

[Union of
Concerned Scientists



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Catalyst

Volume 14, Summer 2014

Landmarks at Risk

*Global warming threatens
our nation's cherished places*

Sugar-coating science

**The climate risks
of natural gas**

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The Places We Cherish



By Ken Kimmell

One of the highlights of my summer comes on a clear night in August when my family and friends gather on a stretch of Cape Cod beach to light a bonfire—with a permit, of course (after all, I come to UCS after serving as commissioner of the Massachusetts Department of Environmental Protection). We swim in the ocean lit by the moon, dry ourselves around the fire, and enjoy a magical moment under the stars in a place my family and I treasure.

I've often thought about what a gift President Kennedy gave the nation when he signed a law designating a stunning 40-mile stretch of Cape Cod's coastline as a protected national seashore. It distresses me to think that sea level rise and erosion from storm surges, exacerbated by global warming, are threatening this special place.

Climate impacts are happening now at iconic American places such as Ellis Island and the cave dwellings of Mesa Verde in Colorado.

Our cover story, "National Landmarks at Risk" (p. 6), offers a dire warning and wake-up call about the climate impacts happening *now* at iconic American places such as Ellis Island (still recovering from Hurricane Sandy) and the cave dwellings of Mesa Verde in Colorado (at heightened risk from wildfires).

Global warming threatens thousands of places that hold personal meaning for each of us. I hope you will share this article with your family and friends, and join our efforts to protect the places you cherish for future generations. {C}

Ken Kimmell is president of UCS.

What is the most effective way in which you've reduced your driving-related emissions?

That's easy: 1. Use a bicycle or walk for all or part of the journey. 2. Combine trips. 3. Share a ride. 4. Slow down. 5. Keep vehicles well maintained and tire pressures high.

Ian Stokes, Richmond, VT

One way that I am trying to reduce my driving emissions, in addition to driving a Prius, is through a voluntary carbon tax. It helps me to be more conscious of my use of fossil fuels for driving, heating, and electricity. [Members of my faith and I] tax ourselves individually but contribute the taxes generated by the group to a purpose that helps the environment.

Alice Swift, Amherst, MA

After retirement and moving to coastal Mendocino County in California, I realized that most of my driving was due to my hobby and passion for birding. Knowing that climate change wasn't good for birds, I searched for ways to reduce my carbon footprint. I started using the local bus system, my bike, and my feet. In 2013 I did a "green" birding year using those three things to get around the county. I saved over 2,929 carbon-producing miles.

Richard Hubacek, Little River, CA

My wife and I replaced both of our aging gas cars with electric ones in 2012 and 2013. We also installed a 3.2 kilowatt grid-connected photovoltaic solar array on our house at that time. We use little electrical energy in our house (about 3,000 kWh) per

WE WANT TO KNOW

What more can be done to build support for sustainable agriculture and food that is healthy, affordable, and accessible?

We will publish selected responses (edited for length) in the fall issue of *Catalyst*. You can respond via:
EMAIL: catalyst@ucsusa.org
FACEBOOK: www.ucsusa.org/observations

year, so the photovoltaic system would not have been economically practical without the added loads of the electric cars. After the first year of operation, we have produced 3,800 kWh with the solar array and consumed 2,400 kWh from our electric utility. This energy powered our house and driving about 12,000 miles in our cars over the year.

Tom Greene, Emerald Hills, CA

We purchased a 2012 Nissan Leaf electric car. We charge mostly overnight at home and a portion of our electricity is generated through wind energy. When we shop at a nearby zero-emissions Whole Foods store, we plug the car into a charger that [obtains] 100 percent of its energy from the wind.

Katy Walker, Brooklyn, NY



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Big Rigs, Big Oil Savings

On February 18, UCS staff spent the morning surrounded by trucks. But they weren't cruising down the highway on their way to work; they were at a grocery distribution center in Maryland, where President Obama announced the kickoff of a new round of fuel efficiency and global warming emissions standards for heavy-duty vehicles. The fuel-thirsty delivery vans, garbage trucks, school buses, and 18-wheelers that drive our economy comprise only 7 percent of the vehicles on U.S. highways, but consume 25 percent of the fuel used on those roads.

UCS worked hard to secure the first-ever heavy-duty vehicle efficiency standards in 2011. The standards cover

trucks manufactured in model years 2014 through 2018 and are projected to save 390,000 barrels of oil per day by 2030. Our research shows that the next round of standards, combined with the current standards, could cut fuel consumption of new trucks 40 percent by 2025, compared with 2010 trucks. We will soon call on supporters like you to weigh in with key decision makers to ensure the standards help trucks go as far on a gallon of fuel as possible. To keep apprised of, and get involved in, our efforts to cut U.S. oil consumption in half within 20 years, go to www.ucsusa.org/halftheoil.



Aerodynamic improvements to truck trailers such as “boat tails” and side skirts (top) and undertray fairings (bottom, in blue) significantly reduce fuel consumption by smoothing air flow around the vehicle.

Can Our Power Grid Handle Global Warming?

Our nation's aging electricity system is vulnerable to extreme weather, as demonstrated by Hurricane Sandy, which caused power outages in 21 states resulting in losses of \$27 billion to \$52 billion. This spring, UCS examined how climate change—which is already increasing the frequency and severity of coastal flooding, wildfires, drought, and heat waves—puts our electricity at risk.

As described in our new report *Power Failure*, power plants and other infrastructure along the coast are vulnerable to storm surge and flooding from sea level rise. Transmission lines deliver less electricity during heat waves, or can be damaged by wildfires, and many power plants that depend on water for cooling have to shut down or dial back their operations when water is scarce or temperatures are too high. Diversifying the electricity mix today with renewable energy and energy efficiency can make the industry more resilient to climate change while lowering global warming pollution over the long term. And there are many technologies that can make the grid more flexible and reduce both fuel supply risks and water demands. Learn more at www.ucsusa.org/powerfailure.

Risky Nuclear Initiative Postponed

In a major positive step that UCS has long worked for, the Department of Energy recently proposed putting a nuclear fuel production plant, under construction in South Carolina, on hold. The plant would have used a costly process to convert

plutonium into a mixed-oxide (MOX) fuel for use in commercial nuclear reactors—a strategy that carries significant security risks. UCS analysis shows that the MOX approach would make it easier for terrorists to steal plutonium during processing, transport, or storage at reactors.

The United States and Russia have each pledged to dispose of 34 tons of excess plutonium, mostly from their dismantled nuclear weapons. Instead of turning this plutonium into reactor fuel, it should be mixed with inert material for long-term disposal. UCS is pressing Congress to officially terminate the ill-advised MOX program and invest in safer, less expensive alternatives. Learn more at www.ucsusa.org/nuclearterrorism.

Climate Science Gets Short Shrift on Prime Time

You might not turn to cable news for the latest on climate science, but 2 million Americans watch CNN, Fox News, and MSNBC every day, and their news coverage has a major influence on public

Cable news stations have a major influence on public understanding of global warming.

understanding of global warming. A new UCS report, *Science or Spin*, examined the accuracy of their coverage and found that 8 percent of MSNBC's climate science-related segments contained misleading information (in each case, it overstated climate risks). Thirty percent of CNN's segments were inaccurate, usually due to misleading debates about whether or not climate change is human-induced. Fox News Channel—America's most-watched cable news network—misrepresented the science 72 percent of the time, and was also the network most likely to attack scientists' credibility.

UCS members are calling on the networks to do a better job differentiating between political opinions and scientific facts. You can send an email to them, and read the full results of our analysis, at www.ucsusa.org/scienceorspin.



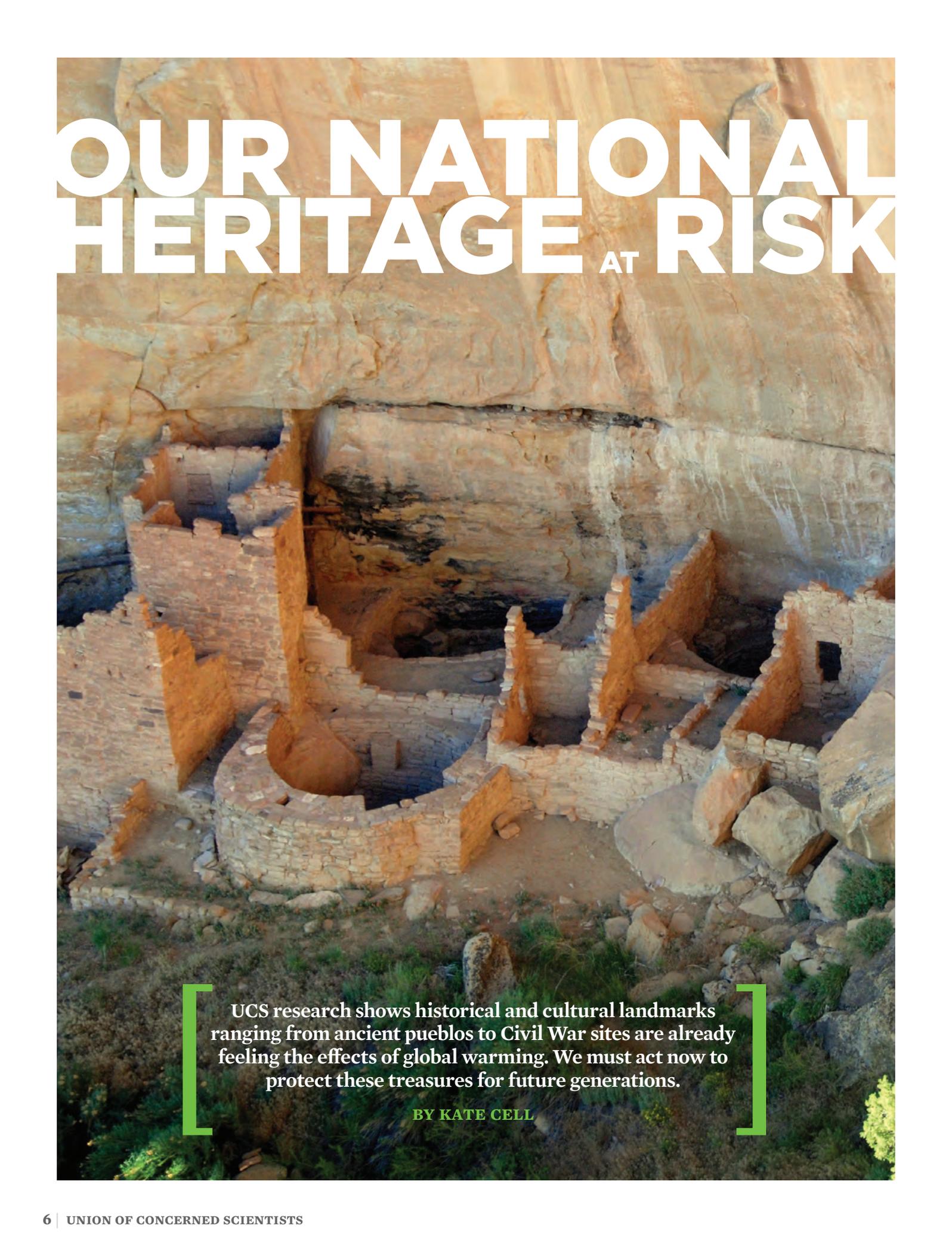
UCS Western States Manager Adrienne Alvord (far left) and Director of Science and Policy Peter Frumhoff (second from left) discussed recent scientific findings about global warming with California Governor Jerry Brown (center), who used the information in a speech covered by the New York Times. Joining them were climate scientists Dan Nepstad (second from right) and Michael Mastandrea (far right), contributors to the latest Intergovernmental Panel on Climate Change report.

The People's Choice

Thank you to everyone who voted for UCS in CREDO Mobile's annual donation campaign!

CREDO Mobile, a telecommunications and credit card company, donates 1 percent of its customers' monthly charges to the nonprofits of their choice each year. From hundreds of possibilities, CREDO customers nominated UCS to be one of 40 groups eligible to receive this funding in 2013. Their votes for UCS throughout the year resulted in a gift of more than \$97,000 to support our full range of research, policy, and advocacy work.

UCS has been nominated by CREDO several times in the past, and the funds generated by this program help us continue our essential work of confronting the problems our country and the world face. We are extremely grateful to CREDO and its customers for this show of support. To learn more about this program, visit www.credomobile.com.



OUR NATIONAL HERITAGE AT RISK

UCS research shows historical and cultural landmarks ranging from ancient pueblos to Civil War sites are already feeling the effects of global warming. We must act now to protect these treasures for future generations.

BY KATE CELL

Left: Wildfire has ravaged the forest around Mesa Verde National Park. Difficult terrain forces fire crews to use aerial water drops and fire retardant, called slurry, which stains and damages the sandstone. Fire also accelerates spalling, the peeling away of the rock face as the water in the sandstone evaporates, which can destroy ancient rock carvings.

Fort Monroe is one of the United States' newest national monuments, having been designated by President Obama in 2011. But now the Virginia fort, dubbed "Freedom's Fortress" because of its role in the end of slavery, needs protection itself—from rising sea levels and floods caused by climate change.

Built in 1609 on low-lying Old Point Comfort at the mouth of Chesapeake Bay, the land that became Fort Monroe was the disembarkation point for the first enslaved Africans to arrive in English North America. It became a beacon of freedom in the early 1860s when the fort's commander, Union General Benjamin Butler, gave refuge to people escaping slavery on the basis that they were "contraband of war"—a decision that helped set off a chain of events that would ultimately lead to President Lincoln's 1863 Emancipation Proclamation.

A nearby tide gauge shows that water levels have risen almost a foot and a half since the 1920s, and a recent study projects the state's coastal waters could rise another two feet by 2050 and up to six feet by the end the century. With a higher sea level, storm surges—the potentially destructive increases in sea height that occur during a coastal storm—could inundate

areas much farther inland. A storm surge of more than five and a half feet during Hurricane Isabel in 2003 caused more than \$100 million in damage at the fort.

In addition, since 1950 the area around Fort Monroe has experienced significantly more heavy rains than before. The combination of rising sea level and heavier precipitation will likely increase the frequency and severity of flooding at the fort.



Fort Monroe, at the mouth of Chesapeake Bay, played a role in ending slavery. Today, the fort is threatened by flooding due to rising sea levels and heavier precipitation.

LOCAL ISSUES, NATIONAL CONCERNS

UCS is bringing attention to the plight of Fort Monroe and some 30 other threatened sites in 15 states in our new report *National Landmarks at Risk: How Rising Seas, Floods, and Wildfires Are*

Our children might not get to experience the places they learn about in history classes if we do not take swift action to protect them.

Threatening the United States' Most Cherished Historic Sites. From sea to rising sea, a remarkable number of the places where American history was made are feeling the effects of human-caused global warming. Though the examples in our report represent just a few of the many places we could have discussed, taken together they vividly illustrate an urgent problem: the geographic and cultural quilt that tells the American story is fraying at the edges, and our children might not get to experience the places they learn about in history classes if we do not take swift action to protect them.

The sites featured in *National Landmarks at Risk* were chosen because the science behind the threats in each case study is robust. Our findings should serve as a wake-up call: climate change is no longer a distant threat for others to worry about. The consequences are already under way, forcing federal and state agencies, park managers, archaeologists, historic preservationists, engineers, architects, city leaders, the military, and others to spend time and resources protecting sites and preparing for additional expected changes—from installing breakwaters that protect against coastal erosion on Virginia's Jamestown Island to flood-proofing electrical utilities at the Statue of Liberty. Similarly laudable efforts are needed elsewhere, so UCS is working with experts around the country to amplify their concerns and push for the necessary resources to help protect these important places before further damage occurs.

We must also work to minimize the risk our national landmarks—and our communities—face by reducing the carbon emissions that cause climate change. The science is clear that by reducing our carbon pollution we can slow the pace of change and lower the risk that extreme heat, wildfires, heavy downpours, and rising seas will become commonplace.

A CALL TO ACTION

UCS released *National Landmarks at Risk* at a Capitol Hill briefing on May 20. Accompanying us were experts from the National Parks Conservation Association, the Society for American Archaeology, the Historic Preservation Commission of Annapolis, and Santa Clara Pueblo in New Mexico, who spoke to their legislators about the challenges their communities and professions face. Many of our supporters also took action; by the time *Catalyst* went to press, they had sent more

than 15,000 postcards and emails to Congress demanding funding to help increase the climate resiliency of our national parks and other cherished places. Complementing these efforts is a series of blogs written by UCS staff and guest experts, and a video that aired in 49 airports over Memorial Day weekend. Everything—including additional opportunities for action—is on our website at www.ucsusa.org/LandmarksAtRisk.



The Kunta Kinte-Alex Haley Memorial in Annapolis, MD, is shown during Hurricane Isabel in 2003. The city's historic preservation division says the statue is now a de facto flood gauge.

The United States boasts more than 400 sites in its National Park System, which received more than 275 million visitors in 2011. There are also more than 80,000 sites in the National Register of Historic Places. The stories these sites tell symbolize the values that unite all Americans: patriotism, freedom, democracy, respect for ancestors, and admiration for the pioneering and entrepreneurial spirit. If future generations are to experience the joy and wonder these extraordinary places engender, we must act now to protect them from the impacts of climate change. {C}

Kate Cell is a senior outreach coordinator in the UCS Climate and Energy Program.



Sugar-coating Science

UCS shows how the sugar industry has kept the public in the dark when it comes to sugar and our health.

by Gretchen Goldman

Sugar: we think of it as a sweet treat, but it is everywhere in our diets because manufacturers add it to many processed foods, even where we might not expect it, from crackers to salad dressing. A Yoplait Light strawberry yogurt, for example, contains more than two teaspoons of sugar, and many name-brand breads contain a teaspoon of sugar *per slice*. Scientific evidence has shown that overconsumption of sugar—whether from corn syrup, sugar cane, or sugar beets—doesn't just lead to tooth decay, but to heart disease, obesity, diabetes, and hypertension as well.

Yet most Americans—even those trying to eat healthfully—consume much more sugar than dietary guidelines recommend, and our food policies do not reflect the scientific evidence on this health risk. Why? As UCS explains in two new reports released this spring, sugar interests—food and beverage manufacturers along with various trade associations, front groups, and public relations firms—have actively sought to block policies that would address health risks, thus ensuring that Americans' overconsumption of sugar continues.

ADOPTING TACTICS FROM THE TOBACCO PLAYBOOK

A major factor that has kept us in the dark about sugar’s detrimental impacts is the role that industry has played in keeping it that way. By using many of the same tactics employed by the tobacco industry to obscure smoking’s health risks, sugar interests have intentionally deceived the public about their product’s risks. (Interestingly, several major processed food companies have been owned by tobacco companies.)

Industry tactics often remain hidden within the confines of internal company records, but on occasion the details are brought to light. In January 2014, such an opportunity arose when a court battle between two trade groups with interests in sugar led to the public release of a large quantity of internal documents (see the sidebar) that offered a glimpse into the industry’s thinking and actions. These informed our reports *Sugar-coating Science*, which explores how advertising, marketing, and public relations have been used to deceive the public, and *Added Sugar, Subtracted Science*, which reveals how the industry has intentionally interfered with the science and policy around our sugar consumption.

Some of the tactics uncovered by our analysis include:

- **Interfering with the science.** Sugar interests have attempted to discredit or downplay the scientific evidence, and intentionally spread misinformation, about sugar’s health impacts. They have hired their own scientists and paid seemingly independent scientists to speak on behalf of the industry and its products. And they have worked to

influence the academic community at scientific meetings and through the scientific literature. The Sugar Association, which represents sugar cane and sugar beet producers and refiners, threatened to find ways to withdraw the World Health Organization’s funding when the WHO released a scientific report recommending that people get no more than 10 percent of their calories from sugar. The Corn Refiners Association, which represents high-fructose corn syrup (HFCS) interests, paid two academic scientists to promote HFCS and dispel any health concerns raised by the public or health experts. More examples can be found in *Added Sugar, Subtracted Science* (www.ucsusa.org/added-sugar).

- **Deceptive marketing strategies.** Sugar interests have invested billions of dollars in misleading and exploitative—or even blatantly false—advertising to promote their products. As we describe in *Sugar-coating Science* (www.ucsusa.org/sugarcoatingscience), Coca-Cola was recently sued for misrepresenting the nutritional and health qualities of its Vitaminwater line of “enhanced” waters. Despite a sugar content comparable to that of soda, Vitaminwater was marketed as a natural and healthy beverage—claims unsubstantiated by the scientific evidence.
- **Undermining policy efforts.** Sugar interests have worked to influence our democratic processes in order to fight public policies meant to address sugar overconsumption. When El Monte and Richmond, CA, proposed taxes on

Sugar Content of a “Healthy” Meal



Food Item	Grams of Sugar per Serving
Campbell’s Tomato Soup	12
Grilled cheese sandwich made with two slices of Pepperidge Farms Farmhouse Honey Wheat Bread and two Kraft Singles	10 (bread) 2 (cheese)
Small mixed-greens salad with Kraft Zesty Italian dressing	1
Snapple “All Natural” Lemon Tea	36
Yoplait Light Strawberry Yogurt	10
Total	71
WHO Daily Recommendation	50

Added sugar in seemingly healthy foods makes low-sugar meal choices difficult. As the table shows, the sugar contained in this meal exceeds the World Health Organization’s recommendation for an entire day.

Sugar interests have attempted to discredit or downplay the scientific evidence, and intentionally spread misinformation, about sugar's health impacts.

sugar-sweetened beverages in 2012, the American Beverage Association and other groups spent a combined \$3.5 million in the two towns to defeat the measures. These groups hid much of their involvement in the debate, hiring community spokespersons without disclosing these affiliations and playing on existing class and racial tensions in the communities in order to make the defeat of the proposals appear organic and community-driven.

ADDING SCIENCE TO ADDED-SUGAR POLICY

All told, the efforts of sugar interests have confused the public and put intense pressure on policy makers not to act on measures that would curb consumption of added sugars. Despite these barriers, some cities and states *have* defied this pressure and taken positive steps through better nutrition policies and by encouraging healthy lifestyles. New York City, for example, has launched an aggressive campaign to reduce sugar consumption. But much more can be done to promote better public health outcomes using the current scientific evidence on sugar's adverse health effects.

Positive change is also on the horizon at the federal level. In February, the Food and Drug Administration proposed a rule that would require nutrition labels to include added sugar. This would empower consumers with the knowledge of just how much sugar has been added to their food (as opposed to the sugars that are naturally present, as in fruit and dairy). More than 21,000 UCS supporters submitted comments in support of this rule, and we are actively fighting against industry efforts to weaken it.

Our reports outline recommendations for how scientists and public health experts, investors, decision makers, the media, and the public can hold sugar interests accountable for their efforts to obscure the science on sugar and its detrimental health effects. We also outline steps decision makers at federal, state, and local agencies can take to engage in transparent and science-informed discussions and to develop regulations that promote our health and welfare by limiting added sugar. Ultimately, our food policy should prioritize public health over profit. {C}

Gretchen Goldman is a lead analyst in the Center for Science and Democracy at UCS. Read more from Gretchen on our blog, The Equation, at <http://blog.ucsusa.org>.

Shining a Light on a Shadowy Campaign

Internal documents reveal industry plans to undermine science.



For Halloween in 2010, the Sugar Association suggested that its members promote candy as a healthy part of children's diets.

The recent court battle between the Sugar Association and the Corn Refiners Association led to the release of 366 pages of internal documents outlining how these groups sought to sow public confusion about sugar consumption. For example, in one internal memorandum from the Sugar Association a staff member recommended that the group “question the existing science” when comparing the health effects of two types of sugar (glucose and sucrose). For Halloween in 2010, the association distributed to its partner organizations a misleading fact sheet that included talking points such as “Sugar doesn’t cause obesity” and “Sugar adds to the quality of children’s diet.”

When a University of Southern California (USC) study found that people who drink sugary beverages may be consuming more high-fructose corn syrup than they thought, the Corn Refiners Association considered sponsoring its own counter-research. A consultant to the group suggested that it would only publish the results of such a study if the findings aligned with its established position; he wrote, “If for any reason the results confirm [the USC study], we can just bury the data.”

Mistakes Happen— Even with Nuclear Weapons

By Sean Meyer

In 1979, a malfunctioning chip in a U.S. military computer indicated a large-scale Soviet nuclear attack was under way, prompting U.S. officials to initiate procedures for a counter-attack. It took six minutes to determine this was a false alarm. In 1995, Russian military officials mistook the launch of a

The launch of even one nuclear-armed missile could devastate a major city.

Norwegian scientific rocket for that of a U.S. nuclear missile and brought their nuclear launch codes to then-President Boris Yeltsin; fortunately, he refused to believe the United States was attacking and did not order a counterattack. These are just a couple examples of close calls that brought the world close to a nuclear disaster.

All systems are fallible, and people make mistakes. But very rarely are the consequences as serious as when nuclear weapons are involved. The threat posed by human error and accidents is compounded by our dangerous approach to nuclear security.

Today, the United States keeps its 450 land-based nuclear missiles on high alert, ready to be fired in a matter of minutes. Russia keeps its missiles on high alert as well. This “launch on warning” practice dates to the cold war, when fears ran high that either country could deal a disarming first strike against the other. But this “hair trigger” stance makes it more likely that one or more missiles will be launched by accident, without authorization, or in response to a false warning of an incoming attack. The launch of even one nuclear-armed missile could devastate a major city, and even a small fraction of either country’s land-based missiles could destroy the other country as a functioning society.

These risks are unacceptable—the United States does not need the ability to launch nuclear missiles within minutes to maintain a reliable and credible deterrent. Both President Obama and his predecessor, George W. Bush, pledged to address the dangers posed by the U.S. launch-on-warning policy. It is time to move beyond promises to action—before our luck runs out. UCS is working with retired military commanders, nuclear weapons experts, and policy makers to remove U.S. missiles from high alert status; learn more at www.ucsusa.org/nuclearweapons. (C)

Sean Meyer is manager of strategic campaigns in the UCS Global Security Program.

Thank you

In my 20-plus years at UCS, we’ve made significant progress in lowering vehicles’ global warming and smog-forming emissions. Your gifts have made this possible, and had a huge impact on people’s lives.

Thank you for helping us secure a cleaner transportation system.

**—MICHELLE ROBINSON,
DIRECTOR OF THE UCS
CLEAN VEHICLES PROGRAM**



Have We Turned a Corner on Deforestation?

Doug Boucher, director of climate research and analysis at UCS, explains our role in reducing this major contributor to global warming.



Dr. Doug Boucher leads our work with governments, businesses, and consumers to reduce tropical deforestation and the global warming pollution associated with land use. He has written numerous articles and essays in both English and Spanish on a wide range of biological, ecological, and other science-related topics.

What are the most significant recent successes in the effort to slow deforestation?

DB: Palm oil production drives much of the current destruction of tropical forests and peatland, which releases large amounts of global warming pollution [learn more at www.ucsusa.org/palmoilscorecard]. We've had big successes recently in getting companies like Colgate-Palmolive, Kellogg, L'Oréal, and Procter & Gamble to commit to sourcing palm oil produced with zero deforestation and zero peat loss. We've also made good progress in establishing an international mechanism to reward countries that reduce deforestation. Finally, some tropical countries have made major advances in protecting and restoring forests; our new report *Deforestation Success Stories* [www.ucsusa.org/forestsucces] helps publicize what they've done and how others can do it too.

What is driving companies and countries to take these steps?

DB: Companies are seeing that consumers are demanding it, and that it helps them ensure a dependable, sustainable supply of the raw materials they need. So it's not just concern for the environment or even for their brands' image that's driving them; it's also what's best for their bottom line. I think countries see it as a way to fulfill their international climate commitments, and in some cases like Brazil, Costa Rica, Indonesia, and Mexico, they've put these commitments into their domestic policies and laws. For tropical countries that have most of their heat-trapping emissions come from land use, these kinds of actions are the main way they can slow climate change—which they know is going to hurt them the most.

What is the biggest barrier keeping other countries and companies from following suit?

DB: Lack of resources—not just money but also technical support—is certainly a factor. And in some countries the government has limited ability to enforce its laws in a transparent way. But these problems can be overcome; the recent successes in reducing deforestation, even in poor countries with past problems of corruption, have shown that.

How can citizens and organizations such as UCS support forest-friendly policies and practices?

DB: We provide Congress and international negotiators with valuable technical and policy information through our analyses and reports. Often, by showing how problems and conflicts can be resolved if you first get agreement on the science, we play an important mediating role. And our members show businesses and governments that lots of people want them to do the right thing, allowing us to back up our science with consumer and political strength. {C}

Natural Gas: A Risky Proposition

Switching from one fossil fuel to another isn't the answer.

By Megan Rising

If you've seen or heard a natural gas commercial, it likely painted a rosy picture of the fuel's role in a clean energy future. Natural gas does emit approximately half the heat-trapping carbon dioxide (CO₂) emissions of coal per unit of electricity generated, but moving to a natural gas-dominated electricity system would still be a recipe for disaster from a climate perspective.

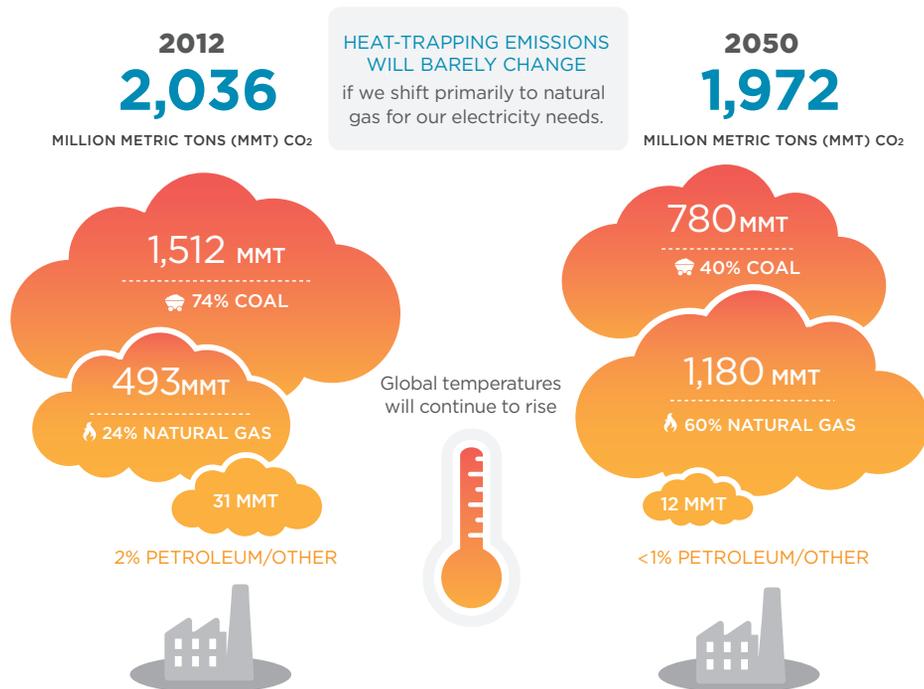
Why? For one thing, the production and distribution of natural gas results in the leakage of methane, which is 34 times stronger than CO₂ at trapping heat over a 100-year period. This leakage amounts to an estimated 1 to 9 percent of total natural gas production, which reduces—or, at higher percentages, even negates—the potential climate advantage natural gas has over coal. Even if we were able to

completely eliminate methane leakage, UCS analysis shows that a natural gas-dominated electricity system would generate *up to three times* the level of CO₂ emissions we need to achieve in order to limit some of the worst consequences of climate change (see the graphic).

Instead of locking ourselves into many more decades of high global warming emissions, we should reduce electricity demand through energy efficiency, and meet the remaining demand with renewable energy, which generates little to no global warming

A NATURAL GAS-DOMINATED ELECTRICITY SYSTEM WOULD CONTINUE TO HEAT UP THE PLANET

U.S. EMISSIONS FROM ELECTRICITY PRODUCTION



When investing our energy dollars, let's make climate-smart decisions that move us toward a truly clean future.

emissions while providing significant health and economic benefits. When investing our energy dollars, let's make climate-smart decisions that move us toward a truly clean future. {C}

Megan Rising is energy campaign manager at UCS.

Transitioning to an electricity system dominated by natural gas instead of coal would not meet U.S. climate goals. Heat-trapping emissions would barely change from where they are today, largely due to projected increases in electricity demand. Learn about cleaner, cheaper, and more reliable alternatives at www.ucsusa.org/naturalgasclimaterisks.

There's Nothing New about "New Oil"

By Eric Bontrager



Recent commercials and excited talk about growing American energy production make it sound as if oil companies have discovered a previously unknown oil treasure trove, but this "new oil"

is anything but new. As the era of cheap and easy oil comes to an end, the industry is exploiting increasingly expensive and dirty sources of oil, turning (for example) to hydraulic fracturing or "fracking" to pump oil out of rocks—an extraction method once deemed too costly and risky to pursue.

Fortunately, we don't have to accept the status quo. Scientists and engineers at UCS have developed "Half the Oil," a realistic plan to cut U.S. oil use in half within 20 years—and the good news is that we're already making progress. The historic fuel economy and global warming emissions standards for new passenger vehicles you helped UCS secure in recent years are expected to reduce our oil use by more than 4 million barrels per day by 2035. In addition, strengthened fuel efficiency standards for trucks are on the way (see



Whether a well is drilled or "fracked," the oil that is extracted brings the same problems along with it.

Advances, p. 4), the first truly sustainable biofuels facilities are online, and electric vehicles are entering U.S. roadways in record-breaking numbers.

As the era of cheap and easy oil comes to an end, the industry is exploiting extraction methods once deemed too costly and risky to pursue.

If we stay on this path, we can position the United States as a global leader in transportation technology, reduce oil spills and pollution-related health problems, and insulate consumers from gasoline price swings. So it's time to accelerate—not slow down—our efforts to secure a Half the Oil

future. That means supporting existing policies that encourage efficiency and innovation, and pushing for stronger state and federal support for clean transportation technologies.

It's not surprising that the oil industry wants to drive the nation toward a future of so-called new oil: Americans spend \$2 billion a day on oil. The oil companies use that money to play the same old game—only this time with higher stakes—instead of investing in long-term solutions to our country's energy needs. We don't need to go along, because we have a better plan—one that will cut our projected oil use in half over 20 years while saving money, cleaning our air, reducing global warming emissions, and increasing prosperity. A Half the Oil future is an energy future that works for *all* of us. {C}

Press Secretary **Eric Bontrager** focuses on transportation and energy issues at UCS.

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