Union of Concerned Scientists

Catalyst

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Children and "Danger Season"

Summer poses more and more risks

An Equitable Electricity Grid

Who Was Behind Hacking of UCS?

[Union of Concerned Scientists

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The Union of Concerned Scientists puts rigorous, independent science to work to solve our planet's most pressing problems. Joining with people across the country, we combine technical analysis and effective advocacy to create innovative, practical solutions for a healthy, safe, and sustainable future.

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Endless Summer

As a child, Johanna Chao Kreilick (far right) spent summers playing with her cousins in the woods near her home in Ohio.

By the time you read this, we'll be about halfway through "Danger Season," the months from May to October when many of us will suffer from the colliding, compounding impacts of climate change like wildfires, extreme heat, droughts, and storms. I hope you're staying safe.

As a kid who spent my summers on the border of Appalachian Ohio, I relished time with my two sisters and 10 cousins, catching fireflies, sipping Vernors ginger ale, picking blackberries bigger than my dad's thumb, and watching tadpoles in the creek skirting my grandparents' alfalfa fields. I used to wish for an endless summer.

Five decades later, my cousins and their neighbors now dread Danger Season in Stark County. They are coping with wetter, hotter conditions that drag on way longer than in the years of my youth. Today, an Ohio summer brings deadly, weeklong heat waves, humid nights that offer little cooling relief, and punishing drought.

Ohio isn't an outlier: we're teetering on the brink of summers around the world that are intolerably hot—too hot to survive. According to a new United Nations report released this spring, there's a 98 percent chance that one of the next five years will be the hottest on record, and a 66 percent chance that annual average global temperatures will rise more than 1.5°C (temporarily) in the next four years.

Pulitzer Prize–winning author and UCS Fellow Derrick Jackson's essay on Danger Season in this issue (p. 8) is a clear-eyed look at what we, our children, and our children's children are losing and have already lost. Derrick's message is sobering, but also rings with moral clarity. Because for all the perils we face, we also stand at a moment of tremendous opportunity to put ourselves on the path to a more just future.

That is why UCS continues undeterred in our work, forging fellowship with local partners to ensure a clean-energy transition that leaves no one behind (p. 14). It's why we are using science to point the finger at polluters so they pay for their fair share of climate damages, even—or especially—when they fight dirty (p. 18). And it's why we care about investing in health research for farmworkers who labor on the front lines of climate change every day (p. 22) to nourish our families.

Thank you for your steadfast support of UCS: with you at our side we will keep wielding science and data in our fight for a livable future. {C}

***Johanna Chao Kreilick** is president of UCS.*

Photos: Tara Rice (Johanna Chao Kreilick); Johanna Chao Kreilick (childhood photo)

UCS ON THE RECORD . . . AND HAVING AN IMPACT

"On one of our stops, we visited a home day care center. It was located right next to a distribution warehouse with heavy truck traffic and stood across the street from a large railyard that . . . is a big source of harmful diesel pollution. The care provider watches an indoor and outdoor air pollution [monitor] to determine when kids can go outside to play."

***KRISTIE ELLICKSON**, UCS Kendall Fellow, on a "toxics tour" she took with members of partner organization CleanAirNow in Kansas City, Kansas*

"I'm relieved and pleased that the EPA has finally issued proposed standards on ethylene oxide that are based on their own scientists' recommendations on an updated, higher cancer risk value. If enacted, these updated regulations would reduce emissions in fenceline communities."

***DARYA MINOVI**, a senior research analyst with the Center for Science and Democracy at UCS, on new ethylene oxide regulations (see p. 5)*

"Large portions of the US population are now experiencing 'Danger Season' for fully half of the year. . . . We hope UCS's new [map] can help demonstrate that climate change is affecting people here and now, and that people in marginalized communities tend to bear the brunt of extreme weather worsened by climate change."

***JUAN DECLET-BARRETO**, UCS senior social scientist for climate vulnerability, on the interactive map he created for tracking US wildfires, flooding, tropical storms, or extreme heat in real time (https://dangerseason.ucsusa.org)*

"I'm grateful to [UCS] for creating an atmosphere where everyone was open-minded and willing to listen. It was important to put the urgency of action aside for a couple of days and build trust in an anxiety-free environment."

***CAROLINA ORTIZ**, associate executive director of C.O.P.A.L. and a participant in the UCS Equitable Grid Principles convening (see p. 14)*

"It's a good drug . . . it's hard to make a case against it if you are examining the science. The only case you can really make against that is if you put in non-scientific considerations."

***ANITA DESIKAN**, senior analyst in the Center for Science and Democracy at UCS, in an* Inverse *magazine story on the implications of courts limiting access to mifepristone, which is used not only for medication abortions, but to treat other, unrelated health conditions*

"[This dust storm] was a product of a really windy day at a time when farmers in the area had just plowed their fields and the wind picked up all this dust. To me, the practices that many farmers use, together with climate change—that may bring drier weather more intensely and at different times of the year than have been usual—could bring more of these kinds of events."

***KAREN PERRY STILLERMAN**, deputy director of the UCS Food and Environment Program, from an Illinois Public Radio story about a May dust storm that caused a 72-car pileup on Interstate 55, killing seven people*

[IN THIS ISSUE]

Supreme Court Allows Lawsuits Against Big Oil Companies to Proceed

In an important win for climate accountability in the United States, a move by the US Supreme Court this spring means that lawsuits seeking climate-related damages against fossil fuel companies can remain in state courts. As one of several delaying tactics employed over the past five years, the companies had argued that the cases should be heard in federal court, where they hoped for a more favorable outcome than in the states where they have caused harm. In rejecting that argument, the Supreme Court ruling allows dozens of cases to finally move ahead.

By suing fossil fuel companies for damages, states and local governments are hoping to recover some of the costs they have incurred due to climate change, including adaptation and infrastructure costs necessary to protect them from increasingly dangerous impacts. They argue that fossil fuel companies should have to pay for their share of these damages for having exacerbated the problems with their products—from rising sea levels and increased flooding to more frequent and severe wildfires—while spreading disinformation about climate change and delaying the action needed to combat it. Lawsuits seeking cost recovery or damages are already under way in California, Colorado, Delaware, Hawai'i, Maryland, New Jersey, Rhode Island, and South Carolina; many of these lawsuits are backed by evidence from the Union of Concerned Scientists proving that disinformation campaigns were coordinated and deliberate.

COMPANIES KNOWINGLY DECEIVED THE PUBLIC

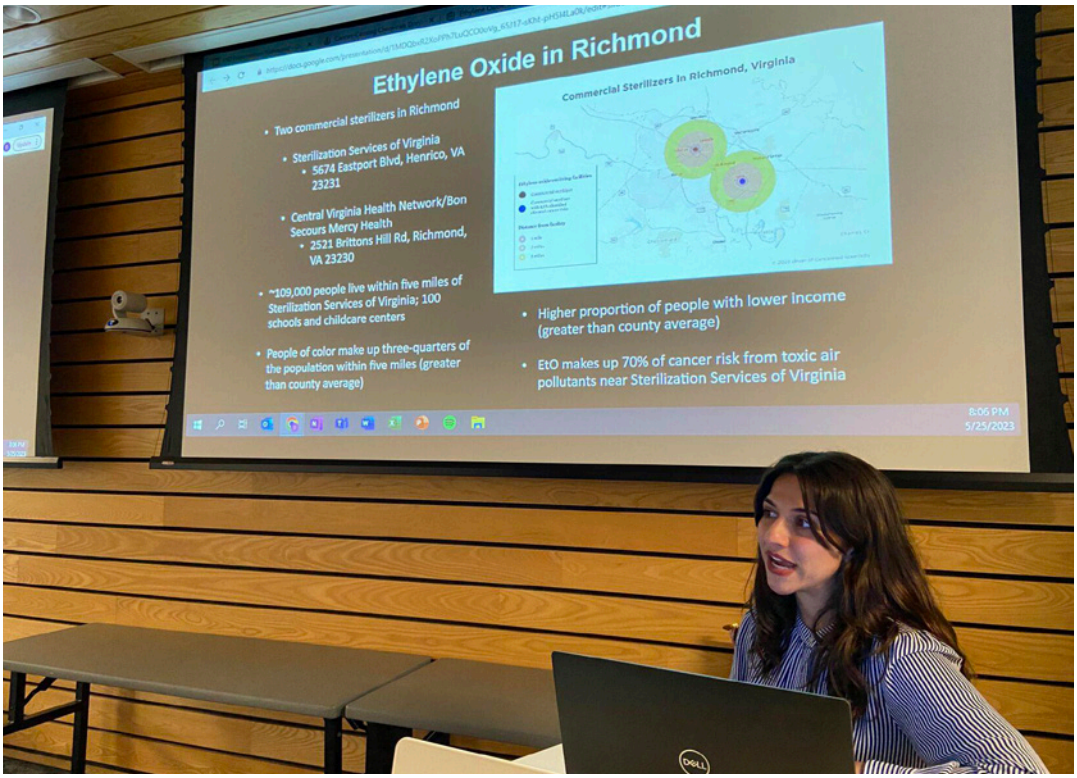
Bolstering these cases is the well-established link between burning fossil fuels and climate change. In the 1960s, scientists warned that the burning of fossil fuels was increasing carbon dioxide levels in the atmosphere, with potentially catastrophic consequences for the planet. By the 1970s, major fossil fuel companies including Exxon and Shell had begun conducting their own research into climate change, which confirmed the scientific consensus that burning fossil fuels was causing global warming.

At the same time, however, the industry engaged in a decades-long campaign of disinformation to downplay the seriousness of climate change, mislead the public and policymakers, and thwart efforts to address the problem. The goal of this disinformation campaign was clear: to protect the fossil fuel industry at the expense of the planet and public health. By denying the science of climate change, the industry effectively stalled needed action for decades.

The Supreme Court decision represents a pivotal moment in the ongoing legal battle over climate change accountability. "[The ruling] removes this dam that industry has been building to prevent these cases from being heard on their merit," lead scientist for the UCS Science Hub for Climate Litigation Delta Merner told *The Guardian*. "We can finally have the real conversations about what the industry knew and what their actions were despite that knowledge."

Photo: MarkThomas/Pixabay

UCS Rallies Support for Strong Ethylene Oxide Protections



UCS Senior Research Analyst Darya Minovi discussed the health risks of ethylene oxide emissions with residents of Henrico County, Virginia, some of whom live within a few miles of a medical device sterilization facility that the EPA says emits more than the acceptable level.

Earlier this year, the Environmental Protection Agency (EPA) released a proposed rule that updates emissions standards for ethylene oxide (EtO), an invisible cancer-causing gas, from facilities that use the chemical to sterilize medical equipment. These updated standards—overdue for nearly a decade—will cover at least 86 commercial sterilization facilities in the United States and Puerto Rico, and are anticipated to be finalized by next spring.

While the EPA says its initial proposal will reduce EtO emissions by 80 percent if implemented, the updated standards currently do not provide sufficient protection. They fail to consider the impact of people's exposure to other chemicals, do not require facilities to install monitors in affected communities, and do not address offsite storage facilities that also release EtO.

Before the EPA issues its final standards, UCS is galvanizing support from our membership to pressure the agency into strengthening the rule by closing these loopholes. To date, we have offered two workshops, in person and remote (attended by nearly 200 supporters), about how to deliver powerful, science-based comments to the EPA; created a public comment guide specific to the EtO standards; and kept up a steady drumbeat of media attention and messages to our supporters. We also followed our own example: UCS Senior Analyst Darya Minovi, who authored a report this spring on EtO exposure, and Media Director Lisa Nurnberger, who lives near two high-risk commercial sterilization facilities, provided testimony to the EPA. You can learn more about EtO facilities in your area, and keep up to date on our work to protect people's health, at www.ucsusa.org/resources/ethylene-oxide-what-you-can-do.

Calling All Pianists: Join Musical Project to Support UCS

Have you ever wondered what hurricanes and floods might sound like rendered musically? New York City–area composer Brian Field has developed a suite for solo piano to support climate change awareness, with all proceeds from any performances being donated to UCS for its environmental advocacy programs. Field debuted his piece, *Three Passions for a Tortured Planet*, and his accompanying push for other pianists to record themselves playing it, in 2022; since then, more than 50 pianists from around the world have joined the call in both live and recorded performances. As the composer, Field earns royalties whenever the piece is performed or streamed, which he donates to UCS. Field notes on his website, "It is my hope that my work as part of this will play a role in continuing to bring further awareness and dialog around climate change, and our need to act quickly."

All pianists—professionals and amateurs alike—are invited to download the score and take to social media to add their voices to the mission. Learn more about the project and join in at https://youtu.be/CWaEjljh87k.

Photo: Luca Powell/Richmond Times-Dispatch

UCS CALLED FOR AN ACCELERATED TIMELINE THAT WILL PUT **130,000 MORE ELECTRIC TRUCKS** ON ROADS IN 2050.

California Makes History with Zero-Emissions Truck Rule

California's trucks and buses make up only 7 percent of the vehicles on its roads, but they are responsible for the majority of the state's soot (lung-damaging fine particulate pollution) and smog (ozone-forming nitrogen oxide emissions). Plus, they contribute a sizable amount of heat-trapping global warming emissions. The Golden State is also home to North America's busiest container port, located in Los Angeles. Because of historic redlining and inequitable urban planning, predominantly Black and Brown neighborhoods are the ones that suffer most from this pollution, with a disproportionate number of busy truck corridors running through and nearby these communities.

In an effort to improve air quality and cut emissions, the California Air Resources Board (CARB) voted unanimously to adopt the Advanced Clean Fleets (ACF) rule this spring. This history-making rule requires California's largest vehicle fleets to transition, over the next two decades, to trucks that produce zero tailpipe emissions and to phase out the sale of fossil fuel–powered models by 2036. This will reduce global warming emissions from the state's trucking fleet by nearly 330 million metric tons through 2050, roughly equivalent to taking 90 coal-fired power plants offline for an entire year.

California fleet operators will also see savings on fuel and maintenance with electric vehicles compared with combustion vehicles. Statewide, CARB estimates that fleets will save around $48 billion through 2050, even when considering costs related to installing charging infrastructure and retraining drivers and mechanics.

UCS analysis and advocacy were hugely influential in passing the rule and shortening its timeline. Bumping up the phaseout of fossil fuel–powered truck sales from 2040 (as originally proposed) to 2036 is expected to result in an additional 130,000 electric trucks on the road in 2050. Supporters of the rule, including UCS and partner organizations, also secured a commitment to address emissions from small trucking fleets—which are not included in the ACF rule—in a future rule anticipated for adoption in 2028.

With the new truck rule in place, UCS will now push to accelerate the deployment of charging infrastructure powered by renewable energy and for programs tailored to the specific needs of small trucking fleets. (Keep abreast of our efforts at https://blog.ucsusa.org/series/electric-heavy-duty-vehicles.) We look forward to a future where zero-emissions trucks are the norm, and all Californians have equal access to clean air and a stable climate.

Photo: Caroline Brehman/EPA, via Shutterstock

UCS Pushes for a Stronger Power Plant Climate Rule

UCS has repeatedly called on the EPA to regulate carbon pollution from fossil fuel–fired power plants. So, when the agency issued a set of proposed standards targeting new gas-fired power plants and existing gas- and coal-fired power plants this May, our experts were ready to respond. The EPA takes public comments and testimony into consideration when revising and finalizing its rules, which, in this case, were expected to be open for comment until mid-summer.

Our energy analysts' technical comments urged the agency to strengthen the standards by requiring deeper emissions cuts on a faster timeline, and applying them to many more polluting power plants. We outlined why and how to increase the rigor of environmental and public health safeguards associated with the rule. And we launched a campaign for UCS supporters to weigh in with their own comments to the EPA.

Given the fact that coal- and gas-fired power plants are the nation's second-largest source of heat-trapping emissions, UCS Climate and Energy Deputy Policy Director Julie McNamara says, "We won't meet US climate targets without strong carbon pollution standards for power plants that result in steep emissions reductions. I'm hopeful the EPA will incorporate our feedback for the strongest possible standards, which will shape the decisions states and utilities make around the clean energy transition for decades to come."

UCS Grantees Make Change Locally

The UCS Science for Public Good Fund, now in its sixth round, has provided grants to dozens of individuals and organizations, helping them advocate for science-based policies, strengthen their advocacy skills as scientists, or address racial and other inequities in policies and regulations. This year, UCS selected nine more grantees for the latest round of funding, up to $1,500 per project.

Grant recipients include the volunteer curators of the educational website Knowing Neurons, who'll use the funding to host a policy writing competition for early career neuroscientists, and the members of the Science Policy Network Detroit, who'll apply the grant toward a trip to the annual Science on the Hill event in Washington, DC, where they'll advocate for evidence-based legislation. Visit www.ucsusa.org/resources/science-public-good-fund for more information on the fund, and how to apply for next year's grants.

Is UCS in Your Legacy Plans? Let Us Know—Your Gift Could Go Further

Many charitable individuals name various organizations as beneficiaries in their estate plans, and often don't inform the organizations that they've done so. If you've designated UCS in your will, trust, or another estate plan, we are honored by your support. And if you haven't let us know yet, for a limited time, alerting us to your legacy gift can unlock an additional $2,500 gift to UCS!

To honor the memory of the late UCS co-founder Kurt Gottfried, our board member Nancy Stephens has pledged to make an immediate contribution of $2,500 in honor of each newly disclosed estate gift to UCS (by will, trust, or beneficiary designation). Contact our Planned Giving team to learn more at (617) 301-8095 or plannedgiving@ucsusa.org; you can also unlock your $2,500 gift by notifying us online: https://act.ucsusa.org/legacymatch.

Photo: alohaspirit/iStock

Photo: Fran Polito/Getty Images

CAN OUR KIDS COPE WITH "DANGER SEASON"?

Summer rituals—and healthy childhoods—are increasingly threatened by climate change.

BY DERRICK Z. JACKSON

In the last five years, the National Oceanic and Atmospheric Administration recorded 18 severe weather and climate events that cost at least $1 billion (in adjusted dollars). The average annual total cost of those disasters was $112 billion, double the average of the last four decades. The immediate future promises no reprieve, as the World Meteorological Organization says Earth is hurtling into "uncharted territory" with its hottest five-year span yet. The most dramatic effects are likely to be felt between May and October, in a period the Union of Concerned Scientists has dubbed "Danger Season."

Several parts of the world have already experienced record heat in April and May, including the Pacific Northwest, the same region where at least 1,400 people died in Oregon, Washington State, and western Canada in 2021 under an unprecedented "heat dome." Many of the victims were low-income elders who perished in homes devoid of air conditioning. Their solitary suffocations may be less visually dramatic than severe storms, but heat plays a role in killing as many as 5,600 people a year—more than hurricanes, floods, or tornadoes.

Perhaps more people in this country would call for urgent action against climate change if they paused to consider its effect on our *children*. Their cherished summertime rituals are already being canceled or forced to adapt, and their health may be at risk just from playing outdoors if we continue on the current trajectory.

PARKS

Many families take advantage of summer vacations to immerse themselves in nature at one of our national parks, but is the prospect of literally being chased out of a park enough of an inconvenience to convince people how serious global warming is? Because of their unique locations, elevations, and delicate ecosystems, climate change is having an outsized impact on national parks, with hotter temperatures and declining rainfall in many parks and sea-level rise and hotter oceans affecting others. The current poster child for this is Yosemite, beset in recent years by drought, wildfires, epic snowstorms, floods, and blistering heat waves.

Beth Pratt, the California regional executive director for the National Wildlife Federation, told the *Guardian* newspaper in April, "Yosemite is ground zero for climate change."

Seconding that was a *Los Angeles Times* feature that same month, which said, "Climate change coupled with drought, snowpack, wildfires and flooding has been one of the park's biggest challenges in recent years, undermining the concept of Yosemite as a refuge where nature prevails unaffected by man-made forces."

CAMPS

Families with working parents who can't take summers off often try to give their kids a taste of outdoor living by sending them to camp. Twenty-six million children traditionally attend summer camps and day camps, but in recent years, these programs have been disrupted by heat advisories, bans on campfires, evacuations for wildfires, battles with tick invasions, lake closures because of algae blooms, and cherished canoe trails drying up—all of which can be connected to climate change.

The American Camp Association told Bloomberg that 73 camps in the West suffered damage or were forced to evacuate because of wildfires in 2020 and 2021. One camp director who lost buildings in 2020 said, "When there's a fire, you're looking at heat maps and wondering if this place you love is still there. . . . We were fortunate we didn't have campers on site at the time. You're in crisis because your business and livelihood is burning down and generations of kids are emailing you about what's going on."

Photos: slobo/iStock (dry lake bed); Godofredo A. Vásquez/Houston Chronicle via AP (boat rescue); Kyle Grillot/Getty Images (stop sign); David McNew/Getty Images (Yosemite Park sign)

In Virginia, the *New York Times* quoted a Virginia camp director who installed air conditioning in cabins, but fears that this is only a stopgap measure against global warming: "We are already seeing all of the 'best-case' impacts now and I expect all to continue to worsen."

OUTDOOR SPORTS

As for the rest of the summer, how much can kids at home count on romping outdoors with siblings or friends? A 2021 literature review by Canadian, French, and US researchers found a "consistent negative effect of air pollution, extreme temperatures and natural disasters on physical activity." A German study last year found that athletic activities will be challenged by many of the same climate-related factors affecting youth summer camps: increases in heat stress, air pollution, allergens, ultraviolet light exposure, and tick- and mosquito-borne diseases.

(continued on p. 21)

Photos: Gregg Vigliotti/The New York Times (beach); Rod Aydelotte/Waco Tribune-Herald (thermometer)

Fighting Back against the War on Science

INTERVIEW WITH JENNIFER JONES

Welcome to the Center for Science and Democracy. What drew you to the director role?

JENNIFER JONES: I've followed UCS and been a member of the organization for a long time. Even last year I cited UCS research in an op-ed. So when I saw this opportunity, it just immediately rang true to me, and in some ways it really feels like a dream to be part of this team and this nationally significant organization.

The other thing that really drew me to UCS at this time is the clear and emerging focus on being an anti-racist organization. I live in Florida, where they're about to pass a bill that will essentially outlaw any discussion of diversity, equity, and inclusion at universities in the state. So it feels great to have moved to an organization that's saying not only that we believe in diversity but also that we acknowledge the world we live in is constructed on fundamentally racist, homophobic, and misogynistic systems that we need to change. That is a place I want to identify with and work with.

How can the Center play a role in bringing some of those changes about?

JENNIFER JONES: The Center has played an important role in helping to shape the way scientific integrity and environmental justice look in this White House, where some key policies have been heavily informed by our work. As important as that is, getting a single White House administration to adopt your principles is not where things end. So I think we still have a lot to do to make sure that some of the things we stand for get codified into law as much as possible, and really put into practice. For instance, the environmental justice part of our portfolio remains absolutely critical and there's so much work to be done, not just at the federal level but at the state level as well.

Can you say a bit more about the Center's environmental justice work?

JENNIFER JONES: The most basic definition of environmental injustice for me is simply that environmental benefits and harms are not shared equally. When we make federal policies—whether they're about climate change or biodiversity or environmental protection—they are directly connected to people's health and welfare, to who gets those benefits and who doesn't.

Some people get a lot of benefits and that advances the privilege they already have, while some folks take on way more than their fair share of the burdens and costs of living on this planet. So, it's really a justice and equity issue that ties directly to our democracy, because we know many of the folks that have an unequal share of the burdens and the negative consequences are people of color, marginalized communities, low-income communities, and Indigenous communities.

When you're sick, when you have less access to resources, when your community is actively being marginalized, it means your place in this democracy is more fragile. The Center has an important role to play in building power in those places where people are being marginalized.

JENNIFER JONES is the director of the Center for Science and Democracy at the Union of Concerned Scientists. Her work at the intersection of science and democracy has sought to increase diversity and equity in public science, to spotlight disinformation campaigns by the fossil fuel industry, and to call out climate resilience policies that favor wealthy communities.

Prior to joining UCS, she was an associate professor of environmental studies and director of the Center for Environment and Society at Florida Gulf Coast University, and has also served as president and CEO of Great Smoky Mountains Institute at Tremont. She earned her PhD and MS in environment and society from the University of Pretoria, South Africa.

Photos: James Greco (Jennifer Jones); Kristina Wagner/Unsplash (ad)

> *We really need all you scientists out there . . . to understand and believe and advocate about the fact that, without basic support and endorsement for science that elevates our democracy, we really do stand to lose it.*

And science plays an important role?

JENNIFER JONES: Yes! Science plays such an important role. You know, there is an absolute war on science in this country that I don't think anybody could have imagined—a war on science and on scientific thinking. On critical thinking. One of the things that really concerns me is that we're seeing more and more policies and politics that are seeking to de-educate our society, to discourage the scientific practices and principles we desperately need to solve problems.

So much depends on good, rigorous science. During Hurricane Ian, I was without running water for nine days. Just think about how much science it takes to turn on your tap every day and have clean water come out. From the engineering and the water-quality testing to the demographic studies and the actual scientific practices of how that water is cleaned, science impacts so much of our daily lives.

For me, there's a clear throughline where science, environmental justice, and democracy are closely intertwined. The strength and rigor of that science and the independence of it goes on to inform what government agencies do, how they manage issues, and how they impact me directly.

I want to say in particular to the many scientists reading this: we really need your support. Many issue-oriented campaigns such as climate change, energy, or food might seem easier to latch onto. But we really need all you scientists out there—especially natural scientists who may not see themselves as particularly involved in social policy—to understand and believe and advocate about the fact that, without basic support and endorsement for science that elevates our democracy, we really do stand to lose it.

This work is important but also often an uphill battle. What keeps you going?

JENNIFER JONES: It can be an uphill battle because we are sold a culture of fear. Fear sells. Politicians use fear to sell their policies. TV uses fear to get you to watch. Social media uses fear in a different way—FOMO, or fear of missing out. And disinformation actively plays on our fears.

I get up every day to do this work because I know we really *can* make the world a better place. Most of us want it to be a better place. When I think from a scientific perspective, and from my lived experience, I am confident that people at heart are basically good. Most of us want to do good and help others.

So I think we have the hearts and minds of many, if not most, people on our side. It gives me hope just looking around and remembering that so many people are with us! Now we just have to reach and mobilize them. {C}

RIGHTING THE ELECTRICITY SYSTEM'S WRONGS

A modern electricity grid must address the needs of communities that were ignored—or worse—in the past.

BY ELLIOTT NEGIN

US infrastructure planning has a long legacy of discrimination. Municipal zoning laws allowed companies to site power plants and other industrial facilities in low-income, marginalized neighborhoods. Federal highway plans routed freeways through many of those same communities, cutting them off and hemming them in. And "urban renewal" projects displaced at least a million inner-city residents, two-thirds of whom were Black.

Now that the country is embarking on a much-needed infrastructure overhaul, the Union of Concerned Scientists wants to make sure that, this time around, the communities most likely impacted will play an integral role in the decisionmaking process, specifically when it comes to redesigning the electricity grid.

Photo: Jason Richard/unsplash

Participants in the New Orleans meeting convened by UCS last October, including Midwest Senior Policy Manager James Gignac (opposite page), represented groups from multiple states. Together they developed a set of principles that electricity grid operators should adopt when planning new infrastructure.

To that end, UCS helped organize a meeting last October with attendees from two dozen environmental, renewable energy, and labor organizations in the country's midsection, spanning from Illinois, Michigan, and Minnesota in the north to Louisiana in the south. The groups are all based in the 15-state region serviced by the Midcontinent Independent System Operator (MISO), one of the country's regional grid operators. The 30 participants met in New Orleans, where, over the course of three days, they hammered out a rough draft of nine "equitable grid" principles to guide the decisionmaking process that will determine the future of MISO's grid infrastructure. They published a polished version in May (see the sidebar).

"The New Orleans meeting came out of the realization that the $10 billion MISO plans to invest in its transmission network is just the beginning," said UCS Transmission Policy Manager Sam Gomberg, one of the half-dozen UCS staff members in attendance. "A lot of steel is going to be put in the ground to build out the transmission system, and communities are going to be impacted one way or another. So, we decided to get community-based stakeholders together to find out their priorities. We listened a lot, and we took a lot of notes."

EVERYONE DESERVES A SEAT AT THE TABLE

Most of the US grid was constructed a half-century ago, and decades of underinvestment have resulted in an outdated, inefficient, and unreliable power system that disproportionately burdens low-income communities and communities of color with power outages, toxic pollution, and damage from climate change–related extreme weather events.

Not only is the grid past its prime, but it also was not designed with renewable energy in mind. It was constructed to run on fossil fuels, which are typically transported by rail or pipeline, burned in large power plants sited in and around cities, and then delivered via transmission lines to customers. Because the places where wind and sunlight are strongest are not necessarily near cities—where demand is the highest—a renewables-based system will require an entirely different structure.

When the Biden administration announced a $2 trillion plan to update US infrastructure—including the electricity grid—in 2021, it pledged to address the discrimination built into the current system. But the federal government is only one of many public- and private-sector stakeholders that will play a role in determining the future of the grid. They include the seven regional grid operators, 50 state public utility commissions, 3,150 utility companies, and countless municipalities—all of which have consistently ignored the needs of the most-affected communities.

UCS broached the inclusivity issue five years ago when we held a meeting with environmental justice, consumer, and renewable energy advocates; industry and labor representatives; and faith group leaders to discuss how energy storage can be deployed equitably. The meeting, which took place in Chicago in December 2018, resulted in a statement of principles to ensure marginalized communities benefit from energy storage, which enables more renewables to replace coal and gas.

The New Orleans meeting was a follow-up to the energy storage meeting, but tailored for a different, but related, issue.

"Unlike energy storage, transmission and grid issues are specific to different regions, so we decided to focus on MISO," said UCS Senior Campaign Coordinator Colin Byers, who organized the meeting. "MISO has approved billions of dollars to update its northern area's grid, but its southern section, which is dominated by one utility company—Entergy—so far has been forgotten. So we chose New Orleans for the meeting, and we wanted to make sure that it was as diverse as possible."

Diverse it was: Black, White, Indigenous, Latino, and Cajun activists from large cities and small towns participated.

Photos: Colin Byers/UCS

"It was great to have all those people at the table," said Sage Michael Pellet, New Orleans climate justice organizer for the environmental group Healthy Gulf. "Everyone was sensitive to the history of displacement. Louisiana's Black community is the most affected by industry, but historically it has had no stake in the game.

"It was a safe place for everyone," Pellet continued. "We talked about our values, why we were there, and what is important to us. We're experiencing climate disasters and power outages here in Louisiana on a regular basis. Unless we get the transmission system fixed, we will continue to have problems."

Maggie Schuppert, campaigns director at CURE, an environmental group based in Montevideo, Minnesota, a small town 120 miles west of Minneapolis, also was in attendance. "We welcomed the chance to get involved," she said. "We work in rural communities and want to make sure they are not left out of the discussion. Minnesota has a long history of battles over transmission siting, and there are similar issues today regarding who benefits and who does not."

A NEW WAY OF THINKING

As Schuppert noted, the principles provide a starting point. "Those of us who work in coalitions can use them to ensure folks are thinking about the grid and transmission," she said. "And they could be used in the decisionmaking process at public utility commissions, state agencies, and at MISO itself. They offer something to share from a more just community perspective."

Byers also is upbeat about the principles' potential impact. "When implemented, the principles will help protect public health, create good local jobs, and avoid placing additional burdens on communities already suffering from environmental hazards," he said. "If done correctly—with equity and justice front and center—the transition to 100 percent renewable energy will improve everyone's quality of life for generations to come." {C}

PRINCIPLES FOR BUILDING AN EQUITABLE ELECTRICITY GRID

INDIGENOUS RIGHTS: Affected Indigenous communities must be involved at the beginning of the decisionmaking process.

ACCOUNTABLE DECISIONMAKING: Grid planners must establish an accountability mechanism that includes impacted community members and workers.

ACCESSIBILITY: Grid operators and public utility commissions must be transparent, provide clearly written information, and hold open meetings.

COMMUNITY INPUT: Grid operators must plan and implement new infrastructure in collaboration with impacted communities.

LOCAL CONTROL AND BENEFITS: Planning processes and investment decisions should maximize the value of locally controlled clean electricity, energy efficiency, mini-grids, and energy storage systems.

PRIORITIZING RENEWABLES AND EFFICIENCY: New infrastructure should enable renewables and energy efficiency to replace fossil fuel–based facilities and infrastructure.

JUSTLY SOURCED MATERIALS: Grid developers must source construction materials in a manner that mitigates destructive environmental and social impacts.

WORKERS' RIGHTS: Workers hired to build new infrastructure must have safe, high-quality, well-paying jobs.

CLIMATE RESILIENCE: Planning processes and investment decisions must factor in infrastructure resilience under a broad range of plausible scenarios, including extreme weather events and cyberattacks.

Read the full text of the principles at www.ucsusa.org/resources/equitable-grid-principles.

Who Hacked UCS? Unraveling the "Dark Basin" Cyberattack

By Seth Shulman

A targeted espionage scheme. An Israeli private investigator. A for-hire computer hacking firm based in India. It sounds like something from the script of a Hollywood thriller. But, as we now know in some detail, several years ago, the Union of Concerned Scientists was targeted in an all-too-real, coordinated effort that hacked into staff members' email accounts and those of staff at other nonprofit groups that were working to hold fossil fuel companies accountable for their role in climate change.

In the latest development in this story, sentencing is expected soon for Avarim Azari, an Israeli detective apprehended in Florida in 2019, who pled guilty last year in US district court to three counts of conspiracy, wire fraud, and aggravated identity theft (including the attack on UCS). Azari's sentencing has been delayed several times and his plea deal remains under seal in what is still considered an ongoing investigation.

His court testimony cracked open a window into the case and confirmed several important details about the hacking conspiracy, but there is no indication to date that Azari has cooperated in answering the case's most tantalizing question: Who hired him? The circumstantial evidence, however, all points in one direction.

CLIMATE ACTIVISTS IN THE CROSSHAIRS

Here's what we know: In 2017 and 2018, several senior staff members at UCS had their email accounts hacked through a sophisticated phishing campaign that indicated a good deal of knowledge about these individuals' interests and contacts. After conducting an internal investigation, UCS found that, thankfully, no fundraising files or member

TIMELINE OF THE "DARK BASIN" HACK

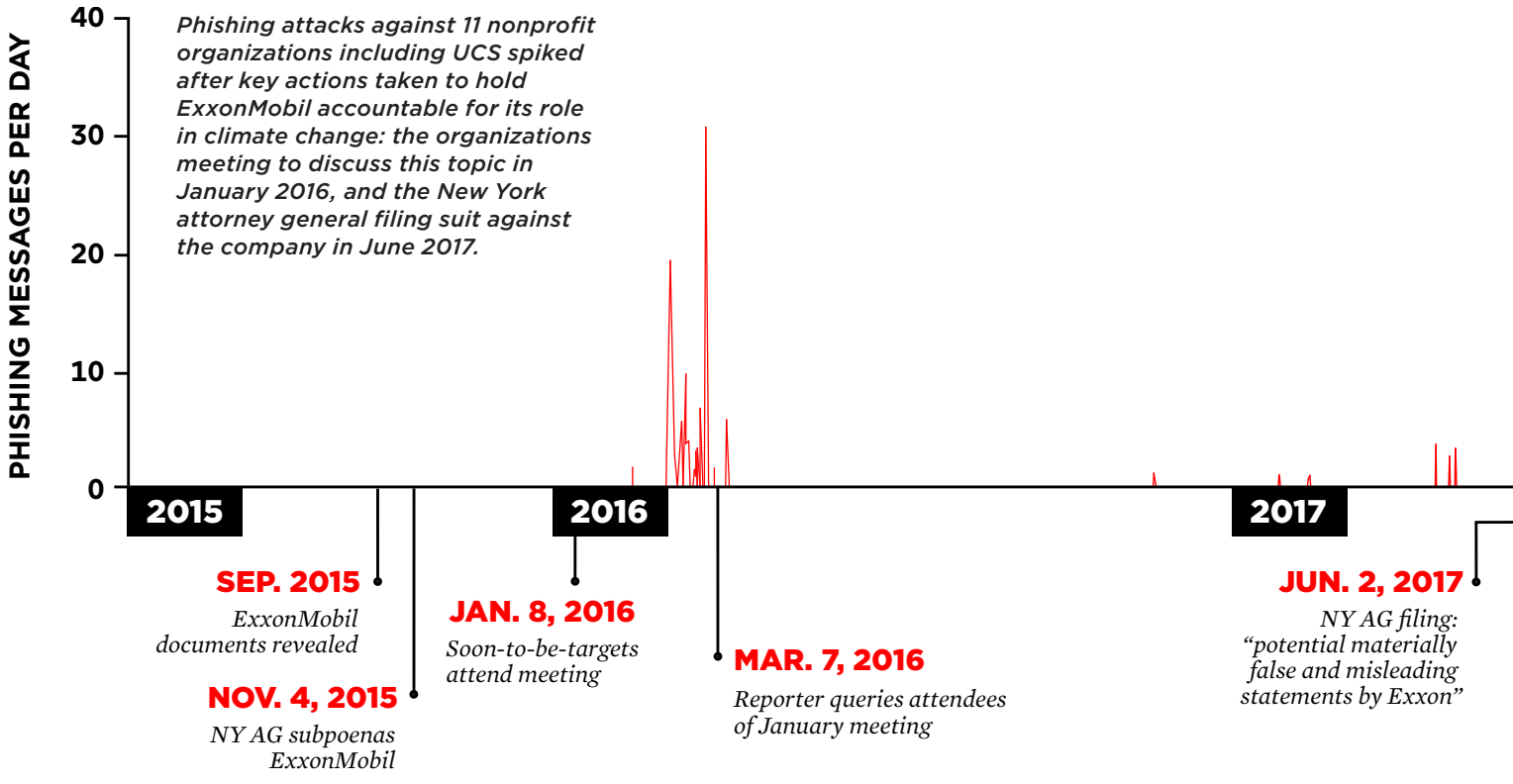


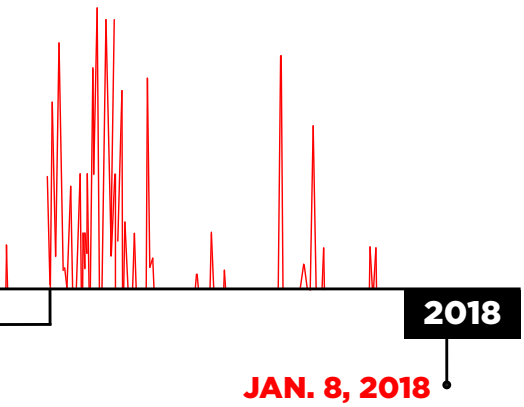
Illustration: Nick Iannaco and Heather Tuttle/UCS, adapted from Citizen Lab

> ***The sponsors of the Dark Basin hack may have succeeded in illegally breaking into our systems. But the effort failed to stifle or slow down our climate accountability campaign, which continues to build momentum.***

or donor accounts were breached. Nevertheless, the perpetrators did likely gain access to sensitive UCS emails and strategic planning documents.

We know from court testimony and documents that Azari was paid to orchestrate the cyber espionage, that he contracted with a hacking group in India to carry it out, and that the hackers in India emailed him to say they had successfully infiltrated the targets. Azari has admitted that he undertook espionage campaigns under contract from corporate clients in Europe and the United States.

We also know—thanks to the work of Citizen Lab, a Canadian cybersecurity group based at the Munk School of Global Affairs and Public Policy at the University of Toronto—that UCS was just one of this campaign's targets. Citizen Lab issued a detailed report about the case in 2020, dubbing it "Dark Basin" and describing it as a "massive hack-for-hire operation." By identifying several telltale "cyber fingerprints," Citizen Lab was able to determine with high confidence that the hackers had, between 2015 and 2018, infiltrated the email accounts of at least 10 nonprofit organizations in addition to UCS, including 350.org, the Climate Investigations Center, Greenpeace, and the Rockefeller Family Fund—groups involved in work attempting to hold ExxonMobil and other major fossil fuel companies accountable for their deceptions about climate science and their efforts to block the action urgently needed to combat climate change.



DESPERATE MEASURES

So who was the corporate puppeteer pulling Azari's strings? One likely suspect, ExxonMobil, has publicly denied involvement in the Dark Basin hack. An ExxonMobil spokesperson said in a statement that the company "has no knowledge of Azari, had no involvement in any hacking activities and has not been accused of any wrongdoing."

Still, the list of targets is noteworthy. The timing is revealing too: most of the cyberattacks occurred at a key moment when pressure was building against ExxonMobil in particular (see the figure). For example, when UCS email accounts were infiltrated in 2017, then-New York Attorney General Eric Schneiderman was preparing to bring charges against ExxonMobil for deceiving its shareholders about the realities of climate change. At the time, other attorneys general across the country were considering lawsuits as well, and UCS was in contact with some of their offices, providing information about specific examples of climate deception.

And there is still more circumstantial evidence against ExxonMobil. During this same period, a front group known as Energy in Depth, funded by the American Petroleum Institute and fossil fuel companies including ExxonMobil, cited former UCS Science and Policy Director Peter Frumhoff by name on its site and spuriously charged him and the organization of "conspiring" against ExxonMobil, even quoting language from his work-related emails, although how they obtained them remains unclear.

An excerpt from a private email sent by Lee Wasserman, director of the Rockefeller Family Fund, similarly found its way into the pages of the right-wing *Washington Beacon* newspaper and subsequently onto ExxonMobil's website. Wasserman recently told the *Wall Street Journal* that ExxonMobil used his private emails to try to "develop a convoluted and completely false story" of a conspiracy against the company. He likened ExxonMobil's effort to "arsonists trying to pin blame on the firefighters."

FALLOUT

These facts leave little doubt that the Dark Basin hack was attempting to find anything that would undermine efforts to expose fossil fuel companies' deceptive practices. Whoever commissioned the espionage campaign, it represents not just a breach of private communications, but also a nefarious and illegal effort to quash public interest work by UCS and other nonprofit organizations.

The sponsors of the Dark Basin hack may have succeeded in illegally breaking into our systems. But the effort failed to stifle or slow down our climate accountability campaign, which—with dozens of climate-related lawsuits now under way against ExxonMobil and other major fossil fuel companies—continues to build momentum. {C}

It's Never Too Late to Jump In

Grace Hall wouldn't have considered herself an activist during her career as a chemist and while she was raising her family. But after retiring, she began paying more attention to issues like climate change and social justice, and wondering how she could make positive changes in her own life.

"I'm very much taken by all the individual things we can do [to make climate-smart choices]," she says. "If you can get enough people to do these things, that's great. But when it comes down to it, we need policy change." She discovered the Union of Concerned Scientists about 15 years ago, and as she became a supporter, she appreciated how UCS experts provide robust, independent science to legislators and other decisionmakers to help shape policy.

"I thought, they're doing the things I'm not. I liked that UCS staff got to know legislators and developed trust among as many senators and representatives as possible to persuade them to do the right thing. I feel that UCS does a more effective job than a lot of people working on the Hill," she says.

Hall—who says, "Once a chemist, always a chemist, even in retirement"—also joined the UCS Science Network, an inclusive community of more than 23,000 scientists, engineers, economists, public health professionals, and other experts across the country who have volunteered to help educate the public and inform decisions critical to our health, safety, and environment. She values the training and programming the Science Network offers, along with the opportunities to engage on issues relevant to members' interests.

And finally, Hall has designated UCS as a beneficiary of her estate plan. "I think you get a lot of bang for your buck," she says of contributing to UCS. "If you're going to spend money, you should find an organization that is doing what you're interested in and does it effectively. I've always felt that UCS was effective in its work." As a pragmatist, she adds, she wanted to support an organization that would last—an especially relevant factor while she was considering making a legacy gift. "There are some groups that I really support but I'm not sure about their longevity. UCS seems well-rooted; its work will continue," she says.

Hall's interest in activism and political engagement is relatively recent, but today, these commitments fill her life. "It's never too late to jump in," she says. {C}

Can Our Kids Cope with "Danger Season"?

(continued from p. 11)

Professional sports have already been affected: The US Open and Australian Open tennis tournaments have had players pull out in recent years because of heat illness, and some players also withdrew from the Australian Open because of wildfire smoke. Future Winter Olympic Games venues will be limited because of lack of snowpack, and future Summer Olympic Games venues will become unsuitable because they will be too hot.

At the youth sports level, according to a report last year by sports injury researchers, 68 football players died between 1996 and 2021 from exertional heat stroke, nearly all of them high school age or younger. The report did not discuss climate change, but did mention that the period of 2017 to 2021 saw an average of 2.4 heat stroke deaths among the players each year in the United States, up from 1.4 deaths a year the previous five years.

A Texas A&M advisory on youth sports said, "With summer temperatures rising, we believe many youth sports leagues and school districts will need to aggressively update their practice rules and heat policies to keep their players safe. We suggest particular attention be paid to low-income, minority neighborhoods and regions that can get excessively hot."

Even adults just trying to get their daily steps in will find it more discouraging to venture outdoors in the summer as the pavement gets hotter and hotter.

GENERATION I (FOR INDOORS)

Some researchers are particularly worried for children if a warming planet forces kids indoors. One study last year warned that children are primed to "bear the health risk brunt of rising global temperatures."

Those are repercussions of global warming that society should not tolerate. When we hear that our children may literally wilt in the heat, that is not a legacy we want to be remembered for. We can—and must—be better caretakers of our children and of the planet we leave them. {C}

Derrick Z. Jackson *is a UCS Fellow in climate and energy and the Center for Science and Democracy, and an award-winning journalist. Read more from Derrick in our blog,* The Equation, *at http://blog.ucsusa.org.*

Photos: Grace Hall (Grace Hall); Muhamad Rizal Firmansyah/unsplash (ad); Terry Pierson/The Press-Enterprise/SCNG (smoke); MediaNewsGroup/Getty Images (athletes)

Protecting the Health of the People Who Put Food on Our Tables

By Alice Řezníčková

Life is full of dangers for the estimated 2.4 million farmworkers in the United States: toxic pesticides, extreme heat, heavy equipment, and, paradoxically, food insecurity. As temperatures rise, the risks from heat and pesticides are growing—including losing income on days when it is simply too hot to work, or when crops have been damaged by extreme weather.

Although farmworkers' labor underpinned the food and agriculture sector's $1.2 trillion contribution to the US economy between fiscal years 2019 and 2022, new analysis by the Union of Concerned Scientists shows that the main federal agencies focusing on agriculture and health spent just $16.2 million a year on research and education about farmworkers' health during that time. That amounts to roughly $6.75 per worker.

We found only one federally funded project that addressed food security, despite the clear lack of it in farmworker communities: while some 10 percent of the general population struggles to feed their families, small-scale studies from around the country show that anywhere from 47 percent to 82 percent of farmworker households are food-insecure. Those who face food insecurity are less likely to eat nutritious food and more likely to spend money on hospital bills, and farmworkers are already some of this country's lowest-paid workers, with average family incomes between $25,000 and $29,999 in 2020—hovering right around the federal poverty guideline for a family of four. The accelerating impacts of climate change could restrict that income even further.

Because many farmworkers are immigrants, accessing health care also presents many challenges due to language barriers, limited transportation options, and a fear of authorities. In short, the dangers farmworkers face on and off the field are interconnected and need to be studied and addressed as such.

Our analysis, which attempted to capture the largest likely sources of federal funding for farmworker health research, finds significant room for improvement in the breadth and depth of research, education, and extension programs supporting farmworker health. The 2023 food and farm bill represents a critical opportunity to increase funding for this work at the National Institute of Food and Agriculture, but Congress should also consider additional funding for farmworker health research at the Centers for Disease Control and Prevention and the National Institutes of Health.

Additional support is especially needed for research on the combined impacts of climate change and multiple pesticide exposures, and for projects that will serve populations underrepresented in current research, including Indigenous communities, women, aging farmers, and LGBTQ+ farmworkers. The federal government should provide transparent, consistent, and frequently updated data on its research funding, and it should facilitate partnerships between research institutions and farmworker communities to ensure that farmworkers have a say in the research that affects them.

An equitable food system would safeguard the health and well-being of its workers, who are ultimately the foundation of a healthy society. UCS is working to ensure the 2023 food and farm bill acknowledges this reality. {C}

Alice Řezníčková *is a former interdisciplinary scientist in the UCS Food and Environment Program. Read more from Alice at our blog,* The Equation, *at https://blog.ucsusa.org.*

Photos: Jacob Pruitt (Alice Řezníčková); F Armstrong Photography/Shutterstock (farmworkers); WaveBreakMediaMicro/Adobe Stock (ad)

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