

## APS Supports Senate Letter Urging Emergency Science Funding

The American Physical Society (APS) commends a bipartisan group of senators who signed a letter requesting that \$350 million be included in the Fiscal Year 2008 supplemental appropriations bill to rectify the damage done to science by last year's Omnibus Appropriations Bill.

Dated March 17, the letter urges funding for the Department of Energy's Office of Science and the National Science Foundation to restore critical science programs. It was sent to the Senate Appropriations Committee leadership and signed by the following senators: Lamar Alexander (R-TN); Bob Corker (R-TN); Jeff Bingaman (D-NM); Pete Domenici (R-NM); Richard Durbin (D-IL); Dianne Feinstein (D-CA); Ted Kennedy (D-MA);

and Chuck Schumer (D-NY).

Funding shortfalls contained in the Omnibus have resulted in the loss of more than 500 jobs at national laboratories; cuts to grants and fellowships at universities; and reductions in operations of scientific user facilities. The Omnibus also eliminated the \$160 million U.S. contribution to the construction of ITER, the centerpiece of international fusion energy research, damaging our nation's reputation as a reliable partner for international projects.

The FY '08 budget sent the wrong message to aspiring scientists who are considering entering the science field. Instead of doubling funding as outlined in the bipartisan American COMPETES Act, which Congress passed by an overwhelming margin last year, it

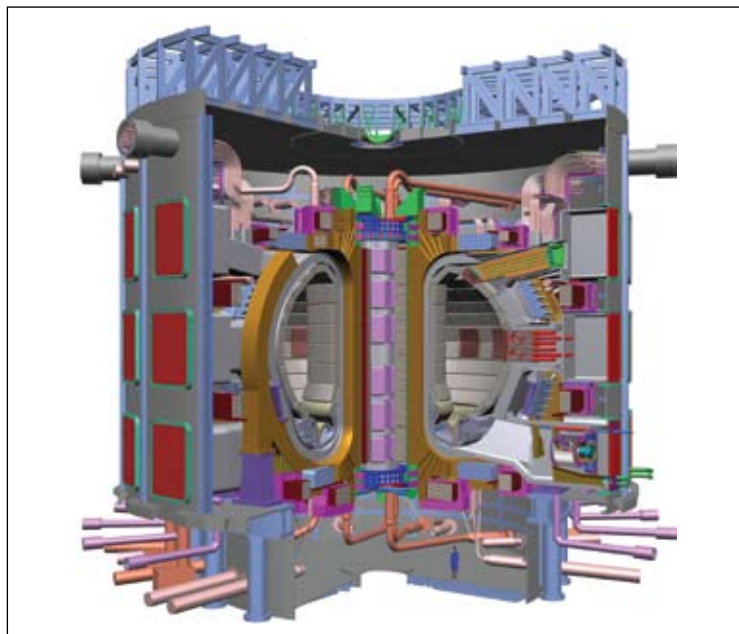


Image courtesy of Oak Ridge National Laboratory

The ITER Machine

ITER is an international experiment to determine the feasibility of fusion power.

even fails to provide for inflation-adjusted costs.

Investing in basic research reflects America's pioneering heritage of pushing the frontiers of knowledge and has led to innovation, new jobs and unforeseen technological advances for our nation. Innovations such as the MRI, Global Positioning System and iPod all trace their roots to basic research funded by the federal government.

If we are to maintain our global leadership, the U.S. must launch the next generation of leading scientists and engineers by investing in basic scientific and engineering research, and math and science education. Restoring funding in the FY '08 budget is an important and necessary step in keeping our nation globally competitive.

## Tracing Unidentified Nuclear Materials APS, AAAS Study Group Urges New Steps

The United States is in danger of losing some of the expertise needed to rapidly and accurately identify nuclear materials smuggled on the black market or used in a nuclear detonation, according to a newly released report by the American Physical Society (APS) and the American Association for the Advancement of Science (AAAS).

Nuclear forensics—the use of sophisticated technologies to analyze the nature, use and origin of nuclear materials—was developed during the Cold War and is just as important now with concerns about potential terrorist use of nuclear materials in a bomb or radiological device. There are about 35 to 50 scientists working in nuclear forensics at the U.S. Department of Energy's national laboratories, with up to half of them expected to retire in 10 to 15 years. The pipeline for replacing those specialists is almost empty, and university programs in radiochemistry have been dwindling.

Michael May, head of the panel that wrote the report, outlined its conclusions Feb. 16 during a news briefing and a symposium at the Annual Meeting of the AAAS in Boston. May is professor emeritus at

Stanford University's School of Engineering and a senior fellow with the Freeman Spogli Institute for International Studies at Stanford.

The report urges steps to help replenish the pool of trained personnel and upgrade their laboratory and field equipment. It also calls for broader international cooperation on a database

not enough to deal with an emergency, and many are reaching retirement age. A program to develop trained personnel should be undertaken that could include: funding research at universities, graduate scholarships and fellowships, internships at the labs and incentives that stimulate industrial support of faculty positions.

### International Cooperation and Sample-Matching Database Development

The speed and accuracy of nuclear forensics would be significantly enhanced through a comprehensive global sample-matching database.

### Exercises

The existing counterterrorism exercise programs must test the actions, coordination, communications and policies that would be needed at all levels in the event of a nuclear detonation anywhere in the world. Exercises should be structured to illustrate the strengths and limitations of nuclear forensics, as well as to test capability and coordination in light of both the time urgent needs of the situation and also the ability to communicate to the public and manage expectations.

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### Review and Evaluation Groups

The U.S. government should establish two panels of independent experts: one to systematically review, evaluate and keep records on the exercises recommended above; the other to advise the government in real time of the results of nuclear forensics and what they mean in the event of an emergency.

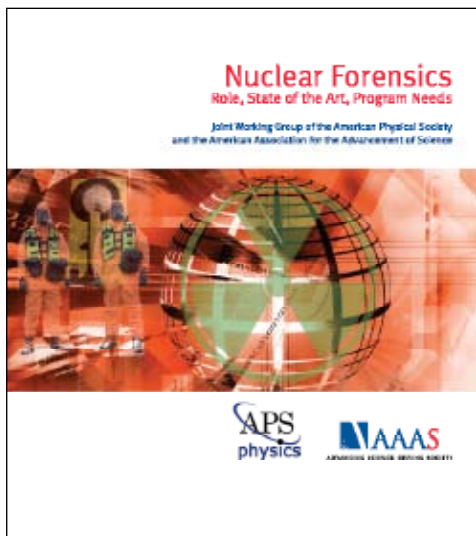
with the physical signatures of nuclear materials that could lead to faster capture of terrorists. Key recommendations from the report:

### R&D to Develop Advanced Lab and Field Equipment and Numerical Modeling

Forensics technologies need to be developed to allow for more rapid field measurements and accurate laboratory analysis. Also, improvements in numerical simulations that can provide weapon design information are needed.

### Workforce Development

There are about 35 to 50 personnel working on nuclear forensics at the national labs,



## U.S. Rep. Gordon Recognized for Leadership in U.S. Innovation & Competitiveness

U.S. Rep. Bart Gordon (TN-6<sup>th</sup>) recently received the 2008 George E. Brown Jr. Science, Engineering and Technology Leadership Award for his leadership and commitment to ensuring that the United States remains a global leader in science and innovation.

Gordon, chairman of the House Science and Technology Committee, was honored March 4 during a reception in the Rayburn House Office Building. He has been a tireless champion of the need to invest in America's future through strong federal funding for science, technology, engineering and mathematics research and education. He was the lead House negotiator for the America COMPETES Act (H.R. 2272), authorization legislation designed to help the United States maintain its global leadership in science and technology. It was signed into law on Aug. 9, 2007.

Gordon's award coincided with the 50th anniversary of what is now the House Science and Technology Committee. Stunned by the Soviet Union's launch of Sputnik, the United States realized the need for a firm commitment to scientific and technological research and development. Formation of the committee was a key part of what has become a great American success story—federal funding for science and technology research and education that has spurred innovation, created jobs and kept America on the leading edge of scientific discovery.

The Brown Award is presented annually by the Science, Engineering and Technology Work Group (SETWG) to members of Congress who are effective advocates of federal investment in science and technology. It is named for the late U.S. Rep. George E. Brown Jr., a longtime member of Congress who made outstanding contributions to federal



U.S. Rep. Bart Gordon (TN-6<sup>th</sup>)

support for science and technology throughout his distinguished congressional career.

The award is presented each year in conjunction with SETWG's Congressional Visits Day (CVD), the preeminent yearly event during which hundreds of scientists and engineers from around the country come to Washington for two days of briefings and visits to their members of Congress.

SETWG is a network of professional, scientific and engineering societies, higher education associations, institutions of higher learning and trade associations. It is concerned about the future vitality of the U.S. science, mathematics and engineering enterprise. See [www.agiweb.org/cvd/setwgrst.html](http://www.agiweb.org/cvd/setwgrst.html).

Capitol Hill Quarterly is a publication of the American Physical Society, [www.aps.org](http://www.aps.org). APS is a non-partisan, professional society of physicists with more than 46,000 members.

### On the Back Page



U.S. Rep. Rosa DeLauro discusses science and the economy

### Workforce Development

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## APS Members in the Media

“What you do in school that’s called a lab experiment is not really an experiment, because you already know the answer. When you listen to a driver and his crew chief trying to figure out how to give the car more grip in Turn 2, that’s the scientific method in action. They’re asking questions about load transfer and downforce, and they don’t know the answers until they’ve done the experiment.”

**Diandra Leslie-Pelecky**, *University of Nebraska, (NE-1<sup>st</sup>), on the physics of NASCAR*, The New York Times, February 12, 2008

“It’s like rebuilding your car with pieces and after you think you’ve put it together, there’s a giant piece still sitting on the curb, and it’s about the size of the car itself.”

**Adam Riess**, *Johns Hopkins University, (MD-7<sup>th</sup>), on dark energy*, Baltimore Sun, December 2, 2007

“What many people don’t realize is how easy conservation is.”

**Arthur Rosenfeld**, *California Energy Commission, (CA-9<sup>th</sup>), on energy conservation*, Boston Globe Sunday Magazine, November 18, 2007

“The women started coming up to us, holding their babies, and said, ‘Please help us build a school.’ I was just amazed that in this remote village with no electricity, no plumbing, no toilets, they were talking about education. . . I was overwhelmed by their courage and their ability to think in the long term.”

**Alan Lightman**, *MIT, (MA-8<sup>th</sup>), on building a dormitory for Cambodian university women*, Boston Globe, November 19, 2007

“The support of physical science throughout the United States has been falling victim to the latest congressional action in which the American competitiveness has not been supported.”

**Maury Tigner**, *Cornell University, (NY-22<sup>nd</sup>), on cuts at Cornell University’s Laboratory of Elementary-Particle Physics*, Ithaca Journal, February 8, 2008

“We would probably support any competent scientist that wants to run for Congress.”

**Leon Lederman**, *(IL-14<sup>th</sup>), on getting scientists to run for office*, U.S. News and World Report, December 6, 2007

## Snapshots from Physics History

### Alpha-beta-gamma paper explains origin of elements

On April 1, 1948, a paper was published in the *Physical Review* by Alpher, Bethe and Gamow, titled “The Origin of Chemical Elements.” The authors’ names were a bit of a joke (Hans Bethe hadn’t really contributed to the work), but the paper contains a significant scientific discovery. Ralph Alpher and George Gamow explained how the extreme conditions shortly after the big bang could explain the observed abundances of the most common elements in the universe.

Physicist George Gamow was born in Odessa (now in Ukraine), in 1904. He grew dissatisfied with the Soviet Union, and after one failed attempt, he fled and immigrated to the United States in 1934. He took a position at George Washington University in Washington, D.C.

In the early 1940s, Gamow was working on explaining the observed abundances of elements. It had already been shown that in the cores of stars, hydrogen nuclei fuse to form helium. But this process happens too slowly to account for the observed abundance of helium in the universe (about one atom of helium for every 10 atoms of hydrogen) and it didn’t account for the existence of elements much heavier than helium. Gamow wondered if the conditions of the very early universe could have produced the observed helium and other elements.

The research needed knowledge of nuclear physics, but most nuclear physicists in the U.S. at the time had been recruited to the Manhattan project, so Gamow was essentially alone in working on the problem of nucleosynthesis.

He started making calculations, beginning by looking at the density of matter in the universe and essentially running the expansion of the universe backward to get an estimate of what the early universe might have looked like. He then began trying to figure out the probabilities of nuclear reactions in the early universe. As the universe expands, conditions constantly change, so the calculations were complicated. Not particularly adept at mathematical calculations himself, Gamow recruited Ph.D. student Ralph Alpher to help.

They started by imagining the early stage of the universe as an extremely hot dense gas of neutrons, (which they called “ylem,” after a medieval word for matter). As the universe expanded, the hot compressed neutrons would decay into a mixture of protons and electrons and neutrinos. Then the protons would capture some of the remaining neutrons to form deuterium. Further neutron capture would build up heavier and heavier atomic nuclei. The process would continue as the universe expanded until it was too cool for further reactions to take place.

Alpher’s calculations of nuclear processes used some of the first electronic digital computers, which had been developed during World War II. He was also able to use new data on nuclear reaction cross sections that had become available after the war ended.

The calculations agreed with the known abun-

dance of helium. Pleased with their result, Alpher and Gamow submitted a brief communication to the *Physical Review*, titled “The Origin of Chemical Elements.” They celebrated with a bottle of liqueur, which Gamow relabeled “ylem.”

Gamow, who was known for his sense of humor, saw that the paper they had submitted to *Physical Review* was to appear on April 1, 1948. He added the name of his friend Hans Bethe, who was known for work on nuclear reactions in stars, among other things, to the paper, so the authors would be Alpher, Bethe and Gamow, a pun on the first three letters of the Greek alphabet.



Photo courtesy of American Institute of Physics

Ralph Alpher

Alpher, as a Ph.D. student struggling to make a name for himself, objected to the addition, fearing that the name of the famous Bethe would overshadow his own, reducing the credit he received for his crucial contribution to an important piece of research. But Gamow published it with Bethe’s name, despite Alpher’s objections.

The paper, still known as the alpha-beta-gamma paper, not only explained the origin of the most abundant elements in the universe, but also provided the first support for the big bang model since Hubble’s discovery in 1929 that distant galaxies are redshifted in proportion to their distance from us.

It later became clear that most elements actually cannot be produced by the successive neutron capture process Alpher and Gamow originally proposed because there is no stable nucleus with five nucleons. Another process was needed to bridge the gap to create heavier elements. The Alpher-Bethe-Gamow theory does, however, correctly explain the abundances of hydrogen and helium, which together account for more than 99 percent of the baryonic matter in the universe.

Following the publication, Alpher still had to complete his Ph.D., which he was working on at night while holding day jobs with the Navy and with Johns Hopkins Applied Physics Lab. Scientists and the press heard about the Alpher-Bethe-Gamow result, and 300 people crowded in to hear Alpher’s thesis defense at George Washington University in the spring of 1948. *The Washington Post*, hearing Alpher’s statement that the creation of hydrogen and helium in the hot big bang took just 300 seconds, boldly reported that the “World Began in Five Minutes.”

Alpher was awarded his Ph.D., but his 15 minutes of fame soon ended. After finishing his Ph.D., he and Robert Herman (who resisted Gamow’s efforts to get him to change his name to Delter) continued work on the early universe. That research led them to predict the cosmic microwave background (CMB), but their prediction was ignored, and they were not given credit when the CMB was discovered in 1964. Alpher later became a researcher at General Electric and a professor at Union College. Gamow went on to study other topics as well, dabbling in the chemistry of DNA. Alpher died in 2007, shortly after receiving the National Medal of Science.

## APS physics Capitol Hill Quarterly

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## Number of Physicists in Congress Jumps by Fifty Percent

Former Fermilab physicist Bill Foster is the newly elected representative for the Illinois 14th Congressional District. He is now the third physicist and third APS Fellow in Congress, joining Vernon Ehlers (MI-3rd) and Rush Holt (NJ-12th).

Foster defeated Republican dairy magnate Jim Oberweis in a special election held March 8 to replace retired representative and former Republican House Speaker, Dennis Hastert. He will now serve the rest of Hastert's term and face Oberweis again in the regular election in November.

The Illinois 14th congressional district includes the western suburbs of Chicago, including the area where Fermilab is located. Foster, a Democrat, captured 52 percent of the vote in the usually Republican-leaning district.

Dozens of scientists, including 28 Nobel laureates, endorsed Foster.

"The scientific community was very excited by the prospect of having another scientist in Congress because there's been a lack of understanding of and respect for science in the public policy realm," said Foster's press secretary Andrew Dupuy.

Voters also saw value in Foster's background as a physicist, according to Dupuy.

"People want change, and send-

ing a scientist to Congress certainly represents a change. Most of the challenges facing this country are economic or technological, and as a businessman and a scientist, Congressman Foster has the background and experience to address those issues," explained Dupuy.

"Energy policy would be an obvious example. Foster's understanding of science is vital to finding solutions for energy independence," said Dupuy.

Foster received a bachelor's degree in physics from the University of Wisconsin, Madison, in 1975 and a Ph.D. in physics from Harvard University in

1984. During his 22 years at Fermilab, Foster played a leading role in the design and building of several particle physics experiments. As a member of the Collider Detector at Fermilab collaboration, he designed much of the original electronics and participated in the discovery of the top quark. He was also a co-inventor of Fermilab's Antiproton Recycler Ring. In addition to being a physicist, Foster is a successful businessman. When he was 19, Foster and his brother started a theater lighting company, Electronic Theatre Controls, which now provides more than 70 percent of the theater lighting in the U.S.

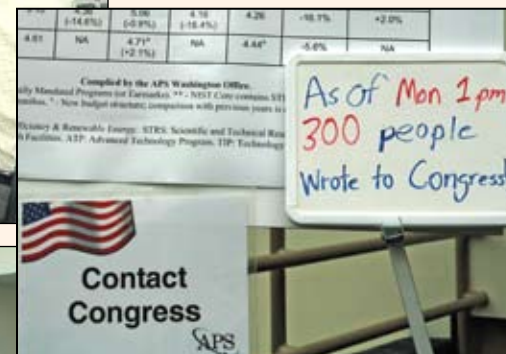


U.S. Rep. Bill Foster (IL-14<sup>th</sup>)

## APS Members Contact Congress During March Meeting



During the 2008 APS March (10-14) Meeting in New Orleans, more than 1,700 APS members wrote to their congressional representatives at the Washington Office's Contact Congress booth to advocate for funding for basic scientific research.



Photos by Ken Cole/APS Staff

## Over 300 Universities Endorse Joint Statement on Education

By Calla Cofield

More than 300 physics departments have endorsed the physics societies' Joint Statement on the Education of Future Physics Teachers, representing nearly half of the physics departments in the U.S.

The statement encourages physical science and engineering departments to "take an active role in improving the pre-service training of K-12 physics and science teachers."

APS has sought endorsements from physics department heads since 2003.

"Good science and mathematics education will help create a scientifically literate public, capable of making informed decisions on public policy involving scientific matters. A strong K-12 physics education is also the first step in producing the next generation of researchers, innovators and technical workers," according to the joint statement.

In 1999, the American Institute of Physics (AIP), the American Association of Physics Teachers (AAPT), and APS jointly developed the statement to address the national need for improved K-12 physics education and the responsibility of

undergraduate physics departments to train future teachers. Many physics departments are not currently involved in future teacher education.

"It's not a new problem; it's something people keep rediscovering," said APS Executive

Officer Judy Franz, referring to the lack of attention given to teacher education programs within physics departments.

Information on PhysTEC can be found at [www.phystec.org](http://www.phystec.org).

The full statement and list of departments that have endorsed the statement can be found at <http://www.aps.org/programs/education/future-teachers.cfm>.



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The endorsement of the state-

ment requires no formal commitment by the departments, but is an acknowledgement that they do have a responsibility for future physics teachers.

Franz added, "Now the next step is to sustain and act on that responsibility. This is important."

To address the need for improved physics teacher preparation, AIP, APS and AAPT initiated the Physics Teacher Education Coalition (PhysTEC) project in 2001.

"The PhysTEC project has been successful at helping institutions develop sustainable programs in teacher education while recognizing the significant faculty workload in research and teaching," said Ted Hodapp, APS director of education and diversity. "With the dramatic shortages of qualified physics teachers, the community must act collectively to take responsibility in this important area."

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## APS President Bienenstock Highlights Yearly Goals

**Q:** What do you see as the most pressing issues facing the physics community right now?

**A:** Four interrelated issues are the most compelling to me. As you might imagine, the first is research funding. For the past 30 years, inflation-corrected funding for physical sciences and engineering research has remained essentially flat, hurting the physics community and the nation in ways we know well. The President and Congress have clearly recognized the need for significant funding increases, but it is not at all clear that appropriations will follow.

Also extremely important is the state of pre-college physics education. Only about one-third of high school physics teachers have a physics or physics education degree. If this situation is to improve, academic physics departments must work cooperatively with schools of education.

(Third), if the nation is to have the physicists and physics teachers we need, we must increase the number of physics majors significantly, including the participation of women and underrepresented

minorities in these professions. The importance of women to the field is illustrated in part by AIP (American Institute of Physics) data that indicate that while the total number of people earning physics bachelor's went from about 5,300 in 1972 to about 3,700 in 1999 and then rose again to about 5,000 in 2004, the numbers for women increased from about 400 to 1,200 over the same period. Without the increased participation of women, the decrease from 1972 to 2004 would have been dramatic. Efforts to attract African-Americans and Hispanics have been considerably less successful.



Arthur Bienenstock

The fourth issue is ensuring that our journals remain viable in the face of movements toward open access. It's vital to maintain the journals' peer review and editing systems. Finding financing for them within an open access system is difficult.

These are all endeavors in which the American Physical Society has been active prior to my becoming president, and my intention is to help push them along.

# The Back PAGE

## Investing in Science Leads to a Stronger Economy

By U.S. Rep. Rosa DeLauro (CT-3<sup>rd</sup>)



Today's economy weighs heavily on America's families. Incomes are flat, while everything else goes up—gas prices, food prices, the cost of health care and education. Today with almost no margin for error, we have a responsibility to make the long-term investment in our economy, so families and businesses will have the room they need to survive and succeed down the road.

That means developing the new technologies that create new jobs through our innovation industries, America's economic backbone. If we want to make opportunity real for more Americans—if we want to keep our nation strong and competitive even as our new economy continues to change—there is no better way to do it than by investing in science, research, and technology.

It begins with an investment in our human capital. After all, in the future our nation's economic success will ultimately depend on its ability to consistently produce a highly skilled workforce. Unfortunately, many Americans are not prepared to be a part of that workforce or to move beyond the entry level employment.

In my state, Connecticut, only 60 percent of adults have adequate literacy skills to function effectively in the workplace. And 32 percent of employers report that poor reading and writing skills are among the most serious skill deficiencies of currently hourly production employees. Those facts represent a real systemic failure within our society and we simply should not accept it. As employers, we cannot afford it and as a larger community, our economy cannot sustain it. Our conscience should not either.

**"If we want to make opportunity real for more Americans—if we want to keep our nation strong and competitive even as our new economy continues to change—there is no better way to do it than by investing in science, research, and technology."**

The American people recognize how closely tied access to a quality education is to our economic prosperity. It is time our public policy did as well. We need to revamp our focus on the STEM fields—science, technology, engineering and mathematics.

And there is no doubt that our universities and com-

munity colleges have a big role to play in increasing support for scientific research and encouraging young scientists and researchers to pursue high-risk/high-reward research. Across the board, from manufacturing to high tech, American competitiveness will only be as strong as our institutions of higher learning.

At the same time we must take steps to keep our economy and its businesses competitive in the years ahead. Last summer, Congress passed the America COMPETES ACT to do just that, establishing the Advanced Research Projects-Agency (ARPA-E) to engage in those high-risk, high-reward energy research projects under the Department of Energy.

These are effective initiatives on their own—but they also represent a broader policy which says we must use our federal government's resources and leadership as a catalyst to spur growth, bolster our economy, and maintain America's position as a global economic leader. We want to strengthen our workforce today and make sure it is the world's best and brightest tomorrow. We want a bold national policy that genuinely values science.

Economic experts have concluded that science-driven

en technology has accounted for more than 50 percent of the growth of the U.S. economy during the last half-century. We have a responsibility to continue investing in that science so that it pays still more dividends in the century ahead. That is why the House Democrats' Innovation Agenda calls for a doubling of the National Science Foundation and the Department of Energy's Office of Science budgets over the next 10 years.

Yet, despite overwhelming support for that goal, reaffirmed by higher funding levels included in the America COMPETES Act, we still face an uphill battle in delivering much needed resources. This past year with a new majority, we fought for increased funding. But the president's veto threat led to an end-of-the-year funding package where the Department of the Energy's Office of Science funding failed to receive significant new money—even falling short of meeting the rate of inflation.

As a result, hundreds of scientists were furloughed or laid off, critical science facilities had to reduce their research, and American involvement in key international science projects has been compromised. We feel the consequences in both the public and private sector, and if we continue to short fund this kind of important science, the generations that follow will be forced to pay the price.

I will continue working to put us back on the path to doubling our investment in science over the next ten years. That means \$7.3 billion for the National Science Foundation and \$4.7 billion for the Office of Science for fiscal year 2009.

**"Economic experts have concluded that science-driven technology has accounted for more than 50 percent of the growth of the U.S. economy during the last half-century."**

When we fulfilled a similar promise, doubling the National Institutes of Health budget, from 1998 to 2003, the transformation was remarkable and impact was tangible. We can do the same when it comes to basic scientific research. We know the challenges—but we also know the potential. It starts with making our case to our colleagues—to lawmakers and stakeholders—that the power and impact of research and development are not fantasy. They are very real and very much in our sights.

No where is that more clear than in our work to achieve energy independence. Getting there will require, first and foremost, a broad and growing base of academic, scientific, and technological knowledge, responding to the demands for more efficiency and smarter technology for our cars, homes, businesses, and industry. And it will mean investing in our communities

and plugging their resources and workforce into vibrant, expanding markets.

With energy prices soaring, Americans are concerned and they believe higher prices lie ahead. That—combined with a new consciousness about climate change—has fostered a national urgency to move away from our dependence on oil. So change is possible but there are plenty of obstacles to good policy outcomes. Our real challenge is creating an environment where research is supported, private investment can thrive and the government can lead.

Last December, in the Congress we passed the Energy Independence and Security Act to make investments across the spectrum, to promote renewable energy, grow our economy, create new jobs, lower energy prices, and begin to address global warming. It is an ambitious initiative, to be sure, but nothing less will secure our nation's energy future. It is time to stop talking about energy independence, and start moving toward it.

A 2006 study from the National Renewable Energy Lab (NREL) identified the shortage of skills and training as a leading barrier to renewable energy and energy efficiency growth. It pointed to critical unmet training needs, including lack of reliable installation and maintenance services as well as the failure of our educational system to provide adequate training in new technologies. And so, because American know-how and ingenuity should be a source of growth not an obstacle to it, we authorized \$125 million to establish national and state job training programs in the renewable energy and energy efficiency fields, training a quality workforce for "green" collar jobs—such as solar panel manufacturer and green building construction workers.

No matter what great national challenges we face, today and on the horizon—whether it is energy security, health care reform, or some test we cannot even yet imagine—there is no doubt that groundbreaking science will be integral. Our response must not only be practical and effective. It must also reflect our priorities, as a nation that meets its obligations, values science, and believes in the power of making the once-impossible possible.

Congresswoman Rosa DeLauro (D-CT 3<sup>rd</sup>) serves as the chair of the House Appropriations Subcommittee on Agriculture, Rural Development, Food and Drug Administration and Related Agencies, as well as the vice-chair of the House Budget Committee.

**"I will continue working to put us back on the path to doubling our investment in science over the next ten years."**