government incentives aims to divert waste from landfills. Landfills are the third largest source of methane emissions in the U.S.,²⁴ and methane is a more potent GHG than carbon dioxide.²⁵ A primary component of methane in landfills is organic waste, which can be diverted through composting. Pay-as-you-throw (PAYT) systems have been successful in some European countries and American municipalities in reducing the total amount of waste sent to landfill.²⁶ Participating governments charge residents for garbage collection services according to the amount of trash they produce, measured either by weight or number of garbage bags. This system prompts residents to recycle and compost to reduce their garbage collection fees. In 2015, a study of PAYT programs in Massachusetts revealed that municipalities that implemented such incentives produced only 64 percent of the landfill waste generated in non-participating municipalities.²⁷ Likewise, all European countries with recycling rates over 45 percent had implemented a PAYT or similar system, while most countries with recycling rates below 20 percent had not.²⁸ The European Union (EU) Landfill Directive of 1999 restricted the quantity of waste EU member countries could send to landfills, and the subsequent landfill tax further prompted countries to implement recycling and composting incentives.²⁹

In the U.S., the Resource Conservation and Recovery Act (RCRA) delegates most non-hazardous waste man-

collected, and points are allocated based on the weight of the recyclables.³⁴ Points can be redeemed for a variety of prizes. Recyclebank operates in at least 29 states across the U.S. and began partnering with communities in the U.K. in 2009.³⁵ In both the U.S. and U.K., this incentive program has effectively shifted behaviors to induce higher rates of recycling.³⁶

There are some potential drawbacks to waste diversion incentive schemes. One concern is illegal diversion; residents may burn or dump trash illegally to reduce their garbage collection costs in a PAYT system.³⁷ However, this has not been a significant problem in practice, and municipalities can deter such behavior by implementing strong enforcement policies.³⁸ The Recyclebank model presents an opportunity for perverse incentives: residents may deliberately produce more waste in order to accumulate more points. According to a 2011 report by the London Assembly Environment Committee, Recyclebank has procedures in place to avoid this outcome.³⁹ Finally, waste diversion models like PAYT and Recyclebank are more effectively applied to single-occupancy residences than large apartment buildings.⁴⁰ These systems could face challenges in dense urban communities where multi-occupancy buildings comprise a large portion of the housing stock. In London, this approach failed due to high costs of implementation, logistical barriers, and low participation.⁴¹

New York, San Francisco, Seattle, and Portland are among the American cities that have implemented curbside compost collection,⁴² while others provide a rebate on home composting equipment.⁴³ However, unlike recycling, there are few incentive programs in place to reward individuals who compost. A save-as-you-throw (SAYT) model for composting could achieve this by giving individuals a financial incentive based on the weight of compost they put out for curbside collection—the reverse of charging residents per unit of landfill waste generated

in a PAYT regime. In places where compost is collected at centralized drop-off stations, individuals could receive a financial incentive based on the amount of compost they deliver. For example, at New York City's Greenmarket compost collection sites, individuals could receive a \$2 voucher called a "Greenmarket Buck," redeemable for products at any Greenmarket, in exchange for dropping off their compost.⁴⁴ Vouchers could be allocated based on the weight of the compost delivered. Municipalities or states could invest in rewarding residents for composting if the cost of providing the financial incentives were outweighed by savings associated with reducing landfill waste. Municipalities seeking to use the stick rather than the carrot could penalize residents who don't separate their food scraps from other waste, similar to the common method of enforcing recycling policies.

3. Transportation

Local governments can directly incentivize consumers to travel by bicycle or alternative fuel vehicle. For example, New York City has partnered with Citibank to provide fleets of bicycles throughout the city that can be rented by the hour and returned to any Citi Bike station.⁴⁵ Offering attractive prices for bike share programs may encourage more residents to bike than to travel by car or even public transit. Municipalities can also reward owners of hybrid or low-emission vehicles by providing free parking on public streets. Salt Lake City offers two hours of meter-free parking for vehicles that meet certain EPA fuel economy and air pollution standards.⁴⁶ These transportation incentives are best suited to urban environments; biking may not be a feasible mode of transit in rural areas, and metered parking is rare outside cities.

4. Indirect Initiatives

In addition to directly incentivizing behavior change, local governments can reward employers that implement programming to incentivize individuals to go green. This "meta-incentive" rewards both the employer and the employees for sustainability both in and outside the workplace.

Some employers have already implemented such incentives. For example, the League of American Bicyclists has recognized Target, Facebook, LinkedIn, and other companies for their robust alternative transportation programs.⁴⁷ Resources available to employees include free onsite bike repairs, regular riding and maintenance classes, guided commute rides, and access to a corporate bicycle fleet.⁴⁸ These incentives eliminate costs and concerns associated with biking, but employers could go further by rewarding employees who use alternative transportation. Organizations can offer health insurance premium discounts, cash, gift cards, or other financial incentives to employees who bike, walk, or take public transit to work. Some workplace wellness programs have used these tools to encourage healthier behaviors.⁴⁹ Local governments could reward employers for adopting such incentives by

giving them a tax credit or other financial incentive each year the program is in place. Currently, employers only receive recognition from volunteer or non-profit organizations when they invest in sustainability programs. Smaller organizations with fewer resources may not be able to offer such programs. A financial incentive could encourage more employers to participate and offset the costs of doing so.

Similarly, government incentives could be used to reward employers for implementing recycling and composting programs. The cumulative impact of reducing waste from individual employees in an office building is significant. Many individuals consume more food and generate more waste at work than they do at home. Thus, incentivizing waste diversion from households alone is insufficient, and employers are uniquely positioned to shape sustainability policies that impact their entire workforce. Employers that participate in recycling or composting programs could submit proof of participation to receive a tax credit or other financial incentive from the government on an annual basis. Examples of such proof could include a receipt from a recycling/compost collection service or official company policy with records of employees who manage composting activities.

II. Legislative Approach

This section will describe approaches to encourage state participation in federal environmental regimes. It will provide a framework of Congressional authority, followed by a proposed legislative model as applied to climate change.

A. Carrots and Sticks: Approaches to Shaping State Behavior

Federal lawmakers and agencies must respect states' sovereignty, not only as a constitutional matter but also because effective laws must take into account local differences in geography and demography. At the same time, local policies must be woven into an overarching framework in order to yield a measurable, nationwide impact. This is particularly true in the environmental context. The urgency of climate change demands a national response, but cities and states should have the freedom to adopt policies best suited to their unique populations. The Clean Air Act honored the importance of states' independence in crafting their own methods to meet federal air pollution standards. In addition, *South Dakota v. Dole*, 483 U.S. 203 (1987), highlighted the tension between state sovereignty and legitimate federal interests in incentivizing local policymaking. This section will discuss approaches to cooperative federalism and its potential implications for proposed climate change legislation.

In attempting to federalize environmental laws, Congress has used three general approaches.⁵⁰ The first is to provide federal financial assistance to encourage states to adopt environmental standards. The effectiveness of this approach depends primarily on the size of the "car-

rot,” which in turn depends on the availability of federal funds. This method has been successful in areas where states resist federal regulation, such as land use and solid waste management. The second approach is cooperative federalism, in which federal agencies establish national environmental standards and states implement them locally.⁵¹ While states may be delegated authority to administer local programs to meet federal requirements, they are not required to do so. The federal government enforces the national standards within states that choose not to administer their own programs. The Clean Air Act, Clean Water Act, RCRA, and the Safe Drinking Water Act are examples of the cooperative federalism model. The third approach favors federal control.⁵² Regulations such as the Toxic Substances Control Act rely on the principle of federal preemption to implement uniform national regulation without delegating any administrative authority to states. This article will focus on the second approach in prompting states to adopt policies that reach individuals at the grassroots level.

The Clean Air Act provides a useful model of cooperative federalism that can help integrate local and federal efforts to address climate change. The EPA sets standards to protect public health and the environment from adverse effects of air pollution.⁵³ States then submit their own implementation plans to achieve these standards.⁵⁴ If a state does not submit an approvable implementation plan, EPA can require revisions and ultimately issue a federal implementation plan. In this way, states are given flexibility to design their own plans within the bounds of federal standards.

In addition, the Supreme Court has held that monetary incentives are constitutional exercises of Congressional authority under the Commerce, Tax, and Spending Clauses. Such incentives are permissible if they are in the pursuit of the general welfare, are not coercive or ambiguous, and demonstrate a connection between the funds being conditioned and the federal interest in question.⁵⁵

B. Cooperative Federalism and Climate Change

The Clean Air Act and Supreme Court precedent can guide national legislation to incentivize state action on climate change by promoting programs such as those discussed in Section I. The federal government could set a national goal for GHG emissions reduction programs, similar to the Clean Air Act’s National Ambient Air Quality Standards (NAAQS)⁵⁶ for existing sources and calculate a proportionate contribution for each state based on current emissions levels and population. Under the Clean Air Act, states devise regulations to meet the NAAQS through state implementation plans (SIPs).⁵⁷ If states do not submit an approvable SIP, the EPA administers a federal implementation plan (FIP)⁵⁸ to ensure the national standards are met. In 2009, the EPA issued an endangerment finding for GHGs, including carbon dioxide, following the Supreme Court’s ruling that the Clean Air Act definition of “air pollutant” was broad enough to encom-

pass GHGs.⁵⁹ This allowed the EPA to regulate carbon dioxide and other GHGs to protect public health and the environment. Thus, the concept of regulating GHG emissions is not new.

Similar to the structure of the Clean Air Act, states could determine how to achieve compliance with the federal mandate. SIPs would rely on local programming that helps individuals reduce their GHG emissions in the workplace and at home, such as the incentives discussed in Section I. In the energy sector, states could promote the growth of community solar projects, incentivize individuals to use alternative energy at home, and reward those who retrofit their homes or install energy-efficient appliances. In the waste sector, they could introduce pay-as-you-throw garbage collection policies, mandate composting and recycling, introduce free curbside compost pickup, or offer incentives to those who compost voluntarily. In the transportation sector, they could reward employers that provide alternative transportation resources and incentives to employees, as well as individuals who purchase electric or hybrid vehicles. While some cities, towns, and states have already implemented such incentives, this has largely taken place on a voluntary basis, and there is no comprehensive incentive system to reward or punish local governments based on their participation.

Following the example of the Clean Air Act, state implementation plans could be composed of a basket of incentives best suited to local characteristics. Best practices have demonstrated that PAYT systems of waste collection are more effective in places with single-occupancy homes than in large apartment complexes.⁶⁰ On the other hand, the German ordinance that bills tenants directly for their energy use would be most applicable in multi-unit residential buildings.⁶¹ Rewards for biking or using public transit are more logical in urban rather than rural places. Residents of single-occupancy homes would be best situated to take advantage of tax incentives for retrofitting their homes with energy-efficient appliances. The Recyclebank program, like other waste management practices, should be adopted at the municipal level. Thus, a one-size-fits-all incentive policy would not account for differences between and within states. The federal government could set standards for the plans, such as a minimum number of incentives that must be implemented within specific sectors. States could work with local governments to ensure that they have implemented incentives in the energy, waste, and transportation sectors without telling them which specific programs to adopt. Local governments could submit reports on their emissions reduction activities to the state, which could compile them for submission to the federal government. States could also choose to coordinate some programs through state agencies to ensure uniformity across all municipalities, such as workplace sustainability incentives.

Some incentives are best implemented at the federal level. For example, it may be more efficient to coordinate tax incentives for electric or hybrid vehicles or energy-efficient appliances through the U.S. Department of Energy. This would ensure consistent nationwide incentives and a streamlined submission process managed by a federal agency. However, states and municipalities should be encouraged to adopt additional incentives that further reduce emissions at the local level.

States that do not submit a plan for approval to the federal government or that do not attain compliance with the federal standards could be subject to reduced funding from the U.S. Department of Transportation, the Federal Highway Administration, the U.S. Department of Agriculture, or the U.S. Department of Energy. This scheme would likely not violate the federal spending power. First, reducing GHG emissions to abate climate change serves a public purpose. Climate change threatens public health and the future of our planet and is exacerbated by continued GHG emissions. Thus, reducing GHG emissions serves a public interest. Second, legislators would need to choose a percentage of federal funds that would not be unduly coercive if withheld from states, in order to allow them to “exercise their choice knowingly, cognizant of the consequences of their participation.”⁶² Third, there is a reasonable relationship between the nature of the federal funds being withheld and the public interest being served. Funds from federal agencies that deal with transportation, federal highways, agriculture, and energy are used by states to implement local programming related to those subjects. It is reasonable for federal agencies to withhold a portion of this funding to encourage states to align their climate change policies with federal priorities in pursuit of the general welfare. Under the Clean Air Act, states that do not remedy deficient state implementation plans within a certain period of time are subject to restricted federal highway funds for projects in nonattainment areas.⁶³ This can serve as a model for conditioning federal funds on state alignment with federal standards.

III. Policy Implications

This section will discuss challenges that arise from the proposed legislative framework; specifically, political, administrative, and logistical concerns. It will also describe various facets of implementation.

A. Challenges

The first challenge is both political and ideological. Given the current administration and right-leaning Congress, it is unlikely any climate change legislation will be passed during the current term of office. Furthermore, American culture places a high value on individual freedom. A law that seeks to change individual behaviors would likely be very unpopular. Even though many Americans support policies that address climate change,⁶⁴ they often resist laws that infringe their personal liberties. No major environmental laws have been passed in

decades, and legislative action on climate change is politically fraught. If a climate change bill were proposed, it would be more likely to target emissions from companies, organizations, and local governments rather than individuals.

The second challenge is administrative. Federal, state, and local agencies expend resources in responding to climate change, and these expenses will continue to increase if we do not drastically reduce our GHG emissions. However, a thorough cost-benefit analysis would be necessary for climate change legislation that could have significant costs as well. A law that requires coordination between federal, state, and local governments, as well as non-government entities and individuals, will entail monitoring, reporting, and other administrative costs. Adequate monitoring is necessary to ensure tax credits or other financial rewards are not distributed inappropriately. Ineffective monitoring and inaccurate reporting could lead to lost tax revenue without the intended environmental benefits. Administrative costs could be high, and it is not clear whether they would exceed the money saved by reducing public health and environmental harms. This legislation would also require federal and state agencies to contribute resources to implementing incentives at the local level. For example, financial rewards used to promote municipal composting and the use of bikes or public transit must be funded or subsidized by the federal or state government to make participation feasible. The need for financial support to implement incentive programs across the country could require significant resources, and it is not clear how federal or state budgets would accommodate this need. This problem could be compounded by the fact that the financial incentives in question would diminish overall tax revenue that could be spent on environmental and public health programs.

B. Program Implementation

There are various logistical challenges associated with implementing the proposed legislation. There could be a disparity between the emissions reduction standards set by the federal government and the results of programs implemented at the local level. Even if a state successfully implements many local incentives in each of the required sectors, it may not achieve a prescribed level of emissions reduction. Therefore, federal goals should focus on the number and types of programs implemented within each state rather than a specific quantity of emissions reduction. This should be proportionate to the state's population. A state like Montana, which has a little over one million residents, should not be required to implement the same number of programs or achieve the same level of emissions reduction as New York, which has a population of nearly 20 million.⁶⁵ Just as incentives must be tailored to characteristics of local communities, federally imposed standards should account for differences between states.

Measuring and policing compliance is a challenge inherent in the existing structure of the Clean Air Act.

Since states are delegated authority to administer national standards, they are responsible for tracking and reporting compliance with SIPs. In reality, state monitoring under the Clean Air Act is often imperfect, or even inadequate. In the context of the proposed legislation, states would be expected to adopt a minimum number of programs across specific sectors, not enforce a specific numerical standard. Therefore, participation is compliance, and states are rewarded for participating via a basket of federal incentives. The federal government may implement federally operated programs in states that choose not to administer their own programs, as in the Clean Air Act. This structure eliminates the need for complex monitoring and policing. It is much simpler to determine whether states have designed and implemented a local program than to measure adherence to air quality standards. Because an analysis of costs, benefits, and environmental impact should be conducted for each incentive program prior to adoption, it will not be necessary to measure specific emissions reductions in each state after implementation.

Additionally, states may not reap the benefits of programs that do not reduce emissions locally. This is another reason why it is important for state compliance to be measured by program implementation rather than numerical benchmarks. States should be rewarded for incentivizing residents to subscribe to renewable energy ESCOs even if the energy source is in a different state. An incentive system based purely on reductions within a state's borders ignores the national and sometimes global effect of shifting energy demand. Likewise, composting food scraps could reduce GHG emissions from the vehicles needed to transport waste to landfills in other states, as well as from the landfills themselves. A state that adopts policies that have positive impacts in other states should be rewarded as if the emissions took place in its own state.

In the same vein, it would be unfair to allow a state that implemented few sustainability measures to reap the benefits of emissions reduction measures implemented by other states. For example, if an Ohio residence receives their energy from solar farms in Arizona, Ohio should be rewarded for the emissions reductions even though the energy was not generated there. This analysis becomes complicated if the same solar farm serves customers in multiple states, making it difficult to track which emissions reductions are attributable to which states. One way to address this problem is to calculate the annual GHG emissions from an individual that sources his or her energy from fossil fuels. If that individual transitions to renewable energy generated in a different state, the amount of emissions saved may be attributed to that individual's state, even if individuals in other states use the same source. This shifts the focus to emissions reduced by the individual rather than the source, allowing residents of

Ohio to get "credit" for their emissions reductions even if the impact is felt in Arizona.

Furthermore, it may be difficult to calculate the net benefits of proposed initiatives. For example, composting can reduce methane emissions from landfills, but compost piles also produce methane during decomposition. While composting saves space in landfills and has some carbon storage properties, it could come with unintended consequences. If the same trucks previously transported food waste and other garbage to the landfill together, separating organics for composting might require more trucks to take separated waste to different destinations, consuming gasoline and emitting GHGs in the process. Thus, a reduction of emissions in one realm may cause an increase in another. It is important to consider the indirect effects of such practices to ensure that government funds are not spent on programs that provide little net reduction in GHG emissions. In addition, initiatives like composting may have benefits unassociated with reducing GHG emissions. A growing national population, particularly in dense, northeastern localities, raises land use concerns that will become increasingly relevant as existing landfills reach maximum capacity. Urban waste management could become more difficult as the distance between residents and the nearest landfills increase.

An additional challenge is that some states may opt to give up a small portion of federal funds rather than invest resources in designing and implementing incentive programs. Since the amount of federal funds withheld cannot be large enough to be coercive, states retain the choice of whether or not to participate. The Clean Air Act addressed this problem by issuing a federal implementation plan for states that failed to submit an approvable plan of their own. The federal government could take a similar approach here, although this would frustrate the goal of tailoring incentive programs to local characteristics. The federal implementation plan could include incentives that cut across geographic and demographic differences, such as tax credits or rebates for energy-efficient appliances and electric or hybrid vehicles. Since waste management and transportation alternatives are typically coordinated at the local level, it would not be feasible to include such programming in a federal implementation plan.

Finally, there is the possibility that incentive programs will fail to change behavior enough to meaningfully reduce GHG emissions. Even if a state successfully coordinates local incentives, there are barriers to widespread participation. First, extensive outreach will be necessary to educate the public on the available incentives. Because the proposed legislation aims to streamline various programs, a coordinated publicity effort could raise awareness of existing incentives in addition to new ones. It is harder to educate the general public about environmental laws than regulated entities, and this may be a reason why past legislation has focused on industrial

rather than individual GHG emissions. Vandenberg *et al.* has described design principles to assess energy efficiency programs for the household sector, including selecting high-impact actions, providing sufficient financial incentives, effective marketing, intervening at the point of decision-making, simplicity, and quality-assurance.⁶⁶ These principles could be applied to assess and improve the effectiveness of incentives under the proposed legislation.

In addition, financial incentives do not guarantee behavior change. If a person is not interested in composting or biking to work, there may be no financial incentive sufficient to shift their behavior, particularly if they have a comfortable lifestyle. In addition, consumers purchase cars and major household appliances infrequently. A person may be unwilling to invest in a new car or appliance if their existing one is functional, despite the financial incentives to do so. To address the problems of complacency and apathy, financial incentives must be meaningful enough for individuals to resist the strong pull of the status quo. For states to be willing to invest the necessary resources to offer compelling incentives, a cost-benefit analysis must demonstrate the long-term benefits of reducing GHG emissions and reduced state spending on resiliency and recovery, emergency response, health, and other costs associated with climate change.

Despite these challenges, there is cause for optimism about the potential of behavior-shifting legislation. Recycling programs across the country have successfully changed the way individuals view and dispose of certain types of waste. The results may not have been immediate, but today recycling is a social norm in the cities and states that have adopted such legislation.⁶⁷ On the other hand, some argue that reducing waste by recycling and composting is expensive and does not yield worthwhile environmental benefits.⁶⁸ This article has outlined a legislative framework to incorporate existing and potential incentives that shift individual behaviors, but it has not evaluated the costs and benefits of particular programs. A quantitative analysis would be needed to ensure that the costs of selected incentive programs would not exceed the environmental benefits in order for such legislation to be feasible. Given the resources required to implement effective incentive programs, incentives should be selected based on their potential to maximize reductions of GHG emissions.

Climate change is a problem that grows more urgent as time passes. Targeting emissions from the largest polluters is inadequate to achieve national GHG emissions reductions that will ensure a safe future on this planet for current and future generations. A coordinated effort between federal, state, and local governments is necessary to harness the power of individual actions within a comprehensive regulatory framework. Cooperative federalism, as implemented in the Clean Air Act, can provide a useful model in crafting these policies.

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1,4-dioxane: The Emerging Crisis

By James P. Rigano, Alyse Delle Fave, and Nicholas Rigano

Introduction

Emerging contaminants, 1,4-dioxane and per- and polyfluoroalkyl substances (PFASs), in the groundwater and drinking water supply are the new environmental crisis. There is substantial groundwater data for 1,4-dioxane, but limited information on PFASs. We have reviewed the 1,4 dioxane levels for water districts on Long Island. This article will focus on 1,4-dioxane in the Island's sole-source aquifer.

There are several factors contributing to why the issues associated with these emerging contaminants are only recently surfacing. With respect to 1,4-dioxane, one of the reasons is that it was not typically sold or used by itself but instead was used in solvents where it was present in combination with other, more prominent chemicals. Another reason it has escaped detection for so many decades is due to inadequate testing and analytical methods. Advances in technology have enabled us to modify and enhance existing methods in order to detect lower concentrations and limits of 1,4-dioxane, as well as many other emerging contaminants. These advances have allowed us to have an awareness of just how prevalent these chemicals are in our environment and an understanding of what needs to be done to limit the public from harmful exposure.

Federal Background on 1,4-dioxane

The United States Environmental Protection Agency (EPA) issued a November 2017 Fact Sheet that explains several details about 1,4-dioxane, which are described briefly below.¹

1,4-dioxane is a clear liquid used as a solvent in the manufacturing of chemicals. It has historically been used as a stabilizer in chlorinated solvents, particularly 1,1,1-trichloroethane (TCA). It can also be found in paint, adhesives, pesticides, and some consumer products such as household cleaners, detergents, shampoos, deodorants, and cosmetics.

Unregulated historical industrial uses are not the only source of 1,4-dioxane in the environment. Due to its presence in consumer products, 1,4-dioxane can leach into groundwater from septic systems or be released into the environment in treated wastewater. Once released into the environment, it can enter ground or surface water used as drinking water. It is expected to move rapidly from soil to groundwater and is relatively resistant to biodegradation in water and soil. Where delineated, 1,4-dioxane is frequently found within previously delineated chlorinated solvent plumes.

The EPA has not established a federal Maximum Contaminant Level (MCL) for 1,4-dioxane in drinking water. However, based on risk assessments, EPA established

a federal guideline of 0.35 µg/l (ppb) which indicates a drinking water concentration representing a one in one million cancer risk level.² This risk level assumes water consumption of 2 liters per day by a 70 kg (155 lb.) human.³ This guideline was developed after EPA conducted risk assessments on animals and humans and characterized 1,4-dioxane as "likely to be carcinogenic to humans" by all routes of exposure.⁴ Exposure to 1,4-dioxane was shown to adversely affect the lungs, liver, kidney, spleen, colon, nasal cavity and skeletal muscle tissue.⁵

The risk assessments also determined a linear correlation of 1,4-dioxane drinking water concentrations and cancer risk levels. Thus, exposure to 1,4-dioxane at 35 µg/l (ppb) would result in a 1 in 10,000 cancer risk level and exposure to 3.5 µg/l (ppb) would result in 1 in 100,000 cancer risk level.⁶

On March 2, 2017, Senator Kirsten Gillibrand introduced a bill that would require the EPA to develop MCL Goals and promulgate regulations for 1,4-dioxane, PFASs and perchlorate within two years of the bill's enactment. The bill has been referred to the Committee on Environment and Public Works.⁷

Background on 1,4-dioxane in New York State

The New York State Department of Health (DOH) establishes MCLs for all regulated contaminants. MCL is defined in New York State as the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.⁸

In New York State, 1,4-dioxane is currently classified as an Unspecified Organic Contaminant (UOC). The Maximum Contaminant Level for all UOCs is 50 µg/l (ppb),⁹ which is substantially above the EPA federal guideline of 0.35 µg/l for a risk of 1 in 1 million. The 1 in 1 million risk level has generally been used by EPA and NYS when establishing standards for other contaminants.

New provisions in the state's Public Health Law require DOH to create a new regulatory program in relation to emerging contaminants.¹⁰ The new statutory provisions require DOH to establish notification levels for the contaminants it decides to include on the list. When any emerging contaminant is confirmed present in drinking water at or above such a notification level, public water systems will be required to notify DOH and local property owners.¹¹

The DOH has yet to publish regulations establishing notification levels.

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On February 11, 2017, Governor Andrew Cuomo urged the EPA to establish a federally enforceable MCL for 1,4-dioxane. His letter stated that if the EPA failed to act in a timely manner, New York State would set an MCL at the state level.¹² Governor Cuomo then appointed 12 members to a Drinking Water Quality Council who are to provide recommendations for establishing state MCLs for 1,4-dioxane and PFASs. On December 18, 2018, the DWQC recommended MCLs for 1,4-dioxane and two PFAS chemicals, Perfluorooctane Sulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA). The recommended MCL for 1,4 dioxane is 1 part per billion and the recommended standard for PFOS and PFOA is 10 parts per trillion for each or 20 parts per trillion combined. It is expected that New York State will adopt these recommendations sometime in 2019..

In early April 2018, the New York State Department of Environmental Conservation (DEC) began requiring owners of remediation sites to test 1,4-dioxane and other emerging contaminants, such as PFASs. This will assist in determining the presence of 1,4-dioxane and other emerging contaminants at the many Superfund and Brownfield Sites on Long Island. The DEC issued guidance for the analysis and reporting of 1,4-dioxane groundwater samples taken at these sites. Notably, the DEC set the method detection limit (MDL) for 1,4-dioxane at no higher than 0.28 µg/l (ppb). It is critical that testing laboratories achieve this detection limit in order to properly assess the risks posed by the presence of 1,4-dioxane at these sites.

Levels of 1,4-dioxane in Long Island supply wells

According to the Annual Water Quality Reports released by Long Island's water suppliers, 1,4- dioxane has been detected in many of Long Island's water supply wells. The following data has been taken from the 2016 and 2017 Annual Water Quality Reports for 63 water districts.

1,4-dioxane levels	# of Water Districts	Range of 1,4-dioxane levels
1,4-dioxane levels greater than 1.0 ppb	17	ND – 16.48 ppb
1,4-dioxane detected but less than 1.0 ppb	27	ND – 0.97 ppb
1,4-dioxane levels at non-detect (ND)	19	ND

1,4-dioxane Approach in Other States

Massachusetts

Massachusetts established a drinking water guideline for 1,4-dioxane at 0.3µg/l (ppb). The Department of Environmental Protection Office of Research and Standards (ORS) drinking water guideline for 1,4-dioxane is 0.3 µg/l. This type of guideline, known as an ORSG, is set to protect against cancer and non-cancer health effects after long-term exposures. The ORSG and EPA values are not identical due to difference in mathematical rounding. The ORSG for 1,4-dioxane was set using the most current EPA toxicity information for 1,4-dioxane. The ORSG value of 0.3 µg/l, like that developed by EPA, is set at a level that protects against possible cancer risks from consuming the drinking water for a lifetime. These values are set at a concentration in drinking water that would increase a person's chance of getting cancer by one in one million if they drank the water daily for a lifetime.¹³

New Jersey

New Jersey established an interim specific groundwater criterion for 1,4-dioxane at 0.4 µg/l (ppb). This criterion is based on the EPA's risk assessments and cancer slope factor. It is 0.35 µg/l rounded to the nearest whole figure.¹⁴

California

California's established drinking water notification level for 1,4-dioxane is 1.0 µg/l (ppb). The drinking water notification level triggers additional monitoring and response actions. If drinking water concentrations are higher than the response level (35 µg/l), the drinking water source must be removed from service.¹⁵

Colorado

In 2004, the State of Colorado's Water Quality Control Commission adopted a hybrid standard of 6.1 µg/l to apply for a period of five years, with a standard of 3.2 µg/l becoming effective at the end of the five-year period. In 2013, Colorado became the first state to establish an enforceable cleanup standard of 0.35 µg/l for 1,4-dioxane in groundwater and surface water.¹⁶

1,4-dioxane Detections and Mitigation Around the United States

1,4-dioxane is not only an issue in New York State. Many places around the United States have also detected 1,4-dioxane in their drinking water supplies.

The Minnesota Department of Health set a guidance level for 1,4-dioxane in drinking water at 1.0 µg/l (ppb).¹⁷ In St. Anthony, Minnesota, where there are only three supply wells, the city immediately shut down one of those wells when 1,4-dioxane was detected over 1.0 µg/l (ppb). The City traced the contamination back to the old Twin Cities Army Ammunition Plant site. In a

matter of months, the Army funded the state's first advanced oxidation process plant.¹⁸

In 2015, in New Brighton, Minnesota all wells that tested positive for 1,4-dioxane were turned off. 1,4-dioxane was detected in some wells between 2.9 and 5.5 µg/l (ppb). The city took short-term actions to address the contamination by pumping from a deeper aquifer and eventually changed its primary water source via an interconnection pipeline. City officials say a treatment plant is necessary in order to reach Minnesota's standard in the long run. The treatment plant is expected to be completed in the fall of 2018.¹⁹

"1,4-dioxane is not only an issue in New York State. Many places around the United States have also detected 1,4-dioxane in their drinking water supplies."

In 2017, two wells were shut down in Columbus City, Indiana after testing revealed positive readings for 1,4-dioxane. The test detected 1,4-dioxane levels between 2.9 and 3.1 µg/l (ppb). Officials are still looking to uncover the source of the contamination. Although, there is currently no state drinking water standard for 1,4-dioxane in Indiana, the wells will remain out of service as officials continue to evaluate the situation.²⁰

Remediation of 1,4-dioxane on Long Island

The DOH issued its first approval to the Suffolk County Water Authority (SCWA) to use new treatment technology to remove 1,4-dioxane from drinking water. According to the SCWA, 1,4-dioxane was detected in approximately 40% of all SCWA wells, with five (5) SCWA wells detecting 1,4-dioxane above 3.5 µg/l (ppb).²¹ The pilot treatment system was installed at the SCWA's Commercial Boulevard pump station in Central Islip in 2018 where 1,4-dioxane was detected between 10 and 16 µg/l (ppb).

The treatment system involves the Advanced Oxidation Process (AOP). This process passes the water through a reactor, where hydrogen peroxide reacts with ultraviolet light to form a high energy oxidant, or hydroxyl radical. The hydroxyl radicals are responsible for the destruction of 1,4-dioxane. The system is the first of its kind in New York State and is expected to remove more than 97% of detected 1,4-dioxane from the drinking water.²²

The capital cost for the construction of the Commercial Boulevard well treatment was just under \$1 million. After its completion, the SCWA was able to estimate the costs to treat 1,4-dioxane on a system-wide basis given a

specific target level. Based on the Drinking Water Quality Council's recommendation, achieving a target level of 1.0 µg/l (ppb) of 1,4-dioxane in all SWCA wells would cost \$40,295,489.58 in capital costs. This pilot program set the stage for 1,4-dioxane remediation in New York in terms of understanding the engineering, technology, timeframes and funding required for the successful treatment of 1,4-dioxane in New York's drinking water.

Conclusion

Seventeen of 63 Long Island water districts we surveyed detected 1,4-dioxane in drinking water supply wells above the recommended MCL of 1.0 µg/l (ppb). With capital costs of approximately \$1 to \$4 million per well, treating the wells with 1,4-dioxane levels about 1.0 µg/l (ppb) will be a substantial cost for Long Island water districts.

Public drinking water suppliers, municipalities, landowners, and other aggrieved parties must assess their ability to recover costs of treatment and remediation from culpable third parties. Often overlooked by plaintiffs' lawyers is a cost recovery action brought under CERCLA (42 U.S.C. § 9607), which mandates strict liability to responsible parties with a generous statute of limitations. Water districts and other aggrieved parties may also consider suing responsible parties under RCRA's citizen suit provision (42 U.S.C. § 6972), which may provide injunctive relief against responsible parties requiring those responsible to pay for ongoing and future remedial costs with no statute of limitations concern.

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Compelling the EPA to Regulate GHG Emissions Under the Act to Prevent Pollution From Ships

By Sarah K. Kam

I. Introduction

Shipping remains the only sector in the world not currently subject to any legally binding greenhouse gas emission (GHG) reduction measures. Ships currently emit around 1,000 million tonnes of carbon dioxide (CO₂) annually and represent over 3 percent of global GHG emissions.¹ Depending on future economic and energy developments, shipping emissions may increase between 50 percent and 250 percent by 2050.² If left unregulated, ships may represent over 20 percent of GHG emissions by 2050.³

On a positive note, the technical capacity to reduce emissions from ships exists. This could involve simple operational measures, such as reducing speed or switching to cleaner fuels, to adopting hull and propeller design features to increase fuel ecology.⁴ But not enough shipping companies have voluntarily undertaken such measures.

Although GHG emissions from ships is considered a global problem due to its transitory nature, various legal tools have been suggested to compel the U.S. Environmental Protection Agency (EPA) to regulate GHG emissions from ships. The EPA has received at least three petitions asking the EPA to control GHGs from ocean-going ships and/or their fuel under the Clean Air Act (CAA), 42 U.S.C. § 7401, *et seq.* Despite petitions and a subsequent lawsuit alleging an “unreasonable delay,” the EPA declined to regulate GHGs from ships while it supposedly waits for an international solution.

Left in a quagmire, commentators have raised the possibility of bringing a citizen suit to compel the Administrator of EPA (the “Administrator”) to regulate GHGs from ships under the Act to Prevent Pollution from Ships (APPS), 33 U.S.C. § 1901, *et seq.* This legal tool has yet to be explored.

After examining the APPS and the International Convention for the Prevention of Pollution from Ships, now known as MARPOL and which the APPS implements, this article concludes that until there is an international agreement to reduce GHG emissions from ships, as well as amendments to MARPOL and the APPS, a citizen suit under the APPS will not be effective.

II. The Problem of GHG Emissions from Ships

“Reducing GHG emissions is the key to avoiding the most catastrophic impacts of climate change.”⁵ Major GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF₆).⁶ The Paris Agreement introduced limits on GHG emissions

in order to keep global temperature rise this century below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.⁷ However, the Paris Agreement excluded international aviation and shipping from its purview.⁸ Since then, government, industry, and civil society representatives reached an agreement to mitigate international aviation CO₂ emissions.⁹ To date, there has been no agreement to reduce GHG emissions from ships.

At the same time, GHG emissions from ships are increasing.¹⁰ According to the International Maritime Organization (IMO), “international shipping emitted 843 million metric tons of carbon dioxide, 2.7 percent of global CO₂ emissions, in 2007. Including domestic shipping and fishing vessels larger than 100 gross tonnes, the amount would increase to 1.019 billion metric tons, 3.3 percent of global emissions.”¹¹

Ships also emit significant amounts of black carbon and nitrogen oxide, which contribute to climate change, due to the use of low-quality bunker fuel and the absence of pollutions controls. Moreover, ships use refrigerants onboard (hydrofluorocarbons and perfluorocarbons—HFCs and PFCs), which are also potent GHGs when released to the atmosphere. The total impact of ships on climate may well exceed the above estimate of 3.3 percent of global CO₂ emissions.¹²

Nonetheless, the technical capacity to reduce emissions from ships exists.¹³ A wide variety of measures might be undertaken to reduce emissions from ships. These include simple operational measures, including reducing speed or using cleaner fuels, to various hull and propeller design features that would improve fuel economy.¹⁴ Reducing speed can also significantly reduce fuel consumption which, in turn, would reduce CO₂ emissions.¹⁵

A.P. Moller-Maersk voluntarily undertook some of these measures with respect to its fleet of container-ships.¹⁶ Maersk reported that reducing speed 5-10 percent reduced fuel consumption and CO₂ emissions by more

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than 15 percent, although doing so increased the number of days at sea.¹⁷ Between 2007-2015, Maersk decreased its CO₂ emissions per container shipped by 42 percent.¹⁸ The company also reduced emissions through “operational optimization,” newer (more efficient) vessels, and reductions of energy use in ports.¹⁹

But to date, voluntary undertakings by shipping companies have not adequately reduced GHG emissions from ships. Therefore, regulatory measures must also be considered.

III. EPA Has Not Regulated GHG Emissions from Ships Under the Clean Air Act

In the United States, the CAA enables EPA to regulate GHG emissions from ships.²⁰ Section 213(a)(4) of the CAA provides general authority to the Administrator to promulgate standards for emissions other than carbon monoxide, oxides of nitrogen, and volatile organic compounds from “nonroad engines and vehicles.”²¹ Fuels are addressed separately under § 211 of the CAA.²²

Under § 213(a)(4) of the CAA, if the Administrator determines that emissions of GHGs from ships significantly contribute to air pollution which may reasonably be anticipated to “endanger public health or welfare” (i.e., if the Administrator makes an endangerment finding), the Administrator may promulgate such regulations as the Administrator deems “appropriate.”²³ There is no level of stringency (such as best available control technology) specified for prospective regulations.²⁴ The Administrator may establish classes or categories of ships for the purposes of regulation.²⁵

The CAA does not set a deadline for the promulgation of standards. In setting standards, the Administrator may consider costs, noise, safety, and energy factors associated with the application of technology.²⁶ Even without a deadline, the CAA enables petitioners seeking GHG regulation of these mobile sources to file a suit against EPA for unreasonable delay in responding to rulemaking petitions.²⁷

In 2007, the Supreme Court defined the contours of EPA’s authority to regulate GHGs under the CAA in *Massachusetts v. EPA*.²⁸ In its 5-4 decision, the Supreme Court held that EPA can regulate GHGs as “air pollutants” under the CAA.²⁹ Following the *Massachusetts v. EPA* decision, EPA received petitions requesting EPA to regulate GHGs from mobile source categories.³⁰ These petitions included at least three petitions asking EPA to control GHGs concerning ocean-going ships (i.e., marine engines and vessels) and (in two of the petitions) their fuel.³¹

In 2010, petitioners filed an “unreasonable delay” suit against EPA for failing to respond to three separate petitions submitted in 2007 for GHG emissions rulemaking to cover marine vessels, nonroad vehicles, and aircraft engines.³² In 2011, a federal district court ruled that § 213 of the CAA provides EPA with discretion as to whether

to issue endangerment findings for GHG emissions from marine vessels and nonroad vehicles.³³ The court explained that section 213(a)(4) of the CAA is “simply silent as to when—or whether—EPA must make endangerment findings; it merely says what EPA ‘may’ do ‘if’ an affirmative finding is made.”³⁴

In 2012, EPA reportedly exercised its discretion to deny the petitions to regulate GHGs and black carbon emissions from non-road engines and vehicles, including marine vessels and engines in the near or medium term.³⁵ EPA stated that should it decide in the future to initiate such action, it would expect to establish the scope, schedule, and other plans for the proceeding at that time.³⁶ EPA concluded that regulating GHG and black carbon emissions would require extensive agency resources and that so directing these resources would detract from addressing more pressing environmental issues in the mobile source area.³⁷ Furthermore, based on past practices, if EPA made an endangerment and significant contribution finding for nonroad GHG sources, the development of a regulatory program to set appropriate emissions standards for them would immediately follow.³⁸

EPA found it in the best interests of the United States and the international shipping sector to first pursue a strategy of pursuing international approaches to achieve climate change goals. The EPA said doing so would not only provide concrete results in the goal of reducing GHGs from ships, but would also simplify EPA’s task of adopting any standards under the CAA in the future, should this prove appropriate.³⁹ EPA left open the door of regulating GHGs from ships in the future.⁴⁰ In the meantime, it is important to consider whether there are other tools that could compel EPA to regulate GHG emissions from ships.⁴¹

IV. Could a Citizen Suit Under the APPS Compel the Administrator to Regulate GHG Emissions from Ships?

A potential tool to compel EPA to regulate GHG emissions from ships could be a citizen suit under the APPS. According to Richard Hildreth and Alison Torbitt, current literature and case law does not address the viability of a citizen suit under the APPS.⁴² This section explores the potential for such an action under the APPS.

The APPS implements the International Convention for the Prevention of Pollution from Ships, which is now known as MARPOL. APPS applies to all U.S.-flagged ships anywhere in the world and to all foreign flagged vessels operating in navigable waters of the United States or while at port under U.S. jurisdiction.⁴³ The APPS prohibits violations of MARPOL, APPS, and the regulations promulgated thereunder.⁴⁴ The regulatory mechanism established in APPS to implement MARPOL supplements other federal environmental laws.⁴⁵

"Almost all environmental statutes contain citizen suit provisions that allow any person to act as a private attorney general to enforce government regulations."⁴⁶ "These statutory provisions authorize private citizens to sue persons alleged to be in violation of their statutory or regulatory obligations or to sue government agencies alleged to have failed to perform nondiscretionary duties."⁴⁷ The benefits of citizen suits include "the creation of new regulatory programs, the shift in emphasis of existing regulatory programs, the expansion of existing regulatory programs, or the accelerated implementation of existing regulatory programs."⁴⁸

Like most other environmental statutes, the APPS contains a citizen suit provision. The APPS contains a separate section titled "Legal Actions," which provides for citizen suits subject to certain limitations.⁴⁹ As pertinent here, 33 U.S.C. § 1910(a) provides for a person with an adversely affected interest to bring an action against the Administrator "where there is alleged a failure of the Administrator to perform any act or duty under this chapter which is not discretionary[.]"⁵⁰ To trigger the citizen suit provision, a plaintiff must allege a nondiscretionary act or duty of the Administrator under the APPS.⁵¹ "A district court's jurisdiction over a citizen suit 'depends on the existence of a duty alleged to be nondiscretionary with the Administrator; if no nondiscretionary duty exists, then neither can a citizens' suit.'"⁵²

No court has interpreted the required acts or duties of the Administrator under the APPS. Whether a nondiscretionary act or duty exists is a matter of statutory construction.⁵³ "Obviously, the scope of the agency-forcing provisions turns on the distinction between a discretionary and a nondiscretionary duty."⁵⁴ But distinguishing between discretionary and nondiscretionary duties has been challenging.⁵⁵ "One court has characterized nondiscretionary duties as involving 'purely ministerial acts,' while labeling as discretionary determinations that are 'judgmental.'"⁵⁶ When interpreting a statute, "a court should first look to the plain meaning of the statutory language."⁵⁷ "In determining the meaning of the statutory language, the court also must look to the language and design of the statute as a whole."⁵⁸

The regulatory duties of the Administrator are set forth in 33 U.S.C. § 1903(c)(2):

(2) In addition to the authority the Secretary has to prescribe regulations under this Act, the Administrator shall also prescribe any necessary or desired regulations to carry out the provisions of regulations 12, 13, 14, 15, 16, 17, 18, and 19 of Annex VI to the Convention.⁵⁹

"Convention," as defined in 33 U.S.C. § 1901(a)(5), means "the International Convention for the Prevention of Pollution from Ships, 1973, including Protocols I and II and Annexes I, II, V, and VI thereto, including any modi-

fication or amendments to the Convention, Protocols, or Annexes which have entered into force for the United States."

Under the plain language of 33 U.S.C. § 1903(c)(2), the Administrator "shall . . . prescribe any necessary or desired regulations to carry out the provisions of regulations 12, 13, 14, 15, 16, 17, 18, and 19 of Annex VI to the Convention."⁶⁰ The use of the word "shall" in statutory language has been interpreted to mean that the relevant person or entity is under a mandatory duty.⁶¹ Therefore, the use of "shall" in 33 U.S.C. § 1903(c)(2) could be interpreted as imposing a mandatory, nondiscretionary duty on the Administrator "to prescribe any necessary or desired regulations to carry out the provisions of regulations 12, 13, 14, 15, 16, 17, 18, and 19 of Annex VI to the Convention."⁶²

Regulations 12 through 18 of Annex VI to the Convention fall under Chapter 3 titled, "Requirements for Control of Emissions from Ships." These regulations pertain to the following subjects: Regulation 12 *Ozone Depleting Substances*, Regulation 13 *Nitrogen Oxides (NO_x)*, Regulation 14 *Sulphur Oxides (SO_x) and Particulate Matter*, Regulation 15 *Volatile Organic Compounds (VOCs)*, Regulation 16 *Shipboard Incineration*, Regulation 17 *Reception Facilities*, and Regulation 18 *Fuel Oil Availability and Quality*.⁶³ Regulation 19 *Application* falls under Chapter 4 titled, "Regulations on Energy Efficiency for Ships."⁶⁴

Pursuant to its authority under 33 U.S.C. § 1903(c), the Administrator implemented certain regulations with respect to Regulations 13, 14, and 18 of Annex VI to the Convention. Specifically, 40 C.F.R. § 1043.1 provides:

The Act to Prevent Pollution from Ships (APPS) requires engine manufacturers, owners and operators of vessels, and other persons to comply with Annex VI of the MARPOL Protocol. *This part implements portions of APPS as it relates to Regulations 13, 14 and 18 of Annex VI.* These regulations clarify the application of some Annex VI provisions; provide procedures and criteria for the issuance of EIAPP certificates; and specify requirements applicable to ships that are not registered by Parties to Annex VI. This part includes provisions to apply the equivalency provisions of Regulation 4 of Annex VI with respect to Regulations 14 and 18 of Annex VI. Additional regulations may also apply with respect to the Annex VI, such as those issued separately by the U.S. Coast Guard. Note that references in this part to a specific subsection of an Annex VI regulation (such as Regulation 13.5.1) reflect the regulation numbering of the 2008 Annex VI (incorporated by reference in § 1043.100).⁶⁵

However, the Administrator has not yet implemented regulations with respect to Regulations 12, 15, 16, 17, and 19 of Annex VI to the Convention.⁶⁶ Separate regulations would be needed to implement these regulations of Annex VI. Because the APPS states that the Administrator “shall . . . prescribe any necessary or desired regulations” to carry out the regulations of Annex VI to the Convention, the promulgation of these additional regulations could be considered nondiscretionary duties of the Administrator.⁶⁷

A citizen suit may be brought in the District Court for the District of Columbia to compel the Administrator to promulgate regulations to fulfill the nondiscretionary duties under 33 U.S.C. § 1903(c)(2) if other statutory requirements are satisfied. Among other things, the plaintiff must give notice, in writing and under oath, to the Administrator of the plaintiff’s claim more than 60 days before commencing an action under 33 U.S.C. § 1910(a).⁶⁸

In addition, any person may only bring a citizen suit in federal court if they have “standing to sue.” To establish standing, the courts have required proof of three elements.⁶⁹

First, the plaintiff must have suffered an “injury in fact”—an invasion of a legally protected interest which is (a) concrete and particularized and (b) “actual or imminent, not ‘conjectural’ or ‘hypothetical.’”⁷⁰ Second, there must be a causal connection between the injury and the conduct complained of—the injury has to be “fairly . . . trace[able] to the challenged action of the defendant, and not . . . th[e] result [of] the independent action of some third party not before the court.”⁷¹ Third, it must be “likely,” as opposed to merely “speculative,” that the injury will be “redressed by a favorable decision.”⁷² Courts have found standing where a plaintiff or a member of a plaintiff organization lives or recreates in the area affected by a pollution source.⁷³

Assuming the satisfaction of various requirements, a citizen suit could be maintained to compel the Administrator to promulgate regulations to fulfill the nondiscretionary duties under 33 U.S.C. § 1903(c)(2) regarding Regulations 12, 15, 16, 17, and 19 of Annex VI. However, the below section discusses the limitations of such an action.

V. Key Challenge: Annex VI to the MARPOL Convention Focuses on Acid Rain and Ozone Depletion as Opposed to GHGs

By way of background, in 1948, the United Nations created the IMO to promote international shipping and ensure maritime safety.⁷⁴ The IMO, comprised of 170 member states, including the United States, adopted 53 conventions and numerous guidelines and codes.⁷⁵ In the 1960s, the IMO started to focus on marine pollution from vessels.⁷⁶ In 1973, the IMO established the Marine Environment Protection Committee (MEPC).⁷⁷ The MEPC, consisting of member states within the IMO, works on

maritime safety and security and the prevention of marine pollution.⁷⁸ The MEPC develops regulations to prevent ships from polluting the ocean and the atmosphere.⁷⁹

In 1973, the IMO adopted the International Convention for the Prevention of Pollution from Ships, now known as MARPOL.⁸⁰ In 1978, MARPOL came into effect after the adoption of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships.⁸¹ MARPOL “‘attempts to strike a balance between the need to protect and preserve the marine environment and the desire not to impose laws which make shipping prohibitively expensive.’ The agreement attempted to take into account the conflicting interests of environmentalists and oil importers, coastal states and flag states.”⁸²

MARPOL originally had five regulatory annexes: Annex I (Regulations for the Prevention of Pollution by Oil); Annex II (Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk); Annex III (Regulations for the Prevention of Pollution by Harmful Substances Carried By Sea in Packaged Forms, or in Freight Containers, Portable Tanks or Road and Rail Tank Wagons); Annex IV (Regulations for the Prevention of Pollution by Sewage from Ships); and Annex V (Regulations for the Prevention of Pollution by Garbage from Ships).⁸³

In the late 1980s, interest in reducing air pollution from ships led to initial discussions of an “Air Pollution Annex” to MARPOL.⁸⁴ The issue of air pollution from ships created controversy when first raised at the IMO. Some thought air pollution expanded the IMO’s remit of environmental protection from strictly preventing marine pollution from ships (as in MARPOL) to pollution from ships in general.⁸⁵

In July 1991, the MEPC discussed a framework for an “Air Pollution Annex.”⁸⁶ In September 1991, the IMO first discussed GHG emissions from ships.⁸⁷ In 1992, however, the MEPC decided not to include GHGs in the new Air Pollution Annex, partly due to anti-regulatory interests within the shipping industry.⁸⁸ This missed opportunity to incorporate GHG reductions into the ongoing process of establishing MARPOL Annex VI placed air pollution (acid rain and ozone depletion) regulations on a separate track from carbon dioxide emissions (climate change).⁸⁹

In 1997, the parties to MARPOL adopted Annex VI (Regulations for the Prevention of Air Pollution from Ships).⁹⁰ In May 2005, Annex VI took effect.⁹¹ In 2009, Annex VI entered into force for the United States.⁹² “Annex VI focused on the problems of acid rain and ozone depletion, establishing regulatory requirements to limit emissions of the main contributors to acid rain, sulphur dioxide (SO₂) and nitrogen oxide (NO_x), and prohibiting emissions of ozone-depleting substances.”⁹³ Annex VI does not address other common pollutants and GHGs, including particulate matter (PM), black carbon (BC), car-

bon monoxide (CO), carbon dioxide (CO₂), nitrous oxide (N₂O), or methane (CH₄).⁹⁴

The international standards for NO_x emissions and fuel sulphur content codify existing industry practices.⁹⁵ In a 2007 report, the International Council on Clean Transportation noted that “MARPOL’s Annex VI original standards for NO_x emissions and fuel sulphur content required only modest improvements in unregulated engines and have now been achieved by the average engine.”⁹⁶ In fact, the costs and benefits associated with current IMO regulations have been characterized as “negligible” by the U.S. EPA compared to a business-as-usual baseline.⁹⁷

In 2009, the MEPC approved a set of voluntary efficiency measures.⁹⁸ These included guidelines for an Energy Efficient Design Index for New Ships (EEDI), a Ship Energy Efficiency Management Plan (SEEMP), and an Energy Efficiency Operational Indicator (EEOI).⁹⁹ In 2011, the IMO adopted an amendment to Annex VI that included EEDI and SEEMP as legally binding regulations addressing designed efficiency and operational efficiency, respectively, based on the voluntary guidelines approved in 2009.¹⁰⁰

The EEDI applies only to new ships, limiting its coverage, at least initially.¹⁰¹ A study commissioned by the IMO estimates that the amendments, if fully implemented, would reduce emissions from business-as-usual levels by only about 13 percent in 2020 and 39 percent in 2050.¹⁰² But these reductions do not reverse the overall trend of increasing emissions from international shipping.¹⁰³ As a result, there is broad agreement that the IMO’s actions to date are not enough.¹⁰⁴

Because the anti-regulatory interests of the IMO succeeded in excluding GHG emissions from Annex VI to MARPOL, and the APPS merely implements MARPOL, a citizen suit under the APPS would unfortunately not be effective in compelling the Administrator to regulate GHG emissions. A citizen suit could, however, be effective in compelling the Administrator to promulgate regulations regarding ozone depleting substances, volatile organic compounds, shipboard incineration, and reception facilities.

VI. Recent Developments at the IMO and Final Thoughts

The shipping industry has generally opposed international regulation of ships’ GHG emissions.¹⁰⁵ Following the Paris Agreement reached in December 2015, the International Chamber of Shipping urged the IMO to adopt a sector-wide pledge to reduce international shipping emissions.¹⁰⁶ A group of South Pacific and European member states also began pressuring the IMO to reduce and ultimately eliminate GHG emissions from shipping.¹⁰⁷

When the MEPC met in April and October 2016, they took no action on GHGs other than to require large ships

to report their annual CO₂ emissions and fuel consumption.¹⁰⁸ However, the IMO did agree to develop an initial comprehensive strategy to reduce GHG emissions in the spring of 2018, including “a broad goal of decarbonization; emission reduction targets (including, potentially, a cap on international shipping emissions); a list of candidate short-, mid-, and long-term measures to reduce emissions; and additional measures to reduce the burden on developing countries.”¹⁰⁹ In 2017, the MEPC reportedly continued to build on the IMO’s efforts to address GHG emissions from international shipping, still with the intent to adopt an initial IMO strategy on the reduction of GHG emissions from ships in 2018.¹¹⁰

On April 13, 2018, after two weeks of negotiations, the IMO adopted a compromise text for the IMO’s initial strategy for reduction of GHG emissions from ships.¹¹¹ Specifically, the IMO adopted an initial strategy to reduce the shipping industry’s GHG emissions by at least 50 percent by 2050, as compared to 2008 levels.¹¹² The Marshall Islands and the European Union advocated for carbon emissions reductions of between 70–100 percent by 2050, as compared to 2008 levels.¹¹³ This 70-100 percent goal is said to be necessary in order for shipping to achieve the goals of the Paris Agreement.¹¹⁴ But opposition to such goals was voiced by the United States, Panama, and Saudi Arabia, amongst others.¹¹⁵ Jeffrey Lantz, the Coast Guard official who led the talks for the United States stated in opposition to the resolution, “We do not support the establishment of an absolute reduction target at this time.”¹¹⁶

The IMO’s initial strategy announces a general ambition for the sector, with no formal obligation for parties to meet the emissions goal.¹¹⁷ According to the IMO, the final strategy will be released in 2023.¹¹⁸ The IMO’s initial strategy includes a list of measures that could be implemented to meet its emission targets.¹¹⁹ These measures are categorized as short-, mid-, or longterm, and would not be finalized and implemented until from 2018 to 2023, 2023 to 2030, and 2030 or after, respectively.¹²⁰ These measures need to be made mandatory under an IMO convention before they become legally binding.¹²¹

The strategy also identified measures that could indirectly support reducing GHG emissions, including the following:

1. Supporting the development and update of national action plans;
2. Encouraging ports to facilitate GHG reductions from shipping;
3. Initiating and coordinating R&D activities by establishing an International Maritime Research Board (IMRB);
4. Pursuing zero-carbon or fossil-free fuels for the shipping sector and developing robust lifecycle

GHG/carbon intensity guidelines for alternative fuels;

5. Undertaking additional GHG emission studies to inform policy decisions and to estimate Marginal Abatement Cost Curves for each measure (if appropriate); and
6. Encouraging technical cooperation and capacity-building activities, as appropriate.¹²²

Although a step in the right direction, the IMO's initial strategy does not provide a comprehensive solution to the increasing problem of GHG emissions from ships. The IMO must ultimately take action and incorporate these approaches into Annex VI to allow party states to enforce them within their waters.¹²³ Unless MARPOL and the APPS are officially amended, this recent positive development at the IMO will unfortunately not increase the viability of a citizen suit under the APPS to compel the Administrator to regulate GHG emissions from ships. In the meantime, to combat this pressing problem, other legal tools will need to be further explored.

Endnotes

1. International Maritime Organization, *Third IMO Greenhouse Gas Study*, p.1 (2014), available at <http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/Third%20Greenhouse%20Gas%20Study/GHG3%20Executive%20Summary%20and%20Report.pdf>.
2. European Commission, *Reducing Emissions from the Shipping Sector*, available at https://ec.europa.eu/clima/policies/transport/shipping_en.
3. Jessica F. Green, *Why Do We Need Rules on Shipping Emissions? Well, 90 Percent of Global Trade Depends on Ships*, WASHINGTON POST (Apr. 17, 2018), available at https://www.washingtonpost.com/news/monkey-cage/wp/2018/04/17/why-do-we-need-new-rules-on-shipping-emissions-well-90-of-global-trade-depends-on-ships/?utm_term=.e06ee00aed3a.
4. JAMES E. MCCARTHY & BRENT D. YACOBUCCI, CONG. RESEARCH SERV., RL40506, CARS, TRUCKS, AND CLIMATE: EPA REGULATION OF GREENHOUSE GASES FROM MOBILE SOURCES, p.12 (2016), available at <https://fas.org/sgp/crs/misc/RL40506.pdf>.
5. Naya Olmer, et al., *Greenhouse Gas Emissions from Global Shipping, 2013-2015*, The International Council on Clean Transportation, p.1 (Oct. 2017), available at <https://www.theicct.org/publications/GHG-emissions-global-shipping-2013-2015>. For purposes of this study, greenhouse gas emissions included carbon dioxide, methane, nitrous oxide, and black carbon, even though black carbon is not strictly a gas. *Id.*
6. Environmental Protection Agency, *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act*, 74 Fed. Reg. 66,496 (Dec. 15, 2009), available at https://www.epa.gov/sites/production/files/2016-08/documents/federal_register-epa-hq-oar-2009-0171-dec.15-09.pdf. In addition to GHGs, shipping produces other air emissions, including sulphur oxides (SOx), nitrogen oxides (NOx) and particulate matter (PM). Jean-Florent Helfre and Pedro Andre Couto Boot, *Emission Reduction in the Shipping Industry*, SUSTAINALYTICS, p.4 (July 2013), available at http://www.sustainalytics.com/sites/default/files/shippingemissions_july2013.pdf.
7. United Nations Climate Change, *Paris Agreement*, available at <https://unfccc.int/process/the-paris-agreement/what-is-the-paris-agreement>.
8. Fred Pearce, *After Paris, A Move to Rein in Emissions by Ships and Planes*, YALE ENVIRONMENT360 (May 19, 2016), available at https://e360.yale.edu/features/reduce_co2_emissions_shipping_aviation_regulation_paris.
9. International Civil Aviation Organization, *Historic Agreement Reached to Mitigate International Aviation Emissions* (Oct. 6, 2016), available at <https://www.icao.int/Newsroom/Pages/Historic-agreement-reached-to-mitigate-international-aviation-emissions.aspx>.
10. Naya Olmer, et al., *Greenhouse Gas Emissions from Global Shipping, 2013-2015*, The International Council on Clean Transportation, p.viii (Oct. 2017), available at <https://www.theicct.org/publications/GHG-emissions-global-shipping-2013-2015>.
11. McCarthy, *supra* note 4, at p.11. "International shipping" is defined as "shipping between ports of different countries, as opposed to domestic shipping. International shipping excludes military and fishing vessels." International Maritime Organization, *Third IMO Greenhouse Gas Study* (2014), available at <http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/Third%20Greenhouse%20Gas%20Study/GHG3%20Executive%20Summary%20and%20Report.pdf>. "Domestic shipping" is defined as "shipping between ports of the same country, as opposed to international shipping. Domestic shipping excludes military and fishing vessels." *Id.*
12. McCarthy, *supra* note 4, at p.12.
13. Daniel J. Metzger, *NOTE: Private Governance Can Increase Shipping's Efficiency and Reduce Its Impacts*, 49 VAND. J. TRANSNAT'L L. 1143, 1150 (2016).
14. McCarthy, *supra* note 4, at p.12.
15. *Id.*
16. *Id.*
17. *Id.*
18. *Id.*
19. *Id.* Others suggest "improved fleet deployment planning, use of shore-side power while in port, heat recovery systems, the use of sails as supplemental propulsion sources, and NOx controls, such as selective catalytic reduction (SCR) or exhaust gas recirculation, as potential emission control measures." *Id.*
20. Richard Hildreth & Alison Torbitt, *International Treaties and U.S. Laws as Tools to Regulate the Greenhouse Gas Emissions from Ships and Ports*, 461, 482 (2014). Appearing in Jon M. Van Dyke, *Governing Ocean Resources: New Challenges and Emerging Regimes: A Tribute to Judge Choon-Ho Park* (2014), available at <https://ebookcentral.proquest.com/lib/columbia/detail.action?docID=1192535>.
21. McCarthy, *supra* note 4, at p.12.
22. *Id.*
23. 42 U.S.C.S. § 7547(a)(4).
24. McCarthy, *supra* note 4, at p.12.
25. *Id.*
26. *Id.*
27. LINDA TSANG, CONG. RESEARCH SERV., R44807, U.S. CLIMATE CHANGE REGULATION AND LITIGATION: SELECTED LEGAL ISSUES, p.10 (2017), available at <https://fas.org/sgp/crs/misc/R44807.pdf>. Section 304(a)(3) of the Clean Air Act provides that "the district courts of the United States shall have jurisdiction to compel . . . agency action unreasonably delayed," and requires that any person intending to file a legal action against the Administrator for unreasonable delay must provide notice of his or her intention to sue 180 days before commencing such action. 42 U.S.C. § 7604; see 40 C.F.R. pt. 54. When notice of intent to sue is based on a failure to act, the notice must identify the provisions of the Clean Air Act that require the agency to take action and describe the agency's failure to perform. 40 C.F.R. § 54.3(a).
28. Tsang, *supra* note 27, at p.3. For additional discussion of this case, see CONG. RESEARCH SERV., RS22665, THE SUPREME COURT'S FIRST

- CLIMATE CHANGE DECISIONS: MASSACHUSETTS v. EPA, (2014), available at https://www.everycrsreport.com/files/20140310_RS22665_c825a3589a61fc3d43c80972b7597deb076360c8.pdf.
29. Tsang, *supra* note 27 (citing *Massachusetts v. EPA*, 549 U.S. 497 (2007)).
 30. *Id.* (citing 5 U.S.C. §553(e)). For a list of these petitions, see McCarthy, *supra* note 4, Table 2.
 31. *Id.*
 32. Tsang, *supra* note 27, at p.11 (Apr. 3, 2017), available at <https://fas.org/sgp/crs/misc/R44807.pdf> (citing Complaint, *Ctr. for Biological Diversity et al. v. EPA*, No. 10-00985 (D.D.C. Jun. 6, 2010)).
 33. *Id.* (citing *Ctr. for Biological Diversity et al. v. EPA*, 794 F. Supp. 2d 151, 157-158 (D.D.C. 2011)).
 34. *Id.* (quoting *Ctr. for Biological Diversity*, 794 F. Supp. 2d at 157-158). The court ruled, however, that EPA does not have discretion under section 231 of the CAA over whether to make determinations regarding endangerment from aircraft GHG emissions. *Ctr. for Biological Diversity*, 794 F. Supp. 2d at 159-62.
 35. Tsang, *supra* note 27, at p.11 (citing EPA Memorandum in Response to Petitions Regarding Greenhouse Gas and other Emissions from Marine Vessels and Nonroad Engines and Vehicles (June 18, 2012), available at https://www.eenews.net/assets/2012/06/18/document_pm_06.pdf).
 36. EPA Memorandum in Response to Petitions Regarding Greenhouse Gas and other Emissions from Marine Vessels and Nonroad Engines and Vehicles (June 18, 2012), available at https://www.eenews.net/assets/2012/06/18/document_pm_06.pdf.
 37. *Id.*
 38. *Id.*
 39. *Id.* Although EPA denied the petitioners' request to regulate GHGs and black carbon, EPA clarified that EPA is not stating that it will never take the actions requested and EPA may take action in the future consistent with the requests. However, EPA said that it will not do so at this time. *Id.*
 40. "A complicating factor in the regulation of emissions from ocean-going vessels would be that, for the most part, their GHG emissions occur in international waters, and the sources (the ships) are not registered in the United States." McCarthy, *supra* note 4, at p.12.
 41. It should be noted that EPA has made some progress in tightening the regulations in section 213 of the CAA governing marine vessels. Some argue that these improvements, combined with the designation of U.S. waters as a SOx Emission Control Area, will have substantial health and climate change-related benefits. See Hildreth, *supra* note 20, at 462.
 42. *Id.* at 476.
 43. CLAUDIA COPELAND, CONG. RESEARCH SERV., RL32450, CRUISE SHIP POLLUTION: BACKGROUND, LAWS AND REGULATIONS, AND KEY ISSUES, p.8 (2008), available at <http://www.cep.unep.org/publications-and-resources/databases/document-database/other/cruise-ship-pollution-background-laws-and-regulations-and-key-issues.pdf/view>.
 44. *Mylonakis v. M/T Georgios M.*, 909 F. Supp. 2d 691, 719 (S.D. Tex. 2012).
 45. Copeland, *supra* note 43.
 46. *Shields v. Babbitt*, 229 F. Supp. 2d 638, 666 (W.D. Tex. 2000).
 47. Robert L. Glicksman, *The Value of Agency-Forcing Citizen Suits to Enforce Nondiscretionary Duties*, 10 WIDENER L. REV. 353, 353 (2004).
 48. *Id.* at 358.
 49. *Angelex Ltd. v. United States*, 123 F. Supp. 3d 66, 71 (D.D.C. 2015) (citing 33 U.S.C. § 1910).
 50. Specifically, the APPS provides, "Any person having an interest which is, or can be, adversely affected, may bring an action on his own behalf" against the Administrator. 33 U.S.C. § 1910(a)(3). Any "person" means "an individual, firm, public or private corporation, partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body[.]" 33 U.S.C. § 1901(a)(10).
 51. See *United States v. Sensient Colors, Inc.*, No. 07-1275 (JHR), 2009 U.S. Dist. LEXIS 11070, at *12 (D.N.J. Feb. 13, 2009).
 52. *Id.* (quoting *Fairview Township v. EPA*, 773 F.2d 517, 525 (3d Cir. 1985)).
 53. *Monongahela Power Co. v. Reilly*, 980 F.2d 272, 276 (4th Cir. 1992) (citing *Sierra Club v. Train*, 557 F.2d 485, 488 (5th Cir. 1977) ("The substantive issue in this case is one of statutory construction, specifically whether [the Act] imposes a discretionary or non-discretionary duty on the EPA Administrator.")).
 54. McCarthy, *supra* note 4, at p.12.
 55. Glicksman, *supra* note 47, at 356 (quoting *Env'tl. Def. Fund v. Thomas*, 870 F.2d 892, 899 (2d Cir. 1989), *cert. denied*, 493 U.S. 991 (1989)).
 56. *Id.*
 57. *Raymond Proffitt Found. v. United States EPA*, 930 F. Supp. 1088, 1097 (E.D. Pa. 1996) (citations omitted).
 58. *Id.*
 59. 33 U.S.C. § 1903(c)(2) (emphasis added). Additional regulatory duties of the Administrator are set forth in 33 U.S.C. § 1902(e): (e) Regulations. The Secretary or the Administrator, consistent with section 4 [33 USCS § 1903] of this Act, shall prescribe regulations applicable to the ships of a country not a party to the MARPOL Protocol (or the applicable Annex), including regulations conforming to and giving effect to the requirements of Annex V and Annex VI as they apply under subsection (a) of this section, to ensure that their treatment is not more favorable than that accorded ships to parties to the MARPOL Protocol.
 60. See *Alaska v. Kerry*, 972 F. Supp. 2d 1111, 1148 (D. Alaska 2013).
 61. *Raymond Proffitt Found.*, 930 F. Supp. at 1097 (citing *United States v. Monsanto*, 491 U.S. 600, 607 (1989) (By using "shall" in a civil forfeiture statute, "Congress could not have chosen stronger words to express its intent that forfeiture be mandatory in cases where the statute applied . . ."); *Pierce v. Underwood*, 487 U.S. 552, 569-70 (1988) (noting that Congress's use of "shall" in a statute was "mandatory language"); *Barrentine v. Arkansas-Best Freight Sys., Inc.*, 450 U.S. 728, 739 n.15 (1981) (same); *United States v. Martinez-Zayas*, 857 F.2d 122, 128 (3d Cir. 1988) (stating that Congress clearly and unambiguously expressed its intent by stating that the court "shall" impose a mandatory sentence and that this created a mandatory legal duty to impose the sentence); *United States v. Troup*, 821 F.2d 194, 198 (3d Cir. 1987) (stating that Congress's use of the word "shall" was "mandatory"); *United States ex rel. Senk v. Brierley*, 471 F.2d 657, 659-60 (3d Cir. 1973)).
 62. It should be noted that nondiscretionary duties are most often found when there is also a specified deadline to complete the duty. Brian Crossman, *Note: Resurrecting Environmental Justice: Enforcement of EPA's Disparate-Impact Regulations Through Clean Air Act Citizen Suits*, 32 B.C. ENVTL. AFF. L. REV. 599, 636 (2005). However, no such deadline appears in the APPS.
 63. *Revised Annex VI to MARPOL*, 6A Benedict on Admiralty DOC. No. 6-1B (2018).
 64. *Id.*
 65. 40 C.F.R. § 1043.1(emphasis added).
 66. Hildreth, *supra* note 20, at 476 n.13.
 67. *Id.*
 68. *Angelex Ltd.*, 123 F. Supp. 3d at 71 (quoting 33 U.S.C. § 1910(b)(1)).
 69. See *Massachusetts*, 549 U.S. at 517; *Friends of the Earth, Inc. v. Laidlaw Env'tl. Servs. (TOC), Inc.*, 528 U.S. 167, 181 (2000); *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560 (1992).

70. *Lujan*, 504 U.S. at 560.
71. *Id.*
72. *Id.*
73. See, e.g., *Interfaith Community. Org. v. Honeywell Int'l*, 399 F.3d 248 (3d Cir. 2005), cert. denied 545 U.S. 1129 (2005); *Am. Canoe Ass'n v. City of Louisa Water & Sewer Comm'n*, 389 F.3d 536 (6th Cir. 2004); *NRDC v. Southwest Marine, Inc.*, 236 F.3d 985 (9th Cir. 2000); *Ecological Rights Foundation v. Pacific Lumber, Co.*, 230 F.3d 1141 (9th Cir. 2000); *Texans United for a Safe Economy Education Fund v. Crown Central Petroleum Corp.*, 207 F.3d 789 (5th Cir. 2000).
74. Daniel Bodansky, *Regulating Greenhouse Gas Emissions from Ships: The Role of the International Maritime Organization*, p.8 (May 1, 2016). Forthcoming in *Ocean Law Debates: The 50-Year Legacy and Emerging Issues for the Years Ahead*, eds. H. Scheiber, N. Oral and M. Kwon, available at <https://ssrn.com/abstract=2813785>.
75. *Id.*
76. *Id.*
77. *Id.*
78. United States Environmental Protection Agency, *International Standards to Reduce Emissions from Marine Diesel Engines and Their Fuels*, available at <https://www.epa.gov/regulations-emissions-vehicles-and-engines/international-standards-reduce-emissions-marine-diesel>.
79. Chul-hwan Han, *Strategies to Reduce Air Pollution in Shipping Industry*, THE ASIAN JOURNAL OF SHIPPING AND LOGISTICS, p.13 (June 2010), available at https://ac.els-cdn.com/S2092521210800094/1-s2.0-S2092521210800094-main.pdf?_tid=0c261a22-720d-4b34-b8a1-6c631c6db35f&acdnat=1523802582_8fd5be1d7279715313a1791e8f7ed68e.
80. International Maritime Organization, *Pollution Prevention*, available at <http://www.imo.org/en/OurWork/Environment/PollutionPrevention/Pages/Default.aspx>.
81. Bodansky, *supra* note 74, at p.7.
82. *United States v. Apex Oil Co.*, 132 F.3d 1287, 1291 (9th Cir. 1997) (quoting Andrew Griffin, *MARPOL 73/78 And Vessel Pollution: A Glass Half Full or Half Empty*, 1 IND. J. GLOBAL LEGAL STUD. 489, 490, 512-13 (1994)).
83. *Id.* at p.9.
84. Aaron Leigh Strong, *Tackling Maritime Bunker Fuel Emissions: The Evolution of Global Climate Change Policy at the International Maritime Organization*, p.20, Tufts University (Unpublished Thesis) (2011), available at <http://environment.tufts.edu/wp-content/uploads/AaronStrongThesis.pdf>.
85. *Id.*
86. *Id.* at pp.20-21.
87. *Id.* at p.22.
88. *Id.* at p.3.
89. *Id.* at p.27.
90. Bodansky, *supra* note 74, at p.9.
91. *Id.*
92. *Id.*
93. *Id.*
94. Eric V. Hull, *Article: Missing the Boat on Protecting Human Health and the Environment: A Re-Evaluation of the EPA's Emissions Policy on Large Ocean-Going Vessels*, 81 TEMP. L. REV. 1035, 1051 (2008).
95. International Council on Clean Transportation, *Air Pollution and Greenhouse Gas Emissions from Ocean-Going Ships: Impacts, Mitigation Options and Opportunities for Managing Growth*, p.44 (2007), available at https://www.theicct.org/sites/default/files/publications/oceangoing_ships_2007.pdf.
96. Hildreth, *supra* note 20, at 471.
97. International Council on Clean Transportation, *supra* note 95.
98. Metzger, *supra* note 13, at 1158.
99. *Id.*
100. *Id.*
101. Bodansky, *supra* note 74, at p.15.
102. *Id.*
103. *Id.*
104. *Id.*
105. McCarthy, *supra* note 4, at p.17.
106. *Id.*
107. International Council on Clean Transportation, *The International Maritime Organization's Initial Greenhouse Gas Strategy* (Apr. 2018), available at https://www.theicct.org/sites/default/files/publications/IMO_GHG_StrategyFinalPolicyUpdate042318.pdf.
108. CONG. RESEARCH SERV., R40506, CARS, TRUCKS, AIRCRAFT, AND EPA CLIMATE REGULATIONS, p.17 (2017), available at https://www.everycrsreport.com/files/20170208_R40506_4dc3f23d1e84eeaa6c41353f0103a00ddab0ac24.pdf.
109. International Council on Clean Transportation, *supra* note 107.
110. International Maritime Organization, Marine Environment Protection Committee (MEPC), 71st session (July 3-7, 2017), available at <http://www.imo.org/en/MediaCentre/MeetingSummaries/MEPC/Pages/MEPC-71.aspx>.
111. *Compromise Found on "Initial IMO Strategy on Reduction of GHG Emissions from Ships"*, HELLENIC SHIPPING NEWS (Apr. 18, 2018), available at <https://www.hellenicshippingnews.com/compromise-found-on-initial-imo-strategy-on-reduction-of-ghg-emissions-from-ships/>.
112. International Maritime Association, *UN Body Adopts Climate Change Strategy for Shipping* (Apr. 13, 2018), available at <http://www.imo.org/en/MediaCentre/PressBriefings/Pages/06GHGInitialstrategy.aspx>.
113. Joshua S. Hill, *Global Shipping Body Adopts 50% GHG Emissions Reduction Target*, CLEAN TECHNICA (Apr. 16, 2018), available at <https://cleantechnica.com/2018/04/16/global-shipping-body-adopts-50-ghg-emissions-reduction-target/>.
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115. *Id.*
116. Jean Chemnick, *U.N. Agency Agrees to Path for Shipping Emissions Cuts*, SCIENTIFIC AMERICAN (Apr. 16, 2018).
117. Michael Holder, *The Shipping Industry has Quietly Gone Without a Climate Plan—Until Now*, GREENBIZ (Apr. 14, 2018), available at <https://www.greenbiz.com/article/shipping-industry-has-quietly-gone-without-climate-plan-until-now>.
118. International Maritime Association, *supra* note 112.
119. International Council on Clean Transportation, *supra* note 107.
120. *Id.*
121. *Id.*
122. *Id.*
123. Hildreth, *supra* note 20, at 488.

Long-Time Member: Howard Tollin

It is truly the Section's pleasure to highlight a long-time member who needs no introduction. Some people know the EELS current Vice-Chair Howard Tollin from his days as a fierce insurance law litigator with Rivkin Radler LLP. Others may have been recruited to join the Section due to his activities acting as co-chair for the Membership Committee alongside Janice Dean.



Some may have met him at one of the Section's many fall or Annual Meetings, where he has worked to bring valuable and practical CLE topics to our members. And anybody who doesn't fall into one of the above categories has certainly enjoyed one of his many written contributions to *TNYEL*. Howard remains generous with his time, always offering to help improve the Section and continually submitting substantive and interesting legal articles.

Prior to joining the NYSBA Environmental & Energy Law Section, Howard sat on the ABA Insurance Coverage Committee and was Chair of the Agent-Broker Subcommittee. During that time, he was traveling the country as a litigator representing large-scale business interests. Howard quickly saw a gap in the environmental insurance coverage marketplace and decided that the best way to improve the industry was to reach as many regional

attorneys as possible. Howard began refocusing his career which led him to become a true pioneer in revamping the role that an insurance policy can have on large-scale transactions.

Howard's solution-oriented approach has, without exaggeration, modernized how businesses insure transactions for environmental risk. Howard spent years crafting new environmental insurance policies to cover pollution and environmental liability while negotiating buyouts of old general liability policies with a holistic understanding of environmental risk. His approach has received the highest form of praise—mimicry—with insurers nationwide following his lead.

Howard's drive is simple: improve. He improved how businesses approach environmental risk and he improved the Environmental & Energy Law Section. Since 2001, he has accepted leadership roles including Membership Co-chair, House of Delegates, and is currently Section Vice-Chair. During one fall meeting he helped plan on Long Island, he secured Congressman Tom Suozzi, then County Executive, as the keynote speaker. At that meeting, he created a dual track designed to appeal to younger attorneys (who need transitional credits) by offering broader programs on the one hand, and simultaneously offering more detailed and practical programs to experienced attorneys with transactional needs on the other. This type of thinking is a window into how he synthesizes a problem—and in this case created a solution. By recruiting young attorneys, Howard boosted new membership while retaining the rank-and-file members with useful and focused legal education. Recognizing that bright lines rarely separate professional practice areas, he led the rebranding effort to include "Energy" in the Section's title.

Finally, Howard is the President of Sterling Environmental Services, which provides risk management and insurance solutions with an emphasis toward environmental protection. He's consistently named as an "environmental power broker" by *Risk & Insurance* magazine. Prior to joining Sterling, he was a managing director at Breitstone & Co., Ltd., and later at Aon Risk Solutions. He is New York through and through, having graduated from the State University of New York at Binghamton and attended law school at Hofstra University. Howard has consistently represented the best interests of NYSBA and our Section throughout his career and will likely continue to do so. We have had the good fortune to work with Howard for decades and hope our good fortune continues for years to come.

Justin Birzon

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Section Members Enjoy the Outdoors

Biking with Bowitch



Gary Bowitch led a bicycle ride of 30-35 miles starting at the Emerson Resort and circling around the Ashokan Reservoir, traveling through the beautiful Catskill countryside.

Climbing with Carl (aka Hiking with Howard)



Carl Howard led a moderately strenuous hike up Mount Tremper (and up its Fire Tower). The hike ascended about 2,000 feet.



New Member Profile: Sarah Lobe

For the Fall/Winter 2018 issue, our New Member spotlight features Sarah M. Lobe. Sarah is currently an Adjunct Professor at Nazareth College in Pittsford, NY teaching environmental law. Sarah's legal and academic career have encompassed a variety of perspectives regarding the environment ranging from litigator, to advocate, to professor. Through her diverse work in the public and private sectors, Sarah has a comprehensive view of environmental law that she uses to zealously advocate for the environment.



Sarah's education is as impressive as her professional career. She received her Bachelor's in Political Science with a minor in French from Boston University (BU), *magna cum laude*. In addition, she completed her Master's degree in Political Science from BU with a concentration in Public Policy. During her time at BU, Sarah studied abroad in France, Australia, China, Argentina, and India—allowing her to have a worldwide view of policy issues with a focus on water rights. Sarah attended law school at American University Washington College of Law in Washington D.C. While in law school, she ana-

lyzed legal issues in water pipeline implementation for the Navajo Nation, dedicated hundreds of hours for pro bono legal service, and received various distinctions for her academics. In addition, while working for the U.S. federal government and the United Nations Special Rapporteur on the Right to Food, Sarah held businesses and governments accountable for environmental harms.

After law school, Sarah worked as a visiting law professor at Yeditepe University Faculty of Law in Istanbul, Turkey and she continues to teach legal writing for LL.M. civil society scholarship recipients. For the past year, Sarah has practiced with the Zoghlin Group working on environmental litigation and renewable energy matters.

Sarah's ambition makes her a leader in aspects of environmental law outside of her day-to-day profession. Sarah began her time with the NYSBA Environmental and Energy Law Section in 2017 as a member of the Future of Federal Environmental Policy Task Force. Within a year she became the Co-chair of our Diversity Committee. She is a member of the Monroe County Bar Association Young Lawyers Section and Environmental Law Committee and the Women's Bar Association of the State of New York, as well. She is also a Co-Chair of the Programs Committee for the Greater Rochester Association for Women Attorneys. Her dedication and leadership skills brought her to the attention of *The New York Environmental Lawyer* and we look forward to the vast experience and perspective Sarah will bring to the EELS.

Alicia Artessa



Section Members Receive ABA SEER 2018 Awards

Paul Gallay of Riverkeeper, left, Walter Mugdan, center, and Nick Robinson, right, at the American Bar Association's Section of Environment, Energy, and Resources Section awards night. Riverkeeper won the 2018 Stewardship Award; Mugdan won the 2018 Government Attorney Award; and Robinson won the 2018 Distinguished Achievement Award. The ABA SEER awards night was held on October 19. (Contributed photo)

Environmental Refugees (ERs); Europe and ERs; 800 Million People in "Hot Spots"; Pollution-related Mortality; Melting Permafrost; Spreading Disease; Climate Change Litigation; Washington; and Hawking

By Carl Howard

Let's briefly review. I started these Blogs November 2017 with the proposition that human civilization sat atop a pyramid of four supporting blocks: the foundational blocks being Climate Stability, and Political Stability and atop these larger blocks are Food and Sustenance from the Ocean, and Food and Sustenance from the Land.

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As I have detailed, we could not be doing a better job at destroying these four blocks if we tried. I have detailed some of the threats from GHG emissions, many of which harm multiple blocks: rising global temperature decreases agricultural production; higher food prices due to decreasing supply, leading to food riots and political instability; sea-level rise and oceanic acidification have decreased food productivity and killed coral reefs and harmed tourism-based economies; polar ice melt and exposure of darker water absorbs heat, alters global weather patterns, both air (jet stream) and oceanic currents, has led to decreases in agricultural and oceanic food production and rising political instability in Africa, the Middle East and parts of Asia; increased surface water evaporation decreases water for drinking and irrigation; as detailed below, decreased agricultural production and political instability have led to global environmental refugees and the rise of ultra-right wing political parties; seasonal events have been altered, adversely affecting the migration of animals, fish, birds and the timing of seasonal rains and harvest and flowering and the lifecycle of pollinating birds, bats and insects; extreme weather events, including drought, famine, wildfires, hurricanes and flooding, have increased in number and severity impacting virtually everyone everywhere and harming land and ocean-based food sources; rising temperatures have helped spread diseases around the world, further harming human health and agricultural productivity. And much more.

We are in the process of the wholesale alteration of everything down to the cellular level in some cases (including microscopic organisms that are the very foundation for life on earth in terms of food and oxygen source); we are ignoring the universal and nearly unanimous and unambiguous and dire warnings of the world's expert

climatologists, biologists and physicists, etc., that what we are doing is nothing short of suicidal.

The future can be accurately predicted because much of it will, by necessity, be a continuation of that which is occurring. Scientists understand what happens to ice as it warms. And what happens to the oceans as they warm, expand and acidify. And, in general terms, how this affects global weather patterns. And how the future of human civilization is dependent on the continued stability of conditions that have existed during the entirety of our evolution. But all of this is changing and we continue to ignore, deny and slow-walk our response at our collective peril. I am not being dramatic. I am talking about facts on the ground.

Environmental Refugees

I continually update my Blog with information on two key indicators: polar developments (i.e., ice melt, permafrost thaw, impacts on polar human and animal life, increased exposure of water to sunlight which is no longer reflected into space (the Albedo Effect)), and a key indicator of the impact of multiple climate change factors, Environmental Refugees (ERs).

A recent article supports the proposition that there is no longer a distinction to be made between political and environmental drivers producing ER. (See <https://www.nytimes.com/2018/06/29/opinion/sunday/immigration-climate-change-trump.html?action=click&contentCollection=opinion®ion=rank&module=package&version=highlights&contentPlacement=3&pgtype=sectionfront>, Warming World Creates Desperate People, by Lauren Markham). Once the land has been degraded past the point of supporting agricultural lifestyles the people once dependent on these lands have no choice but to abandon them. Certainly, past land use practices play a role in such degradation; humanity is guilty globally of immense irresponsibility and short-sightedness in cutting down its trees, but when the rains don't come, when the

CARL R. HOWARD is the Co-chair of the Section's Global Climate Change Committee. The views expressed are entirely the author's. The three articles in this section were originally posted in the Global Climate Change Blog of the Environmental and Energy Law Section Community at www.nysba.org/eelscommunity.

land is parched beyond recovery, when the timing of the lifecycle of pollinating insects, birds and bats has been thrown off, there can be no recovery for these lands, or people, in a time-frame that supports a rational decision to stay on such lands. These people must move and they are properly termed ERs.

The fact that nobody wants ERs is reflected in the fact that the UN does not recognize ERs by this name and will send them back home as they do not fit the existing definition of “Refugee” because they are not subject to political persecution.

Guatemala has a population of 16.6 million people, many of whom are suffering from the effects of prolonged drought and rising temperature. Their inability to live off their land, as they have done for thousands of years, is producing all of the ills one would expect: poverty, political and gang conflict, and immense numbers of ERs. Coffee is one of the main crops exported from Guatemala but climate change has exacerbated a plague, coffee rust, which has decimated the crop in many locations including higher elevations, which had been cool enough to avoid the plague but now are warmer and succumb to it.

There are over 68 million people worldwide who have been forced to flee their home. The UN High Commissioner for Refugees estimates that since 2008, 22.5 million people have been displaced by climate-related or extreme weather events. It is pointless to argue that ERs are the result of war, poverty or political persecution as all of these things are either caused by or driven by climate change. The article cited above mentions ERs from Gambia, Pakistan, El Salvador, Guatemala, Yemen and Eritrea all of whom have felt the pressures of environmental degradation and climate change.

ERs from Gambia talk about the impossibility of farming there as the semiarid Sahel region spreads ever wider across the continent, drying up the land. In Yemen, years of water scarcity helped lead to the country’s brutal conflict. El Salvador may be recovering from a devastating drought which has diminished agricultural productivity. But the pressure to leave and migrate to the U.S. is ever-present as there is little hope that conditions, even if they improve, will ever return to sustainable levels.

The average temperature in El Salvador has risen 2.34 degrees Fahrenheit since the 1950s and droughts have become longer and more intense. The sea has risen by three inches off its coast since the 1950s, and is projected to rise seven more by 2050. Between 2000 and 2009, 39 hurricanes hit El Salvador, compared with 15 in the 1980s. This, too, is predicted to worsen.

ERs from Ethiopia, formerly farmers, stated that they could no longer make a living off their crops or adequately feed their families. The rains had changed—it wasn’t just that they had lessened but that they had become

more erratic; no rain when the crops needed it to grow, and destructive downpours when it was time for harvest, ruining the crops.

Europe and ERs

In 2015, hundreds of thousands of migrants, many, if not all, ERs, as they are fleeing areas where the land can no longer support them, have been landing every month on the borders of Germany, Austria and Hungary, as well as the beaches of Greece, Italy and elsewhere. Reports for these areas in 2018 has these numbers down to tens of thousands. But, just as much of the Northeast U.S. has experienced cooler Spring temperatures than usual, the trend is unmistakably warmer over time (NYC is experiencing a heat wave as I write). So too with global ERs. Thousands of these desperate people perish along the way each month. The lucky ones make it to squalid refugee camps where they languish because so few countries and so few people accept them.

Leaders of the European Union met in Brussels but no coherent plan exists for dealing with overwhelming numbers of refugees already in camps, not to mention the 10s of 1,000s more that will continue to arrive for the foreseeable future. The political future of German chancellor, Angela Merkel, is very much in doubt as she had the nerve to attempt to open Germany’s boarder and accept a tiny fraction of the refugees. She has caved on this position.

The refugee situation has fueled the rise of far-right parties and politicians who exploit public anxiety after high-profile assaults involving migrants, including the killing of a 19-year-old German student and the terrorist attack on a Christmas market that killed 12 people. Viktor Orban, prime minister of Hungary, calls it “the migrant invasion” and has made it a jailable offense for Hungarians to assist undocumented migrants.

Matteo Salvini, the Italian interior minister, has closed Italy’s ports to charity-run rescue boats. Horst Seehofer, the German interior minister, has threatened to turn back refugees at his country’s southern border. Chancellor Sebastian Kurz of Austria is unwilling to aid any of the countries where ERs tend to land first (Greece and Italy, mostly). And Trump has claimed, wrongly, that migration led to a crime epidemic in Germany.

The tactics seem to have worked. Data from the EU showed that Europeans are more concerned about immigration than about any other social challenge. Mr. Salvini’s party is now leading in Italian polls, up 10 percent since an election in March. Mr. Orban won re-election in April with an increased majority after a campaign focused on migration. Trump continues to hold rallies where his go-to applause line is “build the wall.”

More than 850,000 asylum seekers arrived in Greece in 2015, most of them making their way to northern

European countries like Germany. So far this year, little more than 13,000 have made the same journey. More than 150,000 people arrived in Italy in 2015; the number so far this year is less than 17,000. In 2016, when applications were at their highest, more than 62,000 people sought asylum in Germany, on average, every month. This year, that average has fallen to little more than 15,000—the lowest since 2013. But this likely is a temporary lull. Only in Spain have arrival numbers risen, from more than 16,000 in 2015 to just over 17,000 so far in 2018.

In Italy, arrival numbers plummeted after Mr. Salvini's predecessor controversially persuaded several militias to halt the smuggling industry in northern Libya, and to keep thousands of would-be migrants in dangerous conditions in makeshift Libyan detention centers.

Several European governments have made deportation agreements with Sudan, whose leader, Omar Hassan al-Bashir, has been charged with war crimes. A deal with Niger helped crack down on smuggling in the Western Sahara. And most controversially, the German (under Merkel!) and Dutch governments brokered a EU deal in 2016 with the authoritarian government of Turkey that led to an immediate and drastic drop in migration to Greece.

Meanwhile those ERs lucky enough to not drown or perish on dangerous sea crossings languish in filthy camps. One in Greece houses roughly half of the country's 60,000 asylum seekers.

In Germany, Merkel's rebellious Bavarian interior minister, Mr. Seehofer, has threatened to close Germany's border with Austria to asylum seekers who have already registered elsewhere in Europe. But, as Merkel knows, this likely would start a domino effect of stricter border controls across the Continent. That would obstruct the movement not just of refugees but also of EU citizens, endangering one of the bloc's core values: free movement between member states. This is yet another way that climate change threatens political stability and brings much of the world closer to being linked not by common compassion and understanding, but by stone cold walls and barbed wire.

800 Million People in Hot Spots

ERs are not the only ones suffering. Those one step from becoming ERs suffer too. The World Bank reported that climate change could sharply diminish living conditions for up to 800 million people in South Asia, a region that is already home to some of the world's poorest and hungriest people, if nothing is done to reduce global greenhouse gas emissions. The study specified "hot spots" in six countries where the worst deterioration is expected based on rising average annual temperatures, altered rainfall patterns and other related drivers that likely will amplify the hardships of poverty.

Karachi, Pakistan, and the central belt of India along with Afghanistan and Sri Lanka were noted as areas with rapidly and steadily rising temperature. But even areas less likely to be affected by rising temperatures (Nepal) face risks from extreme weather events.

If global GHG emissions remain high, then 800 million people may be at risk of becoming ERs or dying. If GHG emissions can be quickly and substantially reduced that number falls to 375 million. Either way, predicting the future is not as hard as it is terrifying given this "low" number of a mere 375 million suffering people.

The study predicted tens of millions of ERs in three regions of the developing world (sub-Saharan Africa, south Asia, and Latin America) are expected to migrate before 2050 unless substantial changes are made. ERs include the movement of people inside countries as well as across borders. Both cause disruption and conflict. More than 140 million people in just three regions of the developing world are likely to migrate within their native countries between now and 2050.

The three regions account for 55 percent of the developing world's population. In sub-Saharan Africa, 86 million are expected to be internally displaced over the period; in south Asia, about 40 million; and in Latin America, 17 million. When farmers can no longer farm they move to the cities. By 2030, the number of cities with 1 to 5 million inhabitants is projected to grow to 559. In 2016, 1.7 billion people—23 percent of the world's population—lived in a city with at least 1 million inhabitants. When people can no longer survive in cities, they flee, often to another country. The cities absorbed to the breaking point and now the overflow is being felt globally in the form of civil service breakdown, lack of governmental function and social disorder and conflict.

The 140 million figure is based on current trends but could be reduced if changes are made. If economic development is made more inclusive, for instance through better education and infrastructure, internal migration across the three regions could drop to between 65 million and 105 million, and if strong action is taken on GHG emissions, as few as 30 million to 70 million may migrate. Again, the "low" estimate of 30 million displaced persons is another terrifying figure.

Here is a link to World Bank report: Groundswell: <https://openknowledge.worldbank.org/handle/10986/29461>.

Pollution-Related Mortality

ERs are those displaced by climate change but millions of others suffer premature deaths due to exposure to pollutants (which includes GHG). Another study found that significant pollution reductions could save more than 150 million human lives. Premature deaths would fall on nearly every continent if the world's governments agree to cut emissions of carbon dioxide and other harm-

ful gases enough to limit global temperature rise to less than 3 degrees Fahrenheit by the end of the century. That is .7 degrees lower than the target set by the Paris climate agreement and it is not going to be achieved.

The benefit would be felt mostly in Asian countries with dirty air—13 million lives would be saved in large cities in India alone, including the metropolitan areas of Kolkata, Delhi, Patna and Kanpur. Greater Dhaka in Bangladesh would have 3.6 million fewer deaths, and Jakarta in Indonesia would record 1.6 fewer lives lost. The African cities of Lagos and Cairo combined would register more than 2 million fewer deaths.

In the U.S., the Clean Air Act has improved air quality but more than 330,000 lives in Los Angeles, New York, San Francisco, Pittsburgh, Philadelphia, Detroit, Atlanta and Washington would be spared if further improvements were made.

The models calculated about 7 million deaths per year if governments fail to work toward zero emissions by the end of the century, starting today. It's hard to see how that could happen especially since South Asian nations such as India, where pollution is among the worst in the world, argue correctly that their per capita use is small compared with historical use in the Western Hemisphere and that they should be allowed time to develop just as other countries did.

Melting Permafrost

One important goal for the world's nations to focus on is the elimination of emissions of the potent GHG methane. Recent studies are finding that thawing Arctic permafrost might release more of it than expected. Methane has 28 times the global warming potential of carbon dioxide.

Whether or not this lab study translates to the Arctic there is no question that permafrost is melting and releasing GHG (melting permafrost releases both methane and carbon dioxide). As much as 10 percent of permafrost carbon could be released into the atmosphere this century, enough to defeat climate change goals and further destabilize global weather patterns.

Spreading Disease

Along with steadily warming temperatures comes spreading disease. Disease-carrying ticks and insects have started spreading farther north and altitudinally upward, reaching places where winters were previously too long and cold for them to survive. Tick populations in Maine have exploded, causing cases of some diseases to multiply by 30 times in just the past decade.

Scientists have predicted that climate change is creating prime conditions for the spread of insects and contagions—bringing cases of plague from memories of medieval history to California's Silicon Valley and tropi-

cal blood parasites to the plains of Nebraska. Some Texans could even become allergic to eating meat due to tick bites.

Climate Change Litigation

U.S. District Judge William Alsup (CA) dismissed a suit brought by San Francisco and Oakland against five fossil fuel companies (ExxonMobil, Chevron, BP, Shell and ConocoPhillips). The judge had ordered the parties to present information about climate science in a five-hour tutorial for the court.

The defendants no longer deny the scientific consensus that the climate is changing due to anthropogenic emissions. But the judge agreed with their position that this case could not proceed based on allegations that the companies knowingly created a public nuisance by selling their products despite internal studies indicating that fossil fuels posed a threat to the climate. The answer, it appears, lies in national legislation and not in the courts, at least not federal courts.

The tutorial was valuable for the insight it provided as to how oil and gas companies plan on defending themselves should any subsequent case proceed to trial (six other counties and cities in CA have filed similar suits in CA state courts, and NYC, King County, WA, and Boulder CO and Boulder CO County and San Miguel County have filed suits).

At a recent conference hosted by the Sabin Center, of which my colleague and Co-chair Mike Gerrard is the director, a panelist with 30 years of experience in tobacco litigation advised that the path forward for climate change litigators was clear. The same factors that led to liability in those cases will lead to liability here; namely, an effort by large, sophisticated, corporate actors funded studies that proved their products/actions were dangerous, and then conspired to cover up such studies while fraudulently and publicly advocating that which was knowingly and patently false. It may take 30 years, but justice will prevail when the facts are so clear, according to this litigant.

Several prominent fossil fuel industry allies filed "friend of the court" briefs denying the existence of human-induced climate change. In a brief filed by the Heartland Institute and Dr. Willie Wei-Hock Soon, among others, they argued that there is "no agreement among climatologists as to the relative contributes of Man and Nature to the global warming." Another brief, filed by William Happer, Steven Koonin, and Richard Lindzen, scientist skeptics, says that "the climate is always changing" and "it is not possible to tell how much of the modest recent warming can be ascribed to humans."

The "friends of the court" briefs are comprehensive in their denial saying, "recent changes in the climate over the past century are within the bounds of natural variabil-

ity” and that the human contribution is too small to be a factor and that the data are too limited.

As part of their case against the companies, plaintiffs pointed to years of financial support between Exxon and conservative, climate-denying think tanks like the Heartland Institute as proof that fossil fuel companies willfully manipulated public perception of climate risks despite internal studies to the contrary. While Exxon no longer denies the reality of climate change it still refuses to disclose the risks it faces regarding climate change, including its failure to disclose to shareholders potential risks (required by the SEC), as well as potential liability from lawsuits for damage relating to its GHG emissions. (For more on this read *Merchants of Doubt*, by Naomi Oreskes).

Washington

Despite predictions of spreading disease, Trump has slashed the Centers for Disease Control and Prevention’s budget to fight global epidemics by 80 percent. Although most of this funding goes to aid other countries, critics say the cut leaves the U.S. vulnerable to diseases that could be introduced to the country. As the planet warms, more pathogens and vectors from the tropics and subtropics move into the temperate zones. U.S. residents tend to have a false sense of security, not realizing that vectors and pathogens are moving north and will continue to do so.

Stephen Hawking

Stephen Hawking died recently at the age of 76. As well as being a renowned physicist whose groundbreaking theories explained the complexities of space, time and the universe, the British professor called climate change “one of the great dangers we face, and it’s one we can prevent.”

Hawking frequently denounced climate change deniers, and offered to pay for their trip to Venus to illustrate the impact of greenhouse gases on a habitable planet. The global thinker criticized Trump’s decision to withdraw the U.S. from the Paris agreement, saying that Trump “may just have taken the most serious, and wrong, decision on climate change this world has seen.”

Hawking went so far as to predict that humanity needed to find another planet to live on as he doubted “we will survive another 1,000 years without escaping beyond our fragile planet.” According to Hawking, Earth and its inhabitants could soon be doomed. But, as he wrote in 2016, he’s an “enormous optimist” for our future—that is, if we can learn to work together. “To do that, we need to break down, not build up, barriers within and between nations.” We need, he said, “to learn above all a measure of humility.”

NYC, Flood Protection—Infrastructure; Heat, Wildfires and Flooding: U.S., Japan, Siberia; Washington; Good News

By Carl Howard

New York City

As hurricane season approaches it is startling to note that the region has chosen to ignore the warnings and lessons of Sandy (2012) by looking at the astonishing development occurring in the city’s floodplains. This collective stubbornness and short-sightedness is not unique to New York. Where short-term profit is to be made, people will pursue it. And the dopes left holding the bag, that’s their problem. Except that it isn’t. The impacts of storms like Sandy are felt far, wide and long and threaten the financial viability of entire regions.

As of January 2018, about 12,359 new apartments were under construction or planned in the city’s most vulnerable flood zones. Most of the new construction is on the southern tip of Brooklyn in Brighton Beach, Coney Island and Gravesend where 45 projects are under construction. Hunters Point on Long Island City is largely situated in FEMA’s high-risk flood zone. Its population increased 90 percent between 2010 and 2016 and 5,900 more apartments are under way.

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People are voting with their feet and obviously do not believe they or their investments are at risk. Prices in the city condo market have increased 60 to 70 percent in the last two years. Sandy is a distant memory. The Rockaways still has not fully recovered from Sandy and yet residential sales in the flood zone there increased by 167 percent between 2013 and 2017.

But warning signals are there, too, for those who look. Older homes built prior to more strict building requirements will see their insurance rates jump. Flood insurance is required for home-owners with a mortgage in high-risk zones. The latest FEMA maps were published in 2015 and should be finalized shortly. Zones designated as 100-year flood plains will have the highest insurance rates. Homes in such zones have a 1 percent chance of flooding every year. Over the course of a 30-year mortgage the chance of flooding is between 25 to 30 percent.

Federal subsidies and grand-fathered status have kept many older, more vulnerable homes in flood zones. But such subsidies and status are being phased out. A homeowner paying \$400/year for flood insurance may

see a tenfold increase to \$4,000/year. Low income areas like Canarsie may see such spikes. But even in the luxury buildings being built with an eye on future storms, trouble waits. These buildings may continue to operate as their infrastructure and essential machinery have been elevated, but the neighborhoods around them will certainly flood and the residents will be stranded in luxurious isolated islands.

Flood Protection—Infrastructure

The need to physically address the vulnerability of NYC to flooding is pressing. The Army Corps of Engineers (ACOE) has rushed out six proposals to deal with the problem. ACOE held several public hearings that were poorly advertised and is offering only a limited time for public comment (see below).

Two of the proposals are to construct massive in-water barriers which pose many problems not just of cost and inadequacy but threats to the future viability of one of the world's greatest rivers, the Hudson. Other proposals are for land-based floodwalls, dunes and levees intended to "manage the risk of coastal storm damage" to New York Harbor and the Hudson Valley.

ACOE stated that it intends to winnow down the six alternatives to one or two alternatives by mid-2018—without a thorough review of the environmental impacts of each alternative and without meaningful public input.

These in-water barriers are billed as protecting against "storm surge"—the above-normal, temporary rise of sea level produced by a coastal storm—and would have gates that allow for ship transit and for limited tidal movement in fair weather.

The barriers likely would restrict migrations of striped bass, Atlantic sturgeon, herring, shad, eel and other species essential to the Hudson estuary. The barriers would prevent the ocean tide from flushing NY Harbor, causing contamination to concentrate there. The barriers could restrict rainstorm flood waters, like those we experienced during Irene and Lee in 2011, from leaving the Hudson, the Harbor and the City area.

The New York City Economic Development Corporation (NYCEDC) 2013 report, "A Stronger, More Resilient New York," states that a strategy using barriers "would pose significant risks to the city that far outweigh its theoretical benefits." (A more recent report, "One New York: The Plan for a Strong and Just City," has a chapter on "Coastal Defense," at page 244.)

The fundamental flaw is that the storm surge barriers do not address the bigger problem of sea level rise. In its report, NYCEDC states that "since the barriers would be open most of the time (to allow navigation), it would represent a major public investment that would end up doing nothing to address the growing problem of rising sea levels."

Barrier projects throughout the harbor would cost an estimated \$10 billion to \$36 billion to build, and \$100 million to \$2.5 billion to maintain every year (a project of this scale generally exceeds the estimated cost). ACOE has said that maintenance and operation costs would not be covered by the federal government. The endless billions spent on giant in-water barriers would not be available to fund urgently needed shoreline protections, which can be built one at a time, starting now. On-shore measures require a fraction of the maintenance cost, and are necessary to protect communities from sea level rise, regardless of whether offshore barriers are built.

Because of sea level rise, future storms will eventually over-top the offshore barriers being considered by ACOE. And when these storms and tides flow over the barriers it will be money down the drain as the complex system of gates and walls cannot be easily modified or heightened the way individual shoreline walls or levees can.

As sea level steadily rises, the gates will need to close more frequently because, with progressively higher average sea level, smaller storms will trigger closure of the gates. The slow but sure strangulation of the river will ensue.

The ACOE is considering what it has labeled Alternatives 1, 2, 3A, 3B, 4 and 5. Alternative 1 is "No Action." Alternatives 2, 3A, 3B and 4 involve outer and inner harbor barriers that almost entirely block either the Hudson or tributaries. Alternatives 2 and 3A—involving barriers from Sandy Hook to Rockaway, or across the Verrazano Narrows, respectively—likely would diminish the Hudson and the Harbor over time. Alternatives 3B and 4, while they spare the Hudson, would kill various tributaries to New York Harbor.

Only Alternative 5 offers shoreline-based floodwalls and levees. It would protect low-lying communities from both storm surge and flooding from rainstorms like Irene and Lee, while leaving rivers to flow naturally, as they have for millennia.

The comment period runs 30 days, through August 20, 2018. Comments may be submitted to Nancy J. Brighton, Chief, Watershed Section, Environmental Analysis Branch, Planning Division, U.S. Army Corps of Engineers, New York District, 26 Federal Plaza, New York, Room 2151, NY 10279-0090, or via email to NYNJHarbor.TribStudy@usace.army.mil.

Heat, Wildfires and Flooding: U.S., Japan, Siberia

In the first half of 2018 there have been 24,760 wildfires in the U.S. Over a decade such fires caused in excess of \$5 billion in damages. Currently there are wildfires burning in AZ, CO, ID NE, NM, TX, UT, WA, WY and MT. This is the worst fire season in over a decade and given the heat and drought it is predicted to worsen.

Japan is experiencing record heat (nearly 106 F) just weeks after record rainfall and flooding. The weekslong heat wave also afflicted the Korean Peninsula where at least 10 heat-related deaths were recorded. At least 21 people have died from heatstroke in Japan while thousands have been taken to hospitals for heat-related reasons, with no relief in sight for the rest of the week.

The heat has added to the suffering caused by deadly floods two weeks ago in southwestern Japan. The floods killed 225 people and roughly 4,500 are in temporary shelters. The heat has exacerbated the task of clearing debris and shoveling mud from flood-stricken areas and increased the risk of heatstroke.

Two million people were ordered evacuated from areas along the western coast of Japan. Typhoon winds and raging floodwater caused disruption and misery, which will not abate anytime soon.

Siberia experienced temperatures in excess of 90 degrees in early July. Permafrost may no longer be “perma” nor “frost.” I’ve already written of the dangers of melting permafrost as it releases both CO₂ and methane.

Washington

Trump’s nominee to the Supreme Court, Judge Kavanaugh, is especially troubling to those who care about climate change. Justice Kennedy was a moderate swing vote in big environmental cases and voted with the Court’s four-member liberal wing in *Massachusetts v. Environmental Protection Agency*, giving EPA the authority under the Clean Air Act to regulate GHG.

Congress had originally crafted that clean air law in the 1970s, before climate change was a major policy concern. But the Supreme Court ruled that greenhouse gases fit within the act’s “capacious definition of ‘air pollutant,’” finding that the law was flexible enough to deal with problems that lawmakers hadn’t specifically anticipated at the time.

Kavanaugh strongly disagrees. In 2012 he dissented from a DC Circuit Court decision upholding several Obama-era greenhouse gas regulations. Kavanaugh argued that EPA had “exceeded its statutory authority” and lacked explicit guidance from Congress. “The task of dealing with global warming is urgent and important,” he wrote, but “As a court it is not our job to make policy choices.” He went on to note that “EPA went well beyond what Congress authorized” in crafting a greenhouse gas permitting program.

Kavanaugh likely influenced the Supreme Court’s conservative justices who later overruled the lower court and voted 5-4 to strike down parts of EPA’s permitting program that Judge Kavanaugh found troubling.

In other cases, however, Judge Kavanaugh went even further than the Supreme Court’s conservative wing was willing to go. In *E.M.E. Homer City Generation v. Environ-*

mental Protection Agency, he wrote a majority opinion for the D.C. Circuit Court striking down a federal program to regulate air pollution that crossed state boundaries. The Supreme Court later took up the case and overruled him 6-2, with Justice Kennedy and Chief Justice Roberts voting to uphold the pollution rule.

Pruitt

Pruitt is unlikely to leave much of a legacy. In his haste to undo government rules he failed to follow important procedures, leading to poorly crafted legal efforts that have been and likely will be struck down in court.

Six of Pruitt’s efforts to delay or roll back Obama-era regulations, including pesticides, lead paint and renewable-fuel requirements, have been struck down by the courts. Pruitt also backed down on a proposal to delay implementing smog regulations and another to withdraw a regulation on mercury pollution.

The courts found that EPA had ignored clear legal statutes when they ruled that Pruitt had illegally delayed a regulation curbing methane emissions from new oil and gas wells and that the agency had broken the law by missing a deadline last year to enact ozone restrictions.

In other cases, including one in which a federal court ordered EPA to act on a Connecticut request to reduce pollution from a Pennsylvania power plant, and one where judges demanded quick action from the agency on new lead paint standards, the courts warned Pruitt that avoiding enacting regulations already on the books was an unacceptable and unjustified effort to repeal a rule.

One of the chief examples of Pruitt’s ill-advised efforts came when EPA filed its legal justification for what may be the Agency’s largest attempted: undoing of an Obama-era regulation aimed at cutting pollution of GHG from vehicle tailpipes.

The rules Pruitt targeted required automakers to nearly double the average fuel economy of passenger vehicles to 54.5 miles/gallon by 2025. Automakers argued the rule is onerous, forcing them to invest heavily in building hybrid and electric vehicles.

Pruitt filed a 38-page document as the government’s legal justification for rolling back the rule. But the document lacked supporting legal, scientific and technical data that courts expect when considering challenges to regulatory changes. About half the document consisted of quotations from automakers objecting to the rule. By comparison, the Obama administration’s 1,217-page document justifying its implementation of the regulation included technical, scientific and economic analyses supporting the rule.

Some Good News: Costa Rica and Sweden

Costa Rica is the first nation to ban fossil fuels. It already derives 99 percent of its energy from renewable

sources. The biggest hurdle will be in the transportation industry where demand for cars is growing. Hyundais (a favorite vehicle there) are available completely fossil fuel free. President Carlos Alvarado has set a goal of decarbonizing by 2021. The goal is aggressive and may not be entirely feasible, especially with Costa Rica's current financial issues.

Sweden

Swedish utilities and power generators have already installed so many wind turbines that it is on course to reach its 2030 renewable energy target late this year. By December, Sweden will have around 3,680 wind turbines

installed. Together with second-half investment decisions, this will be more than enough capacity to meet a target to add 18 terawatt-hours of new, renewable energy output by the end of next decade.

The surge in new installations and investment decisions has become a concern for existing power producers who rely on subsidies to make their projects financially viable. Forward prices in the renewable certificate market are 70 percent lower for 2021 than a year earlier because of all the new installations.

Fun Fact: Queens College, Cambridge, divested its 86 million pound endowment from fossil fuels.

NYC/East Coast; Facts on the Ground; Good News NY/CA; Washington; Deforestation; Black Carbon; and Fuel Efficiency Standards Rollback

By Carl Howard

NYC/East Coast

Global Weirding is an oft-used and apt depiction of altered weather patterns from what we are used to and what homo sapiens evolved with. Tornadoes were a rare event in New York City and the East Coast but they are occurring now with some frequency. One hit New York City on Aug 6 in College Point, Queens. A few days earlier, a stronger tornado was near Douglas, in central Massachusetts. And a few days later a whirlwind hit nearby Webster, displacing dozens of people from their damaged homes.

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Facts on the Ground

Flash floods swept through NY (Broome County, Vestal; Lodi) and NJ (Little Falls, Wayne, Bogota, Brick, and Woodland Park) this month leading to states of emergency in five counties in NJ (including Passaic, Essex, Morris and Monmouth) and in NY (Monroe, Delaware, Seneca, Yates and Ontario) and evacuations across the regions.

Elsewhere, Europe is baking as is South Asia, New Delhi in particular, and much of Africa. Record-breaking wildfires continue in California. The Mendocino Complex Fire has burned 283,000 acres thus far. CA is only in the middle of its fire season with the worst fires often occurring later in the year as the land becomes increasingly dry and weather patterns create windy conditions. The Mendocino Fire overtook last year's Thomas Fire which destroyed nearly 282,000 acres. The Mendocino Fire has destroyed about 140 structures. Another fire, the Carr Fire, also in Northern California, has killed seven people and destroyed more than 1,600 buildings. It is the 12th largest in California history, at about 164,000 acres. Of the 20 largest wildfires in CA, about half have come in the last decade.

Record-breaking wildfires—460 in one day—burn in British Columbia, and the worst forest fires in decades burns in Sweden, even extending north of the Arctic Circle where temperatures this month reached 86 F. Record-breaking rainfall in Japan was followed by record-breaking heat—106 degrees in Kumagaya, northwest of Tokyo with dozens of heat-related deaths. Heat-related mortality is projected to increase fivefold in the U.S. by 2080, and 12 times in less wealthy countries such as Philippines. Record-breaking heat occurred in Death Valley (127 F), and the worst drought in living memory grips Eastern Australia, and so on.

In the northernmost latitudes, where the climate is warming faster than the global average, temperatures have been the most extreme. The closer a community is to the Arctic Circle, the more this summer's heat stood out in the temperature record. A number of cities and towns in Norway, Sweden and Finland hit all-time highs this summer, with towns as far north as the Arctic Circle recording nearly 90-degree temperatures.

Not only is much of northern and western Europe hotter than normal, but the weather is also more erratic. Torrential rains and violent thunderstorms have alternated with droughts in parts of France. In the Netherlands, a drought—rather than the rising seas—is hurting its system of dikes because there is not enough fresh water countering the seawater.

Temperatures that used to be outliers—like those in the summer of 2003 when over 70,000 people died across Europe—will become the norm for summer in our lifetimes. Heat waves could push temperatures in Europe toward 120 degrees.

In Switzerland, where cattle are led to graze in high pastures in summer, drought has stranded cows without

water. Farmers have turned to the country's helicopter association and the Swiss Air Force to transport tens of thousands of gallons of water every week to keep the herds alive. The helicopters are running 30 to 40 trips a day, transporting 250 gallons on each run.

In France, this July was one of the three hottest on record—and subtle changes are taking place countrywide. Among them are rising sea levels. Even if we achieve the goals of the Paris climate accord and stabilize the temperatures at two degrees C higher than in the preindustrial era, the level of the sea will continue to rise for many hundreds of years. There are coastal cities that are already condemned. Among them are areas of the Camargue on the Mediterranean, in Brittany both on the English Channel and along the Atlantic coast and in the Vendée and Gironde, the area near Bordeaux. In some places, that is already affecting land and house values as well as bird habitats.

In England, as in almost all of Europe, growing patterns are changing. The drought has increased food prices, and staples may be in short supply this fall. The drought in Ireland means that income for dairy farmers is likely to be cut in half this year.

Globally, 2018 is on track to be the fourth-hottest year on record with the three previous years being the only hotter ones. That string of records is part of an accelerating climb in temperatures since the start of the industrial age that scientists say is clear evidence of climate change caused by GHG emissions. The trend is clear, 17 of the 18 warmest years since modern record-keeping began have occurred since 2001. Nor are we going to reach a plateau, the warming will continue without stop as long as we continue to pour GHG into the atmosphere.

Warming has consequences. Harvests of staple grains like wheat and corn are expected to dip this year, in some cases sharply, in countries as varied as Sweden, Britain, Germany and El Salvador. In Europe, nuclear power plants shut down because the river water that cools the reactors was too warm. Heat waves on four continents crashed electricity grids.

Good News NY/CA

New York and California combined to authorize almost \$1 billion in spending aimed at speeding the roll-out of necessary charging stations, marking significant investment into electric vehicle infrastructure. The California Public Utilities Commission approved \$738 million in transportation electrification projects for the state's three big investor-owned utilities. Gov. Cuomo launched EVolve NY, a new \$250 million electric vehicle expansion initiative in partnership with the New York Power Authority (NYPA).

New Jersey utility PSEG also announced plans to spend \$300 million on EV infrastructure as part of a

multi-billion dollar clean energy and grid investment plan.

To get to a largely carbon-free California it must substantially electrify its transportation system. In addition to project budgets, the commission approved almost \$30 million for program evaluation. The commission preserved an optional dynamic electricity rate for customers who charge their electric cars when clean energy is abundant and helps grid operators more accurately balance supply and demand.

Gov. Cuomo said NYPA's EVolve NY aims to "make driving an electric car a viable choice and an affordable option."

NYPA will commit an initial \$40 million, and up to \$250 million over the next seven years, as well as develop private-sector partnerships to attract investment. Funding will be awarded through the state's competitive procurement process.

The initial \$40 million will be allocated to three programs through the end of next year: one aimed at developing interstate fast chargers, another aimed at airport infrastructure, and the third to develop EV model communities that would include a utility-managed charging platform.

The interstate project would identify and install up to 200 fast chargers along key interstate corridors, ideally set every 30 miles.

While electric vehicles have so-far been a tough sell to the public at large, they are widely seen as a key strategy to reducing energy emissions. A 2017 report forecast 7 million on the road by the end of 2025.

In addition to the California and NY announcements, PSEG said Thursday it will spend \$300 million to build "smart" electric vehicle infrastructure as part of its plan to invest "\$2.9 billion in energy efficiency and other programs that will reduce energy bills and combat climate change."

And Google spinoff Waymo announced it would greatly expand its self-driving fleet, after reaching a deal with Fiat Chrysler Automobiles for more than 60,000 minivans. The Chrysler Pacifica minivans are plug-in hybrids.

Deforestation

To decrease growing concentrations in the atmosphere of GHG we need to be pulling carbon out of the air. The only real way to do this on a sizable scale is via the natural process of photosynthesis. And the largest concentration of trees and vegetation is in the world's tropical forests. So, how are we doing in terms of protecting them? Poorly.

Tropical forests suffered near-record tree losses in 2017. In Brazil, forest fires set by farmers and ranchers to clear land for agriculture raged out of control last year

wiping out more than three million acres of trees as the region experienced a severe drought. Those losses undermined Brazil's recent efforts to protect its rain forests. This may be the new normal, where fires, deforestation, drought and climate change all interact to make the Amazon more flammable.

In Colombia, a landmark peace deal between the government and the country's largest rebel group paved the way for a rush of mining, logging and farming that caused deforestation in the nation's Amazon region to spike last year.

In the Caribbean, as we approach a new hurricane season, hurricanes Irma and Maria flattened nearly one-third of the forests in Dominica and a wide swath of trees in Puerto Rico last summer.

In all, the world's tropical forests lost roughly 39 million acres of trees last year. That made 2017 the second-worst year for tropical tree cover loss in the satellite record, just below the losses in 2016.

Trees, particularly those in the lush tropics, pull carbon dioxide out of the air as they grow and lock that carbon in their wood and soil. When humans cut down or burn trees, the carbon gets released back into the atmosphere, warming the planet. By some estimates, deforestation accounts for more than 10 percent of humanity's carbon dioxide emissions each year.

Indonesia may be a bright spot where a government crackdown on deforestation may be showing early signs of success. Over the past several decades, Indonesia's farmers have been draining and burning the country's peatlands—thick layers of partially decomposed vegetation that hold enormous stores of carbon—to grow crops like palm oil. But in 2015, amid a strong El Niño and severe dry spell, the country had its worst fire season in decades, blanketing Southeast Asia in deadly smoke and releasing huge amounts of carbon.

In 2016, Indonesia's government imposed a moratorium on the conversion of peatland, while Norway pledged \$50 million for enforcement. Early signs are encouraging: primary forest loss on Indonesia's protected peatland dropped 88 percent in 2017, to the lowest level in years. Still, experts said, the real test of success may come when the next El Niño hits.

Less expected is the harm to freshwater fish due to warming waters and excessive run-off from dried vegetation, fire and heavy bursts of rain. The Rhine and Elbe rivers absorbed so much heat that fish began to suffocate. In Hamburg, authorities collected almost five metric tons of dead fish from ponds and firefighters pumped fresh water into some ponds and lakes hoping to raise oxygen levels.

Wildfires may well be the single greatest agent of deforestation worldwide. The destruction of natural habitat,

the devastation of human habitation, the dislocation of large numbers of people, the disruption of commerce and the draining of government resources were all on scales in 2017 that we have not experienced before.

For the U.S., 2017 was the second worst for wildfires in over 60 years, with 10 million acres burned, exceeded only by 2015, when about 10.1 million acres burned.

While we naturally focus on the immediate loss of lives, the full toll may not be so immediate. Recent epidemiological research following the enormous fires in Indonesia in the past few years suggests that lung disease from smoke and particulate matter inhalation may have caused over 100,000 additional premature deaths across Indonesia, Malaysia and Singapore.

A dangerous, large-scale feedback loop that promotes wildfires has emerged. Forests, woodlands and grasslands hold much of Earth's terrestrial carbon. When they burn, more carbon dioxide is released, increasing concentrations in the atmosphere and causing land and sea surface temperatures to rise. This warming increases the likelihood of even more widespread and intense fires and exacerbates the severe weather and sea level rise we are now beginning to experience.

What has been particularly worrisome in recent years is that the world's largest forests, the taiga of Russia and its boreal forest cousins that ring the Arctic and store much of the world's carbon, experienced wildfires at a rate and scale not seen in at least 10,000 years.

The explosive rise in wildfires has occurred for two major, interrelated reasons: climate change and human behavior. As land surface temperatures rise, there has been a general warming across all seasons, with intense periods of heat during the warmest parts of the year, longer intervals without rain and marked reductions in relative humidity. Heat waves and droughts cause vegetation to dry into combustible fuels, enabling small fires to become widespread infernos. Research on wildfires in the U.S. over the past 20 years found that 84 percent were started by people, accounting for 44 percent of the land burned.

Black Carbon

Add to this the fact that immense fires release black carbon, soot, particulates, into the atmosphere. When black carbon blankets arctic ice it absorbs heat and hastens melting. This is yet another dangerous positive feedback loop as the more melting the more exposure of dark water, which absorbs more heat which melts more ice, and the more the earth warms the more likely to be forest fires releasing black carbon.

Unlike greenhouse gases, black carbon is a climate forcer you can see and feel. Not only does it warm the atmosphere by absorbing sunlight—it's also dark soot that's deposited onto ice and snow, speeding melting.

Black carbon stays in the atmosphere for just days to weeks, but it does lasting damage. The contribution to warming by one gram of black carbon is 100 to 2,000 times more than one gram of CO₂ on a 100-year timescale. As much as a quarter of Arctic warming is caused by black carbon. Another 2015 study found that, like methane, black carbon is responsible for about a half a degree Celsius of warming in the Arctic.

Black carbon comes from natural sources like forest fires and is also driven by human activities like the production or burning of fossil fuels, biofuels and biomass. Wood burning, diesel engines and cook stoves are also big sources. What all these have in common is inefficient combustion—the type that creates black, particle-filled smoke.

Black carbon can be transported to the Arctic from more populated and industrial areas further south, but local emissions also make a big difference. About a third of Arctic warming traced to black carbon is from emissions from Arctic countries.

Flaring of natural gas—more commonplace in the Arctic where there is less available infrastructure to capture and transport natural gas associated with oil drilling—can be a major source. A 2013 study found that that gas flaring contributes less than 3 percent of global black carbon emissions globally, but flaring in the Arctic contributes 42 percent of black carbon found on the ground.

As the Trump administration advances plans to open up the Arctic National Wildlife Refuge and the offshore waters of Alaska to drilling—and as decreasing sea ice increases options of Arctic drilling—that could increase in black carbon emissions.

Less ice in the Arctic will lead to more ship traffic on formerly ice-clogged routes. As shipping increases, so will emissions from heavy fuel oil—known as bunker fuel—that powers most of the region's ships. In 2010, the International Maritime Organization outlawed the thick fuel in Antarctica, but it is still allowed in the Arctic.

Washington

In the final hours of Scott Pruitt's tenure as administrator, the EPA moved to effectively grant a loophole that would allow a major increase in the manufacturing of a diesel freight truck that produces as much as 55 times the air pollution as trucks that have modern emissions controls. Fitzgerald Glider Kits sells trucks that use old engines built before modern emissions standards. A 300-unit cap per manufacturer that was imposed in January will no longer be enforced by the EPA.

The move by the EPA came after intense lobbying by a small set of manufacturers that sell glider trucks, which use old engines built before new technologies significantly reduced emissions of particulates and nitrogen oxide that are blamed for asthma, lung cancer and other ailments.

It was just as strongly opposed by an unusual alliance of public health groups like the American Lung Association, environmental groups like the Environmental Defense Fund and major industry players like United Parcel Service, the largest truck fleet owner, and Volvo Group, one of the largest truck manufacturers.

The glider truck concept began so the engines of relatively new trucks that had been involved in accidents could be transferred to new truck bodies. But as the emissions control requirements went into effect in recent years, companies like Fitzgerald Glider Kits of Crossville, Tenn., began to attract thousands of buyers from around the United States that wanted to evade the new rules, getting trucks they argued were cheaper to run.

Fitzgerald made about 3,000 of these trucks in 2017, a production rate that it will now be allowed to return to. An estimated 10,000 glider trucks were sold nationally in 2015—about 4 percent of new heavy-duty truck sales—and production could soon return to that level.

One year's worth of truck sales was estimated to release 13 times as much nitrogen oxide as all of the Volkswagen diesel cars with fraudulent emissions controls, a scheme that resulted in a criminal case against the company and more than \$4 billion in fines.

Mr. Pruitt had championed the rollback, claiming that the EPA did not have the legal authority to force companies like Fitzgerald to significantly reduce production of glider trucks. But that move came only after Fitzgerald donated tens of thousands of dollars to Representative Diane Black, Republican of Tennessee, who is a candidate for governor there, and who asked Mr. Pruitt to reverse the rule.

The U.S. Court of Appeals for the District of Columbia temporarily blocked EPA from lifting the limit on the number of remanufactured "glider trucks" that could be sold.

Fuel Efficiency Standards Rollback

President Trump's recent proposal to weaken fuel-efficiency standards for cars and light trucks could be his most consequential climate-policy rollback yet, increasing GHG emissions in the U.S. by an amount greater than many midsize countries emit in a year.

Assuming the plan is finalized and survives legal challenges, America's cars and trucks would emit an extra 321 million to 931 million metric tons of CO₂ into the atmosphere between now and 2035 as a result of the weaker rules. Another study estimated the number even higher, at 1.25 billion metric tons. To put that in context, the extra pollution in 2035 alone would be more than the current annual emissions from countries like Austria, Bangladesh or Greece.

The fuel-economy rollback could have a bigger effect on emissions than either Trump's attempts to repeal the

Clean Power Plan—a federal rule to curb pollution from coal-fired power plants—or his efforts to scale back regulations on oil and gas operations that release methane, a potent GHG, into the atmosphere.

There's a simple reason for that. Many states have already been making impressive headway on cleaning up their power plants, thanks to a glut of cheap natural gas (which is pushing coal plants into retirement) and the falling cost of wind and solar power. CO2 emissions from the U.S. electricity sector are now on pace to fall below the targets envisioned in the original Clean Power Plan.

But pollution from cars and trucks has proved much trickier for states to take on. Transportation now accounts for a third of America's CO2 emissions, surpassing power plants as the largest source, and vehicle emissions have been steadily rising over the past few years. Federal fuel-economy standards were widely seen as a vital tool for curbing gasoline use.

The Obama-era rules granted California permission to set up a separate, more ambitious program to mandate more zero-emission cars on the road. Nine other states in the Northeast have adopted that program, which would require roughly 8 percent of new vehicles sold in-state to be plug-in hybrid, electric or hydrogen fuel cell models.

The Trump proposal plans to challenge California's authority to mandate zero-emissions cars and to halt the clean vehicle program, which could dramatically slow the adoption of electric vehicles around the country in the near term. The zero-emissions vehicle waiver has been the biggest catalyst to date in bringing electric vehicles to market.

While many manufacturers have been developing new electric car models in response to the ever-rising fuel economy standards, it's not clear how many would completely pull back if the standards were frozen. China and Europe are continuing to push hard on fuel efficiency and battery-powered vehicles, and automakers have those international markets to consider.

Vowing to defend California's authority to set its own greenhouse gas emissions rules, Gov. Jerry Brown said the state would fight the new EPA plan.

After months of discussion and drafts, the EPA and the National Highway Traffic Safety Administration formally unveiled their plan to rewrite those rules and replace them with ones so lax that even automakers are wary.

EPA officials sought to portray the proposal as the administration's opening bid in a negotiation with California. State officials, however, loudly denounced the plan as too extreme and threatened to fight it in court. California and the 13 other states that follow its more stringent

rules argue the Clean Air Act empowers them to keep the Obama-era standards in place in their markets. Together, these 14 states account for more than a third of the vehicles sold nationwide.

The rollback would undermine those states' efforts to meet commitments the U.S. made in the Paris agreement on climate change. It would also worsen air quality problems in Southern California and other areas where officials are already struggling to clean smog and ease rates of asthma and other illnesses.

The administration asserts that the fuel economy rules should not be used to attempt "to solve climate change, even in part" because such a goal is "fundamentally different" from the Clean Air Act's "original purpose of addressing smog-related air quality problems."

The existing federal fuel economy targets, which were championed by California, ensure automakers keep moving toward higher efficiency vehicles, as other nations also require. Those rules require automakers to meet fleet-wide averages of more than 50 mpg by 2025, which when factoring in credits and other flexibility options, translates to about 36 mpg in real-world driving conditions.

In comparison, the Trump proposal would freeze real-world fuel economy at about 30 miles per gallon in 2020 for six years.

The emissions impact of freezing those targets, as the administration favors, could be enormous. Official projections show the plan would increase daily fuel consumption about 500,000 barrels per day, increasing GHG emissions and contributing to the rise in global temperatures.

The proposal would increase U.S. fuel use 20 percent by 2035. The policy would cost the U.S. economy \$457 billion and cause 13,000 deaths by 2050, as air quality suffers. Federal data show the increased cost consumers would pay for the more efficient vehicles is dwarfed by the amount of money they would save at the pump, undermining the argument that drivers will stay in older, unsafe vehicles, advocates for the tougher rules say.

Trump administration officials conceded that labor, parts and other costs—not fuel economy rules—are the main reason cars and trucks are getting more expensive. Automakers have confirmed they can build lighter cars to meet tougher emissions standards without sacrificing safety.

Negotiations have gone nowhere. California is confident the administration has no legal authority to revoke the waiver the state has been granted under the Clean Air Act allowing it to keep the Obama-era rules in place. In May, California and 16 other states filed a preemptive lawsuit arguing the rollback would be illegal.

Facts on the Ground—Typhoons and Hurricanes; Recommended Reading; Climate Change, Agriculture and Immigration; Fracking; Good News; Washington

By Carl Howard

Climate change is a clear and present danger to every person on earth. It doesn't matter who you are, where you are or how wealthy or protected you think you are. You are vulnerable. Whether the danger is by fire, rain, flood, drought, blizzard, ice storm or loss of power or access to food and water, no person and no place is immune. The danger may be lethal, it may be economic, it may be ruinous or merely disabling. Wealthy persons and nations may be better able to recover, but we are all in harm's way.

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Facts on the Ground—Typhoons and Hurricanes

Florence was as deadly and destructive as predicted. The combination of rising and warming seas around the world is producing the forecast stronger more destructive more deadly storms.

As Florence approached the east coast as a Category 4 hurricane, the governors of North Carolina, South Carolina, Virginia, Georgia, and Maryland, and the mayor of Washington, D.C. declared a state of emergency and issued evacuation orders affecting about 1.5 million people. Mandatory evacuation orders were issued in NC, SC and VA as no rescue would be possible in some coastal areas.

The large-scale flooding affected much of NC's agricultural industry and proved particularly damaging to livestock. Around 3.4 million chickens and turkeys and 5,500 hogs died in flooded farms. Dozens of farms remained isolated with animals unable to be fed. Piles of manure stored at these farms were swept into swollen rivers, and about a dozen pits holding animal waste were damaged by the flooding.

On September 16, approximately 5 million gallons of partially treated wastewater spilled into the Cape Fear River after a treatment plant lost power. An estimated 2,000 cubic yards of coal ash from the closed Sutton Power Station near Wilmington was also swept into the river. Torrential rains from the storm itself, estimated at 30 inches, also caused a swamp to spill into the cooling pond. On September 19, the H.F. Lee Energy Complex in Goldsboro flooded to the point where their three ponds were completely underwater and began releasing coal ash into the Neuse River. On Sept 21, Duke Energy reported that a dam containing a large lake at a Wilmington, NC power plant had been breached by floodwaters. They said it's possible coal ash from an adjacent dump was flowing

into the Cape Fear River. Many rivers in NC were still rising on Sept 25, nearly two weeks after the first impacts of the storm were felt.

Despite making landfall as a weakened Category 1 hurricane, Florence still had enough wind speed to uproot trees and cause widespread power outages to more than 500,000 customers throughout the Carolinas. Florence stalled for several days after making landfall moving forward at only 2–3 mph the storm continually dumped heavy rain along coastal areas from September 13 to September 15. Coupled with a large storm surge, this caused widespread flooding along a long stretch of the North Carolina coast, from New Bern to Wilmington. As the storm moved inland, from September 15 to 17, heavy rain caused widespread inland flooding, inundating cities such as Fayetteville, Smithfield, Lumberton, Durham, and Chapel Hill, as major rivers such as the Neuse, Eno, Cape Fear, and Lumber River all spilled over their banks. Most major roads and highways in the area experienced some flooding, with large stretches of I-40, I-95, and U.S. Route 70 remaining impassable for days after the storm had passed. The city of Wilmington was cut off entirely from the rest of the mainland by floodwaters. The storm also spawned tornadoes in several places along its path. Many places received record-breaking rainfall, with more than 30 inches measured in some locations. At least 40 deaths were attributed to the storm, and damage is currently estimated at more than \$17 billion.

Meanwhile, in Asia, the Philippines and China were hit by Typhoon (the term for hurricanes in Asia) Mangkhut. While hurricanes in the Atlantic and South China Sea are not unusual, it is the enhanced power and destructive capabilities of more recent storms which set them apart and enable climatologists to link the devastation of these storms to climate change.

In the Philippines, perhaps 100 people were killed including 33 miners and at least 29 were missing after a landslide hit a mining site. More than 750 buildings were destroyed. The Typhoon blew into China with winds in excess of 110 mph and sea surges of 12' causing more deaths, over 200 injuries, and the evacuation of more than 2.5 million people in Guangdong and on Hainan island. In Hong Kong, the storm wrecked buildings, blew out windows and shut down the city. Apartments swayed in the wind and scaffolding crashed to the ground. Transport services were suspended, around 900 flights were cancelled, trains stopped and major roads closed. The

economic cost of the typhoon will be severe as there is extensive damage to farmland in Cagayan, a key agricultural province. Only about a fifth of produce there had been harvested in advance—threatening staples like rice and corn. Fortunately, preparation and evacuation procedures have improved since Super Typhoon Haiyan in 2013, which killed more than 7,000 people.

In early September, Typhoon Jebi, the strongest storm to hit Japan in 25 years, had wind speeds up to 130 mph. More than 16,000 people in nine cities were ordered to evacuate with over a million more advised to do so. In July, Japan experienced lethal floods and landslides killing over 200 people, as well as deadly heatwaves killing more than 130 people.

Hawaii too was hit by unusually heavy rainfall. The surrounding waters generally are cool so storms typically do not hit the islands. But a Category 5 storm approached Hawaii in August and hit the islands as a tropical storm still powerful enough to drop nearly four feet of rain on the big island of Hawaii causing landslides that closed roads and hampered rescue efforts. At Hilo International Airport, rainfall over three days totaled nearly 32 inches—the wettest three-day period on record. An earlier storm in April had dropped 50 inches of rain in a single day on Kauai.

Recommended Reading

I recommend *The Water Will Come* by Jeff Goodell. Indeed, the waters have come and will continue to come. Goodell writes about Miami, a major U.S. city underlain by porous limestone. In Al Gore's *Inconvenient Sequel* movie, you see Gore standing in water up to his knees at regular high tide on a Miami city street. The water has come. The governor of Florida, Rick Scott, is dealing with the problem of climate change by barring state employees from using the term. At some point, sooner than one might think, the realization will set in that Miami cannot be saved. Then what? I'm still looking for studies as to the domino repercussions from such a fall. (Please advise if you know of any.)

Last week I was 300 feet underground crawling through a tunnel in Mammoth Cave, KY when I had a realization. I was crawling through the same type of porous limestone that is allowing the sea to come up at high tide and flood Miami. But the fact that I was able to hike, crawl and slither five of the 400 miles of underground tunnels in that cave system (the largest in the world) shows that the water, after contact with CO₂, became sufficiently acidic to erode the soft limestone. I realized that Miami is not only flooding, it is being undercut as well. And the level of CO₂ in the atmosphere hundreds of millions of years ago that created Mammoth Cave was orders of magnitude lower than it is today. Miami's foundation is being eroded by increasingly acidic water which is dissolving the underlying limestone. The more

one considers the perils of climate change, the more daunting the findings.

Climate Change, Agriculture and Immigration

The impacts of climate change on agriculture and immigration are two of the more pressing concerns I have been addressing. I've noted that increased heat has been reducing crop yield globally, that this has contributed to the dramatic rise in refugees and immigration which has led directly to tensions between countries and the rise of ultra-right-wing parties in Europe and the U.S. New studies suggest that these dangerous trends are intensifying and undercutting the foundational blocks supporting human civilization: Political Stability, and Food and Sustenance from Land.

"Climate change is predicted to increase the amount of damage insect pests do to human crops, which could lead to increased use of pesticides."

Climate change is predicted to increase the amount of damage insect pests do to human crops, which could lead to increased use of pesticides. Pests such as the corn earworm, the grain weevil and the bean fly consume about 20 percent of human crops. For every degree Celsius (1.8 degrees Fahrenheit) that temperatures rise above the global historical average, the amount of wheat, corn, and rice lost to insects increases 10 to 25 percent (these crops account for 42 percent of the calories directly consumed by humans). Temperate agricultural regions, like those in the U.S. and Western Europe, would be at the high end. And with warming likely to increase 4C by the end of the century—that amounts to insects eating two of every eight loaves of bread that otherwise would have been produced. With population growth expected to reach 18 billion by 2100, there likely will be severe scarcity in many parts of the world and millions of additional refugees.

Higher temperatures will also harm thirsty crops regardless of insect activity. Increased summer temperature leads to significant declines in agricultural yields. This summer's European heat wave, which is in keeping with patterns of climate change, reduced Germany's grain production by roughly 20 percent.

In addition, pesticides harm other organisms, and some have been linked to human health problems. Their manufacture, transport and use also contribute to climate change.

Yet another concern is that rice grown in higher levels of carbon dioxide isn't just warming the planet, it's also making some of our most important crops less nutritious by changing their chemical makeup and diluting vitamins and minerals.

The potential health consequences are large, given that there are already billions of people around the world who don't get enough protein, vitamins or other nutrients in their daily diet.

In a test, the 18 varieties of rice that were grown and harvested with elevated levels of CO₂ contained significantly less protein, iron and zinc than rice that is grown today. All of the rice varieties saw dramatic declines in vitamins B1, B2, B5 and B9, though they contained higher levels of vitamin E. More than 2 billion people worldwide rely on rice as a primary food source.

A prior 2014 study found that elevated levels of CO₂ reduced the amount of zinc and iron found in wheat, rice, field peas and soybeans. In both studies, researchers installed pipes that emitted carbon dioxide onto small open-air plots—rather than simply testing crops in enclosed greenhouses—to simulate future real-world conditions.

The finding that extra CO₂ can make crops less nutritious may sound counterintuitive. Plants, after all, rely on CO₂ as an ingredient for photosynthesis, so it seems like more CO₂ should be beneficial, helping them grow. But what scientists have also found is that the chemical composition of a plant depends on the balance of the CO₂ absorbed from the air and the nutrients from the soil. Upset this balance and the plant can change in unexpected ways.

Currently, the level of CO₂ in the atmosphere is about 410 parts per million, up from 350 ppm in the 1980s, largely from the burning of fossil fuels. In the rice study, the researchers looked at how crops responded to levels of around 580 ppm, which is predicted this century absent drastic changes.

Scientists expressed surprise that food became less nutritious with more CO₂, but also say we should continue to expect surprises. We are completely altering the biophysical conditions that underpin our food system, and we still have very little understanding of how those disruptions will ripple through ecosystems and affect the environment and human health.

Fracking

The fracking industry is surprisingly unprofitable. While production remains high, and the U.S. remains for the moment "energy independent," the 60 biggest exploration and production firms are not generating enough cash from their operations to cover their operating and capital expenses. In aggregate, from mid-2012 to mid-2017, they had negative free cash flow of \$9 billion per quarter. The financial statements of 16 publicly traded

exploration and production companies reveal that from 2006 to 2014, they had spent \$80 billion more than they received from selling oil. The industry's net debt in 2015 was about \$200 billion, a 300 percent increase from 2005.

While fracking has helped the U.S. reduce its GHG emissions, most environmentalists observe that it both releases far more methane than is popularly understood, and it is slowing our move to carbon-free sources of energy. But if the industry needs substantial subsidization, then the issue is joined more directly as to whether to prop it up or truly commit to renewables.

Good News

California's Gov. Brown signed into law SB 100, which intends to move the state's electrical grid to 100% clean energy power by no later than 2045.

A Global Climate Action Summit occurred in San Francisco in early September. It marked the midpoint between the historic signing of the Paris Agreement in 2015—intended to limit global temperature rise to no more than 2C—and the next meeting in 2020, when countries will bolster their commitments. The summit was an opportunity for leaders to share their successes to date and announce initiatives going forward to meet the goals of Paris. The summit's programming was split into five areas: healthy energy systems, inclusive economic growth, sustainable communities, land and ocean stewardship, and transformative climate investments. Prior to the summit there were marches in San Francisco and in cities around the world for the Peoples Climate Movement in support of "climate, jobs, and justice." Organizers positioned the rallies to demand bold action from leaders and to demonstrate the strength of the American climate movement in the face of Trump's abandonment of global leadership on this issue.

Michael Bloomberg, the United Nation's special envoy for climate action and co-chair of the summit, leads the "We're Still In" partnership with Gov. Brown. The partnership was organized in the wake of Trump's announced withdrawal from the Paris Agreement and includes 17 states and 400 cities that collectively represent the world's third-largest economy and is dedicated to meet the Paris goal.

Orlando, FL intends to wean itself from carbon-based energy. It is experimenting with thousands of ponds all over the city that collect the runoff from Central Florida's frequent downpours. Floating solar panels rise and fall in the water, sending power to the grid. Solar panels power streetlights of which about 18,000 of the 25,000 have been converted to high-efficiency light-emitting diodes.

Algae pools are being tested as a trap of carbon emitted from the city's power plants and transportation system, rather than released into the atmosphere.

Orlando is among the 300 American cities and counties that have reaffirmed the goals of the Paris since Trump announced last year that he intended to withdraw the U.S. from the pact (which cannot be done before the 2020 election). Orlando intends to generate all of its energy from carbon-free sources by 2050. By 2020, solar power is expected to make up 8 percent of the electricity generation of the city-owned utility, which powers much of the metropolitan area, including Universal Studios and SeaWorld, while investor-owned utilities serve neighboring areas.

The municipal utility has installed solar equipment to generate 20 megawatts of power—for roughly 3,200 homes—on places like canopies over parking lots. The city's 280,000 residents contribute an additional 10 mws of solar power from their rooftops.

As an incentive to install solar panels, homeowners receive full retail value for electricity they send to the electric grid, an arrangement known as net metering. The utility also provides discount installation of home solar equipment and is looking at offering batteries to store energy for use at night and/or windless times. While batteries remain costly and stubbornly resistant to improvement over the past decade or so, they are still useful and functional.

Like other cities, Orlando intends to overcome its reliance on dirty coal. About 47 percent of its energy mix comes from two coal plants at the Curtis H. Stanton Energy Center, home also to two generators powered by natural gas. Los Angeles, which also generates municipal power, has proposed replacing its remaining coal plants with natural-gas facilities, which produce half as much carbon as coal plants.

Focusing on power plants addresses only a portion of the GHG problem. In 2017, just over a third of the nation's energy consumption came from the electric power industry, while about half came from the transportation and the industrial sector.

There is also a question as to what 100 percent carbon-free means. In the electricity industry's calculus, it may not mean zero emissions. Often it means buying credits produced from carbon-free power plants elsewhere—a benefit used to encourage development of clean power sources—to offset dirty emissions. This likely is Orlando's only real near-term option.

Natural gas powers the government-run bus system that serves the city and three neighboring counties, and garbage trucks have hybrid engines, reducing the use of gasoline. This reduces, but does not eliminate, carbon emissions. (The police use electric motorcycles which still must be charged, preferably by solar.)

Other city buildings and operations have moved to energy-efficient systems under a mandate to show no consumption from the electric grid—a distinction called

net-zero energy usage—by 2030. Part of the goal is to reduce emissions and electricity use rather than just shifting to power from carbon-free sources.

Orlando has joined with Boston, Chicago and Los Angeles to combine their collective purchasing power to reduce the cost of carbon-free products—including electric vehicles and batteries for electricity storage—by buying in bulk.

Washington

In late August, Trump announced a plan to weaken regulations of coal-fired power plants that President Obama had put in place to reduce U.S. emissions of GHG. The plan promotes old, dirty fuel at the expense of a move toward the cleaner, renewable fuels necessary to limit global warming. The plan would also weaken provisions in the clean air laws designed to regulate pollutants like smog and soot and may cause as many as 1,400 additional premature deaths annually by 2030, as well as many thousands of respiratory infections because of increases in fine particulate matter linked to heart and lung disease.

The Obama plan, finalized in 2015, was designed to help drive down carbon dioxide emissions from power plants by 32 percent below 2005 levels by 2030, and was a crucial component of Obama's pledge at the Paris climate summit meeting in 2015 to reduce America's overall greenhouse gas emissions by more than one-quarter below 2005 levels by 2025. To that end, it set firm targets for each state, but gave those states wide latitude in deciding how to reach them—improving in energy efficiency, switching from dirty coal to cleaner natural gas, building wind farms, and emissions trading among the states. The targets and methods for reaching them were worked out in lengthy, detailed consultation with the states to avoid a one-size-fits-all approach.

The Trump plan sets no hard targets and would limit states to basically a single solution, a so-called "inside the fence line" measure aimed solely at improving the efficiency of existing plants. This could provide incentives for some states to keep aging coal-fired plants running, adding millions of tons of pollutants to the atmosphere each year.

Despite Trumps efforts, because of the abundance and low cost of natural gas, many big utilities have moved away from coal and toward gas. CO2 emissions from power plants have dropped 25 percent to 28 percent below 2005 levels—12 years ahead of the Obama 2030 target date. Improvements in energy efficiency have had a lot to do with that, but so has the switch to natural gas and renewables and the consequent retirement of hundreds of aging, inefficient coal plants. More than 200 such plants, about 40 percent of those in America, have been retired since 2010 or are scheduled to retire. Coal jobs have fallen from nearly 180,000 in 1985 to around 50,000 today.

But Trump continues to promote coal. At a rally in West Virginia he said that coal was the only energy source that could survive a war. “We love clean, beautiful West Virginia coal... And you know, that’s indestructible stuff. In times of war, in times of conflict, you can blow up those windmills, they fall down real quick. You can blow up those pipelines, they go like this,” he said, making a hand gesture. “You could do a lot of things to those solar panels, but you know what you can’t hurt? Coal.”

The Obama plan remains in litigation. The Trump plan will be litigated too. At issue is the government’s duty under the Clean Air Act, which Obama construed expansively to allow a variety of approaches to reduce GHG emissions, and Trump’s coal-centric preference.

Trump also favors prospecting for oil in the oceans. He has proposed exploration in the Atlantic for oil and gas using loud explosive blasts that will seriously harm whales, fish, and other marine life. Extremely loud, underwater explosions, one every 10 seconds, for days or weeks on end is routine for such work.

Following an executive order to open the Atlantic to offshore drilling, the National Marine Fisheries Service (NMFS) is set to permit five companies to begin seismic airgun blasting—an old but controversial technique for detecting reserves of oil and gas. Ships will tow an array of 24 to 36 cannons behind them along with streamers of underwater microphones. The cannons create explosions by releasing pressurized gas, while the microphones detect the echoes of these detonations to pinpoint petroleum deposits beneath the ocean floor.

Each airgun produces up to 180 decibels of noise, making them around 1,000 times louder than typical July

4th fireworks. And each will go off five or six times a minute, for months at a time, from the back of slow-moving ships that crisscross 90,000 kilometers of Atlantic waters from New Jersey to Florida. There is clear evidence that noise of this magnitude kills or perturbs marine life at every scale—from titanic whales to tiny plankton. It “poses an unacceptable risk of serious harm to marine life... the full extent of which will not be understood until long after the harm occurs,” said a group of 75 marine scientists in 2015.

In 2015, Obama considered such a plan but met staunch opposition from scientists and local communities. In response, he banned drilling in the Atlantic and denied six applications for seismic exploration. Trump now seeks to undo the ban by promoting an “America First Offshore Energy Strategy.”

Opposition to airgun testing includes both environmentalists and business interests. Approximately 41,000 businesses and 500,000 commercial fishing families oppose seismic testing. They do so because the blasts can harm and displace fish, greatly reducing the populations that both commercial and recreational fishers depend upon. In other parts of the world, catch rates for species like cod and rockfish have fallen by 50 to 70 percent in the days after seismic tests. The tourism industry can also be affected, since airgun noise can potentially force whales to beach themselves. Tourists do not like to see dying marine mammals on the beach.

The pushback from Congress has been similarly unpolarized. Don Beyer (D-VA) and Frank LoBiondo (R-NJ) recently introduced a bill to the House that would ban seismic testing. (A similar Democrat-led bill has been

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introduced in the Senate.) Beyer, together with John Rutherford (R-FL), sent a letter to Secretary Zinke “urging an immediate halt to the permitting process.” It was signed by a bipartisan group of 103 representatives.

Airgun blasts can injure the internal organs of fish, as well as the hair cells that allow them to hear. It can damage the organs that allow invertebrates, from rock lobsters to giant squid, to maintain their balance. It slows development, induces damaging levels of long-term stress, forces animals to seek shelter instead of feeding, prevents them from spotting predators, drowns out the sounds that they use to attract mates, and stops larvae from finding their way to the right habitats. It disrupts the lives of blue and other giant whales, forcing them to abandon their habitats and increasing the risk of calves being separated from their mothers.

Perhaps most alarmingly, last month, a new study showed that airgun blasts can kill zooplankton—the microscopic animals that form the basis of the ocean’s food webs. After a day of blasts, the number of dead plankton rose by two to three times, and the larvae of krill—the little crustaceans that large whales depend upon—were annihilated. And that experiment involved a single airgun, rather than the large arrays that will be towed by actual ships.

Despite the outcry the first set of blasting permits likely will be issued. This administration does not back off. Many more applications are likely to follow. The Department of the Interior is set to announce a five-year plan for offshore drilling, triggering another 30-day period of public comment. Followed by more litigation.

Facts on the Ground; New IPCC Report; Half a Degree of Warming; Washington

By Carl Howard

Facts on the Ground

Hurricane Michael, a Category 4 storm, left much of the Florida Panhandle in ruins. At least 19 are dead, over one million homes and businesses were without power, four hospitals were closed, 300 patients from storm-damaged hospitals in Panama City were evacuated, and 11 nursing facilities were closed in Florida and one in Georgia.

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It is one of the most powerful storms ever to hit the continental United States leaving a trail of destruction across 200 miles that splintered houses, peeled off roofs and stirred up a terrifying surge of seawater that submerged entire neighborhoods and sent boats careening down city streets. Winds topped 155 miles per hour. People huddled, terrified, in stairwells, basements and bathrooms, often in the dark, listening to the howling wind and pelting rain not knowing if their shelter would collapse on them.

When powerful storms hit, no one’s safety is assured. Not the 11-year-old girl in her home who was killed by flying debris while sitting next to her grandmother, nor the man driving his car near Charlotte, NC who was killed by a falling tree.

“Hurricane Michael is the worst storm that the Florida Panhandle has ever seen,” said Gov. Rick Scott of Florida, where 375,000 people were ordered evacuated from the western part of the state.

Emergency declarations were in effect for 322 counties across five Southern states. Warnings were issued as far west as Alabama’s border with Mississippi, and the coasts of Georgia and the Carolinas. The National Guard

activated 3,500 troops, and 1.5 million meals were ready to be distributed. One million gallons of water were also prepared.

The storm was the first major hurricane to make landfall in the continental U.S. since Hurricane Irma last year. That storm, which struck a different part of Florida, caused an estimated \$50 billion in damage and was cited in 92 deaths.

The storm crossed Georgia and parts of the Carolinas that were deluged when Hurricane Florence, a Category 1 storm, struck last month. This is an instance of an area being struck again while still recovering from the prior blow, a predicted occurrence that likely will become common in many locales globally.

At least \$81 billion in taxpayer money has been spent on recovery projects since 1992, often just replacing what was lost with no regard for the realities of climate change. (More on that, and FEMA, in Blog 18.)

Less known recent events included a powerful cyclone in eastern India cutting off electricity, uprooting trees, crumbling mud houses and killing at least 18 people. The storm, Cyclone Titli, came off the Bay of Bengal before hitting the coast with wind speeds near 95 mph. Before the storm made landfall, the state governments evacuated several hundred thousand people, placing them in more than 1,000 shelters. By the time Cyclone Titli touched down, half a million-people had lost electricity.

And Majorca suffered a major storm that killed at least 12 people after heavy rain and flash floods hit the Spanish island. Six of the victims were Spanish, with two British, two German and one Dutch citizen also among

the victims (the 12th victim remains unidentified). A rise in the death toll remains a possibility.

New IPCC Report

The United Nations Intergovernmental Panel on Climate Change issued a “Special Report on Global Warming of 1.5°C” with a clear message (again): that humanity must utterly transform its energy systems in the next decade or risk ecological and social disaster.

The panel was created in 1988 and synthesizes the findings of leading climate scientists. It received the 2007 Nobel Peace Prize for its straightforward periodic reports summarizing what is known about climate change. Its latest report is an urgent warning of the incredible dangers posed by climate change. One UN official and co-chairman of the panel, Jim Skea, described it as “a deafening, piercing smoke alarm going off in the kitchen.” The IPCC reports are written for the layman, for the “policy-maker” in governments around the world. And while the world community regularly meets and talks about the imminent dangers of climate change, this report makes clear that not nearly enough is being done.

The report was written by 91 scientists from 40 countries who analyzed more than 6,000 scientific studies and came about at the request of several small island nations that took part in the Paris talks and fear for their future due to sea level rise. The Paris accord includes pledges from 195 countries to limit increases in global warming to 3.6F degrees (2C degrees) above preindustrial levels. But the small island nations asked the panel to study a lower threshold, 2.7F degrees (1.5C degrees). The panel’s report concluded that the stricter threshold should become the new target albeit merely aspirational. But higher, more likely thresholds, pose catastrophic consequences: mass die-offs of coral reefs, widespread drought, famine, wildfires, powerful storms, potential conflict over land, food and fresh water and millions of environmental refugees. Everything we are seeing now, but much worse.

Despite all the prior IPCC reports and warnings (see Blog #1), global emissions increased 1.5 percent in 2017 and likely increased further in 2018. The panel said a mammoth global effort is needed immediately and through the century to decarbonize energy systems. The next 10 years are crucial. To prevent 2.7F degrees of warming, the report said, greenhouse pollution must be reduced by 45 percent from 2010 levels by 2030, and 100 percent by 2050. It also found that, by 2050, use of coal as an electricity source would have to drop from nearly 40 percent today to between 1 and 7 percent. Renewable energy such as wind and solar, which generate about 20 percent of the electricity today, must increase to about 67 percent.

We can do this. But it will take concerted efforts by voters to push for real change in political leadership and legislation, and personal change as well. It will take enormous public and private investment and technologi-

cal progress, maybe a breakthrough or two (we need to remove more carbon from the atmosphere than trees can do alone). Electric cars must replace gas-powered cars. The public, especially the U.S. must become more actively engaged, via home insulation, installation of smart thermostats, use of public transportation, more efficient appliances and boilers, and change in diet (livestock account for about 14.5 percent of GHG emissions globally). This is not a problem for the next generation. Climate change is here and it must be dealt with now. Climate change was not a topic in the last presidential or vice-presidential debates. It must be the topic. And there must be legislation such as in Washington State where Gov. Jay Inslee seeks voter approval of a carbon tax. It would be the first of its kind, in any state, and could serve as an inspiration for others.

The UN Report urges such an approach. Putting a price on carbon dioxide emissions is crucial if we are to get global warming under control. This Report follows the awarding of the Nobel Memorial Prize in Economic Science to the American economists William Nordhaus and Paul Romer for their work on climate change—specifically, the idea that putting a price on carbon can drive down emissions. Professor Nordhaus stated that “the most efficient remedy for the problems caused by greenhouse gas emissions would be a global scheme of carbon taxes that are uniformly imposed on all countries.” In the 1970s, Professor Nordhaus argued that companies that burn fossil fuels should be taxed at a rate that reflected the harms they were imposing on the rest of the world.

More than 40 governments around the world, including the European Union and California, have now put a price on carbon, either through direct taxes on fossil fuels or through cap-and-trade programs. But it has been politically difficult to set a price high enough to spur significant reductions in carbon emissions.

Economists have long been enthusiastic about carbon pricing because of the policy’s efficiency. Give companies a financial incentive to reduce their fossil-fuel use, and they will find creative and cost-effective ways to do so without the need for unpopular government regulations.

In 2012, the Australian government enacted a cap-and-trade program that effectively set a price on carbon of \$23 per ton. Emissions fell nationwide under the program. But heavy political backlash from industry groups and voters aided the rise of the more conservative Liberal Party in 2013 which repealed the program.

A recent report from the Organization for Economic Cooperation and Development found that the average carbon price across 42 major economies was around \$8 per ton in 2018, far below the level most experts say is necessary to address climate change. Those low prices may reflect political constraints on pricing carbon directly.

The United Nations report estimated that a more effective carbon price would be \$135 to \$5,500 per ton of carbon dioxide pollution by 2030 to reach the goal of 1.5C degrees (2.7F degrees) of global warming.

Carbon pricing has shown signs of progress in parts of the world. Portugal instituted a carbon tax in 2015, and Chile followed suit in 2017. China has a carbon-trading program in several of its provinces. California recently expanded its cap-and-trade program to cover 85 percent of its statewide emissions. This fall, voters in Washington State will decide whether to enact a statewide carbon tax.

Whether governments rely on carbon pricing, direct subsidies for clean energy or other policies, nations will have to do far more than they are currently doing for the world to avoid drastic climate change.

In an interview with the Nobel committee, Dr. Nordhaus said he was “concerned about the fact that we’re doing so little.” “The policies are lagging very, very far—miles, miles, miles—behind the science and what needs to be done.”

Half a Degree of Warming

The Earth has already warmed 1C degree (1.8F degrees) since the 19th century. The above-noted UN Report analyzed the consequences of a 1.5 or 2C degrees warming.

Half a degree may not sound like much. But as the report details, even that much warming could expose tens of millions more people worldwide to life-threatening heat waves, water shortages and coastal flooding. Half a degree may mean the difference between a world with coral reefs and Arctic summer sea ice and a world without them.

At 1.5C increase, sea ice will remain during most summers. At 2C, ice-free summers are 10 times more likely. An additional half-degree of warming could mean greater habitat losses for polar bears, whales, seals and sea birds. But warming temperatures could benefit Arctic fisheries.

At 1.5C, about 14 percent of the world population would be exposed to severe heat waves at least once every five years. At 2C, about 37 percent of the world population would be so exposed. The tropics likely would experience the biggest increase in the number of “highly unusual” hot days.

At 1.5C, over 350 million people worldwide would be subject to water scarcity in urban settings. At 2C, over 411 million people would likely be so affected. The Mediterranean region is expected to see “particularly strong increases in dryness” in a 2C world.

At 1.5C, many species would lose more than half of their current ranges, including 6 percent of insects, 8 percent of plants and 4 percent of vertebrates. At 2C, 18

percent of insects, 16 percent of plants and 8 percent of vertebrates may be so affected.

At 1.5C, 31 to 69 million people worldwide could be exposed to flooding from sea level rise in 2100 (without adaptation). At 2C, 32 to 80 million people could be so affected. Small island nations may well be gone.

An extra 580,000 to 1 million square miles of permafrost would thaw at 2C compared to 1.5C, which would release immense amounts of methane.

Global crop yields are expected to be lower under 2C of warming compared to 1.5C, especially in sub-Saharan Africa, Southeast Asia, and Central and South America.

And 1.5C degrees is a best-case scenario. Without an extremely rapid, and perhaps unrealistic, global push to zero out fossil fuel emissions and remove carbon dioxide from the atmosphere, 2C degrees (3.6F degrees) or higher this century looks likely. All the national pledges made in Paris to curb emissions, if achieved (which is unlikely) puts the world on track to warm around 3C degrees or more.

Each time the Earth heats up an extra half-degree, the effects aren’t uniform across the planet. Some regions, such as the Arctic, will heat up two to three times faster. The Mediterranean and Middle East regions could see a 9 percent drop in water availability at 1.5C of warming and a 17 percent drop at 2C degrees.

The report also highlights the possibility that even modest amounts of warming may push both human societies and natural ecosystems past certain thresholds where sudden and calamitous changes can occur.

Coral reefs provide food and coastal protection for half a billion people worldwide. Before the 1970s, it was rare for ocean temperatures to get so warm that swaths of corals would bleach and die. But as global average temperatures have risen half a degree in that span, these bleaching events have become a regular phenomenon. With an additional half-degree of warming above today’s levels, tropical coral reefs will face “very frequent mass mortalities.” But at 2C degrees of total warming, coral reefs are in danger of vanishing entirely.

It is less certain when other long-feared tipping points will occur, such as the irreversible disintegration of the vast ice sheets on top of Greenland or West Antarctica. The report warns that these ice sheets could potentially start to destabilize with 1.5 to 2C degrees of warming, committing the world to many more feet of sea level rise for centuries to come.

The report also warns that vulnerable areas, like many African countries and small island nations, may struggle to cope with multiple impacts. Crop failures, heat waves and the expansion of malaria-carrying mosquitoes compound when they occur together.

To stay below 2C degrees virtually all the coal plants and gasoline-burning vehicles on the planet would need to be quickly replaced with zero-carbon alternatives. This means no home, business, or industry heated by gas or oil; no vehicles powered by diesel or gasoline; all coal and gas power plants shuttered; the petrochemical industry converted wholesale to green chemistry; and heavy industry like steel and aluminum production either using carbon-free energy sources or employing (future) technology to capture CO2 emissions and permanently store it.

In addition, depending on how fast emissions are cut, between 0.4 and 2.7 million square miles (1-7 million square kilometers) of land may have to be converted to growing bioenergy crops and up to 3.86 million square miles (10 million square kilometers) of forests added by 2050. And still that won't be enough, the report warns. Every pound of CO2 emitted in the last hundred years will continue to trap heat in the atmosphere for hundreds of years to come. By 2045 or 2050 there will still be too

crisis are available and affordable right now. Visionary leaders and millions of people are organizing to ensure more than half of the nation's coal plants are retired or re-tiring, dangerous pipelines are stopped, electric vehicles are deployed, the build-out of dirty gas infrastructure is halted, and more American cities commit to 100 percent clean energy.

Getting the planet's warming under even a modicum of control requires a fast-moving transformation of human civilization at a magnitude that has never happened before.

Failing to cap global warming dramatically increases risks to human civilization and the ecosystems that sustain life on Earth.

Despite these projections, some groups closely watching the process say the final version of the report—which had to be approved by all 195 IPCC member nations—doesn't do enough to warn world leaders about the grim

"The United Nations Intergovernmental Panel on Climate Change issued a 'Special Report on Global Warming of 1.5°C' with a clear message (again): that humanity must utterly transform its energy systems in the next decade or risk ecological and social disaster."

much CO2 in the atmosphere. More forests or some form of direct capture that takes CO2 out of the atmosphere will be essential to stabilize global temperatures at 2.7F degrees (1.5C degrees), the report says.

Forests must play a much bigger role in cutting emissions. Forests provide an important service to humanity currently removing about 25 percent of our CO2. Reforestation and improving forest management together could remove CO2 from the atmosphere amounting to 18 percent of the reductions needed by 2030. Brazil, China, India, Mexico, Australia, the U.S., Russia, and the European Union could also substantially increase their forests economically and without impacting food production—while potentially removing billions of tons of CO2 from the atmosphere. Protecting and increasing tropical forests is especially important since they cool the air and are key in creating regional rainfall for growing food.

Existing forests must be protected to avoid dangerous climate change. The world's forests contain more carbon than exploitable oil, gas, and coal deposits. Our planet's future climate is inextricably tied to the future of its forests.

The path forward requires that we move beyond dirty fossil fuels like oil, gas, and coal to an economy powered by 100 percent clean, renewable energy. The clean energy solutions that cut the carbon pollution fueling the climate

consequences of reaching potential climate tipping points that could trigger conflicts over resources and mass migration.

There's also a growing risk that warming will disrupt key ocean circulations, including currents that keep Europe mild despite its relatively high latitude. That could have dramatic consequences, including a Scandinavian-like climate for temperate parts of Western Europe.

Numbers from the International Federation of Red Cross and Red Crescent Societies provide a solid foundation for those concerns: weather-related events displaced 23.5 million people in 2016.

University of Florida sea level rise expert Andrea Dutton said she hopes the new report will help clarify global warming threats for the public, especially the risk of sea level rise in coastal areas.

"What sounds like small increments in temperature can have devastating effects in terms of climate impacts on growing human populations," she said. "This report is not about whether the planet can withstand another half-degree increase in temperature. It is about understanding whether we can withstand it. Small temperature changes can have far-reaching impacts on our ability to survive on this planet."

In Indonesia, the rising water and erosion has inundated poor coastal communities, like one on Java, where the residents can't afford to move. Sea level rise is already causing frequent flooding and contaminating fresh water supplies on low-lying islands. Satellite measurements from recent years show sea level rising faster than expected, and new data from ancient ice layers, tree rings and other sources suggest the polar ice sheets are more vulnerable to extensive melting at 1.5C warming than previously believed.

"So, it is all doom and gloom? No, because every increment of progress we can make to keep the temperature from climbing even higher will make a difference," Dutton said. "The steps that need to be taken to abate the worst outcomes require leadership at every level. My hope is that this report will encourage and empower that leadership."

Humanity likely will have to remove large quantities of CO₂ from the atmosphere later this century. If the average global temperature exceeds 1.5C warming by just 0.2 degrees, CO₂ removal would have to be deployed at a scale "that might not be achievable given considerable implementation challenges," the report says.

The IPCC report will be key to discussions in Katowice, Poland, in December, when the world meets for the annual UN climate talks to try to finalize the rules for implementing the Paris Agreement.

Christopher Weber, global lead scientist for climate and energy for the World Wildlife Fund, said negotiators in Poland should focus on the underlying science.

"This is not a political negotiation, it's a science report. We're already seeing impacts like super storms, wildfires and heat waves from 1C degree of warming," he said. "This report underscores that many of the impacts we thought we would see at 2C degrees we will see sooner, and they may be unstoppable above that."

Avoiding the most serious damage requires transforming the world economy within just a few years, said the authors, who estimate that such damage would cost \$54 trillion at 2.7F degrees of warming and \$69 trillion at 3.6F degrees of warming. The report emphasizes the potential role of a tax on carbon dioxide emissions. "A price on carbon is central to prompt mitigation."

Under the Obama administration, government economists estimated that an appropriate price on carbon would be in the range of \$50 per ton. Under the Trump administration, that figure was lowered to about \$7 per ton.

The World Coal Association disputed the conclusion that stopping global warming calls for an end of coal use.

Americans for Prosperity, the political advocacy group funded by Charles and David Koch, has made a

point of campaigning against politicians who support a carbon tax.

"Carbon taxes are political poison because they increase gas prices and electric rates," said Myron Ebell, who heads the energy program at the Competitive Enterprise Institute, an industry-funded Washington research organization, and who led the Trump administration's transition at the EPA.

The report details the economic damage expected should governments fail to enact policies to reduce emissions. The United States, it said, could lose roughly 1.2 percent of gross domestic product for every 1.8F degrees of warming.

In addition, it said, the United States along with Bangladesh, China, Egypt, India, Indonesia, Japan, the Philippines and Vietnam are home to 50 million people who will be exposed to the effects of increased coastal flooding by 2040, if 2.7F degrees of warming occur.

At 3.6F degrees of warming, the report predicts a "disproportionately rapid evacuation" of people from the tropics. "In some parts of the world, national borders will become irrelevant," said Aromar Revi, director of the Indian Institute for Human Settlements and an author of the report. "You can set up a wall to try to contain 10,000 and 20,000 and one million people, but not 10 million."

The past decade has seen an astonishing run of record-breaking storms, forest fires, droughts, coral bleaching, heat waves, and floods and environmental refugees around the world with just 1.8F degrees (1.0C degrees) of global warming. But much of this will get substantially worse with 2.7F degrees of warming, and far worse at 3.6F degrees (2C degrees), according to the Report.

Washington

Despite the controversial policy implications, the United States delegation joined more than 180 countries in accepting the report's summary for policymakers, while walking a delicate diplomatic line. A State Department statement said that "acceptance of this report by the panel does not imply endorsement by the United States of the specific findings or underlying contents of the report." "We reiterate that the United States intends to withdraw from the Paris agreement at the earliest opportunity absent the identification of terms that are better for the American people." Legally, the U.S. cannot formally withdraw from the pact until 2020 (the day after election day), and the agreement's terms are voluntary.

Trump, who has mocked the science of human-caused climate change, has vowed to increase the burning of coal. In Brazil, the world's seventh-largest emitter of greenhouse gas, voters are poised to elect a new president, Jair Bolsonaro, who has said he also plans to withdraw from the accord.

Trump cut the American contribution to a global fund that supports climate mitigation and assistance efforts in developing countries by two-thirds, to \$1 billion. He has tried to cut government funding of climate-related research—an effort that Congress has so far resisted.

The White House issued no public response to the United Nations report. A deputy press secretary noted that carbon dioxide-related emissions declined 14 percent in the U.S. from 2005 to 2017 [due to an economic slowdown and an increase in the use of natural gas], while they rose 21 percent globally during the same period.

Trump encouraged scientists recently when he nominated Kelvin Droegemeier, a well-respected meteorologist who is an expert on extreme weather, to lead the White House Office of Science and Technology Policy. The post has been vacant since Trump took office.

The Trump administration's counterterrorism strategy made no mention of climate change as a cause for extremism. The Obama administration regularly cited it in threat assessments because of its effect on migration/refugees and the competition for food and water.

Facts on the Ground; Climate Change Impact on Food Chain; Election Results and Climate Change; Washington

By Carl Howard

Facts on the Ground

Violent thunderstorms, small tornadoes that blew roofs off homes and winds equivalent to a Category 3 hurricane lashed Italy from Piedmont to Sicily in late October, killing at least nine people with many injured and firefighters and other rescue workers scrambling to respond to emergency calls.

In Venice, ferocious winds drove the high tide to more than 61 inches above average sea level, one of the highest levels ever recorded, flooding much of the city. It was the highest flood there in a decade. Pedestrians used raised walkways throughout the city, while others waded through thigh-high water. Tourists swam in historic Saint Mark's Square in front of the city's cathedral.

An editorial in the Venice daily *Il Gazzettino* asked about the Moses Project, the divisive, unfinished, multi-billion-dollar system of floodgates that has been under construction for years. Venice was built in a lagoon and has always been vulnerable to flooding. The system of barriers is supposed to offer some protection as global warming and rising seas worsen the threat.

While Italy was flooded, Germany was in historic drought. Its major rivers, the Danube, the Elbe and the Rhine, were not navigable for large ships and all navigation was slowed due to record low water levels. Fish and aquatic life died in warm, shallow, oxygen-starved water. The lack of water was due in part from lack of rain and in part from lack of snow-melt from glaciers and snowpacks which are at reduced levels as well. Farming losses are in the billions. Climate models suggest this is to be a frequent occurrence (McKibben's "Eearth," see Blog 3; all Blogs are available via NYSBA.org, Quick links, Blogs).

Also in late October, Typhoon Yutu struck the American territory of the Northern Mariana Islands tearing through Saipan and Tinian and destroying more than

100 homes. The eye of the storm passed over Tinian with wind speeds of 180 mph, the equivalent of a Category 5 hurricane. Meteorologists said Yutu could be the strongest storm to strike the U.S. this year.

Edwin K. Propst, a representative in the commonwealth's legislature, said he spent a sleepless night at home with his family on Saipan: "Last night, it was like a freight train and a 747 were racing, and you're right in between them." As the storm ripped the shutters off his home and broke windows, he retreated to a back room. After sunrise, he ventured out to survey the damage. "I visited several constituents who lost it all," he said. "Their homes, their valuables, their prized possessions."

Trump declared an emergency in the Northern Mariana Islands and authorized the Federal Emergency Management Agency (Blog 19 will address FEMA) to begin disaster relief efforts.

Mr. Propst said he has not seen a storm this bad in decades and would not be surprised if electricity did not return to Saipan for months. "We really need help," he said. "Our island has been flattened. It's one of the worst typhoons we've seen in a very, very long time."

Nine bodies were recovered from a landslide in the town of Natonin, which buried a government building. Fourteen people were rescued and nine were still missing. In the nearby town of Banaue, which was also hit by a landslide, volunteers retrieved the bodies of four people, two of them children.

Yutu was the 18th typhoon of the season to hit the Philippines, which endures 20 or so every year. It came one month after Typhoon Mangkhut dumped heavy rains causing landslides that killed at least 150 people. Mangkhut was the most powerful storm to hit the archipelago since 2013 when Typhoon Haiyan killed thousands. Such storms are predicted to become increasingly fierce and deadly.



Climate Change Impact on Food Chain—One Example

The purple urchin is devouring the kelp forests off Northern California's coast. The underwater forests—huge, sprawling tangles of brown seaweed—are in many ways just as important to the oceans as trees are to the land. Like trees, they absorb carbon emissions and provide critical habitat and food for a wide range of species. But climate change has triggered a 60-fold explosion of purple urchins and the kelp forests have declined by 93 percent.

The extent of the danger is extensive. Kelp forests exist along the cooler coastlines of every continent except Antarctica. They are threatened both from warming oceans and from changes induced by warmer water.

Maine's forests of sugar kelp, a source of the sweetener mannitol, have also suffered declines from warming water. And in Tasmania, kelp forests also have succumbed to a purple urchin outbreak.

This story of disappearing kelp demonstrates how an interwoven food system breaks down and threatens people's livelihoods. Red urchins, larger than purple urchins, are commercially viable because people eat their gonads. The delicacy is known to sushi-lovers as uni. But the growing purple urchin population outcompetes the red urchins for kelp. Without kelp, red urchins starve.

The value of Northern California's commercial red urchin fishery has declined from \$3.6 million in 2013 to less than \$600,000 in 2016. Many harvesters have given up. Those still working are taking bigger risks, going out farther to dive in deeper waters for their catch. Whereas they used to dive 10 to 50 feet, now it's 70 to 110 feet. Diving that deep is more dangerous and divers have drowned and suffered the effects of decompression sickness, which can be deadly.

The trouble began with the starfish. Sunflower starfish, whose appendages can span more than three feet, normally eat purple urchins, helping to limit their numbers. But in 2013, the starfish began dying, probably due to a virus aided by warmer waters.

Sea otters, another predator of purple urchins, were hunted to near extinction in Northern California by 19th-century fur traders. Their numbers have not rebounded.

Around the same time as the starfish dye-off, a mass of warm water appeared hundreds of miles off Alaska, British Columbia, Washington and Oregon. By 2014 that warm water had moved toward land, stretching from Southeastern Alaska down to Mexico.

The marine heat wave was hotter than anything humans had recorded dating back to the late 1800s. Researchers and locals called it "the Blob." It would last into 2016. Studies linked it to climate change. Over 90% of the heat trapped on Earth due to global warming has been

absorbed by the ocean, increasing its temperature and altering the delicate balance of marine life.

The Blob also slowed the process of upwelling in which cooler waters and nutrients move from deeper in the ocean up to the surface. That choked off a critical supply of nourishment for the kelp.

A warmer ocean is not as productive as the normally cooler ocean. It can't hold as much oxygen. The combination of higher temperatures and less nutrients led to the kelp die-off.

In the absence of predators and with dwindling food supplies, the purple urchins have gone on a rampage. Farther south on California's coast near Monterey, purple urchins are eating southern sea palm. The reef is covered with brittle stars, which would have been eaten by sunflower starfish. Purple urchins are devastating the reefs, removing all algae (kelp and other seaweeds are algae).

Scientists say the impacts underwater this year have been more devastating than anything they've seen in the past. The remaining red urchins have begun adapting. While they are normally vegetarian, at deeper depths they are turning carnivorous and eating barnacles to the astonishment of scientists.

This year, for the first time, California state fishery managers closed the region's recreational red abalone fisheries for the entire season. The abalone, edible sea snails that are a prized delicacy, also depend on kelp for food. The state is likely to close the abalone fisheries for the next two seasons as well. A 2013 report found that more than 31,000 people visited the fisheries each year, contributing \$44 million to the sparsely populated communities nearby. Without abalone, the restaurants, campgrounds, hotels and businesses that depend on those visitors are struggling.

Locals worry that rockfish—like sculpin, rock cod and red snapper—may be next. They spawn in kelp forests. Worldwide, 100 species of rockfish rely on kelp. Adding to the challenges, a new blob of warmer water formed this year in the Northeast Pacific Ocean, though it has not reached the California coast. Yet.

Recall from Blog 1 that Food and Sustenance from Ocean/Water is one of the foundational blocks supporting human civilization. Disruptions to marine ecosystems is a profound harm to this fundamental block.

Election Results and Climate Change

Governor Jay Inslee (D-WA) has now failed three times to pass the nation's first tax on planet-warming CO2 emissions. Voters in Washington State rejected Initiative 1631. Its rejection may well prove that carbon taxes are not politically viable in the United States.

The measure proposed a tax of \$15/ton of CO2 in Washington starting in 2020, with the cost increasing \$2

a year after that, until the state meets certain emissions targets.

Opponents of the measure included BP America, Phillips 66 and Marathon Oil Corp unit Andeavor. All three own refineries in the state. The industrial conglomerate Koch Industries, spent \$28 million in the fight, the most money ever spent to combat a ballot initiative in the state. Opponents said it would have cost an average household \$440 in the first year.

Big Oil raised double the \$15.2 million spent on supporting the initiative by an alliance of green groups and billionaire activists including Bill Gates and Michael Bloomberg.

The big-ticket battle reflected the stakes of climate regulation. The oil industry worries new curbs on carbon emissions will cut profits, while environmentalists worry that a failure to halt global warming will harm the planet.

Washington is the nation's fifth biggest fuel-producing state with five refineries. Those facilities last year produced about 5.6 million metric tons of CO₂, an amount that would have yielded the state \$83 million.

In New Mexico, voters elected the Democrat, Stephanie Garcia Richard for public lands commissioner. The State Land Office is responsible for managing about 13 million mineral acres and 9 million surface acres that are leased for uses such as grazing and oil and gas drilling. The leases generate hundreds of millions of dollars annually for the state. The money is invested through the multibillion-dollar Land Grant Permanent Fund, with proceeds benefiting public schools, universities, hospitals and other state institutions.

At stake was a job with the authority to regulate the emissions of methane, a powerful planet-warming greenhouse gas that leaks from oil and gas operations and is more than 25 times as potent as CO₂ in trapping heat in the atmosphere.

Methane leaks from oil and gas operations in and around the state have created the nation's largest methane cloud, about the size of Delaware, over the state's Four Corners region.

Ms. Richard vowed to crack down on leaks of methane. She defeated a former commissioner, Patrick Lyons (R), who had the backing of the oil industry, including a \$2 million contribution by Chevron to the political action committee supporting his campaign.

In Arizona voters defeated Proposition 127 which would have required state utility companies to get half of the power it sells to customers from renewable sources by 2030. Arizona Public Service strongly opposed the measure citing a possible sharp increase in energy prices to consumers if it passed. Under current state requirements, utilities must get 15 percent of their power from a renewable source by 2025.

But Nevada overwhelmingly passed a renewable energy initiative putting the state one step closer toward mandating a higher amount of wind and solar be used in its energy portfolio. The campaign to pass Question 6 won by a near 20-point margin, 59 percent to 40 percent.

The ballot initiative calls for electric utilities to acquire half of their electricity from renewable sources—such as wind, solar and hydroelectric—by 2030. The proposed mandate is a major step up from its current renewable portfolio standard of 25% renewables by 2025.

Tom Steyer, a billionaire environmental activist from California, devoted nearly \$6 million to back Question 6 through his NextGen Climate Action organization.

However, state regulators will not begin enforcing stricter energy mandates. Under Nevada law, constitutional amendments require passage by voters in two consecutive elections—meaning Question 6 will need to win again in 2020 to become law.

The initiative is expected to face more resistance in 2020. NV Energy was largely quiet this year but the utility company likely will spend millions to defeat it over the next two years.

Conversely, Steyer's investment in Nevada was minimal compared to the money he spent elsewhere in the country—more than \$21 million through NextGen in the Arizona initiative. Steyer likely will spend more in the second round.

Twenty-nine states and Washington, D.C., have Renewable Portfolio Standards, although only a few—California, Hawaii, New York, New Jersey and Vermont—are as ambitious as Nevada's.

Some policy experts say the mandates for more renewable power will drive down the cost, leading to a market-driven spread of cleaner energy. This has been the experience in states where such mandates exist.

Voters in three Colorado communities, Boulder, Lafayette and Fort Collins, voted to suspend or ban hydraulic fracturing. But a fourth community, Broomfield, about 12 miles east of Boulder, narrowly rejected a fracking moratorium. Seventy-eight percent of Boulder residents voted to suspend fracking within city limits for five years, while a similar measure won 56 percent in Fort Collins. In Lafayette, voters permanently banned fracking within the city with 59 percent of the vote. Broomfield defeated the measure by 13 votes out of more than 20,500 cast.

In Colorado, the boom in fracking has led to a surge in oil and natural gas production and millions of dollars in new tax revenue. It has also raised fears that the process has poisoned residents' water.

The temporary bans do not go as far as the outright bans on fracking in Maryland, New York and Vermont,

but oil and gas companies fear that the Colorado movement could spread to other states.

Washington

Trump proposed a pro-ethanol perk aimed at soothing corn and soybean farmers made anxious by his decision to impose tariffs on China which began a trade dispute with a major buyer of American agricultural products.

The plan—which will include lifting a federal ban on summer sales of higher ethanol blends of gasoline, something the industry has long sought—will be critical to assuaging farmers in Iowa and elsewhere who worry about the falling prices of corn and soybeans.

“There is anxiety about the president’s program on putting on tariffs,” said Senator Grassley (R, IA) though he noted the administration’s successful renegotiation of a trade deal between the United States, Canada and Mexico has allayed some of those concerns.

Still, he said that for farmers, the ethanol announcement “would be a big boost not only because of the anxiety of tariffs but because we’re having another record corn crop and that naturally drives down prices.” Grassley has long pushed to allow the sale of higher ethanol blend gasoline in summer months. The restrictions have been in place due to concerns that burning ethanol in hot weather contributes to smog.

Trump plans to lift the ban that generally runs from June through September on selling gasoline that is blended with 15 percent ethanol. He has criticized the anti-smog measure, which was imposed in 2011, as “ridiculous.”

Trump will direct EPA to write a rule allowing the blended fuel to be sold year-round. The rule, which will have a public comment period, will be fast-tracked to be finalized before next summer’s driving season.

Trump will also move to make it easier for the oil industry to comply with federal rules requiring it to either blend ethanol into its products or buy credits. Still, the oil industry vehemently opposes lifting the summertime ban because it could weaken the industry’s market share and stands strongly against the plan.

The American Petroleum Institute, the country’s largest oil and gas lobbying group, called lifting the summertime ban “ill-advised.” A bipartisan group of 20 oil-state senators wrote a letter to Trump arguing that a “one-sided approach” to the Renewable Fuel Standard, which requires that refiners blend increasing amounts of ethanol and other biofuels into the nation’s gasoline and diesel supply, is “misguided.”

The tension between farmers and the oil industry over ethanol has been a running theme throughout Trump’s administration. Former EPA Administrator Pruitt

clashed with Sen. Grassley and other corn-state Republicans for granting small oil refineries waivers from the Renewable Fuel Standard.

Pruitt resigned in July amid ethics scandals, but the loss of support among key Midwest Republicans likely hastened his departure.

Mercury Rule

The Trump administration has completed a legal proposal to dramatically weaken the regulation of mercury, a toxic chemical emitted from coal-burning power plants. Mercury is known to damage the nervous systems of children and fetuses. This sets the stage for the possible full repeal of the rule later.

The move is the latest, and one of the most significant, in the Trump administration’s rollbacks of Obama-era health and environmental regulations on polluting industries, particularly coal. The weakening of the mercury rule would represent a major victory for the coal industry.

The rollback would also be a victory for Administrator Wheeler’s former boss, Robert E. Murray, the chief executive of the Murray Energy Corporation, one of the nation’s largest coal companies. Mr. Murray, who was a major donor to Trump’s inauguration fund, personally requested the rollback of the mercury rule soon after Trump took office, in a written “wish list” he handed to Energy Secretary Rick Perry.

The proposal would also be a victory to the former clients of William Wehrum, EPA’s top air official and the chief author of the plan. Mr. Wehrum worked for years as a lawyer for companies that run coal-fired power plants which have long sought this change.

The proposal also highlights a key environmental opinion of then Judge Brett Kavanaugh. The coal industry sued to roll back the mercury regulation and in 2014 lost its case in the U.S. Court of Appeals for the D.C. Circuit. Judge Kavanaugh wrote the dissenting opinion expressing concerns about the rule’s cost to industry. Should the legal battle over the proposed regulatory rollback reach the Supreme Court, Justice Kavanaugh is expected to side with the coal industry.

Specifically, the new proposal would repeal a 2011 EPA finding that when the federal government regulates toxic pollution such as mercury from coal-fired power plants, it must also, when considering the cost to industry of that rule, calculate the additional health benefits of reducing other pollutants as a side effect of implementing the regulation. Under the mercury program, the economic benefits of those health effects, known as “co-benefits,” helped to legally and economically justify the cost to industry of the regulation.

When power plants comply with the rule and install emissions reducing technology, they create the co-benefits

of reducing soot and nitrogen oxide, pollutants linked to asthma and lung disease.

The Obama administration estimated that the cost to the electric utility industry was \$9.6 billion/yr to install mercury control technology, making it the most expensive clean air regulation ever put forth by the federal government. It found that reducing mercury produces \$6 million annually in health benefits. It further justified the regulation by citing an additional \$80 billion in co-benefits from reducing soot and nitrogen oxide emissions.

The Trump proposal directs EPA to disregard the co-benefits when considering the economic impact of a regulation. Needless to say, should the proposal become final, it would mean that the mercury rule would, on paper, appear to have far greater economic costs when ignoring the health benefits. The Trump administration would then be legally justified in weakening the rule and later eliminating it.

In a decision that echoed Judge Kavanaugh's dissent, the Supreme Court blocked the Obama-era mercury rule, ordering EPA to conduct a new cost analysis. The Obama administration did so and reinstated the rule in 2016.

Murray Energy then sued to block it, and last year EPA successfully petitioned the D.C. Circuit Court of Appeals to delay oral argument as the Trump administration sought to rewrite the rule entirely. Stay tuned.

In other EPA news, it dissolved its Office of the Science Advisor, a senior post that was created to counsel the Administrator on the scientific research underpinning health and environmental regulations.

The science adviser works across agency programs to ensure that the highest quality science is integrated into EPA policies and decisions. The move is the latest among several steps taken by Trump that have diminished the role of science while the administration pursues an agenda of rolling back regulations.

Similarly, EPA placed the head of its Office of Children's Health, Dr. Ruth Etzel, on administrative leave, while declining to give a reason for the move noting only that it was not disciplinary. As the head of an office that regularly pushed to tighten regulations on pollution, which can affect children more powerfully than adults, Dr. Etzel had often clashed with Trump appointees who sought to loosen pollution rules.

After dissolving the office of the scientific adviser, Mr. Wheeler plans to merge the position into an office that reports to EPA's Deputy Assistant Administrator for Science, a demotion that would put at least two more managerial layers between EPA's chief scientist and its top decision maker. Everything from research on chemicals and health, to peer-review testing, to data analysis likely will be affected.

EPA's previous administrator, Scott Pruitt, in April proposed a regulation that would limit the types of scientific research that EPA officials could consider when writing new public health policies, a change that could weaken EPA's ability to protect public health.

Last year, Pruitt altered two major scientific panels that advise EPA on writing public health rules, restricting academic researchers from joining the boards while appointing several scientists who work for industries regulated by EPA.



SAVE THE DATES!

May 8, 2019:
Oil Spill Symposium

May 22, 2019:
Legislative Forum

September 22-24, 2019:
EELS Fall Meeting

Recent Decisions in Environmental Law

***Schulz v. Town of Hopewell Zoning Bd. of Appeals*, 163 A.D.3d 1477 (N.Y. App. Div. 2018)**

Facts

Respondent-defendant Town of Hopewell Planning Board (“Planning Board”) approved three area variances for respondent-defendant Emily Jeffrey at a June 20, 2016 meeting.¹ These variances relieved Jeffrey “of a minimum lot width requirement with respect to Jeffrey’s proposed subdivision of property.”² Respondent-defendant Town of Hopewell Zoning Board of Appeals (ZBA) subsequently postponed a decision until after a July 18, 2016 meeting of the Planning Board to allow for public comment.³ The Planning Board reversed its initial approval after hearing comments from residents.⁴ However, the ZBA determined that the reversal was beyond the authority of the Planning Board and voted to approve the variances at a meeting held on August 22, 2016, “without considering the Planning Board’s July 18, 2016 review and comments.”⁵

Procedural History

Petitioners-plaintiffs (“petitioners”) brought a “hybrid CPLR Article 78 proceeding and declaratory judgment action seeking to annul the ZBA’s determinations approving the area variances and seeking a judgment declaring the ZBA’s votes approving those variances void.”⁶ This is an appeal from a judgment entered on February 15, 2017, which granted the relief sought and denied a motion of the ZBA and the Planning Board to dismiss the petition “on, inter alia, the grounds that petitioners failed to state a cause of action against the Planning Board and improperly sought declaratory relief.”⁷

Issue

Whether declaratory relief is a proper remedy when mounting a challenge to an administrative determination, as well as whether the ZBA’s grant of the area variances was properly annulled by the supreme court.⁸

Rationale

Regarding the first issue of whether declaratory relief was a proper remedy here, the court agreed with respondent-defendants that it was improperly sought, “as that relief is not an available remedy for challenging an administrative determination.”⁹

As to the second issue of whether the ZBA’s grant of the area variances was properly annulled, the court notes that it may “set aside a zoning board determination only where the record reveals that the board acted illegally or arbitrarily, or abused its discretion, or that it merely succumbed to generalized community pressure.”¹⁰ Here, the Town of Hopewell’s Zoning Code (“Code”) provides that the ZBA “shall refer applications for variance requests to

the Planning Board for review and comments. The Planning Board shall forward comments within 30 days of the close of the public hearing of the [ZBA].”¹¹ The court found that, because no public hearing was held by the ZBA until June 27, 2016, the initial approvals by the Planning Board were procedurally improper and the refusal of the ZBA to consider the subsequent and “procedurally compliant July 18, 2016 review and comments submitted by the Planning Board therefore violated procedure set forth in section 302 (G) of the Code.”¹²

Conclusion

The court unanimously modified the judgment being appealed from to dismiss the “petition/complaint insofar as it sought declaratory relief and vacating the declaration,” and affirmed the judgment as modified.¹³

David Dickinson
Albany Law School, 2020

Endnotes

1. *Schulz v. Town of Hopewell Zoning Bd. of Appeals*, 163 A.D.3d 1477, 1479 (N.Y. App. Div. 2018).
2. *Id.* at 1478.
3. *Id.* at 1479.
4. *Id.*
5. *Id.*
6. *Id.* at 1478.
7. *Id.*
8. *Id.* at 1478–79.
9. *Id.* at 1478 (quoting *One Niagara LLC v. City of Niagara Falls*, 78 A.D.3d 1554, 1555 (N.Y. App. Div. 2010)).
10. *Id.* at 1479 (quoting *Bartz v. Village of LeRoy*, 159 A.D.3d 1338, 1341 (N.Y. App. Div. 2018)).
11. *Id.* at 1478.
12. *Id.* at 1479.
13. *Id.* at 1477.

***NRDC v. Nat’l Highway Traffic Safety Admin.*, 894 F.3d 95 (2d Cir. 2018)**

Facts

Congress passed the Energy Policy and Conservation Act (EPCA) regulating motor vehicle fuel efficiency in 1975.¹ When EPCA was initially passed, the corporate average fuel economy (CAFE) penalty was set at \$5.00 per tenth of a mile per gallon, but Congress has passed statutes to adjust civil penalties to account for inflation.²

The price of the penalty never increased between 1975 and 1997, when in 1997, the penalty was raised to \$5.50 per tenth of a mile per gallon.³ This was done according to a rule limiting an increase to 10 percent.⁴ This limitation was then lifted in 2015, prompting the National Highway Traffic Safety Administration (NHTSA)

to pass an interim final rule raising the penalty to \$14.00.⁵ This increase prompted the Alliance of Automobile Manufacturers and the Association of Global Automakers to petition NHTSA for partial reconsideration of the interim final rule.⁶ After a series of postponements, NHTSA indefinitely delayed the increase of civil penalties.⁷

Procedural History

The petitioners (consisting of several states and various environmental organizations) sought review of the Suspension Rule published by the NHTSA indefinitely delaying a previously published rule that would increase civil penalties for noncompliance with the CAFE, arguing that it was unlawfully promulgated.⁸

Issue

Whether the NHTSA exceeded its statutory authority when it created a rule indefinitely delaying the effective date of the new civil penalty promulgated by the agency several months prior, and whether the agency violated the requirements of the Administrative Procedures Act (APA).⁹

Rationale

NHTSA argued that it needed to indefinitely delay increased penalty pending reconsideration, but failed to offer authority supporting the proposition, and instead argued it is authorized to do so “because that is what many other agencies do.”¹⁰ The court disagreed with this argument, and held that a decision to reconsider a rule does not give the agency authority to indefinitely delay the rule pending reconsideration.¹¹

NHTSA also argued “[a] delay in the effective date is . . . consistent with NHTSA’s statutory authority to administer the CAFE standards program.”¹² The court found, however, that this claim was unsupported by the ECPA, and found no authority for NHTSA to indefinitely delay the penalty increase.¹³

NHTSA then argued that it had an “‘inherent authority’ to indefinitely delay the rule.”¹⁴ The court held that this was not the case, and that agencies have no power unless Congress disperses power to the agency.¹⁵

The court concluded that “NHTSA violated the APA by announcing the Suspension Rule without having first undertaken notice and comment rulemaking.”¹⁶ Under this rule an agency must publish general notice of the proposed rule before it may promulgate the rule.¹⁷ NHTSA attempted to invoke the APA “good cause” exception, but the court rejected it, holding that this exception is generally used in times of emergency.¹⁸

Conclusion

The Second Circuit found that the agency lacked statutory authority to indefinitely delay the effective date of the rule, and that the agency, in promulgating the rule,

failed to comply with the requirements of the Administrative Procedure Act. The court granted the petition for review while also vacating the Suspension Rule.

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Endnotes

1. *NRDC v. Nat’l Highway Traffic Safety Admin.*, 894 F.3d 95, 101 (2d Cir. 2018).
2. *Id.*
3. *Id.*
4. *Id.*
5. *Id.*
6. *Id.* at 102.
7. *Id.* at 103.
8. *Id.*
9. *Id.* at 100.
10. *Id.* at 111.
11. *Id.*
12. *Id.* at 112.
13. *Id.*
14. *Id.*
15. *Id.*
16. *Id.* at 113.
17. *Id.*
18. *Id.* at 114.

***Vill. of Ballston Spa v. City of Saratoga Springs*, 163 A.D.3d 1220 (N.Y. App. Div. 2018)**

Facts

The City of Saratoga Springs and the City Council (the “City”) developed three projects, known as the Geyser Road Trail Project, which included the condemnation of portions of petitioners’ property for the installation of a trail for pedestrian and bicycle use along Geyser Road.¹ The City completed a comprehensive review under the State Environmental Quality Review Act (SEQRA), issued a negative declaration, and subsequently adopted a supplemental resolution that the project will not have any significant adverse environmental impact.² Petitioners “alleged deficiencies in the City’s SEQRA review,” after which the City adopted a supplemental resolution “ratifying its SEQRA negative declaration, as well as a determination and findings under the Eminent Domain Procedure Law.”³ Petitioner Village of Ballston Spa (the “Village”) additionally alleged that the condemnation of two specific parcels of property would affect or put at risk the water supply of the Village.⁴

Procedural History

This is a review of a determination by the City to condemn petitioners’ property, initiated by the petitioners under New York Eminent Domain Procedure Law § 207.⁵

Issue

Whether the City's plan to condemn two parcels of property should be prevented by the public prior use doctrine, and whether the City "identified the relevant areas of environmental concern, took a hard look at them, and made a reasoned elaboration of the basis for its determination" pursuant to their obligation under SEQRA.⁶

Rationale

With respect to the prior public use doctrine, the court noted that it does not prevent "the City from condemning a portion of real property owned by the Village."⁷ The doctrine instead prevents lands previously taken or acquired for public use from another taking for public use, "at least if such other use would interfere or destroy the public use first acquired."⁸

However, the court found that no evidence was provided by petitioners to prove the "allegation that trunk lines connected to the Village's reservoir are located underneath the proposed trail," and further that "petitioners have failed to demonstrate how the City's condemnation of the Village's property" would result in interference with or destruction of the public use.⁹

Regarding the question of whether the City had met its obligations under SEQRA, the court noted that SEQRA requires "a reasoned elaboration of a determination of significance" in order to "focus and facilitate judicial review and . . . to provide affected landowners and residents with a clear, written explanation of the lead agency's reasoning" behind the negative declaration.¹⁰ While the court found that the City's initial negative declaration "failed to provide an adequate written explanation for its negative declaration," it later corrected this at a public meeting where it adopted the supplemental resolution in order to "remedy the defects" of the initial negative declaration.¹¹

The court further held that because SEQRA provides for situations in which a lead agency may amend a negative declaration, they could not preclude the City from doing so here and instead rejected "an interpretation that elevates form over substance."¹² Finally, considering the initial comprehensive review performed by the City the court held that the City "identified the relevant areas of environmental concern, took a hard look at them" and issued the written elaboration required by SEQRA.¹³

Conclusion

The court held that the condemnation of petitioners' property was not prevented by the public prior use doctrine and confirmed the City's determination because it had met its obligation under SEQRA to provide a reasoned elaboration of the determination.¹⁴

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Endnotes

1. *Village of Ballston Spa v. City of Saratoga Springs*, 163 A.D.3d 1220, 1221 (N.Y. App. Div. 2018).
2. *Id.*
3. *Id.*
4. *Id.*
5. *Id.* at 1220–21.
6. *Id.* at 1221, 1226 (quoting *Jackson v. New York State Urban Dev. Corp.*, 67 N.Y.2d 400, 417 (N.Y. 1986)).
7. *Village of Ballston Spa*, 163 A.D.3d at 1221.
8. *Id.* at 1221–22 (quoting *Board of Coop. Educ. Servs. v. Town of Colonie*, 268 A.D.2d 838, 841–842 (N.Y. App. Div. 2000)).
9. *Village of Ballston Spa*, 163 A.D.3d at 1222.
10. *Id.* at 1224.
11. *Id.* at 1224, 1225.
12. *Id.* at 1226.
13. *Id.* at 1123 (quoting *Matter of Jackson*, 67 N.Y.2d at 417).
14. *Village of Ballston Spa*, 163 A.D.3d at 1226, 1227.

***City of New York v. BP P.L.C.*, 325 F. Supp. 3d 466 (S.D.N.Y. 2018)**

Facts

Defendants BP P.L.C. (BP), Chevron Corporation ("Chevron"), ConocoPhillips, Exxon Mobil Corporation ("Mobil"), and Royal Dutch Shell ("Shell") are multinational oil and gas companies.¹ Defendants are the first (Chevron), second (Exxon), fourth (BP), sixth (Shell), and ninth (ConocoPhillips) largest cumulative producers of fossil fuels worldwide since the mid-19th century, responsible for 11 percent of all carbon and methane pollution from industrial sources since the industrial revolution.² These gasses contribute to global warming, leading to "hotter temperatures, longer and more severe heat waves, extreme precipitation events including heavy downpours, rising sea levels, and other severe and irreversible harms."³ Plaintiff, the City of New York ("City"), claimed defendants' actions have increased the vulnerability of New York City to global warming and climate change, and that the defendants ongoing conduct "continues to exacerbate global warming . . . caus[ing] recurring injuries to New York City."⁴

The City brought claims based in public and private nuisance as well as trespass.⁵ "The City requests compensatory damages for past and future costs incurred by the City to protect its infrastructure and property, and to protect the public health, safety, and the property of its residents from the impacts of climate change."⁶ The City further requested an "equitable order ascertaining damages and granting an injunction to abate the public nuisance and trespass that would not be effective unless Defendants fail to pay the court-determined damages for the past and permanent injuries inflicted."⁷

The U.S.-based defendants moved to dismiss the amended complaint, and argued that (1) “the City’s claims arise under federal common law and should be dismissed, (2) the City’s claims are independently barred by numerous federal doctrines, (3) the amended complaint does not allege viable state-law claims, (4) the City’s claims are not justiciable, and (5) the City has failed to allege proximate cause.”⁸

Procedural History

Defendants moved to remove City’s amended complaint under Federal Rules of Civil Procedure 12(b)(1) and 12(b)(6).

Issue

Whether the district court has the statutory or constitutional power to adjudicate the City of New York’s suit against defendants.

Rationale

The district court found that federal common law displaces the City’s state law claim and does not permit the City of New York to resolve their claims under state law.⁹ “Where ‘the interstate or international nature of the controversy makes it inappropriate for state law to control . . . our federal system does not permit the controversy to be resolved under state law.’”¹⁰ “The Supreme Court has held that ‘the control of interstate pollution is primarily a matter of federal law.’”¹¹ “[T]he City’s claims are ultimately based on ‘transboundary’ emission of greenhouse gasses” which indicates that “these claims arise under federal common law and require a uniform standard decision.”¹²

The court stated that the Clean Air Act displaces federal common law claims of public nuisance¹³ under *American Electric Power Co. v. Connecticut*¹⁴ and *Native Village of Kivalina v. ExxonMobil Corp.*¹⁵ In these two cases a claim of public nuisance was brought against multiple oil, energy, and utility companies alleging that the emissions from the defendants contributed significantly to climate change, causing harm against the plaintiffs.¹⁶ The plaintiffs were asking for equitable relief¹⁷ and monetary damages,¹⁸ for harms caused by the past emissions of the defendants and the resulting climate change issues suffered by the plaintiffs. The courts dismissed the cases on the premise that the Clean Air Act (CAA) displaces a federal common law claim of public nuisance because the CAA already provides a means of regulation for carbon dioxide emissions from domestic power plants.¹⁹

Lastly, the City “seeks to hold [the non-domestic] Defendants liable for the emissions that result from their worldwide production, marketing, and sale of fossil fuels” based on the understanding that the CAA speaks directly to the regulation of domestic emissions of greenhouse gases rather than international emissions.²⁰ The court dismissed this claim, stating that litigation of “an action for injuries from foreign greenhouse gas emissions

in federal court would severely infringe upon the foreign-policy decisions that are squarely within the purview of the political branches of the U.S. Government.”²¹

Conclusion

The district court granted the defendants motion to dismiss with prejudice in its entirety.

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Endnotes

1. *City of New York v. BP P.L.C.*, 325 F. Supp. 3d 466, 468 (S.D.N.Y. 2018).
2. *Id.*
3. *Id.*
4. *Id.* at 469–70.
5. *Id.* at 470.
6. *Id.*
7. *Id.*
8. *Id.*
9. *Id.* at 471.
10. *Id.* (quoting *Texas Industrial, Inc. v. Radcliff Materials, Inc.*, 451 U.S. 630, 641 (1981)).
11. *BP P.L.C.*, 325 F. Supp. 3d at 471 (quoting *International Paper Company v. Ouellette*, 479 U.S. 481, 492 (1987)).
12. *BP P.L.C.*, 325 F. Supp. 3d at 472.
13. *Id.* at 472, 473.
14. *American Electric Power Co. v. Connecticut*, 564 U.S. 410 (2011).
15. *Native Village of Kivalina v. ExxonMobil Corp.* 696 F.3d 849 (9th Cir. 2012).
16. *BP P.L.C.*, 325 F. Supp. 3d at 472–73.
17. *Id.* at 473. The relief sought in *American Electric Co.*, was for judicial intervention regarding the abatement of carbon dioxide emissions dispersed by the actions of the defendants. *American Electric Co.*, 564 U.S. at 410.
18. *BP P.L.C.*, 325 F. Supp. 3d at 473. The relief sought in *Native Village of Kivalina*, 696 F.3d 849, *supra* n. 18, was for monetary damages.
19. *BP P.L.C.*, 325 F. Supp. 3d at 473.
20. *Id.* at 475.
21. *Id.* at 476.

Abraham v. Town of Huntington,
2:17-cv-03616(ADS)(SIL), 2018 U.S. Dist.
LEXIS 84979 (E.D.N.Y. May 21, 2018)

Facts

On August 16, 2016, the Town Board for the Town of Huntington adopted a resolution permitting the Town Supervisor “to execute a license agreement with Crown Castle ‘for the proposed use and occupancy . . . of the public [rights-of-way] as is necessary for the installation and operation of [Crown Castle’s] [Distributed Antenna System (DAS)].”¹ DAS is a technological system that is used for increasing the quality and extending the range of radio frequency (RF) coverage inside buildings. The Abrahams and Giambrunos (Plaintiffs) contended that

there was a “sham public hearing.” Despite these complaints, on November 2, 2016, the Town Board approved the installation of multiple DAS antennas on utility poles as long as Crown Castle acquired all of the requisite permits.² Those permits were granted by the Town on November 7, 2016.

The Plaintiffs filed a complaint alleging that (1) Crown Castle installed the DAS antennas on “new” utility poles instead of “existing” ones as determined by the language of the permits issued by the Town; (2) “Crown Castle never obtained the requisite permits, and submitted materially false building permit applications as well as false affidavits in support of such applications”; and (3) “the Town Defendants conspired with Crown Castle ‘to circumvent the Town’s own zoning laws . . . and of greatest import, to ensure that homeowners, such as the plaintiffs, would be deprived of any notice or opportunity to be heard at any time before the [DAS antennas] were built.”³

Procedural History

Following Plaintiffs’ complaint, the Defendants Town of Huntington and Crown Castle both filed 12(b)(6) motions to dismiss for failure to state a claim. Additionally, the Town filed a separate motion in an attempt to strike certain documents that had been submitted by the Plaintiffs.⁴

Issue

Whether (1) the Plaintiffs’ 14th Amendment due process rights were violated; (2) the Telecommunications Act of 1996 (TCA) impliedly preempts the Town’s laws; and (3) that Crown Castle’s permits are invalid.⁵

Rationale

To raise a valid claim under 42 U.S.C. § 1983 a plaintiff must satisfy two essential elements. First, that the “defendant acted under the color of state law; and [second,] as a result of the defendant’s actions, the plaintiff suffered a denial of [his/]her federal statutory rights, or [his/]her constitutional rights or privileges.”⁶ The court found the Defendants were acting under the color of state law, although they did not deprive the Plaintiffs of their constitutionally protected property interest.⁷ The court explained “whether the applicant has a legitimate claim to the issuance of a [permit] . . . is based on whether the local governing board has the discretion to deny what the plaintiff seeks to obtain.”⁸ As the Town’s Code explains the application for a permit was to be determined “solely by the Town Board or Board of Trustees” this proves that the Town had full discretion to approve or deny permits, and with discretion there can be no entitlement.⁹

Plaintiffs sought declaratory judgment that the Telecommunications Act of 1996 was unconstitutional as applied to the Town’s laws.¹⁰ Plaintiffs asserted that a specific provision of the TCA empowering the Town to

“enforce regulations to protect its citizenry . . . against the overexposure to RF radiation being omitted by wireless facilities which are not FCC compliant[,]” should in fact preempt the Town from granting a permit for the installation of DAS antennas.¹¹ However, the court explained that since a third-party report determining the RF levels of the DAS antennas near the Plaintiff’s homes was not referenced by the Plaintiffs nor the defendant, the court was “unable to conclude as a matter of law” whether the RF interference complies with the FCC guidelines.¹²

Additionally, the Plaintiffs raised the issue of the First Amendment right to petition.¹³ The court listed certain types of conduct receiving such First Amendment protection, including “attending public meetings and hearings of the [Village] Board of Trustees, the Planning Board and the [Zoning Board of Appeals].”¹⁴ Plaintiffs contend that the Town Board’s “application of the TCA . . . prevented the Town from holding a public hearing regarding the application at issue to allow the Plaintiffs and other citizens to address the Board.”¹⁵ This application of the TCA amounted to a prior restraint as the regulation allowed for the suppression of speech at the discretion of the Board without providing the Plaintiffs the opportunity to speak prior to the determination.¹⁶ Therefore, the court declined to dismiss this count of the Plaintiff’s complaint as they had successfully alleged a First Amendment claim under the right to petition and prior restraint theory.¹⁷

Conclusion

The court determined that the Plaintiffs should be allowed to proceed with their First Amendment claims under their right to petition and prior restraint theory, but precluded from further pursuit of the claims concerning their due process rights and the preemption doctrine.¹⁸ Thus, the court granted in part and denied in part the Defendants’ motion to dismiss. Additionally, Crown Castle was dismissed from the action as the Plaintiffs’ surviving claims solely pertained to the actions of the Town Board.¹⁹

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Endnotes

1. *Abraham v. Town of Huntington*, 2:17-cv-03616(ADS)(SIL), 2018 U.S. Dist. LEXIS 84979, at *3 (E.D.N.Y. May 21, 2018).
2. *See id.* at *4.
3. *Id.* at *5–6.
4. *Id.*
5. *See id.* at *2.
6. *Id.* (citing *Annis v. Cty. of Westchester*, 136 F.3d 239, 245 (2d. Cir. 1998)).
7. *See id.* at *29–30.
8. *Id.* at *26.
9. *See id.* at *26–27.
10. *See id.* at *20.

11. *Id.*
12. *See Abraham*, 2018 U.S. Dist. LEXIS at *23.
13. *See id.* at *30.
14. *Id.*
15. *Id.* at *32.
16. *See id.* at *31.
17. *See id.* at *32.
18. *Id.*
19. *Id.*

***Pub. Emples. for Env'tl. Responsibility v. U.S. EPA*, 2018 U.S. Dist. LEXIS 91367 (Dist. D.C. June 1, 2018)**

Facts

On March 9, 2017, Scott Pruitt, then Administrator of the Environmental Protection Agency (EPA), stated publicly that “carbon dioxide created by human activity is not the primary driver of global climate change.”¹ The following day the Public Employees for Environmental Responsibility (PEER) submitted a request to the EPA pursuant to the Freedom of Information Act (FOIA).² PEER’s FOIA request sought “(1) the documents Administrator Pruitt relied upon in making these statements; and (2) any EPA documents that support the conclusion that human activity is not the largest factor driving global climate change.”³ These records were requested as a result of Administrator Pruitt’s statements being contradictory to the EPA’s position on climate change.

By agreement of the parties, the initial request was modified to include “(1) the agency records that Administrator Pruitt relied upon to support his statements in his CNBC interview, and (2) any EPA documents, studies, reports, or guidance material that support the conclusion that human activity is not the largest factor driving global climate change.”⁴ Despite agreeing to search for documents related to the first part of the request, the EPA refused to comply with the second part of the request alleging that PEER had made an improper demand for information under FOIA.⁵ The argument backing this assertion was that PEER was making an “impermissible attempt to compel [the] EPA and its Administrator to answer questions and take a position on the climate change debate.”⁶

Procedural History

The EPA filed a motion for summary judgment claiming PEER’s FOIA request is an “improper interrogatory and is otherwise overbroad and unduly burdensome.”⁷ PEER cross-moved for summary judgment, insisting that its request complies with the requirements of FOIA.⁸

Issue

Whether PEER’s request in response to Administrator Pruitt’s statements satisfied FOIA which commands any

federal agency to make available “any records that are not otherwise exempt in response to a request which ‘(1) reasonably describes such records and (2) is made in accordance with published rules stating the time, place, fees (if any), and procedures to be followed.’”⁹

Rationale

Federal agencies may not eschew liability by manipulating the meaning of the plaintiff’s request to no longer meet the “reasonably describes” requirement of FOIA. FOIA was enacted to remedy these exact types of loopholes.¹⁰ Here, the EPA alleged that the request (1) posed an improper question and (2) placed an undue burden on the EPA and its Administrator.¹¹ EPA argued that the request would not only require Administrator Pruitt to provide documentation about his personal beliefs on climate change and how they were formed, but also compel the agency to take a position on the climate change debate and “spend countless hours researching and analyzing a vast trove of material on the effect of human activity on climate change.”¹²

The Court found the EPA’s “criticism both misplaced and troubling,” as the FOIA request did not demand disclosure of documents supporting Administrator Pruitt’s beliefs or how they were formed.¹³ Instead, PEER requests that the EPA disclose any agency records relied upon by the Administrator when publicly articulating his conclusions that “carbon dioxide created by human activity is not the primary driver of global climate change,” regardless of “whether they reflect his personal beliefs.”¹⁴ Additionally, the EPA had already taken a position on climate change, stating “the ‘root cause’ of the recently observed climate change is ‘very likely’ the observed increase in anthropogenic greenhouse gas emissions.”¹⁵ Therefore, the concerns about the FOIA request “requiring the agency ‘to take a position and make an affirmative statement as to what this material does or does not demonstrate’” were misdirected.¹⁶

The court expressed further trepidation about the EPA’s inability to produce documents in regard to the factors contributing to recent climate change,¹⁷ finding “such a premise runs directly counter to an axiom of administrative law that an agency’s explanation of the basis for its decision must include a rational connection between the facts found and the choice made.”¹⁸ The EPA claimed they were unable to identify the records sought by PEER, yet they “already represented to [the] Court that ‘[they were] processing any responsive records as to part one of the request.’”¹⁹

According to the EPA, their intention to search for and process any information pertaining to part one of PEER’s request was conditional upon PEER eliminating the second part of the request.²⁰ However, the court dismissed this claim, stating, “[the] EPA’s obligation to respond to the request, which the agency concedes it could do, is not conditional.”²¹

The court was also quick to shut down the “EPA’s bare assertion that the FOIA request at issue would not ‘allow professional staff with a familiarity with the subject matter to process the FOIA request.’”²² It was found that the EPA had construed the second part of the request in a manner “far more broadly than the text supports” in an attempt to tailor the meaning of the request to fit their proposed arguments.²³

Conclusion

The U.S. Court for the District of Columbia determined that the EPA “failed to demonstrate a viable legal basis for its refusal to conduct any search whatsoever in response to the plaintiff’s straightforward FOIA request.”²⁴ As a result of this determination the EPA was ordered to comply with the FOIA request and to explain why any documents are withheld. The court further explained that the request by PEER does not pose an improper question and the “EPA has twisted the meaning of the request to justify denying it.”²⁵

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Endnotes

1. *Pub. Emples. for Envtl. Responsibility v. U.S. EPA*, 2018 U.S. Dist. LEXIS 91367, at *1 (D.D.C. June 1, 2018).
2. *Id.* at *1-2.
3. *Id.* at *3.
4. *Id.*
5. *Id.*
6. *Id.* at *11.
7. *Id.* at *2, *10.
8. *Id.* at *2.
9. *Id.* at *7.
10. *Id.* at *7, *8.
11. *Id.* at *11, *23.
12. *Id.* at *23.
13. *Id.* at *13.
14. *Id.* at *14.
15. *Id.* at *19 (quoting *Coal. for Responsible Reg., Inc. v. EPA*, 684 F.3d 102, 120 (D.C. Cir. 2012)).
16. *Pub. Emples. for Envtl. Responsibility*, 2018 U.S. Dist. LEXIS 91367 at *19.
17. *Id.*
18. *Id.* at *14 (citing *Bowen v. Am. Hosp. Ass’n*, 476 U.S. 610, 626 (1986) (quoting *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983))).
19. *Pub. Emples. for Envtl. Responsibility*, 2018 U.S. Dist. LEXIS 91367 at *16.
20. *Id.*
21. *Id.* at *17 (citing 5 U.S.C. § 552(a)(3)(A)).
22. *Pub. Emples. for Envtl. Responsibility*, 2018 U.S. Dist. LEXIS 91367 at *24.
23. *Id.* at *20.
24. *Id.* at *25.
25. *Id.* at *11.

White Oak Realty v. United States Army Corps of Eng’rs, No. 17-30438, 2018 WL 3409911 (5th Cir. July 11, 2018)

Facts

After Hurricanes Rita and Katrina, Congress tasked the U.S. Army Corps of Engineers (Corps), the lead Appellee, with a series of projects collectively called the New Orleans Hurricane and Storm Damage Risk Reduction System (HSDRRS), involving the construction of levees, floodwalls, gates and pumps within Southeastern Louisiana.¹ Completion of these projects required approximately 31,000,000 cubic yards of suitable “borrow material.”² “Borrow material” is soil dug up from one location to be used at another.³ Two types of “borrow material” were at issue in the court’s review: “government-furnished” borrow material, to which the Corps would directly obtain the property rights to extract soil, and “contractor-furnished” borrow material, which the Corps would require contractors to work “in partnership with a landowner” to obtain suitable borrow material.⁴

In 2008, the Corps considered acquiring the rights to mine government-furnished borrow material on Idlewood, land owned by the Appellant, White Oak Realty (White Oak).⁵ Fearing an eminent domain taking by the Corps, White Oak contacted the Corps, advising that they were utilizing the property for contractor supply borrow material.⁶ The Corps informed White Oak it was “free to utilize [its] property in any manner” pending further action by the Corps.⁷ In 2009, Appellants applied for a permit to excavate clay on Idlewood as a source for contractor-supplied borrow material.⁸ The permit was pre-approved in October, 2010, but the Corps required Appellant to purchase mitigation bank credits in order to offset adverse environmental impacts.⁹ This caveat applied only if Idlewood’s resources were for “use in building the HSDRRS.” Appellant, upset with the cost of the credits, proposed placing 158.36 acres of “wetland and jurisdictionally determined non-wetland” forest in a conservation servitude, to be monitored by the Land Trust for Southeast Louisiana.¹⁰ The Corps rejected the proposal.¹¹ On February 20, 2013, District Commander Edward Fleming sent final notice to Appellant regarding the bank credit mitigation requirement.¹²

Procedural History

This appeal arose from the district court’s decision to grant summary judgment in favor of the Appelles on all claims. The Fifth Circuit affirmed the district court on two procedural issues, determining it had properly found White Oak had standing, and properly denied White Oak’s request to supplement the record. White Oak had standing to bring its claims because it was able to allege some injury in fact and that that “injury was within the zone of interests to be protected or regulated by the statutes that the agencies claimed to have violated.”¹³ White

Oak was not entitled to supplement the record with the Corps's Comprehensive Environmental Document (CED), which was not part of the summary judgment briefing, because the district court correctly determined the CED was not inconsistent with record evidence, and therefore added nothing to the consideration of the case.¹⁴

Issues

There were three substantive issues raised in this appeal. First, does the Water Resources Development Act (WRDA) grant the Corps the power to impose the mitigation requirement on a private party? Second, did the Corps violate the WRDA by demanding the purchase of wetland mitigation bank credits? Third, did the mitigation requirements amount to an unlawful taking under the Fifth Amendment?¹⁵

Rationale

On the first substantive issue, White Oak contends that the Corps's mitigation requirement conflicted with the WRDA for two reasons: the WRDA requires mitigation planning prior to project implementation, and the WRDA does not grant the Corps authority to require private parties to pay for mitigation.¹⁶ The court determined that the language of the WRDA was ambiguous, in turn relying on whether the Corps's answer to the issue was based on a permissible construction of the statute.¹⁷ The WRDA "commands that the Corps mitigate for any impacts 'resulting from' or 'created by' a water resource project."¹⁸ Because Congress's express intent was for the Corps to "include environmental protection as one of the primary missions of the Corps of Engineers in planning, designing, constructing, operating, and maintaining water resource projects," the Corps determination was entitled to *Chevron* deference, and thus the mitigation requirement was a reasonable interpretation of the statutory scheme.¹⁹

White Oak argued that the WRDA does not define "third party mitigation arrangement," lacked detail explaining the "extent permissible," "cost sharing," and "reimbursement" provisions, and was ambiguous about who bears the mitigation costs.²⁰ The court ruled that the Corps determination was entitled to *Chevron* deference, and therefore reasonably interpreted the WRDA in shifting the initial mitigation costs to private parties.²¹

On the second substantive issue, White Oak contended that the Corps violated the WRDA by limiting its mitigation options.²² The court determined there was no evidence that the Corps unreasonably concluded that in-kind mitigation was not possible in this instance.²³ The Corps concluded that White Oak's proposed alternative mitigation plan would be "less efficient, timely, and effective than requiring the purchase" of the credits, and that the Corps lacked the resources needed to review Appellant's extensive mitigation plan.²⁴

On the final substantive issue, White Oak contended that the Corps's mitigation and purchase requirements amounted to an unconstitutional taking under the Fifth Amendment.²⁵ An unconstitutional taking occurs when, first, "the court determines whether the claimant has identified a cognizable Fifth Amendment property interest that is asserted to be the subject of the taking,"²⁶ and second, "if the court concludes that a cognizable property interest exists, it determines whether that property interest was 'taken.'"²⁷ The Court determined White Oak failed both prongs of this test, stating that "[A] protected property interest simply 'cannot arise in an area voluntarily entered into . . . which, from the start, is subject to pervasive Government control,'"²⁸ and that even if the first prong were established, White Oak had failed to identify damage other than a lost business opportunity. The court determined that at worst, the credit requirement frustrated White Oak's ability to sell to the Corps at a competitive price, but that "[f]rustration and appropriation are essentially different things."²⁹

Conclusion

The court found no error in the district court's analysis applying *Chevron* deference to the Corps's interpretation of the WRDA, and affirming the decision in full granting summary judgment to the Corps.³⁰

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Endnotes

1. *White Oak Realty v. United States Army Corps of Eng'rs*, No. 17-30438, 2018 WL 3409911 at *2 (5th Cir. July 11, 2018).
2. *Id.*
3. *Id.*
4. *Id.* at *2, *3.
5. *Id.* at *3.
6. *Id.*
7. *Id.*
8. *Id.*
9. *Id.*
10. *Id.*
11. *Id.*
12. *Id.* at *5.
13. *Id.* at *9.
14. *Id.* at *19.
15. *Id.* at *8.
16. *Id.* at *11.
17. *Id.* at *12.
18. *Id.* at *13 (quoting 33 U.S.C. §§ 2283(b)(1), (d)(1)).
19. *White Oak Realty*, 2018 WL 3409911 at *13 (quoting 33 U.S.C. § 2316(a)).
20. *White Oak Realty*, 2018 WL 3409911 at *14.
21. *Id.* at *15.
22. *Id.*
24. *Id.*

25. *Id.* at *16.
26. *White Oak Realty*, 2018 WL 3409911 at *16 (quoting *Hearts Bluff Game Ranch, Inc. v. United States*, 669 F.3d 1326, 1329 (D.C. Cir. 2012)).
27. *White Oak Realty*, 2018 WL 3409911 at *16 (quoting *Hearts Bluff*, 669 F.3d at 1329).
28. *White Oak Realty*, 2018 WL 3409911 at *17 (quoting *Mitchell Arms, Inc. v. United States*, 7 F.3d 212, 216 (D.C. Cir. 1993)).
29. *Id.* (quoting *Omnia Commercial Co. v. United States*, 261 U.S. 502, 513 (1923)).
30. *Id.* at *19.

***Lucey v. St.-Gobain Performance Plastics Corp.*, 1:17-CV-1054, 2018 WL 2926289 (N.D.N.Y. June 11, 2018)**

Facts

Plaintiff Mary Lucey, a resident of the Village of Hoosick Falls, alleged that Defendants, Saint-Gobain Performance Plastics Corp. and Honeywell International Inc., contaminated the Village municipal water supply by negligently disposing perfluorooctanoic acid (PFOA).¹ Plaintiff also alleged that Defendants 3M Co. and E.I. DuPont de Nemours and Co., the manufacturers of PFOA, conducted decades of research on PFOA and were aware of the health and environmental risks of PFOA, including its association with many types of cancer and ulcerative colitis.² Despite this, they failed to give adequate warning of these risks and plaintiff alleges their negligence resulted in personal injuries to herself, including ulcerative colitis.³

Procedural History

Plaintiff commenced this litigation on September 21, 2017, and filed an Amended Complaint on March 19, 2018.⁴ Defendants move to dismiss.⁵

Issue

Whether Plaintiff's claims against Defendants Saint-Gobain and Honeywell are time-barred under New York's Statute of Limitations for toxic torts and whether Plaintiff's negligence and strict products liability claims against 3M and DuPont adequately allege the duty and causation elements.⁶

Rationale

Under New York's toxic tort remedial Statute of Limitations, a Plaintiff injured by the latent effects of exposure to a toxic substance has three years to commence litigation from the date the "'injury' was discovered or could have been discovered with reasonable diligence."⁷ The Statute of Limitations may be extended, first, if the cause of the injury is not immediately known, then a Plaintiff has five years to discover the cause of the injury and an additional year to file suit, for a maximum of six years from the date the injury was discovered.⁸ Second, if an area is designated as a Superfund Site, a Plaintiff has

three years from such designation to commence litigation.⁹ Applying the first exception, the court found that Plaintiff's claims expired in 2004 at the latest; six years after she was diagnosed with ulcerative colitis and 13 years prior to filing suit.¹⁰ Applying the second exception, the court found that Plaintiff's claims were "plainly timely" because she filed suit less than two years after New York designated the Saint-Gobain and Honeywell facilities a Superfund Site.¹¹

The District Court stated: "[a] manufacturer has a duty to warn against latent dangers resulting from foreseeable uses of its product of which it knew or should have known."¹² This existence of this duty depends upon whether the manufacturer is in a superior position to know of and warn against the dangers of the product.¹³ If a duty to warn exists, then the duty extends to "third persons exposed to a foreseeable and unreasonable risk of harm by the failure to warn."¹⁴ The court noted that this duty does not require the manufacturer to directly notify third persons, but rather a duty to notify the purchaser such that the purchaser knows to use the product "in a manner that reduces the bystander's exposure to a foreseeable risk of harm."¹⁵ The court reasoned that 3M and DuPont were in a superior position to know of and warn against the danger of PFOA because they had researched the health and environmental impacts of PFOA for decades.¹⁶ Here, Plaintiff's position as a third-party imposes upon 3M and DuPont a duty to warn Saint-Gobain and Honeywell about the risks of PFOA to foreseeable third-persons and methods to reduce these risks.¹⁷

To satisfy the causation prong, a plaintiff must allege facts which show "that it is reasonably probable" that the defendant was the source of the toxic substance.¹⁸ Here, the court found that Plaintiff's assertion that Saint-Gobain and Honeywell purchased the majority of their PFOA from 3M and DuPont was sufficient to survive a motion to dismiss for failure to state a claim.¹⁹ A plaintiff must only allege facts "from which defendant's liability may be reasonably inferred."²⁰

Conclusion

The court denied the motions to dismiss made by all Defendants because Plaintiff's complaint was timely filed and it alleged facts sufficient to state a failure to warn claim and a negligence claim.²¹

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Endnotes

1. *Lucey v. St.-Gobain Performance Plastics Corp.*, 1:17-CV-1054, 2018 WL 2926289, at *1 (N.D.N.Y. June 11, 2018).
2. *Id.* at *1-2.
3. *Id.* at *1.
4. *Id.*
5. *Id.* at *3.
6. *Id.*

7. *Id.* at *4; New York Civil Practice Law and Rules (“CPLR”) § 214-c.
8. *Lucey*, 2018 WL 2926289 at *5; CPLR § 214-c(4).
9. *Lucey*, 2018 WL 2926289 at *5; CPLR § 214-f.
10. *Lucey*, 2018 WL 2926289, at *5.
11. *Id.*
12. *Id.* at *6 (quoting *In re N.Y.C. Asbestos Litig.*, 59 N.E.3d 458, 470 (N.Y. 2016)).
13. *Lucey*, 2018 WL 2926289 at *7.
14. *Lucey*, 2018 WL 2926289 at *6 (quoting *In re N.Y.C. Asbestos Litig.*, 59 N.E.3d at 470).
15. *Lucey*, 2018 WL 2926289 at *6 (citing *LaPaglia v. Sears Roebuck and Co., Inc.*, 531 N.Y.S.2d 623, 626 (App. Div. 1988)).
16. *Lucey*, 2018 WL 2926289 at *7.
17. *Id.*
18. *Id.* at *8 (quoting *Healey v. Firestone Tire & Rubber Co.*, 663 N.E.2d 901, 903 (N.Y. 1996)).
19. *Lucey*, 2018 WL 2926289 at *8.
20. *Id.* at *9 (quoting *Millerman v. Georgia Pacific Corp.*, 625 N.Y.S.2d 29, 30 (App. Div. 1995)).
21. *Lucey*, 2018 WL 2926289 at *9.

Center for Biological Diversity v. Zinke, 900 F.3d 1053 (9th Cir. 2018)

Facts

The Fish and Wildlife Service (FWS) first began considering whether to list the arctic grayling as endangered or threatened in 1982.¹ Although listing the arctic grayling was “possibly appropriate,” FWS decided not to list it due to insufficient data.² Another petition was brought in 1994 but the FWS determined that listing the arctic grayling was “warranted but precluded” by other listing obligations and therefore only given a listing priority of nine.³ FWS raised the listing priority to a three in 2003, in response to challenges of the 1994 findings.⁴ FWS settled the litigation challenging the 1994 findings by agreeing to issue a revised listing determination by 2007.⁵ In 2007 FWS determined the arctic grayling did not warrant protection because it was not a distinct population segment.⁶ Another action was brought with the parties ultimately settling; the FWS would decide by 2010 whether listing the arctic grayling was warranted.⁷ In 2010, FWS decided that listing the arctic grayling was “warranted but precluded” by higher priority actions.⁸ The reasoning FWS provided for rate given in the 2010 findings was reached because studies found low stream flows and high stream temperatures harmed the arctic grayling, combined with a lower long-term genetically viable population size.⁹ The FWS stipulated they would issue either a proposed listing rule or a not-warranted finding by 2014; a not warranted decision was issued.¹⁰

Procedural History

Center for Biological Diversity (CBD) challenged FWS’s determination that the listing of the arctic grayling was not warranted.¹¹ CBD alleged that the 2014 Finding

(1) “arbitrarily relied on unsupported population increases to conclude that the arctic grayling is not threatened by small population size”; (2) “did not properly evaluate whether the arctic grayling is threatened by lack of water in streams and high water temperatures”; and (3) “did not properly analyze whether lost historical range constitutes a ‘significant portion of [the arctic grayling’s] range.’”¹² The district court granted summary judgment in favor of FWS; CBD appealed.

Issue

Whether the FWS acted arbitrarily and capriciously when deciding not to list the arctic grayling as an endangered species?

Rationale

In 2014 FWS defined range in the statute as “the general geographical area within which that species can be found at the time [FWS] makes any particular status determination.”¹³ CBD argues that the court is bound by two prior cases holding that range means historical range rather than current range under 16 U.S.C. § 1532.¹⁴ The court previously held “that FWS must at least explain why the lost and threatened portions of a species’ range are insignificant before disregarding historical range.”¹⁵ There exists ambiguity in the definition of range, the most common definition being “a geographical reference to the physical area in which a species lives or occurs.”¹⁶ Although there is some support for interpreting range to mean historic range, this court was “not persuaded that the ‘unambiguously expressed intent of Congress’ was to define ‘range’ as ‘historical range.’”¹⁷ In that the use of the word “range” was ambiguous, deference was given to FWS in deciding to use “current range” because the current threat of losing their habitat is the biggest threat to these endangered or threatened species.¹⁸

The CBD additionally argued that the 2014 findings were arbitrary and capricious in that the 2014 determination was not based on the “best scientific and commercial data available.”¹⁹ While decisions by agencies are often given deference, a court will not “defer to the agency when the agency’s decision is without substantial basis in fact,” and be based off the “best scientific and commercial data available.”²⁰ FWS acted arbitrarily and capriciously in ignoring the additional available data which provided contrary evidence to the claim that the number of breeding arctic grayling had increased from the 2010 findings, because the agency cannot ignore available biological data.²¹ In this case, FWS had additional data that contradicted previous findings, and the court stated that FWS should have, at minimum, acknowledged the additional data in the 2014 findings.²²

The court further found that FWS acted arbitrarily and capriciously in rejecting threats of low stream flows and high stream temperatures based mainly on an unsupported finding that arctic grayling could migrate from areas of the Big Hole River to survive in colder water.²³

Where the 2010 findings determined listing was warranted regardless of the ability to migrate, the 2014 Finding did not state a reasonable explanation for such a change.²⁴

FWS ignored the effects of climate change in looking at the effects of low stream flows and high-water temperatures, FWS must “explain why uncertainty justifies its conclusion.”²⁵ As a result, FWS acted arbitrarily and capriciously by “failing to explain why the uncertainty of climate change favors not listing the arctic grayling when the 2014 Finding acknowledges the warming of water temperatures and decreasing water flow because of global warming.”²⁶

Lastly, the court found that the determination, based on five years of observation, that there was no longer a concern due to the increase in the number of breeding individuals in the Ruby River over the last three years, was arbitrary and capricious because judging viability “requires at least 10 years of monitoring.”²⁷

Conclusion

The court reversed the district court’s grant of summary judgment, holding that (1) in ignoring the DeHaan study, (2) failing to provide a reasoned explanation for reliance on cold water refugia in the Big Hole River, (3) failing to consider the effects of climate change because of uncertainty, and (4) concluding that Ruby River population is viable based on a shorter period was arbitrary and capricious.²⁸

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Endnotes

1. *Center for Biological Diversity v. Zinke*, 900 F.3d 1053, 1060 (9th Cir. 2018).
2. *Id.* at 1060.
3. *Id.*
4. *Id.* at 1060–61.
5. *Id.* at 1061.
6. *Id.*
7. *Id.*
8. *Id.*
9. *Id.*
10. *Id.* at 1061.
11. *Id.* at 1062.
12. *Id.*
13. *Id.* at 1063 (quoting 79 Fed. Reg. 37, 609 (July 1, 2014)).
14. *Zinke*, 900 F.3d at 1063.
15. *Id.* at 1064; see *Defenders of Wildlife v. Norton*, 258 F.3d 1136 (9th Cir. 2001); *Tucson Herpetological Society v. Salazar*, 566 F.3d 870 (9th Cir. 2009).
16. *Zinke*, 900 F.3d at 1064.
17. *Id.* at 1066 (quoting *Chevron U.S.A., Inc. v. National Res. Def. Council, Inc.*, 467 U.S. 837, 843 (1984)).
18. *Zinke*, 900 F.3d at 1066.
19. *Id.* at 1068.

20. *Id.* at 1068 (quoting *Arizona Cattle Growers’ Ass’n v. Salazar*, 606 F.3d 1160, 1163 (9th Cir. 2010)).
21. *Zinke*, 900 F.3d at 1068.
22. *Id.* at 1068–69.
23. *Id.* at 1070.
24. *Id.* at 1070.
25. *Id.* at 1072.
26. *Id.* at 1073 (quoting *Greater Yellowstone Coal., Inc. v. Servheen*, 665 F.3d 1015, 1029 (9th Cir. 2011)).
27. *Zinke*, 900 F.3d at 1073.
28. *Id.*

***Adirondack Historical Assn. v. Village of Lake Placid/Lake Placid Vil., Inc.*, 161 A.D.3d 1256 (N.Y. App. Div. 2018)**

Facts

In 2017, Lake Placid Village Board of Trustees (“Respondent”) began “a plan to redevelop Main Street in the Village of Lake Placid” named “Lake Placid Main Street Reconstruction Project.”¹ The plan included the acquisition of Adirondack Historical Association’s (“Petitioner”) two vacant parcels of real property for the purpose of building a parking garage.² When Respondent’s attempt to negotiate for the purchase of Petitioner’s property failed, Respondent then proceeded with an acquisition under eminent domain.³ As a result, Respondent began a new State Environmental Quality Review Act (SEQRA) process for the proposed condemnation.⁴ “Following a public hearing and a written comment period, and upon review of an environmental assessment form,” Respondent concluded that the condemnation for the parking garage “would not create the potential for any negative environmental impacts.”⁵

Procedural History

Pursuant to N.Y. Eminent Domain Procedure Law § 207 Petitioner commenced this proceeding requesting a review of Respondent’s determination for the condemnation of Petitioner’s two parcels of real property.⁶

Issue

First, whether Respondent’s review process was “impermissibly segmented.”⁷ Second, whether the Respondents failed to take “the requisite hard look at potential traffic implications associated with the construction of a parking garage on the [Petitioner’s property] or to set forth a reasoned elaboration of the basis for its determination that the development property would not result in any substantial increase in traffic.”⁸

Rationale

Petitioner alleged that Respondent’s SEQRA review process was impermissibly segmented because separate review processes were undertaken between the Main Street redevelopment project and the proposed parking

garage.⁹ “Segmentation is ‘the division of the environmental review of an action such that various activities or stages are addressed [for the purposes of environmental quality review] as though they were independent, unrelated activities.’”¹⁰ The court found that the separate reviews were not undertaken “for the purpose of circumventing the detailed review called for under SEQRA.”¹¹ Instead, the separate review “took place due to the fact that the [Respondent] was unaware of its need to exercise its power of eminent domain to condemn the [Petitioner’s property] at the time of its SEQRA review with respect to the redevelopment project.”¹²

The court then addressed the Petitioner’s allegation that Respondents failed comply with SEQRA by not taking the “requisite hard look” at the environmental concerns of the proposed condemnation.¹³ The Respondent/condemnor must “identif[y] the relevant areas of environmental concern, [take] a hard look at them, and make a reasoned elaboration of the basis for its determination.”¹⁴ Only literal compliance with “the letter and spirit of SEQRA” will suffice.¹⁵ The court found that “adverse change in traffic levels is such a[n] area of environmental concern,” and the Respondent failed to satisfy SEQRA with its review process.¹⁶ Concerns over the increased traffic congestion and other potential traffic impacts were repeatedly voiced during the public review process; however, the record shows the Respondent gave the concerns little consideration and offered only a conclusory statement in support of its assertion that “[t]here is no significant environmental impact that could not be mitigated with reasonable measures.”¹⁷ Failure on the part of the Respondent to “set forth a record-based elaboration for its conclusion that the identified traffic concerns were not significant, the SEQRA findings and determinations made in connection with the condemnation of the [Petitioner’s property] must be vacated.”¹⁸

Conclusion

The court annulled the Respondent’s determination and granted the petition.

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Endnotes

1. *Matter of Adirondack Historical Ass’n v. Vill. Of Lake Placid/Lake Placid Vill., Inc.*, 161 A.D.3d 1256, 1257 (N.Y. App. Div. 2018).
2. *Id.*
3. *Id.*
4. *Id.*
5. *Id.*
6. *Id.* at 1256.
7. *Id.* at 1257.
8. *Id.* at 1258.
9. *Id.* at 1257.
10. *Id.* (quoting 6 N.Y.C.R.R. § 617.2)

11. *Id.* (quoting *Forman v. Trustees of State Univ. of N.Y.*, 757 N.Y.S.2d 180, 182 (2003)).
12. *Id.* at 1257–58.
13. *Id.* at 1258.
14. *Id.* (quoting *Jackson v. New York State Urban Dev. Corp.*, 494 N.E.2d 429, 503 (1986)).
15. *Id.* at 1258 (quoting *Board of Coop. Educ. Servs. of Albany-Schoharie-Schenectady-Saratoga Counties v. Town of Colonie*, 702 N.Y.S.2d 219, 223 (N.Y. App. Div. 2000)).
16. *Id.* at 1258, 1259.
17. *Id.* at 1259.
18. *Id.* at 1259–60.

***Pilot Travel Centers, LLC v. Town Bd. of Town of Bath*, 163 A.D.3d 1409 (N.Y. App. Div. 2018)**

Facts

Petitioner operates Pilot Travel Centers directly across from where applicant, Love’s Travel Stops & Country Stores, sought to purchase and construct a travel center at the location of the current Kanona Truck Stop.¹ Thereafter, the Town of Bath Planning Board designated itself as lead agency under the State Environmental Quality Review Act (SEQRA) and Love’s submitted a site plan application for the project.² A public hearing was held and attended by Petitioner’s counsel although counsel did not comment or object to any statement made at the hearing.³ After the hearing, the Planning Board issued a negative declaration under SEQRA and determined that the project would not create significant adverse environmental impacts and did not require the completion of an Environmental Impact Statement (EIS).⁴

Procedural History

Seeking to enjoin construction, Petitioner commenced a proceeding pursuant to CPLR Article 78 to annul the negative declaration alleging that the Planning Board failed to take the requisite hard look required by SEQRA and failed to require an EIS as required under the Town Code.⁵ Thereafter, the Town repealed Chapter 59 of the Town laws as it “was no longer consistent with SEQRA.”⁶ The supreme court, in the first appeal, denied Petitioner’s request to annul the negative declaration; although, while this appeal was pending, Petitioner, in a second action, sought to annul Chapter 59.⁷ After the court dismissed Petitioner’s second claim for lack of standing, Petitioner appealed both denials.⁸

Issue

Should the court have granted petitioner’s request to enjoin construction of the project and to annul the negative declaration on the grounds that the Planning Board failed to require an EIS for the project as mandated by Chapter 59 of the Town Code, and to take the requisite “hard look” at the environmental impact of the project?

Rationale

Based on the first appeal, the court found the allegations of harm sufficient to give Petitioner standing and effected by the repeal of Chapter 59 of the Town Code.⁹ However, due to the Petitioner's counsel's silence during the public hearing and insufficiency of the FOIL request to put the Planning Board on notice of the specific concerns, the court found that petitioner failed to exhaust the available administrative remedies.¹⁰

Petitioner claimed that the Planning Board's decision was arbitrary and capricious as it did not comply with Chapter 59 of the Town Code. The court denied this claim finding that this provision was inconsistent with SEQRA and "[a] local law that is inconsistent with SEQRA must be invalidated."¹¹ The court found that the Planning Board followed the procedures required by SEQRA, and because the Petitioner did not show irreparable harm, the supreme court did not abuse its discretion in denying the preliminary injunction.¹² Lastly, the court found that petitioner did not have standing to commence the second article 78 proceeding, challenging the repeal of Chapter 59, because Petitioner failed to show that the repeal would create an injury unique to Petitioner.¹³

Conclusion

The judgment appealed from was unanimously affirmed by the court.¹⁴ Petitioner failed to exhaust its administrative remedies with respect to its challenge to board's issuance of negative declaration. Chapter 59 was inconsistent with SEQRA and was rightly repealed. The Petitioner lacked standing to challenge the repeal of Chapter 59 because it failed to show that repealing Chapter 59 would create an injury unique to it.

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Endnotes

1. *Pilot Travel Centers, LLC v. Town Bd. of Town of Bath*, 163 A.D.3d 1409, 1410 (N.Y. App. Div. 2018).
2. *Id.*
3. *Id.*
4. *Id.*
5. *Id.*
6. *Id.*
7. *Id.* at 1410–1411.
8. *Id.* at 1411.
9. *Id.*
10. *Id.*
11. *Id.* (citing *Miranda Holdings, Inc. v. Town Bd. of Town of Orchard Park*, 152 A.D.3d 1234, 1236 (4th Dept. 2017)).
12. *Id.* at 1412.
13. *Id.*
14. *Id.* at 1410.

Cooling Water Intake Structure Coalition v. United States EPA, 898 F.3d 173 (2d Cir. 2018)

Facts

In 1972, Congress amended the Clean Water Act (CWA) to specifically address the operation of cooling water intake structures (CWIS). Section 316(b) of the CWA requires the Environmental Protection Agency (EPA) to assure that "the location, design, construction, and capacity of [CWISs] reflect the best technology available [BTA] for minimizing adverse environmental impact."¹ The standards promulgated under § 316(b) are implemented by permits issued through the National Pollutant Discharge Elimination System (NPDES). However, in the absence of regulations that establish standards for BTA, § 316(b) has been applied inconsistently.

In 2014, the EPA promulgated its Final Rule under § 316(b) of the CWA to establish BTA standards for CWISs to reduce impingement and entrainment of aquatic organisms at existing power plants and manufacturing facilities.² The Final Rule applies to existing power plants and manufacturing facilities that withdraw more than two million gallons of water per day and use at least 25 percent of the withdrawal exclusively for cooling purposes. The EPA consulted on the Final Rule with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service ("the Services") as required under § 7 of the Endangered Species Act (ESA). Section 7 of the ESA requires federal agencies to consult with the Services to ensure that any agency action is not likely to jeopardize ESA-listed species or result in the destruction or adverse modification of a designated critical habitat for such species.³ As part of the consultation, the EPA received a Biological Opinion (BO) and an incidental take statement (ITS) jointly issued by the Services that concluded the Final Rule is not likely to jeopardize the continued existence of ESA-listed species or result in the destruction or adverse modification of a designated critical habitat.⁴ The Final Rule represents the EPA's third attempt to regulate CWISs at existing power plants and manufacturing facilities since § 316(b) was adopted in 1972.⁵

Procedural History

The Second Circuit reviewed four consolidated petitions challenging the Final Rule and the BO: (1) the Environmental Petitioners, (2) the Utility Water Act Group (UWAG), (3) the American Petroleum Institute (API), and (4) the CWIS Coalition.⁶

Issue

Whether the EPA's Final Rule under § 316(b) of the CWA and the Services' underlying BO were based on "reasonable interpretations" of the CWA, Administrative Procedure Act (APA), and ESA, and were "sufficiently supported by the factual record."⁷

Rationale

The four consolidated petitions raised challenges to the EPA's Final Rule and the Services' BO based on the CWA, APA, and ESA. In reviewing the Final Rule and BO, the court considered whether they were "arbitrary, capricious, an abuse of discretion or otherwise not in accordance with law."⁸ The court reviewed each petition separately.

The Environmental Petitioners argued that: (1) the Final Rule's entrainment and impingement standards violated § 316(b) of the CWA; (2) the EPA's definition of a "new unit" violated the APA; and (3) the BO and ITS violated the ESA and the Services' implementing regulations.

The court rejected the CWA-based challenges. The Environmental Petitioners argued that the EPA's determination to not adopt closed-cycle cooling as the national BTA to minimize entrainment mortality violated § 316(b) of the CWA. The court rejected that argument and held that the EPA acted reasonably in establishing BTA standards to minimize entrainment mortality on a case-by-case basis. In making the determination, the court relied on its holding in *Riverkeeper I*,⁹ where it determined that the CWA does not forbid the EPA from regulating environmental issues on a case-by-case basis where a national standard is not technically feasible.¹⁰ Accordingly, the court also rejected the argument that the EPA acted arbitrarily and capriciously when it concluded that closed-cycle cooling is not nationally available. The court reasoned that the EPA acted rationally in determining that closed-cycle cooling was not nationally available due to significant barriers that prevented many facilities from retrofitting to incorporate closed-cooling systems.¹¹ Based on the Supreme Court's holding in *Entergy Corp. v. Riverkeeper, Inc.*,¹² the court also concluded that EPA can rely on a cost-benefit analysis when determining BTA standards under § 316(b) of the CWA.¹³

Similarly, the court upheld the impingement standards and concluded that the EPA acted reasonably in concluding that closed-cycle cooling is not nationally available as BTA. The court also determined that the EPA acted rationally in affording Directors of the NPDES programs some discretion in determining whether a facility's impingement reduction efforts are adequate, because overall impingement reduction at an individual site cannot always be measured only by survival or mortality percentages.¹⁴

Next, the court rejected the Environmental Petitioners' challenge under the APA to the definition of "new unit," which excluded "rebuilt, repowered, and replacement units." The Environmental Petitioners argued that the EPA's decision to exclude rebuilt, repowered, and replacement units from the definition of "new unit" had no rational connection to the facts found. The court

disagreed, reasoning that the EPA had a "satisfactory explanation" for limiting the definition of "new unit."¹⁵

Lastly, the court rejected the Environmental Petitioners' ESA-based challenges related to the BO and the ITS underlying the Final Rule. The Environmental Petitioners argued that the Services' conclusion in the BO that the Final Rule is unlikely to jeopardize ESA-listed species or destroy or adversely modify their critical habitat violated § 7 of the ESA. The court held that the Services' BO was consistent with the ESA and the no-jeopardy finding was supported by the record.¹⁶ In reaching this decision, the court noted that the Services made no formal finding that any species are, as the Environmental Petitioners argued, "currently in jeopardy or nearly so."¹⁷ In addition, the court upheld the Services' "technical assistance process" (rather than site- and species-specific analyses) for reaching its no-jeopardy conclusion.¹⁸ The Environmental Petitioners objected to this technical assistance process, claiming it was "wholly voluntary," but the court disagreed and interpreted the Final Rule to require the Services to provide technical assistance if there are ESA-species present.¹⁹ With respect to the ITS, the Environmental Petitioners argued that the Services' ITS failed to numerically quantify the Final Rule's anticipated take. The court held it was reasonable for the Services to determine that the lack of data on facilities with CWISs prevented the numerical quantification of anticipated takes. Additionally, the court found it was adequate for the Services' to rely on its field offices' quantification of incidental takes at their individual facilities as part of the technical assistance process.²⁰

The UWAG also challenged the Final Rule, arguing that: (1) the EPA violated the APA by failing to provide notice of and an opportunity to comment on the Final Rule; (2) the EPA unlawfully delegated its authority under the CWA to the Services; and (3) the Services violated the ESA by issuing a BO that relied on an erroneous environmental baseline. The Court concluded that there is no independent right to public comment regarding consultations conducted under § 7(a)(2) of the ESA unless the scientific material in the BO forms the basis for the rule, which was not the case for the Final Rule.²¹ The Court also rejected UWAG's argument that the EPA unlawfully delegated its authority to the Services because the Final Rule does not require that the Directors of the NPDES programs accept the Services' recommendations and that the EPA did not abdicate its final reviewing authority by providing for the Services' input.²² The Court also rejected UWAG's challenge to the Services' BO, concluding that the agencies acted reasonably in conducting formal consultation and in determining that the effects of future CWIS operations on listed species are appropriately considered indirect effects, which are not included in an environmental baseline.²³

Next, the API argued that the Final Rule failed to provide adequate notice of the definition "new unit,"

but the court disagreed with API, noting that API commented on the proposed definition of “new unit” during the comment period.²⁴ Finally, the CWIS Coalition argued that the EPA acted unreasonably with respect to both permit application and BTA requirements for certain intake structures, but the court rejected those arguments finding that the CWIS Coalition misinterpreted those requirements.²⁵

Conclusion

The Court denied the petitions for review, concluding that the Final Rule and the BO were based on “reasonable interpretations” of the law and “sufficiently supported by the factual record,” and “because the EPA gave adequate notice of its rulemaking.”²⁶

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Endnotes

1. *Cooling Water Intake Structure Coalition v. United States EPA*, 898 F.3d 173, 183 (2d Cir. 2018).
2. CWISs can trap, or “impinge,” larger aquatic organisms against the structures and draw, or “entrain,” smaller aquatic organisms into a facility’s cooling system. *Id.* at 182.
3. *Id.* at 184.
4. *Id.* at 186–87.
5. *See id.* at 185–86 (summarizing the regulatory history of prior attempts to promulgate a § 316(b) rule).
6. Petitions for review of the EPA’s Final Rule were originally filed in six U.S. circuit courts. *Id.* at 187. The Fourth Circuit consolidated the petitions and transferred them to the Second Circuit. *Id.*
7. *See id.* at 182.
8. *See id.* at 188 (citations omitted) (stating standard of review for an agency rule and BO).
9. *Riverkeeper, Inc. v. United States EPA (Riverkeeper I)*, 358 F.3d 174 (2d Cir. 2004).
10. *Cooling Water Intake Structure Coalition*, 898 F.3d at 190 (citing *Riverkeeper I*, 358 F.3d at 203).
11. *Cooling Water Intake Structure Coalition*, 898 F.3d at 189, 190–91 (citations omitted) (identifying constraints on land availability, increased air emissions, and the time required to design and construct closed-cycle facilities as significant barriers).
12. *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208 (2009).
13. *Cooling Water Intake Structure Coalition*, 898 F.3d at 191–92 (citing *Entergy*, 556 U.S. at 218–220, 226).
14. *Cooling Water Intake Structure Coalition*, 898 F.3d at 193–94.
15. *See id.* at 194 (reviewing Environmental Petitioners’ new unit definition challenge and explaining the EPA’s basis for the definition).
16. *See id.* at 198–99.
17. *Id.* at 199.
18. *See id.* at 199–200 (describing the Services’ technical assistance process for its jeopardy analysis).
19. *Id.* at 196, 199–200.
20. *Id.* at 200.
21. *Id.* at 202 (citing *Nat’l Ass’n of Home Builders v. Defenders of Wildlife*, 551 U.S. 644, 660 n.6 (2007)).
22. *Cooling Water Intake Structure Coalition*, 898 F.3d at 203 (first quoting *Fund for Animals v. Kempthorne*, 538 F.3d 124, 133 (2d Cir.

2008); then citing *United States Telecom Ass’n v. FCC*, 359 F.3d 554, 568 (D.C. Cir. 2004)).

23. *See Cooling Water Intake Structure Coalition*, 898 F.3d at 203–05.

24. *See id.* at 205.

25. *See id.* at 206–07 (reviewing CWIS Coalition’s challenges to permit application and BTA requirements).

26. *Id.* at 182; *see also id.* at 207 (summarizing holdings for all petitioner groups’ arguments).

Delaware Riverkeeper Network v. Federal Energy Regulatory Commission, 895 F.3d 102 (D.C. Cir. 2018)

Facts

The Natural Gas Act requires companies to acquire a certificate of public convenience and necessity before constructing facilities to transport natural gas.¹ The Federal Energy Regulatory Commission (FERC) “must issue a certificate to a qualified applicant if the proposed project is ‘required by the present or future public convenience and necessity.’”² Funding for FERC consists of annual appropriations fixed by Congress;³ FERC is further required to “‘assess and collect’ from the various industries that it regulates . . . ‘fees and annual charges . . . in amounts equal to all of the costs incurred by the Commission in that fiscal year.’”⁴ “A party ‘aggrieved by an order issued by [FERC] in a proceeding under’ the Natural Gas Act may seek rehearing.”⁵ However, unless FERC acts within 30 days of the filing of the hearing, the application is deemed to be denied and the aggrieved party may seek judicial review in the court of appeals within sixty days after FERC’s order is released.⁶

Procedural History

In 2016, the Delaware Riverkeeper Network (“Riverkeeper”) filed a complaint seeking declaratory relief against FERC and its members, alleging a violation of the Due Process Clause of the Fifth Amendment.⁷ In the district court, Riverkeeper alleged that FERC’s funding structure creates a structural bias in violation of the Fifth Amendment by (i) incentivizing FERC to approve new natural-gas pipelines to secure future funding sources;⁸ and (ii) frustrating judicial review through the use of tolling orders.⁹ Riverkeeper appeals.¹⁰

Issues

The court addressed two issues: first, whether the FERC violated the Due Process Clause of the Fifth Amendment by creating a structural bias through approving new pipelines to secure additional sources of future funding;¹¹ second, whether FERC frustrates judicial review through the use of tolling orders.¹²

Rationale

“Riverkeeper grounded its due-process claim in environmental interests and in real-property interests created under [a] Pennsylvania law [(“Environmental

Rights Amendment”)],¹³ which generally states that the people of Pennsylvania have a right to ‘clean air, pure water, and to the preservation of . . . the environment.’¹⁴ To determine whether this due-process claim is valid the court analyzed whether the Pennsylvania statute creates a federally protected liberty or property interest in the environment, that FERC would violate through the processes above mentioned.

The court found that there is no valid federally protected liberty or property interest created in the Environmental Rights Amendment, because the Amendment “bears no relationship to the quintessential liberty interest[s]” that have been thus far recognized.¹⁵

For the question of whether the Environmental Rights Amendment created a property interest in a healthy environment, the court looked to the Supreme Court, which established several guideposts on when a state-created right or benefit would qualify as “property” for due process purposes.¹⁶ In *Town of Castle Rock v. Gonzales*,¹⁷ the Supreme Court stated that “‘a person clearly must have more than an abstract need or desire’ and ‘more than a unilateral expectation of [the benefit]. He must, instead, have a legitimate claim of entitlement to it.’”¹⁸ A person shows a legitimate claim of entitlement to a property interest where (i) there is the right to exclude others, (ii) the interest is not vague or indeterminate, (iii) there is some ascertainable monetary value, and (iv) the interest resembles a traditional conception of property.¹⁹ In weighing the above factors, the court found that the “state-created right to clean air, pure water, and preservation of the environment does not qualify as a federally protected ‘property’ interest.”²⁰

The court also analyzes whether FERC, as an adjudicator, violates due-process rights through the approval of natural gas pipelines and the recovery of costs incurred from the certification process, making FERC partial to the outcome of the certification process.²¹ The court stated that “[d]ue process requires an ‘impartial and disinterested’ adjudicator . . . and prohibits structures that might lead the adjudicator ‘not to hold the balance nice, clear and true.’”²² The court concluded that FERC’s funding structure does not create a structural bias, and that FERC is an impartial and disinterested adjudicator, because the monetary reimbursement that FERC is required to collect from the various industries that it regulates is not the source of funding that it uses to function as a federal agency — that funding is set when Congress provides FERC’s annual appropriation.²³

Regarding Riverkeeper’s argument challenging FERC’s use of tolling orders, the Court reiterated previ-

ous findings that “FERC’s use of tolling orders is permissible under the Natural Gas Act, which requires only that [FERC] ‘act upon’ a rehearing request within 30 days, not that it finally dispose of it.”²⁴ The court noted that Riverkeeper could pursue relief through challenging individual situations where FERC used a tolling order that caused unreasonable or unconstitutional delay.²⁵ However, in this case Riverkeeper only challenged FERC’s general authority to use tolling orders, not an individual tolling order.

Conclusion

The court affirmed the district court’s judgment and dismissed Riverkeeper’s appeal for lack of constitutional merit.²⁶

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Endnotes

1. *Delaware Riverkeeper Network v. Federal Energy Regulatory Commission*, 895 F.3d 102, 105 (D.C. Cir. 2018).
2. *FERC*, 895 F.3d at 106.
3. *Id.* (citing 42 U.S.C. § 717(j)).
4. *FERC*, 895 F.3d at 106.
5. *Id.* (citing 15 U.S.C. 717r(a)).
6. *FERC*, 895 F.3d at 106.
7. *Id.*
8. *FERC*, 895 F.3d at 106 (citing *Delaware Riverkeeper Network v. FERC*, 243 F. Supp. 3d 141 (D.D.C. 2017)).
9. *Id.*
10. *FERC*, 895 F.3d at 106.
11. *Id.*
12. *Id.*
13. *FERC*, 895 F.3d at 108.
14. *Id.* (quoting Pa. Const. art. I, § 27).
15. *FERC*, 895 F.3d at 108.
16. *Id.* (citing *Town of Castle Rock v. Gonzales*, 545 U.S. 748 (2005)).
17. *Town of Castle Rock v. Gonzales*, 545 U.S. 748 (2005).
18. *FERC*, 895 F.3d at 108–09 (citing *Town of Castle Rock v. Gonzales*, 545 U.S. 748 (2005)).
19. *Id.*
20. *Id.* at 109.
21. *Id.* at 111.
22. *Id.*
23. *Id.* at 112.
24. *Id.* at 113.
25. *Id.*
26. *Id.*

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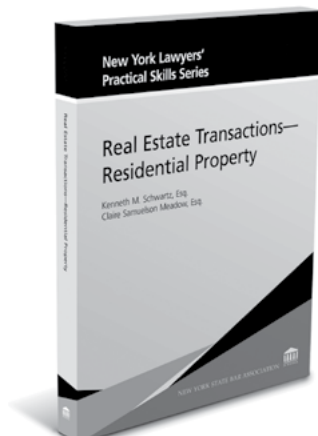
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