Union of Concerned Scientists

Catalyst

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Building a Clean Energy Nation, State by State

The Pentagon's Disastrous Approach to Missile Defense

Labeling Victory on Added Sugar

[Union of Concerned Scientists

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EDITORIAL DIRECTOR
Seth Shulman

MANAGING EDITOR
Bryan Wadsworth

PRODUCTION MANAGER
Heather Tuttle

CONTRIBUTING WRITERS
Elliott Negin
Pamela Worth

DESIGN
Rigsby Hull

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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 citizens 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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NATIONAL HEADQUARTERS
Two Brattle Square
Cambridge, MA
02138-3780

PHONE
(617) 547-5552

EMAIL
ucs@ucsusa.org

WEB
www.ucsusa.org

UCS Won't Be Intimidated by Congressional Overreach

By Ken Kimmell

As this issue of *Catalyst* was going to press, the Union of Concerned Scientists (UCS) received a subpoena signed by Lamar Smith, chair of the House Committee on Science, Space, and Technology that directs me to hand over confidential correspondence between my staff and public officials and other organizations "related to the issue of climate change."

Last July, the publication of our report *The Climate Deception Dossiers* included the release of hundreds of pages of previously disclosed internal company documents. Since then, several teams of investigative reporters have uncovered further corroborating evidence that, for decades, ExxonMobil's own scientists warned the company of the grave dangers posed to the planet from carbon emissions from their products at the same time the company was spending millions to deceive the public about climate science and block climate action. As a result of these revelations, attorneys general in three states have commenced investigations and numerous elected representatives have called for a federal investigation.

Astonishingly, in demanding these documents, Smith alleges that, by sharing the fruits of our independent research with state attorneys general and other organizations, UCS has somehow infringed on ExxonMobil's free speech rights. The charge would be almost laughably absurd if the effect of this kind of congressional fishing expedition into public-interest research weren't so grave. The fact is, Chairman Smith's subpoena represents such a gross and unwarranted overreach of authority that I have rarely seen anything like it in 30 years as an attorney, public official, and now president of a nonprofit organization.

UCS will not be intimidated by this kind of congressional witch hunt. In addition to the vital free speech principle involved, the stakes involved in this case are simply too high to back down. For too long, major fossil fuel companies have used dark money, trade associations, and front groups to lie about climate science and to try to stall the transition we vitally need to clean, renewable energy. UCS is actively working to build this clean energy future and we will continue to provide assistance to any government official who wants to conduct genuine and meaningful oversight over the actions of fossil fuel companies or others who might seek to block our desperately needed progress toward a low-carbon future. {C}

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

Photos: © Tetra Images/Getty Images (gavel); © Richard Howard (Kenneth Kimmell)

In our last issue of* Catalyst, *we asked: What steps do you think are most important on the road to a sustainable climate—or the steps you, your family, organization, or community are already taking now?

WHAT OUR MEMBERS ARE SAYING

The fossil fuel industry wants us to forget the gigantic subsidy they receive in releasing carbon dioxide for free. As soon as we add a price for that release, even if it is just a fraction of the cost of the harm caused by the release, no subsidies will be needed for the renewable energy companies to flourish.

Chadwick Cox, Norman, OK

Living in Germany for three months showed me that the United States needs a national passenger train infrastructure like the national interstate highway system. In addition to creating cars that don't pollute, a regional and national train system would offer an alternative to flying and driving that could help ensure a sustainable climate.

Mary Voight, St. Paul, MN

I'd tax all greenhouse emissions and sources at a rate high enough to reflect the cost of the damage to climate, health, and loss of species. This would include fuels, agriculture, deforestation, etc. And then I'd use the funds to develop and convert to clean technology.

Tim Wallace, Zim, MN

There is good evidence that healthy soil can sequester an enormous amount of carbon—when it is allowed to. [Confined animal feeding] operations [CAFOs] contribute disproportionately high levels of greenhouse gases to the atmosphere, both through the growing of feed and the transportation of that feed to the "factory farms," and through methane emanations from animals' digestive processes and manure "lagoons." Policies that crack down on CAFO pollution and encourage or require sustainable levels of grass pasturing for livestock would greatly alleviate this situation.

Louise Quigley, Braintree, MA

1. Keep pushing on the Clean Power Plan.
2. Support grassroots political action by publishing lists of legislators who support movement toward low carbon and those who don't, along with supporting information.
3. Remember the "Scientists" in your name: Continue making the science clear and nonpartisan (including citations) along with how to refute climate deniers and supporting research where applicable.

Amy Bouska, Cresco, IA

FROM FACEBOOK

Ruth Elaine Robison UCS has been the MOST credible source of scientific information on the most important issues for decades. The fact that UCS has exposed Exxon and they are seeking retaliation shows we are right again. Support UCS and work against climate change.

[IN THIS ISSUE]

Sweet Victory on Added-Sugar Labeling

In May, after years of involvement by the Union of Concerned Scientists via testimony, reports, and fact sheets as well as activist and Science Network engagement, the US Food and Drug Administration (FDA) finalized its decision to revise the Nutrition Facts label, requiring companies to declare the amount of "added sugars" in packaged food sold in the United States and to list a serving's percentage of the recommended daily allowance for those sugars.

The new labels, which are required by 2018, represent a significant victory that reflects the mounting scientific evidence of the adverse health effects of added sugar. Nearly three-quarters of all packaged foods contain added sugar today, including many products consumers don't normally think of as sweet, such as soup and crackers. But, until this ruling, there has been no way for consumers to see exactly how much sugar is being added to their food.

Through reports, commentary, and activism, UCS pushed hard for better labeling of added sugar in foods.

Americans consume an average of 17 teaspoons of sugar a day, compared with the recommended limit of 12 teaspoons (based on a 2,000-calorie diet), and the scientific evidence has been steadily accumulating that eating too much sugar is associated with diabetes, obesity, and heart and liver disease—conditions that currently affect millions of Americans.

The Center for Science and Democracy at UCS strongly pushed for the public's right to know about added sugar through analysis, commentary, meetings with decision makers, and by mobilizing more than 62,000 supporters, scientists, and public health professionals to write to the FDA.

UCS analyses also exposed the corporate misinformation about sugar that has, until now, blocked regulatory changes and continues to keep sugar-laden foods within easy reach of consumers, including children and busy parents. Our analysis of comments submitted to the FDA showed that the public strongly supported the measure, while opposition came almost exclusively from the food industry.

Of course, including information about added sugar on food packages is only one step in empowering consumers' right to know about the food they eat. More work remains to reduce added sugar in our foods and to foster healthier diets for all Americans. Still, by shining a light on the tremendous amount of sugar that is added to food, and giving consumers an easier way to monitor their sugar intake, the FDA decision marks a milestone achievement for both science and public health.

Go Geek Chic with UCS

You might be surprised how often strangers approach our staff members when they are sporting limited-edition UCS-branded clothing, offering to literally buy the shirts off their backs. After hearing enough of such stories, we concluded that many folks yearn to display their love for science, and UCS. So, by popular demand, we are launching an online store featuring environmentally friendly gear that makes a statement.

Items include "Nobody Puts Science in a Corner" T-shirts and a slew of "Got Science?" gear that includes hoodies and onesies, all made from bamboo and/or organic cotton. We also offer water bottles, bumper stickers, buttons, and a "Team Science" bike jersey. Proclaim your passion for science and your support for the work we do by visiting the new UCS store at *http://store.ucsusa.org*.

Getting Animated about Nuclear Weapons

For more than a year, UCS has called on supporters and experts to urge the US president to take the country's land-based nuclear weapons off "hair-trigger" alert status—one of the most simple and consequential steps we can take to reduce the risk of an accidental nuclear launch. This spring, UCS released a short animated video explaining the issue and what's at stake. It has already reached the biggest audience of any UCS video to date, with more than 1.4 million views. If you haven't seen it yet, go to *www.ucsusa.org/endhairtrigger*.

A still from our video explaining why we should take our nuclear weapons off "hair-trigger" alert.

Photo: © Audrey Eyring/UCS; video still: © UCS

UCS Calling—For You

This summer, we invited our entire membership to join a conference call with UCS President Ken Kimmell and several of our experts. On the agenda: a discussion about how UCS puts science into action. In a thought-provoking conversation, members heard updates from UCS scientists and analysts about our work defending science and fighting disinformation, promoting sustainable farming, ensuring that climate science guides water management, and advocating on behalf of the Clean Power Plan, among many other UCS priorities.

Our experts explained how UCS takes science off the shelf and into the field—including courtrooms, legislative chambers, farmlands, boardrooms, and communities on the front lines of climate change. Equally important, we got to hear from you. Members from across the country asked smart questions and offered insightful commentary and advice.

UCS staff members know how fortunate we are to have members who care so deeply about the work we do. We want you to know exactly what your support makes possible, and—whether by email, in person, or by phone—we always welcome the chance to hear from you. If you missed the call, you can dial (888) 266-2081 followed by access code 1673253 to hear a recording.

Startling Texas Forecast Highlights Solar's Growing Role

The 95-megawatt Alamo 5 solar project in Uvalde, Texas, is one of the largest installations in the state.

UCS energy analysts have long contended that renewable energy, if simply given the chance to get a foothold in the marketplace with the help of renewable energy standards and other mechanisms, would soon be able to compete head to head with fossil fuel energy. A recent assessment by a Texas electric grid operator is the latest to validate that view and, in so doing, is sending ripples through energy markets across the country.

ERCOT (the Electric Reliability Council of Texas), the entity that manages the flow of electric power to some 24 million Texas customers and about 90 percent of the state's total electric load, just issued its predictions of where Texas will be able to find the cheapest electricity over the next 15 years. Its stunning forecast: solar power will not only offer the cheapest electricity for projected bulk power purchases in the state from 2017 to 2031, but its price is also so low already that no other type of power plants will likely be built in the state.

This assessment is remarkable for several reasons. First, competition to supply electricity is unfettered in Texas so existing power plants have no guarantees or privileged status. In this environment, ERCOT is claiming that solar can beat the cost of all other types of energy. ERCOT's assessment also represents a clear case of economics overtaking politics: Texas is, ironically, leading the court fight against the federal carbon reduction requirements known as the Clean Power Plan. This stance is rendered purely symbolic, however, when the state's own deregulated market is moving rapidly to cut carbon emissions anyway.

ERCOT's forecast underscores the success of years of prudent state renewable energy policies such as the renewable energy standard (RES). (For more on the history of UCS involvement in state renewable energy standards, see "Then and Now," p. 18.) In Texas, these policies so successfully helped prime the pump for wind energy that they triggered a boom in wind development that met the state's RES requirement 15 years ahead of schedule. Other states' renewable energy standards have helped the solar industry expand so rapidly that prices have now dropped some 70 percent since 2009.

Just as predicted by proponents of renewable energy standards, both wind and solar power—with just a small assist—have quickly been able to achieve equal footing in the marketplace with their fossil fuel counterparts. As UCS Senior Energy Analyst Mike Jacobs explains, "This latest assessment is a very significant development. With expected rises in natural gas prices and a trajectory of declining solar costs, what's happening now in Texas is certain to spread to other states as well."

ACCORDING TO THE OPERATOR OF THE TEXAS ELECTRIC GRID:

SOLAR POWER WILL BE SO INEXPENSIVE

THAT NO OTHER TYPE OF POWER PLANT WILL LIKELY BE BUILT IN THE STATE FROM

2017–2031

Photo: © OCI Solar Power

Look for this truck, sponsored by UCS and others in the HEAL Food Alliance, at a campaign stop near you.

"Plate of the Union" Food Truck Hits the Presidential Campaign Trail

The next US president could play a pivotal role in helping to end the American public health crises of diabetes and obesity by ensuring healthy food is available to all. Bearing that in mind, UCS food experts, along with our partners at Food Policy Action (FPA) and the HEAL Food Alliance, are working hard through the Plate of the Union campaign to draw attention to US food policy this election season.

Unfortunately, the media maelstrom surrounding the candidates often makes it difficult to draw attention even to deserving issues. But everyone has to eat, including reporters, voters, campaign staff, and presidential candidates. Our answer: the Plate of the Union food truck tour, providing food for thought on the need for smart agriculture policy—and actual food, in partnership with local chefs and restaurants.

The Plate of the Union food truck joined local partners on the ground in Cleveland and Philadelphia at the national presidential conventions in serving up healthy and delicious snacks and meals with a side dish of advocacy for a sensible national food policy. And, as the candidates travel to critical swing states, the Plate of the Union food truck will follow: to New Hampshire, Pennsylvania, back to Ohio, and then off to Iowa and North Carolina.

By appealing to voters' stomachs, UCS, FPA, and HEAL hope to build enough support to pressure the next president into making food policy a national priority. Catch the Plate of the Union food truck in your area by checking its whereabouts at *www.plateoftheunion.com*.

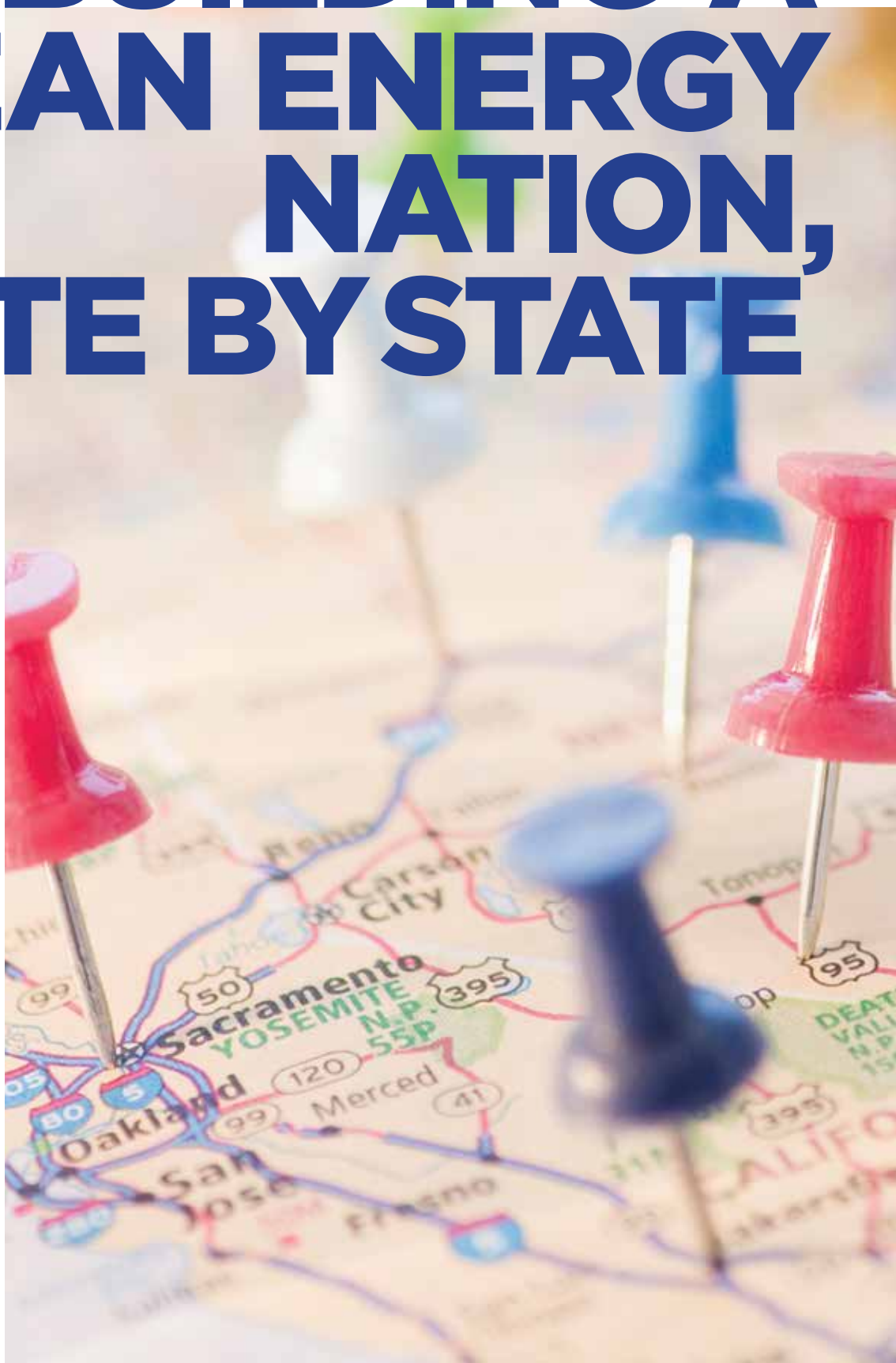
UCS Explores How Charging Electric Vehicles Could Help Renewable Energy Expand

UCS prides itself on helping policy makers anticipate issues on the horizon and develop smart solutions. This June, we convened a workshop at the Federal Reserve Bank in Boston led by UCS Kendall Fellow Peter O'Connor, a renewable energy specialist, on how electric vehicles (EVs) might enable greater use of renewable energy on the grid. For example, as more EVs are charged during the day when solar resources peak, their batteries could potentially offer a vast distributed capacity to share excess electricity for other uses, which would help grid operators manage resources like wind and solar energy whose output varies over the course of the day.

The workshop drew speakers from around the country to share their expertise on the issue and discuss pilot projects related to EV charging. Among the 90 attendees were representatives of utilities, vehicle manufacturers, electric vehicle charging providers, environmental organizations, and officials from 11 states.

Illustration: © Andrea DiMattina for Plate of the Union; photo: © Ascent/PKS Media Inc./Getty Images

BUILDING A CLEAN ENERGY NATION, STATE BY STATE



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Undaunted by partisan gridlock on Capitol Hill, UCS is working in states across the country to boost renewable energy and climate preparedness

BY PAMELA WORTH

When it comes to national action on clean energy and climate change adaptation, we at the Union of Concerned Scientists anticipate a challenging political environment in the years ahead, regardless of the outcome of this year's presidential election. To put it plainly: despite significant advances through executive action, the US Congress has been largely AWOL on climate change. We've tried to pass legislation at the federal level, and we will keep trying. But we don't let congressional gridlock stop us. We've proven over the years that we can get around partisan barriers to draft and enact sensible science-based policies and safeguards.

Today, UCS experts are working on the ground, state by state and in tandem with UCS members and other local partners, to implement the changes we need. Our strategy is to build momentum toward national action on climate change by creating a tide of local victories across the country.

And we're making remarkable headway.

PHASING OUT COAL IN OREGON

UCS has expanded its presence in the Pacific Northwest, sending experts to testify in state legislatures in Oregon and Washington, conducting state-specific renewable energy analyses, and forming partnerships with community groups.

This groundwork paid off when the Oregon legislature recently began considering a statewide transition to clean energy that would phase out the use of coal. UCS staff members

The Boardman coal plant in Oregon will close as a result of a new policy, passed earlier this year, that completely phases out coal in the state's electricity mix.

were ready to act, holding meetings with policy makers to supply evidence for how such a transition would benefit Oregonians, drafting a letter signed by prominent scientists and experts (including Jane Lubchenco, former administrator of the National Oceanic and Atmospheric Administration), and spurring thousands of emails and phone calls to legislators in support of the plan.

Thanks in part to our supporters' efforts, Oregon signed into law a new clean energy plan this spring that makes the state the first in the country to phase out coal completely. According to the new plan, 50 percent of Oregon's energy must be supplied by renewable sources by 2040.

"UCS members have much to be proud of in this effort," says California and Western States Director Adrienne Alvord. "Our months of lobbying on climate, energy, and transportation issues, our interactions with the media, and our citizen action events—they all helped build the case for this law."

BLAZING THE TRAIL IN CALIFORNIA AND MASSACHUSETTS

States are often highly effective incubators for policies that become models for the nation. For years, UCS has worked closely with officials in California and Massachusetts—two longtime leaders in clean energy—to pioneer such landmark policies. (For more on the history of UCS involvement in state renewable energy standards, see "Then and Now," p. 18.)

Last year, UCS worked with California legislators and Governor Jerry Brown's staff to achieve a precedent-setting renewable energy standard that calls for 50 percent of the state's electricity to come from renewable sources by 2030. UCS addressed the question on so many policy makers' minds of whether the electric grid could operate reliably with that much solar and wind energy. And we showed that it can be done.

Given the vast size of California's economy and the powerful model it offers for other US states—and even other nations—the victory represents a huge step forward for clean energy.

In Massachusetts, meanwhile, UCS recently issued a report that influenced the state's recent energy bill by outlining a suite of forward-looking renewable energy policies that can help the state decrease carbon emissions, reduce its natural gas dependence, and become a national leader in offshore wind power—all while accruing regional and global health benefits of more than $350 million in 2030 alone.

PUSHING AHEAD IN THE REST OF THE "POWER 19"

The Clean Power Plan, drafted by the Environmental Protection Agency with key input from UCS, is intended to cut roughly one-third of all carbon dioxide emissions from power plants by 2030. While the plan remains held up by the Supreme Court as of this writing, the court has yet to rule on the merits of the case—meaning there's nothing stopping interested states from complying with the plan. There's also nothing stopping UCS from working to help states meet their clean energy targets.

In the 19 states that have pledged publicly to work toward compliance with the Clean Power Plan despite the court case—and in some cases, even go beyond mere compliance—UCS has been busy. Our experts released six state-specific analyses in three months, and toured the country with the results, meeting with representatives from the governor's office in Illinois, utilities and regulators in Minnesota, regulators and state legislators in

California Governor Jerry Brown signs a new law requiring the state to get half of its electricity from renewable sources by 2030. UCS played a key role in the law's passage.

Our strategy is to build momentum toward national action on climate change by creating a tide of local victories across the country.

New Mexico, and briefing dozens more decision makers in Michigan, Pennsylvania, and Virginia.

In Michigan, for example, we showed officials how renewable energy can generate nearly a third of the state's electricity supply by 2030 at virtually no additional cost to consumers. In Minnesota, UCS is working with legislators poised to increase their state's renewable electricity standard to 40 percent by 2030.

UCS Lead Midwest Energy Analyst Sam Gomberg says, "When it comes to the Clean Power plan, our message in these states is simply that compliance is achievable and affordable." Indeed, UCS analysis shows that 31 states are already more than halfway toward meeting the plan's targets, and 21 states are on track to exceed them.

HELPING COASTAL STATES PREPARE FOR RISING SEAS

Despite our best efforts, and those of many others, curbing carbon emissions state by state can't prevent one of the worst consequences of climate change: sea level rise is affecting coastal communities in the United States with more frequent, extensive, and damaging flooding—and even more is expected in the years ahead.

Many leaders in these at-risk communities know something must be done to adapt to rising seas, but they need know-how, resources, and support to take action. UCS experts continue to travel along the East and Gulf Coasts to speak with small business owners, community groups, chambers of commerce, cultural institutions, mayors, legislators, and even the US armed forces (see the sidebar) about the inevitable effects of sea level rise and how communities can mitigate those effects to protect their residents.

As part of these efforts, UCS is working in partnership with several predominantly African American and Hispanic communities that are not receiving adequate funding for preparedness. In Florida, Louisiana, New Hampshire,

(continued on page 20)

Photo: © Kirsten Howard and Allie Goldstein/adaptationstories.com

US Military Bases: On the Front Lines of Sea Level Rise

With guidance from leading experts in the defense and security community, UCS sea level rise experts turned their attention this year to coastal military bases; specifically, how sea level rise and damaging storms could affect these installations in the years ahead. The resulting analysis, released this summer, examined 18 coastal US military bases to determine their exposure to land loss, storm surges, and chronic tidal flooding. We found that the military is at risk of losing research hubs, strategic sites, training and testing grounds, and homes for millions of personnel to rising seas.

Climate change—and sea level rise in particular—affects communities regardless of income level, ethnicity, or political persuasion. Through this work, UCS is reaching out to those deeply concerned about US security and the well-being of the men and women who serve in the US armed forces. We are also hoping to persuade legislators who have these bases in their districts but have thus far been silent on climate change that the problem needs to be addressed as an urgent nonpartisan priority.

Flooding is a serious problem at Norfolk Naval Base, pictured here, and other military installations in the United States.

Among the key findings of this recent initiative:

LAND LOSS. By the end of this century, nearly half of the bases studied are projected to lose half or more of their land to the tidal zone (that is, to daily high-tide inundation).

FLOODING. Seventeen of the 18 bases studied could see tidal flooding of low-lying areas more than 100 times each year by 2050.

STORM SURGE. By 2070, a relatively minor Category 1 hurricane at most of the bases studied could drive as much storm surge flooding as a larger Category 2 storm does today.

With Tobacco or Climate Denial, There's No Constitutional Right to Commit Fraud

INTERVIEW WITH SHARON EUBANKS

Since publication of the Union of Concerned Scientists' report* The Climate Deception Dossiers*, the attorneys general of several US states have launched investigations to determine whether ExxonMobil defrauded its shareholders and the public about the climate impacts of its products. To learn more about the case and potential parallels with the government's prosecution of tobacco companies,* Catalyst *interviewed Sharon Eubanks, lead US counsel in the government's racketeering case against the tobacco industry.

The government's decision to prosecute the tobacco companies ultimately proved to be quite a success.

SHARON EUBANKS: Yes. It was the largest civil racketeering case ever filed. We alleged in that case 50 years of fraud by the tobacco industry, which ultimately was proven. The court issued a lengthy decision in the government's favor 10 years ago after a trial that lasted nine months.

Based on that experience, what similarities do you see with the current investigations into ExxonMobil?

SHARON EUBANKS: One thing that stands out is the evidence that has come to light that climate denial front groups are disseminating the fraudulent message that it is an open scientific question whether humans are changing the climate. In the tobacco litigation, the companies claimed that it had not been proven that smoking caused ill health and, therefore, since it wasn't proven, cigarettes were okay to smoke—when, in fact, the companies knew from their own internal research that tobacco was deadly. So, that aspect is very similar based on what we know so far. It appears from the documents that UCS and others have released that, as early as the 1970s, Exxon knew of humans' role in climate change and they initially said they were going to do something about it in the way of research. But then the company seems to have decided instead to finance groups to sow doubt.

Did the use of front groups feature prominently in the tobacco case?

SHARON EUBANKS: Oh, yes. They were part of the conspiracy claim under the racketeering statute. The key defendants in the case all sold cigarettes in the United States. However, there were also a couple groups that coordinated with them—industry groups—and these groups were often run by the tobacco companies' lawyers. I don't yet know to what extent the fossil fuel industry has used or is using lawyers to assist in carrying out the mission to sow doubt, but I do know that lawyers played a significant role in manufacturing doubt about the health consequences of smoking and furthering fraud in the federal tobacco case. The trial judge in the tobacco case found that the industry lawyers played "an absolutely central role" in creating and keeping the racketeering enterprise alive and in implementing its fraudulent scheme.

SHARON EUBANKS is a nationally recognized attorney at the Wheeling, West Virginia-based law firm of Bordas & Bordas. She served for 22 years as an attorney in the US Justice Department and, from 2000 to 2005, was lead counsel on behalf of the United States in the federal tobacco litigation *United States v. Philip Morris USA, et al.*

Recently, ExxonMobil and its surrogates have complained that the investigations are infringing on the company's First Amendment right to free speech. Is that something tobacco companies claimed as well?

SHARON EUBANKS: Yes. The tobacco companies claimed that their free-speech rights were protected when they lobbied Congress, even when they provided fraudulent and untrue statements. But we countered by successfully making the argument that there isn't a constitutional right to commit fraud. In other words, fraudulent speech is not protected.

Now, the fossil fuel industry is saying, "You're pointing a finger at us for saying

Photo: © *The Washington Post*/Getty Images

> ***Based on the tobacco case, my advice would be to take these companies to court. Period. It is the only thing that can really level the playing field.***

things that you claim are untrue, but we had a right to make those statements whether or not they were true." In a legal sense you probably don't have a right if you are doing that in order to secure certain things. For example, there certainly is no right to lie in connection with information sought in an investigation. RICO [the Racketeer Influenced and Corrupt Organizations Act] is a complex statute but one thing is for sure: you don't have a constitutional right to lie. Yet, if you consider their invocation of the First Amendment, that's essentially what they're saying.

The other important point about this is that an investigation by an entity such as a state attorney general is not the same as a prosecution. I can't say that loudly enough. So in this case, when the fossil fuel companies say that a state's *investigation* represents a violation of their First Amendment rights, it's ridiculous. In our system, attorneys for the state need to determine whether there has been a violation and whether to move forward. That is how our system works. So when the companies cry "this investigation is a violation of the First Amendment"—no, it is not.

What other pertinent lessons do you draw from the tobacco case?

SHARON EUBANKS: First, it takes a *long* time for change to come about. Think of this for a moment: Closing arguments were made in the tobacco litigation in 2005 in a case that was filed in 1999—and some aspects of the case are still going on today in 2016!

Importantly though, in 2009, President Obama signed a bill giving the FDA [Food and Drug Administration] power to regulate tobacco. I think that the litigation was part of what led to the regulation of tobacco we have today. Remember that the FDA had previously asserted its authority to regulate tobacco but was found by the Supreme Court not to have that authority because Congress hadn't given it in statute. So, in 2009, that was corrected.

Do you have advice for those who want to stop major fossil fuel companies from underwriting climate misinformation?

SHARON EUBANKS: Remember that they've got the entire playbook from the tobacco litigation so they know everything we've done in the past. With climate change and the fossil fuel industry, a lot is already happening as organizations like UCS educate the public by speaking out about what the industry has done. That's great because public opinion carries a great deal of weight in the long run in getting things done. So, I would say: continue to get the information out there about climate change and about the industry's obfuscation. Get support for your position by letting people look at the facts and the evidence for themselves. But, based on the tobacco case, my advice would also be to take these companies to court. Period. It is the only thing that can really level the playing field. If you can make your arguments before a court, you will have a neutral fact finder—then you are far better off. It's no different from the civil rights movement where people took human rights issues to court when they couldn't get justice any other way. Court, or lawsuits, should not necessarily be the first resort, but shouldn't be considered the last resort either. {C}

Photo: © Ryan Green/Getty Images

SHIELDED FRO

Then-Secretary of Defense Robert M. Gates (left) and a US Army colonel inspect a ground-based interceptor missile silo at Fort Greely, Alaska, in 2009.

MOVERSIGHT

In a disastrous approach, the Pentagon has let the nation's $40 billion missile defense system bypass normal procurement procedures

BY ELLIOTT NEGIN

President Obama has had to address a number of daunting challenges inherited from the George W. Bush administration, including two wars and an economy in free fall. But one glaring problem that has received remarkably little attention during his two terms is the ill-considered Bush-era homeland missile defense system, which has wasted billions of taxpayer dollars and lulled Americans into a dangerously false sense of security.

To be sure, the genesis of the missile shield program dates back to President Ronald Reagan's 1983 "Star Wars" speech. But the real trouble began in 2002, when the Bush administration, in its rush to deploy the system, decided to exempt it from standard Pentagon oversight procedures and insisted on fielding it within two years. That disastrous decision has not only run up the program's price tag, which now amounts to more than $40 billion, but also produced a system that has never been demonstrated to work under real-world conditions.

"The Bush administration's logic was that the need for missile defense was urgent—so urgent they couldn't take the time to do it properly," says Laura Grego, a senior scientist at the Union of Concerned Scientists and one of the authors of a new report detailing the drawbacks of this approach. "Unfortunately, we're stuck with the results. Unlike virtually all other major weapons systems that are required to meet rigorous 'fly before you buy' performance standards, they fielded the missile defense system without any evidence it will work as advertised."

A RECORD OF FAILURE

The goal of what is officially called the Ground-based Midcourse Defense (GMD) system is to protect all 50 states from an attack by a small number of nuclear-tipped intercontinental ballistic missiles. The presumed culprit? Iran or North Korea.

Testing began at the tail end of the Clinton administration. Since then, there have been a total of 17 tests pitting one of the missile defense system's interceptors against a target. GMD system operators failed to destroy their target in nine of them, despite the fact they knew ahead of time when and where a target missile would be launched, its precise dimensions, its expected trajectory, and its speed.

Five of the first eight tests, conducted before the system was fielded in 2004, were successful. Since the initial GMD system was installed at Fort Greely in Alaska and Vandenberg Air Force Base in California, however, the Missile Defense Agency has performed nine intercept tests. Only three succeeded in destroying their targets. Regardless, the Missile Defense Agency currently fields 26 interceptors at Fort Greely, four at Vandenberg, and is planning to install 14 more—despite a record of failure that has worsened over time.

Moreover, the GMD system's abysmal track record—as bad as it appears—masks the fact that the tests do not reflect what would likely happen in an actual encounter with an incoming missile. Any country capable of launching a long-range missile would be able to outfit it with decoys and other countermeasures that could fool the GMD system's sensors and interceptors. Analysts at UCS and the Massachusetts Institute of Technology pointed out that inconvenient fact in a joint report they published back in 2000.

"The Missile Defense Agency is trying to do something akin to hitting a bullet with a bullet, which has proven difficult enough for it to do under simplified, scripted conditions," says Grego.

Photo: © Missile Defense Agency

After nearly 15 years, the Pentagon's own testing officials say the system has no demonstrated capability to defend the US public from attack.

"More than 10 years after it was first fielded, the GMD system still hasn't faced the kinds of conditions that would be expected in the real world. It's an extremely challenging task, to say the least."

For its part, however, the Obama administration steadfastly maintains that the GMD system is ready for prime time, at least against the threat of future, hypothetical Iranian or North Korean long-range missiles. Earlier this year, for example, Brian P. McKeon, principal deputy undersecretary of defense for policy, told the Senate Armed Services Committee that the "US homeland is currently protected" against such attacks.

No testing evidence supports that claim.

HASTE MAKES WASTE

So how did the Pentagon wind up with such a dysfunctional program?

The roots of this fiasco date back to the months following the terrorist attacks on September 11, 2001, and subsequent

The ground-based interceptor missiles currently in place at Fort Greely in Alaska are equipped with a "kill vehicle" similar to the prototype shown here (see inset), intended to destroy incoming ballistic missiles. Despite a $40 billion price tag, the system has a poor track record and has yet to prove its efficacy.

passage of the Patriot Act in Congress shortly thereafter. With a single-minded focus on security, and using North Korea's embryonic ballistic missile program as a pretext, the Bush administration withdrew the United States from its Anti-Ballistic Missile Treaty with Russia, which had prohibited both sides from fielding a missile defense system to protect its entire territory. That opened the door for then-Secretary of Defense Donald Rumsfeld to exempt the Missile Defense Agency from standard procurement rules and testing standards in order to try to deploy a system within two years. That proved to be a Herculean—and impractical—task.

Contrast the special treatment the Pentagon has afforded the missile defense program with how it handled the development and deployment of the Trident II submarine-launched ballistic missile. On average, the Navy tests this missile—a key component of the US strategic arsenal—six times a year, and it has aced more than 150 tests since its design was finalized in 1989. It's not quite an apples-to-apples comparison given the time it takes to set up and analyze a missile defense test and its extraordinarily high price tag, but the Trident II example demonstrates that, with proper oversight, the military can ensure system reliability.

When it comes to missile defense, however, nearly 15 years after the GMD system was put on the fast track, the Pentagon's own testing officials have said the system has no demonstrated operationally useful capability to defend the US public from a missile attack.

Aside from its dubious efficacy, how about its deterrent value? In 2010, the Obama administration's Ballistic Missile Defense Review listed among the top policy priorities for homeland missile defense that it should "dissuade [Iran and North Korea] from developing an intercontinental ballistic missile (ICBM)." Six years later, Iran and North Korea are both continuing to develop missile technology, so the US missile defense system has clearly not dissuaded them from doing so. What's more, the mistaken belief that the system *can* block an attack introduces another layer of risk, since it might make the United States more likely to opt for a military solution to an international crisis before exhausting diplomatic ones.

"The bottom line is that the missile defense program must be brought under rigorous accountability and oversight protocols," says Grego. "The president and Congress need to stop writing a blank check to this project, to ensure that taxpayers' dollars are spent on technology that actually makes us safer." {C}

Photo: © Richard Howard

[STAFF SPOTLIGHT]

Laura Grego: Sometimes It *Does* Take a Rocket Scientist

Fourteen years ago, astrophysicist Laura Grego joined UCS to focus on the technology and security implications of national missile defense and space security. Since then, she has been cited as an expert source in the *Boston Globe, Chicago Tribune, Los Angeles Times, New Scientist, New York Times, USA Today,* and the *Washington Post,* among other publications, and has appeared on the Discovery Channel, Fox News, and NPR. She is the author or coauthor of roughly 30 published papers on a range of topics, including the newest UCS report *Shielded from Oversight: The Disastrous US Approach to Strategic Missile Defense.*

As a senior scientist in the UCS Global Security Program, Grego has immersed herself in the technical details of the US missile defense program, pored through thousands of pages of government documents and scientific studies, and come to the conclusion that the government's rush to put a system in the field without the oversight typical of a major weapons program has resulted in a $40 billion system with no demonstrated capability of intercepting enemy missiles under real-world conditions.

"I'm grateful to UCS supporters for helping to make this analysis possible and for getting the word out about it," Grego says. "I'm motivated in this work by my continued concern about the grave dangers to humanity posed by nuclear weapons. And the dangers in our government's pursuit of missile defense go beyond the waste of taxpayer dollars. An overly optimistic view of the system's capabilities could prompt decision makers to act more aggressively than they might otherwise, which could actually *increase* the risk of an adversary launching nuclear missiles at the United States."

THE LONG ROAD TO STATE RENEWABLE ENERGY STANDARDS

Photo: Creative Commons/Lance Cheung (Flickr)

BY PAMELA WORTH

The verdict is in: a recent study by the US Department of Energy found that state-level policies called renewable energy standards not only promote the use of clean energy, but also help save money, create jobs, improve public health, and are great for the environment. A renewable energy standard (RES)—sometimes also called a renewable portfolio standard—is a market-based policy that requires electricity providers to gradually increase the amount of wind, solar, and other renewable energy resources in their power supplies.

The Union of Concerned Scientists has worked with state legislatures and other organizations to pass and strengthen renewable energy standards for the past two decades; today, 29 states and the District of Columbia employ them. According to the Energy Department study, in 2013 alone, RES policies generated $7.4 billion in public health benefits from the reduction of power plant carbon emissions, supported nearly 200,000 well-paying jobs in renewable energy, and saved energy consumers $1.2 billion—among other benefits. Equally important, they are the impetus for most new renewable energy development nationally.

As powerful and effective as RES policies are, they almost didn't happen. While UCS research clearly demonstrated that these standards could hasten the transition to clean energy, as a new and relatively untested strategy they didn't catch on immediately.

MILESTONES IN STATE RENEWABLE ENERGY STANDARDS

1983

Iowa enacts the nation's first renewable energy standard (RES).

1990

UCS begins to promote the idea of the RES.

1997

Maine, Massachusetts, and Nevada enact RES policies.

SPOTTING AN OPPORTUNITY

In the 1990s, deregulation of electric utilities put the future of renewable energy in jeopardy. As deregulation took hold, state governments had much less authority to require utilities to fund the research and development needed for wind and solar power to thrive across the country. Without pressure from regulators, electricity companies could go about their business as usual—putting at risk the best chance to minimize carbon emissions from a sector of the economy responsible for nearly 40 percent of the US total.

A group of energy researchers in California hatched the idea of creating renewable energy standards as a market-friendly mechanism to ensure investment in renewable energy. Advocates and analysts at UCS soon saw the idea's potential and began a campaign to implement RES policies closer to home, in Massachusetts. UCS performed detailed analyses of the costs and benefits of renewable energy, and presented a compelling case to state legislators—who then insisted on an RES as a condition of utility deregulation. In 1997, Massachusetts became the first state in the country to implement an RES in this way.

Over the next 15 years, UCS and its allies steadily built on this success, conducting research and analysis on the renewable energy capacity of dozens of individual states—and on the consumer, job, environmental, and health benefits associated with implementing an RES. Working with state partners across the country, UCS pushed for widespread implementation of renewable energy standards, providing data, modeling, and any other support that could help legislators implement them.

The verdict: state renewable energy standards have helped wind and solar power begin to compete—and win—in the marketplace.

The idea quickly caught on between 2004 and 2009, when the standards spread from New Mexico to New Jersey. These early adopters helped build the case that an RES could be affordable and achievable. Soon, more states signed on, even during the years of the George W. Bush administration when federal action on climate change was negligible.

REAPING THE REWARDS

Today, thanks in large part to the success of state RES policies, renewable energy is gaining ground across the country. US wind power capacity grew eightfold between 2005 and 2015 while solar power capacity grew by a factor of 12 in the same period. Renewable energy has also become cheaper and more competitive: as more states adopt policies promoting technologies such as wind and solar power, the costs of producing it drop dramatically. Wind energy has seen a 66 percent decline in cost since 2009, and the average price for large-scale solar photovoltaic installations has dropped by more than 82 percent in the same period. (For a recent, striking example of the consequences of this decrease in cost, see "Startling Texas Forecast Highlights Solar's Growing Role" on p. 6.)

Unfortunately, efforts to help additional states adopt an RES have met with resistance. Some state legislatures have deep ties to fossil fuel companies, and choose not to act on renewable energy in order to avoid alienating those interests; some resist nearly all regulatory intervention in business. And although UCS has supported efforts to implement a national RES, a federal plan has not yet succeeded.

Nonetheless, while the number of states with an RES seems to have peaked for the moment at 29, markets for renewable energy continue to expand, as many of the 29 have chosen to strengthen their standards. California is the most notable of these success stories: it began with an RES requiring that 20 percent of the state's electricity come from renewable sources by 2017, bumped that up to 33 percent by 2020 a few years later, and just last year reset the target to 50 percent by 2030. It's an impressive requirement, especially given the size of California's economy. But it is not the most ambitious—that honor goes to Hawaii, which has adopted an RES requiring *100 percent* of the state's electricity be derived from renewable energy by 2045.

Someday, when clean, renewable energy predominates across the United States, the RES may become a footnote in the history of our energy policy. But we're not there yet. In the meantime, UCS is actively pushing to expand the use of what has proven to be one of the most powerful tools we have to get us closer to a fossil fuel-free future. {C}

2004 — Colorado, Hawaii, Maryland, New York, and Rhode Island enact RES policies.

2007 — Eleven states revise their existing RES policies to require more clean energy.

2009 — A federal RES is proposed but fails.

2015 — California sets a target of 50 percent renewable energy by 2030 and Hawaii enacts the nation's first 100 percent RES by 2045.

2016 — US jobs in solar energy outpace those in oil and natural gas extraction.

Building a Clean Energy Nation, State by State

(continued from page 11)

South Carolina, and Virginia, UCS analysis has supported local planners as they design climate adaptation measures for their cities and towns on the front lines of rising seas. The city of Norfolk, Virginia, for example, relied on data in the UCS report *Encroaching Tides* to help it secure $120 million from the Department of Housing and Urban Development to protect the region from recurring flooding.

UCS is working with utilities, regulators, and legislators in Minnesota to strengthen the state's renewable energy standard, increasing it to 40 percent by 2030.

> *We know that Congress won't move until people in blue and red states alike raise a call for change that can't be ignored.*

BUILDING MOMENTUM

Our work with local partners is resulting in success stories all across the country. Our ultimate goal, of course, is to win bipartisan support for national policies that reduce carbon emissions and help Americans prepare for climate change. While UCS has won significant national victories such as landmark fuel economy standards for cars and trucks, we also know that Congress won't move until constituents in blue and red states alike raise a call for change that can't be ignored.

We're working hand in hand with more people who understand that the future of energy is in renewables, that the effects of global warming must be planned for and mitigated, and that massive reductions in carbon emissions are the only way to protect ourselves and our communities. While Congress sits idle, we are busy building support in enough states to create a tipping point for national action. {C}

THANK YOU

"Your support helps me develop policies that build a clean-energy and climate-resilient economy for all."

RACHEL CLEETUS

LEAD ECONOMIST & CLIMATE POLICY MANAGER

The Power of Science + Activism

UCS National Advisory Board member Sue Anderson's advocacy for social justice is powered by science

From her small farm in Colorado, where she and her wife grow organic vegetables, keep bees and chickens, and tend an orchard, longtime community activist Sue Anderson has a clear perspective on the unintended consequences of agricultural policy.

Corporate, industrial farming practices have normalized the use of potent herbicides and insecticides across the nation, Anderson says. The result, she says, is a "double whammy" that yields poisoned soil and sick and dying bees—eliminating the variety of flora and fauna necessary to maintain the productivity of our agricultural lands.

"We need a different model for growing our food," she says. "Pollinators like bees don't have diverse food sources to land on, and then the crops they do land on are often poisonous to them." After learning about widespread bee deaths, Anderson and her wife have focused on creating habitat on their land for pollinators and other beneficial insects.

PARTNERS FOR CHANGE

As a sustainable farmer, Anderson is especially enthusiastic about the recently launched HEAL Food Alliance, a coalition uniting the Union of Concerned Scientists and other food justice organizations in advocacy for a just and healthy food system. Working to discourage the indiscriminate use of harmful pesticides and herbicides is just one of the HEAL Food Alliance's many initiatives; Anderson appreciates the coalition's range of expertise. "It's important to bring together organizations, activists, and thought leaders from different perspectives to really re-envision how we do food in this country—how we can make our food system work better for more people," she says.

> ***Anderson emphasizes the importance of bringing together different perspectives to re-envision how we grow food in this country, and how we can make our food system work better for more people.***

Anderson is no stranger herself to taking local action to combat large-scale, systemic problems. She majored in environmental studies in college and has worked in international development, against nuclear proliferation, and for LGBT equality and economic justice. She joined UCS to help strengthen the scientific basis of her activist work.

"I appreciate that UCS provides data that can be translated into activism and public policy," Anderson says. "I think it's one of the most important organizations providing information and policy leadership to make the changes we need to protect our environment, on many different levels." {C}

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What's Driving Deforestation Today? South American Beef Production

By Lael Goodman

Over the past few years, the Union of Concerned Scientists has been working hard to raise awareness about—and stop—deforestation in Southeast Asia caused by palm oil. We have made significant progress, pushing dozens of key companies to commit to deforestation-free palm oil. Today, more palm oil adheres to this standard than ever before. And while palm oil remains a key driver of tropical deforestation, new analysis shows that trade in other commodities is also leading to large amounts of deforestation.

This research makes it even clearer that large agribusiness concerns play a major role in tropical deforestation and that palm oil, beef, soy, and wood products account for the majority of tropical deforestation today. To continue our efforts in reducing deforestation (and its contribution to global warming), UCS is now beginning to pressure companies to commit not only to deforestation-free palm oil, but also to pledging that all the products they source and use are free from deforestation.

The latest data show that the largest contributor to tropical deforestation today is the beef industry. In countries where most of the world's deforestation occurs, beef is responsible for more than twice as much deforestation as palm oil, soy, and wood products combined. Most of this deforestation is concentrated in South America. Most beef consumed in the United States comes from cattle raised in North America, so reducing beef consumption can only make a small dent in the problem. Much more effective is for US consumers to pressure large multinational companies to demand "deforestation-free" beef sourcing throughout their global operations.

Following the latest scientific evidence on the drivers of deforestation, UCS is pushing to change the practices of beef producers in South America and elsewhere.

> ***UCS is pressuring the beef industry to stop driving deforestation in the tropics.***

We learned from our palm oil campaign what a difference we can make when we focus on changing the behavior of key corporate actors, so you'll be hearing more from us about South American beef production in the months to come. By focusing our efforts on the most important drivers of deforestation, we can have the largest impact in reducing the damages caused by this practice. {C}

***Lael Goodman** is a policy analyst with the Tropical Forest and Climate Initiative at UCS, conducting research and analysis on the reduction of tropical deforestation as a means to mitigate climate change. Read more from Lael on our blog,* The Equation, *at* http://blog.ucsusa.org. *For more information on our deforestation work, visit* www.ucsusa.org/forests.

Union of Concerned Scientists

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