

Annual Report 2004



Union of Concerned Scientists

Citizens and Scientists for Environmental Solutions

The Union of Concerned Scientists is a nonprofit partnership of scientists and citizens combining rigorous scientific analysis, innovative policy development, and effective citizen advocacy to achieve practical environmental solutions. Established in 1969, we seek to ensure that all people have clean air, energy, and transportation, as well as food that is produced in a safe and sustainable manner. We strive for a future that is free from the threats of global warming and nuclear war, and a planet that supports a rich diversity of life. Sound science guides our efforts to secure changes in government policy, corporate practices, and consumer choices that will protect and improve the health of our environment globally, nationally, and in communities throughout the United States. In short, UCS seeks a great change in humanity's stewardship of the earth.



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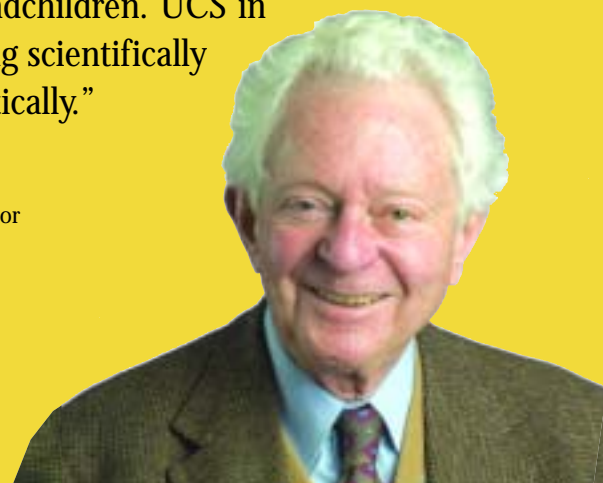
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“ I can’t remember any epoch in which so many science policy issues were submerged in order to advance a White House political agenda. The most devastating effect is the United States’ withdrawal from international treaties and efforts in the environmental field, most notably in global climate change.

“The thinning of our polar ice caps is frightening—I truly fear for the lives of my grandchildren. UCS in my view is unique in thinking scientifically and, of necessity, acting politically.”

Leon Lederman

Director, emeritus, Fermi National Accelerator Laboratory, U.S. Department of Energy
 Resident scholar, Illinois Mathematics and Science Academy
 Winner of the Medal of Science (1965) and the Nobel Prize in Physics (1988)



“ I greatly appreciate the efforts of UCS to examine instances in which political agendas appear to be undermining the integrity of science and to report the facts.”

Neal Lane

University professor and senior fellow, James A. Baker III Institute for Public Policy, Rice University
 Former assistant to the president for science and technology and director, Office of Science and Technology Policy
 Former director, National Science Foundation



A Message from the Chair and President



Herman Farber

Kurt Gottfried and Kevin Knobloch

The Union of Concerned Scientists has never faced a more challenging political and policy environment. The problems facing life on Earth are increasingly urgent, yet the political leadership in the White House and on Capitol Hill is unacceptably blocking scientific input and taking our country in the wrong direction.

Terrorists threaten to attack the United States using the most destructive weapons available to them, but the Bush administration has still not taken the available measures needed to adequately secure nuclear materials around the globe. The scientific consensus that global warming is under way and must be slowed grows stronger with each new study, but the Bush administration refuses to take responsible action. As UCS documented in 2004, this administration has systematically censored, suppressed, and misrepresented scientific research, stacked scientific advisory committees with industry insiders, and used political litmus tests rather than scientific credentials to determine whether a scientist is invited to advise the government.

Despite this toxic climate, UCS and our supporters achieved a number of victories in 2004. Our Clean Energy and Clean Vehicles teams both helped make precedent-setting policies a reality: in Colorado, voters approved the nation's first ballot initiative mandating a large increase in new renewable energy production, and California enacted the first regulations in the nation requiring reductions of global warming emissions from cars and passenger trucks. Our Global Security team helped eliminate funding for new nuclear weapons. And our Campaign to Restore Scientific Integrity to federal policy making drew widespread attention to the Bush administration's abuses.

Yet this level of change is not commensurate with the urgency of the problems we're working to solve. While continuing to fight for incremental progress on our issues, we must also redouble our efforts to build public demand for the major changes we know are needed.

This will not be possible without the ongoing support of our longtime donors, foundation partners, members, and activists. Your contributions in our fiscal year 2004 enabled us to increase our scientific and technical capacity, which is central to our mission and makes UCS unique in the environmental community. You also helped improve our ability to get our message out to policy makers: the challenges we face are urgent and daunting, but practical solutions exist.

We thank you for your support and partnership.

Kurt Gottfried, Chair

Kevin Knobloch, President

Are “Pharma” Crops a Threat to the Food Supply?

Farmers raising food crops once had to worry about pests, weather, diseases, and prices. Now, in some states, they face a new threat: contamination from crops genetically modified to produce pharmaceutical or industrial products.

For several years, UCS has monitored the development of these so-called pharma crops out of concern that the drugs or industrial compounds they produce could contaminate the food supply. That concern was validated in 2002 when pharma corn contaminated a half-million bushels of soybeans; only last-minute intervention prevented the contaminated soybeans from entering the U.S. food and feed supplies.

In response to that incident, UCS launched an effort to determine whether food crops such as corn and soybean could be used as pharma crops while ensuring complete protection of the food supply. That effort culminated in our 2004 report *A Growing Concern: Protecting the Food Supply in an Era of Pharmaceutical and Industrial Crops*, authored by six agricultural experts commissioned to analyze the problem. The experts' major conclusion was that corn and soybean (as they are currently produced, stored, and transported) cannot be used as pharma crops in the United States while ensuring virtually zero contamination of the food and feed supplies.

Another report released in 2004, *Gone to Seed: Transgenic Contaminants in the Traditional Seed Supply*, also had serious implications for the pharma crop industry. In *Gone to Seed*, we presented the results of the first study to systematically address concerns that the seed supplies for traditional crop varieties might be contaminated with transgenic material from genetically engineered varieties. Results from our small pilot study confirmed these concerns. We found pervasive, low-level contamination of traditional seeds of corn, soybean, and canola by DNA sequences from commercial transgenic varieties.

Although we were unable to test for pharma crop contaminants in our pilot study, the results suggest nonetheless that the current seed production process is vulnerable to such contamination. Traditional seeds could be contaminated by genes from pharma crops as well as many other engineered varieties grown in the United States but not approved for the food supply.

The research reported in *A Growing Concern* and *Gone to Seed* leads us to believe that pharma crop contamination of the food supply may have occurred already and may be ongoing. As a result, we are urging the U.S. Department of Agriculture to immediately ban the

outdoor production of food crops genetically modified to produce pharmaceutical or industrial substances until an effective regulatory regime can be put in place. UCS will gather support for such a ban in the coming months from a range of groups interested in protecting our food supply, including major U.S. food companies.



UCS Food and Environment Program Deputy Director and Senior Scientist **Jane Rissler** weighs seeds before shipping them to DNA-testing labs.

Putting Science (and the Abuse of Science) on the Front Page

Few initiatives that UCS has undertaken since its founding in 1969 have generated as much attention as our decision to investigate the ways in which the Bush administration has manipulated and censored science to serve its political agenda. From the moment we released our February 2004 report *Scientific Integrity in Policy Making* in conjunction with a statement signed by some of America's most respected scientists, our organization was thrust into the spotlight like never before.

Traffic on the UCS website increased by a factor of almost 10. Nearly every major wire service and U.S. daily newspaper reported the charges, and the president's science advisor was forced to respond. Media outlets around the world soon picked up the story, editorials supporting our effort began appearing in many prominent newspapers, and more than 25,000 UCS activists called for a Senate investigation.

Our findings were damning. On issues including childhood lead poisoning, mercury emissions, reproductive health,

endangered species, climate change, and the question of weapons of mass destruction in Iraq, agency officials had distorted or suppressed the work of their own scientists when the results did not support the president's policies. In addition, candidates for scientific advisory posts had been asked inappropriate questions about their political views. A follow-up report we published in July provided even more evidence of a pattern of abuse.

The initial 62 signers of our statement included former science advisors to both Democratic and Republican administrations dating back to President Eisenhower, along with many winners of the Nobel Prize and National Medal of Science. By year's end, more than 6,000 scientists, medical professionals, and engineers had endorsed the statement.

Capitalizing on this momentum, we organized a series of roundtables at universities around the country, drawing close to 2,000 participants to discuss the problem and potential solutions. We also helped disclose an internal survey of Food

and Drug Administration scientists that raises serious concerns about the agency's commitment to assessing drug safety. Nearly one in five respondents, for example, said they had been pressured to recommend approval for a drug despite reservations about its safety.

What has been gained and what comes next? We have succeeded in familiarizing Congress and the national media with scientists' concerns, and we are building support among various scientific and public health associations for needed reforms. The National Academy of Sciences, for example, issued its own report condemning political litmus tests. Rep. Henry Waxman (D-CA) has introduced legislation on the issue. And the Office of Management and Budget reacted to pressure from the scientific community by dropping some of the most egregious elements of its plan to centralize control over federal agencies' use of scientific peer review.

Our priorities for 2005 begin with formulating and advocating policies that





ANTIBIOTIC RESISTANCE

A National Problem Hits Close to Home

Anne Kapuscinski knew her urinary tract infection was a common illness that should have been easily remedied with antibiotics. Yet after taking the prescribed drugs for a few days, her condition was deteriorating and she realized the drugs were not working. Anne's infection was completely resistant to the antibiotic most commonly prescribed for her condition, and by the time her doctor prescribed a different drug, her kidneys were threatened with serious damage. Though the second antibiotic proved effective, Anne did not fully recover for almost six months.

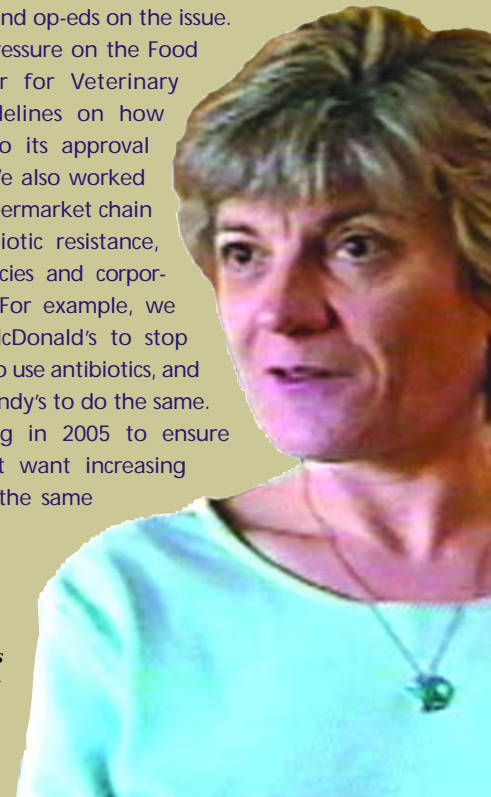
As a biologist and UCS board member, Dr. Kapuscinski understood the implications of her experience and allowed us to publicize the story, thereby dramatizing the real-life consequences of the overuse of antibiotics. Recent scientific research, which characterizes urinary tract infections as food-borne illnesses and suggests that antibiotic resistance in these infections may have been generated in animals, adds to the mounting evidence that the overuse and misuse of antibiotics in agriculture leads to human infections that are more virulent, longer-lasting, and more costly to treat.

In response to this looming public health crisis, UCS has long advocated the elimination of nontherapeutic antibiotic use in animal agriculture. Working with our colleagues in the Keep Antibiotics Working coalition (KAW), we supported the federal Preservation of Antibiotics for Medical Treatment Act (PAMTA) in 2004 by obtaining more than 380 endorsements—including those of the American Medical Association and other mainstream medical organizations—and generating numerous letters to the editor, newspaper editorials, and op-eds on the issue.

Together with KAW, we kept pressure on the Food and Drug Administration's Center for Veterinary Medicine, which issued new guidelines on how antibiotic resistance will factor into its approval process for new veterinary drugs. We also worked with the Wild Oats natural-foods supermarket chain to educate consumers about antibiotic resistance, and with specific government agencies and corporations to change existing policies. For example, we had success in 2003 persuading McDonald's to stop purchasing poultry from suppliers who use antibiotics, and are now urging Burger King and Wendy's to do the same.

We will also continue working in 2005 to ensure Congress enacts PAMTA. We don't want increasing numbers of people going through the same experience as Anne Kapuscinski.

"One morning it hit me that I was really sick," recalls UCS board member Anne Kapuscinski. "The room started to spin. I broke out in chills."



will help prevent any future administration from undermining government research and advisory committees. We will continue to publicize specific abuses, encourage scientists to speak out, educate decision makers about the importance of independent scientific advice, and pursue better congressional oversight of federal agency conduct.

We will also continue polling government scientists to document the effect these abuses have on their morale. It has taken decades to build world-class scientific staffs at federal agencies, and the best and brightest scientists will neither stay in nor be attracted to public service if political appointees actively undermine their input. The continued abuse of government research, therefore, not only threatens our nation's public health, safety, and environment, but our scientific leadership in the world.

Restoring scientific integrity to federal policy will remain a top priority for UCS in the months and years ahead.

Reaching a Tipping Point on Climate Change

A few years ago, you would not have seen articles in mainstream magazines declaring that global warming is real, is worsened by human activities, and must be confronted. That changed in 2004 when these same points were made in the pages of *BusinessWeek*, *National Geographic*, and *Discover*, which named global warming the year's top science story.

Yet the White House not only irresponsibly ignores the international scientific consensus but also censors its own scientists when their public statements and writings reflect that consensus. We are reminded of the moment in 1994 when tobacco executives sat in the Capitol and declared that nicotine was not addictive—even though everyone knew that was a lie. While we make the case that our national leaders risk looking similarly foolish unless they take action, we will push for progress at the state and regional levels.

California drew much of our attention in 2004 because of its environmental leadership and unique power to set pollution standards other states can follow, and this strategy proved tremendously successful. The foundation for much of our work in the Golden State was the report *Choosing Our Future: Climate Change in California*, a collaborative effort between UCS and 17 prominent local scientists and economists that shows what awaits Californians later in this century should global warming go unchecked: a striking increase in extreme heat and heat-related deaths, severe water shortages, and losses to the state's prominent wine and dairy industries.

This study galvanized support across the state for measures to reduce emissions of heat-trapping gases—measures such as those outlined in our report *Climate Control: Global Warming Solutions for California Cars*. Conventional technologies, our vehicle engineers argued, could reduce heat-trapping emissions by 40 percent for an extra \$1,900 per vehicle (and pay for themselves in less than five years). Both UCS studies proved critical to the California Air Resources Board in enacting the first-ever standards to limit heat-trapping emissions from motor vehicles. In setting a precedent for the rest of the country, California's plan represents significant progress.

When automakers responded by filing suit to stop the new standards, UCS organized 50,000 activists—a market potentially



© 1989 Anthony Dunn

worth more than one billion dollars in new car sales—to ask these companies to invest in cleaner cars rather than lawsuits. UCS will work with other environmental organizations in 2005 to help defend California's standards while bringing them to other states.

Leading with Science

UCS HAS EARNED THE RESPECT of lawmakers and environmentalists alike through our unique combination of scientific expertise and political advocacy. Our leadership on climate policy is reflected in the fact that the Intergovernmental Panel on Climate Change selected Global Environment Program Director Peter Frumhoff to co-author a chapter in the next edition of its influential assessment of climate science.

Policy makers and reporters who know our reputation listen to what we have to say, and in this way we are shaping the national conversation about global warming. For example, we helped draw widespread attention to a 2004 study of climate change in the Arctic, and capitalized on the media's curiosity about the disaster movie *The Day after Tomorrow* to separate fact from fiction on the subject of abrupt climate change.

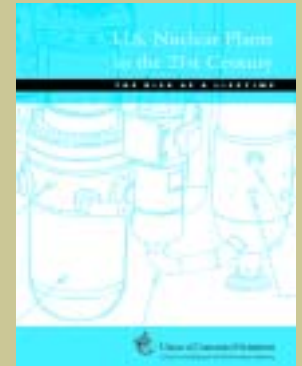
Our focus in 2005 will remain on state and regional efforts to combat global warming, but we will also continue building support on Capitol Hill for the eventual passage of the McCain-Lieberman Climate Stewardship Act—an important first step in reducing our nation's heat-trapping emissions.

The Nuclear Power Industry Plays with Fire

When a serious safety problem was discovered in 2002 at the Davis-Besse nuclear power plant in Ohio, UCS got involved to ensure the repairs ordered by the plant's owner and the Nuclear Regulatory Commission (NRC) corrected both the problem and the oversight failures that allowed it to develop. Incredibly, as bad as the situation at Davis-Besse was, it may be worse at New Jersey's Salem and Hope Creek plants, where workers in 2004 refused to restart a reactor they feared was headed for disaster.

There are currently 103 nuclear power plants in the United States. All were built before 1975, and none were expected to continue producing power for more than 30 years. Nevertheless, as the operating licenses for these plants come up for review by the NRC, their owners are requesting—and receiving—20-year extensions. Because every technology breaks down over time, the 2004 UCS report *U.S. Nuclear Plants in the 21st Century: The Risk of a Lifetime* argued that the NRC was practically inviting tragedy. We also offered 10 recommendations to ensure proper risk management.

The focus of our efforts in 2005 will be to ensure that specific safety issues such as the problems at Salem and Hope Creek are addressed, and to pressure both Congress and the NRC into providing much-needed industry oversight. Public safety should not be compromised just to keep aging plants running.



Another major environmental milestone influenced by our analyses was the California Public Utilities Commission's ruling that electric utilities doing business in the state must begin accounting for the cost of global warming when choosing new energy suppliers. This decision gives a welcome boost to renewable energy.

UCS is committed to ensuring the gains made in California this past year are secured in 2005 and, just as important, that our ongoing efforts to reduce heat-trapping emissions in the Northeast also produce real results. As technical advisor to the Regional Greenhouse Gas Initiative, we not only have a central role in creating what would be the first carbon trading market in the United States, but also an opportunity to engage both coasts—which together produce more carbon dioxide than every other country except China and Russia—in the struggle to slow climate change. And that could bring us to the turning point when Washington has no choice but to join the fight.

AP/Wide World Photos



Plans for New Nukes Are Knocked Off Course

At a time when many construe any criticism of defense spending as unpatriotic, the last thing you might expect to see is a Republican member of the House of Representatives opposing the plans of the president. But that is exactly what happened in 2004 when Rep. David Hobson of Ohio emerged as a surprising champion for UCS and everyone opposed to the development of new nuclear weapons.

President Bush had requested almost \$36 million in funding for research into new, more “usable” nuclear weapons.

Rep. Hobson, as chairman of the House subcommittee that controls nuclear weapons spending, argued it is hypocritical for the United States to warn other nations not to develop nuclear weapons while pursuing them itself.

UCS could not agree more. Moreover, our research has demonstrated that the administration’s proposed nuclear “bunker buster” cannot do what its proponents believe it can. Rather than destroying a deeply buried bunker without contaminating the surrounding area, as many hope, this weapon would

throw up an enormous cloud of deadly radioactive dust and debris. It is also more likely to release rather than destroy any chemical or biological agents stored in the bunker, undermining another rationale for its development. Our analysis helped bolster Rep. Hobson’s case as he made the courageous decision to eliminate all of the requested funds.

Along with this stunning victory came progress in the Senate, where we helped initiate a bipartisan working group on nuclear proliferation and U.S. nuclear weapons policy. UCS worked closely with the group’s Democratic co-chair, Sen. Dianne Feinstein of California, and successfully encouraged Sen. John McCain of Arizona to serve as the Republican co-chair—a key to ensuring cooperation between the parties on these issues.

As we move forward in 2005, increased capacity in both our lobbying and analytic capabilities will help bolster our support of the Senate working group, Rep. Hobson, and other champions in the House. The victories of the past year validate our long-time strategy of working on both sides of the political aisle. Now we need to find more policy makers with the integrity of Rep. Hobson.

Calling U.S. development of new nuclear weapons hypocritical, Rep. David Hobson (R-OH, right) eliminated all the funds requested by President Bush for that purpose.



Nuclear test: U.S. Department of Energy



AP/Wide World Photos



No Surprise: A Flawed System Flops

They can't say we didn't warn them. UCS has long been critical of the Pentagon's plans for a system designed to intercept missiles headed for the United States. Its technical deficiencies are serious enough that our 2000 report *Countermeasures* helped convince the Clinton administration not to deploy the system. President Bush, however, vowed to deploy the same critically flawed system by October 2004 even though it gives the public a false sense of security.

Last May, our report *Technical Realities* explained that the simplest countermeasures—painted balloon decoys, for example—would defeat the system, and that the tests conducted to date bear no resemblance to a real attack since they included advance warning of the mock attack and numerous artificial constraints. The Missile Defense Agency nevertheless appeared ready to proceed with its plans, disregarding the federal requirement that a weapons system undergo operational testing prior to deployment.

UCS kept up the pressure in the media until it became common knowledge on Capitol Hill that the system would not work. In part because of press coverage of the system's technical flaws, the October deployment was quietly dropped from the Bush administration's agenda. Then, in December, the system suffered the public humiliation of a failed flight test in which the interceptor missile did not even leave its launch platform. Although the Pentagon continues to place additional interceptors in silos, it has canceled its plans for an official deployment—a real victory for UCS. The president's FY06 budget request for missile defense is less than last year's, but we will push for further reductions.



Interceptor missile: Missile Defense Agency, U.S. Department of Defense

Protecting Americans' Health and Farmlands

No one would argue against keeping our air, water, and food as free as possible from toxic contamination, or against keeping our agricultural lands productive for future generations. But making that happen is a challenge for consumers, environmentalists, and other interested parties. Well-funded corporate interests are working overtime to shape federal agriculture policy, putting environmental protections at risk.

UCS spent much of 2004 successfully fending off various attempts to weaken regulations intended to promote sustainable agriculture:

- Sen. Larry Craig (R-ID) attempted to exempt "factory" farms from having to report their toxic emissions—despite the fact that some of these operations generate as much ammonia and hydrogen sulfide as the nation's largest industrial plants. UCS and other concerned parties helped defeat this measure, but Sen. Craig is expected to try again.
- The USDA issued directives that would have undermined landmark organic standards the agency itself established in 2002. The resulting public outcry, including a joint letter of protest from UCS and other groups, forced the USDA to rescind its directives.
- The Conservation Security Program provides financial incentives for farmers and ranchers who protect natural resources, but the U.S. Department of Agriculture (USDA) proposed enacting the program in such a way that almost no one would qualify for the available funds. UCS generated 10,000 of the 12,000 comments criticizing this proposal, which is still under review.

We also worked in positive ways to encourage an agriculture based on pasture-raised animals. Raising cattle, poultry, and swine in this healthy environment has multiple benefits, including a reduced need for antibiotics. UCS has begun research for a new report that will scientifically evaluate the nutritional claims for pasture-raised animals and provide important information for consumers to make an informed choice—a choice that could move U.S. agriculture away from factory farms.



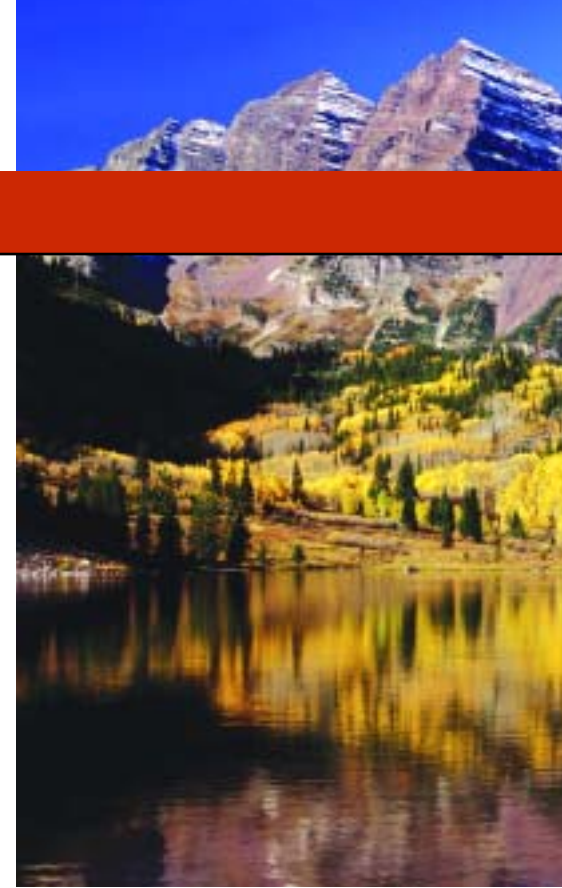
States Turn Out in Support of Clean Energy

While the country pored over maps of red and blue states in the wake of the presidential election, UCS updated a map of its own. Colorado voters gave environmentalists around the country something to cheer about on election night by approving a first-of-its-kind ballot initiative requiring a specific percentage of the state's electricity to come from renewable resources such as the wind and sun. After the state legislature failed on three occasions to pass a renewable energy standard, voters spoke for themselves and added Colorado to our map of 18 states that now have adopted such a standard.

UCS supported this landmark initiative by providing a cost-benefit analysis that concluded the standard would save

Coloradans money, create jobs, and even help the state's utilities by stabilizing rates. Nevertheless, the fossil fuel industry lobbied aggressively to defeat the initiative, compelling us to tour the state with local officials and environmental groups to publicize the results of our analysis. The resulting victory, which gives us a blueprint to follow in other states, represents the crowning achievement of an already successful year for UCS at the state level.

For example, we provided assistance to coalitions that added the District of Columbia, Maryland, New York, and Rhode Island to the renewable standards map and strengthened the Pennsylvania standard. We estimate that by 2017 state standards will reduce carbon emissions



by 64 million metric tons—the equivalent of taking more than nine million cars off the road—and create demand for 25,000 megawatts of new renewable energy.

In the state of California, UCS contributed to two more precedent-setting decisions that brightened the future prospects of renewable energy:

- Our testimony and legal briefs helped persuade the California Public Utilities Commission to adopt rules requiring utilities to factor in the cost of climate change when considering new energy sources. From now on, California utilities will have an extra financial incentive to help their customers become more energy-efficient, and to use renewable energy as a means of preventing carbon emissions today rather than paying more to reduce them in the future.
- As part of a coalition, we convinced the nation's largest municipally owned utility (based in Los Angeles) to withdraw its plans for a new coal-fired power plant and instead invest in enough renewable energy to meet 20 percent of its sales by 2017.

A Responsible National Plan

RENEWABLE RESOURCES such as the sun and wind currently account for only two percent of U.S. energy consumption, and the sad fact is that the White House and Congress are in no hurry to change the status quo. UCS had no choice but to oppose the 2004 national energy bill because of its regulatory rollbacks and fossil fuel subsidies, and our lobbying helped block the bill's passage. On a more positive note, we were able to salvage tax credits for renewable energy producers and help extend them at least one more year.

For 2005 and beyond, UCS intends to reframe the debate on Capitol Hill and gain critical bipartisan support by demonstrating the economic benefits of renewable energy. Our 2004 report *Renewing America's Economy* and subsequent state-specific reports showed that a shift to cleaner energy is not only feasible but financially responsible. Increasing the national share of renewable energy consumption to 20 percent by 2020, for example, would create a net increase of 355,000 jobs—almost twice as many as would be created by adding fossil fuel capacity. Numbers like this demonstrate conclusively that switching to clean energy can be a win-win scenario.



NUCLEAR TERRORISM



Stopping Terrorist Strikes at the Source

Shortly after the 9/11 attacks, President Bush said that defending the United States from terrorists armed with weapons of mass destruction was his highest priority. Yet his administration has done too little to secure weapons-usable nuclear materials since then.

One promising development in 2004 was the creation of the Global Threat Reduction Initiative, which will work to secure nuclear materials in Russia and in research reactors around the globe. UCS generated 12,000 letters supporting the initiative, and we met with the program director to discuss possible strategies. As the initiative moves ahead, we will seek congressional support for programs of common interest.

Meanwhile, UCS Senior Staff Scientist Ed Lyman testified before the Nuclear Regulatory Commission (NRC) on security risks associated with the use of mixed-oxide (MOX) fuel in U.S. and Russian nuclear power plants. The NRC wants to relax its security regulations for MOX, claiming terrorists would not want to steal it. However, because plutonium can be separated from the fuel by a straightforward chemical process, MOX may be quite attractive to terrorists. Its theft should be prevented by stringent security measures.

Dr. Lyman also authored *Chernobyl on the Hudson?*, a report commissioned by Riverkeeper, Inc. on the vulnerability of New York's Indian Point nuclear power plant (35 miles from Manhattan) to a 9/11-style attack. The prospect of a catastrophic release of radiation over the greater New York City area was also dramatized by the HBO documentary *Indian Point: Imagining the Unimaginable*, in which Dr. Lyman and UCS Nuclear Safety Engineer Dave Lochbaum stressed the need for additional precautions at the plant. UCS is determined to ensure our political leaders do more than pay lip service to these and similar problems in 2005.

UCS was the first environmental group to pursue state renewable energy standards, and it's clear that our strategy is paying dividends. In 2005, we will help our allies win new standards in Illinois and Montana, raise existing standards in Iowa, Texas, and Wisconsin, and continue making our case that clean energy is good for local economies. The lesson learned in Colorado is that there are voters in both parties who want to swing this country away from its dangerous dependence on fossil fuels.

UCS President **Kevin Knobloch** joins political leaders from Maine (Gov. John Baldacci), Illinois (Sen. Dick Durbin), and Washington State (Rep. Jay Inslee) to discuss the economic benefits of renewable energy at the July 2004 New Energy for America forum in Boston.



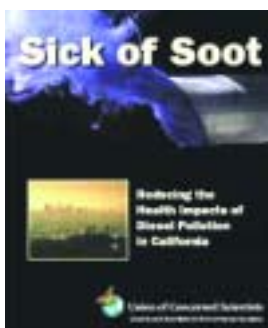
UCS Senior Staff Scientist **Ed Lyman** explains security risks at the Indian Point nuclear power plant in an HBO documentary.

Ed Lyman: Moxie Firecracker Films; Indian Point: AP/Wide World Photos

Economics Helps Make the Case for Cleaner Air

Thousands of homicides grab headlines in California each year, yet the deadly effects of diesel exhaust shorten the lives of even more Californians. Medical expenses, lost productivity, and premature deaths associated with diesel soot cost the Golden State \$21.6 billion a year. These powerful facts, outlined in our 2004 study *Sick of Soot: Reducing the Health Impacts of Diesel Pollution in California*, could not be ignored by state legislators.

Working with other environmental groups, UCS argued that California needed to make an investment in its public health—for every dollar spent on diesel cleanup, we explained, the state would save \$10 in health care costs. California already had a voluntary program in place



to encourage owners of aging diesel truck fleets to retrofit their vehicles with cleaner technology, but it was virtually unfunded.

The strength of our argument not only convinced legislators to approve \$140 million in new funding, but also led the California Air Resources Board to establish aggressive standards for reducing diesel emissions. We plan to make the same argument to other state and federal lawmakers in 2005 when we push for cleanup programs elsewhere.

Our success in California followed on the heels of a major victory in the fight against diesel pollution at the national level. Technical analysis conducted by UCS in 2003 and 25,000 public comments generated through our online Action



Network in 2004 helped persuade the Environmental Protection Agency to undertake a serious cleanup of diesel engines used in construction, agricultural, and other “nonroad” equipment. At the time, nonroad diesel engines produced as much toxic soot as all diesel trucks and buses on U.S. highways combined. The new rule will hold this heavy equipment to the same standard as highway vehicles, reducing their emissions by more than 90 percent. Given the Bush administration’s hostile attitude toward environmental regulations in general, UCS supporters should take special pride in the magnitude of this achievement.

Another important victory for UCS in Washington, DC, was our effort to keep the federal government’s Clean School Bus USA program alive. Despite our work establishing the threat that school buses—which represent some of the oldest and dirtiest diesel vehicles on the road—pose to the health of America’s children, there was a very real possibility that funding for this cleanup program would be withdrawn. Instead, we won a 50 percent increase from \$5 million to \$7.4 million for fiscal 2005. Our continuing focus on the tremendous public health benefits of reduced diesel pollution will hopefully pave the way to further success on Capitol Hill this year.



This Invasion Requires a Stronger Response

Invasive species typically don't generate much press coverage except when they first arrive and when they threaten either the local way of life or a treasured local species. They are an urgent national problem nevertheless. The Asian long-horned beetle, for example, which hitchhiked to the United States in packing material, could spread from Illinois, New Jersey, and New York and devastate maple trees throughout the country.

Fortunately, UCS is successfully drawing attention to the problem and pressing for policy solutions both in our nation's capital and as far away as Alaska. We and our allies helped pass five new laws last year to keep invaders out of the Great Lakes, support local efforts to control weeds, and address the threats posed by non-native migratory birds, the brown tree snake, and sudden oak death (a serious forest disease). We also continued to recruit co-sponsors for the National Aquatic Invasive Species Act and will work to ensure this legislation is not weakened in 2005.

In the process of convincing a high-profile philanthropic organization to stop distributing packets of wildflower seeds that included invasive species, we began work showing that this is just one pathway the U.S. Department of Agriculture has failed to address. In addition, our 2003 report on invasives in Alaska became a popular public education tool there, winning us key allies and even generating interest in creating a center for invasive species research at the state university.

Further progress will come in 2005 through our work with the recently formed National Environmental Coalition on Invasive Species (www.necis.net), whose shared resources help us target the highest priorities and convince Congress and the Bush administration to act. It's time the federal government responded to invasive species as the serious national problem they are.

Beetle: USDA APHIS PPQ Archives, USDA APHIS PPQ, www.forestryimages.org

Seeking Common Ground in the Far East

UCS is lucky to have Gregory Kulacki on staff. Having lived and worked in China for more than 12 years, Dr. Kulacki speaks and reads Mandarin and has an understanding of China's culture and political behavior that few American security experts can match. Continuing to spend several months in China every year has allowed him to develop strong relationships with the country's security elite, including the scientists with whom UCS has been working for more than a decade.

Conversely, a general lack of understanding and language skills in Washington, DC, contributes to misperceptions about China's intentions, which are sometimes judged to be hostile when in fact they are not. A vivid example of this problem was the Pentagon's 2004 report that China had developed an advanced anti-satellite weapon. Dr. Kulacki quickly determined that the source of this information was a single website, maintained by a Chinese layperson—calling into question the quality of U.S. military intelligence related to China.

To facilitate communication between Chinese and American scientists on global security and arms control, UCS maintains fellowship programs that enable Chinese scientists to work with security experts in the United States. We also chose Beijing as the site not only of an April 2004 conference on space weapons technology and policy, but also for our 16th annual Summer Symposium on Science and World Affairs. Here, 42 scientists from China, the United States, and other countries discussed their research and how it could help inform policy makers in their countries. With Dr. Kulacki's help, we are building a foundation for peaceful relations with China that could pay dividends well into the future.

UCS Global Security Analyst Gregory Kulacki (right) and Global Security Program Assistant Dawn Montague (third from right) join Summer Symposium attendees in Beijing.





“It is our future—
the future of this planet—
that is at stake, and we
accept the challenge that its
fate rests with choices we
all must make. UCS works to
make that choice one for
a safer, healthier world.”

HENRY W. KENDALL
UCS board chair, 1973-1999

UCS and Its Members Step Up to the Challenges Ahead

Ever since the **Union of Concerned Scientists** was founded in 1969, we have pursued Dr. Henry Kendall's goal of scientists and citizens working together to make a great change in humanity's stewardship of the earth. Along the way, thanks to the generous financial support of people like you, UCS has expanded in size and influence, earning a reputation as the organization that the public, the media, policy makers on both sides of the political aisle, and other advocacy groups can turn to for accurate, unbiased information about threats to our environment, health, and security.

While these threats become increasingly urgent, political opposition to environmental protections has rarely been more hostile. Nevertheless, UCS is doing more than just sounding the alarm; our scientists are developing innovative solutions to some of the world's most seemingly intractable problems. Our arguments have been based on such persuasive facts that we achieved a number of significant victories in 2004—victories that help make Dr. Kendall's vision of a safer, healthier world a reality.

Your donations make this success possible by enabling UCS to reach out to a broad network of scientists and activists and to hire outstanding scientists and policy experts. These talented individuals not only offer credible, nonpartisan analysis and practical, realistic policies, but the determination and savvy to win support in state houses and on Capitol Hill. In short, your contributions fund work that has a lasting impact.

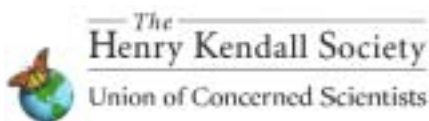
We thank you for showing your commitment to the well-being of future generations by supporting UCS.



Far left: At a Los Angeles member event and fund-raiser, UCS Global Environment Program Director **Peter Frumhoff** (right) speaks with actor **James Cromwell**.

Left: UCS Clean Vehicles Program Director **Jason Mark** (right) meets with members of our new National Advisory Board.

HENRY KENDALL SOCIETY



In honor of the Nobel-winning physicist and guiding spirit of UCS, the Henry Kendall Society recognizes donors whose passion for our issues and desire to become more involved in our work provide a solid foundation for the organization's future. With an unrestricted annual gift of \$1,000 or more, Henry Kendall Society members help us respond rapidly and effectively to emerging problems and new opportunities.

Donors at this level are true partners in our efforts to protect the environment and preserve global security. We honor their participation by offering:

- Special updates on our current campaigns and organizational priorities
- Opportunities to join senior UCS staff in telephone briefings about our work
- A personal liaison at UCS to answer questions and provide information
- Invitations to small gatherings with senior UCS staff and other Henry Kendall Society members
- Complimentary copies of UCS reports upon request

PARTNERS FOR THE EARTH

Members of Partners for the Earth, by making a convenient monthly donation to UCS through a credit card or bank withdrawal, provide a dependable source of revenue for the organization throughout the year and represent some of our most loyal and consistent supporters. In fact, hundreds of Partners for the Earth have been making a monthly contribution to UCS for more than 20 years.

In recognition of this outstanding long-term support, Partners for the Earth receive our annual report, special updates on our work, and their own personal contact on the UCS staff to assist with questions about or changes to their monthly gifts.

LIVING LEGACY SOCIETY

A healthy and hospitable Earth may be the greatest legacy we can leave to our children and grandchildren. With that in mind, Living Legacy Society members who share our long-term goal—harnessing the power of science to create a healthier, safer world—have elected to provide for UCS in their wills. These bequests, life income gifts, and other charitable estate planning arrangements provide vital support for the work our organization will conduct in the years to come.

For further details about these giving options and more, please call or write:

Development Department, Union of Concerned Scientists
Two Brattle Square, Cambridge, MA 02238
(800) 666-8276
dwhalen@ucsusa.org

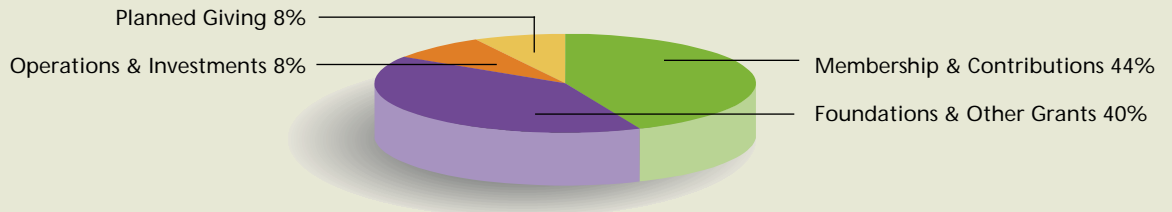
Strong financial growth in 2004 allowed the Union of Concerned Scientists to respond effectively to new challenges and opportunities by expanding our programs. We are grateful to the many members, supporters, and foundations who made this possible. Your contributions provided us with a record operating budget of \$10.3 million—of which we dedicated a solid 80 percent to our program work. The year ended with a modest operating surplus of three percent.

Contributions from individuals grew more than 25 percent in 2004, reflecting both continued growth in our membership base and increasing generosity among existing UCS members. Revenue from foundations contributed \$4.8 million to the operating budget—a 16 percent increase from 2003.

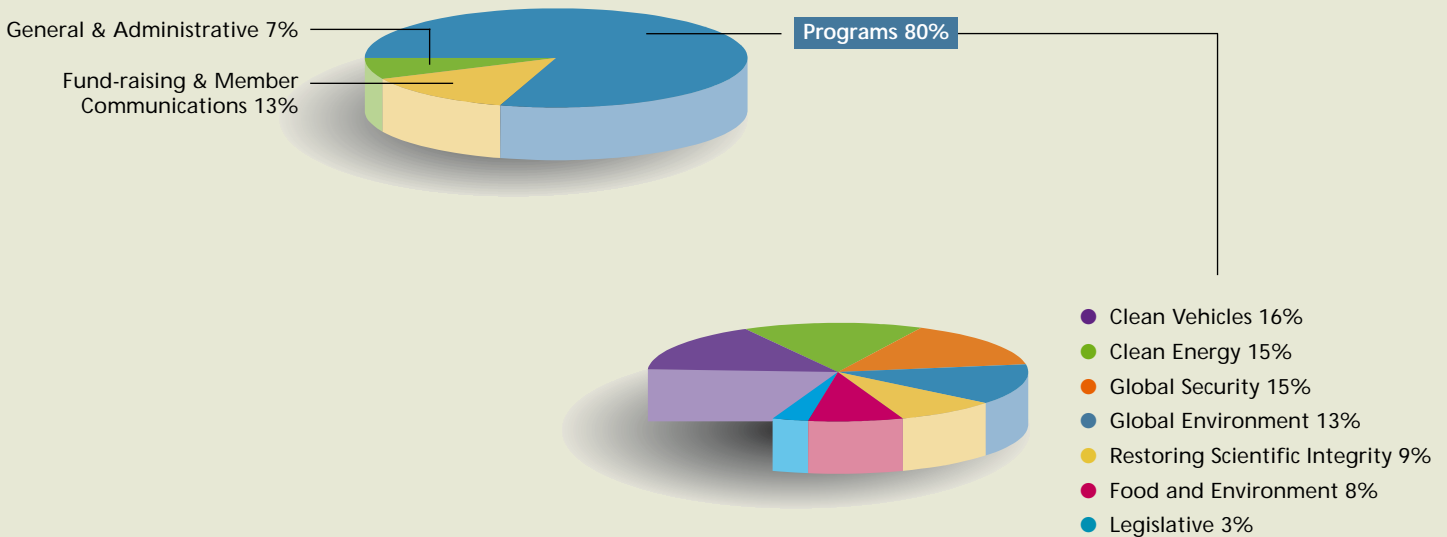
This revenue growth gave us the ability to increase our budget for programmatic activities by 19 percent while holding the growth of administrative and fund-raising costs to less than four percent. The most dramatic increase in programmatic activity is reflected in our new Restoring Scientific Integrity initiative.

Net assets grew to \$11.5 million by year's end, bolstered in large part by generous contributions from individuals, planned gifts, and steady multi-year contributions from foundations. Positive investment returns and additions, primarily from bequests, helped the UCS endowment reach \$4.2 million.

2004 Revenue



2004 Expenses



Note: Percentages shown do not add to subtotal due to rounding.

	2004			2003 Total	
	Unrestricted	Temporarily Restricted	Permanently Restricted		Total
OPERATING REVENUE AND OTHER SUPPORT					
Membership and contributions	\$5,248,850			\$5,248,850	\$4,173,655
Foundation and other institutional grants	85,259	\$5,255,490		5,340,749	5,677,687
Sales of publications	5,163			5,163	6,581
Sublease income	132,799			132,799	172,648
Other revenue	447,390	40,414		487,804	117,273
Net investment income	39,315	1,328		40,643	32,522
Net assets transferred from nonoperating activities					313,782
Net assets released from restrictions: Satisfaction of program restrictions	4,726,863	(4,726,863)			
Total operating revenue and other support	10,685,639	570,369		11,256,008	10,494,148
OPERATING EXPENSES					
Programs:					
Global Environment	1,382,290			1,382,290	1,550,150
Global Security	1,574,359			1,574,359	1,307,235
Food and Environment	837,876			837,876	762,757
Clean Vehicles	1,650,788			1,650,788	1,582,212
Clean Energy	1,578,769			1,578,769	1,538,648
Restoring Scientific Integrity	879,460			879,460	
Legislative	321,289			321,289	163,083
Total programs	8,224,831			8,224,831	6,904,085
Supporting services:					
General and administrative	717,367			717,367	615,693
Fund-raising and member communications	1,382,801			1,382,801	1,405,487
Total supporting services	2,100,168			2,100,168	2,021,180
Total operating expenses	10,324,999			10,324,999	8,925,265
Change in net assets from operations	360,640	570,369		931,009	1,568,883
NONOPERATING REVENUE AND OTHER SUPPORT					
Gifts	988,385			988,385	518,943
Net investment income	323,443	19,185		342,628	393,137
Total nonoperating revenue and other support	1,311,828	19,185		1,331,013	912,080
NONOPERATING EXPENSES					
Loss on impairment of private company equity securities	299,999			299,999	
Total nonoperating expenses	299,999			299,999	
Net assets transferred to operations					(313,782)
Change in net assets from nonoperating activities	1,011,829	19,185		1,031,014	598,298
CHANGE IN NET ASSETS	1,372,469	589,554		1,962,023	2,167,181
Net assets at beginning of year	4,877,867	4,469,735	\$185,335	9,532,937	7,365,756
Net assets at end of year	\$6,250,336	\$5,059,289	\$185,335	\$11,494,960	\$9,532,937

Note: Shaded area indicates operating budget.

NATIONAL ADVISORY BOARD

Members of the **UCS National Advisory Board** are united by a shared commitment to protect the environment and ensure global security. These individuals are actively engaged in our work, lending their time, resources, and expertise to help UCS advance sound scientific solutions.

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Henry Kendall Society

The individuals listed made annual contributions of \$1,000 or more. This leadership society honors the life and work of the late Henry Kendall, a Nobel laureate who was the chairman and guiding spirit of UCS from 1972 to 1999.

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Change Starts at Home

As the parents of two young children, **Kathy Washienko** and **Mike Mathieu** are raising the next generation of environmentalists. They have made their commitment to the environment a family matter, working to live their lives in a sustainable way: they buy “green” energy from their electric company, use energy efficiency as a primary criterion when evaluating new appliances, and are looking into hybrid cars. “We feel we all have a responsibility to think long-term, consider the impact of our actions, and take steps to alleviate and prevent harm to people and our planet,” Kathy explains.

She first joined UCS while pursuing her master’s degree in public health at the University of Michigan, and is now a member of our new National Advisory Board. Her personal interest in public health issues and her analytical instincts make UCS a natural fit. “It would be easy to feel discouraged by the lack of federal leadership on many health, safety, and environmental issues,” Kathy notes. “I’m encouraged by UCS’s efforts, which lead to important progress in these areas, and being involved with UCS gives me an opportunity to make a difference.”

\$10,000-24,999

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UCS is pleased to recognize the following individuals who have made irrevocable donations in the form of legacy gifts or have notified us of their intention to include UCS in their estate plans. We are grateful for their foresight and desire to ensure that UCS will meet its goals long into the future.

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Bequests

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Not for Us Alone

The first time **Jennifer Frum** heard certain plants described as “alien invaders,” she laughed. But she gradually learned about invasive species through master gardening courses and then began to notice them all around her Arlington, VA, neighborhood. “I became appalled,” she says. “It is especially disturbing to realize the damage they do to wildlife.” Jennifer is glad UCS works on this often-unrecognized threat to biodiversity, but she also likes the overall practicality of our approach—weighing environmental issues and then focusing on what will make a difference.

Jennifer’s husband **Austin**, chairman and legal counsel for a nonprofit corporation, likens UCS to an expert witness—someone he can call on to provide technical information that strengthens his case. When he went to Capitol Hill as part of a UCS lobbying day to voice his support for clean school bus legislation, he knew he had the analysis to back up his position.

Members of the Henry Kendall Society since 2001, the Frums have also recently included UCS in their will. Jennifer notes that this is as much a gift to their children as it is to UCS: “Part of what I want to leave our children is a better world for them to live in.”

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Giving Science a Voice

When Joel Shore started imposing a “gas tax” on himself—totaling his yearly gas purchases and contributing that amount to a nonprofit organization—UCS was his first recipient. He has since continued to support us as a member of the Stewardship Circle, explaining that, “UCS effectively advocates for and remains true to the science of the issues most important to me: climate change, missile defense, and restoring scientific integrity in the executive branch.”

A physicist from Rochester, NY, who is also a member of the UCS scientist email networks SecurityNet and the Sound Science Initiative, Joel believes science has a pivotal role in public policy. “Science cannot tell us what the right policy is,” he says, “but it is vital in helping us evaluate the various policy paths.” Joel has taken his interest in policy work straight to Washington, DC, participating in UCS-organized lobbying activities. For example, he met with Congressional staff to discuss national missile defense. Joel says he appreciates the fact that “UCS allows me to take an active role in using my knowledge and skills as a scientist to fight for the things that I believe in.”

UCS Board Members



Kurt Gottfried (*Chair*) is emeritus professor of physics at Cornell University. A co-founder of UCS, he has served on the senior staff of the European Center for Nuclear Research in Geneva, is a former chair of the Division of Particles and Fields of the American Physical Society, and is a member of the American Academy of Arts and Sciences and the Council on Foreign Relations. He has published widely on theoretical physics and national security issues.



Peter A. Bradford (*Vice-Chair*) advises and teaches on utility regulation and energy policy in the U.S. and overseas. A former member of the Nuclear Regulatory Commission and former chair of both the NY Public Service Commission and the Maine Public Utilities Commission, he has been a visiting lecturer in energy policy at the Yale School of Forestry and Environmental Studies. He is the author of *Fragile Structures: A Story of Oil Refineries, National Security and the Coast of Maine*.



Thomas Eisner is Schurman Professor of Chemical Ecology at Cornell University and director of the Cornell Institute for Research in Chemical Ecology. A leading biologist and National Medal of Science winner, he is an active conservationist, both nationally and internationally. He served on the National Audubon Society's board and the Nature Conservancy's scientific council. He is the author of *For Love of Insects* and is a well-known nature photographer.



James A. Fay (*board member emeritus*) is professor emeritus of mechanical engineering at the Massachusetts Institute of Technology. Dr. Fay is former chair of the Massachusetts Port Authority, a fellow of the American Academy of Arts and Sciences, the American Physical Society, and the American Association for the Advancement of Science, and a member of the National Academy of Engineering. His published works on the environmental effects of energy technologies include *Energy and the Environment*.



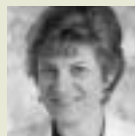
Richard L. Garwin is a National Medal of Science winner and Fellow Emeritus at IBM. For seven years, he was Philip D. Reed Senior Fellow for Science and Technology at the Council on Foreign Relations. He contributed to the first thermonuclear weapons and photo-intelligence satellites, and has served on the President's Scientific Advisory Committee, the Defense Science Board, and the 1998 Rumsfeld Commission to Assess the Ballistic Missile Threat to the United States.



Geoffrey M. Heal is Paul Garret Professor of Public Policy and Corporate Responsibility and professor of finance and economics at the Graduate School of Business at Columbia University. Dr. Heal is a former managing editor of the *Review of Economic Studies*, a Fellow of the Econometric Society, and has published 13 books on economic theory and environmental economics. His recent environmental research focuses on market-based incentives for conservation and biodiversity protection.



James S. Hoyte (*Treasurer*) is the Assistant to the President/Associate Vice President for Equal Opportunity Programs, Lecturer in Environmental Sciences and Public Policy at Harvard College, and Adjunct Lecturer in Public Policy at the Kennedy School of Government at Harvard University. He is also a member of the University Committee on Environment at Harvard. Mr. Hoyte is a lawyer who has served as Secretary of Environmental Affairs for Massachusetts and as Chair of the Massachusetts Water Resources Authority.



Anne R. Kapuscinski is Professor of Fisheries and Conservation Biology and Director of the Institute for Social, Economic and Ecological Sustainability at the University of Minnesota. Dr. Kapuscinski currently serves on a variety of national and international committees addressing the safety of genetically engineered organisms and sustainability options in agriculture, aquaculture, and the environment. She is the recipient of a Pew Marine Conservation Fellowship and the Department of Agriculture's Honor Award for Environmental Protection.



James J. McCarthy is Alexander Agassiz Professor of Biological Oceanography at Harvard University and former Director of the Museum of Comparative Zoology. Dr. McCarthy serves on many panels and commissions relating to oceanography, polar science, and the study of climate and global change. He chaired the international committee that oversees the International Geosphere-Biosphere Program, and served as co-chair of the Intergovernmental Panel on Climate Change (IPCC) Working Group II, Third Assessment.



Mario J. Molina is a professor at the University of California, San Diego. He has served on the U.S. President's Committee of Advisors in Science and Technology, the Secretary of Energy's Advisory Board, the National Research Council Board on Environmental Studies and Toxicology, and on the boards of the U.S.-Mexico Foundation of Science, the MacArthur Foundation, and others. Dr. Molina and two colleagues shared the 1995 Nobel Prize in chemistry for their research on the ozone layer in the stratosphere.



Stuart L. Pimm is Doris Duke Chair of Conservation Ecology at Duke University. His work focuses on conservation biology and the protection of biodiversity. He is a Pew scholar and the author of *The World According to Pimm: A Scientist Audits the Earth* and *The Balance of Nature? Ecological Issues in the Conservation of Species and Communities*. Much of his research concerns the protection of endangered species in the Florida Everglades and global patterns of extinction.



Adele Simmons is vice chair of Chicago Metropolis 2020 and a senior advisor to the World Economic Forum. She is chair of the board of the Fair Labor Association and a member of the board of the Field Museum. Previously, Dr. Simmons served as president of the John D. and Catherine T. MacArthur Foundation and president of Hampshire College. She was also appointed by President George H.W. Bush to his Commission on Environmental Quality and served on the Commission on Global Governance.



Nancy Stephens is an actress and political activist. A California gubernatorial appointee to the Santa Monica Mountains Conservancy Advisory Board, Ms. Stephens also serves on the executive board of the Earth Communications Office and the advisory board of the Liberty Hill Foundation. She is a longtime member of the Environmental Leadership Forum of the California League of Conservation Voters and also serves as a trustee of the Richard and Hinda Rosenthal Foundation.



Thomas H. Stone is chairman and chief executive officer of Stone Capital Group, Inc., a family investment company. He devotes significant time to not-for-profit organizations working with young people and music, as well as those working on global environmental problems. Mr. Stone serves on the boards of the Ravinia Festival Association, the Anti-Defamation League of B'nai B'rith, and the Merit School of Music.



Elyn R. Weiss is an artist, a retired partner in the law firm of Foley, Hoag & Eliot, and former general counsel to UCS. Ms. Weiss has also served as assistant attorney general for environmental protection for the Commonwealth of Massachusetts, special counsel and director of the Secretary of Energy's Human Radiation Experiments Investigation, and deputy assistant secretary of the Office of Environment, Safety, and Health within the U.S. Department of Energy.



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