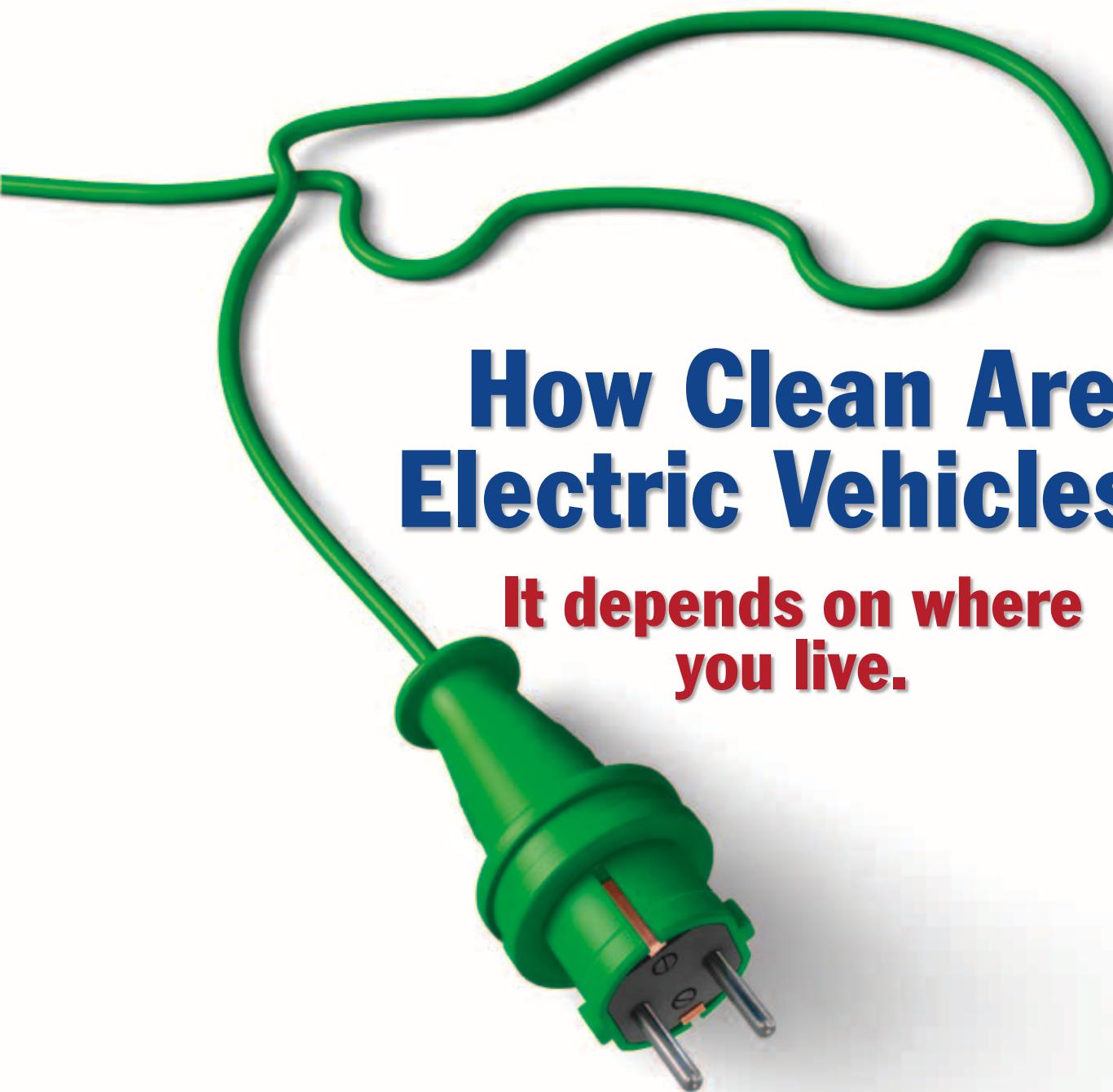




Union of Concerned Scientists

# Catalyst

SUMMER 2012



## How Clean Are Electric Vehicles?

**It depends on where  
you live.**



# Union of Concerned Scientists

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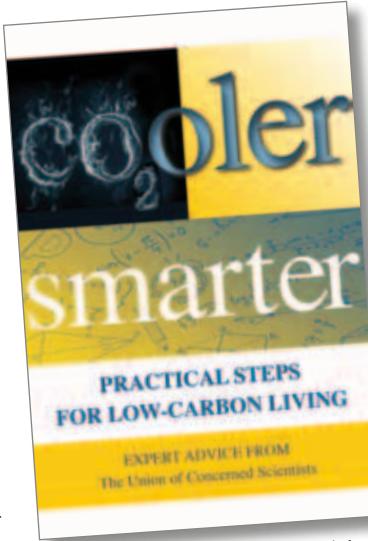
## LETTERS

Please email your questions or comments to [catalyst@ucsusa.org](mailto:catalyst@ucsusa.org). Your submission implies permission to publish your letter and name in *Catalyst*. We reserve the right to edit letters for length.

### UCS Supports Sustainably Grown Food

“Smarter Ways to Keep the Planet Cool” (Spring 2012, p. 7) misleadingly warns against buying local food to combat global warming. Our nation’s current food production not only entails shipping long distances but also uses vast amounts of irrigation, petroleum-based fertilizers, herbicides, and pesticides, as well as carbon-intensive processing, packaging, and corn and soy feeds for concentrated animal feeding operations (CAFOs).

Robin Hoy  
*Bucks County Foodshed Alliance*  
Wycombe, PA



### UCS responds:

UCS strongly advocates for local and sustainable food systems (see our August 2011 report *Market Forces* to learn about their many benefits) and we strongly urge consumers to purchase such food. We are, however, reluctant to tout organic agriculture as a major solution

to reduce heat-trapping emissions, as the science is not definitive in this area. As we discuss in our new book, *Cooler Smarter*, sustainable organic practices discourage inputs and therefore are likely to have fewer input-related emissions, but agricultural systems are complex. Some studies, for example, have shown that increasing carbon storage in soil can increase heat-trapping nitrous oxide emissions. And as we noted in our article, transporting food from farm to store accounts for only 4 percent of food-related emissions on average.

When it comes to reducing your carbon “footprint” the strategy with the largest payoff is to eat less meat—particularly beef, which is

responsible for more than three times the heat-trapping emissions of fruits and vegetables, and 18 times the emissions of pasta, on average.

### What about Mercury?

[In “Smarter Ways to Keep the Planet Cool,”] it makes little sense to tell everybody to switch to CFLs [compact fluorescent light-bulbs] when they still contain mercury and no safe, simple disposal method has been provided. I find this particularly ironic at a time when the government is going to extraordinary trouble to eliminate other sources of mercury in the atmosphere.

Katharine W. Rylaarsdam  
Baltimore, MD

### UCS responds:

CFLs do indeed use mercury—about four milligrams (mg) on average—to produce light. However, the biggest source of mercury exposure is coal-fired power plants. About 1 mg of mercury emissions is released into the air when generating electricity to run a 13-watt CFL over the bulb’s 8,000-hour lifetime, assuming coal supplies 40 percent of that electricity (close to the national average). Most of the CFL’s mercury is bound to the bulb and is therefore harmless; thus, even with improper disposal (i.e., the bulb breaks), total CFL-related mercury emissions are only about 1.4 mg. Under the same assumptions, about 4.4 mg of mercury are released from electricity production for a 60-watt incandescent bulb (comparable in brightness to a 13-watt CFL).



Back issues of *Catalyst* are available in PDF form on the UCS website at [www.ucsusa.org/publications/catalyst](http://www.ucsusa.org/publications/catalyst).

# Our Plan for Less Pain at the Pump



When I was in Chicago for an April meeting, I was stunned to see a downtown gas station charging nearly \$4.60 per gallon. Though this is an extreme example, high gas prices are becoming a reality for America's 240 million drivers, and is just one of the many costs we must bear as a result of our country's oil use. But when it comes to solving these problems the answer is clear: use less oil.

There is a realistic plan to cut the United States' projected oil use in *half* over 20 years—and UCS has it. Our oil savings plan would move the country forward by boosting fuel efficiency, producing better biofuels, investing in electric cars, and incorporating smarter ways of doing business and getting around. These strategies would also save money, ease serious problems including oil spills and health threats from air pollution, and position the United States as a global technology leader.

For more than 40 years, politicians from both major parties have highlighted the problems associated with oil consumption but have never made a sustained effort to address them. At the same time, oil companies have poured money into marketing campaigns aimed at maintaining the status quo. We deserve better. We deserve a commitment to cut America's oil use in half over the next 20 years by taking the steps outlined in the UCS oil savings plan.

Thankfully, we're seeing some progress toward this goal. Two sets of fuel economy and emissions standards, the most recent of which was announced last summer, will double the gas mileage of new cars and light trucks by 2025 and reduce America's oil consumption by approximately 3.5 million barrels per day by 2030. As a result, U.S. drivers will save \$150 billion in fuel costs (after the cost of the fuel-saving technology) and slash global warming emissions by 640 million metric tons—the equivalent of shutting down nearly 140 average-size coal-fired power plants.

These new standards are only a beginning. The same kinds of solutions should be applied to every vehicle, from big rigs and school buses to planes, trains, and ships. We must also make investments to ensure that electric vehicles become more practical, vehicle fuels become less polluting, and sitting alone in your car in traffic becomes a thing of the past.

To all the politicians currently wasting time by assigning blame for high gas prices: we need a lot less talk and a lot more action.

—Kevin Knobloch, president

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Our new initiative to restore science to its rightful place in the democratic process is off and running, with a high-profile launch and plans for a busy year ahead.

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## Biotech Little Help during Droughts

*Farmers have better options, UCS finds*

Last year's epic Texas drought—at \$5.2 billion in agricultural losses, the most costly on record—showed just how devastating droughts can be to farmers and food production. And climate scientists expect the frequency and severity of droughts to in-

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**Classical and newer plant breeding techniques are a more effective and less expensive approach to improving drought tolerance than genetic engineering.**

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crease in some regions. In a new report titled *High and Dry*, UCS examined the prospects for improving crops' performance during droughts and reducing

their water needs even under normal conditions.

We found that the one crop genetically engineered for drought tolerance and approved for commercial use—Monsanto's DroughtGard corn—is practical only under moderate drought conditions; it won't thrive in a severe drought, nor will it need less irrigation in normal years. Classically bred drought-tolerant varieties performed at least as well, suggesting that classical and newer forms of plant breeding (combined with farming practices that build soil and conserve water) are a more effective and less expensive approach to improving crops' resilience to drought than genetic engineering.

As Congress considers the Farm Bill this summer, it should prioritize these better solutions. To learn more, visit the UCS website at [www.ucsusa.org/highanddry](http://www.ucsusa.org/highanddry).

## Climate Science for Local Communities

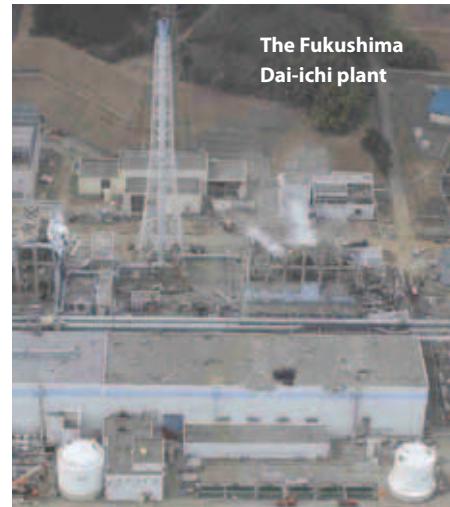
*UCS contributes to key federal report*

The National Climate Assessment—a collaboration among 13 federal agencies—is the main conduit through which U.S. climate scientists distill their findings for local and regional decision makers. The information delivered in this report is critical in shaping infrastructure investments, emergency response plans, and other strategies that will help protect our communities from the impacts of global warming.

UCS is actively working to strengthen the findings of the next assessment, which will be released in 2013 (the last one was released in 2009), and ensure they're communicated far and

wide. A webinar we hosted in February on this topic featured Dr. Kathy Jacobs from the Office of Science and Technology Policy and Dr. George Luber from the Centers for Disease Control and Prevention. We are also recruiting members of the UCS Science Network to review the report during the public comment period starting this December, and are connecting the assessment team with groups who represent communities already affected by climate change.

To learn more about the National Climate Assessment and how you can get involved, visit the UCS website at [www.ucsusa.org/nca](http://www.ucsusa.org/nca).



## A Lesson We Can't Afford to Forget

*UCS finds critical nuclear reforms are languishing*

One year after the March 11, 2011, disaster at Japan's Fukushima Dai-ichi nuclear plant, approximately 80,000 people who lived within 12 miles of the plant are still unable to return to their homes due to high levels of radiation. Given the similarity of both the design of the

Fukushima reactors and Japan's emergency response procedures to those in the United States, UCS has been monitoring the accident's impact on U.S. nuclear power safety policy.

## We urge the NRC to follow through on measures that would prevent severe accidents before a disaster similar in scale to Fukushima happens here.

In *U.S. Nuclear Power Safety One Year after Fukushima* (online at [www.ucsusa.org/nuclear\\_power](http://www.ucsusa.org/nuclear_power)), we commend the Nuclear Regulatory Commission's (NRC's) swift action in identifying needed safety improvements, but some of the most critical have not been given priority. Moreover, the NRC has deferred action on the reevaluation of emergency evacuation zones and the accelerated transfer of radioactive spent fuel from vulnerable pools to safer dry casks. We urge the NRC to follow through on these and other measures that would prevent and mitigate severe accidents before a disaster similar in scale to Fukushima happens here.

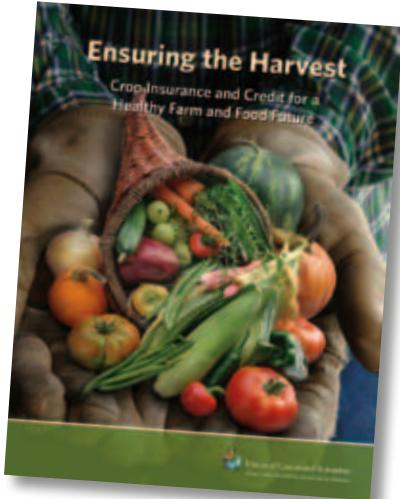
## Giving Healthy Food a Fighting Chance

*We show how to boost fruit, vegetable production*

The U.S. Department of Agriculture (USDA) recommends that fruits and vegetables constitute half of each American's daily

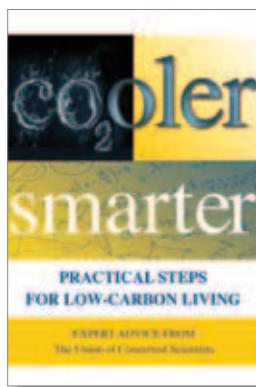
food intake. However, these foods are currently grown on only 2 percent of U.S. farm acres—not enough to satisfy the USDA's recommendations—largely because the U.S. government subsidizes things like high-fructose corn syrup that go into unhealthy processed foods. Farmers that grow healthy foods like fruits and vegetables, on the other hand, receive little or no support. With demand for fresh, healthy foods on the rise, it is time for U.S. farm policy to catch up.

Following on our 2011 report *Market Forces*, which found that local and regional food systems can create jobs and spur economic growth, UCS has identified key policies that hold such systems back. Our new report *Ensuring the Harvest* outlines straightforward solutions policy makers can adopt to



help fruit and vegetable farmers access crop insurance and financing, allowing them to produce more of the healthy foods consumers want and need. To learn more, visit [www.ucsusa.org/ensuringtheharvest](http://www.ucsusa.org/ensuringtheharvest).

## UCS Book Garners Widespread Attention



Since the launch of our new book, *Cooler Smarter: Practical Steps for Low-Carbon Living*, we've been talking to audiences around the country about the importance of individual action in fighting climate change. In addition to talks hosted by book stores, museums, universities, and libraries, we've presented the book's findings to employees of several large companies including Adobe and Nissan, and encouraged them to reduce their personal emissions 20 percent or more in the coming year.

The news media have also shown interest in the book. The *San Francisco Chronicle* ran a full-page story about *Cooler Smarter* on the front of its Sunday Home and Garden section, and we've conducted more than 40 radio interviews, including one for a program aimed at Tea Party supporters. To engage younger audiences, we've created a Trivia Night kit and a poster showing how scaling up small changes can have a big impact.

Share our online tool, [www.coolersmarter.org](http://www.coolersmarter.org), with friends and family. Or order a copy of the book at [www.ucsusa.org/coolersmarter](http://www.ucsusa.org/coolersmarter). Sign up for emails at the site and you'll hear about related events coming to your area.

## UCS Seeks End to Illegal Wood Trade

*Law that protects tropical forests should be enforced*

Illegal logging in the tropics and the associated trade of illegal wood products threatens forests, societies, and economies. In our April report *Logging and the Law*, UCS documents its impact—in the form of depressed world timber prices (which reduces the competitive advantage of legal loggers and producers) and degraded forest ecosystems—and outlines solutions that would promote economic and social development in the tropics and encourage sustainable forest management.



**Illegal logging in the tropics and the associated trade of illegal wood products threatens forests, societies, and economies.**

Among these solutions is the Lacey Act, a century-old law amended by Congress in 2008 to prohibit the trade of illegal plants and plant products, including wood. The law creates a disincentive for illegal logging by closing the U.S. market to these goods, but is under attack by anti-regulation groups. UCS has called on Congress to fully implement and en-

force the Lacey Act, and to use it as a foundation for additional reforms that could promote sustainable forestry, improve forest management decisions in local communities, and create long-term development opportunities.

To read *Logging and the Law*, visit the UCS website at [www.ucssusa.org/illegallogging](http://www.ucssusa.org/illegallogging).

### IN MEMORIAM

## F. Sherwood Rowland (1927–2012)

UCS mourns the passing of Sherry Rowland, a renowned atmospheric scientist and ally of UCS honored for his research on the ozone-depleting effects of chlorofluorocarbons (CFCs). He died March 10 at the age of 84.

Sherry's passion for science started in high school when he ran the local volunteer weather station in Delaware, OH. He earned a Ph.D. in radiochemistry from the University of Chicago in 1952, and in 1964 became one of the first professors at the University of California—Irvine, where he spent the rest of his career. Sherry was a towering presence on the basketball court (at 6 feet 5 inches tall, he starred on his college's varsity team) and ultimately in the scientific community as well.

Nearly 40 years ago, he and postdoctoral student Mario Molina (who joined the UCS board of directors in 1997) discovered that CFCs, used in refrigerants and aerosols, were eating away at the ozone layer that blocks nearly all the sun's harsh ultraviolet radiation. These findings prompted criticism from industry but were validated when an ozone hole was discovered above Antarctica in 1985, spurring ratification of the Montreal Protocol that phased out CFCs in 1987. Sherry, Mario, and Dutch researcher Paul Crutzen received the 1995 Nobel Prize in Chemistry for their work.

In 2004 Sherry was one of 62 prominent scientists to sign our statement about the need to restore scientific integrity to federal policy making. "The public deserves rational decision making based on the best scientific advice about what is likely to happen," he said at the time, "not what political entities might wish to happen."



Sherry Rowland (right) in 1975, with future UCS board member Mario Molina.

# How Clean Are Electric Vehicles?



**How much an electric vehicle saves in terms of global warming emissions and fuel costs depends on where you live. Groundbreaking UCS research helps you make better vehicle choices.**

The automotive world is buzzing about electric vehicles (EVs). Last year, the Chevy Volt plug-in hybrid, which operates on both electricity and gasoline, and the Nissan Leaf, which runs exclusively on electricity, made their showroom debuts. This year, domestic and foreign manufacturers including Ford, Honda, Mitsubishi, and Toyota are unveiling their own EVs.

By drawing some or all of their power from the electricity grid instead of the gas pump, EVs slash oil consumption and eliminate tailpipe emissions, but still produce global warming emissions (because the electricity they use is generated from a mix of energy sources, including fossil fuels such as coal and natural gas). How these emissions compare with those of gasoline-fueled vehicles depends on your electricity mix, which can vary significantly by region. Similarly, the cost of charging an EV depends on your local utilities' electricity rates.

This localized information was not readily accessible—until now. Our new report *State of Charge* helps consumers make a more informed vehicle choice by comparing the global warming emissions and fuel-cost savings of EVs relative to gasoline-powered vehicles where the consumer lives.

## Good News for Everyone

No matter where you live in the United States, an EV slashes oil consumption and has lower global warming emissions than the average new compact gasoline-powered vehicle. But in regions that depend heavily on coal-fired electricity, charging an

**By Don Anair**

EV will generate more global warming emissions than in regions that obtain more of their electricity from cleaner sources such as natural gas, solar, and wind power.

*State of Charge* analyzed the U.S. electricity grid's 26 regions and rated each as "GOOD," "BETTER," or "BEST" for EVs based on the global warming emissions produced by charging the vehicles. We took a "well-to-wheels" approach, measuring

emissions from fuel extraction all the way to moving the vehicle down the road. Emissions associated with EVs do not come from the tailpipe but from producing the electricity needed to charge the vehicle.

Nearly half (45 percent) of the U.S. population lives in regions rated BEST—where an EV will have lower global warming emissions than a gasoline vehicle getting 50 miles per gallon (mpg), topping even the most fuel-

efficient hybrids on the market. About 37 percent of the population lives in areas rated BETTER—where an EV will have global warming emissions similar to a 41 to 50 mpg gasoline vehicle, including the most fuel-efficient hybrids on the market: the Honda Civic Hybrid (44 mpg) and Toyota Prius (50 mpg). The smallest fraction, only 18 percent, live in areas rated GOOD—where an EV will have global warming emissions similar to a 31 to 40 mpg gasoline vehicle, including the most fuel-efficient non-hybrid gasoline vehicles available: for example, the Ford Fiesta (34 mpg) and Scion iQ (37 mpg).

Across the country, electricity is expected to continue getting cleaner as the production of renewable electricity expands and older, high-polluting coal power plants are retired. Unlike

## A Tale of Three Cities

We examined the benefits of electric vehicles in 50 U.S. cities. Here are three that span the savings spectrum.

EVs can save money and cut global warming emissions no matter where you live, but the savings vary from region to region. Detroit, MI, for example, is located in a **GOOD** region, where EV emissions are equivalent to those from a 38 mpg gasoline vehicle. EVs in Miami, FL, a **BETTER** region, have emissions comparable to a 47 mpg gasoline vehicle. But EVs in a **BEST** region such as Oakland, CA, have emissions equivalent to a 79 mpg gasoline vehicle—and as you probably know, no such vehicle exists!

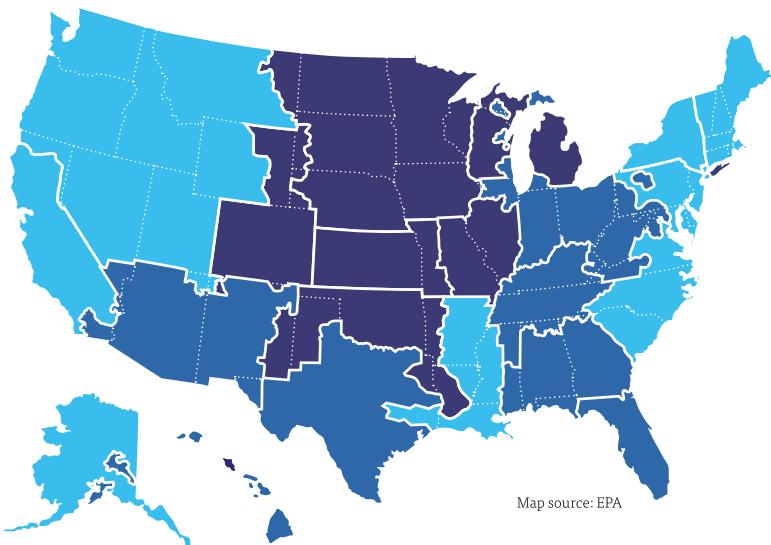
Fuel-cost savings also vary widely depending on EV owners' utility prices and rate plans. Drivers in Detroit and Miami on a standard rate plan can save an average of \$880 and \$940 (respectively) each year, compared with a 27 mpg gasoline vehicle. Enrolling in a time-of-use rate plan could allow these drivers to save even more: \$1,000 or more per year. Choosing the right rate plan is even more important to drivers in California—



Drivers on the Bay Bridge connecting Oakland, CA, with San Francisco.

under a standard plan, EV owners in Oakland may only save \$50 per year, but switching to a time-of-use plan could produce \$1,120 in annual savings. Switching to a time-of-use plan may require some upfront costs, so consumers should contact their utility for details first.

## Electric Vehicle Emissions Performance by Region



An EV charged in the given region produces emissions equivalent to a gasoline vehicle with a fuel economy rating of:

31-40 MPG  
**GOOD**

41-50 MPG  
**BETTER**

>50 MPG  
**BEST**

← Dirtiest electricity grid (High emissions)

Cleanest electricity grid (Low emissions) →

Notes: Ratings are applicable to midsize electric vehicles of average efficiency. Gasoline mpg comparisons are for combined city/highway EPA fuel economy ratings.

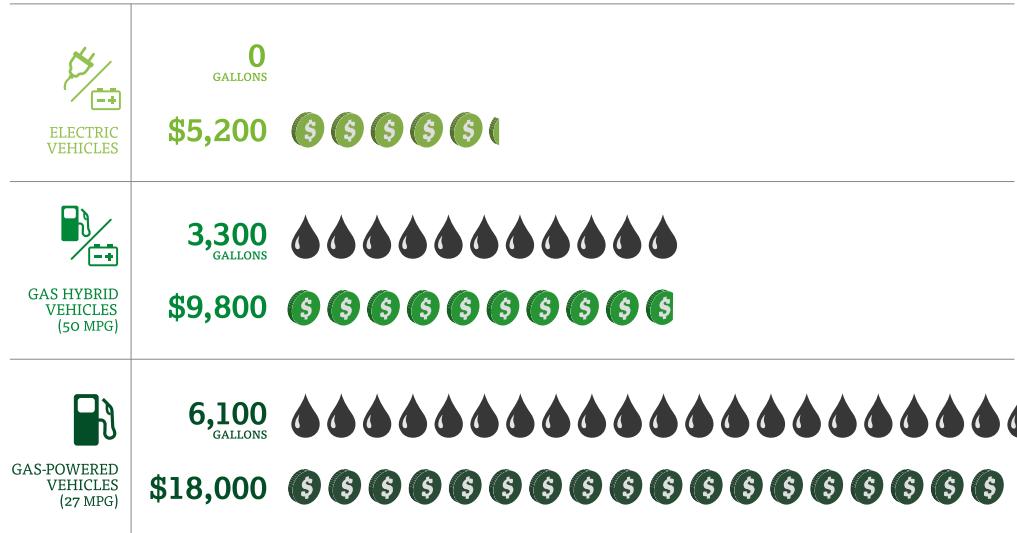
**More than 80 percent of the U.S. population lives in areas where an EV will match or surpass the most fuel-efficient hybrids on the market in terms of global warming emissions.**

conventional wisdom for a gasoline car, an electric vehicle purchased today can be expected to have *lower* global warming emissions as it gets older.

### Save Big on Fueling Costs

Today's EVs vary widely in price, ranging from \$100,000 luxury sports cars to more modest passenger vehicles such as the four-passenger 2012 Mitsubishi i, which costs about \$22,000 after factoring in an available \$7,500 federal tax credit. While EVs cost more to purchase than comparable gasoline vehicles, EV owners can realize significant fuel cost savings compared with operating a gasoline vehicle because driving on electricity is cheaper. UCS looked at utility rates in 50 cities across the United States and found that, compared with the average 27 mpg compact gasoline vehicle, an EV could save its owner between \$750 and \$1,200 per year assuming a gas price of \$3.50 per gallon—a 50 to 85 percent savings. This yields significant oil and fuel cost savings over the vehicle's lifetime (see the chart). And if gas prices continue to rise, so do the savings.

## Lifetime Gasoline Consumption and Fuel Costs



**Electric vehicle owners could save more than 6,000 gallons of gasoline and nearly \$13,000 in fuel costs over the vehicle's lifetime compared with a car getting 27 miles per gallon.**

Notes: Assumptions include gasoline cost of \$3.50 per gallon, a national average electricity price of 11 cents per kilowatt-hour (kWh), and cumulative lifetime mileage of 166,000 miles. Electric-drive efficiency is that of a Nissan LEAF (0.34 kWh/mile) and is representative of today's small to midsize EVs.

It is important to note that most consumers pay a flat rate for their electricity based on the amount consumed. However, many utilities offer "time-of-use" rates that charge a lower rate for electricity used at off-peak times—typically overnight, when EVs are most likely to be charged. EV owners in some cities may need to switch to one of these plans to maximize their savings (see the sidebar).

### Look at the Bigger Picture

As our analysis shows, switching to EVs can help reduce oil consumption, global warming emissions, and fuel costs for consumers across the country. But as the report title suggests, this is just a snapshot of the potential benefits based on today's electricity mix. Some regions of the country have farther to go to clean up their electricity grids, and electric utilities can help increase consumer access to low EV charging rates.

**Pushing your elected state and federal officials to support policies that accelerate the transition to cleaner electricity sources can help maximize electric vehicles' benefits.**

Consumers can maximize the global warming emissions benefits of EVs by installing rooftop solar panels to charge their vehicles, making them virtually emissions-free. You can also help reduce global warming emissions in other ways by enrolling in a utility's "green power" program or purchasing renewable-electricity certificates (which provide additional revenue for clean energy projects). Pushing your elected state and federal officials



to support policies such as renewable electricity standards and tax incentives that accelerate the transition to cleaner electricity sources is also important.

The growing number of EVs on the market may be an early signal of our transition toward a virtually zero-emissions and oil-free transportation future. U.S. investment in clean energy and advanced vehicle technologies can make this transition happen sooner rather than later.

**Don Anair** is a senior engineer in the UCS Clean Vehicles Program. Read more from Don on our blog, The Equation, at <http://blog.ucsusa.org>.



How much can you save with an electric vehicle? Visit the UCS website at [www.ucsusa.org/EVfacts](http://www.ucsusa.org/EVfacts) to read the full results of our research.

# Heads They Win, Tails We Lose

**Corporations are undermining science to boost their bottom lines—with sometimes deadly results. UCS shows how they do it and what can and must be done about it.**

In his inaugural address, President Obama pledged to “restore science to its rightful place,” signaling his intent to protect science from the political interference that had become commonplace during the previous administration. The president has made notable progress in fulfilling his pledge (with guidance from UCS and our supporters), such as requiring federal agencies and departments to develop scientific integrity policies.

But the politicization of science continues. On several scientific issues, including ground-level ozone pollution and occupational exposure to toxic silica dust, the administration has caved to industry pressure. And Congress has repeatedly proposed bureaucratic hurdles that would make it far more difficult for federal scientists to protect public health and safety.

In two investigations this spring, UCS sought to determine the reasons for this ongoing pressure by asking two questions: What do corporations do to inappropriately influence the science behind federal policy? And how do they get away with it?

## A Long History of Scientific Abuse

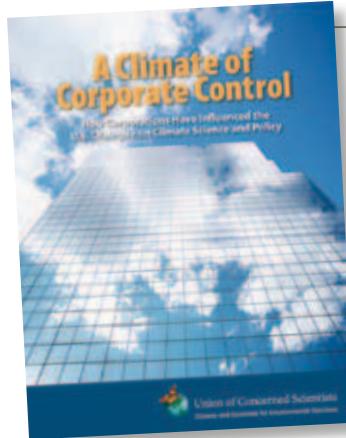
Corporate misuse of science is nothing new. Many remember when tobacco executives testified before Congress that nicotine was not addictive—despite knowing for decades the opposite was true. Peddling doubt was one effective tactic the industry used to deceive the public and delay the monitoring and regulation of its products for years.

As the case studies in our February report *Heads They Win, Tails We Lose* illustrate, other industries attempt to influence every step of the scientific and policy-making process in order to shape decisions in their favor and avoid regulatory oversight. Corporations have corrupted the science itself, undermined public understanding of the science, and exerted significant

**By Michael Halpern  
and Peter Hansel**

and undue influence over Congress, federal agencies, and the judicial system.

One issue in particular—climate change—has been a frequent target of industry efforts to create confusion and delay much-needed action. For our May report *A Climate of Corporate Control*, UCS looked closely at the climate-related statements and practices of 28 publicly traded companies. The findings cast light on how companies change their messages depending on the audience, and underscore the need to hold companies accountable to investors, policy makers, and the public.



**A report we released in May shows how companies change their messages on global warming depending on the audience.**

We found that while some companies have taken laudable action in support of climate science and science-based policies that would combat global warming, others have aggressively worked in the opposite direction. But more disturbingly, many companies have played both sides, creating confusion by taking contradictory actions depending on the venue and audience. While cultivating a climate-concerned image in more public

settings, these corporations have sown doubt about climate science both directly (e.g., challenging climate science in government filings) and indirectly (e.g., supporting politicians, trade groups, and think tanks that misrepresent climate science).

For example, ConocoPhillips has acknowledged on its website that, “Human activity . . . is contributing to increased concentrations of greenhouse gases in the atmosphere that can lead to adverse changes in global climate.” Yet in its comments on the Environmental Protection Agency’s 2009 finding that carbon dioxide poses a public health threat and is subject to regulation under the Clean Air Act, the company claimed that, “The support for the effects of climate change on public health and welfare is limited and is typified by a high degree of uncertainty.”

### Secrecy Inhibits Accountability

Compounding the problem is the fact that companies exert their influence from behind closed doors. For example, they may withhold their own scientific research that raises doubts about the safety of their products, or secretly fund industry associations that will take more aggressive actions to undermine science than the companies feel comfortable doing themselves. Because companies do not have to disclose much of their activity, UCS was unable to undertake a comprehensive assessment of these types of activities.

This lack of transparency and accountability makes our democracy vulnerable to commercial and political exploitation. And because commercial interests are often not aligned with the public interest, the disproportionate influence corporations have in policy discussions, including climate-related policy, harms the public good.

### Where Do We Go from Here?

Inappropriate corporate influence extends its tentacles into every venue that plays a part in shaping federal policy, from the public spheres of government relations and media coverage to the more shadowy realms of think tank funding and political contributions. Solutions for reducing this influence will therefore be large-scale and complex, requiring fundamental changes in how corporations and the federal government operate and interact.

Our reports outline specific recommendations for achieving this goal. For example, companies with government contracts often benefit from public spending and should thus be required to disclose their political contributions. The Securities and Exchange Commission should also require publicly traded companies to disclose their political spending to shareholders. Congress should investigate ways to hold companies accountable for their actions, and the White House should continue to strengthen policies that protect scientists and their work from political interference. Beyond government, company

shareholders can require changes in business practices that improve accountability.

Institutional changes may be difficult hurdles, but they are not insurmountable. With strong leadership and sustained commitment, both the federal government and the private sector can rise to the challenge.

**Michael Halpern** is a program manager in the UCS Scientific Integrity Program. **Peter Hansel** is an outreach intern in the program. Read more from Michael on our blog, The Equation, at <http://blog.ucssusa.org>.



To read more examples of corporate abuse and what UCS is doing to address it, visit our website at [www.ucssusa.org/scientific\\_integrity](http://www.ucssusa.org/scientific_integrity).

## Putting Profits before Public Health

As these examples show, lives are at stake when corporations misuse science.

**Vioxx.** In 1999, Merck marketing teams manipulated clinical trial research on the company’s arthritis drug to hide results suggesting it increased the risk of heart attack and stroke. In addition, Merck employees anonymously wrote scientific articles about Vioxx but published them under respected scientists’ names. An FDA scientist who raised concerns faced intimidation and threats from supervisors. Vioxx earned Merck \$2.5 billion in 2003, but the company voluntarily withdrew the drug in 2004, after just four years on the market. During that time, it may have caused as many as 55,000 premature deaths from heart attacks and strokes—and 100,000 unnecessary heart attacks overall—in the United States alone.

**Hexavalent chromium.** Ingesting or inhaling this chemical used in the production of stainless steel and textile dyes can result in severe health effects; multiple independent studies have tied the chemical to several types of cancer. Yet industries that produce hexavalent chromium have regularly downplayed that link in order to avoid regulation, and as recently as 2010, industry-commissioned studies have used deceptive statistical analysis to undermine the link.

# Science and Democracy in Action

**Our new initiative to restore science to its rightful place in the democratic process is off and running, with a high-profile launch and plans for a busy year ahead.**

**A**fter several months of preparation and planning, the Union of Concerned Scientists launched the Center for Science and Democracy on May 17. The Center's ambitious mission is to strengthen American democracy by restoring the essential role of science, evidence-based decision making, and constructive debate in solving our nation's most pressing problems. Well-informed debate is a time-honored tradition that, dating back to the founding of the United States, has repeatedly helped secure Americans' health and prosperity.

We announced and celebrated the launch with about 250 UCS donors, scientists, area students and faculty, and leaders from the nonprofit, business, and policy sectors at the American Academy of Arts and Sciences in Cambridge, MA. Distinguished speakers included Lawrence Bacow, president emeritus of Tufts University; Jessica Mathews, director of the Carnegie Endowment for International Peace; and Harold Varmus, a Nobel laureate and director of the National Cancer Institute. Our supporters on the West Coast attended a similar event on June 13 at the Scripps Institution of Oceanography in La Jolla, CA.

## Putting Brain Power to Work

UCS Board Chair James McCarthy unveiled the Lewis M. Branscomb Science and Democracy Forum, named in honor of the eminent physicist whose generous gift helped get the Center off the ground (see facing page). As a key component of the Center for Science and Democracy, the Branscomb Forums will bring interdisciplinary groups of scholars and practitioners together at universities, museums, and other institutions around the country to develop solutions to serious problems that threaten our nation's health, well-being, and security. In addition to a workshop component, each forum will include a public "town hall" event to increase understanding about the problems at hand, and follow-on work to catalyze new approaches that apply the best available science.



**Harold Varmus (left) speaks at our launch event in Cambridge, MA.**

UCS held a prototype forum in collaboration with Andrew Hoffman, director of the Erb Institute for Global Sustainable Enterprise at the University of Michigan, in January titled "Increasing Public Understanding of Climate Risks and Choices." Leading social and physical scientists, business and faith leaders, and journalists from around the nation worked together to identify the most effective strategies for combatting misinformation about climate change and building public understanding about the science and solutions. The forum's public event, which focused on social science research that can help improve communications related to global warming, drew an audience of 300; a webcast of the event attracted a similar number of viewers worldwide.

## A Multifaceted Approach

These forums are just one part of the Center for Science and Democracy's energetic agenda. We have already begun mobilizing our 20,000-strong UCS Science Network to promote two-way dialogues between experts and non-experts. We also plan to build a cadre of non-scientist validators to speak to the values of science in our democracy—conveying in personal terms their own concerns about the deliberate disregard for science—and are exploring an annual "Science in Our Democracy" report calling attention to decision makers who misuse or disregard impartial scientific information in public discourse.

UCS has begun laying the groundwork to ensure American policy making will be informed by science, but we need your input and involvement to succeed. Watch for opportunities to participate as this exciting new venture unfolds.



To learn more about the Center for Science and Democracy, find forums near you, and view webcasts of the launch events, visit the UCS website at [www.ucsusa.org/scienceanddemocracy](http://www.ucsusa.org/scienceanddemocracy).

# A Scientist's Generous—and Timely—Legacy

**D**uring his long and distinguished career, physicist Lewis M. Branscomb was appointed by President Nixon to head what is now known as the National Institute of Standards and Technology, held positions in the Johnson, Carter, and Reagan administrations, and was chief scientist at IBM Corporation from 1972 to 1986.

Dr. Branscomb recently honored UCS with a \$1 million gift to help launch our new Center for Science and Democracy (see facing page). He spoke with Press Secretary Aaron Huertas and Director of Major Gifts Jennifer Norris to explain his motivation.

## Why should we care about the role science plays in our democracy?

If you go back to the writing of the Constitution, the founders were informed by the values of the Enlightenment. They saw a parallel between scientific principles and a democratic government, in terms of using evidence-based conclusions, experiments, and transparency to promote trust and ensure our elected officials do the right thing.

**“Too often science and facts aren’t just lost in the debate, they’re deliberately corrupted or excluded.”**

## What is preventing our elected leaders from living up to those principles?

Good policy largely relies on fact-based analysis. But in this era of hyper-partisanship and the over-influence of money in politics, too often science and facts aren’t just lost in the debate, they’re deliberately corrupted or excluded. And the Supreme Court has made the money-in-politics



problem worse. Congresspeople are voting based on the interests of the groups financing their reelection bids. Politicians aren’t doing their jobs if they’re ignoring the facts.

## When you look back over your career, what has changed over time?

The political system has gotten much less responsive to scientific evidence over the past 35 years. It used to be two-thirds of Congress always voted with their own party and a third were willing to cross party lines on specific issues. But every year it’s become more partisan. Twenty years ago, through the Office of Technology Assessment, scientists like me spent a lot of time talking to Congress. They don’t do that anymore. [Ed. note: The OTA was eliminated in 1995, leaving Congress without its own science advisors.]

## What prompted you to make such a large gift to the Center for Science and Democracy?

My daughter asked me what our family could do to honor my career after I’m gone. And I thought, why not do it now, while I’m alive? I wanted to help start

something I could be proud of, that would tackle these issues. I didn’t want to contribute to something that would be purely theoretical or academic, but I did want the organization to be heavily rooted in science. So I asked myself, who is practical and academic and really cares about science? The Union of Concerned Scientists.

## What are your hopes for this work going forward?

I am particularly interested in the three-way dialogue between scientists, the public, and policy makers. By and large, people trust scientists more than most anybody else. And it’s the public who can push politicians to act more rationally, because politicians ultimately do answer to the public and care about what their constituents think. We need to encourage scientists to engage the public more, find out what the public cares about, and start a conversation about how we can use science to better our democracy and society. That’s what’s truly attractive to me. I see the Center for Science and Democracy playing a critical role in advancing that important conversation.

# Headed Back Down Those Country Roads

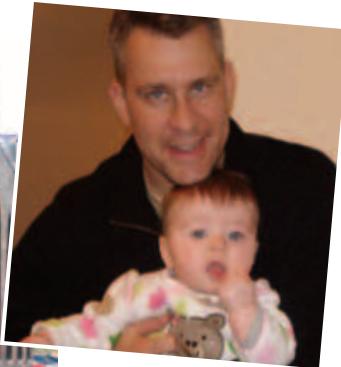
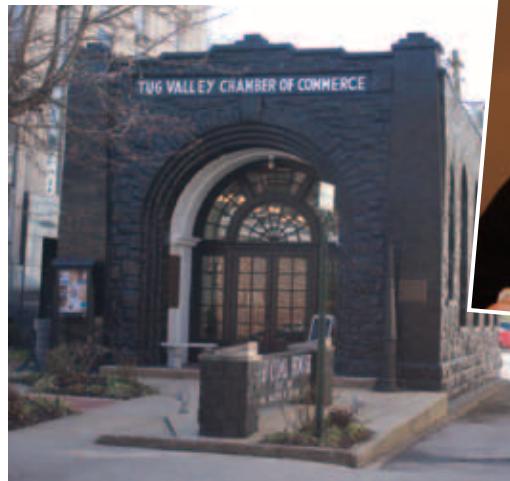
You might say coal is in my blood. My grandfather spent his entire career working in the coal mines of West Virginia and eventually died of black lung disease. My father retired from the mines after 27 years of service, and my younger brother works in that very same mine today. I guess that makes me a bit of a black sheep; I followed my innate curiosity about how things work and became a scientist.

Ever since I began working on climate and energy issues some five years ago, I have felt a cognitive dissonance. On the one hand, we must move away from burning coal and other fossil fuels that generate global warming emissions. On the other hand, my native West Virginia is a state where coal is as much a part of the cultural identity as it is an economic driver. Could we find support there for a new path that will provide good jobs as well as a cleaner environment? And how could I help in this effort?

In January UCS enabled me to explore these questions. As a Kendall Science Fellow in clean energy innovation, I am researching opportunities for economic diversification in the heart of coal country. I see my role as a bridge between policy makers in Washington, DC, and the people and communities their policies ultimately affect.

## A Hard Truth

In Washington, few even realize that people still go underground to mine coal. Coal states are often seen by legislators as adversaries to achieving economy-wide emissions reductions, and the residents of those states are constantly bombarded with coal industry advertising. Climate change is less tangible (at best) and the Environmental Protection Agency is a four-letter word.



The author with his niece Emma; a local Chamber of Commerce building (left) has a façade made of coal.

## My native West Virginia is a state where coal is as much a part of the cultural identity as it is an economic driver.

Yet climate change is happening, and we need to embrace cleaner energy sources to reduce the risks. It's time to have some difficult and honest conversations about how a shift away from coal will affect places like West Virginia, and how we can assure coal-dependent states that they will not be left behind in the resulting clean-energy economy.

I have already made several trips to West Virginia during my fellowship and met with the people and organizations who are actively working to bring economic growth to the state in a way that does not harm the environment. For example, the JOBS Project is helping build support for locally owned renewable energy projects, training workers in renewable energy technologies, and educating residents on how energy efficiency measures can save money. And the West Virginia Manufacturing Extension Part-

nership is helping companies become more efficient and more profitable, which could help them secure contracts to manufacture components for renewable energy facilities.

## Looking Ahead—with an Eye on the Past

If we are to achieve lasting policies that reduce global warming pollution, people in coal country must be able to envision a greener future for themselves and their communities. Through my fellowship, UCS is working to make that future more realistic to the residents of Appalachia by helping them understand that clean energy can bring good jobs to the communities they love.

Appalachia and West Virginia in particular have a right to be proud of their history—their blood and sweat in coal mines powered our nation's growth. UCS, by partnering with local organizations and developing alliances in a region closely tied to fossil fuels, is gaining new support for clean energy while respecting that history. I feel inspired by the work that's already begun.

—**Jeremy Richardson**, Kendall Science Fellow in the UCS Climate and Energy Program

## Committed to UCS for Life

**A**fter a career in information technology, UCS member Holly Sletteland decided to take an early retirement so she could focus on her real passion: the environment. A lover of the outdoors, Holly works part-time as the preserve manager at the Morro Coast

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**"UCS is more effective than any other organization when it comes to influencing energy policy."**

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Audubon Society in California, where she oversees restoration projects that help protect and enhance the Morro Bay National Estuary.

Holly not only dedicates her time but also some of her retirement savings to help support environmental causes,

which she says "often get the smallest piece of the pie." A UCS member since 1986, she decided to leverage her retirement funds by establishing a charitable gift annuity (CGA) with UCS, which contributes to our work and provides Holly with a fixed amount of income each year for the rest of her life. For Holly, a CGA is a "win-win" that enables her to support an organization she cares about while ensuring her own financial security. She is even considering a second CGA with UCS, and encourages others to establish one as well.

### The Need Is Clear

A lifelong gardener, Holly has observed in her own backyard that spring is coming earlier and earlier each year, followed by increasingly hot summers. She is concerned about what the future holds for California's landscape and wildlife—and humanity as a whole. "It's maddening



that there are people out there who still don't believe in climate change," she says. "It is the issue that overshadows everything else." Through her charitable gift annuity, Holly has made a long-term commitment to help ensure that UCS has the critical resources we need both today and in the future to advance strong science-based climate solutions that will protect our health and environment.

The most cost-effective and "greenest" way to support a healthier planet and a safer world is by making automatic, tax-deductible contributions to UCS electronically from your bank account or credit card. It's convenient and simple.



**Sign up now and receive a free UCS tote bag!**

Send your completed form to UCS in the envelope inside this issue of *Catalyst*. If you have any questions, please contact Michelle Lesco at (800) 666-8276 or [mlesco@ucsusa.org](mailto:mlesco@ucsusa.org).

**OUR GUARANTEE:** You may stop or change your pledge at any time.

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## YOUR LEGACY: A HEALTHY PLANET

Your generous support makes it possible for UCS to advance science-based solutions to help ensure a healthy environment and safer world, both today and into the future. There are several ways you can partner with UCS to realize your commitment to a healthy planet even beyond your lifetime:

A **bequest** offers a simple, flexible way to make a charitable gift from your estate. You can name UCS in your will or living trust as the beneficiary of a set dollar amount, a percentage of your estate, or the remainder of your estate after provisions for family and friends have been fulfilled.

A **charitable gift annuity** enables you to make a significant gift to UCS that, in turn, provides you and/or a loved one with guaranteed fixed income for life. You can also defer annuity payments for one or more years, allowing you to supplement retirement income in the future. After your lifetime, UCS receives the remaining balance.

By **naming UCS as a beneficiary** of a financial, retirement, or insurance plan, you may be able to avoid paying costly estate and income taxes on these assets.

If you have already taken the important step of including UCS in your estate plans, please let us know so we can express our thanks and welcome you as a member of the Living Legacy Society.

Please visit our website, [www.ucsusa.org/legacy](http://www.ucsusa.org/legacy), to learn more about legacy giving opportunities or contact Janet Curtis at (800) 666-8276 or [jcurtis@ucsusa.org](mailto:jcurtis@ucsusa.org).