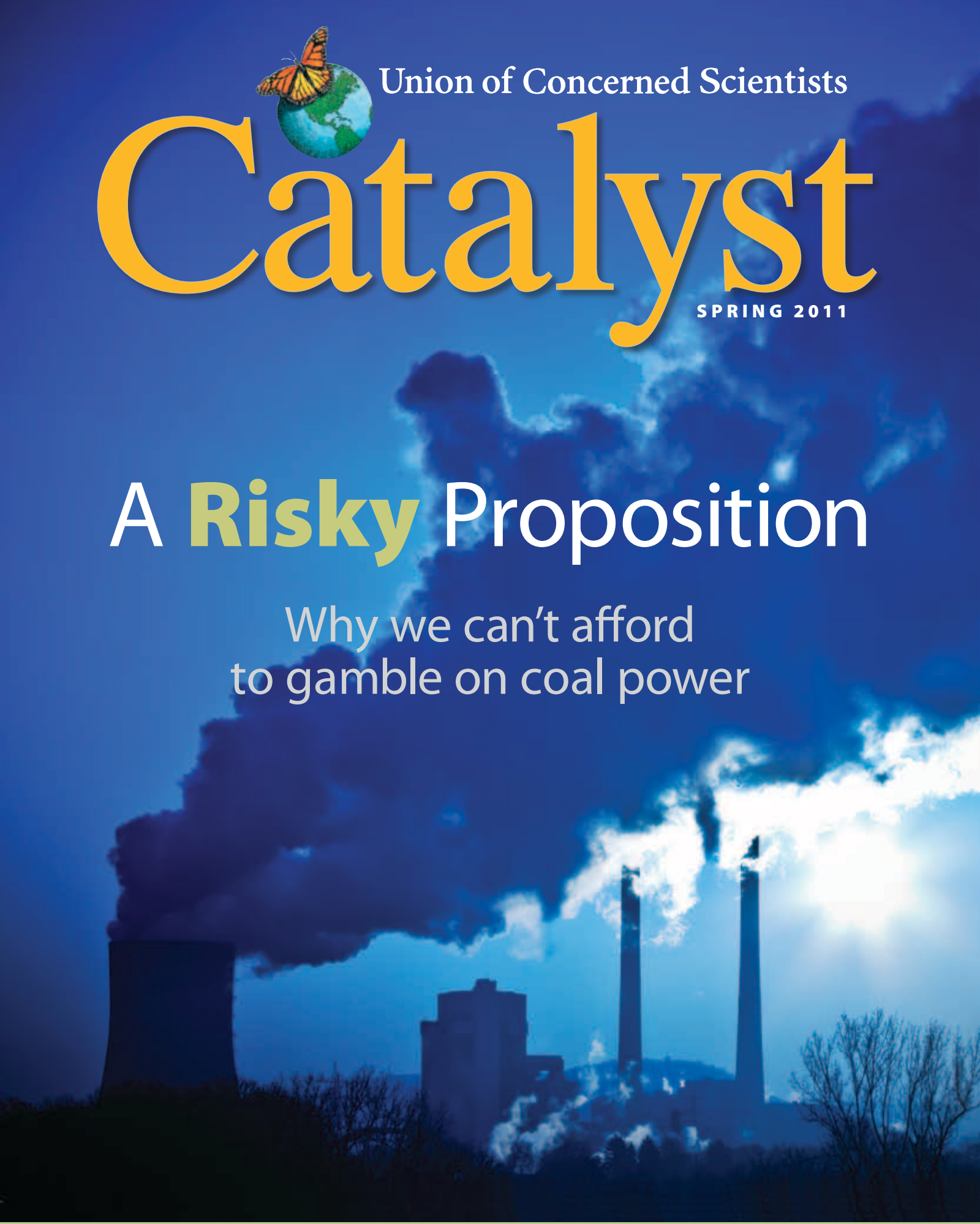

Union of Concerned Scientists

Catalyst

SPRING 2011

A **Risky** Proposition

Why we can't afford to gamble on coal power

Also: Beef's Impact on Global Warming • Climate Victory in California

Union of Concerned Scientists

Catalyst, ISSN 1539-3410, is published three times a year by the Union of Concerned Scientists. Text of articles from *Catalyst*, duly acknowledged, may be reprinted free of charge. Artwork may not be reproduced.

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NonprofitDesign.com

COVER PHOTO
© iStockphoto.com/mbbirdy

Catalyst is printed on chlorine-free recycled paper with 60% post-consumer content.

The Union of Concerned Scientists is the leading science-based nonprofit working for a healthy environment and a safer world.

This publication is financed by contributions from individual members; you can join UCS by sending a tax-deductible contribution of $25 or more to UCS Development, Two Brattle Square, Cambridge, MA 02138-3780.

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LETTERS

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

Other Alternatives to Gasoline?

I read your great story "Evolution of a Revolution" [Fall 2010, p. 10] concerning the future use of electric vehicles. I was wondering why you didn't include the potential of natural gas for solving our country's vehicle energy needs. I think there is great potential in equipping our UPS trucks, garbage haulers, postal trucks, etc. to operate on compressed natural gas. A CNG Honda seems like a great alternative to a Nissan Leaf.

Bob Myrick
Tacoma, WA

The author responds:

Natural gas can indeed play a role in helping to reduce global warming pollution, but it is not one of the best climate solutions available to us for use in cars. For example, a CNG Honda Civic delivers about a 15 percent reduction in global warming pollution compared with gasoline, but a hybrid gasoline-electric Civic costs less and delivers a 30 percent emissions reduction. While it can make sense to use CNG in some vehicles such as taxis or delivery vehicles that are fueled in a central location, expanding the CNG passenger vehicle fleet significantly would require major investments in new fueling infrastructure that would become obsolete as cleaner technologies come to market. A better use for natural gas in the transportation sector would be as a resource for generating cleaner electricity (for plug-in vehicles) or hydrogen (for fuel-cell vehicles).

David Friedman, deputy director
UCS Clean Vehicles Program

Wind's Impact on Wildlife

In your article "Offshore Wind Power" [Fall 2010, p. 14] you write, "Turbines can harm birds and bats. . . . Observational data from the 72-turbine Nysted facility in Denmark . . . show that birds tend to fly around, rather than through, the wind farm, even in conditions of poor visibility." You do not mention that bats have no mechanism for avoiding the turbine blades as their radar doesn't pick them up, leaving far too many to be killed.

Peter Shire
New York, NY

The author responds:

Existing and proposed offshore wind farms appear to be less of an issue for bats than land-based facilities. The Danish government's study of the Nysted wind farm did not assess the impact on bats, but the U.S. government's thorough environmental assessment of Cape Wind—the only U.S. project to have undergone permitting—did, and it projected "negligible to minor" impacts on bats. While the assessment concluded that more information was needed to understand bat flight behavior over the proposed site, it stated that there were no suitable bat habitats and no known bat migration corridors in the project area.

John Rogers, senior energy analyst
UCS Climate and Energy Program

Back issues of *Catalyst* are available in PDF form on the UCS website at *www.ucsusa.org/publications/catalyst.*

Photo: © iStockphoto.com/T.W. van Urk

PERSPECTIVE

Science Is Back on the Agenda

The end of 2010 brought an important, but little publicized, achievement: scientific integrity guidelines from the White House. These guidelines—one of the most significant fruits of nearly seven years of hard work by UCS—go a long way toward ensuring government policy decisions are fully informed by the best available science.

In 2004, UCS joined with a small group of leading U.S. scientists to speak out against the abuse of science by industry and government officials. This interference was preventing government scientists from doing their jobs, leading to misguided policy decisions on issues ranging from drug and food safety to childhood lead poisoning and climate change. These flawed and often corrupt practices regularly put the public's health and safety at risk.

Scientific integrity guidelines go a long way toward ensuring policy decisions are informed by the best available science.

Over the years, thousands joined our efforts to document the extent of the problem and fight back against some of the worst abuses. We brought scientific integrity to the attention of presidential candidates and helped inspire then-candidate Obama to put the issue at the top of his science agenda. Post-election, we advised his transition team and agency leaders to make commitments to transparency, accountability, and protections for government scientists. And we have pushed the administration to follow through on its commitments.

Public participation and oversight are important as well. Such oversight played a vital role in improving scientific integrity at the Department of the Interior (DOI), where political interference in science has been a problem in recent years. When the DOI released a draft policy that failed to address the conditions that led to the censorship and manipulation of employees' scientific work, UCS organized thousands of supporters to submit public comments to the agency calling for substantive changes to the policy. Nine days after the comment period ended, the DOI did an about-face and published a much-improved final plan. We are now working to ensure the plan is fully implemented.

The White House's scientific integrity guidelines come at a critical time, in the wake of an election that swept a new wave of climate science deniers into Congress. When fully implemented, the new guidelines will make federal agencies more transparent, disclosing more information about the science behind policy decisions and disarming those who want to confuse the public. Ultimately, a thriving federal scientific enterprise makes it easier for all of us to hold government officials and politicians accountable for the decisions they make about our health and environment.

—***Kevin Knobloch**, president*

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DEPARTMENTS

A New START for a Safer World

UCS plays key role in weapons treaty

On December 22, the United States took an important step toward improving global security when the Senate, in a 71–26 vote, approved the New Strategic Arms Reduction Treaty (New START). The treaty, which went into effect on February 5, requires the United States and Russia to reduce their arsenals of deployed strategic nuclear warheads by approximately one-third, and their strategic bombers and land- and sea-based missiles by about half. The two countries currently possess roughly 95 percent of the world's 20,000 nuclear weapons.

New START gives a needed boost to our campaign to reduce the risk of nuclear weapons.

UCS played a major role in securing Senate approval of the treaty. Throughout the year, our staff met with key senators, their staffs, and administration officials to explain how the treaty would improve security worldwide. We also launched an extensive print and radio advertising campaign in key states to raise public awareness of the treaty, and mobilized thousands of citizens to call for ratification through letters and phone calls to, and meetings with, their senators, and letters to the editors of their local newspapers.

The bipartisan approval of New START gave a needed boost to our campaign to reduce the risk of nuclear weapons. We are now working to build support for the Comprehensive Test Ban Treaty (which would ban explosive testing of nuclear weapons), further cuts in U.S. and Russian nuclear arsenals, and procedures to reduce the risk of an accidental or unauthorized nuclear launch.

FDA Confirms Overuse of Antibiotics

UCS landmark findings confirmed

Data released in December by the Food and Drug Administration (FDA) confirm what UCS has been saying for years: American livestock and poultry producers are using massive amounts of antimicrobial drugs. This contributes to the rise in antibiotic resistance, making it increasingly difficult to treat disease in humans.

Chickens in a CAFO (confined animal feeding operation).

In 2001 UCS released the groundbreaking report *Hogging It*, which calculated that 25 million pounds of antimicrobials were used every year in the cattle, swine, and poultry sectors for non-therapeutic purposes, such as promoting growth and preventing disease caused by the crowded, unsanitary conditions in CAFOs (confined animal feeding operations). The livestock industry has claimed for years that our estimates were much too high, yet the FDA found that nearly 29 million pounds of antimicrobials were sold in 2009 for both therapeutic and non-therapeutic use in farm animals.

The FDA's findings lend strength to our efforts to reduce the amount of antibiotics used in animal agriculture—about eight times more than the amount used for human medicine—and ensure that these vital drugs remain effective in the fight against disease.

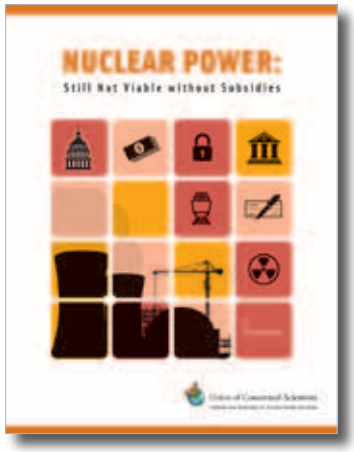
Nuclear Power's True Cost

UCS shows subsidies shift costs and risks to the public

Because nuclear reactors generate little to no heat-trapping pollution, the nuclear power industry is calling for unprecedented public investment in new nuclear power plants as a solution to global warming. Its argument is based on questionable environmental and energy-security claims and highly optimistic cost projections that often exclude the array of public subsidies nuclear power has received since its inception.

Without a comprehensive accounting of these subsidies, it is difficult to make wise energy decisions, so

Photo: Courtesy of U.S. Department of Agriculture



UCS commissioned the first such accounting—one that considers every stage of the fuel cycle, from plant construction and uranium mining to plant decommissioning and the disposal of radioactive waste. The resulting report shows that giving even more subsidies to this mature industry would further mask its true costs and risks, while shifting more of the burden to U.S. taxpayers. In addition, it would provide nuclear power with an unfair competitive advantage over solar and wind power, which can reduce global warming emissions faster and more cost-effectively, with less risk.

To read *Nuclear Power: Still Not Viable without Subsidies*, visit *www.ucsusa.org/nuclear_power*.

Reducing Big Polluters' Climate Footprint

UCS pushes states to follow EPA guidance

In January, a new program under the Clean Air Act went into effect that will protect public health and the environment by reducing heat-trapping pollution from the largest stationary sources: power plants, industrial boilers, and oil refineries. These facilities, whether newly constructed or undergoing major modifications, will now have to obtain state air pollution permits for their global warming emissions. In issuing the permits, states must consider the Environmental Protection Agency's (EPA's) "best available control technology" (BACT) guidance. This guidance emphasizes energy efficiency measures that are practical and cost-effective to implement, saving plant operators money over time (through reduced fuel costs).

New rules will reduce emissions from the largest stationary sources.

More than 22,000 UCS members wrote to their governors asking them to work together with the EPA to ensure plants in their states comply with the new permitting requirements and use the BACT guidance to reduce emissions as much as possible. We will continue to monitor state compliance while working hard to ensure that other upcoming EPA rules to curtail global warming emissions are strong.

UCS Says "Ship It Green!"

Campaign calls for cleaner trucks

Last fall, the Environmental Protection Agency (EPA) and Department of Transportation (DOT) proposed the first-ever federal regulations for medium- and heavy-duty truck fuel economy and tailpipe emissions. To raise public awareness and build support for these rules, we launched our "Ship it green!" campaign during the holiday season.

A Cozy Little Get-together

Climate scientists including former UCS staff member Melanie Fitzpatrick (left) take a break from their research in Antarctica to play our *Cool It!* card game. (Go to *www.ucsusa.org/publications* to order your copy!)

Photo: Regina Carns

Thousands of UCS activists printed "Ship it green!" labels from our website and placed them on packages, letting shippers and recipients alike know that consumers want cleaner trucks to play a part in reducing America's oil dependence and global warming pollution. Supporters also typed this message in the shipping instruction fields of online orders.

During the EPA and DOT's public comment period, more than 11,000 activists urged the agencies to pass the strongest possible rule. UCS research has shown that increasing medium-duty truck fuel economy to approximately 16 miles per gallon (mpg) and heavy-duty truck fuel economy to approximately 10 mpg could save one million barrels of oil a day in 2030 compared with today's trucks. The new rule is a critical first step toward meeting this goal.

The Crossroads of Science and Advocacy

Where UCS enhances the voices of experts

As part of our ongoing efforts to expand support for science-based policies that protect our health and environment, UCS organized several symposia and special events at scientific society gatherings last winter. For example, at the American Public Health Association meeting we discussed the essential role environmental health professionals can play in defending the EPA's ability to regulate harmful pollutants.

UCS Senior Scientist Francesca Grifo moderated an American Geophysical Union (AGU) symposium examining the ways in which institutions can support scientists as they become increasingly subject to public scrutiny. We also encouraged AGU members attending a speech by the president's science advisor to wear stickers urging the administration to release its long-awaited scientific integrity guidelines (see "Perspective," p. 3), which earned coverage in *Science* magazine and on National Public Radio.

Scientific society gatherings provide an opportunity for UCS to engage experts.

Finally, UCS hosted a well-attended American Economic Association reception at which Lord Nicholas Stern, former chief economist of the World Bank, spoke of the seriousness of global warming and the economic benefits we could reap by addressing the problem. To bring UCS to your scientific society, email *sciencenetwork@ucsusa.org*.

AGU members sign an oversized postcard at the UCS booth calling for scientific integrity in federal policy making.

Thanks for Another Good Year

Our annual report documents the impact of your donations

We encourage you to read our 2010 annual report, available online at *www.ucsusa.org/annualreport*, and review the important victories we achieved with your help last year—including successes in our efforts to mitigate the effects of climate change, promote saner nuclear weapons policies, shape a cleaner and more sustainable energy future, and ensure a safer food supply. The annual report also summarizes our audited financial statements for the fiscal year ending September 30, 2010, which demonstrate our commitment to sound management.

Photo: Michael Halpern

A Risky Proposition

The United States is placing new bets on an old—and dirty—technology: coal power plants. A new UCS report shows that this is not only a high-stakes gamble for the planet but for ratepayers as well.

By Barbara Freese

Our nation depends on coal for almost half its electricity, even though most coal-fired power plants are decades old (some dating back to the Eisenhower administration), and impose staggering costs on our health and environment. Rather than shifting away from coal, many utilities around the country are spending, or planning to spend, huge sums to retrofit old coal plants, hoping to pass the costs on to ratepayers.

These retrofits will do nothing to reduce the enormous threat coal plants pose to the climate (because today's pollution controls do not capture heat-trapping carbon emissions); on the contrary, they will increase that threat by extending the plants' lives. Furthermore, the new UCS report *A Risky Proposition: The Financial Hazards of New Investments in Coal Plants* shows that changes in the economic fundamentals of power generation could make major retrofits a losing gamble from a financial perspective too. Below we summarize the changing economic risk factors that no would-be investor in coal can afford to ignore.

Retrofits will do nothing to reduce the enormous threat coal plants pose to the climate; on the contrary, they will increase that threat by extending the plants' lives.

The Factors Making Coal Risky

Aging plants. Many of the nation's coal plants have reached or passed the end of their originally intended lifetimes: 72 percent of U.S. coal capacity is more than 30 years old, and 34 percent is more than 40 years old. These older plants are increasingly inefficient and unreliable, and face high maintenance and capital costs to keep operating economically.

The United States currently has far more electric generating capacity in place than it is projected to need for years, making it possible to retire many aging coal plants now. And as we demonstrated in our 2009 report *Climate 2030: A National Blueprint for a Clean Energy Economy*, the right mix of policies and investments would allow the United States to reliably and affordably replace more than 80 percent of its coal plants with cleaner options by 2030.

Lower demand. Cleaner energy resources have increasingly eroded the market for coal power, and this trend is likely to accelerate. Spending on ratepayer-funded efficiency programs, for example, nearly doubled between 2007 and 2009, and 27 states now—or soon will—require utilities to reduce their customers' energy demand. Twenty-nine states and Washington, DC, also have standards requiring utilities to obtain a growing percentage of the power they sell from renewable resources such as wind and solar energy, which have greatly expanded over the last few years (partly in response to such standards).

Photo: © Thinkstock.com/Barry Austin

Natural-gas-fired plants are also drawing market share away from coal. While gas prices are notoriously volatile, many analysts expect them to stay low for years, largely because of new but controversial methods of drilling that have expanded domestic production. Gas plants are also cleaner, cheaper, and faster to build than coal plants, and many existing U.S. gas plants are underutilized and could quickly displace a significant amount of coal power if operated at full capacity.

Rising prices. While renewable energy and natural gas prices have been falling, coal prices have been rising, in part because of volatile global markets. This is the main reason why "spot" prices (the going rate for buyers not already under contract) for coal from the eastern United States spiked in 2008 and are rising again as the global economy recovers. Coal from the western United States, which is currently less exposed to global trade, could become equally vulnerable to price spikes if plans to export it to growing Asian markets succeed.

Serious questions are also being raised about the size of both global and domestic coal reserves. Modern geological assessments, as well as "peak coal" projections based on past production rates, suggest we have much less economically recoverable coal than official estimates have indicated. In addition, productivity in U.S. coal mines has been dropping for years, even in the newest and youngest domestic coal fields, indicating that technological advances are no longer compensating for growing resource depletion.

Higher costs. Power plants continue to become more expensive to build and operate. The cost of building new coal plants roughly doubled between 2000 and 2008, partly due to global commodity costs, and has remained high despite the recession (see the figure). Pollution control costs have also risen. For example, the projected cost of installing an emissions "scrubber" at the 433-megawatt Merrimack coal plant in New Hampshire increased over three years from $250 million to $457 million. These trends are making banks and creditors wary

Electricity with a Side of Poison

Coal plants damage more than our climate.

The Environmental Protection Agency (EPA) is pursuing regulations that will finally reduce—but not eliminate—the following risks associated with coal power:

- **Sulfur dioxide and nitrogen oxide. The proposed Clean Air Transport Rule would require more power plants to capture these emissions, which produce ozone and particulate pollution that cause thousands of premature deaths and more than $100 billion in health-related costs each year.**
- **Mercury. The forthcoming Air Toxics Rule would require plants to capture this potent neurotoxin, which can disrupt fetal and infant brain development. Coal power produces at least half of all U.S. mercury emissions.**
- **Coal ash. Proposed rules would require safer handling of this toxic waste product, potentially forcing plants to store it in lined landfills instead of surface impoundments (which are more likely to endanger local communities with both slow leaks and catastrophic breaches).**
- **Fish kills. Coal plants withdraw vast quantities of water from adjacent water bodies, killing fish and other aquatic life as they are drawn into cooling systems. New rules could require coal plants to install cooling towers that would greatly reduce the amounts of water withdrawn and also reduce the hot water discharged (which can also harm aquatic life).**

A 2008 coal ash spill in Kingston, TN, destroyed homes and local ecosystems.

UCS is working to help the EPA fulfill its mission by defending these and other important public health and environmental safeguards (see "Newsroom," p. 5).

Photo: © J. Miles Cary/Knoxville News Sentinel

The United States currently has far more electric generating capacity in place than it is projected to need for years, making it possible to retire many aging coal plants now.

of lending large sums for coal-related projects, which may make it more costly for utilities to obtain financing.

Long-overdue application of more protective health and environmental standards also contributes to the rising cost of coal power (though the anticipated compliance costs are far lower than the benefits to human health and the environment). Many old plants still lack scrubbers, cooling towers, ash landfills, and other basic safeguards. But a number of lawsuits over the years have pushed the EPA to adopt new rules—some under a court-ordered schedule—that will likely require many plant operators to finally add pollution-reduction technologies (see the sidebar). Some members of Congress have threatened to derail these regulations, despite the evidence that the benefits far outweigh the costs. But blocking these regulations would hardly make the financial risks associated with coal's impacts go away; it would simply delay the inevitable necessity of addressing the enormous costs coal power imposes on society.

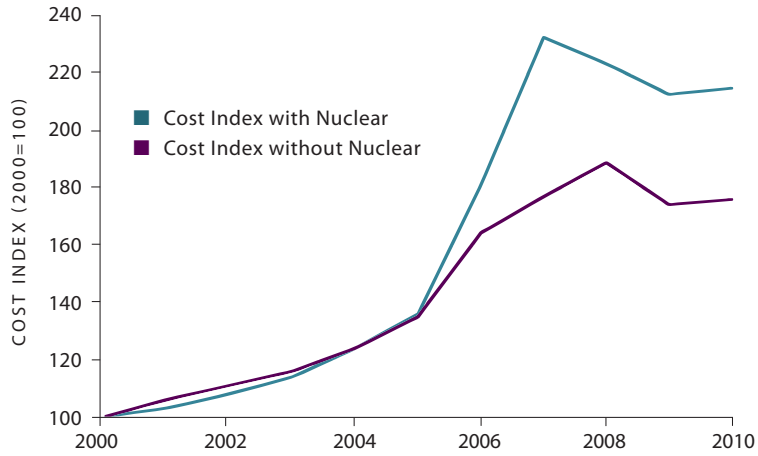
Eventual carbon regulation. Finally, coal plants face the conspicuous financial risk inherent in being the nation's greatest source of carbon dioxide, the pollutant mainly responsible for global warming. Coal plants emit more carbon dioxide than all our cars, trucks, buses, and trains combined, and emit about twice as much as natural gas plants per unit of power generated.

Congress failed to pass climate legislation last session, but the growing threat from global warming means lawmakers will have to return to the issue—perhaps repeatedly during the lifetime of any long-term investment in a coal plant. And whatever climate legislation eventually passes, a price on carbon is likely to be included because it is such an effective way to spur private-sector innovation. As our most carbon-intensive energy source, coal plants will obviously face new costs.

The industry hopes to solve its carbon problem with a pollution-control technology called carbon capture and storage (CCS). But CCS is years away from being commercially available (presuming it gets that far), and under current designs it could increase the cost of energy from a new plant by 78 percent—even more if retrofitted on an existing plant. Low natural gas costs, coal supply and cost concerns, and the defeat of federal climate legislation (which would have provided subsidies for CCS) may hinder the technology's development.

Construction Costs on the Rise

One of the economic factors making coal power increasingly risky is the cost of power plant construction in general, which roughly doubled between 2000 and 2008. Although these costs appear to have leveled out, they are still considerably higher than in 2000.



Sources: IHS CERA 2010a; IHS CERA 2008

We Can't Let History Repeat Itself

Most coal plants are owned by utilities that have a strong financial incentive to invest in capital-intensive projects like new plants or retrofits and pass the costs on to ratepayers, rather than in alternatives such as energy efficiency programs that save ratepayers money. This bias toward overbuilding contributed to the disastrous power plant investments of the 1970s, when utilities ignored rising construction costs and falling demand to waste billions on new nuclear and coal plants the nation did not need. The result was more than 100 nuclear plants and 80 coal plants being canceled after years of expenditures.

Major new, long-term investments in coal power today are a risky proposition given the availability of safer, more cost-effective alternatives. Expansion of renewable energy and energy efficiency, along with greater utilization of natural gas plants, could eliminate the need for most coal power within the next 15 to 20 years. The United States cannot afford to deepen its dependence on dirty coal when the benefits of transitioning to a cleaner energy system—protecting our health, air, water, and climate as well as strengthening the economy—are so clear.

Barbara Freese *is a senior policy analyst/advocate in the UCS Climate and Energy Program.*

Read the report *A Risky Proposition* and learn more about cheaper, more reliable energy alternatives on our website, at *www.ucsusa.org/clean_energy.*

BUILDING A BETTER BURGER

New UCS analysis concludes that changing the way we raise cattle won't stop global warming, but it can help—while reducing pollution and improving public health.

By David Kohn and Doug-Gurian Sherman

Although U.S. beef consumption has gradually declined in recent years, for many Americans beef is still what's for dinner. But it comes at a cost: in addition to other environmental impacts, raising the nation's beef cattle puts millions of tons of heat-trapping gases, mostly methane and nitrous oxide, into the atmosphere.

While reducing meat consumption can help reduce these impacts, smarter and more efficient pasture-based production systems can also make a difference. As UCS found in its new report, *Raising the Steaks: Global Warming and Pasture-Raised Beef Production in the United States*, changing production practices could reduce beef's climate impact by as much as 88 percent, and the impact from U.S. agriculture as a whole by as much as a third.

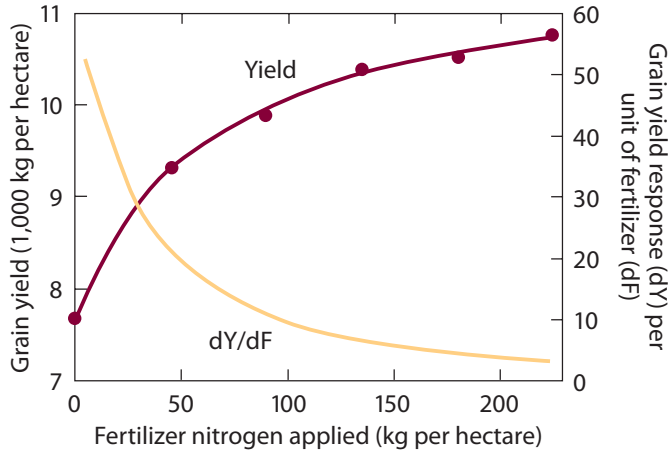
Cows Need Better Diets Too

Beef production is responsible for about 18 percent of U.S. emissions of methane, which has 23 times the warming effect of carbon dioxide. Most of this methane is generated by microbes within cows' digestive tracts; on average, one cow burps between 176 and 242 pounds' worth of methane a year.

Methane emissions from pasture-raised cattle could be reduced between 15 and 30 percent. UCS found, for example, that cattle fed a mixture of grasses and readily digestible legumes such as alfalfa often produce less methane than animals fed on grasses alone; they also grow faster and need less food. One particularly promising legume is a plant known as birdsfoot trefoil. Like all legumes, it adds nitrogen to the soil, which improves the productivity of pasture grasses. But unlike most other legumes, it contains chemicals known as condensed tannins, which appear to reduce methane production during digestion. Since all beef cattle spend at least part of their lives on pasture, adoption of such practices can reduce methane emissions from all beef production systems.

Livestock production also generates nitrous oxide, which has nearly *300* times the warming effect of carbon dioxide. This compound is produced from nitrogen in manure, legumes, and nitrogen-based fertilizers that are widely used in the United States and other developed countries. Farmers can reduce these emissions by optimizing fertilizer application and spreading their cattle out over all the available land, which spreads

More Is Not Necessarily Better



Source: Cassman et al. 2003.

As this graph shows, overapplying fertilizer to crops can do more harm than good. For example, adding more than 100 to 150 kilograms of nitrogen per hectare (88 to 132 pounds per acre) produced little additional yield from cornfields in eastern Nebraska. Some of the excess nitrogen is converted to heat-trapping nitrous oxide.

manure evenly on pastures and allows more of its nitrogen to be used by pasture plants rather than escaping in the form of nitrous oxide.

To Graze or Not to Graze?

Despite extensive research, one key question remains unresolved: do pasture operations or CAFOs (confined animal feeding operations) have a smaller climate footprint? Some studies have found that CAFO cattle, which fatten quickly due to their unnatural, carbohydrate-rich diet of corn and other grains, produce less methane because they are slaughtered sooner than their pastured counterparts. However, UCS found that there is potential to improve the nutritional value of pasture crops, which could substantially reduce the advantage CAFOs currently show in both growth rate and methane emissions.

Raising the nation's beef cattle puts millions of tons of heat-trapping gases into the atmosphere.

Smart pasture operations do have some current advantages over CAFOs. For example, compared with grain crops grown for CAFOs, well-managed pastures better protect soil from erosion. They generally sequester more carbon dioxide as well, which may offset a substantial portion of the total potential heat-trapping emissions from beef production. Pasture systems also offer a variety of non-climate-related benefits for both the environment and cows alike (see the sidebar).

Global Change Begins at Home

Federal policies are needed to initiate a large-scale shift to the production practices described above. UCS recommends that the United States increase research into improving the productivity and nutritional value of pasture crops, as well as the ability of pasture plants to store carbon and use nitrogen more efficiently. We also recommend that the U.S. Department of Agriculture provide financial incentives and technical assistance to help and encourage farmers to adopt climate-friendly practices such as increasing the ratio of legumes in cattle diets and applying amounts of nitrogen fertilizer appropriate to crop needs.

A better burger would be no small achievement. Beef production generates about 160 million metric tons of heat-trapping emissions per year—equivalent to the annual emissions of 24 million cars and light trucks. While other U.S. sectors such as transportation generate much more, the United States accounts for so much of the world's heat-trapping emissions—about a quarter of the total—that beef production nevertheless offers an important opportunity to help curb global warming.

These findings could have an even greater impact outside our borders. Livestock farming generates almost a fifth of the world's heat-trapping emissions, according to a 2006 report by the United Nations. The world's cattle population now stands at 1.5 billion, and will likely increase considerably over the next several decades as consumers in developing countries become wealthier and eat more meat. By implementing the steps outlined in our report, the United States could set an example for other countries to follow and lay the groundwork for healthier and more sustainable agriculture worldwide.

David Kohn *is a former press secretary at UCS.* ***Doug Gurian-Sherman*** *is a senior analyst in the UCS Food and Environment Program.*

The Grass Is Greener—in More Ways than One

Raising cows on pasture has benefits beyond lower global warming emissions.

Most cattle spend significant parts of their lives in crowded CAFOs, a production system that poses several environmental and public health risks. For example, CAFO cattle are routinely fed antibiotics to compensate for the filthy conditions and an unhealthy grain-heavy diet (cattle are not adapted to eat grains); this practice contributes to antibiotic resistance, making it more difficult to treat food-borne diseases in humans. In addition, growing grain crops for animal feed requires large amounts of pesticide and fertilizer that can pollute water supplies and harm marine life. Pollution also results from the massive amounts of manure generated in a relatively small area by CAFOs.

Pasture operations largely avoid these problems. Cows raised on their natural diet of forage rarely require antibiotics, helping to reduce the use of antibiotics (and the risk of antibiotic resistance). And cows spread out on pasture produce less concentrated manure than in CAFO feedlots, reducing the manure disposal problems that plague CAFOs.

Learn more about the climate impact of beef production, and read the full text of the report, on the UCS website at *www.ucsusa.org/raisingthesteaks.*

Viva Los Bosques: Forests Win in Cancun

UCS research helped persuade the international community that protecting tropical forests is not only necessary for addressing climate change, but can also preserve indigenous peoples' livelihoods.

By Pipa Elias

Last December, UCS staff traveled to Cancun, Mexico, for the annual United Nations climate negotiations, joining government representatives, activists, business leaders, and other nonprofit groups to push for strong international action on global warming. Tensions were running high, as the Kyoto Protocol is set to expire in 2012 and virtually no progress was made at the previous year's meeting on post-Kyoto actions to reduce heat-trapping emissions. While the Cancun negotiations made only marginal progress toward this goal, during the final hours more than 190 countries agreed on a number of important steps, most notably a resolution to conserve tropical forests through a set of policies known as REDD+.

UCS Director of Strategy and Policy Alden Meyer shaped media coverage of the talks in Cancun, putting pressure on negotiators.

UCS worked hard to secure delegates' support for these policies, which aim to reduce emissions from deforestation and forest degradation in developing countries (REDD) while also restoring forests and increasing carbon storage in existing forests (the "plus"). Because deforestation is responsible for about 15 percent of the world's global warming emissions, REDD+ can play an important role in global emissions reductions.

Ensuring a Strong Future for Forests

As part of our efforts to foster international consensus on REDD+ and ensure these policies encourage scientifically sound accounting and measurement of tropical forest carbon, UCS released a new report in Cancun titled *The Plus Side: Promoting Sustainable Carbon Sequestration in Tropical Forests. The Plus Side* explains how a variety of forestry activities can be used to achieve the goals of REDD+ while meeting strict standards for protecting the ecosystem and local communities. Complementing the report was a fact sheet, "Deforestation Today: It's Just Business," which explains how large agricultural companies that remove timber from and burn forests in tropical countries—replacing them with soybean, cattle, or palm plantations to produce palm oil—are the primary drivers of deforestation today.

The Cancun Agreement established preliminary steps to protect tropical forests and addressed many of the issues UCS has been speaking about for many years. We are especially pleased that the agreement:

- establishes that the goal of tropical forest protection is to mitigate climate change by reducing emissions and increasing sequestration;
- urges all countries to address the drivers of deforestation and work together to determine how policies can reduce pressure on tropical forests;
- enables a UN technical committee to establish strong rules for setting baselines and measuring emissions;
- allows forest protection initiatives to be funded in several different ways; and
- requires countries to adhere to safeguards on human rights, community participation, and protection of biological diversity, which should help promote sustainable development in many tropical countries.

Our Work Is Not Done

Through years of collaboration with international policy makers, UCS has succeeded in shaping a strong, scientifically sound REDD+ agreement. We recognize, however, that this alone will not save tropical forests. We will work to ensure that developing countries get the support they need to make REDD+ a reality, that REDD+ implementation is both environmentally and socially sound, and that it achieves real and meaningful reductions in heat-trapping emissions.

Patricia (Pipa) Elias *is a former analyst/advocate for the UCS Tropical Forest and Climate Initiative.*

Our collection of reports and fact sheets on REDD+ can be accessed on the UCS website at *www.ucsusa.org/REDD*.

Photo: Elliott Negin (Alden Meyer)

Promising Signs on the Showroom Floor

As part of our campaign to cut projected U.S. petroleum consumption in half by 2030, UCS has been actively helping consumers become smarter shoppers (through *hybridcenter.org*), pushing federal agencies for stronger fuel economy and emissions standards, and engaging with automakers to influence their vehicle designs. The fruits of these efforts were on display in November at the Los Angeles Auto Show, which has become a preeminent green vehicle showcase. My colleagues and I headed to L.A. following the release of our *Automaker Rankings 2010* report—the fifth in a series that regularly evaluates manufacturers' bottom-line environmental performance—to present the winner of this year's rankings with our Greenest Automaker award and to see what new options automakers have to offer.

Our analysis is used by reporters from auto blogs to the *New York Times* to track industry performance.

A Force for Change in the Industry

For the last 10 years, our *Automaker Rankings* reports have publicly rewarded the good actors and exposed the bad, garnering considerable attention from the media and, increasingly, the manufacturers themselves. Our analysis is used by reporters from auto blogs to the *New York Times* to track industry performance and provide valuable and credible context when manufacturers attempt to undermine regulatory improvements. The 2010 report also prompted private conversations with multiple CEOs and other high-level industry executives, affording UCS a valuable opportunity to exchange perspectives with key industry decision makers.

The author presented the UCS Greenest Automaker award to Honda's CEO, then answered UCS members' questions about new vehicles.

This year, I had the privilege of presenting the Greenest Automaker award to Honda's President and CEO Takanobu Ito, who was understandably pleased with his company's fifth consecutive first-place finish—though Honda barely squeaked out a victory this time over Toyota and Hyundai. (On the other end of the spectrum was Chrysler, which ranked worst among the eight major automakers.) It should be noted that as fuel economy and emissions standards become more stringent over time, the difference between automakers will narrow even more, forcing Honda to work harder if it wants to continue touting its status as Greenest Automaker in its advertising.

Where Hype Meets Hardware

In addition to presenting the award, I spent a few days at the show analyzing products and talking about the latest developments with a host of reporters. One of the highlights, in my opinion, was seeing several new vehicles that can go 40 miles per gallon of gas on the highway using conventional technology, and for a reasonable price—an achievement that automakers dismissed as implausible only a few years ago. My colleagues and I also had the opportunity to walk the show floor with some local UCS members, answering their questions and giving them the tools to not only make better purchase decisions but also help their friends and relatives do so.

I was pleased to see that, after many years of stagnation, some automakers are making smarter product choices with new designs, new technologies, and new approaches. Others, however, continue to deploy their lawyers and lobbyists to fight progress. Persistent efforts by consumers, government, and forward-looking industry leaders can make further progress possible, and UCS will be there to help spur innovation and hold the industry accountable every step of the way.

*—**Jim Kliesch,** research director, UCS Clean Vehicles Program*

See how your car's manufacturer stacks up in our *Automaker Rankings 2010* report, online at *www.ucsusa.org/clean_vehicles.*

Photos: Aaron Huertas

Big Victory against Big Oil

During the November 2010 elections, one issue garnered more votes than any other initiative or candidate in the entire country: global warming. In California, nearly six million people came to the polls to reject a multi-million-dollar campaign by oil companies and other polluters to block Assembly Bill (AB) 32, the state's landmark program to reduce global warming emissions. UCS played an integral role in ensuring a positive outcome.

Our work on the campaign began early last spring when we learned that Texas-based oil companies Valero and Tesoro had hired signature gatherers to qualify a ballot initiative, Proposition 23, they hoped would stall climate action not just in California but nationwide. Prop. 23—the first statewide referendum on global warming in the United States—would have suspended AB 32 until the state unemployment rate fell to 5.5 percent for a full year. The oil companies knew full well this has happened only three times in the last 40 years, and is not expected to recur for years to come.

As part of the "No on Prop. 23" campaign team, UCS helped build a bipartisan coalition of more than 1,000 businesses, unions, health experts, environmental organizations, community and social-justice groups, and local governments that support AB 32. This diverse group, representing a wide variety of backgrounds and perspectives, helped to expose the oil companies' deceptive advertising and demonstrate that climate and clean energy policies create jobs, improve air quality, and protect public health.

Getting Out the Vote

UCS staff, board members, donors, and activists stepped up like never before to ensure that California's climate policies would be protected. Over the course of a few short months, UCS undercut the oil companies' dire economic warnings with an analysis showing that AB 32 will have a barely noticeable impact on small businesses and organized a letter to California policy makers signed by 118 Ph.D. economists stating that delaying climate action would prove costly to the state. We also distributed more than 33,000 information cards, helped UCS activists organize 80 house parties in more than 60 cities across the state, and held several public events, including one I spoke at in Los Angeles that drew about 100 attendees.

The author addresses a "No on Prop 23" rally in Los Angeles.

We helped our activists organize 80 "No on Prop. 23" house parties in more than 60 cities across the state.

In addition, more than 350 volunteers and 50 UCS employees from across the country called nearly 20,000 UCS members and likely green voters in the state, explaining the negative impact Prop. 23 could have on the economy and environment. One volunteer told me how a person she called said he was voting yes on Prop. 23 because he was out of work and needed a job; she replied that she was unemployed too, but was voting no because AB 32 would bring clean energy jobs to California. The man changed his mind.

The People Have Spoken

The fact that Prop. 23 and the big polluters were defeated soundly—by a 23 percent margin—sent ripples across the world, injecting hope into the international climate negotiations in Cancun (see p. 12). It also spurred California to adopt the world's most comprehensive cap-and-trade program in December, which will go into effect early next year. We hope that other states and, ultimately, Capitol Hill will look to California and see that American voters want to shift away from the fossil fuel status quo and build a clean energy economy.

*—**Erin Rogers,** western region manager in the UCS Climate and Energy Program*

Visit the UCS website at *www.ucsusa.org/stop23* to learn more about our successful campaign.

Photo: Sarah Roquemore

Change Begins at Home(room)

In July 2009, UCS received two unexpected donations totaling $777 from the Urban School of San Francisco, an independent high school near Golden Gate Park. Intrigued, we contacted the school and learned that its Community Outreach Club wanted to donate to an organization promoting environmental awareness, and had raised the money through bake sales, candy-grams, and a "Tie-Dye for a Cause" event.

The club raised money for UCS through bake sales and candy-grams.

The club was "immediately drawn to UCS," according to its current co-presidents, seniors Sara Brooks and Sarah Maccabee, "because of its comprehensive, creative, and preventative approach to environmental issues. UCS provides answers for how to better our relationship with the environment on both governmental and public levels."

The club does more than raise money; its 20 members are dedicated to fostering students' awareness of both local and global issues, and giving students opportunities to address these issues through community service. For instance, last fall the club concentrated on providing support for the nearby community of San Bruno after a fire ripped through the area. The club is also helping with the Urban School's efforts to make its operations more sustainable, and invited UCS Analyst Laura Wisland to address the school about energy use, the future of energy in California, and ways to reduce global warming emissions.

The Urban School's Community Outreach Club has raised more than $1,400 for UCS over the last two years and, perhaps more important, is helping students develop leadership skills and teaching them how to effectively engage with the community around them. As Sara and Sarah explain it, these skills will ensure that Urban School students play a "necessary and significant" role in society in the years ahead.

Sarah Maccabee and Sara Brooks

Union of Concerned Scientists

Two Brattle Square
Cambridge, MA 02138-3780

Member of EarthShare

THE CHARITABLE IRA ROLLOVER IS BACK!

Photo: © iStockphoto/Kate Leigh

If you have savings in an individual retirement account (IRA) that you may not need during your lifetime, you can use it to support UCS while reducing your tax liability.

The Tax Relief Act of 2010, which passed at the end of last year, renewed a special charitable giving provision that enables individuals to make tax-free charitable distributions of up to $100,000 from traditional IRAs and Roth IRAs.

To take advantage of this opportunity you must:

- Be at least 70½ years old
- Make the gift before December 31, 2011, when the provision is scheduled to expire

As you know, retirement plan assets are typically subject to a heavy tax burden. If you have saved tax-deferred income in an IRA and are currently required to take distributions, any amount you donate directly to UCS can count toward your minimum required distribution. It is an easy, tax-free way to help advance our work on some of the most critical environmental, security, and health issues of our time.

For more information, visit the UCS website at www.ucsusa.org/IRArollover, or contact Adam Kessler, Legacy Gifts Officer, at (800) 666-8276 x8040 or akessler@ucsusa.org.