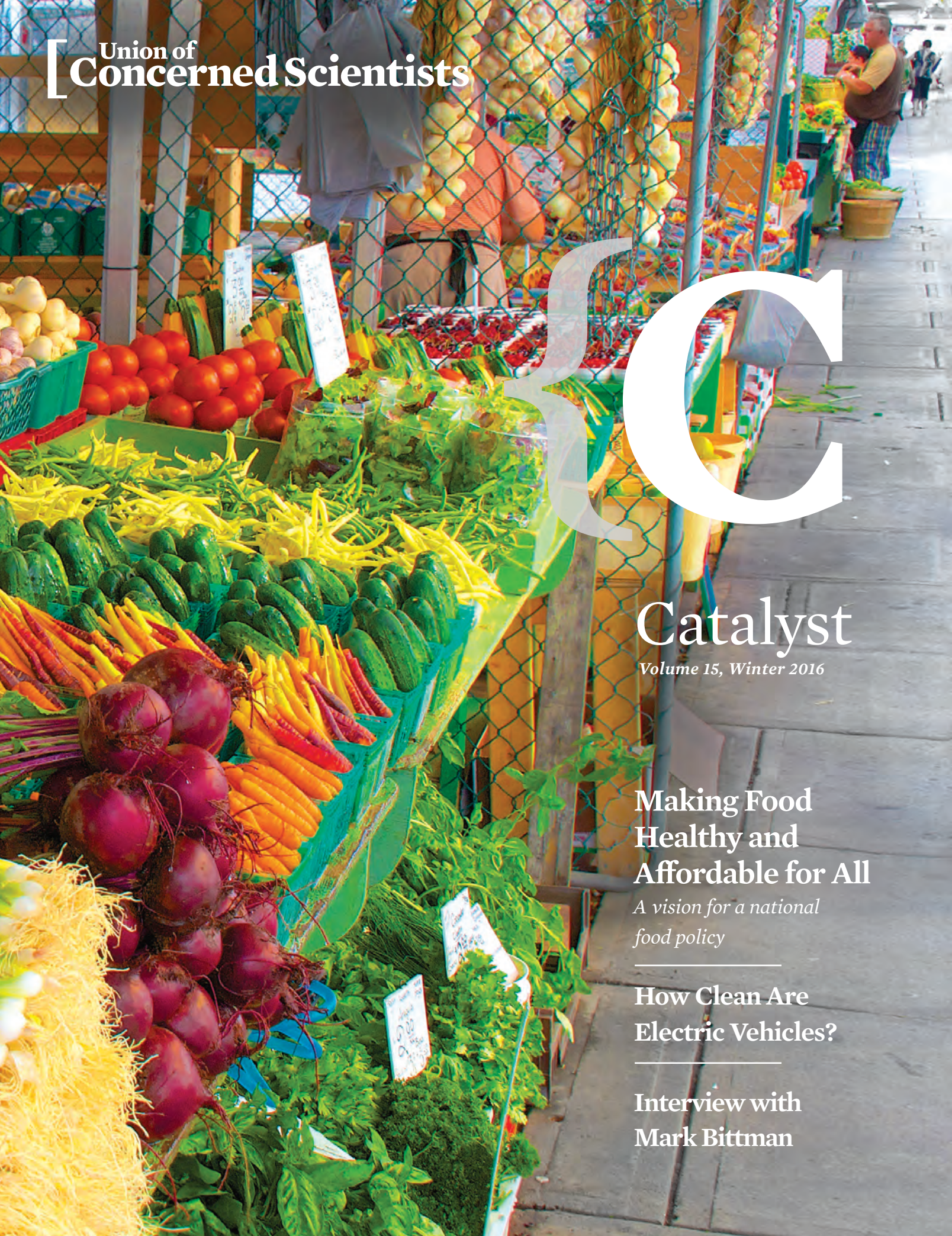

Union of Concerned Scientists

Catalyst

Volume 15, Winter 2016

Making Food Healthy and Affordable for All

A vision for a national food policy

How Clean Are Electric Vehicles?

Interview with Mark Bittman

[Union of Concerned Scientists

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Making History in Paris

UN Secretary General Ban-Ki Moon (center) and other dignitaries celebrate the adoption of the "Paris Agreement" at the 2015 United Nations climate convention.

By Ken Kimmell

Europe—and Paris in particular—has a symbolic place in my heart. My father was an army sergeant in World War II and my mother served as an intelligence officer, and they would talk proudly about the war years as the defining time of their lives, when, in small ways, they participated in the making of history.

I have often wondered whether my generation would have a comparable opportunity to define itself. What would we accomplish that historians might look back upon as a turning point? What great cause would we be able to tell our children about?

> ***Culminating many years of hard work by UCS and so many others, the Paris climate accord is likely to be a defining turning point of our times.***

Now, having been in Paris for the signing of the international climate agreement, I may have my answer. Because if we make good on its promise, we will have changed the course of history and demonstrated, for the first time ever, the power of the entire world united in a common cause.

The agreement is the culmination of years of work by so many. Scientists who amassed data to prove to a skeptical world that the burning of fossil fuels causes grave harm to the planet. Faith leaders and activists who decried the immorality of leaving an overheated world behind for the next generations. Businesses that developed low-cost alternatives to fossil fuel

(continued on page 20)

Photos: © IISD/Kiara Worth (www.iisd.ca/climate/enb/12dec.html) (UN climate convention); © Richard Howard (Kenneth Kimmell)

What proposals about renewable energy or energy efficiency are people debating now in your town or state?

We in Washington State are collecting signatures for Initiative 732, which would tax carbon emissions from individuals and businesses. The initiative includes a low-income working families' rebate and simultaneous cuts in sales taxes and manufacturers' taxes that leave state revenue unchanged overall. Carbon-free energy from wind and solar would not be taxed. This initiative will encourage recognition of our fossil fuel use, promote renewable energy, lower carbon emissions, and help slow climate change. We think this will be a more powerful and politically acceptable approach than a cap-and-trade system.

Jack Rice, Olympia, WA

Eight years ago in central New York, we sited the first wind farm east of the Mississippi—with eight turbines initially and two larger ones that followed. All was good and still is: clean energy, jobs, economic boost to the schools and towns, even an educational center. We also have a nonprofit, called Solarize CNY (as in Central New York), promoting solar energy installation throughout the area.

Ron Blackmore, Madison, NY

California is one of six states in which cities and counties are creating public, not-for-profit Community Choice energy programs that provide electricity services for local residents and businesses. Three Community Choice programs are already in operation in California, conserving energy and procuring electricity on local residents' behalf. Dozens more such programs are in the pipeline, offering customers a cleaner electricity mix at a lower rate than utilities.

For municipalities with climate action plans, Community Choice programs are a highly effective means to reduce global warming emissions while creating thousands of jobs in clean energy fields. The programs are also popular with school districts and other public sector customers that can see substantial savings on their electricity bills.

Erica Etelson, Berkeley, CA

Here are two positive developments:

1) Solar panels on the city hall in Bloomington, Indiana. County offices in the same building got solar panels in 2012 and added more in 2014; the array now totals 88 kilowatts.

2) Monroe County, Indiana, is competing for the Georgetown University Energy Prize, a competition for communities seeking to develop sustainable energy-saving innovations. The county also has negotiated an energy services contract (or ESCO) with Honeywell for energy efficiency improvements.

Annie Hedin, Bloomington, IN

LET US KNOW YOUR VIEW

What would you recommend to speed the widespread adoption of electric vehicles?

We will publish selected responses (edited for length) in the spring issue of *Catalyst*. Email your response to *catalyst@ucsusa.org.*

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[IN THIS ISSUE]

UCS Fights for the Rights of Government Scientists

Texas Representative Lamar Smith's demand for the email correspondence of climate scientists has met with resistance from NOAA Director Dr. Kathryn Sullivan—and sparked a strong response from the scientific community, including UCS.

Since October, when House Science Committee Chair Lamar Smith subpoenaed seven years' worth of internal communications from National Oceanic and Atmospheric Administration (NOAA) climate researchers, the Union of Concerned Scientists has been pushing back against this attack on independent science.

At issue is a peer-reviewed climate paper NOAA researchers published in the journal *Science* last June. The paper concluded that global temperatures have continued to rise unabated since 1998. This study, along with several others, refuted claims by climate science contrarians, including Smith, that the rate of global warming had slowed over the past two decades.

After the paper was published, Smith questioned NOAA about its conclusions. The agency pointed out that the study's data and methodology were already publicly available, and provided several briefings for Science Committee staff. Unsatisfied, Smith issued his subpoena and alleged, without evidence, that agency scientists "altered data to get politically correct results."

UCS quickly jumped into action, raising the alarm about the chilling effect on scientific research Smith's investigation was creating. "We want to protect the creative process of scientific discovery and analysis," said Andrew Rosenberg, director of the Center for Science and Democracy at UCS. "Turning over correspondence between scientists, lab notes, and peer review comments turns a scientific process into a legal proceeding."

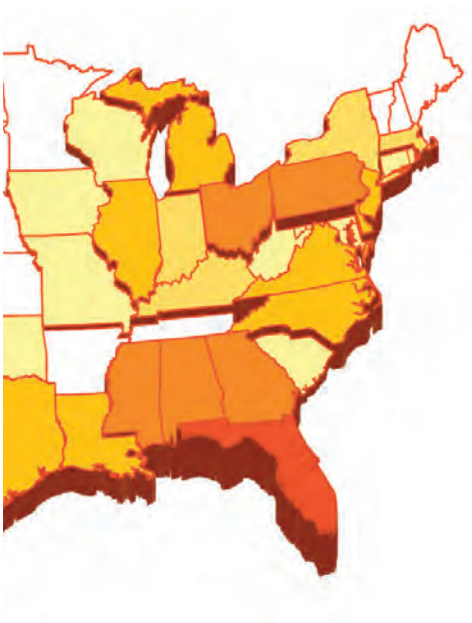
NOAA, seeking to protect its researchers' ability to have candid conversations about scientific work in progress, declined to release the scientists' emails and other internal documents. Smith escalated the situation by threatening NOAA and the Commerce Department with contempt-of-Congress proceedings.

Seven major U.S. science organizations, including the American Association for the Advancement of Science and the American Meteorological Society, responded by sending a letter to Smith upbraiding him for harassing NOAA scientists. With the broader scientific community now speaking out, Smith softened his request to focus on "all documents and communications by NOAA officials, with the exception of scientists acting in their official capacity."

UCS has not only aggressively criticized the subpoena in the media and on our blog, *The Equation (http://blog.ucsusa.org)*, but also helped organize two scientist letters supporting NOAA Administrator Kathryn Sullivan for "standing up for scientific integrity." One was signed by nearly 600 members of the UCS Science Network; the other was signed by two dozen former NOAA scientists including Rosenberg.

Photos: NASA/Aubrey Gemignani (left); NASA/Bill Ingalls (right)

Is Your State Betting Too Much on Natural Gas?



Two-thirds of U.S. states may be putting utility consumers at financial risk by relying too heavily on natural gas to generate electricity, according to a recent UCS analysis. Some utilities are shutting down aging nuclear plants that are no longer cost-competitive with cheap natural gas. In addition, as states prepare to comply with the federal Clean Power Plan, they are phasing out many coal-fired power plants. But instead of replacing these facilities with clean, renewable solar and wind power, many states are opting to build new natural gas capacity instead. The well-known price volatility of natural gas, along with the global warming emissions it creates, put these states' electricity customers at greater risk.

The UCS study, presented in a graphical, online format (along with a supporting technical document), rates U.S. states on their risk of overreliance on natural gas by a series of different measures. Among the findings: in 2017, natural gas is projected to account for 72 percent of all power plant capacity in Louisiana and 61 percent in Florida.

Targeting roughly 250 key state and federal policy makers, experts, and advocates, the analysis encourages states to prioritize renewable energy and energy efficiency rather than relying on a wholesale shift to natural gas in order to achieve Clean Power Plan compliance. After the study was released, UCS supporters generated nearly 10,000 emails to governors around the country urging them to avoid an overreliance on natural gas.

How does your state stack up? Find out and take action at *www.ucsusa.org/naturalgasoverreliance.*

Alaska Gathering Addresses Arctic Climate Impacts

President Barack Obama addresses attendees at the GLACIER Arctic climate conference in late August.

To support the United States as it leads the international Arctic Council from 2015 to 2017, UCS cohosted a well-attended event in Anchorage, Alaska, on the eve of the U.S. State Department's GLACIER conference last year.

A diverse group of more than 90 high-level local, state, and federal government officials, civic and tribal leaders, and scientists attended the UCS event, discussing climate change and other challenges and opportunities related to the Arctic. Prominent participants included Admiral Robert J. Papp, the State Department's special representative for the Arctic; Anchorage Mayor Ethan Berkowitz; Bert Frost, the National Park Service regional director for Alaska; and Elaine Abraham, chair of the Alaska Native Science Commission. In her opening remarks, Fran Ulmer, chair of the U.S. Arctic Research Commission, complimented the work of UCS, especially noting the organization's instrumental role since 2004 in supporting scientific integrity in government.

Photo: © The White House

Announcing the 2015 UCS *Got Science?* Champs

When science is under attack, it desperately needs defenders like these. UCS proudly presents four inspiring individuals who stood up for science in 2015.

Eric Schneiderman: Investigating decades of climate deception. New York's attorney general took a bold step toward holding a fossil fuel company legally accountable for funding campaigns that deny the reality of climate change. In 2015, Schneiderman's office subpoenaed ExxonMobil, launching an investigation into whether the company deceived shareholders (on risks to their investments) and the public (by financing climate change–denying lobbying groups).

Katie Gibbs: Spotlighting science in Canadian democracy. Biologist Gibbs founded Evidence for Democracy to combat the previous Canadian administration's efforts to muzzle government scientists. During last year's election, Gibbs and her team helped make science a talking point among candidates, and Canadians elected a new administration that immediately restored its scientists' right to free speech.

Richard Pan: Protecting children's health. California State Senator Pan, a pediatrician by training, responded to a preventable measles outbreak in 2015 by sponsoring a bill—signed into law last summer—requiring all schoolchildren in the state to be vaccinated. The bill closes the religious and "personal belief" exemption loophole that many parents in the state had leaned on to avoid vaccinations.

Irma Muñoz: Bringing science to the people. As founder and president of Mujeres de la Tierra, a Los Angeles-based environmental activist group, Muñoz helps empower residents of low-income communities to advocate for their health and safety through scientific fluency. She partnered with UCS in 2015 to connect residents of communities facing unconventional oil and gas development (specifically, "fracking") with scientists who helped them communicate their concerns to officials.

This year, UCS also lauded the National Oceanic and Atmospheric Administration (NOAA) for standing up for scientific independence under attack by the House Science Committee. (For more on that topic, see article on page 4.)

Congratulations to each of our 2015 *Got Science?* champs.

Tax Tip: IRA Giving Simplified

At the end of last year, President Obama signed into law an act that makes permanent a handy, tax-wise giving feature. The provision, called the IRA Charitable Rollover, enables those holders of an Individual Retirement Account (IRA) who are age 70 1/2 or older to transfer up to $100,000 per year from their IRA to a designated charitable organization. The transfer satisfies required mandatory distributions but will not be counted as taxable income.

This means it is now simpler than ever for those who qualify to transfer funds to UCS by simply instructing their IRA administrator where to transfer the funds. If you have any questions or wish additional information on how to utilize this tax-free giving approach, please contact Director of Planned Giving Ken Dolbashian at (617) 301-8014 or *kdolbashian@ucsusa.org*.

UCS Briefs NPR on Climate Science

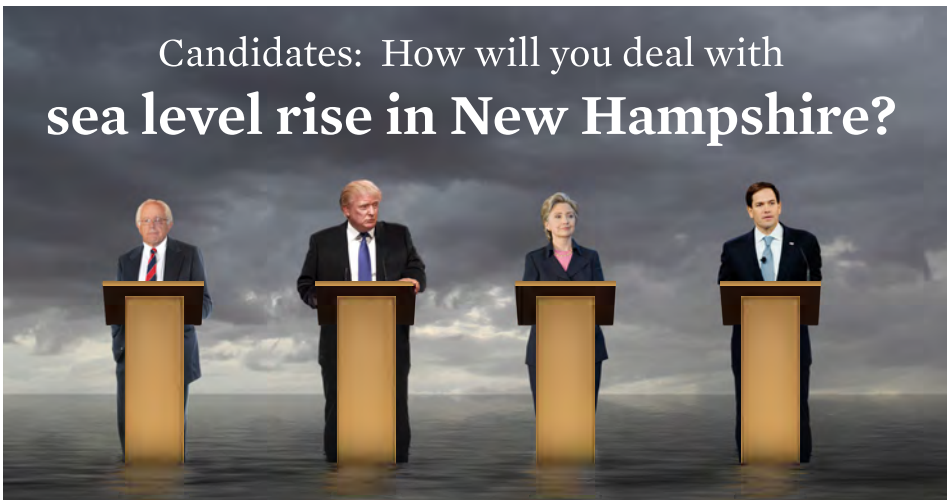
Last fall, UCS scientists were among a handful of experts National Public Radio (NPR) invited to educate the top energy and environment reporters from its more than 900 member stations about the latest climate science.

UCS Senior Climate Scientists Brenda Ekwurzel and Jason Funk played a prominent role at this inaugural meeting of NPR's new Energy and Environment team, hosted by the Joyce Foundation. Ekwurzel gave the keynote presentation that opened the two-day training workshop, and Funk fielded journalists' questions and participated in discussions.

Although NPR had dissolved its climate team in 2014, a backlash against the decision coupled with growing interest in climate and energy issues led the company to create a new team. UCS was honored by NPR's invitation and welcomed the opportunity to help shape its coverage of climate and energy issues.

The briefings were well received. "Everybody was buzzing about your presentation," NPR science correspondent Chris Joyce noted in a follow-up email to Ekwurzel, adding that it was "very informative and comprehensive and delivered with brio."

Video Ad Targets Candidates



UCS launched an ad campaign in New Hampshire in January pressuring presidential candidates to address sea level rise as they approach the state's primary. The ad, running in various community newspapers and the Manchester airport, depicts the Republican and Democratic candidates currently leading in state polls standing behind podiums with the tide rising to their waists. At our January 18 press conference unveiling the ad, UCS was joined by two state senators and Dr. Cameron Wake, a research professor in climatology and glaciology at the University of New Hampshire and a member of the UCS Science Network.

The Force Is with UCS

A short time ago, in a galaxy not far away . . . UCS was given an amazing opportunity by actor Oscar Isaac, also known as ace X-wing pilot Poe Dameron in *Star Wars: The Force Awakens*.

As part of a promotion called Star Wars: Force for Change, fans of the movie franchise were offered a chance to win a trip to the premiere of the new film in Los Angeles or London and meet the cast by donating money to one of 15 nonprofit organizations.

The movie's director, producer, and stars were all asked to select their favorite charities to benefit from the promotion. Isaac chose UCS—and thanks to him we received more than $80,000. We're honored by the selection and grateful to the many *Star Wars* fans who contributed.

Photos: © Creative Commons/Gage Skidmore (Flickr) (Bernie Sanders, Donald Trump, Marco Rubio); © Shutterstock.com/Jose Gil (Hillary Clinton); © Fathead Graphics (Oscar Isaac). Illustration: © UCS/Audrey Eyring.

RE-ENVISIONING OUR BROKEN FOOD SYSTEM

by Mark Bittman, Olivier de Schutter, Michael Pollan, and Ricardo Salvador

Mark Bittman, *a food writer and former* New York Times *columnist, is currently a fellow at UCS and cofounder of The Purple Carrot, a vegan food startup;* ***Olivier De Schutter,*** *a professor of international human rights law at the Catholic University of Louvain, cochairs the International Panel of Experts on Sustainable Food Systems, and was the United Nations special rapporteur on the right to food from 2008 to 2014;* ***Michael Pollan*** *teaches at the University of California–Berkeley's graduate school of journalism, and is the author of eight books including* In Defense of Food, *which was recently adapted as a movie featured nationally on public television;* ***Ricardo Salvador*** *directs the Food and Environment Program at UCS, and is a former associate professor of agronomy at Iowa State University.*

EDITOR'S NOTE: This article is adapted from the much longer "Memo to the Next President" published in Medium.com. *The Union of Concerned Scientists, along with coalition partners, is working through the Plate of the Union campaign (see sidebar, p. 11) to advance several of the key proposals discussed here.*

Because of unhealthy diets in the United States, a century of progress to improve public health and extend life span has been reversed. Today's children are expected to live shorter lives than their parents, in large part because a third of these children will develop type 2 diabetes, a preventable disease—formerly rare in children—that reduces life expectancy. At the same time, our fossil fuel–dependent food and agriculture system is responsible for a large share of global warming emissions and environmental degradation. And the exploitative labor practices of the farming and fast food industries contribute to income inequality and health disparities in America.

Diet-related chronic disease, food safety, marketing to children, labor conditions, wages for farm and food-chain workers, immigration, water and air quality, global warming emissions, and support for farmers: all these issues are connected to the food system. Yet government policy to address these problems is made piecemeal and overseen by eight different federal agencies. Current government policies and incentives reward production of too much of the wrong stuff, at great cost to natural resources and public health. Amid this incoherence, special interests thrive and the public good suffers.

Of course, reforming the food system will ultimately depend on a Congress that has, for decades, been beholden to agribusiness—one of the most powerful lobbies on Capitol Hill. As long as food-related issues are treated as discrete rather than systemic problems, congressional committees in thrall to special interests will be able to block change.

But the next president can break the deadlock by announcing an executive order that establishes a National Food Policy for the 21st Century. Such a policy would start with a declaration of vision: that government policies related to food are intended to produce a wholesome and healthful food supply for people of all socioeconomic backgrounds, while treating humans and animals fairly and compassionately and nurturing the ecosystems on which we depend. In other words, a food system that is healthy, green, affordable, and fair.

By laying out such a vision and officially acknowledging how interconnected these problems are, a national food policy can create momentum for reform. And the benefits would accrue across our society: just in terms of health care, for example, increasing national consumption of fruits and vegetables to meet the government's current recommendations would save more than 100,000 lives *from heart disease alone,* not to mention $17 billion annually in associated health care costs.

> *A national food policy would address three of the most critical issues of our time: health care, climate change, and economic equality.*

WHAT WOULD A NATIONAL FOOD POLICY LOOK LIKE?

A national food policy could include a host of commonsense components that are broadly supported by the American public. Below are 15 features we'd like to see. For more detail about what a national food policy might include, visit *www.ucsusa/food_and_agriculture* or read our memo to the next president (from which this article is adapted) at *Medium.com*.

1. **Promote greater production of seasonal fruits and vegetables** for regional markets by providing equitable access to credit and loan guarantees for all farmers (but particularly for young, beginning, and organic farmers, who have historically encountered barriers to government programs). Such measures would create, at minimum, 189,000 new jobs in local-food systems and $9.5 billion in new revenue for healthy foods.

2. **"Re-solarize" the food production system,** weaning American agriculture from its heavy 20th-century diet of fossil fuels and vast monoculture through diversification of crops. This approach can reduce energy consumption and global warming emissions, enhance rather than degrade natural resources, improve food safety and security, and improve the quality of calories produced.

Photo: © Creative Commons/Peter Beaumont (Flickr). Illustration: © UCS/Audrey Eyring.

3. **Appoint a national food policy advisor** charged with coordinating food policy across all government departments. This would ensure that agriculture policies no longer undercut (but instead support) efforts on public health, energy, climate change, and our professed foreign policy goal of helping low-income countries feed themselves.

4. **Redirect agricultural research** and extension programs to investigate, develop, promote, and support regionally appropriate, regenerative, diversified farming systems based on agroecological principles. In addition, refocus the land grant university system to serve local and regional constituencies and their needs.

5. **Rethink livestock production** by eliminating the routine non-medical use of antibiotics in animal agriculture and ending federal subsidies and regulatory loopholes for confined animal feeding operations (CAFOs), which would encourage the reintegration of animals onto farms. CAFOs should be recognized and regulated as the factories they are, subject to the same standards, regulations, and penalties as other industries that emit noxious products.

6. **Launch a "Farmer Corps"** to educate a new generation of farmers and help put them on the land, combating the rapidly aging farming population in the United States. (In 2012, the average U.S. farmer was 58 years old.)

Current government policies and incentives reward the wrong stuff, at great cost to natural resources and public health.

7. **Use existing antitrust laws** to restore competition to food markets at every level: from seeds, grain trading, and animal feeding to meatpacking and supermarkets.

8. **Establish a federal grain reserve,** modeled on the Strategic Petroleum Reserve, to help avoid destructively volatile swings in commodity prices.

A national food policy would, among other things, help ensure safe and fair-paying jobs for workers who vegetables more affordable for all Americans.

9. **Ensure fair wages for farm labor** sufficient to allow workers who harvest, process, prepare, and serve our food to have access to the same food they have helped to produce and deliver.

10. **Enforce existing worker safety rules** throughout the food system. Give the Occupational Safety and Health Administration the resources it needs to protect food workers, from field to factory.

11. **Expand farmers markets** by providing grants that allow towns and cities to build year-round, indoor/outdoor farmers markets, especially in underserved urban neighborhoods.

12. **Prioritize regional producers in federal food procurement** (i.e., in contracts with the U.S. military, national parks, schools, prisons, etc.).

13. **Require municipal and institutional composting** of food and yard waste, giving the compost to farmers and ranchers.

14. **Promote food education** as an accepted part of the school curriculum, as President John F. Kennedy did for physical education. This effort could include gardens in schools, cooking lessons, renovation of school cafeterias, and a substantial increase in funding for the Child Nutrition Act in order to underwrite healthy, sustainably grown food.

15. **Support maximum transparency in food labeling** with reconceived labels that make it simple to determine whether the food we buy is healthful, fair, and sustainable.

Photo: USDA

harvest and process our food (such as these lettuce farmers in California), and help make fruits and

RECIPE FOR A HEALTHIER AMERICA

The sensible, widely popular components of a national food policy listed above highlight its potential. Such a plan is not a pipe dream. A new political constituency is forming around food issues. The old "farm vote" will soon be overtaken by a "good food" vote comprised not only of a new generation of young farmers, but also of the people they feed, a rapidly growing segment of the population who have begun to vote with their dollars—and with actual votes too—for a healthier, less exploitative, more humane food system. Today there is far more political support for nutrition programs than crop subsidies, reflecting the demographic and democratic reality that there are many more hungry, non-farming citizens than farmers.

Leadership and vision from the next U.S. president should be commensurate with the stakes involved, and would provide this president's administration with an opportunity to take landmark executive action that could result in a historical legacy. As an initial step, the president should encourage House and Senate leadership to reconstitute their respective agriculture committees as "food and health committees," with membership representative of the appropriate expertise and geographical diversity. The purview and mandate of these committees is too important to be left in the hands of a narrowly defined regional business interest group.

The U.S. government has never before had a national food policy, let alone one that seeks to align federal agricultural policies with national public health and environmental objectives. Were the next president to adopt such a policy, and by executive action establish the mechanisms for its implementation, the impact could be enormous on three of the most critical issues of our time: health care, climate change, and economic equality. {C}

Photo: © iStockphoto.com/Alija

Get Involved: Support Our Call for Action on Food and Farms

PLATE OF THE UNION

Plate of the Union is a joint effort of the Union of Concerned Scientists, Food Policy Action, Food Policy Action Education Fund, and the HEAL Food Alliance. We're mobilizing a broad range of Americans—including farmers, scientists, community activists, thought leaders, chefs, and ordinary citizens—to call on U.S. presidential candidates to take five commonsense steps to reform our food system:

1. **Stand with working families** by committing your administration to ensuring that all Americans have access to healthy, affordable food.
2. **Keep our kids healthy** by taking action to stop companies from marketing junk food to kids and putting an end to subsidies for processed junk food.
3. **Support farmers** to grow the healthy food we need by pledging to realign agricultural subsidies to match the U.S. government's fruit and vegetable recommendations and expand incentives for sustainable farming practices.
4. **Protect farm workers** by ending exemptions from fair labor standards for them, raising the minimum wage for all food workers, and eliminating the subminimum wage for restaurant workers.
5. **Keep antibiotics working** by supporting a ban on the practice of feeding antibiotics to farm animals that are not sick.

Learn more about our Plate of the Union campaign at *www.ucsusa.org/plateoftheunion.*

Everyone Deserves Food That's Green, Affordable, Fair, and Nutritious

INTERVIEW WITH MARK BITTMAN

When you left the* New York Times *to come to UCS, you spoke of "making the leap from writing about a broken food system to trying to do something about it." How does it feel so far?

MARK BITTMAN: It feels great. I can't say I've done much to fix the broken food system yet! But signs are pointing in the right direction. I'm spending time deeply immersed in strategy sessions with my UCS colleagues, including my good friend Ricardo Salvador [director of the Food and Environment Program]; I'm working on a food literacy project with some brilliant University of California colleagues; and I've helped relaunch a vegan food-plan company, The Purple Carrot, which is pretty exciting. Much of this work involves doing as well as writing, and that does feel like a new start.

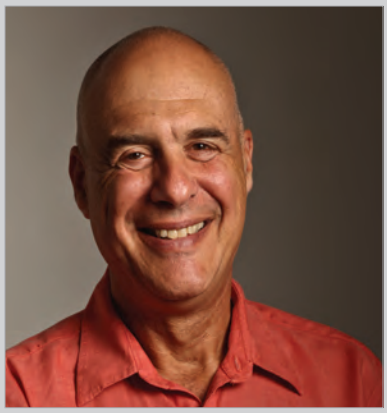
Your writing often looks at the big picture—how the food choices we make relate to the health of the nation or the health of the planet. Was this something you were always interested in?

MARK BITTMAN: I have been interested in looking at big societal issues since around 1970, when I became an antiwar activist and realized that so many issues—the environment, poverty, justice, racism, sexism, and so on—were part of the same problem: an increasingly undemocratic society.

That food was part of the same system should have been obvious to me, but I was so deeply involved in teaching people how to cook that I didn't see the writing on the wall until 15 years ago or so. At that point, the decline in the quality of American food—and its resulting negative impact on health—was impossible to miss. I've been focused on it ever since.

Were food and cooking passions for you early on? If so, what in particular appealed to you?

MARK BITTMAN: My grandmothers cooked, and well. But frankly, it wasn't like I'd be dying to go to Grandma's house to eat her food. In those days, I would rather be with my friends, eating slices of pizza. (I grew up in New York City.) My mother, to her credit, put food on the table—real food—just about every night. And, though I'm grateful to her for that, it was similar: I wasn't that thrilled about dinner time.



MARK BITTMAN is a fellow in the Union of Concerned Scientists' Food and Environment Program and a widely read food writer. He is a former columnist for the *New York Times,* a best-selling author of dozens of books on food and cooking including *How to Cook Everything,* and a regular guest on NBC's *Today Show*.

Only when I went to college, in 1967, did I realize just how bad food could be. That's when I started cooking, and I fell in with a bunch of people who really knew and loved cooking. From that point, it just happened.

At UCS we work hard to connect issues such as climate change and nuclear weapons to people's lives. But food is different: everyone eats, but people don't always make the connection to broader social issues. Do you agree?

MARK BITTMAN: Not only do I agree, but I also think that's a really important distinction. I do find it confounding and frustrating that we haven't had more success uniting people around food issues. Here's what I think explains it: People have access to food (however bad it may be) almost everywhere. Most people can afford to eat a lot of food, by historical standards, and much of it is highly seasoned and appealing. Meanwhile, many other things are going wrong: incomes are down, people are working harder at less satisfying jobs, much of the country has been developed in spectacularly unaesthetic fashion. Life is difficult, in other words, and eating is an easy way to get pleasure. So, many people don't want to hear about what's wrong with it.

The average American diet includes a lot of processed and junk food that has led to near-epidemic rates of obesity and heart disease. You've called for a national food policy. How can that help?

MARK BITTMAN: A national food policy could be an enormous step forward. Suppose we say, from the start, "All

Photo: © Fred Conrad

> ***A national food policy could be an enormous step forward. I'm excited to be at UCS to focus on bringing about this kind of broad, systemic change.***

Americans are entitled to food that's green, affordable, fair, and nutritious." Doesn't that change everything? Right now, 95 percent of the food we produce isn't produced in an environmentally

sound manner. Much of it is affordable to most people but that's only because the costs of it not being green are paid elsewhere. Much of today's food production is not fair: food workers are among the most maltreated in the country, and billions of animals are tortured daily. And malnutrition is rampant among most of our citizens. Not classic, vitamin-poor malnutrition, but the kind of malnutrition that causes chronic disease. (If half the kids growing up today are going to develop type 2 diabetes—a distinct possibility—I'd say they're malnourished.) A national food policy that sets out the goal of fixing those things could go a long way to making real and lasting change.

How optimistic are you that we're seeing some positive trends in American attitudes toward food matters (with things such as renewed attention to artisanal food production)?

MARK BITTMAN: It's important that we're seeing alternative versions of producing food, and those who can afford to are right to support those. It's great that many small producers are starting from scratch to try to do things right. But my feeling is that what's needed most now is to force changes in industrial food production. Big Ag is not going to change in response to a small number of farmers doing things the right way, as appealing as that is. Big Ag is going to respond to consumer demand to do things better, followed by government regulation to make sure that happens. That's why I'm very excited to be at UCS to focus on bringing about this broader, systemic change. {C}

Photo: © Romulo Yates (Mark Bittman)

ELECTRIC VEHICLES: JUST HOW GREEN ARE THEY?

BY PAMELA WORTH

You're a savvy consumer, concerned with your carbon footprint. If you're considering buying an electric vehicle, you're faced with a lot of misinformation. "Your electric vehicle might not be as green as you think," reads one headline. "There are places where electric cars pollute more than gas-powered cars," cautions another. Will your electric car suck up electricity generated by coal-fired power plants, negating any benefit to the environment? Is the process required to manufacture an electric car's powerful battery just as bad as burning gasoline? Should you just throw in the towel and get a gas guzzler?

NOT SO FAST!

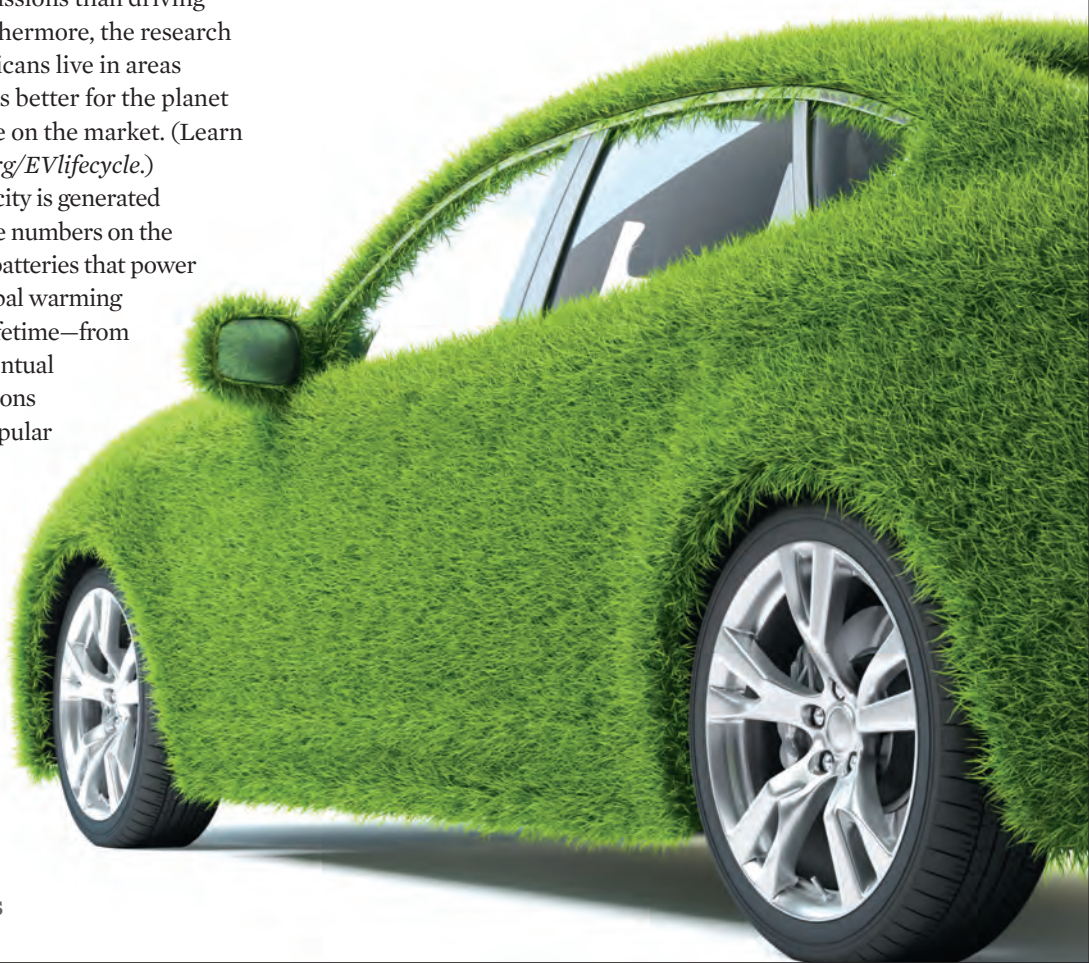
Recent research by the Union of Concerned Scientists found that driving and charging an electric vehicle *anywhere* in the United States produces fewer global warming emissions than driving an average new gas-powered vehicle. Furthermore, the research shows that more than two-thirds of Americans live in areas where driving an average electric vehicle is better for the planet than even the most efficient hybrid vehicle on the market. (Learn more about these results at *www.ucsusa.org/EVlifecycle*.)

Using the latest data about how electricity is generated around the country, as well as crunching the numbers on the energy and materials required to build the batteries that power electric cars, UCS analysts examined all global warming emissions created during an electric car's lifetime—from its production and years of driving to its eventual retirement. The research considered emissions based on models similar to the two most popular electric cars available to American drivers: the midsize Nissan Leaf and the full-size Tesla Model S.

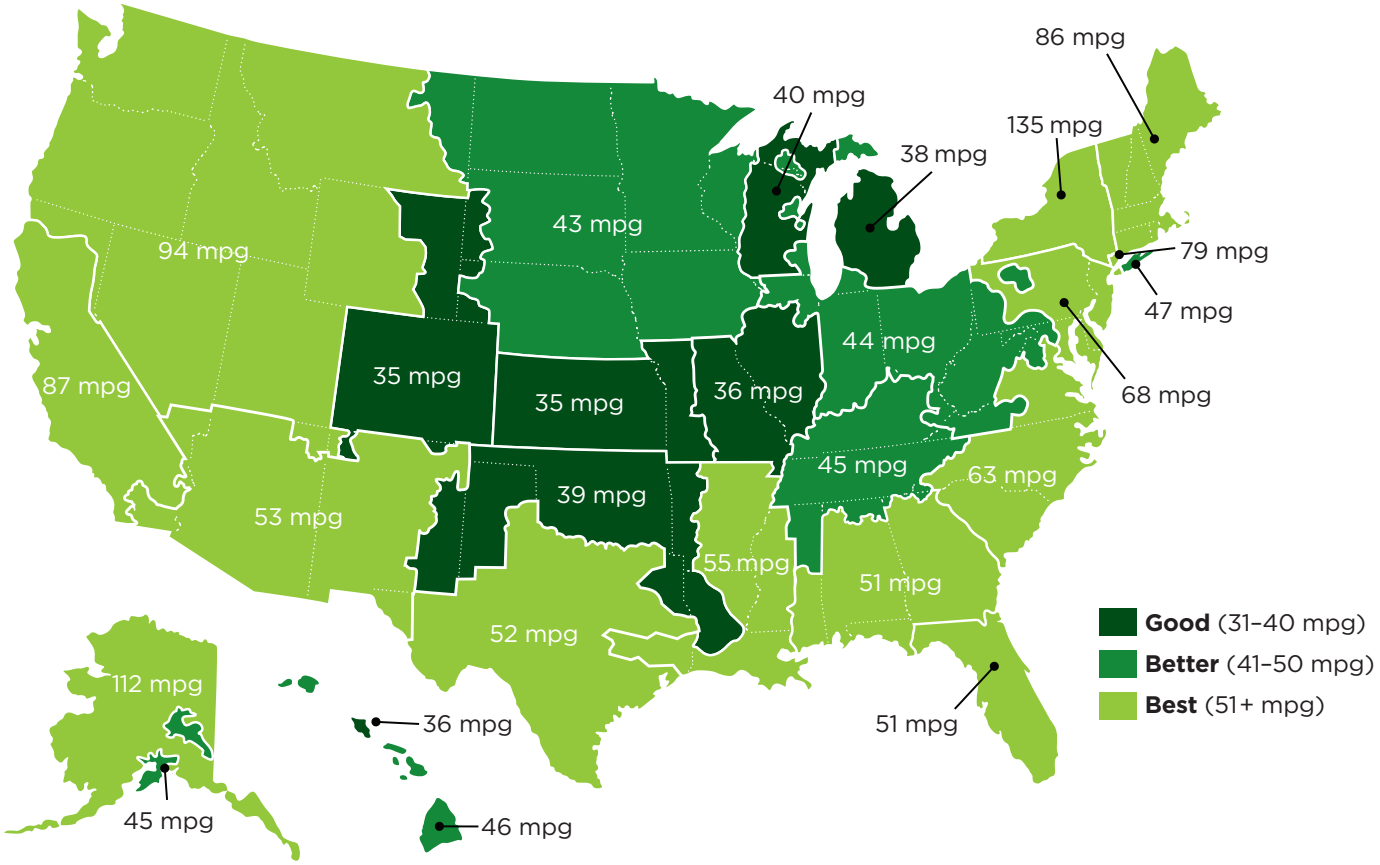
FROM THE FACTORY TO THE ROAD

UCS researchers found that, although the production of lithium-ion batteries leads to more global warming emissions from the manufacturing of an electric car than a gas-powered car, these manufacturing emissions are rapidly offset by reduced emissions from driving: after 4,900 miles, or about six months, of driving the midsize electric car, and within 19,000 miles, or about 16 months, of driving the full-size model.

Of course, while electric cars produce no tailpipe emissions, that doesn't mean there are no emissions associated with driving them. Just how green they are ultimately depends on how the electricity used to charge the car's battery is generated. To offer the most accurate assessment possible, UCS analysts rated 26 regions of the United States using power plant data from the Environmental Protection Agency (EPA). A region that relies more heavily on coal-powered electricity generation, for example, rated worse for global warming emissions than a region using more renewable sources of energy.



Across the Country, Electric Vehicles Are a Cleaner Choice



The mpg (miles per gallon) values listed represent the equivalent combined city/highway fuel economy rating for an electric vehicle in that region. Two-thirds of the nation's residents live in regions where an EV is cleaner than the most efficient hybrid (50 miles per gallon).

Note: Regional global warming emissions ratings are based on 2012 power plant data from the Environmental Protection Agency.

> *We crunched the numbers to determine electric vehicles' emissions from cradle to grave.*

The results? Even for U.S. regions with the least renewable electricity generation, the analysis showed that:

- Driving the average electric vehicle in any region of the country produces lower global warming emissions than the average new gas-powered car getting 29 miles per gallon.
- More than 66 percent of Americans now live in regions where powering an electric car on the regional electricity grid produces lower global warming emissions than a gas-powered or hybrid car getting *50 miles per gallon*.

Thanks to the Clean Power Plan released by the EPA this year, and to improved state renewable energy standards, regional grids are using more and more renewable energy—meaning the environmental benefits of driving electric cars will almost surely improve.

HOW DOES YOUR STATE RATE?

Electric cars are clean and getting cleaner and their popularity is steadily increasing among consumers. Even so, gas-powered cars remain the norm for American drivers. Cutting oil use and moving toward cleaner electricity worldwide are both vital to avoiding the worst impacts of climate change, and electric vehicles are part of the solution—as are stronger fuel economy and global warming emissions standards for gas-powered cars.

Before you give in to misinformation, get the facts on how your state rates for global warming emissions from electric versus gas-powered cars. Visit *www.ucsusa.org/EVtool* and enter your zip code to see how different types of vehicles compare where you live. {C}

Photo: © Dreamstime.com/Mopic (left)

ExxonMobil FEELS THE HEAT

The company's climate deception draws media scrutiny and an investigation.

BY ELLIOTT NEGIN

Over the past several months, thanks in part to path-breaking work by the Union of Concerned Scientists, ExxonMobil has begun to be called to account for its actions related to climate deception. Things began to heat up for the company last July, when UCS released *The Climate Deception Dossiers,* a report documenting that ExxonMobil and other top carbon polluters such as coal giant Peabody Energy have been fully aware of the reality of climate change for decades but spent tens of millions of dollars to misinform the public about climate science. UCS also uncovered evidence that Exxon had been factoring the reality of fossil fuel–driven climate change into its internal oil and gas extraction plans as early as 1981—much earlier than anyone had realized and years before there was much public awareness of the problem.

A few months after the report's release, two news organizations published a series of articles that filled in more detail about the extent to which Exxon scientists had long known about the threat posed by climate change. Both *InsideClimate News* and the *Los Angeles Times* dug up evidence from company archives and interviews with former employees showing that Exxon was a leader in climate research in the 1970s and 1980s before becoming one of the most ardent climate science deniers, rejecting the warnings of its own scientists that the consequences of global warming could be catastrophic.

A number of new developments since then have kept the pressure on ExxonMobil. In light of the revelations by UCS and the investigative journalist teams, several members of Congress, three presidential candidates, and more than 60 leading environmental, science, and social justice groups (including UCS) called for the U.S. Justice Department to investigate ExxonMobil for deliberately deceiving the public, much in the same way the tobacco industry lied about the link between smoking and disease.

A FORMAL INVESTIGATION BEGINS

On November 4, New York Attorney General Eric Schneiderman launched a criminal investigation to determine, as he told *PBS NewsHour,* whether ExxonMobil was "using the best science and the most competent [climate] models for their own purposes, but then telling the public, the regulators, and shareholders that

Facing page: ExxonMobil CEO Rex Tillerson

no competent models existed." If that's the case, he said, the company could be guilty of fraud.

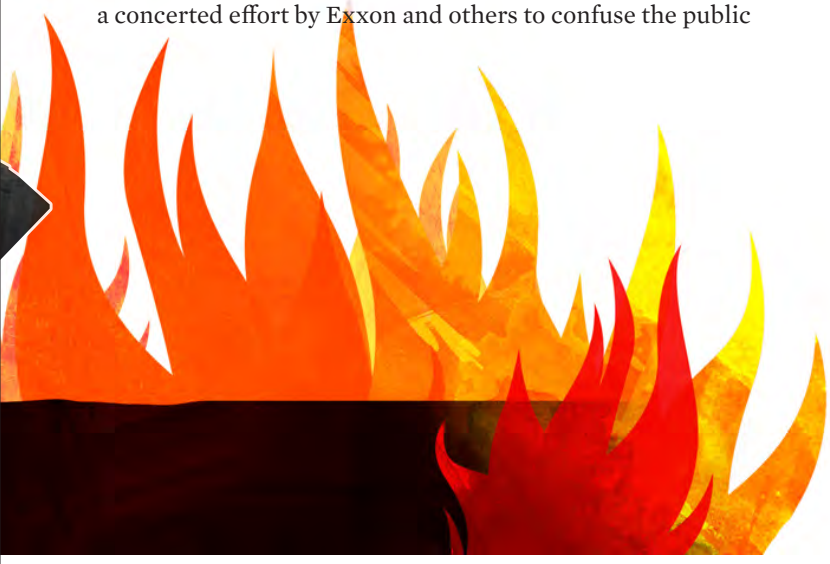
A month later, on December 7, 45 members of the U.S. House of Representatives sent a letter to the CEOs of BP, Chevron, ConocoPhillips, ExxonMobil, Peabody Energy, and Royal Dutch Shell asking them to clarify exactly what they knew about the climate risks of their products, when they knew it, and what plans the companies are putting in place to limit future risks. Initiated by Representatives Ted Lieu of California and Peter Welch of Vermont, the letter draws heavily on the UCS report, noting that, "UCS uncovered many internal company documents which appear to confirm a coordinated campaign of deception conducted by the industry to deceive the public of climate science that even their own scientists confirmed."

WERE EXXONMOBIL'S ACTIONS ILLEGAL?

While ExxonMobil officials have been pushing back against the accusations in press interviews and opinion columns, the New York investigation now under way—as well as other possible investigations—will determine whether ExxonMobil's actions were illegal.

By launching his investigation, Attorney General Schneiderman obviously thinks they might be. "In New York," he told *PBS NewsHour,* "we have laws against defrauding the public, defrauding consumers, defrauding shareholders." And, it goes without saying, there is no legal protection for ExxonMobil from fraud.

Sharon Eubanks, a former Justice Department lawyer who prosecuted the racketeering case against the tobacco industry, also thinks ExxonMobil's actions might constitute fraud. "It appears to me, based on what we know so far, that there was a concerted effort by Exxon and others to confuse the public



> *A pathbreaking UCS report raises tough questions for the fossil fuel giant.*

on climate change," she said in an October 20 interview with *Climate Progress.* "They were actively denying the impact of human-caused carbon emissions, even when their own research showed otherwise."

Rhode Island Senator Sheldon Whitehouse, a former prosecutor, has called for a federal investigation. "The revelation that Exxon knew about the link between climate change and carbon pollution as early as 1981 and yet continued to support a decades-long campaign of denial described in the [July] UCS report, strengthens the parallel with the tobacco-industry conduct that led to a civil [Racketeer Influenced and Corrupt Organizations Act] verdict against tobacco," Whitehouse told *The Nation* in July. "Whether [the Justice Department] pursues this or not is their call, but if nothing else, the UCS report shows these are legitimate questions to ask."

LEGAL CARBON IN THE GROUND

Aside from the outcome of any legal actions brought against ExxonMobil or other major fossil fuel companies, people are increasingly beginning to discuss what the future holds for these companies in the wake of the Paris climate accord—they may have even more to worry about than their legal culpability for climate disinformation.

A study published in late November by Richard Heede and Naomi Oreskes in *Global Environmental Change,* and funded in part by UCS, suggests that more attention needs to be paid to major fossil fuel companies' plans to develop new reserves. The authors find that the world's 42 largest investor-owned fossil fuel companies (including BP, Chevron, ExxonMobil, and Shell) currently spend an estimated $700 billion per year to identify and develop new fossil fuel reserves. This continued development, the authors contend, risks increasing emissions to a point that would push the global temperature "well past" the newly agreed-upon international limit.

To prevent this outcome, they say, far greater investor and consumer pressure needs to be brought to bear in "dissuading these corporations from further investment in fossil fuel exploration and development," particularly in the development of oil and gas from tar sands and other high-carbon sources. It's a subject that UCS will actively address in the months ahead. {C}

HOUSTON, WE HAVE A PROBLEM

But Scientists Working with Communities Can Work toward Solutions

BY ELLIOTT NEGIN

The Center for Science and Democracy at the Union of Concerned Scientists cohosted a community forum in Houston this past fall, focusing on the mutually beneficial ways in which scientists and local communities can partner to grapple with health and environmental problems.

UCS's partner in organizing the two-day event was Texas Environmental Justice Advocacy Services (TEJAS), a nonprofit group working with Houston communities that bear the brunt of the area's pollution—and there's plenty of it. The American Lung Association lists Houston as the sixth-worst city in the country for ground-level ozone pollution, which has been linked to asthma and other respiratory problems, cardiovascular disease, and premature death.

The forum began on September 25 with a tour of Houston's East End—home to chemical plants, refineries, and metal recycling facilities—so participants could see (and smell) for themselves the pollution residents there suffer every day. The following day, a diverse lineup of speakers and panelists addressed some 75 attendees at Houston Community College and another 130 or so people who streamed the forum online.

UCS Executive Director Kathleen Rest welcomed participants and was followed by Arizona congressmember Raúl Grijalva, who noted the urgent need for scientist-community collaboration. "Too often," he said, "people are shut out of important policy decisions because they

Photo: © Derrick Z. Jackson

Facing page: TEJAS Director Juan Parras describes the impact of a local metals recycling facility on his local community. Onsite air monitoring showed that pollutant levels that day were three times higher than Environmental Protection Agency standards.

A UCS forum in Houston, Texas, draws a top-notch slate of scientists and community leaders to shine a light on environmental justice issues.

don't have access to science or technical information and expertise."

Former UCS Kendall Science Fellow Jalonne White-Newsome, representing the New York-based nonprofit WE ACT for Environmental Justice, moderated a panel discussion featuring national experts from the realms of advocacy, academia, and government. Panelists included Irma Muñoz, founder and president of the Los Angeles-based nonprofit Mujeres de la Tierra, and Raj Pandya, director of the American Geophysical Union's Thriving Earth Exchange.

After this discussion, participants turned to Houston-specific issues. Former presidential science advisor Neal Lane, now a senior fellow in science and technology at Rice University, opened the next session and introduced keynote speaker Robert Bullard, dean of Texas Southern University's School of Public Affairs. Often called "the father of environmental justice," Bullard talked about Houston communities' struggle to overcome discriminatory policies and environmental racism, and the critical role scientists can play in addressing these issues.

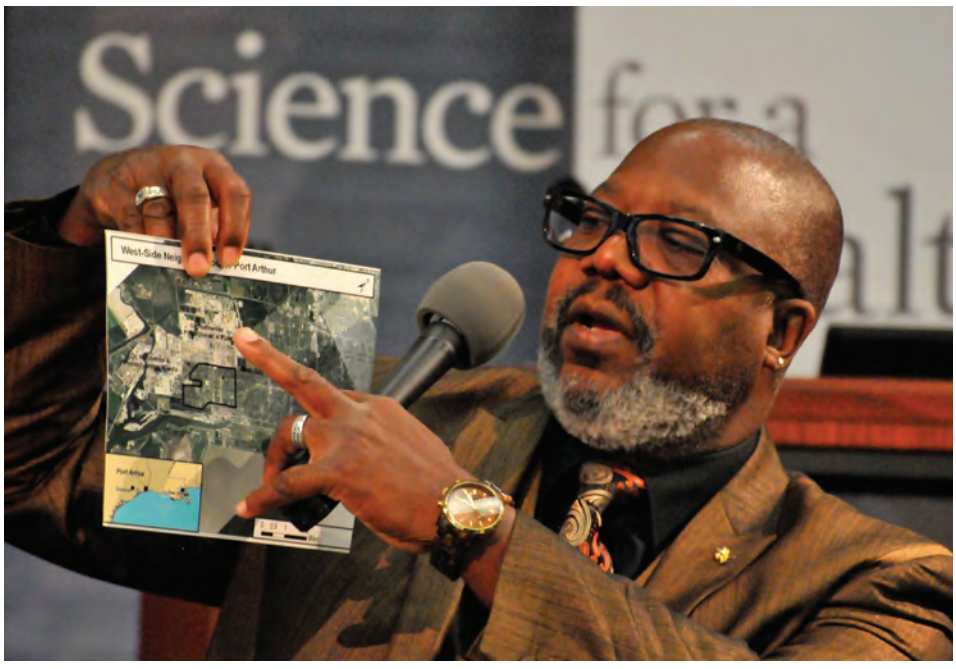
Next up was a Houston-centric panel discussion moderated by Brenda Reyes, community environmental health bureau chief at Houston's Department of Health and Human Services. Panelists included TEJAS Director Juan Parras and Air Alliance Houston Executive Director Adrian Shelley. Audience members had an opportunity to share their experiences and ask questions about improper industry influence in policy making, misguided zoning regulations, and cultural barriers between scientists and the general public.

LOCAL VOICES MUST BE HEARD

The Houston forum marked an important step in our ongoing efforts to promote dialogue between scientists and communities on a host of critical issues. All these discussions paved the way for new partnerships, and UCS will continue working with TEJAS to identify where we can join forces in the months ahead.

"At the Center for Science and Democracy, we believe connecting scientists with community groups can truly strengthen our democracy," says Andrew Rosenberg, director of the Center. "That happens by hearing the voices of community activists fighting for public health and safety, and by educating scientists about the real problems facing people in their communities."

Rosenberg adds that his own team learned a lot about local community needs at the Houston forum. The experience, he says, "inspires us to work even harder to make connections to scientists and technical experts to help them solve the really challenging problems they face." {C}



Hilton Kelley, founder and CEO of Community In-power & Development Association Inc., points to his neighborhood of Port Arthur, Texas. Residents of this community, predominantly people of color and low-income individuals, live in the midst of refineries and chemical manufacturing facilities and contend with the public and environmental health consequences.

Photo: © Ben Tecumseh DeSoto

Making History in Paris

(continued from page 2)

energy. State and local leaders who experimented with policies like cap-and-trade and renewable energy standards, and proved that they work. And, I am proud to say, groups like the Union of Concerned Scientists, which has persuasively warned of global warming's impending danger for many years, and successfully pushed for policies like the doubling of fuel economy standards and limits on power plant emissions that put the United States in a position to lead in the Paris negotiations.

A HISTORIC AGREEMENT

The agreement has many of the essential components for success. It establishes an ambitious long-term goal to limit global temperature increases by phasing out fossil fuels over time. To make a "down payment" on that goal, it compiles pledges by 195 countries (itself a historic first) to cut global emissions within the next 10 to 15 years. Because these cuts get us only part of the way toward where we need to go, the agreement requires countries to review their pledges every five years and raise their ambition level.

The agreement also calls for a common set of monitoring, verification, and reporting procedures. Countries that don't meet their pledges can therefore be "named and shamed," giving some teeth to what is otherwise essentially a voluntary agreement. Finally, wealthier countries that have benefited the most from burning fossil fuels are called upon to provide funds and technology to help poorer countries lower their emissions and adapt to the impacts of climate change that are unavoidable.

In all these respects, it is a milestone to be proud of. But, as important as it is, this agreement only truly matters if it spurs action.

THE ROAD AHEAD

UCS will continue to play its vital role in making history, as we have for nearly 50 years. Ongoing U.S. leadership remains critical, so we will push for policies such as putting a price on carbon, ending fossil fuel subsidies, and doubling our investment in clean energy research and development at the federal level, while encouraging many new states to welcome cleanly generated electricity and vehicles that run on it.

We will put our scientists to work devising better policies to preserve and enhance forests and farms and their ability to absorb the carbon we emit. And we will demand change from those who stand in the way of progress, like large oil companies that cling to their fossil fuel reserves.

I heard many stirring speeches at the Paris negotiations. The best one was by Al Gore, who quoted these lines from a poem by Wallace Stevens:

After the final no there comes a yes,
And on that yes the future world depends.

In Paris this week, the world finally said yes. May that yes define our times. {C}

***Ken Kimmell** is president of UCS.*

UCS experts and partners hosted a press conference at the Paris climate negotiations. The delegation included leading climate scientists as well as UCS Director of Science and Policy Peter Frumhoff (seated second from the left), UCS President Ken Kimmell (seated third from the left), and UCS Board Chair Anne Kapuscinski (standing second from the right).

Photo: © UCS/Ashley Siefert

UCS Welcomes New Board Chair Dr. Anne Kapuscinski

Anne Kapuscinski joins former board chairs Kurt Gottfried (center) and James McCarthy (right) at the UCS board meeting in October.

Anne Kapuscinski became the fourth chair of the Union of Concerned Scientists' board of directors late last year, as James McCarthy stepped down from his six-year tenure. Kapuscinski is a professor of environmental studies and the Sherman Fairchild distinguished professor of sustainability science at Dartmouth College.

"UCS is an incredibly effective organization," she says. "The staff's insight and analysis lead to real change in policy. I'm honored to chair the board."

Kapuscinski has been a scientific advisor to the U.S. secretary of agriculture under three administrations, as well as to the U.S. Food and Drug Administration, World Health Organization, Food and Agriculture Organization of the United Nations, and state of Minnesota. In addition to her teaching and advisory duties, she serves as the inaugural editor-in-chief of *Sustainability Transitions,* a domain of the online journal *Elementa: Science of the Anthropocene.*

A leading expert on sustainability takes the helm with a passion for connecting with more early-career scientists.

Kapuscinski's field of sustainability science addresses the interactions between the natural world and social institutions such as economics and government policy. Her own research focuses on integrated food and energy systems, including a project examining microalgae to develop more sustainable feeds for aquaculture—the world's fastest-growing food sector. "You can't get to a truly effective solution to any problem if you only look at one piece of it. That's what drives me to work on political and economic systems," she says.

As a professor, Kapuscinski is excited to help connect UCS with a younger generation of scientists, whose enthusiasm for sustainability she witnesses firsthand in her students' research. "I've seen a major upswing of student involvement in these issues," she says. "I feel I'm well positioned to help UCS expand its reach to younger scientists."

It didn't take long for Kapuscinski herself to connect with UCS after first meeting some of the staff and board at a 2002 workshop on genetically modified organisms. "I came away with a strong impression: what an amazing group of people, so grounded in science, such great communicators, such heart, and so professional," she says. She joined the board a few months later. {C}

Photo: © UCS/Audrey Eyring

The Obama Administration's Bad Math on New Nuclear Weapons

By Lisbeth Gronlund

The UCS report *Bad Math on New Nuclear Weapons (online at www.ucsusa.org/badmath)*, released in November 2015, analyzes the Obama administration's plan to extend the life of the U.S. nuclear stockpile. The Department of Energy (DOE)—the agency responsible for maintaining the stockpile—calls this the "3+2 plan" because it would build *three* new types of nuclear warheads to be launched on ballistic missiles and refurbish *two* types of nuclear weapons to be delivered by aircraft.

The report's release came on the heels of Secretary of State John Kerry's announcement that the Obama administration wants to pave the way for the Senate to ratify the Comprehensive Test Ban Treaty, which it rejected in 1999. Kerry noted that U.S. ratification of the treaty, which bans nuclear explosive testing, would help prevent nuclear proliferation. We agree with that.

What we don't agree with, however, is the administration's plan for a suite of new nuclear warheads—which would undermine the treaty.

The three new warheads the DOE proposes would use nuclear components that have never been combined together in a test explosion, so deploying them could result in uncertainty about their reliability. That could prompt a future administration to resume explosive tests. If this were to happen—which would violate the treaty—it would likely spur testing by other nations, undercutting the U.S. goal of preventing the spread of nuclear weapons.

Conversely, if the United States did not conduct nuclear tests but still developed and deployed new nuclear warheads, this would also erode support for the treaty. Other nations back the treaty in part because they believe it will restrict the ability of existing nuclear states to develop new types of weapons. Understanding this linkage, the administration has pledged not to develop new warhead types; it claims these new weapons will not really be "new." But no amount of creative wordsmithing can paper over the problem.

> ***Building new nuclear warheads undermines the Comprehensive Test Ban Treaty and sends the wrong message to the world.***

The bottom line is that building new types of nuclear warheads would undermine the treaty and send the wrong message to the rest of the world. Plus, our analysis shows that the DOE's own cost estimates indicate that the 3+2 plan could be more expensive than simply refurbishing existing weapons. The Union of Concerned Scientists is hard at work to make sure U.S. policy makers get our message. {C}

***Lisbeth Gronlund** is the co-director of the UCS Global Security Program. Read more of her work on our blogs,* The Equation (http://blog.ucsusa.org) *and* All Things Nuclear (http://allthingsnuclear.org).

Union of Concerned Scientists

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