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COMMITTEE MARKUPS OF H.RES. 72, H.CON.RES. 76, H.RES. 252, H.CON.RES. 95, H.RES. 316, H.R. 364, H.RES. 487, H.R. 2850, AND H.R. 5789

COMPILATION OF MARKUPS

BEFORE THE

COMMITTEE ON SCIENCE AND TECHNOLOGY
HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

FIRST AND SECOND SESSIONS

2007–2008

Serial No. 110–54

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PROCEEDINGS OF THE FULL COMMITTEE MARKUP ON H.RES. 72, RECOGNIZING THE WORK AND ACCOMPLISHMENTS OF MR. BRITT "MAX" MAYFIELD, DIRECTOR OF THE NATIONAL HURRICANE CENTER'S TROPICAL PREDICTION CENTER UPON HIS RETIREMENT

WEDNESDAY, JANUARY 31, 2007

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
Washington, DC.

The Committee met, pursuant to call, at 11:05 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Bart Gordon [Chairman of the Committee] presiding.

Chairman GORDON. Welcome, everyone, to the Committee of Science and Technology, and we will come to order. Pursuant to notice, the Committee meets to consider the following measures: H.R. 547, the *Advanced Fuels Infrastructure Research and Development Act;* H.Res. 72, *Recognition of the work and accomplishments of Mr. Britt Max Mayfield, Director of the National Hurricane Center's Tropical Prediction Center upon his retirement.* We are moving forward now for two reasons: one is because it is time to move forward, and the second is that we are going to be having votes in about 15 minutes. And if some of your Members aren't here yet, we are not trying to preempt them but rather provide them the courtesy of being able to get to vote and not have to come back.

We now will consider H.Res. 72, *Recognizing the work and accomplishments of Mr. Britt "Max" Mayfield, Director of the National Hurricane Center's Tropical Prediction Center upon his retirement.* I yield myself five minutes.

Today, as I said, the House will consider H.Res. 72, introduced by Representative Tim Mahoney. H.Res. 72 recognizes the work and the accomplishments of Mr. "Max" Mayfield, who recently retired from his position as Director of the National Hurricane Center's Tropical Prediction Center. The NOAA Hurricane Center, part of NOAA's National Weather Service, has been a focal point of the Nation's hurricane forecast and warnings programs for 50 years. The mission of the Hurricane Center is to save lives, mitigate property loss by issuing the best watches, warnings, and forecasts of hazardous tropical weather. Mr. Mayfield attained national celebrity status during the period of 2004 and 2005 hurricane season,

appearing on television with hourly updates as Hurricanes Charlie, Ivan, Francis, Wilma bore down on the Southeastern United States. With his calm and steady presence, Mr. Mayfield helped millions of Americans prepare for hurricanes during his tenure with the National Hurricane Center. H.Res. 72 thanks Mr. Mayfield for his service, which has undoubtedly helped to save countless lives and the property of citizens around the world.

Mr. Mayfield will be missed. He has served our nation with distinction for 30 years. I can think of no better mentor and teacher for our current and future meteorological professionals. Mr. Mayfield's knowledge, experience, and sound direction have been assets to the safety of our nation and security of our citizens. I ask my colleagues on the Committee to support this resolution.

[The prepared statement of Chairman Gordon follows:]

PREPARED STATEMENT OF CHAIRMAN BART GORDON

Today the Committee will consider House Resolution 72, introduced by Representative Tim Mahoney.

H.Res. 72 recognizes the work and accomplishments of Mr. Max Mayfield, who recently retired from his position as Director of the National Hurricane Center's Tropical Prediction Center.

The National Oceanic and Atmospheric Administration's (NOAA) National Hurricane Center, part of NOAA's National Weather Service, has been the focal point of the Nation's hurricane forecast and warning program for 50 years. The mission of the hurricane center is to save lives and mitigate property loss by issuing the best watches, warnings, and forecasts of hazardous tropical weather.

Mr. Mayfield attained national celebrity status during the tempestuous 2004 and 2005 hurricane seasons, appearing on television with hourly updates as hurricanes Charley, Ivan, and Wilma bore down on the Southeastern United States. With his calm and steadying presence, Mr. Max Mayfield helped millions of Americans prepare for hurricanes during his tenure with the National Hurricane Center.

H.Res. 72 thanks Mr. Mayfield for his service, which has undoubtedly helped to save countless lives and the property of citizens around the world.

In addition, this resolution commends Mr. Mayfield's dedication to expanding educational opportunities for State and local emergency management officials and acknowledges the critical role that Mr. Mayfield has played in forecast and service improvements over his 34-year career.

Born in Oklahoma, Mr. Mayfield holds a Bachelor's degree in mathematics from the University of Oklahoma and a Master's degree in meteorology from Florida State University. Getting his start on the ground floor, Max joined the hurricane center in 1972 as an intern. In 1988, he became a hurricane forecaster, rising to senior forecaster two years later. Mr. Mayfield was named Deputy Director in 1998 and became Acting Director in January 2000 when Jerry Jarrell retired.

Mr. Mayfield will be missed. He has served our nation with distinction for over 30 years. Mr. Mayfield is well known to all of our citizens, especially those in hurricane-prone areas. Mr. Mayfield's leadership of his forecasting team at the National Hurricane Center, his clear presentation of hurricane forecasts, and his abilities to coordinate and communicate with local emergency management personnel resulted safer and better informed communities.

The National Weather Service and the National Hurricane Center—under the Directorship of Mr. Mayfield—did an excellent job of predicting the track of the storm and issuing watches and warnings that permitted State and local officials to evacuate many of the people who were in the path of this devastating storm.

The U.S. Department of Commerce recognized Mr. Mayfield with Gold Medals for his work during Hurricane Andrew (1992) and Hurricane Isabel (2003), and a Silver Medal during Hurricane Gilbert (1988). He was also awarded a National Oceanic and Atmospheric Administration (NOAA) Bronze Medal for creating a public-private partnership to support the Nation's disaster preparedness.

Max Mayfield has set a high standard for future Directors of the Hurricane Center.

I suspect he will continue to be involved in meteorology through his membership in the American Meteorological Society.

I can think of no better mentor and teacher for current and future meteorological professionals.

Mr. Mayfield's knowledge, experience and sound direction have been assets to the safety of our nation and the security of our citizens. I ask my colleagues on the Committee to support this resolution.

Chairman GORDON. And now I recognize Mr. Bonner for five minutes.

Mr. BONNER. Thank you, Mr. Chairman. As one of the few Members of the Gulf Coast who has had firsthand experience dealing with Mr. Mayfield, I, too, commend you for bringing this resolution to the Floor today, and am pleased that the Committee is considering H.Res. 72, *Recognizing the work and accomplishments of Mr. Britt "Max" Mayfield, Director of the National Hurricane Center's Tropical Prediction Center upon his retirement.*

For 34 years, Mr. Mayfield served our country as a meteorologist. For the last six years, however, he was the face and voice Americans turned to and trusted for the latest information about hurricanes and tropical storms. Over the years, his forecasts have saved thousands of lives by providing advanced warnings so people could evacuate prior to storms hitting.

For each tropical storm or hurricane that threatens America's coastline, Mr. Mayfield and the staff of the National Hurricane Center, worked around the clock, gathering information about the storms and constantly improving the projection of the storm's track. As the storm nears the U.S. coast, they often spend days at a time at the National Hurricane Center making sure that the public continues to receive vital forecasts and warning information. Throughout his distinguished career, Mr. Mayfield went above and beyond his responsibilities by spending much of the off-season doing outreach to communities to make sure they are prepared for hurricanes and know what to do to protect themselves from these deadly storms.

Mr. Chairman, I am pleased to join my colleagues in honoring this outstanding public servant. Just a few minutes ago, I had the pleasure of meeting with eight young ladies, who are here as part of "Students of the Storm," young students, who have come up from New Orleans, to remind America that the devastation of Hurricane Katrina still exists. And I know they believe, as we all do, that "Max" Mayfield helped save lives, even during the worst natural disaster in American history.

I yield back the balance of my time.

Chairman GORDON. Thank you, Mr. Bonner, and we look forward to your active participation in the NOAA legislation this year. You have firsthand knowledge and can be a real asset to us.

Does anyone else wish to be recognized?

Then I ask unanimous consent that the bill is considered as read and open to amendment, and that Members proceed with the amendments in the order of the roster. Without objection, so ordered.

Are there any amendments?

Hearing none, the vote is on the bill, H.Res. 72, *Recognizing the work and accomplishments of Mr. Britt "Max" Mayfield, Director of the National Hurricane Center's Tropical Prediction Center upon his retirement.* All of those in favor will say aye. All of those opposed, say no. In the opinion of the Chair, the ayes have it.

I recognize Mr. Hall to offer a motion.

Mr. HALL. Mr. Chairman, I move that the Committee favorably report H.Res. 72 to the House with the recommendation that the bill do pass. Furthermore, I move that the staff be instructed to make necessary technical and conforming changes, and that the Chairman take all necessary steps to bring the bill before the House for consideration.

I yield back my time.

Chairman GORDON. The question is on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. Opposed, no. The ayes have it, and the bill is favorably reported.

Without objection, the motion to reconsider is laid upon the table. I move that Members have two subsequent calendar days in which to submit supplemental, minority, or additional views on the measure. I move pursuant to Clause 1 of the Rule 22 of the House of Representatives, that the Committee authorize the Chairman to offer such motions as may be necessary in the House to adopt and pass H.Res. 72, *Recognizing the work and accomplishments of Mr. Britt "Max" Mayfield, Director of the National Hurricane Center's Tropical Prediction Center upon his retirement.* Without objection, so ordered.

And let me say to our new Members and other Members today. This was a bit of a bim-bam operation today, the reason being a couple of things. First of all, these bills were well vetted. They were bipartisan. Also, we had consultation with our other committees of jurisdiction. And as I mentioned to you, we are going to be having votes any moment now. Let this be the opening of discussion about climate change, of energy, and of alternative energies. We have got a lot to do here. I know that Mrs. Biggert has a couple of bills that she has just introduced. We are looking forward to those. Mrs. Biggert, we are glad you are here. And we welcome other bills on this issue. We want to try to get a good idea, vet it well, take it out and get it passed, and then we hope that you will talk with senators in your states, and we will get some things done.

So I want to thank the Members for their attendance, and this concludes our markup.

[Whereupon, at 11:29 a.m., the Committee was adjourned.]

Appendix:

H.Res. 72

110TH CONGRESS
1ST SESSION

H. RES. 72

Recognizing the work and accomplishments of Mr. Britt "Max" Mayfield, Director of the National Hurricane Center's Tropical Prediction Center upon his retirement.

IN THE HOUSE OF REPRESENTATIVES

JANUARY 17, 2007

Mr. MAHONEY of Florida (for himself, Mr. HASTINGS of Florida, Mr. LINCOLN DIAZ-BALART of Florida, Mr. PUTNAM, Ms. ROS-LEHTINEN, Mr. BILIRAKIS, Mr. MILLER of Florida, and Mr. BOYD of Florida) submitted the following resolution; which was referred to the Committee on Science and Technology

---

RESOLUTION

Recognizing the work and accomplishments of Mr. Britt "Max" Mayfield, Director of the National Hurricane Center's Tropical Prediction Center upon his retirement.

Whereas Mr. Britt "Max" Mayfield is known as the "Walter Cronkite of Weather", trustworthy, calming, and always giving the facts straight;

Whereas Mr. Mayfield is a Fellow of the American Meteorological Society and a nationally and internationally recognized expert on hurricanes, and has presented papers at national and international scientific meetings, lectured in training sessions sponsored by the United Nations World

Meteorological Organization, and provided numerous interviews to electronic and print media worldwide;

Whereas in 2006, Mr. Mayfield received the Government Communicator of the Year Award from the National Association of Government Communicators, a national not-for-profit professional network of government employees who disseminate information within and outside the government, as well as the prestigious Neil Frank Award from the National Hurricane Conference;

Whereas in 2005, Mr. Mayfield received a Presidential Rank Award for Meritorious Service from President George W. Bush and was named ABC Television Network's ''Person of the Week'' after Hurricane Katrina;

Whereas in 2004, the Federal Coordinator for Meteorological Services and Supporting Research presented the Richard Hagemeyer Award to Mr. Mayfield at the Interdepartmental Hurricane Conference for his contributions to the hurricane warning program of the United States;

Whereas also in 2004, the National Academy of Television Arts and Sciences Suncoast Chapter recognized Mr. Mayfield with the Governor's Award, more commonly known as an ''Emmy'', for extraordinary contributions to television by an individual not otherwise eligible for an Emmy;

Whereas in 2000, Mr. Mayfield received an Outstanding Achievement Award at the National Hurricane Conference and in 1996 the American Meteorological Society honored him with the Francis W. Reichelderfer Award for exemplary performance as coordinator of the National Hurricane Center's hurricane preparedness training for emergency preparedness officials and the general public;

Whereas Mr. Mayfield and his colleagues have been recognized by the Department of Commerce with Gold Medals for work during Hurricane Andrew in 1992 and Hurricane Isabel in 2003, and a Silver Medal during Hurricane Gilbert in 1988;

Whereas Mr. Mayfield was also awarded a National Oceanic and Atmospheric Administration Bronze Medal for creating a public-private partnership to support the disaster preparedness of the United States; and

Whereas Mr. Mayfield is the current Chairman of the World Meteorological Organization Regional Association-IV, which supports 26 members from Atlantic and eastern Pacific countries: Now, therefore, be it

Resolved, That the House of Representatives—

(1) honors Mr. Britt ''Max'' Mayfield's commitment to improving the accuracy of hurricane forecasting as Director of the National Hurricane Center's Tropical Prediction Center;

(2) thanks Mr. Mayfield for his service, which has undoubtedly helped to save countless lives and the property of citizens around the world;

(3) commends Mr. Mayfield's dedication to expanding educational opportunities for State and local emergency management officials;

(4) acknowledges the critical role that Mr. Mayfield has played in forecast and service improvements over his 34-year career;

(5) recognizes the unwavering support of Mr. Mayfield's family in supporting his career;

(6) wishes Mr. Mayfield continued success in his future endeavors; and

(7) recognizes the support and work of the staff of the National Hurricane Center's Tropical Prediction Center during Mr. Mayfield's tenure as Director of the Center.

○

PROCEEDINGS OF THE FULL COMMITTEE MARKUP ON H.CON.RES. 76, HONORING THE 50TH ANNIVERSARY OF THE INTERNATIONAL GEOPHYSICAL YEAR (IGY)

WEDNESDAY, MARCH 28, 2007

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
Washington, DC.

The Committee met, pursuant to call, at 10:07 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Bart Gordon [Chairman of the Committee] presiding.

Chairman GORDON. Good morning. The Committee on Science and Technology will come to order.

Pursuant to notice, the Committee meets to consider the following measures: H.R. 362, *"10,000 Teachers, 10 Million Minds" Math and Science Scholarship Act;* H.Con.Res. 76, *Honoring the 50th Anniversary of the International Geophysical Year;* and H.R. 252, *Recognizing the 45th Anniversary of John Herschel Glenn Jr.'s Historic Achievement in Becoming the First United States Astronaut to Orbit the Earth.*

We will now proceed with the markup.

Today, we are meeting to markup three bipartisan bills.

I realize that I am starting to sound like a broken record, but I sincerely hope that the Committee on Science and Technology is a place where Members of both parties can come together to get work done on important issues in a bipartisan way.

The important, non-partisan issue of this markup is competitiveness. This is one of the most critical issues facing our nation today. H.R. 362, the *"10,000 Teachers, 10 Million Minds" Science and Math Scholarship Act,* which I sponsored and which my friend, Ralph Hall, co-sponsored, takes a big step forward in dealing with the vital issues.

Together with H.R. 363, which this committee reported out earlier this month, these bills take the recommendations from the National Academy of Sciences *"Rising Above the Gathering Storm"* report, and turn them into real legislation that will make a difference.

In addition to H.R. 362, we are also marking up two other bills.

H.Con.Res. 76 is a resolution honoring the 50th anniversary of the International Geophysical Year, an international cooperative initiative that led to significant advances in space and Earth science, and which was marked by the dawn of the Space Age.

H.Res. 252 recognizes the 45th anniversary of John Glenn's historic space mission, in which he became the first American to orbit the Earth.

The space race of the 1950's and 1960's helped advance—to drive scientific achievement and technological innovation in the 20th century, and it is fitting that today, as we honor the scientific and technological achievements of the past, we are also helping to ensure this country's ability to make these great gains in the future.

[The prepared statement of Chairman Gordon follows:]

PREPARED STATEMENT OF CHAIRMAN BART GORDON

Today we are meeting to markup three bipartisan bills.

I realize that I'm starting to sound like a broken record, but I sincerely hope that the Committee on Science and Technology is a place where Members of both parties can come together to get work done on important issues in a bipartisan way.

The important, non-partisan issue of this markup is U.S. competitiveness. This is one of the most critical issues facing our nation today. H.R. 362, the *"10,000 Teachers, 10 Million Minds" Science and Math Scholarship Act,* which I sponsored and Ralph Hall co-sponsored, takes a big step forward in dealing with this vital issue.

Together with H.R. 363, which this committee reported out earlier this month, these bills take recommendations from the National Academy of Sciences *"Rising Above the Gathering Storm"* report, and turn them into real legislation that will make a difference.

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H.Res. 252 recognizes the 45th anniversary of John Glenn's historic space mission in which he became the first American to orbit the Earth.

The space race of the 1950's and 1960's helped to drive scientific achievement and technological innovation in the 20th century.

It is fitting that today, as we honor the scientific and technological achievements of the past, we are also helping to insure this country's ability to make these great gains in the future.

Chairman GORDON. I recognize Mr. Hall to present his opening remarks.

Mr. HALL. Mr. Chairman, I thank you, of course, as usual, for calling this markup today.

We have before us three measures, as you have stated, and a very important piece of innovation and competitiveness agenda that targets improving the caliber of our future K–12 math and science teachers and two space-related resolutions.

With regard to H.R. 362, I am very pleased to see us considering the bill. It has many of the elements that this committee passed last year. As I have stated before, I am especially pleased to see that we are using the University of Texas's UTeach program for the basis for a scholarship program for STEM students who commit to teaching K–12 science and math classes after graduation.

Now I understand that there will be an amendment in the nature of a substitute offered to H.R. 362, which includes agreed-upon improvements to the bill.

Mr. Chairman, I really do thank you for working with our side, as you have always done, on making these improvements, not only to the underlying measure, but also with regards to H.R. 524, the *Partnership for Access to Laboratory Science Act,* which I believe is also going to be offered as an amendment to H.R. 362.

Okay. With that, I yield back my time.

Chairman GORDON. Thank you, Mr. Hall, for your support of the bill and, more importantly, for your good additions to make a good bill even better.

Without objection, Members may place statements in the record at this point.

We now offer—we now will consider H.Con.Res. 76, Honoring the 50th Anniversary of the International Geophysical Year. I yield Mr. Udall five minutes to describe his bill.

Mr. UDALL. Thank you, Mr. Chairman.

I am pleased that we are here today to markup H.Con.Res. 76, which is a concurrent resolution honoring the 50th anniversary of the International Geophysical Year, also known as the IGY.

The resolution marks the 50th anniversary of the International Geophysical Year, honors its contributions to space research, and looks forward to future accomplishments.

I want to thank several of my colleagues from the Science and Technology Committee that joined me as original co-sponsors, and in particular I would thank, the Space and Aeronautics Subcommittee Ranking Member Calvert, Chairman Gordon, and Research and Science Education Subcommittee Chairman Baird for their support.

The International Geophysical Year of 1957/1958 was a highly-successful international effort involving 67 nations that came together during the Cold War to coordinate global observations and measurements of the solid Earth, oceans, the atmosphere, and the near-Earth space environment.

During the IGY, successful launches of the first artificial satellites took place, Sputnik 1 by the former Soviet Union, and Explorer 1 by the United States, marking the dawn of the space age. The Explorer 1 also enabled one of the most notable achievements of the IGY, the discovery of the belts of trapped, charged particles in the Earth's upper atmosphere by the late Dr. James Van Allen of Iowa.

I introduced a similar resolution in the 108th Congress, which passed the House, to honor the IGY and to encourage the celebration of its 50th anniversary throughout the country and the globe.

This year's commemoration serves to not only remember the great scientific work that was done during this period, but also to inspire the next generation of scientists and engineers, who will be critical to our continued progress and economic well being.

In that regard, H.Con.Res. 76 encourages the public and in particular our young people to participate in celebrations planned for the IGY anniversary year and to embrace challenging goals for future research in Earth and space science. So that we will be able to look back, 50 years from now, on equally exciting accomplishments and discoveries.

Mr. Chairman, I urge my colleagues to support this important resolution at today's markup in order that we may recognize and honor the 50th anniversary of the International Geophysical Year.

Thank you, and I would yield back my time.

[The prepared statement of Mr. Udall follows:]

PREPARED STATEMENT OF REPRESENTATIVE MARK UDALL

Thank you, Mr. Chairman. I am pleased that we are here today to mark up H.Con.Res. 76, *Honoring the 50th Anniversary of the International Geophysical Year (IGY).*

This resolution marks the 50th anniversary of the International Geophysical Year (IGY), honors its contributions to space research, and looks forward to future accomplishments.

I am pleased that several of my colleagues from the Science and Technology Committee have joined me as original co-sponsors and would like to thank Space and Aeronautics Subcommittee Ranking Member Calvert, Chairman Gordon, Research and Science Education Subcommittee Chairman Baird for their support.

The International Geophysical Year of 1957–1958 was a highly successful international effort involving 67 nations that came together during the Cold War to coordinate global observations and measurements of the solid Earth, oceans, the atmosphere, and the near-Earth space environment.

During the IGY, the successful launches of the first artificial satellites took place—Sputnik 1 by the former Soviet Union and Explorer 1 by the United States—marking the dawn of the Space Age.

Explorer 1 also enabled one of the most notable achievements of the IGY, the discovery of belts of trapped, charged particles in the Earth's upper atmosphere by the late Dr. James Van Allen of Iowa.

I introduced a similar resolution in the 108th Congress, which passed the House, to honor the IGY and to encourage the celebration of its 50th anniversary throughout the country and the globe.

This year's commemoration serves to not only remember the great scientific work that was done during the IGY, but also to inspire the next generation of scientists and engineers, who will be critical to our continued progress and economic well being.

In that regard, H.Con.Res. 76 encourages the public and in particular our young people to participate in celebrations planned for the IGY anniversary year and to embrace challenging goals for future research in Earth and space science—so that we will be able to look back, 50 years from now, on equally exciting accomplishments and discoveries.

Mr. Chairman, I urge my colleagues to support H.Con.Res. 76 at today's markup in order that we may recognize and honor the fiftieth anniversary of the International Geophysical Year.

Thank you and I yield back the balance of my time.

Chairman GORDON. Thank you, Mr. Udall.

The Chair recognizes Mr. Hall to present any remarks on the bill.

Mr. HALL. Mr. Chairman, I don't think there is any disagreement on this committee that it is appropriate to recognize the 50th anniversary of the International Geophysical Year and all of its contributions to scientific research.

We passed this exact same resolution two years ago in anticipation of the upcoming International Polar Year, which has now arrived. I believe the point of the resolution then was to encourage participation in future IGYs. Well, we are actively participating now.

I am not sure that I understand why we have chosen to omit any mention of the current IPY in this resolution, as our committee has jurisdiction over the most prominent federal agency participating in it.

In addition to NASA, which this resolution highlights, the National Science Foundation and the National Oceanic and Atmospheric Administration and the Department of Energy are all very actively participating. In fact, NSF is the lead U.S. agency for this endeavor.

Now Mr. Chairman, I support this resolution, because I agree with everything it states, however, I believe the current IPY also has a potential to have an even greater impact on our future. On

a day when we are reporting innovation and competitiveness legislation, I feel it is only appropriate to also tip our hats to the current IPY that "promises to bring about fundamental advances in many areas of science and to fire the enthusiasm of young men and women for careers in science and engineering."

At this time, I would like to yield Mr. Calvert the balance of my time.

[The prepared statement of Mr. Hall follows:]

PREPARED STATEMENT OF REPRESENTATIVE RALPH M. HALL

Mr. Chairman, I do not think there is any disagreement on this committee that it is appropriate to recognize the 50th anniversary of the International Geophysical Year (IGY) and ALL of its contributions to scientific research. We passed this exact same resolution two years ago in anticipation of the upcoming International Polar Year (IPY), which has now arrived. I believe the point of the resolution then was to encourage participation in future "IGYs." Well, we are actively participating now.

I am not sure I understand why we have chosen to omit any mention of the current IPY in this resolution, as our committee has jurisdiction over the most prominent federal agencies participating in it. In addition to NASA, which this resolution highlights, the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration (NOAA), and the Department of Energy are all very actively participating. In fact, NSF is the lead US agency for this endeavor.

Mr. Chairman, I support this resolution because I agree with everything it states; however, I believe the current IPY also has the potential to have an even greater impact on our future. On a day when we are reporting innovation and competitiveness legislation, I feel it is only appropriate to also tip our hats to the current IPY that "promises. . .to bring about fundamental advances in many areas of science, and to fire the enthusiasm of young men and women for careers in science and engineering."

Mr. CALVERT. Thank you, Mr. Hall.

I have, really, no further comment other than the fact that I am happy to join Congressman Udall as an original co-sponsor and would encourage everyone's support, and I certainly share the comments of Mr. Hall, also.

Thank you.

Chairman GORDON. Thank you, Mr. Hall and Mr. Calvert.

Does anyone else wish to be recognized?

I ask unanimous consent the bill is considered as read and open to amendment and that any Members—and that Members proceed with the amendments in the order of the roster. Without objection, so ordered.

Are there any amendments?

Hearing none, the vote is on the bill, H.Con.Res. 76. All in favor will say aye. All of those opposed, say no. In the opinion of the Chair, the ayes have it.

I recognize Mr. Hall for a motion.

Mr. HALL. Mr. Chairman, I move that the Committee favorably report House Concurrent Resolution 76 to the House with the recommendation that the bill do pass. Furthermore, I move that the staff be instructed to make necessary technical and conforming changes and that the Chairman take all necessary steps to bring the bill before the House for consideration.

I yield back.

Chairman GORDON. The question on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. Opposed, no. The ayes have it. The bill is favorably reported.

Without objection, the motion to reconsider is laid upon the table. I move that Members have two subsequent calendar days in which to submit supplemental, minority, or additional views on the measure. I move pursuant to Clause 1 of Rule 22 of the Rules of the House of Representatives that the Committee authorize the Chairman to offer such motions as may be necessary in the House to adopt and pass H.Con.Res. 76, *Honoring the 50th Anniversary of the International Geophysical Year.* Without objection, so ordered.

I want—let me, again, thank all you Members today. This has been another, I think, productive markup, bipartisan, non-partisan, that I hope that everyone will go home and take credit for it, because you all deserve it.

And I will see you on the Floor probably the first week that we come back.

And the Committee is adjourned.

[Whereupon, at 11:17 a.m., the Committee was adjourned.]

Appendix:

H.CON.RES. 76

110TH CONGRESS
1ST SESSION

H. CON. RES. 76

Honoring the 50th Anniversary of the International Geophysical Year (IGY) and its past contributions to space research, and looking forward to future accomplishments.

IN THE HOUSE OF REPRESENTATIVES

MARCH 1, 2007

Mr. UDALL of Colorado (for himself, Mr. CALVERT, Mr. GORDON of Tennessee, and Mr. BAIRD) submitted the following concurrent resolution; which was referred to the Committee on Science and Technology

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CONCURRENT RESOLUTION

Honoring the 50th Anniversary of the International Geophysical Year (IGY) and its past contributions to space research, and looking forward to future accomplishments.

Whereas the year 2007–2008 is the 50th anniversary of the International Geophysical Year (IGY) of 1957–1958;

Whereas the IGY initiated the Space Age with the successful launch of the first artificial satellites, Sputnik by the former Soviet Union, and Explorer I by the United States;

Whereas the interdisciplinary approach of IGY and the use of new space-based platforms enabled fundamental changes in the conduct of research concerning the Earth and its surrounding space environment;

Whereas the interdisciplinary approach of IGY enabled coordinated, synchronous, global observations and measurements of the Earth, oceans, atmosphere, ice, and near-Earth space environment;

Whereas the IGY increased our understanding of the causes of magnetic storms, ionospheric disturbances, and the origins of cosmic rays;

Whereas the use of new space-based platforms enabled the discovery of the Van Allen radiation belts, which are trapped, charged particles in the Earth's upper atmosphere, showed that those particles form belts of energy around the Earth, and contributed to the understanding of the Northern Lights;

Whereas the IGY, involved thousands of scientists from 67 nations;

Whereas the IGY, which occurred during the height of Cold War tensions, facilitated international cooperation in science and helped lead to the Antarctic Treaty, which established the use of Antarctica for peaceful purposes and promoted continued, cooperative scientific investigations on the continent;

Whereas the IGY led to the creation of institutional structures that continue to promote and enable the international exchange of scientific research related to the Earth and space, including the International Council on Science's Committee on Space Research (COSPAR), Scientific Committee on Antarctic Research (SCAR), and Scientific Committee on Oceanic Research (SCOR); and

Whereas this 50th anniversary celebration offers as an opportunity to inspire our public and youth to build on the legacy of success of the IGY, recognizing that a coordinated,

international approach to interdisciplinary scientific challenges such as climate change, high energy physics, and space exploration contributes to the advancement of knowledge and sustains the cooperative spirit and goodwill among nations set forth in the IGY: Now, therefore, be it

Resolved by the House of Representatives (the Senate concurring), That the Congress—

(1) honors the 50th anniversary of the International Geophysical Year (IGY) and its contributions to the scientific investigations of the Earth and outer space; and

(2) encourages the public, and especially American youth, to attend IGY celebrations and seminars, such as those being planned at locations around the United States by the National Academy of Sciences and other organizations, and participate in discussions about the future of space science and Earth science.

○

PROCEEDINGS OF THE FULL COMMITTEE MARKUP ON H.RES. 252, RECOGNIZING THE 45TH ANNIVERSARY OF JOHN HERSCHEL GLENN, JR.'S HISTORIC ACHIEVEMENT IN BECOMING THE FIRST UNITED STATES ASTRONAUT TO ORBIT THE EARTH

WEDNESDAY, MARCH 28, 2007

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
Washington, DC.

The Committee met, pursuant to call, at 10:07 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Bart Gordon [Chairman of the Committee] presiding.

Chairman GORDON. Good morning. The Committee on Science and Technology will come to order.

Pursuant to notice, the Committee meets to consider the following measures: H.R. 362, *"10,000 Teachers, 10 Million Minds" Math and Science Scholarship Act;* H.Con.Res. 76, *Honoring the 50th Anniversary of the International Geophysical Year;* and H.R. 252, *Recognizing the 45th Anniversary of John Herschel Glenn Jr.'s Historic Achievement in Becoming the First United States Astronaut to Orbit the Earth.*

We will now proceed with the markup.

Today, we are meeting to markup three bipartisan bills.

I realize that I am starting to sound like a broken record, but I sincerely hope that the Committee on Science and Technology is a place where Members of both parties can come together to get work done on important issues in a bipartisan way.

The important, non-partisan issue of this markup is competitiveness. This is one of the most critical issues facing our nation today. H.R. 362, the *"10,000 Teachers, 10 Million Minds" Science and Math Scholarship Act,* which I sponsored and which my friend, Ralph Hall, co-sponsored, takes a big step forward in dealing with the vital issues.

Together with H.R. 363, which this committee reported out earlier this month, these bills take the recommendations from the National Academy of Sciences *"Rising Above the Gathering Storm"* report, and turn them into real legislation that will make a difference.

In addition to H.R. 362, we are also marking up two other bills.

H.Con.Res. 76 is a resolution honoring the 50th anniversary of the International Geophysical Year, an international cooperative

initiative that led to significant advances in space and Earth science, and which was marked by the dawn of the Space Age.

H.Res. 252 recognizes the 45th anniversary of John Glenn's historic space mission, in which he became the first American to orbit the Earth.

The space race of the 1950's and 1960's helped advance—to drive scientific achievement and technological innovation in the 20th century, and it is fitting that today, as we honor the scientific and technological achievements of the past, we are also helping to ensure this country's ability to make these great gains in the future.

[The prepared statement of Chairman Gordon follows:]

PREPARED STATEMENT OF CHAIRMAN BART GORDON

Today we are meeting to markup three bipartisan bills.

I realize that I'm starting to sound like a broken record, but I sincerely hope that the Committee on Science and Technology is a place where Members of both parties can come together to get work done on important issues in a bipartisan way.

The important, non-partisan issue of this markup is U.S. competitiveness. This is one of the most critical issues facing our nation today. H.R. 362, the *"10,000 Teachers, 10 Million Minds" Science and Math Scholarship Act,* which I sponsored and Ralph Hall co-sponsored, takes a big step forward in dealing with this vital issue.

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H.Con.Res. 76 is a resolution honoring the 50th anniversary of the International Geophysical Year, an international cooperative initiative that led to significant advances in space and Earth science, and which was marked by the dawn of the Space Age.

H.Res. 252 recognizes the 45th anniversary of John Glenn's historic space mission in which he became the first American to orbit the Earth.

The space race of the 1950's and 1960's helped to drive scientific achievement and technological innovation in the 20th century.

It is fitting that today, as we honor the scientific and technological achievements of the past, we are also helping to insure this country's ability to make these great gains in the future.

Chairman GORDON. I recognize Mr. Hall to present his opening remarks.

Mr. HALL. Mr. Chairman, I thank you, of course, as usual, for calling this markup today.

We have before us three measures, as you have stated, and a very important piece of innovation and competitiveness agenda that targets improving the caliber of our future K–12 math and science teachers and two space-related resolutions.

With regard to H.R. 362, I am very pleased to see us considering the bill. It has many of the elements that this committee passed last year. As I have stated before, I am especially pleased to see that we are using the University of Texas's UTeach program for the basis for a scholarship program for STEM students who commit to teaching K–12 science and math classes after graduation.

Now I understand that there will be an amendment in the nature of a substitute offered to H.R. 362, which includes agreed-upon improvements to the bill.

Mr. Chairman, I really do thank you for working with our side, as you have always done, on making these improvements, not only to the underlying measure, but also with regards to H.R. 524, the

Partnership for Access to Laboratory Science Act, which I believe is also going to be offered as an amendment to H.R. 362.

Okay. With that, I yield back my time.

Chairman GORDON. Thank you, Mr. Hall, for your support of the bill and, more importantly, for your good additions to make a good bill even better.

Without objection, Members may place statements in the record at this point.

Chairman GORDON. We will now consider H.Res. 252, *Recognizing the 45th Anniversary of John Herschel Glenn, Jr.'s Historic Achievement in Becoming the First United States Astronaut to Orbit the Earth.* Can you believe it? It was 45 years.

I yield Mr. Wilson five minutes to describe his bill.

Mr. WILSON. Thank you, Mr. Chairman.

I am pleased to be an original co-sponsor of House Resolution 252, which commends the accomplishments of John Glenn, an American hero from my State of Ohio.

As a young man, John Glenn was a dedicated military officer, flying 149 missions during two wars. In 1959, he was selected as one of the original seven astronauts in the United States Space Program.

John Glenn's courage inspired the Nation and paved the way for generations of space exploration. As a Senator, he has helped build a safer world by co-authoring the *Nuclear Nonproliferation Act.* Since his retirement from the Senate, he has contributed in many ways to the greatness of America, especially by founding the John Glenn School of Public Affairs at the Ohio State University, which instills his values of courage, integrity, and service into the next generation of American leaders.

As a Member of the Science and Technology Committee in Ohio, and I am very pleased to be a co-sponsor of this legislation, honoring the 45th anniversary of John Glenn's orbital flight.

Thank you, Mr. Chairman, and I encourage my colleagues to support this resolution.

Chairman GORDON. I recognize Mr. Hall to present any remarks on the bill.

Mr. HALL. Mr. Chairman, House Resolution 252 honors the 45th anniversary, as you have stated, of John Glenn, Jr.'s historic mission as the first American to circle the Earth aboard the Mercury spacecraft, Friendship 7. His mission completed three orbits around the Earth, reaching an approximate maximum altitude of 162 statute miles and an approximate orbital velocity of 17,500 miles per hour. This was truly a landmark event in the progress of our human space flight program, and it was important as a catalyst to space exploration and scientific advancement in the United States. These early successes captured the minds and the imaginations of people all around the world.

After retiring from the space program, John Glenn continued to serve his country as a distinguished Member of the Senate for 24 years, and in 1998, John Glenn returned to space after 36 years as a member of the crew of the Space Shuttle Discovery, serving as a subject for basic research into the effects of weightlessness on the body of an older person.

John Glenn is truly an American hero. And it is high time we start recognizing these old guys.

And I yield back.

[The prepared statement of Mr. Hall follows:]

PREPARED STATEMENT OF REPRESENTATIVE RALPH M. HALL

Mr. Chairman, House Resolution 252 honors the 45th anniversary of John Herschel Glenn, Jr.'s historic mission as the first American to circle the Earth aboard the Mercury spacecraft "Friendship-7." His mission completed three orbits around Earth, reaching an approximate maximum altitude of 162 statute miles and an approximate orbital velocity of 17,500 miles per hour. This was truly a landmark event in the progress of our human space flight program, and was important as a catalyst to space exploration and scientific advancement in the United States. These early successes captured the minds and imaginations of people around the world. After retiring from the space program, John Glenn continued to serve his country as a distinguished Member of the Senate for 24 years. In 1998, John Glenn returned to space after 36 years as a member of the crew of the space shuttle Discovery, serving as a subject for basic research into the effects of weightlessness on the body of an older person. John Glenn is truly an American hero.

Chairman GORDON. Mr. Hall, are you volunteering for service?

Mr. HALL. I would like to volunteer the guy that is going to run against me for a space flight.

Chairman GORDON. Well, this resolution will be on the Floor, as mentioned, and we welcome everyone that wants to come to that. If there are any remarks now? John Glenn is a very decent, courageous public servant. I guess to quote someone, we are all Ohioans today, because he is for everybody.

Mr. HALL. Mr. Chairman, can I tell you a story about Glenn real brief?

Chairman GORDON. Certainly.

Mr. HALL. He was tired, and the campaign for President, came home all beat down, had a hard day. He was going down in the rankings and everything, and he came in and his wife was not just overly comforting to him, but his dog ran up and licked his hand. And he said, "You know, when I come home, I ought to have at least two friends here." She bought him another dog.

Mr. CALVERT. Mr. Chairman? Mr. Chairman?

Chairman GORDON. Mr. Calvert is recognized.

Mr. CALVERT. I just want to certainly join in our admiration of John Glenn, but I also want to point out another Ohioan, Neil Armstrong. And I think we are going to have an opportunity, hopefully, later this Congress, to recognize him, also. So I hope we take that opportunity to do so.

Chairman GORDON. We will welcome that opportunity and look forward to your leadership in that regard.

Anyone else?

Mr. SENSENBRENNER. Will the Chairman yield?

Chairman GORDON. Certainly.

Mr. SENSENBRENNER. Does all this talk mean we have to be for Ohio State this weekend?

Chairman GORDON. Any other—anyone else wish to make a comment, pertinent or not?

Okay. If not, I ask unanimous consent the bill is considered as read and open to amendment at any point and that the Members proceed with the amendment in the order of the roster. Without objection, so ordered.

Are there any amendments?

Hearing none, the vote is on the bill, H.Res. 252. All those in favor, say aye. All of those opposed, say no. In the opinion of the Chair, the ayes have it.

I will recognize Mr. Hall to offer a motion.

Mr. HALL. Mr. Chairman, I move that the Committee favorably report House Resolution 252 to the House with the recommendation that the bill do pass. Furthermore, I move that the staff be instructed to make necessary technical and conforming changes and that the Chairman take all necessary steps to bring the bill before the House for consideration.

I yield back.

Chairman GORDON. The question on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. Opposed, no. The ayes have it. The bill is favorably reported.

Without objection, the motion to reconsider is laid upon the table. I move that Members have two subsequent calendar days in which to submit supplemental, minority, or additional views on the measure. I move pursuant to Clause 1 of Rule 22 of the Rules of the House of Representatives that the Committee authorize the Chairman to offer such motions as may be necessary in the House to adopt and pass H.Res. 252, *Recognizing the 45th Anniversary of John Herschel Glenn, Jr.'s Historic Achievement in Becoming the First United States Astronaut to Orbit the Earth.* Without objection, so ordered.

Let me, again, thank all you Members today. This has been another, I think, productive markup, bipartisan, non-partisan, that I hope that everyone will go home and take credit for it, because you all deserve it.

And I will see you on the Floor probably the first week that we come back.

And the Committee is adjourned.

[Whereupon, at 11:17 a.m., the Committee was adjourned.]

Appendix:

H.Res. 252

110TH CONGRESS
1ST SESSION

H. RES. 252

Recognizing the 45th anniversary of John Herschel Glenn, Jr.'s historic achievement in becoming the first United States astronaut to orbit the Earth.

IN THE HOUSE OF REPRESENTATIVES

MARCH 15, 2007

Mr. SPACE (for himself, Ms. KAPTUR, Mr. KUCINICH, Mrs. JONES of Ohio, Mr. RYAN of Ohio, Ms. SUTTON, Mr. WILSON of Ohio, Mr. REGULA, Ms. PRYCE of Ohio, Mr. LATOURETTE, and Mr. JORDAN of Ohio) submitted the following resolution; which was referred to the Committee on Science and Technology

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RESOLUTION

Recognizing the 45th anniversary of John Herschel Glenn, Jr.'s historic achievement in becoming the first United States astronaut to orbit the Earth.

Whereas John Herschel Glenn, Jr. was born on July 18, 1921, in Cambridge, Ohio, and grew up in New Concord, a small college town a few miles from the larger city of Zanesville, Ohio;

Whereas John Glenn attended New Concord High School and earned a Bachelor of Science degree in engineering from Muskingum College, which also awarded him an honorary Doctor of Science degree in engineering;

Whereas John Glenn enlisted in the Naval Aviation Cadet Program shortly after the attack on Pearl Harbor and

was commissioned in the United States Marine Corps in 1943;

Whereas John Glenn served in combat in the South Pacific and also requested combat duty during the Korean conflict;

Whereas John Glenn was a dedicated military officer, flying 149 missions during 2 wars;

Whereas John Glenn received many honors for his military service, among them the Distinguished Flying Cross on 6 occasions, the Air Medal with 18 Clusters, the Asiatic-Pacific Campaign Medal, the American Campaign Medal, the World War II Victory Medal, the China Service Medal, the National Defense Service Medal, and the Korean Service Medal;

Whereas John Glenn served several years as a test pilot on Navy and Marine Corps jet fighters and attack aircraft;

Whereas, as a test pilot, John Glenn set a transcontinental speed record in 1957 by completing the first flight to average supersonic speeds from Los Angeles to New York;

Whereas John Glenn was a pioneer in the realm of space exploration and was selected in 1959 as one of the original 7 astronauts in the United States space program, entering the National Aeronautics and Space Administration's (NASA) Project Mercury;

Whereas John Glenn was assigned to the NASA Space Task Group at Langley Research Center in Hampton, Virginia;

Whereas, in 1962, the Space Task Group was moved to Houston, Texas, and became part of the NASA Manned Spacecraft Center;

Whereas, on February 20, 1962, John Glenn piloted the Mercury-Atlas 6 "Friendship 7" spacecraft on the first manned orbital mission of the United States;

Whereas, after launching from the Kennedy Space Center in Florida, John Glenn completed a 3-orbit mission around the planet, reaching an approximate maximum altitude of 162 statute miles and an approximate orbital velocity of 17,500 miles per hour;

Whereas John Glenn landed Friendship 7 approximately 5 hours later, 800 miles southeast of the Kennedy Space Center near Grand Turk Island;

Whereas, with that pioneering flight, John Glenn joined his colleagues Alan Shepard and Virgil Grissom in realizing the dream of space exploration and engaging the minds and imaginations of his and future generations in the vast potential of space exploration;

Whereas, after retiring from the space program, John Glenn continued his public service as a distinguished member of the Senate, in which he served for 24 years;

Whereas John Glenn has continued his public service through his work at the John Glenn Institute at Ohio State University, which was established to foster public involvement in the policy-making process, raise public awareness about key policy issues, and encourage continuous improvement in the management of public enterprise;

Whereas, in March 1999, Secretary of Education Richard W. Riley appointed John Glenn as Chair of the newly formed National Commission on Mathematics and Science Teaching for the 21st Century;

Whereas the Commission played a pivotal role in improving the quality of teaching in mathematics and science in the United States;

Whereas, in 1998, John Glenn returned to space after 36 years as a member of the crew of the space shuttle Discovery, serving as a payload specialist and as a subject for basic research on how weightlessness affects the body of an older person; and

Whereas, combined with his previous missions, John Glenn logged over 218 hours in space: Now, therefore, be it

Resolved, That the House of Representatives—

(1) honors the 45th anniversary of John Herschel Glenn, Jr.'s landmark mission piloting the first manned orbital mission of the United States; and

(2) recognizes the profound importance of John Glenn's achievement as a catalyst to space exploration and scientific advancement in the United States.

○

PROCEEDINGS OF THE FULL COMMITTEE MARKUP ON H.CON.RES. 95, HONORING THE CAREER AND RESEARCH ACCOMPLISHMENTS OF FRANCES E. ALLEN, THE 2006 RECIPIENT OF THE A.M. TURING AWARD

WEDNESDAY, APRIL 25, 2007

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
Washington, DC.

The Committee met, pursuant to call, at 10:00 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Bart Gordon [Chairman of the Committee] presiding.

Chairman GORDON. The Committee on Science and Technology will come to order. Pursuant to notice, the Committee on Science and Technology meets to consider the following measures, H.R. 1867, the *National Science Foundation Authorization Act of 2007;* H.R. 1868, *Technological Innovation and Manufacturing Stimulation Act of 2007;* H.Con.Res. 95, *Honoring the career and research accomplishments of Frances E. Allen, the 2006 recipient of the A.M. Turing Award;* and H.Res. 316, *Recognizing the accomplishments of Roger D. Kornberg, Andrew Fire, Craig Mello, John C. Mather, and George F. Smoot for being awarded Nobel Prizes in the fields of chemistry, physiology or medicine, and physics.*

And we will now proceed with the markup. Today the Committee is meeting to markup four good, bipartisan bills. The first bill we will consider today is H.R. 1867, the *National Science Foundation Authorization Act of 2007.* H.R. 1867 was introduced by Chairman Baird, Ranking Member Ehlers, and other Members of the Research and Science Education Subcommittee. The Subcommittee met last Wednesday to consider H.R. 1867 and favorably reported the bill by voice vote after adopting three amendments. I want to thank and congratulate Members of the Subcommittee for their hard work and bipartisan cooperation on this excellent bill.

The core of this bill is the three-year authorization that keeps the Foundation on a ten-year doubling path. NSF is a major source of federal backing for basic research at universities across all disciplines, and Members of the Science and Technology Committee often have a difficult time explaining to our constituents and other Members of Congress why it is so important to fund basic research. The benefits to you and me can seem so intangible in comparison to many of the other things the Federal Government does. But with the publicity around the recent reports like *Rising Above the Gath-*

ering Storm, more of our colleagues and constituents understand that federally funded research pays enormous dividends to society.

Economic growth, public health, national defense, and social advancements have all been tied to technological developments resulting from basic research. Let me just quickly add that as we know, there is a long time between basic research and applied research; and what we are talking about really—when we look at the big problems today, whether they are energy independence, whether it is climate change, whether it is competitiveness, our kids' and grandkids' jobs really are going to depend upon the technology that is developed today. There are seven billion people in the world, half of which make less than $2 a day. We can't compete with them at $2. We don't want to. So it is the technologies that we are developing today that are going to let our kids and grandkids be more productive, and that is why it is so important that the National Science Foundation continue to do its work.

In addition to providing strong research budgets, H.R. 1867 provides important funding for some critical STEM education programs including three K–12 programs this committee expanded and refined in H.R. 362 which I am happy to say just passed the House yesterday. And again, I want to thank everyone here for that bipartisan work. It is a good bill. Mr. Gingrey spoke on it, and certainly Ralph and others spoke to that. I hope that everybody is in their local newspapers today because you were all a part of this bill, and it is a very good bill.

And I am pleased that H.R. 1867 once again reaffirms the critical role that the National Science Foundation plays with STEM education. This is a good bill, and I urge my colleagues to support it and continue to work with me to assure that the rest of our colleagues in Congress understand the value of basic research as we do.

Today we will also take up H.R. 1868, the *Technological Innovation and Manufacturing Stimulation Act of 2007.* This is an authorization bill for the programs of the National Institute of Standards and Technology, NIST. This bill is a bipartisan product of the Technology and Innovation Subcommittee, and I want to commend Chairman Wu and Ranking Member Gingrey for moving this bill through the Subcommittee expeditiously. The Science and Technology Committee needs to send a strong signal to the Appropriations Committees about the importance we place on full funding of NIST. The pace of technology keeps accelerating, particularly in areas such as biofuels, pharmaceutical biologics, and health care IT. NIST has an important role to play in the adoption of these technologies through the creation of standards and the new measurement technologies.

And let me speak just a moment on this. You know, NIST is probably one of the most under-estimated aspects of the Federal Government. It was originally meant to take care of measures and standards. Now it goes much beyond that, and I think it is an agency that all of us can feel comfortable with because this is not a regulatory agency. This is an agency that brings together the business community and the manufacturing community, to work out problems on standards. And I think you are going to find that our committee here, besides the Technology and Innovation Sub-

committee, is going to get a lot more respect within Washington and elsewhere because of this agency. We are where the Commerce Committee has been stagnant in terms of health care IT. Ways and Means hasn't been able to go forward. We are going to be able to step forward and solve some of those problems where the health care community is going to look at the Science and Technology Committee as the one who made that breakthrough. Financial services is going to look at us pretty soon as a committee that can make those kind of breakthroughs because of NIST. So we are going to continue working on that, and I think you are going to see NIST help us to make our committee much more relevant.

The Committee is also aware of the important role that the Manufacturing Extension Partnership, MEP, plays in keeping good manufacturing jobs here in the United States, and NIST has a proven track record of implementing its technology development programs.

Finally, the last two measures we are considering today, H.Con.Res. 95 and H.Res. 316 recognize the outstanding achievements of a group of American scientists. It is important that Congress recognize Americans who achieve great things in science, not just for the satisfaction of individual scientists but to show the public that Congress truly values the work that scientists do.

And now I will recognize Mr. Hall to present his opening statement.

[The prepared statement of Chairman Gordon follows:]

PREPARED STATEMENT OF CHAIRMAN BART GORDON

Good Morning. Pursuant to notice, the Committee on Science and Technology meets to consider the following measures:

- **H.R. 1867,** the *National Science Foundation Authorization Act of 2007;*
- **H.R. 1868,** *Technology Innovation and Manufacturing Stimulation Act of 2007;*
- **H.Con.Res. 95,** *Honoring the career and research accomplishments of Frances E. Allen, the 2006 recipient of the A.M. Turing Award;* and
- **H.Res. 316,** *Recognizing the accomplishments of Roger D. Kornberg, Andrew Fire, Craig Mello, John C. Mather, and George F. Smoot for being awarded Nobel Prizes in the fields of chemistry, physiology or medicine, and physics.*

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The Subcommittee met last Wednesday to consider H.R. 1867, and favorably reported the bill by voice vote after adopting three amendments. I want to thank and congratulate Members of the Subcommittee for their hard work and bipartisan cooperation on this excellent bill. The core of this bill is the three-year authorization that keeps the Foundation on a 10-year doubling path.

NSF is a major source of federal backing for basic research at universities, across all disciplines.

Members of the Science and Technology Committee often have a difficult time explaining to our constituents and other Members of Congress why it is so important to fund basic research. The benefits to you and me can seem so intangible in comparison to many of the other things the Federal Government funds.

But with the publicity around recent reports like *"Rising Above the Gathering Storm,"* more of our colleagues and constituents understand that federally-funded research pays enormous dividends to society. Economic growth, public health, national defense, and social advancement have all been tied to technological developments resulting from basic research.

In addition to providing strong research budgets, H.R. 1867 provides important funding for some critical STEM education programs, including three K–12 programs that this committee expanded and refined in H.R. 362, which I am happy to say just passed the House yesterday.

The education programs at NSF are perhaps more tangible to the typical American, as everybody wants their children to be taught by highly qualified teachers and to graduate high school and community college prepared for the workforce of the 21st Century, or to have the opportunity to pursue even higher degrees if they so desire.

I am pleased that H.R. 1867 once again reaffirms the critical role that NSF plays in STEM education. This is a good bill. I urge my colleagues to support it, and to continue to work with me to ensure that the rest of our colleagues in Congress understand the value of basic research as we do.

Today, we'll also take up H.R. 1868, the *Technology Innovation and Manufacturing Stimulation Act of 2007.* This is an authorization bill for the programs of the National institute of Standards and Technology (NIST).

This bill is the bipartisan product of the Technology and Innovation Subcommittee. I want to commend Chairman Wu and Ranking Member Gingrey for moving this bill through the Subcommittee expeditiously. The Science and Technology Committee needs to send a strong signal to the Appropriations Committee about the importance we place on full funding for NIST.

H.R. 1868 places the NIST budget on the path to doubling over the next 10 years. The Science and Technology Committee has always been in the "amen corner" for fully funding all of NIST.

The pace of technology keeps accelerating—particularly in areas such as biofuels, pharmaceutical biologics and health care IT. NIST has an important role to play in the adoption of these technologies through the creation of standards and new measurement technologies.

This committee is also aware of the important role that the Manufacturing Extension Partnership (MEP) program plays in keeping good manufacturing jobs here in the U.S. And NIST has a proven track record in implementing its technology development program. H.R. 1868 does an excellent job of balancing and funding these priorities and everyone on this committee should support this legislation.

Finally, the last two measures we are considering today, H.Con.Res. 95 and H.Res. 316, recognize the outstanding achievements of a group of American scientists.

It is important that Congress recognizes Americans who achieve great things in the sciences, not just for the satisfaction of the individual scientists, but to show the public that the Congress truly values the work that scientists do.

I recognize Mr. Hall to present his opening remarks.

Mr. HALL. Mr. Chairman, thank you for the chance to make some opening remarks. Of course, as you say, we are considering two authorization bills relating to the President's American Competitive Initiative and two resolutions honoring the accomplishments of some very eminent American scientists.

The *National Science Foundation Authorization Act of 2007* authorizes funding for NSF for the next three fiscal years. This measure goes a long way in keeping with the President's ACI plan to double the budget within ten years. In fact, it goes slightly beyond that to incorporate some of the additions to education programs that the House passed just yesterday.

I appreciate the work of the Subcommittee Ranking Member, Mr. Ehlers, for his dedication and work on this bill; and I thank the Chairman and I thank Congressman Baird for their willingness to cooperate on making this really a truly bipartisan endeavor. I look forward to our continuing working together to improve this legislation and pass it with broad support.

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to the latest technologies and processes by authorizing the Manufacturing Extension Partnership Program.

Finally, H.R. 1868 authorizes the Technology Innovation Program to promote the swift development of high-risk research into marketable technologies. And I thank Dr. Ehlers and Dr. Gingrey for their extensive input into developing this bill, as well as the staff who dedicated considerable time in this endeavor. Also I want to thank my Democratic colleagues for incorporating these important priorities in this bipartisan legislation.

Mr. Chairman, I am also pleased this committee will honor six esteemed American scientists today. H.Con.Res. 95 recognizes the first woman to receive the prestigious computer science A.M. Turing Award, Frances Allen. H.Res. 316 honors the five American scientists who received Nobel Prizes in 2006, Roger Kornberg for chemistry, Andrew Fire for medicine, Craig Mello for Medicine, John Mather for physics, and George Smoot for physics.

Before I close, I want to point out that the NSF and NIST bills, as you have said, Mr. Chairman, both major pieces of legislation, were developed after only a few hearings on each topic, only one in the case of NIST. These hearings were at the subcommittee level, so only a few Members of the Committee were able to attend the hearings. Also, with regard to the NIST bill, there was never a hearing on the New Technology Innovation Program. In fact, these two bills were put together so quickly we have yet to receive all the witnesses' response and questions—their response to the questions for the record submitted by Members of the Committee.

So Mr. Chairman, while I certainly support these bills in their current form, once I have received all of the witnesses' response, I, or some other Members, may want to propose further amendments to these bills when they are considered on the House Floor. I know you will work with us on that.

With that, I yield back the balance of my time, and I thank you for laying out a good bill and preparing for a good hearing. I yield back.

[The prepared statement of Mr. Hall follows:]

PREPARED STATEMENT OF REPRESENTATIVE RALPH M. HALL

- H.R. 1867, *National Science Foundation Authorization Act of 2007*
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The *National Science Foundation (NSF) Authorization Act of 2007,* H.R. 1867, authorizes funding for NSF for the next three fiscal years. This measure goes a long way in keeping with the President's ACI plan to double the budget within ten years. In fact, it goes slightly beyond that to incorporate some of the additions to education programs that the House passed yesterday. I appreciate the work of the Subcommittee Ranking Member, Mr. Ehlers, for his dedication and work on this bill and thank the Chairman and Mr. Baird for their willingness to cooperate on making this a bipartisan endeavor. I look forward to our continuing to work together to improve this legislation and pass it with broad support.

I am pleased to be an original co-sponsor of H.R. 1868, the *Technology Innovation and Manufacturing Stimulation Act of 2007.* H.R. 1868 supports the President's ACI by setting NIST's lab budget on a path to double the budget by fiscal year 2017. The bill will ensure America's small- and medium-sized manufacturers have access to the latest technologies and processes by authorizing the Manufacturing Extension Partnership Program. Finally, H.R. 1868 authorizes the Technology Innovation Program to promote the swift development of high-risk research into marketable technologies. I thank Dr. Ehlers and Dr. Gingrey for their extensive input in developing this bill and my Democratic colleagues for incorporating our priorities into this bipartisan legislation.

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Before I close, I want to point out that the NSF and NIST bills, both major pieces of legislation, were developed after only one hearing on each topic. Those hearings were at the Subcommittee level, so only a few Members of the Committee were able to attend the hearings. In the case of the NIST bill there was never a hearing on the new Technology Innovation Program. In fact, these two bills were put together so quickly that we have yet to receive all of the witnesses' responses to questions for the record submitted by Members of this committee. Therefore, Mr. Chairman, while I support these bills in their current form, once I have reviewed all of the witnesses responses I, or other Members, may want to propose further amendments to these bills when they are considered on the House Floor.

With that I yield back the balance of my time.

Chairman GORDON. Thank you, Mr. Hall. Let me assure you that we want to continue to work in the spirit that we have to get good bills. You know, the last NIST authorization was in 1992 out of this committee. It has been five years since we had a National Science Foundation authorization. There have been lots of hearings in between, but you know, it is time to get something done; and we want to have the best bill possible, and you can be absolutely assured that we will continue with that collaboration.

Without objection, Members may place statements in the record at this point.

We now will consider H. Con. Resolution 95, *Honoring the career and research accomplishments of Frances E. Allen, the 2006 recipient of the A.M. Turing Award.* I yield Ms. Woolsey five minutes to describe this resolution.

Ms. WOOLSEY. Thank you, Mr. Chairman. Thank you for bringing H.Con.Res. 94 before the Committee for consideration. H.Con.Res. 95 honors a pioneer in the world of computing, Dr. Frances Allen, the first woman awarded the A.M. Turing Award by the Association for Computing Machinery, ACM.

The Turing Award is widely considered to be actually the Nobel Prize of computing and by being the first female recipient, Dr. Allen is highlighted as a role model for women everywhere to aspire to a career in math and science.

As a scientist at IBM since the early 1960s, Dr. Allen pioneered new technologies which serve as the basis for complex theories that are widely used today throughout the computer industry. Because of this, she was also the first woman to be recognized as an IBM Fellow in 1989.

It should come as no surprise to any Member of this committee that the Nation's IT workforce is suffering from a lack of qualified candidates. It is certainly telling that women who earn more than half of all undergraduate degrees in this country and make up

more than half of the professional workforce represent only 25 percent of all IT workers. In fact, that percentage of women graduating with degrees in computer science has fallen from 37 percent of total graduates in '95 to just 15 percent in 2005.

With grim statistics like these, it is clear that if we are going to close the gap and ensure the information technologies sector has enough workers, we must get young women into this workforce.

Besides her outstanding scientific achievements, Dr. Allen has also been an inspirational mentor to all young researchers and a leader within the computing community. She is an Advisory Council member of the Anita Board Institute for Women and Technology whose goal is to increase participation of women in all aspects of technology. It is clear that Dr. Allen deserves recognition for all the tireless work she has done to promote women's roles in computing.

Mr. Chairman, Dr. Frances Allen is a role model for scientists everywhere. Having succeeded at the highest levels of math and science, I therefore urge my colleagues to support this bill and not only congratulate Dr. Allen on her success but show that this Congress appreciates her setting the bar high in her support of an increased presence of women in science and technology.

With that I yield back.

Chairman GORDON. Thank you, Ms. Woolsey, and I recognize Mr. Hall to present any remarks on the resolution.

Mr. HALL. Mr. Chairman, Ms. Woolsey has very adequately set out the reasons that this lady is being honored and respectfully has done it in a great manner. It is a good resolution honoring a true pioneer, and I am pleased to support the resolution. I yield back my time.

Chairman GORDON. Thank you. Does anyone else wish to be recognized? If not, I ask unanimous consent that the resolution is considered as read and open to amendment at any point and that the Members proceed with the amendments in the order of the roster. Without objection, so ordered.

The first amendment on the roster is offered by the gentlelady from California, Ms. Woolsey. Are you ready to proceed with your amendment?

Ms. WOOLSEY. Yes, Mr. Chairman, I have an amendment at the desk.

Chairman GORDON. The Clerk will report the amendment.

The CLERK. Amendment to H.Con.Res. 95 offered by Ms. Woolsey.

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

The gentlelady is recognized for five minutes to explain her amendment.

Ms. WOOLSEY. Mr. Chairman, in drafting this bill, mention of the Association for Computing Machinery was inadvertently left out of my bill, and the amendment simply adds the following whereas statement, whereas the Association for Computing Machinery, an international organization of computing professionals, gives the A.M. Turing Award annually to individuals whose contributions in the field of computing are long-lasting and are of major technical importance. That is the end of the change and additions, Chairman.

Chairman GORDON. Thank you, Ms. Woolsey. Is there further discussion on the amendment? If not, the vote occurs on the amendment. All in favor say aye, those opposed no. The ayes have it, and the amendment is agreed to.

Are there other amendments? Hearing none, the vote is on the resolution, H.Con.Res. 95 as amended. All those in favor will say aye, all those opposed no. In the opinion of the Chair, the ayes have it.

I recognize Mr. Hall to offer a motion.

Mr. HALL. Mr. Chairman, I move that the Committee favorably report House Concurrent Resolution 95, as amended, to the House with the recommendation that the bill do pass. Further, I move that staff be instructed to make necessary technical and conforming changes and that the Chairman take all the necessary steps to bring the resolution before the House for consideration. I yield back.

Chairman GORDON. The question is on the motion to report the resolution favorably. Those in favor of the motion will signify by saying aye, opposed no. The ayes have it, and the resolution is favorably reported.

Without objection the motion to reconsider is laid upon the table. I move the Members have two subsequent calendar days in which to submit supplemental minority or additional views on the measure. I move pursuant to Clause 1 of Rule 22 of the Rules of the House of Representatives that the Committee authorize the Chairman to offer such motions as may be necessary in the House to adopt and pass H.Con.Res. 95, *Honoring the career and research accomplishments of Frances E. Allen, the 2006 recipient of the A.M. Turing Award,* as amended. Without objection, so ordered.

And finally, let me look at all of you say thank you for being the hard core and staying here as we completed our business. We had four good resolutions today, and I want to thank all of you again; and this meeting is concluded.

[Whereupon, at 11:28 a.m., the Committee was adjourned.]

Appendix:

H.Con.Res. 95, Amendment Roster

IV

110TH CONGRESS
1ST SESSION

H. CON. RES. 95

Honoring the career and research accomplishments of Frances E. Allen, the 2006 recipient of the A.M. Turing Award.

IN THE HOUSE OF REPRESENTATIVES

MARCH 20, 2007

Ms. WOOLSEY submitted the following concurrent resolution; which was referred to the Committee on Science and Technology

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CONCURRENT RESOLUTION

Honoring the career and research accomplishments of Frances E. Allen, the 2006 recipient of the A.M. Turing Award.

Whereas Frances Allen joined IBM in 1957 early in the history of the computer industry and just after an IBM team developed Fortran, one of the first high-level programming languages;

Whereas Frances Allen during her 45 year career at IBM rose from being a teacher of Fortran to highest level of IBM technologists;

Whereas in 1989 Frances Allen was the first woman to be named an IBM Fellow and in 1995 became President of the IBM Academy of Technology, a global organization of IBM technical leaders charged with providing technical advice to the company;

Whereas Frances Allen made fundamental contributions to the theory and practice of program optimization, which translates the users' problem-solving language statements;

Whereas Frances Allen's work led to remarkable advances in compiler design and machine architecture that are at the foundation of modern high-performance computing;

Whereas Frances Allen's unique dedication to meeting the needs of her customers led to IBM's innovation model;

Whereas Frances Allen is nationally renowned for her work in encouraging women to study computer science; and

Whereas Frances Allen has now been honored as the first woman recipient of the Turing Award, computer science's most prestigious award, which is equated by some to the Nobel Prizes: Now, therefore, be it

Resolved by the House of Representatives (the Senate concurring), That the Congress honors the pioneering life work of Frances Allen in computer research and development and salutes the Turing Award Committee for recognizing, through the selection of Frances Allen, that creative women have contributed mightily to the development of this important field.

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COMMITTEE ON SCIENCE AND TECHNOLOGY
FULL COMMITTEE MARKUP
April 25, 2007

AMENDMENT ROSTER

H.Con.Res. 95 , *Honoring the career and research accomplishments of Frances E. Allen, the 2006 recipient of the A.M. Turing Award*

No.	Sponsor	Description	Results
1.	Ms. Woolsey	Amendment further describing the A.M. Turing Award.	Adopted by voice vote.

AMENDMENT TO H. CON. RES. 95
OFFERED BY MS. WOOLSEY

Strike "and" at the end of the second to the last whereas clause.

After the second to the last whereas clause, insert the following new whereas clause:

Whereas the Association for Computing Machinery, an international organization of computing professionals, gives the A.M. Turing Award annually to individuals whose contributions in the field of computing are long-lasting and are of major technical importance; and

PROCEEDINGS OF THE FULL COMMITTEE MARKUP ON H.RES. 316, RECOGNIZING THE ACCOMPLISHMENTS OF RODGER D. KORNBERG, ANDREW FIRE, CRAIG MELLO, JOHN C. MATHER, AND GEORGE F. SMOOT FOR BEING AWARDED NOBEL PRIZES IN THE FIELDS OF CHEMISTRY, PHYSIOLOGY OR MEDICINE, AND PHYSICS

WEDNESDAY, APRIL 25, 2007

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
Washington, DC.

The Committee met, pursuant to call, at 10:00 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Bart Gordon [Chairman of the Committee] presiding.

Chairman GORDON. The Committee on Science and Technology will come to order. Pursuant to notice, the Committee on Science and Technology meets to consider the following measures, H.R. 1867, the *National Science Foundation Authorization Act of 2007;* H.R. 1868, *Technological Innovation and Manufacturing Stimulation Act of 2007;* H.Con.Res. 95, *Honoring the career and research accomplishments of Frances E. Allen, the 2006 recipient of the A.M. Turing Award;* and H.Res. 316, *Recognizing the accomplishments of Roger D. Kornberg, Andrew Fire, Craig Mello, John C. Mather, and George F. Smoot for being awarded Nobel Prizes in the fields of chemistry, physiology or medicine, and physics.*

And we will now proceed with the markup. Today the Committee is meeting to markup four good, bipartisan bills. The first bill we will consider today is H.R. 1867, the *National Science Foundation Authorization Act of 2007.* H.R. 1867 was introduced by Chairman Baird, Ranking Member Ehlers, and other Members of the Research and Science Education Subcommittee. The Subcommittee met last Wednesday to consider H.R. 1867 and favorably reported the bill by voice vote after adopting three amendments. I want to thank and congratulate Members of the Subcommittee for their hard work and bipartisan cooperation on this excellent bill.

The core of this bill is the three-year authorization that keeps the Foundation on a ten-year doubling path. NSF is a major source of federal backing for basic research at universities across all disciplines, and Members of the Science and Technology Committee often have a difficult time explaining to our constituents and other

Members of Congress why it is so important to fund basic research. The benefits to you and me can seem so intangible in comparison to many of the other things the Federal Government does. But with the publicity around the recent reports like *Rising Above the Gathering Storm,* more of our colleagues and constituents understand that federally funded research pays enormous dividends to society.

Economic growth, public health, national defense, and social advancements have all been tied to technological developments resulting from basic research. Let me just quickly add that as we know, there is a long time between basic research and applied research; and what we are talking about really—when we look at the big problems today, whether they are energy independence, whether it is climate change, whether it is competitiveness, our kids' and grandkids' jobs really are going to depend upon the technology that is developed today. There are seven billion people in the world, half of which make less $2 a day. We can't compete with them at $2. We don't want to. So it is the technologies that we are developing today that are going to let our kids and grandkids be more productive, and that is why it is so important that the National Science Foundation continue to do its work.

In addition to providing strong research budgets, H.R. 1867 provides important funding for some critical STEM education programs including three K–12 programs this committee expanded and refined in H.R. 362 which I am happy to say just passed the House yesterday. And again, I want to thank everyone here for that bipartisan work. It is a good bill. Mr. Gingrey spoke on it, and certainly Ralph and others spoke to that. I hope that everybody is in their local newspapers today because you were all a part of this bill, and it is a very good bill.

And I am pleased that H.R. 1867 once again reaffirms the critical role that the National Science Foundation plays with STEM education. This is a good bill, and I urge my colleagues to support it and continue to work with me to assure that the rest of our colleagues in Congress understand the value of basic research as we do.

Today we will also take up H.R. 1868, the *Technological Innovation and Manufacturing Stimulation Act of 2007.* This is an authorization bill for the programs of the National Institute of Standards and Technology, NIST. This bill is a bipartisan product of the Technology and Innovation Subcommittee, and I want to commend Chairman Wu and Ranking Member Gingrey for moving this bill through the Subcommittee expeditiously. The Science and Technology Committee needs to send a strong signal to the Appropriations Committees about the importance we place on full funding of NIST. The pace of technology keeps accelerating, particularly in areas such as biofuels, pharmaceutical biologics, and health care IT. NIST has an important role to play in the adoption of these technologies through the creation of standards and the new measurement technologies.

And let me speak just a moment on this. You know, NIST is probably one of the most under-estimated aspects of the Federal Government. It was originally meant to take care of measures and standards. Now it goes much beyond that, and I think it is an agency that all of us can feel comfortable with because this is not

a regulatory agency. This is an agency that brings together the business community and the manufacturing community, to work out problems on standards. And I think you are going to find that our committee here, besides the Technology and Innovation Subcommittee, is going to get a lot more respect within Washington and elsewhere because of this agency. We are where the Commerce Committee has been stagnant in terms of health care IT. Ways and Means hasn't been able to go forward. We are going to be able to step forward and solve some of those problems where the health care community is going to look at the Science and Technology Committee as the one who made that breakthrough. Financial services is going to look at us pretty soon as a committee that can make those kind of breakthroughs because of NIST. So we are going to continue working on that, and I think you are going to see NIST help us to make our committee much more relevant.

The Committee is also aware of the important role that the Manufacturing Extension Partnership, MEP, plays in keeping good manufacturing jobs here in the United States, and NIST has a proven track record of implementing its technology development programs.

Finally, the last two measures we are considering today, H.Con.Res. 95 and H.Res. 316 recognize the outstanding achievements of a group of American scientists. It is important that Congress recognize Americans who achieve great things in science, not just for the satisfaction of individual scientists but to show the public that Congress truly values the work that scientists do.

And now I will recognize Mr. Hall to present his opening statement.

[The prepared statement of Chairman Gordon follows:]

PREPARED STATEMENT OF CHAIRMAN BART GORDON

Good Morning. Pursuant to notice, the Committee on Science and Technology meets to consider the following measures:

- **H.R. 1867,** the *National Science Foundation Authorization Act of 2007;*
- **H.R. 1868,** *Technology Innovation and Manufacturing Stimulation Act of 2007;*
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It is important that Congress recognizes Americans who achieve great things in the sciences, not just for the satisfaction of the individual scientists, but to show the public that the Congress truly values the work that scientists do.

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Mr. HALL. Mr. Chairman, thank you for the chance to make some opening remarks. Of course, as you say, we are considering two authorization bills relating to the President's American Competitive Initiative and two resolutions honoring the accomplishments of some very eminent American scientists.

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I appreciate the work of the Subcommittee Ranking Member, Mr. Ehlers, for his dedication and work on this bill; and I thank the Chairman and I thank Congressman Baird for their willingness to cooperate on making this really a truly bipartisan endeavor. I look forward to our continuing working together to improve this legislation and pass it with broad support.

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With that, I yield back the balance of my time, and I thank you for laying out a good bill and preparing for a good hearing. I yield back.

[The prepared statement of Mr. Hall follows:]

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Thank you, Chairman Gordon, for the chance to make some opening remarks about today's markup. Today we are considering two authorization bills related to the President's American Competitiveness Initiative (ACI) and two resolutions honoring the accomplishments of eminent American scientists.

The *National Science Foundation (NSF) Authorization Act of 2007,* H.R. 1867, authorizes funding for NSF for the next three fiscal years. This measure goes a long

way in keeping with the President's ACI plan to double the budget within ten years. In fact, it goes slightly beyond that to incorporate some of the additions to education programs that the House passed yesterday. I appreciate the work of the Subcommittee Ranking Member, Mr. Ehlers, for his dedication and work on this bill and thank the Chairman and Mr. Baird for their willingness to cooperate on making this a bipartisan endeavor. I look forward to our continuing to work together to improve this legislation and pass it with broad support.

I am pleased to be an original co-sponsor of H.R. 1868, the *Technology Innovation and Manufacturing Stimulation Act of 2007.* H.R. 1868 supports the President's ACI by setting NIST's lab budget on a path to double the budget by fiscal year 2017. The bill will ensure America's small- and medium-sized manufacturers have access to the latest technologies and processes by authorizing the Manufacturing Extension Partnership Program. Finally, H.R. 1868 authorizes the Technology Innovation Program to promote the swift development of high-risk research into marketable technologies. I thank Dr. Ehlers and Dr. Gingrey for their extensive input in developing this bill and my Democratic colleagues for incorporating our priorities into this bipartisan legislation.

I also am pleased the Committee will honor six esteemed American scientists today. H.Con.Res. 95 recognizes the first woman to receive the prestigious computer science A.M. Turner award, Frances Allen. H.Res. 316 honors the five American scientists who received Nobel prizes in 2006: Roger Kornberg for chemistry; Andrew Fire for medicine; Craig Mello for medicine; John Mather for physics; and George Smoot for physics.

Before I close, I want to point out that the NSF and NIST bills, both major pieces of legislation, were developed after only one hearing on each topic. Those hearings were at the Subcommittee level, so only a few Members of the Committee were able to attend the hearings. In the case of the NIST bill there was never a hearing on the new Technology Innovation Program. In fact, these two bills were put together so quickly that we have yet to receive all of the witnesses' responses to questions for the record submitted by Members of this committee. Therefore, Mr. Chairman, while I support these bills in their current form, once I have reviewed all of the witnesses responses I, or other Members, may want to propose further amendments to these bills when they are considered on the House Floor.

With that I yield back the balance of my time.

Chairman GORDON. Thank you, Mr. Hall. Let me assure you that we want to continue to work in the spirit that we have to get good bills. You know, the last NIST authorization was in 1992 out of this committee. It has been five years since we had a National Science Foundation authorization. There have been lots of hearings in between, but you know, it is time to get something done; and we want to have the best bill possible, and you can be absolutely assured that we will continue with that collaboration.

Without objection, Members may place statements in the record at this point.

We will now consider H.Con.Res. 316, *Recognizing the accomplishments of Roger D. Kornberg, Andrew Fire, Craig Mello, John C. Mather, and George F. Smoot for being awarded the Nobel Prize in the fields of chemistry, physiology or medicine, and physics.*

Mr. McNerney is not here right now but let me say I very much appreciate the attendance here at the end. Oh, and here he is. We were going to proceed anyway because you were so good to stay but since Mr. McNerney is here, I would recognize him for opening remarks.

Mr. MCNERNEY. Thank you, Mr. Chairman, for allowing that dramatic entrance. And I also thank Ranking Member Hall for your support in this resolution for working quickly to ensure that we recognize a deserving group of scientists on their important achievements. I especially appreciate the opportunity to describe this legislation that highlights the contributions of American scientists.

H.Res. 316 is a scientific work not only because it applauds the breakthrough of scientific work but the bill also draws attention to many of the issues we frequently work on in the Committee, putting a spotlight on scientific discovery as a way to inspire a new generation to become involved in fields that they might otherwise ignore.

For the first time in over 20 years U.S. researchers have swept the scientific categories of the Nobel Prize by winning awards for chemistry, physiology or medicine, and physics. It is fitting that we recognize the contributions of these individuals, and I am proud that we are doing so here today.

In December of last year, the Nobel Prize in chemistry was awarded to Roger Kornberg from Stanford University in my home State of California, the physiology prize went to Andrew Fire who works also at Stanford in the school of medicine, and the physics award went to John Mather from NASA's Goddard Space Center and to George Smoot from the University of California at Berkeley.

Mr. Smoot has also the timely distinction of adding his name to the list of more than 170 National Science Foundation grantees who were awarded the Nobel Prizes over the years. I am sure that with the improvements we have just made to programs at NSF and the dedication that we all have to moving this country forward, Professor Smoot will certainly not be the last Nobel Prize winner to benefit from NSF funding.

H.Res. 316 officially recognizes the accomplishments of these scientists and their contributions to improving society.

Mr. Chairman, I can't think of a better way to honor these individuals and commend them for helping the United States sweep science Nobel Prizes for the first time in 33 years. As I look out here, I see a number of young scientists and implore you to continue your work. We will do our work here in the Committee to see that you get the money you need and the recognition, and you need to work as hard as you can to fulfill your visions and your dreams of making new awards and new discoveries in science.

I thank you and I yield back the back of my time.

[The prepared statement of Mr. McNerney follows:]

PREPARED STATEMENT OF REPRESENTATIVE JERRY MCNERNEY

Thank you Mr. Chairman.

And thank you, Ranking Member Hall, for your support of this resolution and for working quickly to ensure that we recognize a very deserving group of scientists on their important achievements.

I appreciate the opportunity to describe this legislation that highlights the contributions of American scientists.

H.Res. 316 is significant, not only because it applauds breakthrough scientific work, but the bill also draws attention to many of the issues we frequently work on in this committee; putting the spotlight on scientific discovery as a way to get young people interested in fields they might otherwise ignore.

For the first time in more than 20 years, U.S. researchers swept the scientific categories of the Nobel Prize by winning the awards for chemistry, physiology or medicine, and physics.

It is fitting that we recognize the contributions of these individuals, and I'm pleased that we're doing so here today.

In December of last year the Nobel Prize in Chemistry was awarded to Roger Kornberg from Stanford University in my State of California; the physiology prize went to Andrew Fire, who also works at Stanford—in the School of Medicine—and the physics award went to John Mather from NASA's Goddard Space Center and to George Smoot from the University of California at Berkeley.

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I'm sure that with the improvements we've just made to the programs at NSF, and the dedication that we all have to moving this country forward, Professor Smoot will certainly not be the last Nobel winner to benefit from NSF funding.

H.Res. 316 officially recognizes the accomplishments of these scientists and their contributions to improving society.

Mr. Chairman, I can't think of a better way to honor these individuals and commend them for helping the U.S. sweep the science Nobel Prizes for the first time in 33 years.

Thank you, and I yield my time.

Chairman GORDON. Thank you for those remarks, and I will remind everyone that these are not only significant awards for individuals, but this is really an award for America that we would sweep these and that these Nobel Prize winners will be honored at a luncheon next week here in the Science Committee Room; and we welcome everyone to join.

And I recognize Mr. Hall to present any remarks on the resolution.

Mr. HALL. I thank you, Mr. Chairman. I am pleased to support the resolution. I would like to add that these men are true testaments to the spirit of American innovation. In an increasingly competitive world, it is impressive that our Nation continues to produce world-class scholars such as these men. It really doesn't surprise me that the Nation that invented the light bulb and put a man on the Moon fosters such innovative solutions to the most pressing challenges. It is my hope that our innovation agenda will continue to provide a foundation from which scholars and entrepreneurs can launch their ideas into the competitive marketplace as these men have done. I yield back.

Chairman GORDON. Thank you, Mr. Hall, and I think our NSF authorization and our NIST authorization today will help accomplish what you had suggested.

Does anyone else wish to be recognized? Dr. Baird.

Mr. BAIRD. Mr. Chairman, very briefly, during our debate on H.R. 362 and 363, I observed that we need to embody—we spoke about the need to improve respect for science and math education nationwide, and I suggest that we need to embody that with the Congress, and I observe that we tend to offer more resolutions congratulating athletic teams or movie stars than we do honoring sciences; and I very much commend Mr. McNerney for reversing that trend and it is richly deserved that we honor and that the Congress really embody the principle of honoring these scientists with this resolution. I commend him for it and thank him for offering this resolution.

Chairman GORDON. Thank you. And once again, we invite everyone to come meet them next week.

Is there anyone else that would like to speak to this resolution? If not, I ask unanimous consent that the resolution is considered as read and open to amendment at any point and that Members proceed with amendments in the order of the roster. Without objection, so ordered.

Are there any amendments? Hearing none, the vote is on the resolution, H. Res. 316. All those in favor say aye, all those opposed say no. In opinion of the Chair, the ayes have it.

I recognize Mr. Hall to offer a motion.

Mr. HALL. Mr. Chairman, I move that the Committee favorably report House Resolution 316 to the House with the recommendation that the bill do pass. Furthermore, I move that staff be instructed to make necessary technical and conforming changes and that the Chairman take all the necessary steps to bring the resolution before the House for consideration. I yield back my time.

Chairman GORDON. The question is on the motion to report the resolution favorably. Those in favor of the motion will signify by saying aye, opposed no. The ayes have it. The resolution is reported favorably. Without objection the motion to reconsider is laid upon the table. I move the Members have two subsequent calendar days in which to submit supplemental minority or additional views on the measure. I move pursuant to Clause 1 of Rule 22 of the Rules of the House of Representatives that the Committee authorize the Chairman to offer such motions as may be necessary in the House to adopt and pass H.Res. 316, *Recognizing the accomplishments of Dr. Roger D. Kornberg, Andrew Fire, Craig Mello, John C. Mather, and George F. Smoot for being awarded the Nobel Prizes in the fields of chemistry, physiology or medicine, and physics.* Without objection, so ordered.

And finally, let me look at all of you say thank you for being the hard core and staying here as we completed our business. We had four good resolutions today, and I want to thank all of you again; and this meeting is concluded.

[Whereupon, at 11:28 a.m., the Committee was adjourned.]

Appendix:

H.RES. 316

110TH CONGRESS
1ST SESSION

H. RES. 316

Recognizing the accomplishments of Roger D. Kornberg, Andrew Fire, Craig Mello, John C. Mather, and George F. Smoot for being awarded Nobel Prizes in the fields of chemistry, physiology or medicine, and physics.

IN THE HOUSE OF REPRESENTATIVES

APRIL 18, 2007

Mr. MCNERNEY submitted the following resolution; which was referred to the Committee on Science and Technology

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RESOLUTION

Recognizing the accomplishments of Roger D. Kornberg, Andrew Fire, Craig Mello, John C. Mather, and George F. Smoot for being awarded Nobel Prizes in the fields of chemistry, physiology or medicine, and physics.

Whereas, according to the National Academies landmark report "Rising Above the Gathering Storm", the United States is in peril of losing its global competitive edge unless we make substantial investments in science, math, research, and innovation;

Whereas breakthroughs in scientific research are the building blocks of a productive, competitive, and healthy society;

Whereas the Nobel Prize is a prestigious international award administered annually by the Nobel Foundation in Stockholm, Sweden, and has since 1901 recognized the world's

most outstanding achievements in physics, chemistry, physiology or medicine, literature, and peace;

Whereas on December 10, 2006, in Stockholm, Sweden, the following five American scientists were awarded the three Nobel Prizes for science. The Nobel Prize in Chemistry was awarded to Roger D. Kornberg from Stanford University in Palo Alto, California, for his studies of the molecular basis of eukaryotic transcription. The Nobel Prize in Physiology or Medicine was awarded to Andrew Fire from the Stanford University School of Medicine in Palo Alto, California, and Craig Mello from the University of Massachusetts Medical School in Worcester, Massachusetts, for their discovery of RNA interference through gene silencing by double-stranded RNA. The Nobel Prize in Physics was awarded to John C. Mather from the National Aeronautics and Space Administration Goddard Space Flight Center in Greenbelt, Maryland, and the University of Maryland and George F. Smoot, a National Science Foundation grantee from the University of California at Berkeley for their discovery of the blackbody form and anisotropy of the cosmic microwave background radiation;

Whereas American scientists have not swept the Nobel Prize science awards since 1983;

Whereas Roger D. Kornberg, Andrew Fire, Craig Mello, John C. Mather, and George F. Smoot have represented the United States and have served as unofficial ambassadors of science overseas; and

Whereas the accomplishments of these scientists are significant achievements in the field of scientific research and further promote the United States among the world leaders in science: Now, therefore, be it

Resolved, That the House of Representatives—

(1) recognizes Roger D. Kornberg, Andrew Fire, Craig Mello, John C. Mather, and George F. Smoot for advancing scientific discovery and dedicating their careers to scientific research;

(2) recognizes the National Science Foundation and the National Aeronautics and Space Administration for their support of the physics Nobel Prize winners; and

(3) congratulates the achievement of Roger D. Kornberg, Andrew Fire, Craig Mello, John C. Mather, and George F. Smoot for being awarded Nobel Prizes in science.

○

ADVANCED RESEARCH PROJECTS AGENCY–ENERGY

Mr. GORDON of Tennessee, from the Committee on Science and Technology, submitted the following:

REPORT

[To accompany H.R. 364]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science and Technology, to whom was referred the bill (H.R. 364) to provide for the establishment of the Advanced Research Projects Agency–Energy, having considered the same, reports favorably thereon with an amendment and recommends that the bill as amended do pass.

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I. AMENDMENT

The amendment is as follows:

Strike all after the enacting clause and insert the following:

SECTION 1. FINDINGS.

The Congress finds the following:

(1) The United States faces a range of energy challenges that affect our economy, security, and environment. Fundamentally, these challenges involve science and technology.

(2) The Department of Energy already has some of the mechanisms necessary to promote long-term research, but it lacks the mechanisms for quickly transforming the results into technology that meets national needs.

(3) A recent report of the Secretary of Energy's Advisory Board's Task Force on the Future of Science Programs at the Department of Energy concluded that America can meet its energy needs only if we make a strong and sustained investment in research in physical science, engineering, and applicable life sciences and if we translate advancing scientific knowledge into practice."

(4) The Department of Defense, since 1958, has used its Defense Advanced Projects Research Agency (DARPA) for aggressively addressing real-time defense problems through targeted programs of research and technology development that have improved our national defense through transformational technologies.

(5) The National Academy of Sciences' report entitled *"Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future"* recommends creating a new agency within the Department of Energy to sponsor "creative, out-of-the-box, transformational, generic energy research in those areas where industry by itself cannot or will not undertake such sponsorship, where risks and payoffs are high." Such an organization would be able to accelerate the process by which research is transformed to address energy-related economic, environmental, and security issues to decrease dependence on foreign energy through targeted research and technology development.

SEC. 2. ADVANCED RESEARCH PROJECTS AGENCY-ENERGY.

(a) ESTABLISHMENT.—There is established the Advanced Research Projects Agency–Energy (in this Act referred to as "ARPA–E") within the Department of Energy.

(b) GOALS.—The goals of ARPA–E are to enhance the Nation's economic and energy security through reductions in imports of energy from foreign sources, to reduce emissions of greenhouse gases from the energy and industrial sectors, to improve energy efficiency of all economic sectors, and to ensure that the United States maintains a technological lead in developing and deploying energy technologies. ARPA–E will achieve this by—

(1) identifying and promoting revolutionary advances in fundamental sciences with potential energy and environmental applications;

(2) translating scientific discoveries and cutting-edge engineering innovations into technologies that promote energy security and sound environmental stewardship; and

(3) accelerating the market adoption of transformational technological advances in areas such as alternative fuels and transportation technology, energy efficiency, electricity production and infrastructure, and carbon capture and sequestration.

(c) DIRECTOR.—ARPA–E shall be headed by a Director who shall be appointed by the Secretary of Energy. The Director shall report to the Secretary. No other programs within the Department of Energy shall report to the Director of ARPA–E.

(d) RESPONSIBILITIES.—The Director shall administer the Fund established under section 3 to award competitive grants, cooperative agreements, or contracts to institutions of higher education, companies, research foundations, trade and industry research collaborations, or consortia of such entities which may include federally funded research and development centers, to achieve the goals stated in subsection (b) through targeted acceleration of—

(1) novel early-stage energy research with possible technology applications;

(2) development of techniques, processes, and technologies, and related testing and evaluation;

(3) development of manufacturing processes for technologies; and

(4) demonstration and coordination with non-governmental entities for commercial applications of technologies and research applications.

(e) PERSONNEL.—

(1) PROGRAM MANAGERS.—The Director shall designate employees to serve as program managers for each of the programs established pursuant to the responsibilities established for ARPA–E under subsection (d). Program managers shall be responsible for—

(A) establishing research and development goals for the program, including through the convening of workshops and conferring with outside experts as well as publicizing its goals to the public and private sectors;

(B) soliciting applications for specific areas of particular promise, especially those which the private sector alone cannot or will not provide funding;

(C) building research collaborations for carrying out the program;

(D) selecting on the basis of merit, with advice under section 4 as appropriate, each of the projects to be supported under the program following consideration of—

(i) the novelty and scientific and technical merit of the proposed projects;

(ii) the demonstrated capabilities of the applicants to successfully carry out the proposed research project;

(iii) the applicant's consideration of future commercial applications of the project, including the feasibility of partnering with a commercial entity or entities to help increase the chances of market penetration;

(iv) such other criteria as are established by the Director; and

(E) monitoring the progress of projects supported under the program, and prescribing program restructure or termination of research partner ships or whole projects that do not show promise.

(2) HIRING AND MANAGEMENT.—In hiring personnel for ARPA–E, the Secretary shall have the hiring and management authorities described in section 1101 of the *Strom Thurmond National Defense Authorization Act for Fiscal Year 1999* (5 U.S.C. 3104 note). For purposes of subsection (c)(1) of that section, the term of appointments for employees may not exceed three years before the granting of any extension. In hiring initial staff the Secretary shall give preference to applicants with experience in the Defense Advanced Research Projects Agency, academia, or private sector technology development. The Secretary or Director may contract with private recruiting firms in hiring qualified technical staff.

(3) ADDITIONAL HIRING.—The Director may hire additional technical, financial, managerial, or other staff as needed to carry out the activities of the program.

(f) COORDINATION AND NON–DUPLICATION.—To the extent practicable, the Director shall ensure that the activities of ARPA–E are coordinate with, and do not duplicate the efforts of, existing programs and laboratories within the Department of Energy and other relevant research agencies. Where appropriate, the Director may coordinate technology transfer efforts with the Technology Transfer Coordinator established in section 1001 of the Energy Policy Act of 2005 (42 U.S.C. 16391).

(g) FEDERAL USE of TECHNOLOGIES.—The Secretary shall seek opportunities to utilize federal agencies' purchasing and procurement programs to demonstrate technologies resulting from activities funded through ARPA–E and to facilitate their entry into private markets.

SEC. 3. FUND.

(a) ESTABLISHMENT.—There is established in the Treasury the Energy Transformation Acceleration Fund (in this Act referred to as the "Fund"), which shall be administered by the Director of ARPA–E for the purposes of carrying out this Act.

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Director of ARPA–E for deposit in the Fund $300,000,000 for fiscal year 2008 $1,000,000,000 for fiscal year 2009 $1,100,000,000 for fiscal year 2010, $1,200,000,000 for fiscal year 2011, and $1,300,000,000 for fiscal year 2012, to remain available until expended.

(c) LIMITATION.—No amounts may be appropriated for the first year of funding for ARPA–E unless the amount appropriated for the activities of the Office of Science of the Department of Energy for that fiscal year exceed the amount appro-

priated for that Office for fiscal year 2007, as adjusted for inflation according to the Consumer Price Index.

(d) ALLOCATION.—Of the amounts appropriated for a fiscal year under subsection (b)—

(1) not more than 50 percent shall be for activities under section 2(d)(4);

(2) not more than eight percent shall be made available to Federally Funded Research and Development Centers;

(3) not more than 10 percent may be used for administrative expenses;

(4) at least 2.5 percent shall be designated for technology transfer and outreach activities; and

(5) during the first five years of operation of ARPA–E, no funds may be used for construction of new buildings or facilities.

SEC. 4. ADVICE.

(a) ADVISORY COMMITTEES.—The Director may seek advice on any aspect of ARPA–E from—

(1) existing Department of Energy advisory committees; and

(2) new advisory committees organized to support the programs of ARPA–E and to provide advice and assistance on—

(A) specific program tasks; or

(B) overall direction of ARPA–E.

(b) APPLICABILITY.—Section 14 of the Federal Advisory Committee Act shall not apply to advisory committees organized under subsection (a)(2).

(c) ADDITIONAL SOURCES OF ADVICE.—The Director may seek advice and review from the National Academy of Sciences, the National Academy for Engineering, and any other professional or scientific organization with expertise in specific processes or technologies under development by ARPA–E.

SEC. 5. ARPA–E EVALUATION.

After ARPA–E has been in operation for 54 months, the President's Committee on Science and Technology shall begin an evaluation to be completed within 12 months) of how well ARPA–E is achieving its goals and mission. The evaluation shall include the recommendation of such Committee on whether ARPA–E should be continued or terminated, as well as lessons-learned from its operation. The evaluation shall be made available to Congress and to the public upon completion.

SEC. 6. SAVINGS CLAUSE.

The authorities granted by this Act are in addition to existing authorities granted to the Secretary of Energy, and not intended to supersede or modify any existing authorities.

II. Purpose of the Bill

The purpose of the bill is to establish within the Department of Energy, the Advanced Research Projects Agency–Energy (ARPA–E), and set up an Energy Transformation Acceleration Fund to conduct activities under the Act.

III. Background and Need for the Legislation

H.R. 364 follows a recommendation of the National Academies 2005 report, *Rising Above the Gathering Storm,* also known as the "Augustine Report" for its Chair, retired Lockheed Martin CEO Norman Augustine. In addition to a wide range of recommendations for boosting the global competitiveness of the U.S. technology sector, this report called on the Federal Government to create a new energy research agency within the Department of Energy patterned loosely on the successful Defense Advanced Research Projects Agency (DARPA) within the Department of Defense. According to the *Gathering Storm* report, ARPA–E should be structured to "sponsor creative, out-of-the-box, transformational, generic energy research in those areas where industry itself cannot or will not undertake such sponsorships, where risks and potential payoffs

are high, and where success could provide dramatic benefits for the Nation. ARPA–E would accelerate the process by which research is transformed to address economic, environmental, and security issues. It would be designed as a lean, effective, and agile—but largely independent—organization that can start and stop targeted programs based on performance and ultimate relevance." In addition to H.R. 364, a number of bills establishing an ARPA–E were introduced in both the 109th and 110th Congress in both the House and Senate (including S. 696, the *Energy Research Act of 2007,* and S. 761, the Senate COMPETES Act).

Despite the growing focus on energy challenges, R&D investment in energy remains far below the historically high levels of the 1970's. A GAO report commissioned by Chairman Gordon and Congressman Honda noted that "DOE's total budget authority for energy R&D dropped by over 85 percent (in real terms) from 1978 to 2005, peaking in the late 1970's but falling sharply when oil prices returned to lower levels in the mid-1980's." (GAO–07–106) Witnesses at the April 26 Subcommittee hearing all agreed that for ARPA–E to be successful, the program must be funded at levels to match the magnitude and complexity of energy challenges, and the high costs of energy research and technology demonstration. According to venture capitalist and Subcommittee witness John Denniston:

> *"... federal spending on renewable energy research amounts to little more than $1 billion per year. Frankly, this is inadequate relative to the scope of our problems, and the sheer size of the energy and transportation industries which amount to over $1.8 trillion annually. We are way off scale."*

It was suggested in the hearing that no other technology-based industry has such a small proportion of revenues invested in research, either through private or government resources. It was pointed out in the hearing that the National Institute of Health receives $28 billion for research annually, and DARPA itself was initially budgeted for the equivalent of $3.5 billion, and remains at roughly the same level today.

IV. Committee Views

The primary motivations of the Committee for establishing an ARPA–E are the need for the U.S. to obtain more energy from domestic sources, become more energy efficient, and become less reliant on energy sources and technologies that have an adverse effect on the environment. The push for new energy technologies is especially urgent given the geopolitical forces that threaten global energy supplies and economic stability, the rising costs of energy to consumers, the looming threat of global climate change, and probable regulation of carbon dioxide emissions. In addition to addressing the Nation's energy challenges, the *Gathering Storm* report also concluded that ARPA–E will contribute to U.S. competitiveness by playing an important role in "advancing research in engineering, the physical sciences, and mathematics; and in developing the next generation of researchers." While isolated elements in the national labs, industry, and academia have collaborated with varying degrees of success, there is currently no federal program charged with

bringing these elements together. Such an effort would result in a stronger and more diverse domestic community of researchers and technology developers focused on pushing transformational energy solutions into the marketplace. ARPA–E is intended to play this critical role.

To pursue truly innovative and transformational research ARPA–E will utilize an organizational structure and approach projects in a way that is fundamentally different from that of the traditional energy research enterprise. Critics of the Department of Energy's management of research programs contend that the stovepiped structure and bureaucratic culture of DOE is not conducive to the rapid development of cross-cutting energy solutions, or translating basic research discoveries into technology applications for the marketplace. Potentially revolutionary research may be too risky or multi-disciplinary to fit into a specific program's mission at DOE, and the peer review system tends to favor established investigators pursuing incremental advances in well-understood concepts. On the contrary ARPA–E will be driven by its mission, minimizing interaction with the DOE bureaucracy. It should be a relatively flat and nimble organization, similar to the small, flexible, non-hierarchical reporting structure that supported a unique and highly successful culture of innovation at DARPA.

ARPA–E will also have autonomy within DOE similar to that of DARPA within DOD. Because the director of ARPA–E reports directly to the Secretary of Energy, and no other programs report to ARPA–E, it does not add another layer to the DOE bureaucracy. This also ensures that ARPA–E has a unique independence within DOE, it is not beholden to any one particular technology area or research program within DOE. To address concerns about political pressures to direct ARPA–E funding, language was added to further ensure that all projects funded by ARPA–E will be evaluated on the basis of merit. Bureaucratic and political meddling are the main impediments ARPA–E is designed to avoid.

ARPA–E's unique function is best described as that of a "marriage broker" that can identify people and capabilities within industry, universities, and the national labs, and assemble hybrid research teams to quickly develop novel solutions to pressing energy problems. Key to this function is the Program Manager. As in DARPA, Program Managers for ARPA–E should be exceptionally talented, creative and knowledgeable, experienced in industry or academia, and passionate in pursuit of their objectives. Because of the flexible hiring authority that is written into Section 2 of the bill, talented Program Managers can be recruited from a variety of fields, hired for a term of approximately three years, and paid a salary commensurate with what they would make in the private sector. To allow ARPA–E to pursue truly novel technology areas, projects will not undergo the traditional peer-review process. Instead, Program Managers and their superiors are given extraordinary autonomy and resources to pursue unique technology pathways at will, to assemble quickly teams of researchers and technology developers, and to just as quickly change course or terminate research projects that do not look fruitful. This is different from the current DOE model which is criticized for requiring inordinate amounts of time to start up research projects, not looking

broadly enough for research participants, and then sustaining support for projects and people beyond a timeframe where meaningful results are likely.

ARPA–E is expected to pursue a "whatever it takes" approach to moving potentially transformational research and technologies from the labs to the marketplace. With adequate funding and authority ARPA–E will leverage its resources and institutional capabilities to engage in activities across the entire innovation spectrum. This includes anything from early-stage basic research into fundamental concepts with possible technology applications, to later-stage technology prototyping, large-scale demonstrations and commercial applications.

Investment in ARPA–E should be seen in the context of increasing overall energy R&D expenditures enough to address the scope and complexity of the challenges. It is not intended for funding of ARPA–E to come at the expense of other research accounts within DOE, especially the basic research of the Office of Science, and language was added in the Full Committee markup to further clarify that. The *Gathering Storm* report calls for ARPA–E to be authorized at $300 million in the first year, and quickly escalate to $1 billion within five years. Responding to concerns on the part of the witnesses and other outside stakeholders, the Committee chose to pursue a more aggressive funding profile that matches the scale of the challenge, the costs of energy research, and the likelihood that ARPA–E funding would not continue to grow gradually over time. Initial funding for ARPA–E in H.R. 364 is set at $300 million, and increases to $1 billion in the second year to allow ARPA–E to be fully operational more quickly. Though no provision was included to address this, the hearing witnesses and others have suggested that a high-cost, risk-tolerant program like ARPA–E would be most effective if it has a dedicated stream of funding, and would therefore not be subject to annual political and financial pressures and fluctuations that stifle innovation today. Future Administrations and Congresses should consider a range of mechanisms that ensure steady and reliable funding for ARPA–E.

V. Hearing Summary

On March 9, 2006 the House Committee on Science held a hearing to review the concept of an ARPA–E (House Report 109–39). The Committee received testimony from the following witnesses.

- **Dr. Steven Chu—**Director of the Lawrence Berkeley National Laboratory, Nobel Prize winner, and member of the National Academies panel that recommended establishing an ARPA–E.
- **Dr. Catherine Cotell—**Vice President for Strategy, University and Early-Stage Development at In-Q-Tel, a firm established by the Central Intelligence Agency to gain access to new technologies emerging from small startup companies.
- **Dr. Fernando L. Fernandez—**former Director of the Defense Advanced Research Projects Agency (DARPA) from 1998 to 2001.

- **Ms. Melanie Kenderdine—**Vice President, Washington Operations, for the Gas Technology Institute, and former Director of the Office of Policy in the Department of Energy.
- **Dr. David Mowery—**Professor of New Enterprise Development at the Haas School of Business, University of California at Berkeley.

On April 26, 2007 the House Committee on Science and Technology, Subcommittee on Energy and Environment held a hearing on H.R. 364. The Subcommittee received testimony from the following witnesses:

- **Mr. John Denniston—**partner in the venture capital firm of Kleiner Perkins Caufield and Byers, and energy technology investor.
- **Mr. William Bonvillian—**Director of the Washington Office of the Massachusetts Institute of Technology and former Senate staff on legislation establishing HS–ARPA at the Department of Homeland Security.
- **Dr. Stephen Forrest—**Vice President for Research at the University of Michigan, which recently established the Michigan Memorial Phoenix Energy Institute.
- **Dr. Richard Van Atta—**senior researcher at the Science & Technology Policy Institute of the Institute for Defense Analysis, and one of the leading experts on DARPA history.

VI. Committee Actions

H.R. 364 was introduced by Chairman Gordon on January 10, 2007, and referred to the House Committee on Science and Technology, Subcommittee on Energy and Environment. This bill was first introduced as H.R. 4435 in the 109th Congress. In the 109th Congress, the House Committee on Science held a hearing on March 9, 2006 examining the concept of an ARPA–E (Committee Print. 109–39).

On Thursday, May 10, 2007 the Subcommittee on Energy and Environment met to consider H.R. 364 and the following amendments to the bill:

1. An amendment offered by Mr. Lampson, Ms. Giffords, and Mr. Bartlett that adds additional goals for greenhouse gas emissions, efficiency, and economic competitiveness; clarifies reporting structure, personnel responsibilities, activities, and participants; specifies desired experience of some personnel and limits terms to three years; specifies coordination and non-duplication with DOE and other agencies; increases authorization levels; sets guidelines and limits for funding allocations for demonstration and commercial application, federally funded R&D Centers, overhead expenses, and new construction. The amendment was agreed to by voice vote.
2. An amendment offered by Ms. Biggert that replaces text with directions to DOE and NAS to study ARPA–E concept and make recommendations on implementation. The amendment was defeated by voice vote.

Ms. Giffords moved that the Subcommittee favorably report the bill, H.R. 364, as amended, to the Full Committee. *The motion was agreed to by voice vote.*

On Wednesday, May 23, 2007 the Full Committee on Science and Technology met to consider H.R. 364 and the following amendments to the bill:

1. A manager's amendment offered by Mr. Gordon that expands hiring authorities of the Director; clarifies the Program Manager's role in changing and terminating projects; changes the name of the fund; strikes the last year of funding; and strikes the section on recoupment. *The amendment was agreed to by voice vote.*
2. An amendment in the nature of a substitute offered by Mr. Hall, Mr. Gingrey, and Ms. Biggert that makes technical and substantive changes to various sections of the underlying bill. *The amendment was defeated by recorded vote of 24–12.*
3. An amendment offered by Mr. Inglis to provide for a one-year protection for existing funding levels for the Office of Science; directs the program managers of ARPA–E to select projects on the basis of merit; enhances technology transfer and outreach activities. *The amendment was agreed to by voice vote.*
4. An amendment offered by Ms. Biggert conditioning appropriated funds for ARPA–E in any fiscal year on the appropriation of the full authorization amount under section 971(b) of EPAct 2005 for the previous year. *The amendment was defeated by recorded vote of 19–11.*
5. An amendment offered by Ms. Biggert striking the eight percent funding limit on funding for Federally Funded Research and Development Centers. *The amendment was defeated by recorded vote of 23–13.*
6. An amendment offered by Mr. Ehlers to have the Under Secretary of Energy for Science appoint the Director of ARPA–E and have the Director report to the Under Secretary of Energy for Science. *The amendment was defeated by voice vote.*
7. An amendment offered by Mr. Bilbray which strikes the funding section of the bill. *The amendment was defeated by voice vote.*
8. An amendment offered by Mr. Smith of Nebraska to provide for termination of ARPA–E if the study required under section 1821 of EPAct 2005 concludes that ARPA–E should not be established. *The amendment was defeated by recorded vote 25–13.*
9. An amendment offered by Mr. Gingrey to halt appropriations for ARPA–E unless the study required under section 1821 of EPAct 2005 is completed and concludes that ARPA–E should be established. *The amendment was defeated by recorded vote 25–13.*

10. An amendment offered by Mr. Akin that adds a new section providing for termination of ARPA–E after 60 months. *The amendment was defeated by voice vote.*
11. An amendment offered by Mr. Diaz-Balart, presented by Mr. McCaul, that adds a new section terminating ARPA–E after five years if energy imports do not decrease by at least five percent from date of enactment, and after 10 years if imports do not decrease by at least 20 percent from date of enactment. *The amendment was defeated by recorded vote of 23–12.*
12. An amendment offered by Mr. Gingrey that adds a new section creating a savings clause. *The amendment was agreed to by voice vote.*

The bill was approved for final passage by a recorded vote of 25–12. Mr. Lampson moved that the Committee favorably report the bill H.R. 364, as amended, to the House for consideration. *The motion was agreed to by voice vote.*

VII. Summary of Major Provisions of the Bill

H.R. 364 authorizes $4.9 billion for ARPA–E for the fiscal years 2008–2012, with initial year funding contingent on an increase in the DOE Office of Science. The bill also outlines the organizational structure, hiring practices, goals, and activities of ARPA–E. The bill specifies that, to the extent practicable, ARPA–E will not duplicate the specific efforts of other research programs, will coordinate with those programs wherever possible, and seek opportunities to demonstrate technologies within the Federal Government. Specific guidelines are set for the proportion of funds that may be used for overhead expenses, late-stage demonstration and commercial applications, federally funded research and development centers, new construction, and technology transfer and outreach activities. After roughly five years of operations ARPA–E will be evaluated by the President's Committee on Science and Technology.

VIII. Section-by-Section Analysis

Section 1. Findings

The U.S. should address long-term energy challenges through sustained investment in energy research programs at DOE augmented by an innovative and aggressive new energy technology development effort based on the same operating principles that make DARPA successful.

Section 2. Advanced Research Projects Agency–Energy

This section establishes the Advanced Research Projects Agency–Energy (ARPA–E) within the Department of Energy. Similar to the Department of Defense's Advanced Research Projects Agency (DARPA), this new organizational structure will support revolutionary and transformational energy research where risk and payoffs are high.

The stated goal of ARPA–E is to enhance the Nation's economic and energy security through research and development of technologies that reduce U.S. dependence on foreign energy sources, improve energy efficiency of the U.S. economy, reduce the impact of the energy sector on the environment, and ensure the U.S. leadership in developing energy technologies. To achieve this ARPA–E will support collaborative, targeted, high-risk, high payoff research to accelerate the innovation cycle for transformational energy technologies.

ARPA–E shall be headed by a Director, appointed by the Secretary. No other program within DOE will report to ARPA–E. The Director will administer competitive grants, cooperative agreements, or contracts to universities, private companies, research foundations, industry collaborations, and consortia. These consortia can in-

clude federal laboratories, in addition to the aforementioned parties, and can be led by federal laboratories. Funds may be used for activities in any stage of the innovation spectrum from early-stage basic research to late-stage demonstration. A special emphasis should be placed on activities that serve to bridge between these stages and, ultimately, across the "valley of death" to commercial applications of the technologies.

The organizational structure of ARPA–E should be flat and nimble to avoid bureaucratic impediments that stifle innovation today. The Director shall designate Program Managers who will have flexibility in establishing R&D goals for the program, publicizing goals, convening workshops of potential research participants, issuing solicitations, selecting projects and building research teams, monitoring their progress, and prescribing restructuring or elimination of projects as needed. Program managers will make selections for all projects under ARPA–E based on merit, taking into account factors such as novelty, scientific and technical merit, applicant's capabilities, the applicant's consideration of commercial applications of the research and inclusion of commercial partner, and other criteria as the Director determines. As with DARPA, the Director of ARPA–E will have special authority to hire program managers and other technical, managerial, and financial staff for limited terms, and at a salary commensurate with what such staff would expect to make in the private sector. In finding and attracting qualified and specialized staff the Director may contract with outside recruiting firms.

In addition, the Director shall ensure that ARPA–E's activities do not duplicate and are coordinated with other federal research and technology transfer programs, and shall seek opportunities to demonstrate ARPA–E research and technologies through procurement in the Federal Government.

Section. 3. Fund

This section establishes the Energy Transformation Acceleration Fund administered by the Director of ARPA–E. $4.9 billion is authorized for FY 2008 through 2012, to remain available until expended. Funding for the initial year of ARPA–E operations shall not be available unless the DOE Office of Science funding increases from the previous year (2007).

This section also lays out general guidelines for how money should be allocated in a given fiscal year. Not more than 50 percent of funds allocated shall be for expensive late-stage demonstrations and commercial applications of technologies and research. Not more than eight percent of funds are to be made available directly to Federally Funded Research and Development Centers (FFRDCs). However, FFRDCs can receive, in addition to the eight percent, payment for services from ARPA–E grantees, contractors, cooperative agreement participants regardless of the source of funds. Not more than 10 percent of funds shall be used for administrative expenses. To ensure a robust technology transfer and outreach activities, 2.5 percent of funds shall be dedicated to these activities. To ensure ARPA–E funds go towards funding research within the Nation's existing private and public research infrastructure, for the first five years, no funds should be used for construction of new buildings or facilities.

Section 4. Advice

The Director of ARPA–E has the flexibility to seek advice either from an existing DOE advisory committee, or to establish a new advisory committee. The Director may also seek advice and review from the National Academies of Science and Engineering, and any other professional or scientific organization.

Section 5. ARPA–E Evaluation

At the end of five and one-half years, the President's Committee on Science and Technology (PCAST) shall complete an evaluation of the performance of ARPA–E in achieving its goals and mission, to be made available to Congress and the public. In this evaluation the Committee is required to recommend whether ARPA–E should be continued or terminated as well as provide lessons-learned from its operation.

Section 6. Savings Clause

This clarifies that authorities granted by this Act are in addition to, and do not supersede or modify, existing authorities of the Secretary of Energy.

IX. Dissenting Views

Dissenting Views of Representatives Ralph M. Hall, Judy Biggert, Jo Bonner, Tom Feeney, Randy Neugebauer, Michael T. McCaul, Mario Diaz–Balart, Phil Gingrey, Brian Bilbray and Adrian Smith

We oppose H.R. 364, to provide for the establishment of the Advanced Research Projects Agency–Energy. The bill would create an unnecessary bureaucracy at the Department of Energy (DOE) that the agency does not want and does not support. Furthermore, we are concerned with authorizing $4.9 billion for a new agency that is likely to compete with existing programs for increasingly limited federal dollars. It poses a direct threat to DOE's Office of Science, which was singled out to receive priority funding in the October 2005 National Academy of Sciences (NAS) report, *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future,* on which the bill is said to be based.

We see the potential benefit that "creative, out-of-the-box, transformational" research could provide to our country. However, we have yet to be convinced that the DOE, as currently structured, cannot support, and does not already support, such research. For example, some Members of the Committee believe that the DOE's FreedomCAR and Hydrogen Initiatives, FutureGen, the Global Nuclear Energy Partnership, and U.S. participation in ITER, the international fusion experiment, already qualify as "creative, out-of-the-box, transformational" research.

While the Department of Defense's (DOD) Defense Advanced Research Project Agency (DARPA) has proven to be largely a success at DOD, differences in the structure and culture of the DOD and DOE should not be ignored. Just because something works at DOD, does not mean it will work at DOE. A case in point is the creation of the Homeland Security Advanced Research Projects Agency. According to the testimony of William Bonvillian, "While the Committee provided HS–ARPA with a strong and flexible authorization closely modeled on DARPA's strengths, HS–ARPA has never been adequately utilized or implemented. . .. An innovation culture is critical to success, and legislation alone can't create this unless the implementing agency shows real leadership, supports the new R&D mission, and is determined to use flexible statutory authorities to create a strong entity." The lack of support by the current Secretary and Administration suggests that, in the face of such opposition, ARPA–E would likely fail.

We would also point out that the bill strays from the *Rising Above the Gathering Storm* report's ARPA–E recommendation which states that ARPA–E should report to the Under Secretary for Science. Instead, the bill explicitly states, "The Director shall report to the Secretary." It also appears that the NAS panel never received outside advice or testimony on the ARPA–E idea. Furthermore, the recommendation to create an ARPA–E was the only one of 20 action items in the *Gathering Storm* report not to receive the unanimous support of the panel. One of the panel members, the energy industry representative, dissented from the recommendation of the panel. Like a number of Members of the Committee, he expressed concern that a new DARPA-like agency at DOE would put the government in the position of picking technology winners and

losers for the private sector. Unlike DARPA, whose primary customer is the Federal Government, ARPA–E is supposed to pick technologies for the private sector, which in contrast to the government is much more sensitive to cost and price. Recognizing the legitimacy of this other perspective on the ARPA–E concept, even the NAS report acknowledged that, "some believe that industry and venture capital investors will already fund the things that have a reasonable probability of commercial utility (the invisible hand of the free markets at work), and what is not funded by existing sources is not worthy of funding." Last Congress, the House passed H.R. 6203, which included a provision directing the Secretary, with the National Academy of Sciences, to conduct a detailed study of, and make further recommendations on, the NAS recommendation to establish an ARPA–E. It included the following pertinent questions:

1) What basic research related to new energy technologies is occurring now, what entities are funding it, and what is preventing the results of that research from reaching the market?
2) What economic evidence indicates that the limiting factor in the market penetration of new energy technologies is a lack of basic research on path-breaking new technologies? What barriers do those trying to develop new energy technologies face during later stages of research and development?
3) To what extent is the Defense Advanced Research Projects Agency an appropriate model for an energy research agency, given that the Federal Government would not be the primary customer for its technology and where cost is an important concern?
4) How would research and development sponsored by ARPA–E differ from research and development conducted by the National Laboratories or sponsored by the Department through the Office of Science, the Office of Energy Efficiency and Renewable Energy, the Office of Fossil Energy, the Office of Electricity Delivery and Energy Reliability, and the Office of Nuclear Energy?
5) Should industry or National Laboratories be recipients of ARPA–E grants? What institutional or organizational arrangements would be required to ensure that ARPA–E sponsors transformational, rather than incremental, research and development?

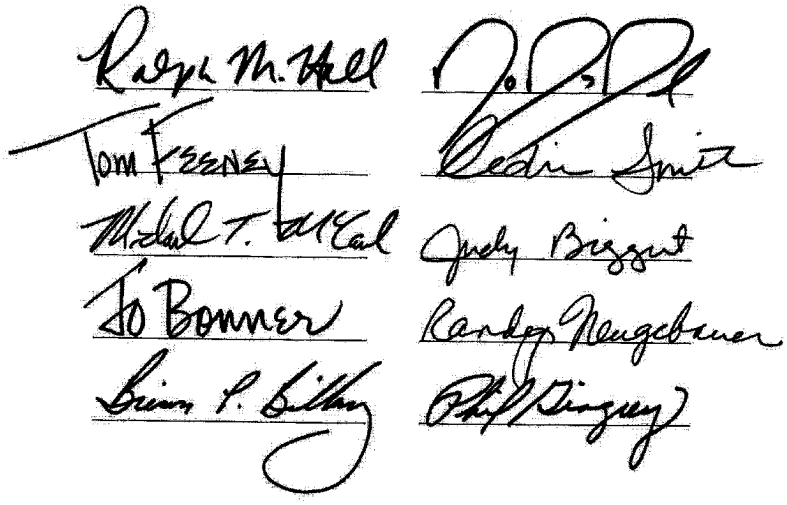
While the bill was not signed into law, the questions still remain. This was confirmed during a recent Energy and Environment Subcommittee hearing at which all the witnesses agreed that the NAS recommendation was vague and really just an "idea." One of the witnesses, John Denniston, a partner with the firm Kleiner, Perkins, Caufeld & Byers, said, "I don't think that the *Gathering Storm* report provided implementation details. I view it as an idea. So, they don't talk specifically about which technologies, fossil, nuclear, renewable. They don't talk about stage of research, should it be translational, is it basic, is it applied? They don't talk about the organizational details, much of which you have heard today."

Section 1821 of the *Energy Policy Act of 2005* (EPAct) also contained a study on the applicability of the management practices used by DARPA and the advisability of creating an ARPA–E. This study was to have been completed by January of 2007. On May 22, 2007, Ranking Member Hall along with 13 other Members of this committee sent a letter to Secretary of Energy Bodman urging the agency to complete the study and implement Section 1401 of EPAct. Section 1001 of EPAct directed the Secretary to appoint a Technology Transfer Coordinator and establish a Technology Transfer Working Group.

As an alternative to the bill, Ranking Member Hall along with Members Gingrey, and Biggert offered a substitute, which was defeated, addressing the aforementioned concerns with the bill. The substitute recognized that while the Department of Energy has the authority to promote technology transfer of basic and applied research, a need exists to quickly identify opportunities to accelerate the commercial application of new energy technologies to meet the Nation's energy needs. As well, a fully integrated approach to advanced energy research will help bridge the gap between basic research and applied technology, thus overcoming long-term and high-risk barriers to the development of advanced energy technologies. The substitute conditioned the establishment of ARPA–E on the Section 1821 study in EPAct putting forward a recommendation that the management practices used by DARPA would apply to research programs at DOE.

The substitute amendment did not create a new agency, but required the Secretary to use existing authority coupled with newly established DARPA like hiring authority to undertake ARPA–E type projects. It authorized $750 million over five years for the Secretary to carry out the projects and required the Secretary to report to Congress on their status. It permitted the Secretary to coordinate with other agencies on advanced energy projects, directed the Secretary to coordinate with the to-be-appointed Technology Transfer Coordinator, allowed the Secretary to award prizes for achievement under an advanced energy research project, and established cost sharing according to that provided in the *Energy Policy Act of 2005.*

While we have the utmost respect for the Chairman and for the positive manner in which debate on this bill ensued, we believe the substitute addressed the goals sought by the Committee in a more responsible and effective manner. Thus we are unable to support H.R. 364 in its current form.



X. COST ESTIMATE

A cost estimate and comparison prepared by the Director of the Congressional Budget Office under section 402 of the *Congressional Budget Act of 1974* has been timely submitted to the Committee on Science and Technology prior to the filing of this report and is included in Section XI of this report pursuant to House Rule XIII, clause 3(c)(3).

H.R. 364 does not contain new budget authority, credit authority, or changes in revenues or tax expenditures. Assuming that the sums authorized under the bill are appropriated, H.R. 364 does authorize additional discretionary spending, as described in the Congressional Budget Office report on the bill, which is contained in Section XI of this report.

XI. CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

Summary

H.R. 364 would authorize the appropriation of $4.9 billion over the 2008–2012 period for the Department of Energy (DOE) to establish the Advanced Research Projects Agency–Energy (ARPA–E). ARPA–E would award competitive grants, cooperative agreements, and contracts for the research and development of projects with potential energy and environmental applications. CBO estimates that implementing H.R. 364 would cost $4.1 billion over the 2008–2012 period, assuming the appropriation of the specified amounts. Enacting H.R. 364 would have no effect on direct spending or revenues.

H.R. 364 contains no intergovernmental or private-sector mandates as defined in the *Unfunded Mandates Reform Act* (UMRA). The bill would benefit public institutions of higher education and

any costs they may incur would result from complying with conditions of federal assistance.

Estimated Cost to the Federal Government

The estimated budgetary impact of H.R. 364 is shown in the following table. The costs of this legislation fall within budget function 250 (general science, space, and technology).

	By Fiscal Year, in Millions of Dollars				
	2008	2009	2010	2011	2012
CHANGES IN SPENDING SUBJECT TO APPROPRIATION					
Authorization Level	300	1,000	1,100	1,200	1,300
Estimated Outlays	165	640	950	1,140	1,240

Basis of Estimate

For this estimate, CBO assumes that the bill will be enacted in fiscal year 2007 and that the amounts authorized by the bill will be appropriated for each fiscal year. H.R. 364 would authorize the appropriation of $4.9 billion over the next five years to establish ARPA–E within DOE.

The mission of the new agency would be to reduce energy imports and greenhouse gas emissions, improve energy efficiency, and develop and deploy energy technologies. To meet these goals, ARPA–E would award competitive grants, cooperative agreements, and contracts to institutions of higher education, research foundations, private companies, and collaborations of trade and industry. Such awards would be used to identify and promote significant advances in basic sciences that have potential energy and environmental applications, translate these discoveries into workable technologies, and accelerate their market adoption.

Based on the historical spending patterns of similar programs (notably the DOE Office and Science and the Defense Advanced Research Projects Agency), CBO estimates that implementing H.R. 364 would cost $165 million in 2008 and $4.1 billion over the 2008–2012 period, assuming appropriations at the levels specified in the bill.

Intergovernmental and Private-Sector Impact

H.R. 364 contains no intergovernmental or private-sector mandates as defined in UMRA. Funding authorized by the bill may benefit public institutions of higher education that compete for funds in connection with the research goals of ARPA–E. Any costs that they might incur would result from complying with conditions of federal assistance.

Estimate Prepared By:

Federal Costs: Daniel Hoople
Impact on State, Local, and Tribal Governments: Lisa Ramirez-Branum
Impact on the Private Sector: Craig Cammarata

Estimate Approved By:

Peter H. Fontaine, Deputy Assistant Director for Budget Analysis

XII. Compliance With Public Law 104–4

H.R. 364 contains no unfunded mandates.

XIII. Committee Oversight Findings and Recommendations

The oversight findings and recommendations of the Committee on Science and Technology are reflected in the body of this report.

XIV. Statement on General Performance Goals and Objectives

Pursuant to clause (3)(c) of House rule XIII, the goals of H.R. 364 to enhance energy research and development through the establishment within the Department of Energy of the Advanced Research Projects Agency–Energy (ARPA–E), and by setting up an Energy Independence Acceleration Fund to conduct activities under the Act.

XV. Constitutional Authority Statement

Article I, section 8 of the Constitution of the United States grants Congress the authority to enact H.R. 364.

XVI. Federal Advisory Committee Statement

The functions of the advisory committee authorized in H.R. 6063 are not currently being nor could they be performed by one or more agencies or by enlarging the mandate of another existing advisory committee.

XVII. Congressional Accountability Act

The Committee finds that H.R. 364 does not relate to the terms and conditions of employment or access to public services or accommodations within the meaning of section 102(b)(3) of the *Congressional Accountability Act* (Public Law 104–1).

XVIII. Earmark Identification

H.R. 364 does not contain any congressional earmarks, limited tax benefits, or limited tariff benefits as defined in clause 9(d), 9(e), or 9(f) of Rule XXI.

XIX. Statement on Preemption of State, Local, or Tribal Law

This bill is not intended to preempt any State, local, or tribal law.

XX. Committee Recommendations

On May 23, 2007, the Committee on Science and Technology favorably reported H.R. 364, as amended, by a recorded vote of 25 to 12 and recommended its enactment.

XXI. Exchange of Letters

HENRY A. WAXMAN, CALIFORNIA,
CHAIRMAN

TOM LANTOS, CALIFORNIA
EDOLPHUS TOWNS, NEW YORK
PAUL E. KANJORSKI, PENNSYLVANIA
CAROLYN B. MALONEY, NEW YORK
ELIJAH E. CUMMINGS, MARYLAND
DENNIS J. KUCINICH, OHIO
DANNY K. DAVIS, ILLINOIS
JOHN F. TIERNEY, MASSACHUSETTS
WM. LACY CLAY, MISSOURI
DIANE E. WATSON, CALIFORNIA
STEPHEN F. LYNCH, MASSACHUSETTS
BRIAN HIGGINS, NEW YORK
JOHN A. YARMUTH, KENTUCKY
BRUCE L. BRALEY, IOWA
ELEANOR HOLMES NORTON,
DISTRICT OF COLUMBIA
BETTY McCOLLUM, MINNESOTA
JIM COOPER, TENNESSEE
CHRIS VAN HOLLEN, MARYLAND
PAUL W. HODES, NEW HAMPSHIRE
CHRISTOPHER S. MURPHY, CONNECTICUT
JOHN P. SARBANES, MARYLAND
PETER WELCH, VERMONT

ONE HUNDRED TENTH CONGRESS

Congress of the United States

House of Representatives

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM

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TOM DAVIS, VIRGINIA,
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JOHN L. MICA, FLORIDA
MARK E. SOUDER, INDIANA
TODD RUSSELL PLATTS, PENNSYLVANIA
CHRIS CANNON, UTAH
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MICHAEL R. TURNER, OHIO
DARRELL E. ISSA, CALIFORNIA
KENNY MARCHANT, TEXAS
LYNN A. WESTMORELAND, GEORGIA
PATRICK T. McHENRY, NORTH CAROLINA
VIRGINIA FOXX, NORTH CAROLINA
BRIAN P. BILBRAY, CALIFORNIA
BILL SALI, IDAHO

June 4, 2007

The Honorable Bart Gordon
Chairman
Committee on Science and Technology
2320 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Gordon:

I am writing about H.R. 364, a bill to provide for the establishment of the Advanced Research Projects Agency-Energy, which the Committee on Science and Technology ordered reported to the House on May 23, 2007.

I appreciate your effort to consult with the Committee on Oversight and Government Reform regarding those provisions of H.R. 364 that fall within the Oversight Committee's jurisdiction. These provisions involve the federal civil service and the Federal Advisory Committee Act.

In the interest of expediting consideration of H.R. 364, the Oversight Committee will not request a sequential referral of this bill. I would, however, request your support for the appointment of conferees from the Oversight Committee should H.R. 364 or a similar Senate bill be considered in conference with the Senate. Moreover, this letter should not be construed as a waiver of the Oversight Committee's legislative jurisdiction over subjects addressed in H.R. 364 that fall within the jurisdiction of the Oversight Committee.

I request that you include our exchange of letters on this matter in the Committee on Science and Technology Report on H.R. 364 and in the Congressional Record during consideration of this legislation on the House floor.

Again, I appreciate your willingness to consult the Committee on these matters.

Sincerely,

Henry A. Waxman
Chairman

cc: Tom Davis
Ranking Minority Member

BART GORDON, TENNESSEE
CHAIRMAN

RALPH M. HALL, TEXAS
RANKING MEMBER

U.S. HOUSE OF REPRESENTATIVES

COMMITTEE ON SCIENCE AND TECHNOLOGY

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June 4, 2007

The Honorable Henry A. Waxman
Chairman
Committee on Oversight and Government Reform
2157 Rayburn House Office Building
Washington, DC 20515

Dear Mr. Chairman:

Thank you for your letter regarding H.R. 364, a bill to provide for the establishment of the Advanced Research Projects Agency-Energy. I appreciate your waiving your Committee's right to a referral on this bill so that it may move expeditiously to the Floor.

I recognize your Committee's jurisdiction in the areas of the federal civil service and the Federal Advisory Committee Act, and will support any request you may make to have conferees on H.R. 364 or similar legislation. The exchange of letters between our two committees will be included in the Science and Technology Committee report on H.R. 364 and will be inserted in the *Congressional Record* during consideration of the bill.

Thank you for your attention to this matter.

Sincerely,

Bart Gordon

Bart Gordon
Chairman

cc: The Honorable Ralph Hall
Ranking Minority Member

The Honorable John V. Sullivan

XXII: PROCEEDINGS OF THE MARKUP BY THE SUBCOMMITTEE ON ENERGY AND ENVIRONMENT ON H.R. 364, TO PROVIDE FOR THE ESTABLISHMENT OF THE ADVANCED RESEARCH PROJECTS AGENCY–ENERGY

THURSDAY, MAY 10, 2007

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
Washington, DC.

The Subcommittee met, pursuant to call, at 10:15 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Nick Lampson [Chairman of the Subcommittee] presiding.

Chairman LAMPSON. The Subcommittee on Energy and Environment will come to order. Pursuant to notice, the Subcommittee on Energy and Environment meets to consider the following measures: H.R. 364, *To provide for the establishment of the Advanced Research Projects Agency-Energy,* and H.R. 632, the *H–Prize Act of 2007.*

We will now proceed with the markup beginning with opening statements and I will begin.

Today we will consider two bills that represent another step of the Committee's effort to push the envelope of technological possibility and provide the American people a future with cheaper, cleaner and better energy options.

For decades my district has been synonymous with oil and gas or energy generally. To a large extent it has been the economic foundation for that area, for the great State of Texas and even for the Nation. And the truth is that we should expect that oil, gas and other traditional sources of energy such as coal and nuclear will provide much of our nation's energy for decades to come.

But the winds of change are indeed blowing. And the folks in my district know as well as anyone the predicament that we face in sky-high energy prices, the environmental impacts of our energy use and the critical need for maintaining jobs in the energy sector.

In this respect, the Nation faces a challenge like none we have encountered before. Unlike the Apollo and Manhattan Projects which galvanized our nation's scientists to win a global race to put a man on the Moon or create a "weapon to end all wars" there is no finish line in this race. We are attempting to transform a national and to some extent global economy which is based on only

a handful of unsustainable energy resources. Resources that we know will simply not last.

Despite their remarkable technological advances, we cannot expect the energy industry and the current programs at the Department of Energy to tackle these problems on their own. Only through ground-breaking research and the development of truly transformational technologies can we begin to match up to the scale and the complexity of these challenges.

Now this requires from us a rock solid commitment to innovative energy R&D and a leap of faith that somewhere on the shelves of our national labs or in the garages in our nation's inventors or in the halls of research universities there are discoveries and technologies waiting to be exploited by a new energy industry.

The two bills that we are here to mark up today represent the kind of bold efforts that are needed in advancing energy research and ensuring that the United States maintains a lead in these emerging technology fields. Therefore, I urge their passage and look forward to getting them to the House Floor.

[The prepared statement of Chairman Lampson follows:]

PREPARED STATEMENT OF CHAIRMAN NICK LAMPSON

Today we will consider two bills that represent another step in this committee's efforts to push the envelope of technological possibility, and provide the American people a future with cheaper, cleaner, better energy options.

For decades my district has been synonymous with oil and gas (or Energy, generally). To a large extent it has been the economic foundation for this area, for the great State of Texas, and even for the Nation.

And the truth is that we should expect that oil, gas and other more traditional sources of energy, such as coal and nuclear, will provide much of our nation's energy for decades to come.

But the winds of change are blowing, and the folks in my district know as well as anyone the predicament we face in sky-high energy prices, the environmental impacts of our energy use, and the critical need for maintaining jobs in the energy sector.

In this respect, the Nation faces a challenge like none we have encountered before. Unlike the Apollo and Manhattan projects, which galvanized our nation's scientist to win a global race to put a man on the Moon, or create a "weapon to end all wars," there is no finish line in this race.

We are attempting to transform a national, and to some extent global, economy which is based on only a handful of unsustainable energy resources. Resources that we know will simply not last.

Despite their remarkable technological advances, we can't expect the energy industry, and the current programs at the Department of Energy to tackle these problems on their own.

Only through ground-breaking research, and the development of truly transformational technologies, can we begin to match up to the scale and complexity of these challenges.

This requires from us a rock-solid commitment to innovative energy R&D, and a leap of faith that somewhere on the shelves of our national labs, in the garages of our nation's inventors, and in the halls of our research universities, there are discoveries and technologies waiting to be exploited by a new energy industry.

The two bills that we are here to markup today represent the kind of bold efforts that are needed in advancing energy research, and ensuring the U.S. maintains a lead in these emerging technology fields.

Therefore I urge their passage, and look forward to getting them to the House Floor.

Chairman LAMPSON. I will now recognize Mr. Inglis to present his opening remarks.

Mr. INGLIS. And I thank the Chairman for yielding. First of all, we are very happy to have you back in the Chair, Mr. Lampson. It is——

Chairman LAMPSON. Thank you very——

Mr. INGLIS.—great to——

Chairman LAMPSON.—very much.

Mr. INGLIS.—have you back. You are looking great and——

Chairman LAMPSON. Thank you.

Mr. INGLIS.—healthy and all of that, now you had some capable folks filling in for you. But we are——

Chairman LAMPSON. I am very appreciative——

Mr. INGLIS.—but we are happy to have you back.

Chairman LAMPSON. Thank you very much.

Mr. INGLIS.—and, you know, it is helpful to be here today talking about energy and two different bills that can help us achieve some of the objectives that we have.

Sometimes people wonder about those objectives. My wife was at a gathering a couple of months ago and a lady told her Bob has got to stop talking about energy so much. We are tired of hearing from him about energy. I would note that as the price of gasoline is now above three dollars a gallon that probably Marianne would have a different message coming from that lady now and that it is good to focus a lot on energy. So it depends on what the price at the pump is as to whether we think it is a great thing to focus on.

But the objective of these bills today is to look long-term and not to the gas prices that fluctuate up and down based on the month. I do hope that we take the message from those gas prices, that they are volatile. They will go up and down. But the long-term trajectory has to be up. And so therefore we are looking for energy sources besides those.

And so today two bills that help us get to there—to that place of energy independence, we hope, one is, ARPA–E, which is designed to create breakthrough technology opportunities, and the other, the H–Prize Bill, which is even a little bit longer-term proposition, but that can hopefully lead us to a new source of energy. So we are happy to be here marking up these bills, Mr. Chairman. I have got a more complete opening statement that I would like to submit for the record.

Chairman LAMPSON. With no—without objection.

[The prepared statement of Mr. Inglis follows:]

PREPARED STATEMENT OF REPRESENTATIVE BOB INGLIS

Thank you, Mr. Chairman, for holding this markup on the establishment of the H–Prize and ARPA–E. The bills we discuss today represent a common goal: harnessing American innovation to meet our need for energy and improve our energy security.

One hundred years ago, the space travel concept was madness. Forty years ago, only a select group of elite astronauts could visit the Moon. Ten years ago, just a handful of visionaries thought that the highway to space would soon open to all travelers. Today, paying customers can pre-book flights to space, and in two years, from their seat on a space plane, they will take digital pictures of the Earth to share with their friends and family back home.

Twelve short years mark the gap between science fiction and commercial space flight. Imagination and innovation bridged the gap. In 1996, Peter Diamandis joined forces with the Ansari family of investors and created the X–Prize, offering $10 million to the first reusable sub-orbital space vehicle. Eight years later, Burt Rutan's SpaceshipOne won the prize, launching into sub-orbital space flight twice in two weeks. Shortly after, Richard Branson teamed up with Rutan, and Virgin Galactic will soon convert a space-age science project into a new tourist industry.

The energy industry in 2007 looks a lot like the space flight sector did in 1996. We've seen important incremental gains, but overall innovation has slowed. We de-

pend on volatile fossil fuels, scratch our head at how to deal with carbon emissions, and get more and more frustrated with each cent increase in the cost of gasoline. We know that there has to be a better way to do energy.

Taking a prize approach to the energy problem allows our imagination to run with the prospects of coupling a pioneering vision with a hydrogen prize, or H–Prize, incentive for innovation in hydrogen energy. Our history tells us that what starts with an imaginative dream or vision typically finishes in a legacy of American innovation. There's a multi-billion, if not trillion, dollar industry that we can create from a hydrogen energy source free of emissions, renewable, cost-effective, and American-made.

Imagine an inventor in Spartanburg, SC and an entrepreneur in Greenville teaming up to work on the challenge of hydrogen storage. The entrepreneur secures a license for metal hydride storage material from the Hydrogen Research Center at the Savannah River National Lab. The inventor is a retiree from the Oak Ridge National Lab, with a lifetime of experience in alternative fuels. They've heard about the H–Prize, and it's provided the spark to light the fuse of their imagination. The Discovery Channel has a new idea for a show on alternative fuels, and has agreed to follow their progress.

They set to work improving the material to store more hydrogen at lower weight, and a year later they submit their work to the H–Prize judging panel for best incremental gain in storage technology. Their careful work wins the prize, and they've got $1 million to show for it. They use part of the money to pay their investors, but they convince their investors that they could win even bigger in the prototype competition. They assemble a small team and get to work.

After a year of all-nighters and Ramen noodles, they have their prototype for a storage subsystem. The Discovery Channel has the beginnings of a new reality show (who knew scientists could be so caddy?). Their metal hydride dust could fill the frame of a car, safely providing the hydrogen fuel and eliminating the need for a fuel tank. BMW loves the idea and before their team even won the $4 million prize for best prototype, BMW is competing to license their technology for the next version of the Hydrogen 7 sedan.

Now the team's investors are really buzzing. They've partnered with automotive engineering departments at several universities and are hard at work designing a new mass-producible vehicle at Clemson University's International Center for Automotive Research in Greenville. They've got their eyes on the grand prize for transformational technologies. Duke Power has become a partner to provide economical, carbon-free hydrogen from nuclear power. A local gasoline marketer has jumped in to help with distribution, offering modified fuel trucks running on biodiesel and pump space for hydrogen. Corporate investors from around the world are pitching in to get their logo—NASCARstyle—on the car, fueling station, and everything in between.

The South Carolina team is only one of many around the country, but the Discovery Channel cameras testify that their hearts are in it to win. Over the course of five years, Team Palmetto assembles, jimmy-rigs, and invents the technologies to take them to the top. The judges deem them the best, and they receive the $10 million cash prize for their hard work. Of course, at this point their investors see that more gains lie ahead, so the team easily raises $40 million in venture capital, which is matched by other private money for corporate sponsorship of the H–Prize. Within three years, their emission-free HyFlyer cars zipping along the East and West Coast Hydrogen Highways, in Europe, and even Japan and China.

It's not so farfetched. The prize idea has worked in the past, from the Transcontinental Railroad, to Lindbergh and the Orteig Prize, to Burt Rutan and the X–Prize. Others see the prize working in the future: the Automotive X–Prize, Rep. Frank Wolf's NSF prize, Rep. Dan Lungren's Automotive Prize. H–Prize has the advantage of focusing on a far reaching technology where breakthroughs are needed and harnessing the American innovative and entrepreneurial spirit to tackle those challenges.

Prize money is one seed from which energy technology and industry can grow. But it will not be the only source for energy breakthroughs. There is still a need for research and development funding for our nation's scientists, labs, and universities. The ARPA–E bill that we will markup today addresses a need to sponsor exploration in high-risk endeavors.

ARPA–E research could offer a big payoff in the commercial energy market. At the same time, I already see real payoffs coming from existing DOE research, especially hydrogen, nuclear, wind, and solar programs. I'm concerned that the ARPA–E fund will divert funds away from these existing programs and jeopardize the advances we're already seeing in these areas. I hope that we can find a way to ensure this doesn't happen.

Thank you again, Mr. Chairman, I look forward to working with you on these two bills.

Mr. INGLIS. Thank you. I look forward to the markup here.

Chairman LAMPSON. Thank you very much, Ranking Member Inglis. And I think it is appropriate because we have the Chairman of the Science Committee here with us today, Mr. Bart Gordon, that we give him an opportunity to make some comments. Mr. Chairman?

Chairman GORDON. Thank you, Chairman Lampson. And let me also say welcome back and——

Chairman LAMPSON. Thank you.

Chairman GORDON.—we are glad that you are looking fit as a fiddle. I will say in your absence that Ms. Giffords did an excellent job with a very informative hearing the other day.

Chairman LAMPSON. Believe it or not, I heard that all the way down in Texas.

Chairman GORDON. So, you better look over your shoulder. And Mr. Inglis, you know almost all of Former Chairman Boehlert's opening statements, I would say I concur. And let me continue that by saying I concur with your opening statement. And particularly, in not taking the short view of this. You know, back in the '70s if we had followed through on some of the initiatives that we talked about we would not be in this situation now.

Now to this bill. And I want to thank you for bringing up H.R. 364. If you read the *Washington Post* this morning on the top left-hand side you saw where Mayor Fenty had gotten into some trouble because he had plagiarized some of the statements in a Charlotte, North Carolina program that was similar to his efforts to take over the school system here. So I want to make it very clear today that I am plagiarizing with permission. This is not a Bart Gordon Bill. This is not a Democratic bill. This is not a Republican bill. This is simply putting into legislative language the recommendations of the *Rising Above the Gathering Storm.*

And we are familiar with this. I will not belabor it. But quickly to say, when we ask them to look at competitiveness of American 21st Century, they had two recommendations: one with the Math and Science skills and the other was energy independence. And this was prior to the price of oil going up. And I think they were very farsighted in seeing that. And so, that is what we attempt to do today.

It is a bill that is modeled after, and once again on their suggestions, the successful DARPA program. It has a nimble organization with a minimal amount of administrative layers. Its purpose is to look at high-risk high-reward areas that the private sector will not invest in. This is the basic of the basic research. And you also have to keep in mind that since the '80s that the federal energy technologies R&D, is down 85 percent. And so this is a very important way.

And I think the key to it is again looking at those high risk areas, bringing the public sector to the private sector or national labs, the universities, everyone together to crash on these and to make some real breakthroughs. I know that a number of the Committee Members met this weekend with the International Energy Association. And you will remember in talking about it they see

sort of a three-legged stool to energy independence as well as dealing with the climate change. One is conservation. The second is better use of our existing energy sources. And the third is this type of transformational technology. Not only for new types of technology but also to use our existing types of fuels better. So I think this is very important.

I know that there will be some that say that the authorizing level is too high. Let me say the authorizing level is the recommendation from the *Rising Above the Gathering Storm* that the appropriators ultimately in the House Floor will determine what is the actual appropriation. But I think that it is wise to give flexibility. Others might say that well, you know, the Energy Department is doing a good job. Let us do not, you know, throw something else in there. Well, if you are satisfied with status quo then we do not need this. I am not. I think we can do a better job. I think this is an important bill.

I thank the Subcommittee for the good hearings that they have had and I thank them for bringing up this bill. And I yield back my time.

[The prepared statement of Chairman Gordon follows:]

PREPARED STATEMENT OF CHAIRMAN BART GORDON

I would like to thank Chairman Lampson and the other Members of the Energy & Environment Subcommittee for their assistance in bringing H.R. 364, a bill to establish an Advanced Research Projects Agency for Energy, before the Subcommittee this morning.

I first introduced this bill in the 109th Congress in response to recommendations in the National Academies report, *Rising Above the Gathering Storm.*

This report recognized that the U.S. dependence on traditional energy sources and outdated technologies puts us in a perilous position.

We cannot afford to wait until we face severe disruptions to fossil energy supplies or serious impacts from climate change to address this challenge.

The *Gathering Storm* report recommended establishing ARPA–E, modeled on DARPA's successful innovation model, to sponsor creative out-of-the-box, transformational energy research in those areas where the private sector cannot or will not invest on its own.

DARPA succeeded largely because it fostered a culture of innovation. We cannot legislate an agency's culture. But we can set up a nimble organization with minimal administrative layers and the ability to quickly start and stop research programs. These elements are key to the success of ARPA–E, and to transforming energy R&D from the laboratory bench into market-ready technologies.

This transformation simply won't happen on the cheap. We must commit to providing adequate resources to get us there. We simply have not been making the kind of investments needed to move us into a new energy future.

During the past 35 years, we have become more dependent upon foreign energy supplies and greenhouse gas emissions have grown so that we face an uncertain future due to climate change.

During this same time period, federal investment in energy technology R&D has declined by 85 percent from its peak in 1978. We must reverse this trend.

Investment in ARPA–E must be seen as the first step in boosting energy research and development to a level that addresses the true scale of the challenge before us, and the true cost of doing transformational research.

Establishing an ARPA–E in H.R. 364 is a bold step, but we've got to be willing to push this envelope, make some tough but firm commitments to get the job done.

I appreciate my colleagues' support, and I look forward to continuing to work with all of you as this legislation moves forward.

Chairman LAMPSON. Thank you, Mr. Chairman. I note that Ranking Member Hall is not here right now and when he comes in he will also be called on for opening remarks that he might want

to make. Without objection, Members may place statements in the record at this point.

We will now consider H.R. 364 to provide for the establishment of the Advanced Research Projects Agency-Energy. I yield five minutes to Mr. Gordon to describe this bill.

Chairman GORDON. Mr. Chairman, I think that I have and I will not take the Committee's time to do it again. I think that we have had adequate hearings on it. It is a bipartisan bill with many cosponsors and I think my earlier opening remarks accomplished that. So I will yield it back but would certainly be open to any questions that anyone would like to have for clarification.

Chairman LAMPSON. Thank you, Mr. Chairman. And I recognize Mr. Inglis to present any remarks he has on the bill.

Mr. INGLIS. And, you know, I might ask the Chairman a couple of questions as part of that. There are some questions over here. We think that we share the same vision. We also are excited about investing in this kind of breakthrough technology. That is what we have been talking about for a long time on this committee. There are some questions and maybe you can help clear them up.

One of the challenges of the Department of Energy has been a bunch of earmarks that have eaten up the money that was available to pursue projects that would really be breakthroughs. Do you have any sense that in the setup that we are going to be able to avoid that scenario—that with the six billion that we would authorize that somehow we can protect it from earmarks for less than optimal demonstration projects?

Chairman GORDON. If the Chairman—or if the Ranking Member would yield, I think that we saw that in DARPA that we did not see any type of earmarks. Within the National Science Foundation you do not see earmarks.

Mr. INGLIS. Right.

Chairman GORDON. And so this committee should, I think, be on full record as saying that there should not be earmarks. I mean, there is not going to be a lot of projects. There is only going to be, you know, maybe seven or eight projects. And we need to put the full resources toward those. So I would work with you in any way to avoid that.

Mr. INGLIS. Yeah, because that would be a major concern of mine is figuring out a way to follow the NSF model, which functions so well and has excellence and pursues really good things. But—and I hope you share the concern that the Department of Energy—we have had, for example, in the hydrogen area. The reports we get back from the DOE folks is we could make some progress in this area if it were not for spending money on member-directed initiatives into small, not likely to produce many results, kind of things. And——

Chairman GORDON. If the gentleman would yield, you know, potentially, for whatever it is worth, I think we should put report language into this bill to that effect and would be glad to work with you in any way to accomplish that. And I think, you know, we as a committee need to stand firm on the floor against anything like that.

Mr. INGLIS. Well, that would be helpful and help me—as to say we share the same vision and maybe a number of the same goals

and strategies. The concern that I have is that it really has to do with making something in DOE working right.

Chairman GORDON. If the Ranking Member would yield, I would consider that this was a failure if that happened. I mean, it is completely contrary to the purpose of ARPA–E and it would be a failure. And I will work with you in any way to avoid that. And let me also say that we are going to have, there is going to be an amendment, I think, that encompasses a variety of recommendations that have been made from both sides. And rather than have a markup next week at the Full Committee level, you know, I would like to postpone that for two weeks so that we can continue to work in a collaborative effort over these next two weeks if there is anything else that comes up like that because again I think this is a good bill but it can be made better as there are questions raised. So I would, you know, would work with you in any way we can do to accomplish our common goal.

Mr. INGLIS. I would be happy to yield back for the rest of my opening statement. It was not an opening statement. I had some questions. But that is helpful here at the Committee.

Chairman LAMPSON. Ms. Biggert.

Ms. BIGGERT. Thank you, Mr. Chairman. I too would like to welcome you back. I have a question, first of all, for counsel, if I might and then a question for Chairman Gordon. I would like to know is there a definition of consortia in the current law or is it a procurement term of art? And does it speak to a lead entity? It is cited in the bill on page four, lines six through 19.

Chairman LAMPSON. On page four, the consortia that is intended in this bill—I am not aware that it is defined in current law. And this does refer to consortia of institutions of higher education and companies or consortia that may include federally funded research and development centers.

Ms. BIGGERT. Does it——

Chairman LAMPSON. It does not designate a lead entity.

Ms. BIGGERT. All right. Then Chairman Gordon, we have worked so hard, I think, to increase the funding for the Office of Science and I think that it really has gone up. Even this year we wrote a letter to make sure that—and it was put into the supplemental—that we would increase that money to keep the labs open at that point. I believe, and I think we all believe, in basic research and development. How do we ensure that the money that goes to the basic research, the Office of Science, does not provide an offset to put more money into ARPA–E?

Chairman GORDON. If the gentlelady would yield, first to your concern about consortium, if you feel that that needs to be better defined then certainly we need to work to accomplish that. You know, I mean, there are no guarantees around here. I certainly do not think that should happen. What our purpose is—there is, for lack of a better term, a bit of a trust fund that is going to be created with the recruitment from some of the tax breaks from the oil industry. And I think this will be the major source for that. Again, I think we need to do more, not less.

I think there are really two different types of research. This is going to be cutting-edge research things that the Office of Science is not doing now. And it will be under that kind of microscope. It

will have to be more nimble and be able to get things done. It will be working with the labs. And I, you know, I would like to give you a guarantee, but there are no guarantees other than that I would certainly oppose that.

Ms. BIGGERT. I thank the gentleman. I have concerns about the fact that we authorize the funds and then the appropriators are the ones that actually determine the amounts and that is where we lose control of this, that——

Chairman GORDON. Well, if the gentlelady would yield. Again, this is a different concept. And it—and if you think that status quo at whatever funding level within the Department of Energy on cutting-edge technology is working, then maybe we do not need this. But if you think that we do need breakthroughs than this is an important—if you want to say—I do not even think it is a risk. I think this is something that has to be done.

Ms. BIGGERT. I do have some concerns and we will discuss that later, but let me go back then to consortia. There is no definition in this. Is there a definition in the Federal Acquisition Regulations?

Chairman GORDON. I am not aware of a definition.

Ms. BIGGERT. I think we need to work on that to make sure that we define exactly how that would work. And my concern is whether you have, let us say, a couple of scientists from a national lab and they have an idea and wanted to use this, can they be the lead entity? I mean, it would—that they would have to either go to a university or they would have to go to a company in order to be able to proceed with their scientific discovery.

Chairman GORDON. If the gentlelady would yield. I will read you the language here: "The Director shall administer the fund established under Section 3 to award competitive grants, cooperative agreements or contracts to institutions of higher education, companies or consortia or such entities which may include federally funded research and development centers to achieve the goals stated." And then it goes on.

Ms. BIGGERT. The question——

Chairman GORDON. Let me tell you what I think it means. It means that the director will be able to look again at the private sector, the public sector, the labs, the universities, anyone that is doing some work in a particular area, bring the best of that together. That is my intention. And if you do not think that our language accomplishes that then we will try to get better language.

Ms. BIGGERT. Thank you. I think in putting on my lawyer hat that the way that it is written is that you have got two institutions of higher education——

Chairman GORDON. Yes.

Ms. BIGGERT.—companies or—and this is where—if it said competitive grants to institutions of higher education, companies, federal funded research and development centers or a consortia of such——

Chairman GORDON. Yeah.

Ms. BIGGERT.—you see——

Chairman GORDON. Well, if the gentlelady will yield. I think often times—and I am sure you are concerned about labs. And the labs are——

Ms. BIGGERT. Obviously.

Chairman GORDON.—consortium, you know, in most situations. It would be my expectation that in most anything you do here the labs are going to play a major role. I do not know where there is more expertise than in the labs. So this is not—if—this is not an effort to take them out. If anything, it is to step up what they are doing in those areas. And we will work to get that——

Ms. BIGGERT. Okay.

Chairman GORDON.—language so that it is so reflected.

Ms. BIGGERT. I thank the gentleman and yield back.

Chairman LAMPSON. Thank you, gentlelady. Does anyone else wish to be recognized? Mr. Balart.

Mr. DIAZ-BALART. Thank you, Mr. Chairman. I also want to first have my words to let you know—express that we are very happy that you are back and you look good and we know you are in for the fight again, so it is great to have you back.

Chairman LAMPSON. Thank you very much.

Mr. DIAZ-BALART. My question—obviously the intent is one that we will share and is good. My question would be what is the cost of the actual Department going to—how much is that going to cost? In other words, I understand what it is trying to do, but it would seem to me that if there is a way to do it without creating a new entity, a new bureaucracy, that that would be the preferable way to do it, if it is possible. So the question is why is that not possible? And also, if you have some numbers on the cost—preliminary numbers on what the cost actually is of the actual department.

Chairman GORDON. If the gentleman would yield. What we are trying to do is de-bureaucrat it. We may not share this view, I think, within previous Democratic and Republican administrations. Many think that once ideas get into the bureaucracy of the Department of Energy they sometimes get stuck in the mud. What we want to do is have a very lean operation here with as few administrators as possible. And it is pulling these groups together. So, you know, again I think we are trying to accomplish what you want to see done. To the question of the cost, the authorization level would be $300,000 in the first year going up to a billion dollars thereafter.

Mr. DIAZ-BALART. Mr. Chairman.

Chairman GORDON. I yield back.

Mr. DIAZ-BALART. Thank you, Mr. Chairman. You know, I clearly understand what the intent is and I applaud the intent. And you are absolutely right that obviously things do get stuck in the mud, so to speak, as you said, sir, in the Department of Energy. My only question is, I mean, we are dealing here with the Federal Government. And we are dealing with a new department in the Federal Government. Not in, you know, even the State of Florida or not even in some foreign country. When you are dealing with a new department in the Federal Government—and I am just concerned, but I am not questioning the sponsor's intent. But creating a new department is something that frankly does not seem to be in my view a solution to create less bureaucracy. Because when you are dealing with the Federal Government, federal departments are the bureaucracy, are the problems, are the cause of all the mud—things stuck in the mud. So it is——

Chairman GORDON. If the gentleman would yield.

Mr. DIAZ-BALART. Yes, sir.

Chairman GORDON. I need to correct myself. I said $300,000. It is $300 million to start. So, pardon me. Again, I would say that DARPA demonstrated that—and some would say that sometimes things get stuck in the Department of Defense, too, and that DARPA demonstrated that when you can take an agency out of that bureaucracy, make it lean. And again, what they are doing is—this is not layers. It is a project manager that then is trying to bring together, again, the public sector, private sector labs to accomplish something. And so I do not think they could do it any other way. And again, the private sector clearly is not going to make these kinds of cutting-edge recommendations—or cutting-edge investments. And if you think that somehow the department is going to turn over a new leaf and do this better than they have over decades than maybe this is not a good idea. I do not have that confidence.

Mr. DIAZ-BALART. Mr. Chairman. Thank you for your indulgence. And I appreciate it. I do not have—I clearly do not have the years of experience that you do have here. Obviously in a perfect world what one would do is task people who are already there in that huge department to get it done as opposed to creating a new department; which for somebody who has not been here that long frankly sounds counter-intuitive that, in order to shrink the bureaucracy you create a new one. That just sounds counter-intuitive for someone who does not have the experience as you all. And that is why to me it is kind of a hard sell.

Chairman GORDON. If the gentleman would yield.

Mr. DIAZ-BALART. And again, thank you for your indulgence and I——

Chairman GORDON. Oh, sure. If the gentleman would yield. I will not take offense with you calling me an old man. Experience is different altogether. And let me, you know, again, we are getting into things that maybe are not fully accurate. And I would hate to say it publicly, but there are those that think that a lot of the real talented folks within the Department of Energy have been poached out into the private sector. There are those who say a lot of the talented people get frustrated with the bureaucracy there and leave. And so we want to pay more. You know, I mean, we want to pay well and have an exciting challenge so that you can bring the very best people in the world. If they are the very best people for the Department of Energy, we ought to get them. If the very best person is in Exxon or is in anywhere else, let us go get them and bring them into this. That is what we want to try to accomplish. I yield back.

Mr. DIAZ-BALART. Chairman, can I have one last question? Again, you have been very generous with allowing me to——

Chairman GORDON. Certainly. I will point out—and—I think we are going to have votes in a few minutes here, but that should not—this is too important to rush. But I will just—I will point that out. Yes, sir. I welcome your question.

Mr. DIAZ-BALART. Thank you. And again, you have been extremely kind with time, Chairman. Just this—will this new department have a different setup? Will people be able to get fired or is there going to be pretty much the same federal protections that people have in other departments so that once you are there basi-

cally—it is almost impossible to get fired? Because obviously if it was different—if it was an innovative new kind of outside the box thinking where people would get paid for performance—and I think that is obviously what the private sector does and you could get fired if you do not perform then that might be something very interesting. Or is it going to be pretty much the same—I do not know how that works.

Chairman GORDON. Well, first let me ask counsel, here. How many—how large a staff would be there? What would be your expectation?

The COUNSEL. Well, depending on the size of the budget, of course, it is not stated, but there could be anywhere—it is really guessing right now—50 people or so.

Chairman GORDON. So——

The COUNSEL. I mean, if they had a very large budget it would of course be more.

Chairman GORDON. I think if you have 50 or even 100 people counting, you know, clerical folks there, they are going to be under a spotlight. They cannot hide. And this is important business. And this is not a place for folks to go retire. And I think that is the good thing about starting it up new. You know, you are not bringing them in on seniority basis. You are bringing in the best and the brightest to get a job done. I yield back. I guess-and the final thing is—again, I cannot give guarantees to anything. We can just take our best shot. But we can look at models that have worked that seems reasonable. And I think you and I should have a joint hearing on oversight on anyone who is not doing their job there. And I would welcome to join you in that.

Chairman LAMPSON. You know, as I understand that, there is going to be basically temporary people rotated in and out three to five years. So there should not be a problem.

Mr. DIAZ-BALART. You know, it would be interesting. I understand where the Chairman is going. It might be interesting to look at that performance criteria and sunsets—that if you do not meet a certain performance criteria, and I do not know what those would be obviously, that the department goes away.

Chairman GORDON. If the gentleman would yield. It is somewhat counter-intuitive to what we are trying to do. We—I mean, I do not—this is a bad way to say it. We expect some people to fail. I mean, the Internet was successful in DARPA. The technology was successful. How many were not successful? You know, this is an area that we want people not to be afraid to fail. And so, you know, failure is not your idea did not work out but you did not hit your best lick in trying it. So I think you have to be careful. Sometimes, quite frankly, when you talk in the scientific community they talk about old DARPA and new DARPA. New DARPA has gotten to be more of a less—it is more risk averse because they do not want to have those failures, where old DARPA was looking—you know, they were swinging for the fences. And that is what we want these folks to do. I yield back.

Chairman LAMPSON. The Chair recognizes Mr. Bartlett.

Mr. BARTLETT. Thank you very much. Actually, in basic research and leading edge engineering there are no failures. You pursue something that you think may bear fruit and if it does not bear

fruit you know it does not and that is not a failure. You look at science very differently than you do the business world. Everything you do in science is successful. You have a hypothesis. You are testing a hypothesis and you either have reason to accept it or not to accept the hypothesis. So it is a learning experience. If we are patterned after—if ARPA–E is patterned after DARPA, there is no bureaucracy. And they intentionally bring fresh blood in and they stay only a relative few years and they cycle through. So this is not going to be a bureaucracy. I would just like to return to the question that Ms. Biggert referred to, and that is lines eight, nine and 10 on page four, where we enumerate the entities to which we will give these contracts. And there is a danger when you have a list like this that it will tend to limit to whom you give contracts. And every one of these is a bureaucracy of some sort or another. I will shortly have my 81st birthday. And I have worked on a lot of different jobs and I will tell you that bureaucracies, wherever they are, are stifling. Whether it is universities or businesses—I worked for IBM. I worked for the really big guys. And we have no—we apparently here have excluded that entrepreneur out there—that small business man who may be a company of one who has a really great idea. Are we not going to give him a chance?

Chairman GORDON. If the gentleman would yield. I am of the opinion that there is a garage scientist somewhere that probably, you know, has—you know, the best ideas come out of the garage.

Mr. BARTLETT. Right.

Chairman GORDON. There is somebody that is thinking outside the box. So clearly these project managers would have the option to go, you know, anywhere and everywhere.

Mr. BARTLETT. But we should yet put wording in here that they would interpret precluded them from doing that, right?

Chairman GORDON. Correct. And again, I think that we need to work over these next two weeks, meeting your concerns and Ms. Biggert's concern. And maybe less is better than more but we need to get this language correct and we will.

Mr. BARTLETT. And I am big fan of this. If we had leadership in our country on energy starting from the White House down to the Department of Energy we might not need this. But the sad truth is that we do not have adequate—we do not have leadership adequate to the challenge out there. This may not work. But nothing we are doing now works. And so, you know, let us try this. This has a big chance of working. DARPA has been enormously successful. And there is no entity in our government that had such leverage as DARPA has. And let us hope that ARPA–E can be—if it is half as successful as DARPA, it is going to be a big success. Thank you very much and thank you, Mr. Chairman, for bringing us this.

Chairman LAMPSON. Thank you. Anyone else? I might mention that the word "companies" certainly would not be limited to one or two people. And access hopefully is adequately responded to in this. Anyone else seek recognition? If not, then I ask unanimous consent that the bill is considered as read and open to amendment at any point and that Members proceed with the amendments in order of the roster. Without objection, it is so ordered.

First amendment on the roster is a managers amendment offered by myself and Ms. Giffords. Now the Clerk will report the amendment.

The CLERK. Amendment to H.R. 364 offered by Mr. Lampson of Texas, Ms. Giffords of Arizona, and Mr. Bartlett of Maryland.

Chairman LAMPSON. I ask unanimous consent to dispense with the reading. Without objection, it is so ordered. And I recognize myself for five minutes to explain the amendment.

Following on the witness testimony at the Subcommittee hearing as well as feedback from several outside groups with interest in the bill, this managers amendment makes the following changes. ARPA–E's mission now includes reducing greenhouse gases, improving energy efficiency, ensuring the Nation's economic competitiveness in the field of emerging energy technologies as well as decreasing reliance on foreign energy; clarifies that ARPA–E should conduct research through hybrid teams of participants from private industry and government and university researchers and may include all stages of innovation from directed basic research to late stage commercial scale type demonstrations.

Furthermore, the amendment ensures an innovative culture at ARPA–E by translating some of the critical organizational elements that made DARPA successful, such as autonomy within DOE, a hierarchical reporting structure, the ability to start up and terminate programs quickly, hiring of talented program managers for relatively short terms, minimal bureaucracy and overhead costs, utilizing existing DOE resources and ensuring current activities are not duplicated.

Making customers within the Federal Government to aid limits the amount of funds that might be spent internally within DOE and on expensive late stage demonstrations. More importantly, the amendment makes what many of us consider to be a realistic commitment to increased funding for energy research and development. Energy research and development is not cheap but we have been acting like it is. We simply have to fund ARPA–E at a level commensurate with the scale and complexity of the challenge.

Is there further discussion? I would like to—I would at this time ask Mr. Bartlett if he has any comments.

Mr. BARTLETT. Well, I concur with the managers amendment. It has improved what was a good bill. I am happy to support it. Thank you very much.

Chairman LAMPSON. Thank you, Mr. Bartlett. And I would recognize Ms. Giffords. Any comments? Do you want to be recognized?

Ms. GIFFORDS. Mr. Chairman, I move to strike the last word.

Chairman LAMPSON. You are recognized for five minutes.

Ms. GIFFORDS. Thank you. I will speak quickly. My nickname is Gabby for a reason. Let me just say that I thought that the ARPA–E hearing that we had a couple weeks ago and unfortunately was at a time when most Members were not here was one of the most interesting hearings that I have ever been able to partake in here at Congress. We had a chance to hear from Dr. William Bonvillian who took the DARPA concept and incorporated it into the Homeland Security bill. We had Dr. John—or excuse me, Mr. John Denniston who is a venture capitalist; Dr. Steven Forrest who

talked about the university's effort for a DARPA-like funding project for energy; and Dr. Van Atta.

Three areas that were repeated over and over in terms of what we need to do as a nation: energy independence, competitiveness—that Americans are competitive, and looking at global warming. So when I—when we heard about what ARPA–E could accomplish—this breakthrough technology. We are not talking about making coal cleaner or nuclear safer. We are talking about those innovative cutting-edge types of technology. And this bill really pulls it all together, Mr. Chairman. So with that I am pleased to co-sponsor this amendment and I ask my colleagues for support.

[The prepared statement of Ms. Giffords follows:]

PREPARED STATEMENT OF REPRESENTATIVE GABRIELLE GIFFORDS

I move to strike the last word.

I am very pleased to co-sponsor this amendment with Chairman Lampson, and I am proud to support this important legislation.

Two weeks ago, we hosted an excellent panel of witnesses who provided us with a number of suggestions for improving H.R. 364. Our amendment incorporates a number of these suggestions and clarifies the structure envisioned for this new organization within the Department of Energy (DOE).

Our witnesses all supported the establishment of ARPA–E as a new organization with limited administration and emphasized the important role of program managers in fostering a creative, dynamic environment. The witnesses also emphasized the need for ARPA–E to engage in energy research at all stages of technology development and to search for better processes as well as better products. Our amendment provides direction to project managers consistent with this advice.

The witnesses all supported funding levels for ARPA–E above those established in the original bill. The authorization levels are raised to reflect their recommendations.

ARPA–E is intended to jump-start the transformation of breakthroughs in basic energy research into new fuels, processes and energy technologies that will make us more energy efficient, less dependent upon foreign sources of energy, and that will be less harmful to the environment.

I believe that energy independence is the Apollo mission of our generation, and ARPA–E will help us achieve this goal.

DOE has done and will continue to do good research through its existing R&D programs. But DOE has not been very successful in the important task of moving its research from the laboratory bench to the marketplace.

The establishment of an organization like ARPA–E within DOE can influence the culture of DOE in a positive way. It can provide a path for more of the basic energy research at DOE to be applied in new ways. We must be willing to experiment with different models of technology development especially when we know from experience that we are not seeing the pace of technological advance that we want and need under the current model for energy R&D.

We face a significant challenge in transforming the pattern of energy use that we have followed in past decades. We must make a significant investment in energy R&D if we are going to meet this challenge. The investments we make must support a wide range of ideas, foster creative thinking, and support the development and demonstration of new technologies in partnerships with the industry.

H.R. 364 will get us started in this effort and provide us with the future energy technologies that we need to support a vibrant economy and the quality of life that we enjoy today.

I urge my colleagues to support our amendment and to support H.R. 364.

Chairman LAMPSON. Thank you very much. I always thought that Gabby meant that you talked a lot, not just fast. Who else seeks recognition? Ms. Biggert.

Ms. BIGGERT. Thank you, Mr. Chairman. I move to strike the last word.

Chairman LAMPSON. You are recognized for five minutes.

Ms. BIGGERT. In the spirit of full disclosure I will admit that I do not support this bill in its current form. While I believe there

are a number of provisions in the managers amendment that make it less objectionable, there are a number of provisions that make it more objectionable. First, the managers amendment I think has a lot of contradictions. The managers amendment clarifies that ARPA–E should support all stages of technology development including research development, demonstration and commercialization and should not have authority over any other program at DOE.

At the same time, I think the managers amendment specifies that ARPA–E should not duplicate the efforts of any other agency or program at DOE. As a result, the managers amendment seemingly directs ARPA–E to do everything but not anything that has already been done at DOE. I got the impression from the Subcommittee hearing on ARPA–E two weeks ago that ARPA–E is supposed to fill a niche and bridge the gap between basic and applied research efforts and I do not see how the bill or this amendment accomplishes that or does what we really want it to.

And by further broadening the responsibilities of the director, we could be creating tremendous management challenges for program managers both within and outside of ARPA–E as well as for the Secretary of Energy.

Secondly, I have real concerns that this managers amendment almost doubles the authorized funding for ARPA–E from $3.3 billion to $6.4 billion for a brand new untested agency. And DARPA, despite being in one form or another since 1958, has a fiscal year 2007 budget of only $3 billion, yet the managers amendment would make ARPA–E in only its second year of existence one-third the size of DARPA and one-forth the size of the Office of Science.

The managers amendment ignores I think the advice of one of the witnesses at the Subcommittee hearing two weeks ago who warned that if ARPA–E is stood up and requires funding comparable to DARPA's, however it would be operated at a far larger scale and its market interventions would affect competitive outcomes and this could be a problem. That was Mr. Bonvillian.

I just do not see how an agency could wisely spend $1 billion in its second year of existence. But you might find some project that will change the world. And I think currently if the DOE had an extra $1 billion in new money they should be spending it on energy research, especially energy efficiency, renewable energy, energy conservation and nuclear energy research.

And finally, I believe that one of the problems is that there is no way to address the relationship between this ARPA–E and the existing DOE National Laboratories. And again, we talked about the definition a little bit, but the managers amendment specifically says that no more than half the funds may be used for late stage demonstrations. No more than eight percent may go directly to federal funded research and development centers. And I think even though they might take the—if they could take the lead—if they could, only eight percent can go to them. So—and in testimony, one witness stated that to create an effective ARPA–E, one of the elements that Congress would need to address is DOE's existing lab structure. And he said, and I quote, "ARPA–E will need to contend with a research infrastructure in the national laboratories that had no such precedent in DOD. The service R&D structure lacked the

scale and scope of the current energy labs and also the support on Capitol Hill that these labs have had." But instead of addressing these issues, I think the managers amendment limits the amount of funds that can go to the federal research and development. And more than that, I think that the managers amendment also limits how much could be spent on the demonstration activities, that this bill is supposed to create an agile organization as the *Gathering Storm* report recommends. I am not clear why we are already putting limits on how much can be spent on something like demonstration projects. For all we know, given all the years of energy research Congress has funded, there may be a backlog of technologies that need demonstrating at this point, so—and I am glad that the Chairman has said that, you know, to take a couple weeks to really look at this and I would love to discuss it more. So with that I would yield back the balance of my time.

[The prepared statement of Ms. Biggert follows:]

PREPARED STATEMENT OF REPRESENTATIVE JUDY BIGGERT

In the spirit of full disclosure, I will admit that I do not support this bill in its current form. And while I believe there are a number of provisions in the manager's amendment that make it less objectionable, there are a number of provisions that make it more objectionable.

First, the manager's amendment seems to be full of contradictions.

The manager's amendment clarifies that ARPA–E should support all stages of technology development—including research, development, demonstration, and commercialization—and should not have authority over any other program at DOE.

At the same time, the manager's amendment specifies that ARPA–E should not duplicate the efforts of any other agency or program at DOE.

As a result, the manager's amendment seemingly directs ARPA–E to do everything, but not anything that's already being done at DOE.

I got the impression from the Subcommittee hearing on ARPA–E two weeks ago that ARPA–E is supposed to fill a niche, and "bridge the gap" between basic and applied research efforts. I don't see how the bill, or this amendment, accomplishes that.

And by further broadening the responsibilities of the director, we could be creating tremendous management challenges for program managers both within and outside of ARPA–E as well as for the Secretary of Energy.

Secondly, I have real concerns that this manager's amendment almost doubles the authorized funding for ARPA–E from $3.3 billion to $6.4 billion for a brand new, untested agency.

DARPA, despite existing in one form or another since 1958, has an FY07 budget of only around $3 billion. Yet, the manager's amendment would make ARPA–E—in only its second year of existence—one-third the size of DARPA, and one-fourth the size of the DOE Office of Science.

This manager's amendment ignores the advice of one of the witnesses at the Subcommittee hearing on ARPA–E two weeks ago who warned that:

> *"If an ARPA–E, is stood up and acquires funding comparable to DARPA's, however, it would be operating at a far larger scale and its market interventions could affect competitive outcomes. This could be a problem." (Mr. William Bonvillian)*

I just don't see how any agency could wisely spend $1 billion in its second year of existence, especially an agency still trying to figure out how best to operate within a complex organization like the DOE.

Nor can I even imagine where that money would come from. Don't we think that if the DOE currently had an extra $1 billion in new money today they'd be spending it on energy research, especially energy efficiency, renewable energy, energy conservation, and nuclear energy research?

Finally, of this bill's many flaws, I believe that one of its greatest is that it in no way addresses the relationship between this new ARPA–E and the existing DOE national laboratories.

Again, in testimony before this subcommittee, one witness stated that to create an effective ARPA–E, one of the elements that Congress would need to address is DOE's existing lab structure. He said:

> *"ARPA–E will need to contend with a research infrastructure in the National Laboratories, that had no such precedent in DOD. The Service R&D structure lacked the scale and scope of the current "energy labs" and also the support on Capitol Hill that these labs have." (Dr. Richard Van Atta)*

But instead of addressing these issues, the manager's amendment arbitrarily limits the amount of funds that can go to federal funded research and development centers, of which the DOE labs are a rather small subset.

But more than that, the manager's amendment also limits how much could be spent on demonstration activities. If this bill is supposed to create an "agile" organization as the *Gathering Storm* report recommends, I'm not clear why we're already putting limits on how much it can spend on something like demonstration projects. For all we know, given all the years of energy research Congress has funded, there may be a backlog of technologies that need demonstrating at this point.

For all these reasons, I urge my colleagues to oppose the manager's amendment, and I yield back the balance of my time.

Chairman LAMPSON. I thank the gentlelady. Who else seeks recognition? Ranking Member Mr. Inglis.

Mr. INGLIS. Hello, Mr. Chairman. Do you think we have time?

Chairman LAMPSON. We are getting close, but we can—we have got a few more minutes if we can—if there is not too much more that——

Mr. INGLIS. Yeah.

Chairman LAMPSON.—is taken.

Mr. INGLIS. Several questions and it would be great if Chairman Gordon would maybe respond to some of these perhaps as I want to make sure I understand the organizational structure of ARPA–E.

Chairman GORDON. Let me make a suggestion, here. This is an important bill. I do not want to rush you through it. And so if you are going to have several questions, maybe we should just come back later because——

Mr. INGLIS. Okay.

Chairman GORDON.—you deserve——

Mr. INGLIS. That sounds good.

Chairman GORDON.—to have a full airing.

Mr. INGLIS. Let us do it.

Chairman GORDON. Okay.

Chairman LAMPSON. Okay. And if that is the case, pursuant to Rule 1J, the Subcommittee will be in recess until immediately following the series of votes on the Floor and ask that everyone please come back quickly thereafter. We are in recess.

[Recess.]

Chairman LAMPSON. Okay. We will reconvene our meeting. Thanks for everyone's patience while we had so many votes. We left while still having discussion on the first amendment. And I believe that Mr. Inglis was controlling the time and so you are recognized for five minutes.

Mr. INGLIS. I realize that people want to move along quickly, so I will—these questions may be just things that Chairman Gordon may want to respond to now or it may be that you want to respond as we move from here to Full Committee markup, but—I am interested in making sure that what—that we have—I have mentioned earlier, learning what we learn from NSF. But maybe the better

comparison in talking with Mr. Lipinski on the floor here recently is that DARPA may be actually the better comparison as to whether we have learned—my question is whether we have learned everything we need to learn from DARPA and can apply it to this bill so that whatever structures were set up for DARPA we have mimicked them in this.

And so for example, within—that is the broad question. Specific questions under that would be what is the organizational structure that is anticipated for ARPA–E. Where are they going to get the money? How is it going to be appropriated? What Subcommittee appropriations will that come through? Or will it come through the DOE and therefore perhaps DOE will take the money and put it somewhere else? Or how is it preserved for ARPA–E? And then—so those are just the questions about—I think they fall under the heading of have we learned everything we could learn from DARPA and applied it to ARPA–E and built it in to the authorizing language.

Particularly I have heard—I am asking a bunch of questions here, but I have also heard in the break for those votes, my capable staff found out that NSF maybe is not so much statutory setup as it is the culture and expectation that has come around NSF as to how it will be preserved from earmarking and that sort of thing. So my question with the ARPA–E is, in a different world now where earmarking is so common, do we need to build protection into this authorizing language? So you can pick up any of those questions, Mr. Gordon. And also the last one I throw out is how do we get from three billion to six billion? Any one of those three broad questions.

Chairman GORDON. Those are all good questions. Let me start with our review of DARPA. There has been an exhaustive effort to talk with folks in DARPA, folks that have—you know, that are currently there, have been there. We have had hearings with the DARPA representatives. And it was an effort to incorporate that. I will also say that, as I said earlier, there are some that think of old DARPA and new DARPA. The old DARPA took risks. The new DARPA does not take that many risks now. So we tried to model it more on the old DARPA. So I think there has been a good conversation with them.

In concerning the appropriation amount, the authorizing amount, that is the amount that was recommended by the *Rising Above the Gathering Storm* report. And again, I put that in context, we have had an 85 percent reduction in Energy R&D since the '80s.

Are there other more specific questions or do you want to repeat anything specifically that I did not cover there that you would like?

Mr. INGLIS. How do you see us? Do you think we need to build protections into the authorizing language to keep it from morphing into a middling Department of Energy program where things are earmarked away and where the budget gets spent and——

Chairman GORDON. You know, if the gentleman would yield. As I said earlier, I am adamantly opposed to that. As a practical matter, ARPA–E really is only going to be dealing with—and this is something we learned from DARPA. They said you should limit the number of projects to eight to 10. So if you are only going to have eight or 10 projects, you know, you cannot—to earmark something

is like 10 percent or more of that. So I welcome any thoughts on being more specific as to why that, you know, why that would be bad. So if you have some ways to do it—I do not think it is going to happen. I think that it would be an outrage to try to do something like that because there would be such an enormous figure.

Mr. INGLIS. My time is nearly up and I want to make sure to give others here the opportunity to ask questions. But I look forward to working with you as we move from this markup to the Full Committee and maybe address some of these things in more detail there.

Chairman GORDON. Yeah. You know, as a practical matter, this bill has been out for a long time. But I understand we are all busy and a lot of times we do not start focusing until—you know, like homework is due. And so homework is due now and now that everybody is focusing we will intensely go through this in the next two weeks and if it takes longer, we will do, you know, whatever we need to do.

Mr. INGLIS. I yield back, Mr. Chairman.

Chairman LAMPSON. Thank you very much. Who seeks recognition? Ms. Biggert, you are recognized for five minutes.

Ms. BIGGERT. Thank you. I would go back to the DARPA and also the Homeland Security. It seems to me that the difference between DARPA and ARPA–E is that DARPA was established to be the research arm of the Department of Defense. And we do not, in ARPA–E, we already have the research. And also, if you could just answer—obviously the Homeland Security ARPA did not work, dealing with private—if you could comment on the difference between ARPA–E and the Homeland Security.

Chairman GORDON. Let me first go back to your first question with the Defense Department. The Defense Department had—they were already doing research. ARPA–E was set up specifically for advanced research. So it was not a new—I mean, it was not that Defense had not done any research. It was set up for advanced research for many of the same reasons that we are talking about today in terms of problems that could occur within the bureaucracy of the Department of Energy.

In terms of the Homeland Security, I do not know that there are problems there. And there may be. And I cannot address that because I am just not aware. Is counsel or anyone else aware of that?

Ms. BIGGERT. The witnesses spoke on—one of the witnesses, Mr. Bonvillian, spoke on the problems at HS–ARPA and that it was largely an issue of execution of the authorization language, that one of the things was that it could not build in the culture like we are talking about here.

I yield back.

Chairman LAMPSON. Who seeks recognition? If there is no further discussion on this amendment then the vote will occur on the amendment. And I would ask that all in favor say aye. Those opposed say no.

The ayes have it and the amendment is agreed to. The second amendment on the roster is an amendment offered by the gentlewoman from Illinois, Ms. Biggert. Are you ready to proceed with your amendment?

Ms. BIGGERT. Yes, Mr. Chairman. I have an amendment at the desk.

Chairman LAMPSON. The Clerk will report the amendment.

The CLERK. Amendment in the nature of a substitute to H.R. 364 offered by Mrs. Biggert of Illinois.

Chairman LAMPSON. I ask unanimous consent to dispense with the reading and without objection it is so ordered. I recognize Ms. Biggert for five minutes to explain the amendment.

Ms. BIGGERT. Thank you, Mr. Chairman. It should come as no surprise to everyone on this subcommittee that I have long been skeptical about the National Academy's proposal to create an Advanced Research Project Agency at DOE, or ARPA–E. And I first raised questions about this proposal at a Science Committee hearing that we had in the 109th Congress in March of 2006. And despite participating in a second hearing just two weeks ago, I think that many of the questions have not been answered. It still is not clear what problems we are trying to solve with the creation of ARPA–E or what its function, role, or structure should be. So is it a lack of private sector involvement in long-term or basic research? And if so, how do we solve the problem by creating a brand new agency to distribute scarce federal resources to companies to conduct research that they would not otherwise conduct.

Correct me if I am wrong, but does not the academy's version of ARPA–E put the Federal Government in the position of picking what companies are the winners. It is a lack of federal funding for high risk transformational research? And if so, how would you characterize DOE's current FreedomCAR and hydrogen initiatives, for example. How about the President's global nuclear energy partnership, FutureGen, or U.S. participation in either. I do not know about my colleagues, but I would put these in the category of high risk transformational research.

Is it a failure of the Department of Energy to effectively transfer new energy technologies from the laboratory to the market? And if so, would not it make more sense to closely examine the legal and policy obstacles to the transfer of technology from our universities, national labs, and other research institutions? And how should ARPA be structured to take full advantage of the existing energy R&D infrastructure of our national labs?

Where exactly are we going to get the money for ARPA–E with growing demands on our limited federal resources? Is there really new money available for this agency? Really, no. The money will come from other basic and applied DOE research programs, I am afraid.

So some of these questions are included in this amendment that I am offering today. Instead of creating a new agency, a new bureaucracy at the DOE based on what I think is a vague recommendation by the National Academies. My amendment would direct the NSA to conduct a detailed study and clarify their recommendation to establish an ARPA–E and to answer a number of remaining questions. And I think this is a reasonable and responsible course of action on the only *Gathering Storm* recommendation in which there was not consensus.

And on the National Academy's panel—and the panel said—sought no outside advice in crafting. At the hearing on ARPA–E

held by this subcommittee two weeks ago, I specifically asked the witnesses if they thought the NAS recommendation was clear as to the extent of the function, role and structure of ARPA–E or if they believed that the recommendation left a lot of questions unanswered. And I think the panel was unanimous that the NAS recommendation was really just an idea that left a lot of questions unanswered.

One of the witnesses, John Denniston, said I do not think that the *Gathering Storm* report provided implementation details. I view it as an idea. So they do not talk specifically about what technologies, fossil, nuclear, renewable—they do not talk about the stage of research. Should it be translational? Is it basic? Is it applied? And they do not talk about the organizational details, much of which you have heard today.

And when I asked the same witnesses if it would be worthwhile for NAS to answer some of those unanswered questions, come to a consensus and flesh out the details of whether the ARPA–E recommendation before Congress went so far as to create another federal agency, they said no. So while they all agreed that the recommendation was vague, they all thought we should go ahead and implement it anyway.

While those witnesses certainly are entitled to their opinion, we all have a responsibility to ensure that the Federal Government is a good steward of the taxpayers' dollars. And I am not willing to spend billions of dollars to create a whole new agency based on a vague recommendation. I know, Mr. Chairman, that you have spent a lot more time on this in moving it forward. But I have always taken my responsibility for overseeing the research and development programs at the DOE very seriously. And I cannot think really of anything more important to our national security, our economy, and our standard of living than energy. And I know that everyone here is generally interested in finding solutions to our nation's energy challenges. And I think we need to find the right solution, not just any solution.

And if ARPA–E is the right solution, I will support it. But to get to the right solution, I think we have the obligation to ask the tough questions. And that is the purpose of my amendment today. So I would urge my colleagues to support it and yield back the balance of my time.

[The prepared statement of Ms. Biggert follows:]

PREPARED STATEMENT OF REPRESENTATIVE JUDY BIGGERT

It should come as no surprise to anyone on this subcommittee that I have long been skeptical about the National Academies' (NAS) proposal to create an Advanced Research Projects Agency at the Department of Energy (DOE), or ARPA–E. I first raised questions about this proposal at a Science Committee hearing during the 109th Congress in March of 2006.

Despite participating in a second hearing on this topic just two weeks ago, many of my questions still have not been answered.

It still isn't clear what problems we are trying to solve with the creation of an ARPA–E, nor what its function, role or structure should be.

Is it a lack of private sector investment in long-term or basic research? If so, how do we solve the problem by creating a brand new agency to distribute scarce federal resources to companies to conduct research they wouldn't otherwise conduct? Correct me if I'm wrong, but doesn't the Academies' version of ARPA–E put the Federal Government in the position of picking what companies are winners?

Is it a lack of federal funding for high-risk, transformational research? If so, how would you characterize DOE's current FreedomCAR and Hydrogen Initiatives? How about the President's Global Nuclear Energy Partnership, FutureGen, or U.S. participation in ITER, the international fusion experiment? I don't know about my colleagues, but I would put these in the category of high-risk, transformational research.

Is it a failure by the Department of Energy to effectively transfer new energy technologies from the laboratory to the market? If so, wouldn't it make more sense to closely examine the legal and policy obstacles to the transfer of technology from our universities, national laboratories, and other research institutions?

And how should ARPA–E be structured to take full advantage of the existing energy R&D infrastructure at our national labs? Where exactly are we going to get the money for ARPA–E? With growing demands on our limited federal resources, is there really "new money" available for this agency? Realistically, no; the money will come from other basic and applied DOE research programs.

Some of these questions are included in this amendment I am offering today. Instead of creating a new agency—a new bureaucracy—at the DOE based on a vague recommendation by the National Academies, my amendment would direct the NAS to conduct a detailed study of and clarify their recommendation to establish an ARPA–E, and to answer a number of remaining questions.

I think this is a reasonable and responsible course of action on the only *Gathering Storm* recommendation on which there was not consensus, and on which the National Academies' panel sought no outside advice in crafting.

At the hearing on ARPA–E held by this subcommittee two weeks ago, I specifically asked the witnesses if they thought the NAS recommendation was clear as to the exact function, role, and structure of ARPA–E, or if they believed the recommendation left a lot of questions unanswered. The panel was unanimous that the NAS recommendation was really just an "idea" that left a lot of questions unanswered.

One of the witnesses, John Denniston, a partner with the firm Kleiner, Perkins, Caufield & Byers, said, "I don't think that the *Gathering Storm* report provided implementation details. I view it as an idea. So, they don't talk specifically about which technologies, fossil, nuclear, renewable. They don't talk about stage of research, should it be translational, is it basic, is it applied? They don't talk about the organizational details, much of which you have heard today."

When I asked the same witnesses if it would be worthwhile for the NAS to answer some these unanswered questions, come to a consensus, and flesh out the details of their ARPA–E recommendation before Congress went so far as to create another federal agency, they said no.

So while they all agreed the recommendation was vague, they all thought we should go ahead and implement it anyway.

While those witnesses certainly are entitled to their opinion, we all have a responsibility to ensure that the Federal Government is a good steward of the taxpayer's dollars. And I'm not willing to spend billions of dollars to create a whole new agency based on a vague recommendation.

As past Chairman of this subcommittee, I always took my responsibility for overseeing the research and development programs at the DOE very seriously. I can't think of anything more important to our national security, our economy, and our standard of living than energy. And I know everyone here is genuinely interested in finding solutions to our nation's energy challenges.

But we need to find the "right" solutions, not just any solution. If ARPA–E is the right solution, I will support it. But to get to the "right" solution, we have an obligation to ask tough questions. That's the purpose of my amendment today. I urge my colleagues to support it, and I yield back the balance of my time.

Chairman LAMPSON. I thank the gentlelady. Is there——

Chairman GORDON. Strike the last word.

Chairman LAMPSON. The Chairman of the Committee is recognized. Mr. Gordon.

Chairman GORDON. You cover a lot of territory there, Ms. Biggert. Let me try to address some of these. First of all, you said that this was not a consensus recommendation of the *Rising Above the Gathering Storm*. It was consensus. It was not unanimous. The only member of the community that voted against it was the Chairman of the Board of Exxon.

You quoted Mr. Denniston as being somehow negative toward it. You asked him some questions in the—when there was a Subcommittee hearing. Let me repeat back to you his answer. And Mr. Denniston said and this is in response to you, "Can I take a shot at that, Congresswoman? First is on the question of the study. I will not do—I would not do a study. I think this subcommittee has the facts and the expertise to be able to decide those details. A study delays implementation, which I would be very much opposed to. And let me also say that it is also not necessary to have this amendment because it is already the law."

The *Energy Policy Act of 2005,* Section 1821, DOE was required to have a similar study done by the National Academy of Public Administration and submit it to Congress by January of this year. DOE never initiated the report. So it is pretty clear that if you are against this developing ARPA–E then you should vote for this amendment because it, you know—somebody might even make a commentary that DOE couldn't even do what they are required to do. And this may be a reason why we want to set up something separately. But if you want the study all you have to do is ask DOE to do what they were required to do and have not done. I yield back.

Ms. BIGGERT. If the gentleman will yield.

Chairman GORDON. Oh, certainly.

Ms. BIGGERT. I think I did make it clear that they all recommended that we go ahead and not wait for any study. I tried to briefly say that.

Chairman GORDON. Well, I apologize if I——

Ms. BIGGERT. No, that is okay.

Chairman GORDON.—mischaracterized.

Ms. BIGGERT. That is all right. I think that one of the problems with the implementation is that I think it is going to be difficult when we do not have the buy-in of the Department of Energy. Maybe to ask them for doing a study. But I would agree with you that I have also asked them for studies such as this. Systems analysis for the GNEP. And they refused that. They were against the bill and a study like that. So, I think there are problems.

I am not saying that I agree with everything that the Department of Energy has done. But I just wonder if—again, I think it is the question of the whole agency. But I think that we can work it out at some point. Yield back.

Chairman GORDON. I yield back the balance of my time.

Mr. BARTLETT. Mr. Chairman?

Chairman LAMPSON. Mr. Bartlett.

Mr. BARTLETT. Thank you very much. You know, if we were sitting here five or 10 years ago, I could enthusiastically support this proposal. But very frankly, we have run out of time. The time for this was five or 10 years ago. As a matter of fact, the time for this was 27 years ago.

In 1956, M. King Hubbard predicted the United States would reach its maximum oil production in 1970. That happened right on schedule. By 1980, we knew darn well that M. King Hubbard was right about the United States. And in spite of drilling more oil wells than all the rest of the world put together, in spite of finding oil in Alaska, in spite of drilling four times as many wells in the

Gulf of Mexico as all the wells in Saudi Arabia, we still are only producing half as much oil as we did in 1970.

And we knew darn well by 1980 that M. King Hubbard was right, which is why I say we should have been doing this 27 years ago. Certainly the United States is a microcosm of the world. He predicted that the world would be peaking in oil production about now. Have you seen the latest Chevron ad? They agree that we probably reached peak production. The time for this study is gone. We have now run out of time. We have now run out of energy. If we had any extra surplus energy to invest in alternatives, oil wouldn't be 60-couple dollars a barrel. We needed to be doing this 27 years ago. We cannot roll back the hands of time, so we need to move.

I would hope that the National Science Foundation and National Academy of Sciences would work with us in developing this new entity so that it will be as effective as it can be. You know, time is really more than of the essence here. I went over during the holidays to China. They start their discussion of energy by talking about post-oil. Wow. I wish our guys got it here.

They have a five-point program which ought to be our five-point program. Conservation first. Diversify. Get as much of it as you can at home. Be kind to the environment. Surprise that they would say that. They know that they are huge polluters and they are saying please help us. We have 1,300,000,000 people. They have got to be fed and clothed. And the fifth one was international cooperation.

It is high time that we get on with this. It may not work. But, you know, God knows what we are doing now sure as heck is not working. Year by year goes by. The price of oil goes up more and more. And I had a map that I wish I kept here to show you—the world according to oil. And it shows what the countries of the world would look like if their size was relative to the amount of oil that they have. We are way over insignificant in a corner. And Saudi Arabia, of course, just dominates the globe. And the Middle East and Northern Africa dominates the globe.

You know, it is high time we get on with this. And the reason for this—the reason for this—and the reason the marketplace will not take care of this and the reason that the DOD could not count on the marketplace to take care of the innovations they needed, which was why they set up DARPA—is because the market signals will not be early enough or strong enough.

I know I have many colleagues on my side of the yard that worship the market. They think the market is omniscient and omnipotent. It knows all and is all-powerful. And if there were infinite resources, I could trust the market. The problem is there are not infinite resources here and our USGS and our energy information agency do not understand that. They project that the future will be like the past. And in the past we have always had as much gas and oil as we wanted. And they are saying that our two percent increase in growth is going to continue. It is, and it will be accelerated with China and India and the developing world coming on board. And they say that there will be enough gas and oil there to meet those demands.

And clearly La Horara says that this is absolutely implausible to believe that we are going to find as much more oil as all the oil

that now exists in the world. And that is what they are telling us will happen. Mr. Chairman and the Chairman of the Full Committee, thank you very much for bringing this before us. This is more than timely. It would have been timely 17 years ago. It is the kind of thing we should have been doing 27 years ago and shame on us if we do not do it now.

Ms. BIGGERT. Will the gentleman yield?

Mr. BARTLETT. Yes. I would be happy to yield.

Ms. BIGGERT. Okay. Thank you. I know that this is something that you really believe in and I do too. I wish that we had started much earlier. But I do not want to just leave it to imply that there is not any energy R&D underway currently. And the Department of Energy is spending billions on energy R&D now. I think that—and this investment I think is paying off.

For instance, the National Academy of Science has found that for every dollar that Congress invested in energy efficiency R&D between 1978 and 2000, that more than four dollars of economic benefit was realized. So I think that we—I do not know that this will delay it. I think that we have to move as fast as we can, too. And I certainly do not want to let one minute go by that we do not continue in the research and development. And with that I would yield back.

Mr. BARTLETT. Thank you very much. I yield back, Mr. Chairman.

Chairman LAMPSON. Thank you both very much. Who seeks recognition? Any further discussion? Being none, the vote will now occur on the amendment. All in favor say aye. Those opposed say no.

The nos have it and the amendment is not agreed to. Are there any other amendments? Any other amendments? Hearing none, the vote is on the bill, H.R. 364, *To provide for the establishment of the Advanced Research Projects Agency-Energy* as amended. All those in favor will say aye. All those opposed will say no. In the opinion of the Chair, the ayes have it. I will recognize the Vice Chairman of our Subcommittee for a motion.

Ms. GIFFORDS. Thank you, Mr. Chairman. I move that the Subcommittee favorably report House Resolution 364's amendment as amended to the Full Committee. Furthermore, I move that staff be instructed to prepare the Subcommittee legislative report and make necessary technical and conforming changes to the bill as amended in accordance with the recommendation of the Subcommittee.

Chairman LAMPSON. The question is on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. Opposed say no. The ayes have it, and the bill is favorably reported. Without objection the motion to reconsider is laid upon the table. Subcommittee Members may submit additional or Minority views on the measure.

I would like to thank the Members for their attendance, everyone who stayed all the way through this thing. And this concludes our subcommittee markup. We are adjourned. Thank you.

[Whereupon, at 1:00 p.m., the Subcommittee was adjourned.]

Appendix:

H.R. 364, Section-by-Section Analysis, Amendment Roster

I

110TH CONGRESS
1ST SESSION

H. R. 364

To provide for the establishment of the Advanced Research Projects Agency-Energy.

IN THE HOUSE OF REPRESENTATIVES

JANUARY 10, 2007

Mr. GORDON of Tennessee introduced the following bill; which was referred to the Committee on Science and Technology

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A BILL

To provide for the establishment of the Advanced Research Projects Agency-Energy.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. FINDINGS.

The Congress finds the following:

(1) The United States faces a range of energy challenges that affect our economy, security, and environment. Fundamentally, these challenges involve science and technology.

(2) The Department of Energy already has some of the mechanisms necessary to promote long-

term research, but it lacks the mechanisms for quickly transforming the results into technology that meets national needs.

(3) A recent report of the Secretary of Energy's Advisory Board's Task Force on the Future of Science Programs at the Department of Energy concluded that "America can meet its energy needs only if we make a strong and sustained investment in research in physical science, engineering, and applicable life sciences and if we translate advancing scientific knowledge into practice".

(4) The Department of Defense, since 1958, has used its Defense Advanced Projects Research Agency (DARPA) for aggressively addressing real-time defense problems through targeted programs of research and technology development that have improved our national defense through transformation technologies.

(5) The National Academy of Sciences' report entitled "Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future" recommends creating a new agency within the Department of Energy to sponsor "creative, out-of-the-box, transformational, generic energy research in those areas where industry by itself

cannot or will not undertake such sponsorship, where risks and pay-offs are high''. Such an organization would be able to accelerate the process by which research is transformed to address energy-related economic, environmental, and security issues to decrease dependence on foreign energy through targeted research and technology development.

SEC. 2. ADVANCED RESEARCH PROJECTS AGENCY-ENERGY.

(a) ESTABLISHMENT.—There is established the Advanced Research Projects Agency-Energy (in this Act referred to as ''ARPA–E'') within the Department of Energy.

(b) GOAL.—The goal of ARPA–E is to reduce the amount of energy the United States imports from foreign sources by 20 percent over the next 10 years by—

(1) promoting revolutionary changes in the critical technologies that would promote energy independence;

(2) turning cutting-edge science and engineering into technologies for energy and environmental application; and

(3) accelerating innovation in energy and the environment for both traditional and alternative energy sources and in energy efficiency mechanisms to

1 decrease the Nation's reliance on foreign energy
2 sources.
3 (c) DIRECTOR.—ARPA–E shall be headed by a Di-
4 rector who shall be appointed by the Secretary of Energy.
5 The Director shall report to the Secretary.
6 (d) RESPONSIBILITIES.—The Director shall admin-
7 ister the Fund established under section 3 to award com-
8 petitive grants, cooperative agreements, or contracts to in-
9 stitutions of higher education, companies, or consortia of
10 such entities which may include federally funded research
11 and development centers, to achieve the goals stated in
12 subsection (b) through targeted acceleration of—
13 (1) energy-related research;
14 (2) development of resultant techniques, proc-
15 esses, and technologies, and related testing and eval-
16 uation; and
17 (3) demonstration and commercial application
18 of the most promising technologies and research ap-
19 plications.
20 (e) PERSONNEL.—
21 (1) PROGRAM MANAGERS.—The Director shall
22 designate employees to serve as program managers
23 for each of the programs established pursuant to the
24 responsibilities established for ARPA–E under sub-

section (d). Program managers shall be responsible for—

(A) establishing research and development goals for the program, including through the convening of workshops and conferring with outside experts, as well as publicizing its goals to the public and private sectors;

(B) soliciting applications for specific areas of particular promise, especially those which the private sector cannot or will not provide funding;

(C) selecting research projects for support under the program from among application submitted to ARPA–E, following consideration of—

(i) the novelty and scientific and technical merit of the proposed projects;

(ii) the demonstrated capabilities of the applicants to successfully carry out the proposed research project; and

(iii) such other criteria as are established by the Director; and

(D) monitoring the progress of projects supported under the program.

(2) HIRING AND MANAGEMENT.—In hiring personnel for ARPA–E, the Secretary shall have the hiring and management authorities described in section 1101 of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 (5 U.S.C. 3104 note). For purposes of subsection (c)(1) of that section, the term of appointments for employees may not exceed 5 years before the granting of any extension.

(f) COORDINATION.—The Director shall ensure that the activities of ARPA–E are coordinated with those of other relevant research agencies, and may carry out projects jointly with other agencies.

SEC. 3. FUND.

(a) ESTABLISHMENT.—There is established in the Treasury the Energy Independence Acceleration Fund (in this Act referred to as the "Fund"), which shall be administered by the Director of ARPA–E for the purposes of carrying out this Act.

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Director of ARPA–E for deposit in the Fund $300,000,000 for fiscal year 2008, $375,000,000 for fiscal year 2009, $468,000,000 for fiscal year 2010, $585,000,000 for fiscal year 2011, $732,000,000 for fiscal year 2012, and

$915,000,000 for fiscal year 2013, to remain available until expended.

SEC. 4. RECOUPMENT.

(a) REQUIREMENT.—Not later than 180 days after the date of enactment of this Act, the Secretary shall establish procedures and criteria for the recoupment of the Federal share of each project supported under this Act. Such recoupment shall occur within a reasonable period of time following the date of the completion of such project, but not later than 20 years following such date, taking into account the effect of recoupment on—

(1) the commercial competitiveness of the entity carrying out the project;

(2) the profitability of the project; and

(3) the commercial viability of the technology utilized.

(b) WAIVER.—The Secretary may at any time waive or defer all or some portion of the recoupment requirement as necessary for the commercial viability of the project.

(c) AVAILABILITY OF FUNDS.—Revenue received by the Federal Government pursuant to this section shall be deposited into the Fund and shall be available with further appropriation to fund future grants, contracts, and cooperative agreement as authorized by the Director.

(d) DEFINITIONS.—For the purposes of this section—

(1) the term "for-profit entity" means a licensee or successor in interest to a venture member, or any other for-profit person or entity, or combination of such persons or entities, that earns or accrues amounts subject to this section;

(2) the term "product or invention supported by or produced as a result of funding under this Act" includes any product or invention of a venture member based on or using any technology or invention arising out of a venture funded under this Act; and

(3) the term "revenue generated by or resulting from a product or invention" includes revenue derived from the sale or licensing of patents or other rights with respect to the product or invention.

SEC. 5. ADVICE.

(a) ADVISORY COMMITTEES.—The Director may seek advice on any aspect of ARPA–E from—

(1) existing Department of Energy advisory committees; and

(2) new advisory committees organized to support the programs of ARPA–E and to provide advice and assistance on—

(A) specific program tasks; or

(B) overall direction of ARPA–E.

(b) APPLICABILITY.—Section 14 of the Federal Advisory Committee Act shall not apply to advisory committees organized under subsection (a)(2).

(c) ADDITIONAL SOURCES OF ADVICE.—The Director may seek advice and review from the National Academy of Sciences, the National Academy for Engineering, and any other professional or scientific organization with expertise in specific processes or technologies under development by ARPA–E.

SEC. 6. ARPA-E EVALUATION.

After ARPA–E has been in operation for 54 months, the President's Committee on Science and Technology shall begin an evaluation (to be completed within 12 months) of how well ARPA–E is achieving its goals and mission. The evaluation shall include the recommendation of such Committee on whether ARPA–E should be continued or terminated, as well as lessons-learned from its operation. The evaluation shall be made available to Congress and to the public upon completion.

○

SECTION-BY-SECTION ANALYSIS OF H.R. 364,
TO PROVIDE FOR THE ESTABLISHMENT OF THE
ADVANCED RESEARCH PROJECTS AGENCY-ENERGY

Summary

H.R. 364 establishes an Advanced Research Projects Agency for Energy within the U.S. Department of Energy. Modeled after the Department of Defense's Defense Advanced Research Projects Agency, ARPA–E is a new program charged with the mission of reducing U.S. dependence on oil through the rapid development and commercialization of transformational clean energy technologies. This bill follows on the recommendations of the National Academy of Sciences' report *"Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future."*

Section-by-Section

Section 1. Findings

The U.S. can meet long-term energy challenges through sustained investment in energy research programs at DOE augmented by an innovative and aggressive new energy technology development effort based on the same operating principles that make DARPA successful.

Section 2. Advanced Research Projects Agency-Energy

Establishes the Advanced Research Projects Agency-Energy (ARPA–E) within the Department of Energy. Similar to the Department of Defense's successful Advanced Research Projects Agency (DARPA), this new organizational structure will be well-positioned to support revolutionary and transformational energy research where risk and pay-offs are high.

The stated goal of ARPA–E is to reduce the dependence of the U.S. on foreign energy sources by 20 percent over the next 10 years. To achieve this ARPA–E should support targeted high-risk, high pay-off research to accelerate the innovation cycle for both traditional and alternative energy sources and energy efficiency. ARPA–E shall be headed by a Director, appointed by the Secretary, who will administer competitive grants, cooperative agreements, or contracts to universities, industry and consortia which may include federal labs.

Organization of ARPA–E will be very flat and nimble to avoid bureaucratic impediments that stifle innovation today. The Director shall designate program managers who will have flexibility in establishing R&D goals for the program, publicizing goals, issuing solicitations and selecting projects for support as well as monitoring their progress. Projects will be chosen based on factors such as novelty, scientific and technical merit, applicant's capabilities and other criteria as the Director determines. ARPA–E will have authority to hire specialized science and engineering personnel to be program managers. (This is similar to DARPA and HS–ARPA.)

In addition, the Director shall ensure that ARPA–E's activities are coordinated with other federal research agencies and that ARPA–E may carry out projects jointly with other agencies.

Section. 3. Energy Independence Acceleration Fund

Establishes the Energy Independence Acceleration Fund administered by the Director of ARPA–E. Funding is authorized from FY 2008 thru 2013 ramping up 25 percent per year from an initial authorization of $300 million to $915 million.

Section 4. Recoupment

If a project is successful the Federal Government can recoup some of its original investment. The provision allows the Secretary complete flexibility in developing recoupment agreements, and the ability to waive it entirely if necessary for the commercial viability of a project. All recouped funds will be returned to the Energy Independence Acceleration Fund.

Section 5. Advisory Committee

The ARPA–E Advisory Committee may seek advice either from an existing DOE advisory committee or may establish a new advisory committee. If the Director of ARPA–E requires industry advice, a panel to advise on a specific technology area, or to hire an outside consultant, this provision provides the appropriate authorities.

Section 6. ARPA–E Evaluation

At the end of five and one-half years, the President's Committee on Science and Technology (PCAST) shall evaluate how well ARPA–E has performed in achieving its goals and mission. The Committee is required to recommend whether ARPA–E should be continued or terminated as well as lessons learned from its operation.

COMMITTEE ON SCIENCE AND TECHNOLOGY
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT
SUBCOMMITTEE MARKUP
MAY 10, 2007

H.R. 364 – *to provide for the establishment of the Advanced Research Projects Agency-Energy*

AMENDMENT ROSTER

No.	Sponsor	Description	Results
1	Mr. Lampson, Ms. Giffords, and Mr. Bartlett	Adds additional goals for greenhouse gas emissions, efficiency, and economic competitiveness; clarifies reporting structure, personnel responsibilities, activities, participants; specifies desired experience of some personnel and limits terms to 3 years; specifies coordination and non-duplication with DOE and other agencies; increases authorization levels; sets guidelines and limits for funding allocations for demonstration and commercial application, federally funded R&D Centers, overhead expenses, and new construction.	Passed by voice vote.
2	Ms. Biggert	Replaces text with directions to DOE and NAS to study ARPA-E concept and make recommendations on implementation.	Defeated by voice vote.

AMENDMENT TO H.R. 364

OFFERED BY MR. LAMPSON OF TEXAS, MS. GIFFORDS OF ARIZONA, AND MR. BARTLETT OF MARYLAND

Page 3, line 13, through page 4, line 2, amend subsection (b) to read as follows:

1 (b) GOALS.—The goals of ARPA-E are to enhance
2 the Nation's economic and energy security through reduc-
3 tions in imports of energy from foreign sources, to reduce
4 emissions of greenhouse gases from the energy and indus-
5 trial sectors, to improve energy efficiency of all economic
6 sectors, and to ensure that the United States maintains
7 a technological lead in developing and deploying energy
8 technologies. ARPA-E will achieve this by—
9 (1) identifying and promoting revolutionary ad-
10 vances in fundamental sciences with potential energy
11 and environmental applications;
12 (2) translating scientific discoveries and cut-
13 ting-edge engineering innovations into technologies
14 that promote energy security and sound environ-
15 mental stewardship; and
16 (3) accelerating the market adoption of trans-
17 formational technological advances in areas such as

1 alternative fuels and transportation technology, en-
2 ergy efficiency, electricity production and infrastruc-
3 ture, and carbon capture and sequestration.

Page 4, line 5, insert "No other programs within the Department of Energy shall report to the Director of ARPA-E." after "report to the Secretary.".

Page 4, line 9, insert "research foundations, trade and industry research collaborations," after "companies,".

Page 4, lines 13 through 19, strike paragraphs (1), (2), and (3) and insert the following:

4 (1) novel early-stage energy research with pos-
5 sible technology applications;
6 (2) development of techniques, processes, and
7 technologies, and related testing and evaluation;
8 (3) development of manufacturing processes for
9 technologies; and
10 (4) demonstration and coordination with non-
11 governmental entities for commercial applications of
12 technologies and research applications.

Page 5, line 1, insert "report directly to the Director of ARPA-E, and shall" after "managers shall".

Page 5, line 10, insert "alone" after "private sector".

Page 5, lines 12 and 23, redesignate subparagraphs (C) and (D) as subparagraphs (D) and (E), respectively.

Page 5, after line 11, insert the following new subparagraph:

1 (C) building research collaborations for
2 carrying out the program;

Page 5, line 24, insert ", adding new participants, and terminating research partnerships or whole projects that do not show promise" after "under the program".

Page 6, line 8, strike "5" and insert "3".

Page 6, line 9, insert "In hiring initial staff the Secretary shall give preference to applicants with experience in the Defense Advanced Research Projects Agency, or private sector technology development." after "any extension.".

Page 6, lines 10 through 13, strike subsection (f) and insert the following:

3 (f) COORDINATION AND NONDUPLICATION.—To the
4 extent practicable, the Director shall ensure that the ac-
5 tivities of ARPA-E are coordinated with, and do not dupli-

1 cate the efforts of, existing programs and laboratories
2 within the Department of Energy and other relevant re-
3 search agencies. Where appropriate, the Director may co-
4 ordinate technology transfer efforts with the Technology
5 Transfer Coordinator established in section 1001 of the
6 Energy Policy Act of 2005 (42 U.S.C. 16391).
7 (g) FEDERAL USE OF TECHNOLOGIES.—The Sec-
8 retary shall seek opportunities to utilize Federal agencies'
9 purchasing and procurement programs to demonstrate
10 technologies resulting from activities funded through
11 ARPA-E and to facilitate their entry into private markets.

Page 6, line 23, strike "$375,000,000" and insert "$1,000,000,000".

Page 6, line 24, strike "$468,000,000" and insert "$1,100,000,000".

Page 6, line 24, strike "$585,000,000" and insert "$1,200,000,000".

Page 6, line 25, strike "$732,000,000" and insert "$1,300,000,000".

Page 7, line 1, strike "$915,000,000" and insert "$1,400,000,000".

Page 7, after line 2, insert the following new subsection:

1 (c) ALLOCATION.—Of the amounts appropriated for
2 a fiscal year under subsection (b)—
3 (1) not more than 50 percent shall be for activi-
4 ties under section 2(d)(4);
5 (2) not more than 8 percent shall be made
6 available to Federally Funded Research and Devel-
7 opment Centers;
8 (3) not more than 10 percent may be used for
9 administrative expenses; and
10 (4) during the first 5 years of operation of
11 ARPA-E, no funds may be used for construction of
12 new buildings or facilities.

AMENDMENT IN THE NATURE OF A SUBSTITUTE TO H.R. 364 OFFERED BY MRS. BIGGERT OF ILLINOIS

Strike all after the enacting clause and insert the following:

1 **SECTION 1. ARPA-E STUDY.**

2 (a) IN GENERAL.—The Secretary of Energy shall
3 enter into an arrangement with the National Academy of
4 Sciences to conduct a detailed study of, and make further
5 recommendations on, the October 2005 National Academy
6 of Sciences recommendation to establish an Advanced Re-
7 search Projects Agency—Energy (in this section referred
8 to as ARPA-E).

9 (b) REPORT.—Not later than 12 months after the
10 date of enactment of this Act, the Secretary shall transmit
11 to Congress the study described in subsection (a) and the
12 Secretary's response to the findings, conclusions, and rec-
13 ommendations of that study.

14 (c) TERMS OF REFERENCE.—The Secretary shall en-
15 sure that the study described in subsection (a) addresses
16 at a minimum the following questions:

17 (1) What basic research related to new energy
18 technologies is occurring now, what entities are

1 funding it, and what is preventing the results of that
2 research from reaching the market?
3 (2) What economic evidence indicates that the
4 limiting factor in the market penetration of new en-
5 ergy technologies is a lack of basic research on path-
6 breaking new technologies? What barriers do those
7 trying to develop new energy technologies face dur-
8 ing later stages of research and development?
9 (3) To what extent is the Defense Advanced
10 Research Projects Agency an appropriate model for
11 an energy research agency, given that the Federal
12 Government would not be the primary customer for
13 its technology and where cost is an important con-
14 cern?
15 (4) How would research and development spon-
16 sored by ARPA-E differ from research and develop-
17 ment conducted by the National Laboratories or
18 sponsored by the Department of Energy through the
19 Office of Science, the Office of Energy Efficiency
20 and Renewable Energy, the Office of Fossil Energy,
21 the Office of Electricity Delivery and Energy Reli-
22 ability, and the Office of Nuclear Energy?
23 (5) Should industry or National Laboratories be
24 recipients of ARPA-E grants? What institutional or
25 organizational arrangements would be required to

1 ensure that ARPA-E sponsors transformational,
2 rather than incremental, research and development?

XXIII: PROCEEDINGS OF THE FULL COMMITTEE MARKUP ON H.R. 364, TO PROVIDE FOR THE ESTABLISHMENT OF THE ADVANCED RESEARCH PROJECTS AGENCY–ENERGY

WEDNESDAY, MAY 23, 2007

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
Washington, DC.

The Committee met, pursuant to call, at 10:10 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Bart Gordon [Chairman of the Committee] presiding.

Chairman GORDON. Good morning everyone. The Committee on Science and Technology will come to order. Pursuant to notice, the Committee meets to consider the following measures: H.R. 364, *To provide for the establishment of the Advanced Research Projects Agency–Energy;* H.R. 1467, the *10,000 Trained by 2010 Act;* H.R. 1716, the *Green Energy Education of 2007;* and H.R. 632, the *H–Prize Act of 2007.*

Before we get started with this markup though, we have one quick piece of Committee business to attend to. The distinguished Member from California, Mr. Calvert, recently took a leave of absence from the Committee to serve on Appropriations. This left the Space and Aeronautics Subcommittee without a Ranking Member. Last week Mr. Hall announced that Representative Feeney would take over as Ranking Member of the Subcommittee, and I now ask unanimous consent that the Committee on Science and Technology ratify the selection of Mr. Feeney as Ranking Member of the Space and Aeronautics Subcommittee. Without objection——

Mr. HALL. Mr. Chairman, do you have to be present to be proposed or——

Chairman GORDON. Well, I am considering that no objection and—or may I say, I consider that a slight objection and it is so ordered. I want to congratulate Mr. Feeney.

Let me also say that Ken Calvert—I was Ranking Member of this committee and Ken did much more than I did. He made an effort to go to every facility all across the country and became very knowledgeable and we hope that he will be a continuing asset and I am sure that Mr. Feeney will also do a good job, but Ken did a particularly good job and hopefully he will be there on Appropriations to understand these issues.

We now begin with the markup and I will begin with a brief statement. Today the Committee is marking up four bills. The first bill we will consider is a bill that I introduced, H.R. 364, which establishes the Advanced Research Project Agency for Energy, and in the Subcommittee hearing and in the markup we had a very healthy discussion that I believe pointed to the critical need for such an entity. We have worked hard with our friends from across the aisle, and while there are still a few differences, it has resulted in a better bill. It is my understanding that this discussion will continue today with a number of amendments, and I look forward to addressing those concerns.

The next bill we will take up is H.R. 1467, the *10,000 Trained by 2010 Act,* introduced by Chairman Wu. This is a good bill which I support. There has been a lot of talking in Washington about the need to push health care IT forward. Our medical system is far behind other sectors in the use of information technology. However, it is common knowledge that information technology could significantly improve patient care and reduce health care costs, and let me just collaterally say that I have just introduced H.R. 2406. It is a health care IT bill that will be in the jurisdiction of this committee. As I think Mr. Gingerich can tell you, it is going to be wildly popular within the health care area, doctors, physicians, everyone. Health care IT or IT in the health care area is one of the few areas that hasn't really matured. It is so popular that Newt Gingerich and Hillary Clinton are supporting this concept and so I would suggest to all of you to take a look at it. Don't get involved if you don't want to but I think you will find that it will be something that is going to be a good bill and will be popular for you.

And we also have H.R. 1716, the *Green Energy Education Act of 2007.* It was introduced by Mr. McCaul, and H.R. 1716 raises the profile of a very important issue, university research and education on clean energy including energy efficiency and green building design and technologies. It would bring together the Department of Energy, a mission agency, and the National Science Foundation, which has a long history with science and technological education, in a common goal to help educate the next generation of energy technology experts and green building professionals. This bill helps meet a very important need, and I thank Mr. McCaul for bringing it to the Committee, and who would have known he would have been such a greenie. But we thank you. This is a good bill.

We also will consider Mr. Lipinski's and Mr. Inglis' H.R. 362, the *H–Prize Act of 2007.* Hydrogen technology represents just the type of transformational possibilities that we are hoping to achieve with ARPA–E and may some day make an important piece of our energy puzzle, and I commend our colleagues, Mr. Inglis and Mr. Lipinski, for working together to make this a good bipartisan bill and I look forward to moving it through the Committee today.

So these are the four good bills that we have before us and I now would like to recognize Mr. Hall to present his opening remarks.

[The prepared statement of Chairman Gordon follows:]

PREPARED STATEMENT OF CHAIRMAN BART GORDON

Today the Committee is meeting to markup four bills.

The first bill we will consider today is a bill that I introduced, H.R. 364, which establishes an Advanced Research Projects Agency for Energy. In the Subcommittee

hearing and markup we had a very healthy discussion that, I believe, pointed to the critical need for such an entity.

We have worked hard with our friends across the aisle. And, while there are still substantial differences, it has resulted in a better bill. It is my understanding that this discussion will continue today with a number of amendments, and I look forward to addressing your concerns.

The next bill we will take up is H.R. 1467, the *10,000 Trained by 2010 Act* introduced by Chairman Wu. This is a good bill which I support.

There has been a lot of talk in Washington about the need to push health care IT forward. Our medical system is far behind other sectors in the use of information technology. However, it is common knowledge that information technology could significantly improve patient care and reduce health care costs.

While there has been a lot of discussion on the issue in Congress, not much has actually been done. In this case, Chairman Wu and other Members of the Committee have identified one component of the issue and how the Science and Technology Committee could make a real and positive contribution in this area.

I strongly support this legislation and would urge everyone on the Committee to do so as well.

H.R. 1716, the *Green Energy Education Act of 2007,* was reintroduced by Mr. McCaul this year after having passed the House as part of a broader bipartisan Science Committee Energy R&D bill at the end of the 109th Congress.

H.R. 1716 raises the profile of a very important issue—university research and education on clean energy, including energy efficiency and green building design and technologies. It would bring together the Department of Energy, a mission agency, and the National Science Foundation, which has a long history with science and technology education, in a common goal to help educate the next generation of energy technology experts and green building professionals.

This bill helps meet a very important need and I thank Mr. McCaul for bringing it to the Committee.

We will also consider by Mr. Lipinski, H.R. 632, the *H–Prize Act of 2007.* Hydrogen technologies represent just the type of transformational possibilities that we are hoping to achieve with ARPA–E, and may some day make up an important piece of our energy puzzle.

I commend my colleagues Mr. Inglis and Mr. Lipinski for working together and for working hard to make this a good, bipartisan bill. I look forward to moving it through Committee today.

These are four good bills, and I strongly encourage my colleagues to support all of them.

Mr. HALL. Mr. Chairman, you and I have been working together now for over 22 years and on the same side of the aisle for most of that time, and if it weren't for me switching parties you might not even be Chairman right now. And I have been talked to by 4/5 of you bunch asking me to switch back. A good group on both sides. I appreciate everybody on both sides of the Chairman here, and you can thank me later if you would like.

When you work with someone as long as we have, not only on this committee but also on the Commerce Committee—we are on that Committee together—there are bound to be some times when we are going to disagree. And as much as I dislike going against my friend from Tennessee, sometimes it just happens. As it turns out, today is one of those days. While I commend you, Bart, for your efforts on behalf of boosting energy R&D, I disagree with the way H.R. 364 does it. I have to say that I have a problem with the idea of creating a new bureaucracy within the Department of Energy that will regardless of intention fight for money with existing and future programs at DOE. With the tight budget parameters we are working with, I am not comfortable authorizing the creation of ARPA–E based on a vague recommendation that was in the *Gathering Storm* report. The facts are that DOE currently has the authority to do ARPA-type projects but DOE is woefully under-funded. I am concerned that we could be faced with the problem of hav-

ing both the Office of Science and ARPA–E underfunded so that neither of them is operating at full potential if we go forward with the creation of this new agency. Before we go forward with any ARPA-type projects, I would like the Section 1821 study in EPAct to be completed that looks at the applicability of the DARPA management practices and the advisability of creating a DARPA-type agency within DOE. Before we move toward this legislation, and to that end, I will be introducing an amendment that, without creating a new bureaucracy, would require the Secretary of Energy to identify and accelerate advanced research projects at the DOE that will address our energy needs. I, along with several of my colleagues, have sent a letter to the Secretary urging him to complete the study as mandated by law so that we all might benefit from its recommendations.

In addition to the letter, we also ask the Secretary to appoint a technology transfer coordinator and establish the technology transfer working group. As several of our witnesses testified to in our committee hearing, technology transfer plays a very integral part in the process from basic research to widespread commercialization. I don't think anyone would dispute that our country needs clean, affordable, reliable energy that is generated through research and development. This committee should continue to advance legislation that addresses our most critical energy needs in a fiscally responsible manner. To that end, I will be introducing legislation by the end of the week that will help accomplish these goals.

In addition to the ARPA–E legislation, we will also be marking up H.R. 1467, H.R. 1716 and H.R. 632. I am an original co-sponsor of H.R. 1467, the *10,000 Trained by 2010 Act,* and I am supportive of the primary goal it seeks to achieve. If implemented correctly and efficiently, health information technology can revolutionize our health care system but we have to have an educated workforce properly trained in health IT in order for it to be successful, and this is what H.R. 1467 is about. NSF is already doing work, yeoman's work, in the IT arena, but this measure will increase the focus on health IT. I encourage my colleagues to support it.

I urge my colleagues to support H.R. 1716, the *Green Energy Education Act of 2007,* introduced by my fellow Texan, Mr. McCaul. This is a good piece of legislation. It was voted out of this committee in the last Congress. The fact that it has also been included in larger packages on both sides of the aisle in this Congress indicates its overwhelming support. Simply put, this measure encourages the Department of Energy to work with the National Science Foundation to help develop the next generation of engineers and architects to work effectively together to produce buildings that will incorporate the latest in energy-efficient technologies. I commend Mr. McCaul for his fine work on this bill.

Finally, I urge my colleagues to support H.R. 632, the *H–Prize Act,* sponsored by Mr. Inglis and Mr. Lipinski. This legislation was introduced in the last Congress and passed overwhelmingly by the House of Representatives. This bill directs the Secretary of Energy to award competitive cash prizes biannually to advance the research, development, demonstration and commercial applications of hydrogen energy technologies. Categories eligible for prizes include

advancements in certain hydrogen components or systems, prototypes of hydrogen-powered vehicles and transformational changes in the technologies for hydrogen distribution or production. I commend Mr. Inglis and Mr. Lipinski for introducing this legislation and I encourage my colleagues to support it.

Once again, Mr. Chairman, I am happy to be supportive of these three bipartisan pieces of legislation. I look forward to working with you to advance these bills.

I yield back my time, sir.

[The prepared statement of Mr. Hall follows:]

PREPARED STATEMENT OF REPRESENTATIVE RALPH M. HALL

Mr. Chairman, you and I have been working together for over 22 years now—and on the same side of the aisle for most of that time. Why, if it weren't for me switching parties, you might not be the Chairman right now! You can thank me later. . .. When you work with someone as long as we have, not only on this committee, but also on the Commerce Committee, there are bound to be times when we're going to disagree, and as much as I dislike going against my good friend from Tennessee, sometimes it just happens. As it turns out, today is one of those days. While I commend my friend for his efforts on behalf of boosting energy R&D, I disagree with the way H.R. 364 does it. I have to say that I have a problem with the idea of creating a new bureaucracy within the Department of Energy that will, regardless of intention, fight for money with existing and future programs at DOE. With the tight budget parameters we are working with, I am not comfortable authorizing the creation of ARPA–E based on a vague recommendation that was in the *Gathering Storm* report.

The facts are that DOE currently has the authority to do ARPA-type projects, but DOE is woefully under-funded. I am concerned that we could be faced with the problem of having both the Office of Science and ARPA–E under-funded so that neither of them is operating at its full potential if we go forward with creating this new agency. Before we go forward with any ARPA-type projects, I would like the Section 1821 study in EPAct to be completed that looks at the applicability of the DARPA management practices and the advisability of creating a DARPA-type agency within DOE before moving forward with legislation. To that end I will be introducing an amendment that, without creating a new bureaucracy, would require the Secretary of Energy to identify and accelerate advanced research projects at the DOE that will address our energy needs. I, along with several of my colleagues, have sent a letter to the Secretary urging him to complete the study as mandated by law so that we all may benefit from its recommendations. In addition, in the letter we also ask the Secretary to appoint the Technology Transfer Coordinator and establish the Technology Transfer Working Group. As several of our witnesses testified to in our Subcommittee hearing, technology transfer plays an integral part in the process from basic research to widespread commercialization.

I don't think anyone would dispute that our country needs clean, affordable, reliable energy that is generated through research and development. This committee should continue to advance legislation that addresses our most critical energy needs in a fiscally responsible manner. To that end, I will be introducing legislation by the end of this week that will help accomplish these goals.

In addition to the ARPA–E legislation we will also be marking up H.R. 1467, H.R. 1716, and H.R. 632. I am an original co-sponsor of H.R. 1467, the *10,000 Trained by 2010 Act,* and am supportive of the primary goal it seeks to achieve. If implemented correctly and efficiently, health information technology (IT) can revolutionize our health care system. But, we must have an educated workforce, properly trained in health IT, in order for it to be successful. This is what H.R. 1467 is about. NSF is already doing work yeoman's work in the IT arena, but this measure will increase the focus on health IT. I encourage my colleagues to support it.

I urge my colleagues to support H.R. 1716, the *Green Energy Education Act of 2007,* introduced my fellow Texan, Mr. McCaul. This is a good piece of legislation that was voted out of this committee in the last Congress. The fact that it is also being included in larger energy packages on both sides of the aisle in this Congress indicates its overwhelming support. Simply put, this measure encourages the Department of Energy to work with the National Science Foundation to help develop the next generation of engineers and architects to work effectively together to produce buildings that incorporate the latest in energy efficient technologies. I commend Mr. McCaul for his fine work on this bill.

Finally, I also urge my colleagues to support H.R. 632, the *H–Prize Act* sponsored by Inglis and Lipinski. This legislation was introduced in the last Congress and passed overwhelmingly by the House of Representatives. The bill directs the Secretary of Energy to award competitive cash prizes biennially to advance the research, development, demonstration, and commercial application of hydrogen energy technologies. Categories eligible for prizes include advancements in certain hydrogen components or systems, prototypes of hydrogen-powered vehicles, and transformational changes in technologies for hydrogen distribution or production. I commend Mr. Inglis and Mr. Lipinski for introducing this legislation, and I encourage my colleagues to support it.

Once again, Mr. Chairman, I am happy to be supportive of these three bipartisan pieces of legislation and look forward to working with you to advance these bills. I yield back the balance of my time.

Chairman GORDON. Thank you, Mr. Hall. As you have pointed out, we have had a good working relationship and I will point out that every bill that has come out of this committee has been unanimous and the only—one bill received 21 negative votes on the Floor. That is the worst we have done on the Floor. We are going to have I hope three unanimous bills today and I think the reason that we have been able to do this is, we have started with good bills. We have had extensive consultation and by making better bills. At the end of the day we are going to have our first disagreement but I think two things will happen: We are going to have amendments today that will make the bill even better and I think at the end of the day that it will be a bipartisan bill but it won't be a unanimous bill, and we will try to proceed without kicking or scratching and we will get this done. So without objection, Members may place statements in the record at this point.

[The prepared statement of Mr. Mitchell follows:]

PREPARED STATEMENT OF REPRESENTATIVE HARRY E. MITCHELL

Thank you, Mr. Chairman.

Today we are considering several bills to decrease our dependence on foreign oil and encourage renewable sources of energy.

As the world leader in emissions of greenhouse gasses, it is imperative that we as a nation actively pursue the means to reduce those emissions. We have an obligation to lead the world toward a solution. One way to accomplish this is to invest in alternative energy sources.

The bills before us today would put in place necessary components to take us where we need to be as a nation including education and training, monetary incentives, and fast acting, responsive research programs.

The United States must lead by example and invest in clean, renewable energy sources.

Today, we are considering several bills to address this issue and I look forward to working on them.

Sustainable energy is an issue that affects our environment, our economy, and our national security, and we cannot leave this problem for future generations of Americans to solve.

I yield back the balance of my time.

Chairman GORDON. We will now consider H.R. 364, *To provide for the establishment of Advanced Research Projects Agency–Energy.* I yield myself five minutes to describe the bill.

H.R. 364 addresses the National Academies of Science *Rising Above the Gathering Storm,* which recommended establishing an ARPA–E to shorten the time period for transforming research into technologies that will make us more energy-efficient, sustain our economy, achieve energy security and improve our environment. Energy powers our economy and supports the quality of life we enjoy in this country. We owe it to our children and grandchildren

to tackle our energy supply problems now before we reach a crisis. By investing in research, development and deployment of new technologies, we can deliver to them an energy-secure future. If you are satisfied with the status quo and you believe that the current pace of technology transfer will get us to the energy future we need, then you would conclude we do not need an ARPA–E. However, if you are not satisfied with our current progress, if you believe we need a new model of technology transfer that moves creative basic science from the laboratory bench to the marketplace, you should support H.R. 364. We must engage the private sector, the national labs and the universities in a manner not done today and we need a strong, cohesive community of researchers, technology developers intent on transforming our energy economy as we know it.

I want to thank my colleagues on the Committee for working with me on this bill. Over the past two weeks we have had very productive discussions that are embodied in several of the amendments we will consider this morning. Mr. Inglis and Mr. Bartlett have been especially helpful in the effort to craft this legislation and the bill will be improved this morning as a result of their efforts. Our constituents get the best outcome when we work together to achieve our common goals. So I urge my colleagues to support H.R. 364 and vote for a brighter, more secure energy future.

And let me read to the Committee just a few of the endorsements. We really haven't sought endorsements but to give you an idea of the wide breadth of this, the American Public Power Association, the American Iron and Steel Institute, the American Petroleum Institute, the American Society for Mechanical Engineers, the American Federation of Scientists, the Edison Electric Institute, the Gas Technology Institute, the Independent Petroleum Association of America, Information, MIT, the National Association of Manufacturers, the National Hydrogen Association, the National Association of Rural Electric Cooperatives, Texas A&M, University of Michigan, the Climate Policy Center, the National Commission on Energy Policy, and they continue to come in every day. So this is widely, widely supported.

So now I recognize Mr. Hall to present any remarks on the bill.

Mr. HALL. Mr. Chairman, I think I have pretty well expressed myself in the opening statement in that it creates another agency within DOE and is way, way, way too expensive.

I yield back.

Chairman GORDON. Does anyone else wish to be recognized? Yes, Mr. Rohrabacher.

Mr. ROHRABACHER. I am sorry. I haven't really studied the bill and I will have to admit that; and I will have to note that I disagree with my Ranking Member respectfully that the idea of just creating a new bureaucracy. I mean, that is—I think that this is just the opposite of that. I think it actually is a way to get around the bureaucracy and try to get some resources directly to some creative-thinking people. So I would be inclined to support your concept. I am interested in how we are going to pay for it and how much we are talking about here. Maybe you can enlighten us to where we are going to get the money and how much is going to be spent.

Chairman GORDON. Mr. Rohrabacher, I think that is a very fair question. First of all, you are correct. The idea is to get around the bureaucracy. This is a DARPA-type program. This is going to be a very thin program. I hope there is less than 100 people. They are going to subcontract this out to the private sector, the public sector, to national labs. You are going to have a program manager that is going to try to, you know, corral all this, and the purpose—the reason you want to get it out of the bureaucracy is—Mr. Ehlers can—he spoke to it eloquently the other day when he said, you know, a part of science research is failing. This is high risk, high reward. Some of these are going to fail. We expect them to fail. If you are in the Department of Energy and you fail, then you are in trouble. Here we want to take those risks. Just like the Internet, the developing Internet was a risk, developing stealth technology——

Mr. ROHRABACHER. Well, I agree with you on that but what about the money?

Chairman GORDON. Okay. The money—at the start of this session, I think it was maybe the fifth bill, I am not sure, there was a bill in Congress that has also I think passed the Senate that needs to be compromised or it needs to be conferenced that will do away with the tax breaks that were given to so-called Big Oil for additional drilling in the last Congress. The feeling was that with the price of oil as high as it is, they don't need additional incentives to go drilling, and I think that is several billion—I will ask the counsel, do you know how many billions of dollars that is?

Mr. COUNSEL. I believe it is scored at $14 billion roughly.

Chairman GORDON. That is $14 billion——

Mr. ROHRABACHER. Well, Mr. Chairman, that is the right answer because I happen to be one of the few Republicans who voted against those tax incentives that I didn't feel were necessary at a time of high profit as well. So that is the right answer.

Chairman GORDON. We have spoken directly with the Speaker about this. This is a high priority for her and again in the whole, you know, so many of the private sector. So we will be going into that trust fund for those—you know, that money. Now, again, in all honesty, when you get into bookkeeping, you know, I guess it is one pot or the other pot but that is where we intend to go for new money.

Mr. ROHRABACHER. Well, Mr. Chairman, I would feel more comfortable with this if it indeed was being taken out of the current bureaucracy and being fenced off, and I know a lot of people who would have just the opposite reaction. To me, it seems it makes more sense, but by and large, the idea about having a DARPA-like agency or DARPA-like effort in the Department of Energy is a sound idea. National security today depends on energy self-sufficiency and efficiency and I am going to be supportive of this concept and your legislation.

Ms. GIFFORDS. Mr. Chairman?

Chairman GORDON. Let me see if anybody from this side of the aisle wanted to comment.

Ms. Giffords, then we will go to you.

Ms. GIFFORDS. Thank you, Mr. Chairman. I just want to speak briefly and congratulate you and thank you for bringing this bill forward. As we head into the Memorial Day weekend, we see

record-high prices for gasoline, and what this piece of legislation does effectively is deal with three major issues that we face every day in southern Arizona, we face across our country: energy independence, making sure that we start investing in energy sources that are completely independent of foreign countries so that that we can be self-sustaining. The second area is global warming and we have heard testimony time and time again about how our planet is getting hotter, how we need to start investing in new types of technology, new energy systems that are going to be clean and that are not going to be releasing greenhouse gases. The third area is U.S. competitiveness. We need, as the *Rising Above the Gathering Storm* report talks about, to make sure that we are producing scientists and engineers and mathematicians so that we can complete in this global new economy. Where we are graduating 60,000 engineers, China graduates 600,000 engineers. So this piece of legislation, Mr. Chairman, pulls together some of the most pressing issues of our day and offers a solution that—and like you said, Mr. Chairman, some people will fail—but here we have a DARPA-like agency where engineers and scientists can be free to think totally outside the box and have that breakthrough Eureka moment that is so important if we need to, you know, change the way that, you know, we live on this planet. So Mr. Chairman, I am looking forward to voting for this bill. I want to thank you again for bringing it forward.

Chairman GORDON. Ms. Biggert.

Ms. BIGGERT. Thank you, Mr. Chairman. I just have a question. You talked about the fund of $14 million, I believe. Is there a provision in this bill which will allow access to that fund?

Chairman GORDON. I don't know.

Mr. HALL. Did you say billion or million?

Ms. BIGGERT. Billion. I think I said million but I meant billion.

Chairman GORDON. I don't know how you would have in an authorization any kind of language that would tap into an appropriation. We would like to do it. I wish we could, but I don't think that would be possible.

Ms. BIGGERT. Well, we seem to be doing this in the housing area where we have an affordable housing fund established. Couldn't we have a bill that would, if money is authorized, you take that money if it is appropriated by the appropriators.

Chairman GORDON. I don't think there is any way you can do that. I mean, if you—potentially if this was Ways and Means and going through Ways and Means, they might be able to go back to that tax provision but I don't think it is possible to do it with this type of authorization.

Ms. BIGGERT. What about the Highway Trust Fund?

Chairman GORDON. Well, we don't have authority over the Highway Trust Fund.

Ms. BIGGERT. No, I know, but this is similar. We actually authorized the money for the——

Chairman GORDON. The Transportation Committee does.

Ms. BIGGERT. Yes.

Chairman GORDON. But this is not——

Ms. BIGGERT. But isn't there a way to establish that this provision would be in this bill? Otherwise there is $14 billion there and then we are going to go for $6 billion someplace else?

Chairman GORDON. You know, the simple fact is, the fund isn't jurisdiction to us. What I would like to do is, we have a period of time between this bill now going to the Floor where we can have a manager's amendment, coming back in conference, and let me point out to you a similar bill had 67 co-sponsors on the Senate including McConnell and Reid, and passed there with less than ten opposition votes. But I would love to be able to find a way to guarantee these funds and we will be happy to work with you between now and the final date to do that, and it would be, as Ms. Giffords said, a Eureka moment if we can accomplish that. So we will work together and try to do so but I don't see how that can happen and I certainly don't have language for it——

Ms. BIGGERT. No, there is a fund that we have presently that the appropriators have tried to do away with and we have always made them aware how important it is. And that is a fund for scientists when they are working on a project and discover that what they were working on fails but they found something else and they can switch to that based on the funds that are available through that. It seems like there is some way that we could get this into the bill.

Chairman GORDON. Yeah, I would suggest that we work on that together and we will have a manager's amendment to accomplish that and we will have a duel Eureka if we can get that accomplished.

Ms. BIGGERT. Thank you. I yield back.

Mr. HALL. Will the gentlelady yield?

Ms. BIGGERT. Yes, I yield to the Ranking Member.

Mr. HALL. By the way, doesn't the Senate bill—it doesn't set up a new agency. That is half of my objection that they have cured for us, and it still costs more—and we are trying to follow the *Gathering Storm* recommendations. It still costs more than the *Gathering Storm* reported by $1.6 billion additional, and I have asked the gentlelady if she understands that this—and Professor Ehlers would understand that this practically and potentially takes away from basic research at the Office of Science which was also a priority of the *Gathering Storm* report. It is too much increase in a new agency. That is my basic objections to it.

Thank you, Mr. Chairman.

Chairman GORDON. If the gentlelady would yield just to respond to Mr. Hall. In response to his suggestion, we will have a manager's amendment that will reduce the authorizing level by $1.4 billion. Again in an effort to be responsive, I think there is going to be an amendment by Mr. Inglis that will provide protection for the Office of Science, again trying to make a good bill better.

Ms. BIGGERT. Reclaiming my time. I think that we will be speaking to that amendment, but I also have one that will increase the funding, or make sure that the Office of Science has full funding for the priority. I think that Mr. Inglis' amendment really sets a floor which Appropriations will look at and say that that is all that they have to fund in the Office of Science if his amendment is passed, but we will address that later.

I yield back.

Chairman GORDON. Does anyone else wish to be recognized?

Mr. BILBRAY. Mr. Chairman.

Chairman GORDON. Mr. Bilbray.

Mr. BILBRAY. Mr. Chairman, it is obvious that my dear colleague from California hadn't read the bill because I think he would see some of the red lights that we recognized when we made the mistake, or some people around here made the mistake, of creating what they thought would be the super-agency for homeland security. And that creating a new structure with a new name was somehow going to break through and create new answers, when in fact it created new problems. So I just ask my colleagues to look seriously at the issue. So often we are so quick as elected officials to want to put our name onto a new agency so we can say we created that agency. And I don't need to go down the list of how many agencies that we created that supposedly are going to educate our children, end poverty as we know it, secure our neighborhoods; and in reality we spend a lot of money on a structure and not on answers. I just think that too often that a comparison with DARPA is not appropriate at this level. DARPA has a guaranteed market, the United States Federal Government, when it produces a product. What you are proposing today, is the United States Government is going to be buying this energy or whatever product comes out of this agency. It is a whole different approach to this and I just ask that we at least have some peer review by the scientists about what does work or doesn't work. I mean, American Chemical Societies sat there and said that they saw the Office of Science that would be the vehicle that is underfunded right now by $500 million in unmet opportunities. Creating a new agency doesn't fulfill the scientific demand out there or the unmet opportunities just by hiring people to supervise another side of this issue. I yield back, Mr. Chairman, but I just wanted to raise my concerns on this issue.

Chairman GORDON. Would you yield to me?

Mr. BILBRAY. Yes, I would, Mr. Chairman.

Chairman GORDON. Thank you. You raised a lot of issues there. Let me try to address some of them. On the one hand, you say just giving more money doesn't solve problems. Well, if you think that the Department of Energy with doing the status quo right now is adequate, which is basically what you are arguing for, then everything is hunky-dory.

Mr. BILBRAY. Reclaiming my time.

Chairman GORDON. Sure.

Mr. BILBRAY. I am not saying that, Mr. Chairman. I am saying that creating a new separate section while you have the Office on Science and then expect this new section to tool up, create its whole bureaucracy, create internal protocols and then be able to respond is exactly the mistake we made with Homeland Security.

Chairman GORDON. I was going to get to that. So again, first of all I think there is an argument for status quo. The second thing is, you are absolutely correct about the Homeland Security Office. It was a mess, and we learned from that, and the reason it was a mess is, it was a part of the bureaucracy. ARPA–E is not going to be part of bureaucracy. It is going to report directly to the Secretary of Energy. It is going to be a DARPA model. It is going to

be a very thin little line and so work is going to be done outside of Washington, outside of the Department of Energy. You are going to have a program director that is going to be the maestro that is going to work with private sector, universities and labs to bring all this together. The whole idea is to take it out of the bureaucracy because the bureaucracy is not performing properly. The status quo is not getting the job done. This is going to be different than what they did in Homeland Security.

Mr. BILBRAY. Reclaiming my time, Mr. Chairman.

Chairman GORDON. Certainly.

Mr. BILBRAY. Look, the direction comes from up above, and the fact is, is that the priorities have been set by the Administration. Both the past Administration, which did everything to decommission zero generation, shut down hydroelectric, shut down—you know, basically defund ITER technology, which is exactly the kind of definition we are talking about, developing fusion. The previous Administration abandoned it. The present one didn't. You are not going to change that by creating a new structure with a new set of bureaucrats that are going to still be bureaucrats once you created them. And to think that extra layer is somehow going to get out from the administrative oversight, that is a challenge that we have to do to get both administrations, Democrats and Republicans, to focus on this. It is so easy to talk about process, that by creating a new agency, we will create a secret process or a new process that will change the outcome. It is the substance that leads to the outcome that matters and process be damned. I agree with you that the outcome has not been successful. I just don't think this vehicle will be the vehicle to get to the outcome that you are aiming for.

I yield back, Mr. Chairman.

Chairman GORDON. Thank you, sir. Your argument is for let us continue to do what we are doing and that is a fair argument, and if you want to support the status quo and you think that is getting the job done, you should oppose this bill. If you are not satisfied with status quo and you want a new approach, then we are going to try to make that available. So if it is all right with everyone—Mr. Ehlers?

Mr. EHLERS. Thank you, Mr. Chairman, just a brief word on this latest argument. I wouldn't hold up the Homeland Security Department as a good example for anything, and that is what my colleague is doing. He is holding it up as a bad example and it is simply because we took collection of a large number of different departments all filled with bureaucrats and threw them all in one pot and said okay, do your work. It just doesn't work well. The difference here is, we are not talking about having more bureaucrats. We are hiring scientists and turning them loose. I have always said the most effective way to get good results is hire the best scientists, give them enough money to work with, close the door and walk away and let them do their work because you get the most productivity, the brightest ideas at that point. So I don't think that the analogy of Homeland Security is valid at all. This will be a separate agency. It can be destroyed by over-administration. I think to a certain extent that has happened to the Department of Energy over the years. It has always been a stellar agency but it has been

mismanaged during the past—well, during the decade of the 1990s, let us say. But this gives us an opportunity to try a different approach with a separate but integrated agency and I think it is certainly an experiment worth doing. We will know in a decade whether or not the experiment is working and at that time our successors can make a judgment as to whether or not it should continue.

I yield back.

Chairman GORDON. Thank you, Dr. Ehlers.

I know to be courteous to Members, there are several markups going on and folks have other things to do today so I am going to ask unanimous consent that this bill is considered as read and open to amendments at any point and that Members proceed with the amendments in the order of roster. Without objection, so ordered.

The first amendment on the roster is the manager's amendment to the bill. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 364——

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

I recognize myself for five minutes to explain the amendment. This amendment makes a series of perfecting changes in our efforts to move the best bill possible out of the Committee. These changes are based upon discussion during the Subcommittee markup and discussion that we have had over the past two weeks. First, there are several changes to address the issues related to hiring authority of the director and the selection of the talented individuals to serve as program managers and staff. Having the right staff is critical to the success of ARPA–E. This is intended to be a lean operation. Nothing in the amendment alters that goal. The amendment gives the director discretion to hire technical, financial and managerial staff in addition to the program managers. The amendment also specifies that the Director should look toward academia in addition to private industry and former DARPA staff in making selections for the initial staff of ARPA–E. Furthermore, the amendment recognizes that the Director is not expected to know the universe of talented individuals capable of functioning as technical staff of ARPA–E and therefore may contract with outside firms specializing in recruiting such talent. The amendment also provides some technical corrections and program clarifications related to the authority of the program managers. As I have stated before, ARPA–E is to be a lean, responsive organization with the freedom to pursue high-risk, high-payoff research. The amendment clarifies the program manager's role in this process. The amendment also clarifies the program manager's authority and responsibility to recommend the termination of any project that does not show promise. However, only the person authorized to enter into contracts has the legal authority to terminate that contract. The amendment also changes the name of the fund set up in this bill to reflect the evolution of thought since the bill was first written in 2005. We are now focused on transforming the energy sector for reasons beyond just energy independence. The amendment drops the final year of the authorization to change the bill from a six-year to a five-year authorization. The bill reduces the overall cost of H.R. 364 by $1.4 billion.

Finally, in response to concerns expressed by a number of committee Members, the advice of outside parties and witnesses' testimony at the Subcommittee hearing, this amendment drops the recruitment section of the bill.

I think this is a noncontroversial amendment which further perfects the bill, and I urge my colleagues to support its adoption.

Mr. HALL. Mr. Chairman, I see the manager's amendment strives to make some improvements to the bill. I am still not comfortable with the structure of the underlying bill. I still agree with the Senate that it does not set up a new agency, as you do, and the amendment money-wise, I think you would wind up with $4.9 billion and the amendment I will send up is $750 million. There is quite a difference there, and I think we both are trying to pattern as much as we can after the *Gathering Storm* reports that Norm Augustine wrote, and I believe that yours is $1.6 billion more than the *Gathering Storm* report requested, substantially more, and for that reason I object to it.

Chairman GORDON. Thank you, Mr. Hall. I think we take care of your number figure in this manager's amendment. We reduce the authorization by $1.4 billion, and we think there are many Members on both sides of the aisle that made recommendations that have been incorporated into this manager's amendment.

Mr. HALL. I will wait right here and watch.

Chairman GORDON. If there is no further discussion on the amendment, the vote is on the amendment. All in favor, say aye. Those opposed, say no. The ayes have it. The amendment is agreed to.

The second amendment on the roster is an amendment in the nature of a substitute offered by the gentleman from Texas, Mr. Hall. Are you ready to proceed with your amendment?

Mr. HALL. I have an amendment at the desk, Mr. Chairman.

Chairman GORDON. The Clerk will report the amendment.

The CLERK. Amendment in the nature of a substitute to H.R. 364 offered by Mr. Hall of Texas, Mr. Gingrey of Georgia and Mrs. Biggert of Illinois.

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

The gentleman is recognized for five minutes to explain the amendment.

Mr. HALL. Mr. Chairman, there seems to be a consensus that the types of projects ARPA–E would engage in would be beneficial to addressing our country's ongoing energy supply needs but I think we tend to diverge when we look to find out how to implement these projects. Chairman Gordon's bill would create a new bureaucracy within the Department of Energy that would oversee ARPA–E. I don't feel that this is the best way to do this rather than jumping right into the idea that it has a one-and-one record. In the first place, DARPA, DOD was considered a success and the other one ARPA, Homeland Security, as suggested by the gentleman from California, was considered a failure. So rather than jumping right into an idea that has a one-and-one or an even and even record, I feel that we really need to approach this with a little more caution and skepticism before throwing $4.9 billion into an unknown. Now, some are going to argue that we don't have time to wait and

study the idea but I disagree with that. The DOE is a $23 billion agency that is currently conducting research in all areas that H.R. 364 directs ARPA–E to address; so to take a step back and say let us make sure that this is the right thing to do before committing billions of taxpayer dollars I think makes some sense. The Hall-Gingrey-Biggert substitute amendment recognizes while the Department of Energy has the authority to promote technology transfer of basic and applied research, there is a need to more quickly identify opportunities to accelerate the commercial application of new energy technologies to meet our national energy needs as well. Also a more fully integrated approach to advanced energy research is going to help bridge the gap between basic research and applied technology to overcome long-term and high-risk barriers to the development of advanced energy technologies with an eye toward fiscal conservatism. My substitute is conditioned on the section 1821 study in EPAct. This was the study that required DOE to look at "best practices" management at the Department of Energy including DARPA to DOE. I have sent, by the way, the Secretary a letter to complete this study, and I had 12 of my colleagues here join with us. The substitute amendment does not create a new agency but requires the Secretary to use his existing authority coupled with the newly established DARPA hiring authority to undertake ARPA-type projects. It authorizes $750 million, not $4.9 billion, over five years for the Secretary to carry out the projects and requires the Secretary to report to Congress on their status. So it also allows the Secretary to coordinate with other agencies on advanced energy projects, directs the Secretary to coordinate with the to-be-appointed technology transfer coordinator, allows the Secretary to award prizes for achievement under an advanced energy research project, and establishes cost sharing according to the *Energy Policy Act of 2005*.

I think this substitute amendment is sensible. I think it is a responsible alternative to the underlying bill and I urge my colleagues to support it.

I yield back, sir.

Chairman GORDON. Mr. Gingrey is recognized.

Mr. GINGREY. Mr. Chairman, thank you, and I rise to support the Hall-Biggert-Gingrey amendment. I think the idea of ARPA–E certainly has merit and I can understand how it came forward. You know, it is sort of interesting how we come up with acronyms and the acronym DARPA sounds good, has a good ring to it, but if we followed that line, then this new agency would be called EARPA. We decided to name it ARPA–E, which sounds a little bit better. The one in the Homeland Security Department, I guess we could call that HARPA. That doesn't have a real good ring to it and it wasn't very successful.

But I agree with the Ranking Member, Mr. Hall, in regard to creating yet another expensive agency within the Department of Energy when, as he pointed out, we are talking about a $23 billion agency which really right now I think is working. The Department of Energy with its Secretary, Sam Bodman, chemical engineer by training, someone that is running a good department, and the Office of Science within the Department of Energy I think is probably the place where this kind of activity should be under the existing

funding. And there is a recent letter, Mr. Chairman, you are familiar with it, from the American Chemical Society, of which I am a member as a graduate of Georgia Tech with a Bachelor of Science in chemistry, but I just believe that the Ranking Member hit the nail right on the head in regard to this. It sounds good but it is growing the government. It is unnecessary. It is duplication. Instead of really being ARPA–E and sounding good, we ought to call it EARPA and reject it, so I yield back my time.

Chairman GORDON. Ms. Biggert is recognized.

Ms. BIGGERT. Thank you. Move to strike the last word. Thank you, Mr. Chairman. I know how hard you worked on this. And I think we all agree that this project is very important. Research and development is very important. And I think really the only difference that we are really talking about is whether to have it in the Department of Energy or have it as a separate agency. And I think that over the years you have been on this committee, and I have been on this committee, we have really worked to improve the Department of Energy. There is—I would like to just read a couple words from a hearing that was held last year, March of 2006, Dr. David Mowery testified from the University of California at Berkeley and talking about proposals for expanded R&D in energy, in alternative energy. He said, "We are very positive." He served on the National Academy of Science panel that assessed the value of DOE investments in alternative energy and energy conservation and energy efficiency programs, and the consensus was that the returns of these investments were positive and the Committee felt that the Department of Energy had overall done an effective job of managing these. And I think that probably is true but I think that they can do better and we can do better. And I think to bring it back to the Department, I think we worked on improving the Office of Science to be the research and development arm as the starting point there. And they have always worked with outside groups, and I think to put it in there would be a benefit to have improvement. You know, I worked on GNEP and was very frustrated with the Department when they wouldn't do a systems analysis to really get the nuclear program going, and we argued about that. So I think there is a lot of room. But I hate to see everybody saying how bad the Department of Energy has done and the Office of Science because I think if we look back, I remember going to Argonne with the Secretary of Energy, Spencer Abraham, and looking at the fuel cell that was being developed for the hydrogen cars. And it was a big fuel cell and he said how fast can you reduce that so that we can put it into a car, and I have since then driven a hydrogen car. So I think all the things are there. We just need to have the oversight and to have a program like this that they can use. You know, we changed the title from the Director of Office of Science to the Under Secretary to give that top priority, and here I think we are not ignoring the problem. I mean, we are not for status quo. It is really imperative that all of us, with the global economy and global competition, that we move with expeditious means. I just—I think, you know, the only difference I see is that to take it out of the Department of Energy where they have been moving and we have given them more direction and we can proceed expeditiously that way.

With that, I yield back, but I support the——

Chairman GORDON. If the gentlelady would yield, I just—once again, there are not good guys and bad guys here. There are just two different opinions. If you are for status quo, then you should support Mr. Hall's amendment, and if you are not, you should oppose it, and we are not taking it out of the Department of Energy. We are taking it out of the Department of Energy's bureaucracy. It reports directly to the Secretary of Energy. So it is still within the Department of Energy. And if I could make one final point, part of the amendment best illustrates why we need to have a change. A part of this amendment suggests that the Department of Energy should have a study to determine whether or not this is a good idea. Well, in July of 2005, we passed legislation that required the Department of Energy to have a study, return it within 18 months of whether this should be done. That study was done January of 2007 and we still don't have it. I mean, that is the best argument for getting it out of the Department of Energy. They can't even do a study. So again, there are not good guys or bad guys, there are just two views, and I yield back.

Ms. BIGGERT. You know, the "it is time for a change" worked in a broader sense for you on the other side of the aisle last year but I do think that we are really—we are not ignoring the problem, we are not for the status quo. We all want to work to ensure that the Department of Energy moves forward and the Senate has said that it could be within the Department of Energy so maybe we will come back to discuss this again but I would yield to Mr. Bilbray.

Mr. BILBRAY. Yes, Mr. Chairman——

Chairman GORDON. Just to get us in the right—I think your time is—and I have been part of it—is more than expired. Let me——

Ms. BIGGERT. I yield back.

Chairman GORDON. Let us recognize Mr. Bilbray to strike the last word and be on his on time there.

Mr. BILBRAY. Strike the last word.

Chairman GORDON. The gentleman is recognized.

Mr. BILBRAY. Mr. Chairman, I just think in all fairness that the characterization that anyone who opposes this bill is for the status quo, I think it is inappropriate and unfair. I think that we have to recognize that there are many different approaches to how we move forward with the energy independence issue and that just because someone may not agree with the Chair's bill here doesn't mean that they do not want to move forward and do not want to try new things. I just think it is quite unfair to say it is either status quo, the way it is now or my way and my way is the only way to change things. And I think that is—and I think even the Chair will recognize that is an unfair characterization. I think that what we have is a proposal here to create a new vehicle, new structure and think that it will get on operation and be more effective earlier than the science department over there is able to move forward with their agenda. And if you think that you can create a new agency or new structure and be able to move forward before the existing structure can tool up and move forward with a new approach, that is the difference we have here. But I just think it is unfair to say that it is so cut and dry that there are those who want nothing done and those who are on my side.

I yield back, Mr. Chairman.

Chairman GORDON. Mr. Hall is recognized.

Mr. HALL. Mr. Chairman, it is not a status quo. We are directing the Department to do ARPA–E projects. I think we go really more out of the status quo than you do in that we direct them to. I have read your instructions to them. I may be wrong but I don't find in yours where you use the word "shall." Maybe you do, but we clearly do. You can't say that we are only status quo when we have, "Initial project not later than 270 days after the date of enactment of this act that the Secretary shall designate up to two ARPA–E projects for funding." That is shall. That is a direction to them. That is not status quo. You may have some shalls. I just quickly looked over them but your shalls aren't as strong as my shalls. Mine are in capital letters and red and ugly. And one of the few things I agree with the Senate on is, we don't need a new agency within the Department of Energy, and go ask the Department of Energy what they think about having this within their department there to do battle with. I don't think you will find anybody over there for it. That doesn't make it good or bad but those are the facts. And we set up as much funds as needed to carry out the purpose. We didn't set up—the Senate has that. Well, I am with the Senate now and it is unusual for me to be for the Senate. This is not status quo. It is just not as much money by a long shot that you are suggesting to put into the Department of Energy and the Senate is going to knock it off just as quickly as it gets over there.

Chairman GORDON. Thank you, sir. I will just point out, it may not have been a big hairy "shall" but the Department of Energy was told that it shall contract to have a study on whether or not there should be something similar to ARPA–E that was supposed to have been presented in the "shall" sense to Congress in January 2007. They have never even contracted it out. So, you know, shalls, you have to do more than shalls.

Mr. HALL. That is the reason we sent the letter to them, Mr. Chairman.

Mr. ROHRABACHER. Mr. Chairman?

Chairman GORDON. Mr. Rohrabacher is recognized for five minutes.

Mr. ROHRABACHER. Let me again note that I think that your basic concept is correct and that ARPA–E concept is something that might be very beneficial as compared to the way the setup is now at the Department of Energy. You have made the argument that this is still part of the Department of Energy. Let me note, however, that your argument about the status quo not working and those hesitant about your idea, if your position is that the status quo is not working as it should be at the Department of Energy in terms of energy development, we should be taking the funds from that status quo that is not working and using that as the basis for a restructuring rather than trying to, you know, just bring in other funds when your position is that the current funds being spent in the status quo are not working. So while I am supporting your concept, again I am very concerned about the redirection of funds when you by your very premise are suggesting that the current funds are not being put to best use.

Mr. HALL. Will the gentleman yield?

Mr. ROHRABACHER. I certainly would.

Mr. HALL. And you are aware of the fact that authorization in my amendment, in our amendment here, that we authorize $750 million over five years for ARPA–E projects at DOE. Theirs is $4.9 billion without saying exactly where it is going to come from, and the Senate, probably more sensible than either of us, has said that they authorized so much funds as needed to carry out their purposes and at that time as they are needed they have to relegate or designate where those funds are coming from. That is what you are asking for and that is what you are not getting.

Mr. ROHRABACHER. And again, the idea of having ARPA–E is certainly I believe the correct idea but if we are going to restructure because the current system is not working, that is where we should be getting the funds from, that system that is not working.

Chairman GORDON. If there is no further—oh, excuse me.

Mr. AKIN. Could the gentleman yield for just one additional thought, Mr. Rohrabacher?

Mr. ROHRABACHER. Sure.

Mr. AKIN. It seems to me that if we have got an agency that is not doing what they ought to do, if we give them a whole lot more money, we are kind of rewarding them for doing what we don't want them to do and I think what you are saying makes a certain amount of sense. Let us take the money out of the Department and put it where it is going to do some good. If we have already told them they shall do a report and they haven't done it, then I say let us take their funding and put it into something that will do it, but let us not reward them by doubling their funding. Thank you.

Chairman GORDON. If there is no further discussion on the amendment, then all in favor say aye. Aye. Oh, excuse me, no. Let me start over, Mr. Hall, so there will be no confusion. All in favor of the amendment say aye. Opposed, say no. No. The no's seem to have it.

Ms. BIGGERT. Mr. Chairman, I would request a recorded vote.

Chairman GORDON. The Clerk will call the roll.

The CLERK. Chairman Gordon.

Chairman GORDON. No.

The CLERK. Chairman Gordon votes no. Mr. Costello.

Mr. COSTELLO. No.

The CLERK. Mr. Costello votes no. Ms. Johnson.

[No response.]

The CLERK. Ms. Woolsey.

Ms. WOOLSEY. No.

The CLERK. Ms. Woolsey votes no. Mr. Udall.

Mr. UDALL. No.

The CLERK. Mr. Udall votes no. Mr. Wu.

Mr. WU. No.

The CLERK. Mr. Wu votes no. Mr. Baird.

Mr. BAIRD. No.

The CLERK. Mr. Baird votes no. Mr. Miller.

[No response.]

The CLERK. Mr. Lipinski.

Mr. LIPINSKI. No.

The CLERK. Mr. Lipinski votes no. Mr. Lampson.

Mr. LAMPSON. No.

The CLERK. Mr. Lampson votes no. Ms. Giffords.
Ms. GIFFORDS. No.
The CLERK. Ms. Giffords votes no. Mr. McNerney.
Mr. MCNERNEY. No.
The CLERK. Mr. McNerney votes no. Mr. Kanjorski.
[No response.]
The CLERK. Ms. Hooley.
Ms. HOOLEY. No.
The CLERK. Ms. Hooley votes no. Mr. Rothman.
Mr. ROTHMAN. No.
The CLERK. Mr. Rothman votes no. Mr. Honda.
[No response.]
The CLERK. Mr. Matheson.
Mr. MATHESON. No.
The CLERK. Mr. Matheson votes no. Mr. Ross.
Mr. ROSS. No.
The CLERK. Mr. Ross votes no. Mr. Chandler.
Mr. CHANDLER. No.
The CLERK. Mr. Chandler votes no. Mr. Carnahan.
Mr. CARNAHAN. No.
The CLERK. Mr. Carnahan votes no. Mr. Melancon.
Mr. MELANCON. No.
The CLERK. Mr. Melancon votes no. Mr. Hill.
Mr. HILL. No.
The CLERK. Mr. Hill votes no. Mr. Mitchell.
Mr. MITCHELL. No.
The CLERK. Mr. Mitchell votes no. Mr. Wilson.
Mr. WILSON. No.
The CLERK. Mr. Wilson votes no. Mr. Hall.
Mr. HALL. Yes.
The CLERK. Mr. Hall votes aye. Mr. Sensenbrenner.
[No response.]
The CLERK. Mr. Lamar Smith.
[No response.]
The CLERK. Mr. Rohrabacher.
Mr. ROHRABACHER. Reluctantly, no.
The CLERK. Mr. Rohrabacher votes no. Mr. Bartlett.
Mr. BARTLETT. No.
The CLERK. Mr. Bartlett votes no. Mr. Ehlers.
Mr. EHLERS. Also reluctantly no.
The CLERK. Mr. Ehlers votes no. Mr. Lucas.
[No response.]
The CLERK. Mrs. Biggert.
Ms. BIGGERT. Aye.
The CLERK. Mrs. Biggert votes aye. Mr. Akin.
Mr. AKIN. Aye.
The CLERK. Mr. Akin votes aye. Mr. Bonner.
Mr. BONNER. Aye.
The CLERK. Mr. Bonner votes aye. Mr. Feeney.
Mr. FEENEY. Aye.
The CLERK. Mr. Feeney votes aye. Mr. Neugebauer.
Mr. NEUGEBAUER. Aye.
The CLERK. Mr. Neugebauer votes aye. Mr. Inglis.
[No response.]

The CLERK. Mr. Reichert.
Mr. REICHERT. Aye.
The CLERK. Mr. Reichert votes aye. Mr. McCaul.
Mr. MCCAUL. Aye.
The CLERK. Mr. McCaul votes aye. Mr. Diaz-Balart.
Mr. DIAZ-BALART. Aye.
The CLERK. Mr. Balart votes aye. Mr. Gingrey.
Mr. GINGREY. Aye.
The CLERK. Mr. Gingrey votes aye. Mr. Bilbray.
Mr. BILBRAY. Aye.
The CLERK. Mr. Bilbray votes aye. Mr. Adrian Smith.
Mr. SMITH. Aye.
The CLERK. Mr. Adrian Smith votes aye.
Chairman GORDON. Is there anyone who did not have an opportunity to cast a vote? Mr. Inglis.
Mr. INGLIS. No.
The CLERK. Mr. Inglis votes no.
Chairman GORDON. The Clerk will report the vote.
The CLERK. Mr. Chairman, 12 Members vote aye and 24 Members vote no.

COMMITTEE ON SCIENCE AND TECHNOLOGY

ROLL CALL #1 BILL H.R. 364 DATE 5/23/2007

AMEND # 2 PASSED ___ DEFEATED ✓ VOICE VOTE ___ WITHDRAW ___

SPONSOR/AMENDMENT Hall, Gingrey, Biggert

MEMBER	AYE	NO	PRESENT	NOT VOTING
Mr. GORDON, Chairman		✓		
Mr. COSTELLO		✓		
Ms. JOHNSON				
Ms. WOOLSEY		✓		
Mr. UDALL		✓		
Mr. WU		✓		
Mr. BAIRD		✓		
Mr. MILLER				
Mr. LIPINSKI		✓		
Mr. LAMPSON		✓		
Ms. GIFFORDS		✓		
Mr. McNERNEY		✓		
Mr. KANJORSKI				
Ms. HOOLEY		✓		
Mr. ROTHMAN		✓		
Mr. HONDA				
Mr. MATHESON		✓		
Mr. ROSS		✓		
Mr. CHANDLER		✓		
Mr. CARNAHAN		✓		
Mr. MELANCON		✓		
Mr. HILL		✓		
Mr. MITCHELL		✓		
Mr. WILSON		✓		
Mr. HALL	✓			
Mr. SENSENBRENNER				
Mr. LAMAR SMITH, TX				
Mr. ROHRABACHER		✓		
Mr. BARLETT		✓		
Mr. EHLERS		✓		
Mr. LUCAS				
Mrs. BIGGERT	✓			
Mr. AKIN	✓			
Mr. BONNER	✓			
Mr. FEENEY	✓			
Mr. NEUGEBAUER	✓			
Mr. INGLIS		✓		
Mr. REICHERT	✓			
Mr. McCAUL	✓			
Mr. DIAZ-BALART	✓			
Mr. GINGREY	✓			
Mr. BILBRAY	✓			
Mr. ADRIAN SMITH, NE	✓			
Vacant				
TOTALS				

Mr. Chairman, 12 Members vote AYE and 24 vote NO

43 / Quorum /15 vote / 22 Report
Revised 5/16/07

Chairman GORDON. The motion is not agreed to.

The third amendment on the roster is offered by the gentleman from South Carolina, Mr. Inglis. I think he just—oh, there he is. Okay. Mr. Inglis, do you need to have yours moved further down? Okay. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 364 offered by Mr. Inglis of South Carolina.

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without further objection, so ordered.

The gentleman is recognized for five minutes to explain his amendment.

Mr. INGLIS. Thank you, Mr. Chairman. I am in between two markups so hopefully this can work.

This amendment is designed to do a couple things to hopefully improve the bill, and we have had discussions with the Chairman's staff about this, and I very much appreciate the Chairman's openness to work to address some concerns we have had, and the amendment addresses three major concerns. One is protecting the existing research in the Office of Science, second is protecting ARPA–E from earmarks, and third is finding a way to clarify how ARPA–E will overcome the valley of death tech transfer issue.

So that first item, the amendment provides at least one year of protection for existing funding levels for the Office of Science, basically providing that no funds can be initially given for ARPA–E unless authorized funds for the Office of Science are at fiscal year 2007 appropriated levels plus the inflation rate. So the concept there is ARPA–E can be funded but only after the Office of Science is funded at least fiscal year 2007 levels plus inflation. So the first year that ARPA–E would exist, the test is whether the Office of Science has been funded. If it has been funded at fiscal year 2007 plus inflationary rate, then ARPA–E can receive funds. So that is the first goal, to protect the existing research of the Office of Science.

The second is to protect ARPA–E from earmarks and what we have done in this amendment is, it directs the program managers of ARPA–E to select projects "on the basis of merit" with advice from the advisory committee where appropriate. So legislatively protecting against earmarks is difficult but this review approach has succeeded in keeping the Advanced Technology Program, ATP, completely free from earmarks for the past ten years and so hopefully it will work in the case of ARPA–E.

The third goal we had here was finding a way to clarify how ARPA–E would overcome the valley of death issues and so what we provide for is a minimum of two and one-half percent allocation for tech transfer and outreach activities and in addition applicants for ARPA–E projects must consider future commercial applications of the project including how commercial entities could be included to help increase market application technology.

So those three changes are what is in the amendment and I would urge my colleagues to accept the amendment as an improvement of ARPA–E.

Chairman GORDON. The question is raised, or the gentleman raised these questions at the Subcommittee markup. They were very constructive. We worked in a way to try to accomplish that.

Again, you have made a good bill better and I recommend passage of this amendment.

Ms. BIGGERT. Mr. Chairman?

Chairman GORDON. The gentlelady is recognized.

Ms. BIGGERT. I move to strike the last word.

Chairman GORDON. The gentlelady is recognized for five minutes.

Ms. BIGGERT. I thank the Chairman. I am sorry to say that I strongly oppose this amendment by my colleague. While it purports to protect the DOE Office of Science for at least one year, I actually think it does no such thing, and that is really why I take issue with this amendment. The amendment says we should fund ARPA–E before we fund the DOE Office of Science—or that we should fund DOE before ARPA–E. I will give my colleague that much but where does it set the bar? It sets the bar at the level of the fiscal year 2007 budget for DOE Office of Science plus inflation, and inflation is currently somewhere between two and three percent, I think. So this sets the bar so low that if you are not looking down, you will trip over it. I think that as part of his American competitive initiative, the President has proposed to double the funding for DOE Office of Science over ten years. In his fiscal year 2007 budget request for the Office of Science, the President requested a 14 percent increase. Congress didn't give it to him so we are already behind. He requested a 16 percent increase in fiscal year 2008. Whether or not Congress will provide that increase remains to be seen, and I certainly hope we would, especially under the leadership of our colleagues on the other side of the aisle, that we would fund it. As part of their innovation agenda, they have advocated doubling the budget for DOE Office of Science in half the time that the President has proposed. So in fiscal year 2007, if Congress provides the DOE Office of Science only an inflationary increase and then starts funneling money into the new ARPA–E bureaucracy, that is sure not likely to fund much research in year one. So I think that this Congress would have failed miserably, and we will have failed to live up to our commitment to fund the ACI, our Democratic colleagues will have failed to live up to their innovation agenda and we will have failed to adequately fund research in the physical sciences.

I have been one of the strongest advocates for the DOE Office of Science since being elected to Congress in 1998, and why? Well, because when I arrived at Congress, I learned very quickly how much we underfunded basic research in the physical sciences. Between 1994 and 2003, spending on research in the physical sciences shrank from 50 percent to less than 40 percent of the total federal R&D spending as Congress put more money into the life sciences. During roughly that same period, the DOE Office of Science, the Nation's primary supportive research in the physical sciences, funding over 40 percent of basic research in the physical sciences, more than any other federal agency, had received flat funding. But in constant dollars, its budget has been reduced by roughly 13 percent. Unfortunately, the research itself had been mostly impacted since the cost to maintain existing facilities and their associated staffs continued to rise with inflation. Only in recent years have we made some progress filling this hole. But we won't see real

progress until we provide the increases outlined in the President's ACI and the Democrats' innovation agenda. These are the increases that the Augustine committee heartily endorsed and clearly were a greater priority than ARPA–E. Increasing the Office of Science budget by the rate of inflation just won't cut it and it shouldn't be where we set the bar for ARPA–E. I strongly urge my colleagues to oppose the amendment.

I yield back the balance——

Mr. HALL. Will the gentlelady yield before she yields back?

Ms. BIGGERT. I will yield to the Ranking Member.

Mr. HALL. Is it your position that there is no adequate protection for the Office of Science in that they provide for only one year in the threshold for funding?

Ms. BIGGERT. Are you asking me or Mr. Inglis?

Mr. HALL. Yes. Is that your position?

Ms. BIGGERT. That is my position.

Mr. HALL. And do you not have an amendment a little bit later that addresses this?

Ms. BIGGERT. Yes, I do.

Mr. HALL. Okay. I don't think we ought to—I don't like the concept of tying the hands of the Director or the Secretary of Energy and I object to the amendment. I ask the Committee to vote no.

Chairman GORDON. If there is no further discussion, the vote will be on the amendment. All in favor, say aye. Aye. Those opposed, say no. The ayes have it.

The fourth amendment on the roster—let us see—is from the gentlelady, Ms. Biggert. Are you skipping number four and going on to a later amendment, Ms. Biggert?

Ms. BIGGERT. I am skipping number four and going to number five.

Chairman GORDON. Okay. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 364 offered by Mrs. Biggert of Illinois.

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

The gentlelady is recognized for five minutes to explain her amendment.

Ms. BIGGERT. Thank you, Mr. Chairman. Let me make sure I have the right one here.

Okay. My amendment is very straightforward. It simply requires that Congress fully fund the Department of Energy's Office of Science before spending billions of dollars on a new, untested ARPA–E.

I wish I could say that I came up with this idea, but I didn't. Instead, the idea came directly from the Augustine Committee, the group responsible for writing the National Academy of Science *Gathering Storm* report on which the bill before us today is based, purportedly.

In testimony before this committee in the 109th Congress, the only representative of the Augustine Committee to testify before this committee on ARPA–E concepts said, "In funding ARPA–E, it is critical that this funding not jeopardize the basic research supported by the Department of Energy's Office of Science. The Committee's recommendations are priorities, and its top recommenda-

tion in the area of research is to increase the funding of basic research by 10 percent per year over the next seven years. The Augustine Committee applauds the Administration's American Competitiveness Initiative, particularly the courageous efforts of the Secretary of Energy, Samuel Bodman, to make basic research activities a high priority in the Department of Energy budget. The Augustine report strongly recommends the support of ARPA–E come from new funding." That was the testimony of Dr. Stephen Chu on behalf of the Augustine Committee. I don't think it can get any clearer than that.

Supporting over 40 percent of the total federal funding for basic research in the physical sciences, more than any other federal agency. The DOE Office of Science is the Nation's primary supporter of research in the physical sciences. The Office of Science has led the way in creating a unique system of large-scale specialized user facilities for scientific discovery. The collection of cutting edge one-of-a-kind tools makes the Office of Science a unique and critical component of the Federal Science Portfolio.

Other federal science agencies, such as the National Institutes of Health and the National Science Foundation, greatly depend upon these Office of Science facilities in carrying out their own research activities. Under the President's fiscal year 2008 budget, 21,500 researchers would have access to these DOE facilities. Nearly half of those users will be university faculty and students. Many will be from other federal agencies, and a significant number will be from U.S. industry.

Recognizing the importance and contributions of the DOE Office of Science, President Bush made doubling its budget one of the pillars of the ACI. And my democratic colleagues, as I said before, made it a similar priority in their innovation agenda, proposing to double its funding in half the time that President Bush had proposed. But it was this committee that recognized the crucial role that the Office of Science played in our Federal Research Portfolio, long before it became part of any initiative or agenda of either party. This Committee unanimously approved the provisions that became Title 9 of the *Energy Policy Act of 2005,* including a provision that became Section 971 and authorized significant budget increases for the DOE Office of Science. Congress approved these increases with broad bipartisan support, and they are now law.

My amendment simply says that we should live up to the current law first; law we made in this committee. We have been told by the supporters of this bill that it is consistent with the recommendations of the Augustine Committee. We have also been told that the funding for ARPA–E will be new funding. We have heard this over and over, and in a recent hearing on ARPA–E, during the Subcommittee markup of this bill, and again today.

Well, if my colleagues who support the bill are being honest with those of us who are skeptical that there are billions of dollars in new money to create another bureaucracy within the DOE, then they should support this amendment. By supporting this amendment, we are not saying we shouldn't create ARPA–E; rather, by supporting this amendment we are voting to reaffirm the priorities established in the Augustine report. We are voting to make federal funding for basic research a priority over funding for an idea to cre-

ate a new bureaucracy. By supporting this amendment, we are voting to ensure that money for this new bureaucracy doesn't come at the expense of our basic research programs. It is a simple decision, really. What are our priorities?

So I urge adoption of the amendment and yield back the balance of my time.

Chairman GORDON. Very briefly, the gentlelady's good faith amendment would require that the Office of Science have a 20.5 percent increase next year, 20.5 percent increase before ARPA–E can take effect. That is simply not realistic, and is a killer amendment for this bill.

If there is no further discussion, the vote will be on the amendment. All in favor, say aye. Those opposed, say no. The nos have it.

Ms. BIGGERT. Mr. Chairman, I would ask for a role call vote.

Chairman GORDON. The Clerk will call the roll.

The CLERK. Chairman Gordon.

Chairman GORDON. No.

The CLERK. Chairman Gordon votes no. Mr. Costello.

Mr. COSTELLO. No.

The CLERK. Mr. Costello votes no. Ms. Johnson.

Ms. JOHNSON. No.

The CLERK. Ms. Johnson votes no. Ms. Woolsey.

[No response]

The CLERK. Mr. Udall.

Mr. UDALL. No.

The CLERK. Mr. Udall votes no. Mr. Wu.

[No response]

The CLERK. Mr. Baird.

Mr. BAIRD. No.

The CLERK. Mr. Baird votes no. Mr. Miller.

[No response]

The CLERK. Mr. Lipinski.

Mr. LIPINSKI. No.

The CLERK. Mr. Lipinski votes no. Mr. Lampson.

Mr. LAMPSON. No.

The CLERK. Mr. Lampson votes no. Ms. Giffords.

[No response]

The CLERK. Mr. McNerney.

Mr. MCNERNEY. No.

The CLERK. Mr. McNerney votes no. Mr. Kanjorski.

[No response]

The CLERK. Ms. Hooley.

Ms. HOOLEY. No.

The CLERK. Ms. Hooley votes no. Mr. Rothman.

Mr. ROTHMAN. No.

The CLERK. Mr. Rothman votes no. Mr. Honda.

Mr. HONDA. No.

The CLERK. Mr. Honda votes no. Mr. Matheson.

Mr. MATHESON. No.

The CLERK. Mr. Matheson votes no. Mr. Ross.

The CLERK. Mr. Chandler.

Mr. CHANDLER. No.

The CLERK. Mr. Chandler votes no. Mr. Carnahan.

[No response]
The CLERK. Mr. Melancon.
[No response]
The CLERK. Mr. Melancon.
Mr. MELANCON. No.
The CLERK. Mr. Melancon votes no. Mr. Hill.
Mr. HILL. No.
The CLERK. Mr. Hill votes no. Mr. Mitchell.
Mr. MITCHELL. No.
The CLERK. Mr. Mitchell votes no. Mr. Wilson.
Mr. WILSON. No.
The CLERK. Mr. Wilson votes no. Mr. Hall.
Mr. HALL. Aye.
The CLERK. Mr. Hall votes aye. Mr. Sensenbrenner.
[No response]
The CLERK. Mr. Lamar Smith.
[No response]
The CLERK. Mr. Rohrabacher.
[No response]
The CLERK. Mr. Bartlett.
Mr. BARTLETT. No.
The CLERK. Mr. Bartlett votes no. Mr. Ehlers.
Mr. EHLERS. Yes.
The CLERK. Mr. Ehlers votes aye. Mr. Lucas.
[No response]
The CLERK. Mrs. Biggert.
Ms. BIGGERT. Aye.
The CLERK. Mrs. Biggert votes aye. Mr. Akin.
Mr. AKIN. Yes.
The CLERK. Mr. Akin votes aye. Mr. Bonner.
Mr. BONNER. Aye.
The CLERK. Mr. Bonner votes aye. Mr. Feeney.
[No response]
The CLERK. Mr. Neugebauer.
Mr. NEUGEBAUER. Aye.
The CLERK. Mr. Neugebauer votes aye. Mr. Inglis.
Mr. INGLIS. No.
The CLERK. Mr. Inglis votes no. Mr. Reichert.
Mr. REICHERT. Aye.
The CLERK. Mr. Reichert votes aye. Mr. McCaul.
[No response]
The CLERK. Mr. Diaz-Balart.
Mr. DIAZ-BALART. Aye.
The CLERK. Mr. Diaz-Balart votes aye. Mr. Gingrey.
Mr. GINGREY. Aye.
The CLERK. Mr. Gingrey votes aye. Mr. Bilbray.
Mr. BILBRAY. Aye.
The CLERK. Mr. Bilbray votes aye. Mr. Adrian Smith.
Mr. SMITH OF NEBRASKA. Aye.
The CLERK. Mr. Adrian Smith votes aye.
Chairman GORDON. Are there any Members who have not cast a vote?
If not, the Clerk will report.

The CLERK. Mr. Chairman, 11 Members vote aye, and 19 Members vote no.

COMMITTEE ON SCIENCE AND TECHNOLOGY

ROLL CALL 2 BILL H.R. 364 DATE 5/23/2007

AMEND # 5 PASSED ___ DEFEATED ✓ VOICE VOTE ___ WITHDRAW ___

SPONSOR/AMENDMENT Biggert

MEMBER	AYE	NO	PRESENT	NOT VOTING
Mr. GORDON, Chairman		✓		
Mr. COSTELLO		✓		
Ms. JOHNSON		✓		
Ms. WOOLSEY				
Mr. UDALL		✓		
Mr. WU				
Mr. BAIRD		✓		
Mr. MILLER				
Mr. LIPINSKI		✓		
Mr. LAMPSON		✓		
Ms. GIFFORDS				
Mr. McNERNEY		✓		
Mr. KANJORSKI				
Ms. HOOLEY		✓		
Mr. ROTHMAN		✓		
Mr. HONDA		✓		
Mr. MATHESON		✓		
Mr. ROSS				
Mr. CHANDLER		✓		
Mr. CARNAHAN				
Mr. MELANCON		✓		
Mr. HILL		✓		
Mr. MITCHELL		✓		
Mr. WILSON		✓		
Mr. HALL	✓			
Mr. SENSENBRENNER				
Mr. LAMAR SMITH, TX				
Mr. ROHRABACHER				
Mr. BARLETT		✓		
Mr. EHLERS	✓			
Mr. LUCAS				
Mrs. BIGGERT	✓			
Mr. AKIN	✓			
Mr. BONNER	✓			
Mr. FEENEY				
Mr. NEUGEBAUER	✓			
Mr. INGLIS		✓		
Mr. REICHERT	✓			
Mr. McCAUL				
Mr. DIAZ-BALART	✓			
Mr. GINGREY	✓			
Mr. BILBRAY	✓			
Mr. ADRIAN SMITH, NE	✓			
Vacant				
TOTALS				

Mr. Chairman, 11 Members vote AYE and 19 vote NO

43 / Quorum /15 vote / 22 Report
Revised 5/16/07

Chairman GORDON. The amendment is not agreed to. The fifth amendment on the roster is offered by the gentlelady from Illinois, Ms. Biggert. Are you ready to proceed with your amendment?

Ms. BIGGERT. I am, Mr. Chairman. I move to strike the last word.

Chairman GORDON. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 364 authored by Mrs. Biggert of Illinois.

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without objection so ordered. The gentlelady is recognized for five minutes to explain her amendment.

Ms. BIGGERT. Thank you, Mr. Chairman. I will try again.

This is another straightforward amendment. It strikes the provision added during Subcommittee markup that limits to eight percent the amount of ARPA–E Project funds that can be allocated to Federally-Funded Research and Development Centers or FFRDCs.

This eight percent cap I think is absolutely arbitrary. The *Gathering Storm* report said nothing about an eight percent cap. Instead it included language to the contrary, and I quote. "Solutions will require coordinated efforts among industrial, academic, and government laboratories." And one of ARPA–E's purported benefits will be to, and I quote, "foster consortia of companies, colleges, and universities, and laboratories to work on critical research problems."

Nor do I recall a single witness who testified before this committee, either in the 109th Congress or more recently before the Energy and Environment Subcommittee ever suggesting, much less advocating, that we should tie the hands of program managers by limiting to eight percent the amount of ARPA–E funds available to FFRDCs. Correct me if I am wrong but I don't recall a single one.

Dr. Stephen Chu, the only member of the Augustine Committee to actually testify before this committee about ARPA–E, recommended neither an eight percent cap nor tying the hands of the program managers in this way. And he also, as a matter of fact, said quite the opposite. "This agency would itself perform no research that would fund work conducted by university start-ups, established firms and National laboratories." And he then went on to say anyone could compete for funding from ARPA–E, including universities, industry, businesses, and National laboratories, or ideally a consortium of these agencies.

So while the member, a member of the Augustine Committee gave this committee clear guidance, the bill before us does exactly the opposite of what was advised. Instead of empowering program managers to be independent, the bill ties the hands of program managers before the agency even exists by telling them how and where they can spend ARPA–E funds. Instead of favoring one group over another, the bill contains an arbitrary limitation that places one group at a disadvantage compared to the others.

And if you think this arbitrary funding limitation only applies to DOE National laboratories, you would be mistaken. The list of FFRDCs is actually maintained by the National Science Foundation, and by the latest count there are actually 37 different FFRDCs spread across the nine different departments, including the Department of Defense, the Department of Energy, and NASA.

All are eligible for ARPA–E funding but only eight percent of it according to the bill as reported by the Subcommittee.

I would ask these questions of my colleagues from Arizona, California, Colorado, Pennsylvania, South Carolina, Illinois, New Jersey, Tennessee, and Washington, all of which are home to FFRDCs, and are you sure that none of the scientists or engineers at the FFRDCs in your state have an idea for solving our nation's national energy challenges? Are you sure that an eight percent cap isn't going to prevent them from getting funding from ARPA–E for this? For that great idea? And are you willing to risk tying the hands of ARPA–E program managers in such a way as to preclude them from funding that great idea?

If you are not, you should support this amendment, eliminate the cap and the funding available to the FFRDCs. Make the ARPA–E program managers truly independent. Leave the funding decisions to them and in doing so you will insure that this bill remains true to the National Academy's recommendation that ARPA–E be designed as a lean, effective, and agile, but largely independent organization.

I would urge my colleagues to support this amendment, and yield back the balance of my time.

Chairman GORDON. Mr. Hall is recognized.

Mr. HALL. Mr. Chairman, just very briefly. She describes an eight percent limitation. That is not in line with the *Gathering Storm* recommendations. It is not fair to the labs. They ought to be able to fight for funds the same as universities or private companies do. I urge the approval of the amendment.

Yield back.

Chairman GORDON. Will all due respect this another killer amendment, and if there is no further discussion, the vote occurs on the amendment.

All those in favor of the amendment, say aye. Those opposed, no. The no's have it and——

Ms. BIGGERT. Mr. Chairman, I would request a recorded vote.

Chairman GORDON. The Clerk will call the roll.

The CLERK. Chairman Gordon.

Chairman GORDON. No.

The CLERK. Chairman Gordon votes no. Mr. Costello.

[No response]

The CLERK. Ms. Johnson.

Ms. JOHNSON. No.

The CLERK. Ms. Johnson votes no. Ms. Woolsey.

[No response]

The CLERK. Mr. Udall.

Mr. UDALL. No.

The CLERK. Mr. Udall votes no. Mr. Wu.

[No response]

The CLERK. Mr. Baird.

Mr. BAIRD. No.

The CLERK. Mr. Baird votes no. Mr. Miller.

[No response]

The CLERK. Mr. Lipinski.

Mr. LIPINSKI. No.

The CLERK. Mr. Lipinski votes no. Mr. Lampson.

Mr. LAMPSON. No.
The CLERK. Mr. Lampson votes no. Ms. Giffords.
[No response]
The CLERK. Mr. McNerney.
Mr. MCNERNEY. No.
The CLERK. Mr. McNerney votes no. Mr. Kanjorski.
[No response]
The CLERK. Ms. Hooley.
Ms. HOOLEY. No.
The CLERK. Ms. Hooley votes no. Mr. Rothman.
Mr. ROTHMAN. No.
The CLERK. Mr. Rothman votes no. Mr. Honda.
Mr. HONDA. No.
The CLERK. Mr. Honda votes no. Mr. Matheson.
Mr. MATHESON. No.
The CLERK. Mr. Matheson votes no. Mr. Ross.
Mr. ROSS. No.
The CLERK. Mr. Ross votes no. Mr. Chandler.
Mr. CHANDLER. No.
The CLERK. Mr. Chandler votes no. Mr. Carnahan.
[No response]
The CLERK. Mr. Melancon.
[No response]
The CLERK. Melancon.
Mr. MELANCON. No.
The CLERK. Mr. Melancon votes no. Mr. Hill.
Mr. HILL. No.
The CLERK. Mr. Hill votes no. Mr. Mitchell.
Mr. MITCHELL. No.
The CLERK. Mr. Mitchell votes no. Mr. Wilson.
Mr. WILSON. No.
The CLERK. Mr. Wilson votes no. Mr. Hall.
Mr. HALL. Aye.
The CLERK. Mr. Hall votes aye. Mr. Sensenbrenner.
[No response]
The CLERK. Mr. Lamar Smith.
[No response]
The CLERK. Mr. Rohrabacher.
[No response]
The CLERK. Mr. Bartlett.
Mr. BARTLETT. No.
The CLERK. Mr. Bartlett votes no. Mr. Ehlers.
Mr. EHLERS. No.
The CLERK. Mr. Ehlers votes no. Mr. Lucas.
[No response]
The CLERK. Mrs. Biggert.
Ms. BIGGERT. Aye.
The CLERK. Mrs. Biggert votes aye. Mr. Akin.
Mr. AKIN. Aye.
The CLERK. Mr. Akin votes aye. Mr. Bonner.
[No response]
The CLERK. Mr. Feeney.
[No response]
The CLERK. Mr. Neugebauer.

[No response]
The CLERK. Mr. Inglis.
[No response]
The CLERK. Mr. Reichert.
Mr. REICHERT. Aye.
The CLERK. Mr. Reichert votes aye. Mr. McCaul.
[No response]
The CLERK. Mr. Diaz-Balart.
Mr. DIAZ-BALART. Aye.
The CLERK. Mr. Diaz-Balart votes aye. Mr. Gingrey.
Mr. GINGREY. Aye.
The CLERK. Mr. Gingrey votes aye. Mr. Bilbray.
Mr. BILBRAY. Aye.
The CLERK. Mr. Bilbray votes aye. Mr. Adrian Smith.
Mr. SMITH OF NEBRASKA. Aye.
The CLERK. Mr. Adrian Smith votes aye.
Chairman GORDON. Are there any Members who have not been recorded?
Mr. EHLERS. Mr. Chairman.
The CLERK. Mr. Costello has not voted.
Mr. COSTELLO. No.
The CLERK. Mr. Costello votes no.
Chairman GORDON. Let us go to that side now.
The CLERK. Mr. Bonner has not voted.
Mr. BONNER. Aye.
The CLERK. Mr. Bonner votes aye. Ms. Giffords is not recorded.
Ms. GIFFORDS. No.
The CLERK. Ms. Giffords votes no.
Chairman GORDON. Mr. Wu.
The CLERK. Mr. Wu is not recorded.
Mr. WU. No.
The CLERK. Mr. Wu votes no.
Chairman GORDON. Mr. Inglis.
The CLERK. Mr. Inglis is not recorded.
Mr. INGLIS. Aye.
The CLERK. Mr. Inglis votes aye.
Chairman GORDON. Mr. Carnahan.
The CLERK. Mr. Carnahan is not recorded.
Mr. CARNAHAN. No.
The CLERK. Mr. Carnahan votes no.
Chairman GORDON. Mr. McCaul.
Mr. MCCAUL. Aye.
The CLERK. Mr. McCaul is not recorded.
Mr. MCCAUL. Aye.
The CLERK. Mr. McCaul votes aye.
Chairman GORDON. Mr. Neugebauer.
The CLERK. Mr. Neugebauer is not recorded.
Mr. NEUGEBAUER. Aye.
The CLERK. Mr. Neugebauer votes aye.
Chairman GORDON. Rohrabacher.
The CLERK. Mr. Rohrabacher votes aye.
Chairman GORDON. Okay. Report the vote.
The CLERK. Mr. Chairman, 13 Members vote aye, 23 vote no.

COMMITTEE ON SCIENCE AND TECHNOLOGY

ROLL CALL 3 BILL H.R. 3644 DATE 5/23/2007

AMEND # 6 PASSED ___ DEFEATED ✓ VOICE VOTE ___ WITHDRAW ___

SPONSOR/AMENDMENT Biggert

MEMBER	AYE	NO	PRESENT	NOT VOTING
Mr. GORDON, Chairman		✓		
Mr. COSTELLO		✓		
Ms. JOHNSON		✓		
Ms. WOOLSEY				
Mr. UDALL		✓		
Mr. WU		✓		
Mr. BAIRD		✓		
Mr. MILLER				
Mr. LIPINSKI		✓		
Mr. LAMPSON		✓		
Ms. GIFFORDS		✓		
Mr. McNERNEY		✓		
Mr. KANJORSKI				
Ms. HOOLEY		✓		
Mr. ROTHMAN		✓		
Mr. HONDA		✓		
Mr. MATHESON		✓		
Mr. ROSS		✓		
Mr. CHANDLER		✓		
Mr. CARNAHAN		✓		
Mr. MELANCON		✓		
Mr. HILL		✓		
Mr. MITCHELL		✓		
Mr. WILSON		✓		
Mr. HALL	✓			
Mr. SENSENBRENNER				
Mr. LAMAR SMITH, TX				
Mr. ROHRABACHER	✓			
Mr. BARLETT		✓		
Mr. EHLERS		✓		
Mr. LUCAS				
Mrs. BIGGERT	✓			
Mr. AKIN	✓			
Mr. BONNER	✓			
Mr. FEENEY				
Mr. NEUGEBAUER	✓			
Mr. INGLIS	✓			
Mr. REICHERT	✓			
Mr. McCAUL	✓			
Mr. DIAZ-BALART	✓			
Mr. GINGREY	✓			
Mr. BILBRAY	✓			
Mr. ADRIAN SMITH, NE	✓			
Vacant				
TOTALS				

Mr. Chairman, 13 Members vote AYE and 23 vote NO

43 / Quorum /15 vote / 22 Report
Revised 5/16/07

Chairman GORDON. The amendment fails. The sixth amendment on the roster is offered by the gentlelady from Illinois, Ms. Biggert. Are you ready to proceed with your amendment?

Let me ask the gentlelady does she have any more amendments, and if so, please tell us which one.

Ms. BIGGERT. No, Mr. Chairman. Two is enough.

Chairman GORDON. Okay. Mr. Ehlers.

Ms. BIGGERT. Mr. Chairman, if I might just at some point I would like to know why these are killer amendments, but we can discuss that later.

Chairman GORDON. I would be happy to tell you.

Mr. EHLERS. Mr. Chairman.

Chairman GORDON. Mr. Ehlers is recognized.

Mr. EHLERS. I have an amendment at the desk.

Chairman GORDON. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 364 authored by Mr. Ehlers of Michigan.

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without objection, so ordered. The gentleman is recognized for five minutes to explain his amendment.

Mr. EHLERS. Thank you, Mr. Chairman.

When the *Gathering Storm* report initially suggested creating ARPA–E, I was very, very skeptical about it. I wasn't sure that it would work, and I thought the current Office of Science could take on that responsibility.

What has changed my mind, and I now support it, is just thinking back historically through the history of the Department of Energy. It has been plagued at various times by Secretaries of Energy who were purely political appointees who knew very little about science or about the operation of the Department. And as a result of preserving that historical record, I decided it is very important that we return back to what the *Gathering Storm* report originally recommended, and that is that ARPA–E report to the Under Secretary for Science rather than to the Secretary.

I believe it is very important that the agency report to someone who is a scientist and has a scientific background and can properly defend their requests to the Department of Management and Budget and that, or the Office of Management and Budget and to the President.

And so I am offering an amendment to return the reporting line to what was recommended in the *Gathering Storm* report, largely on the historical basis of how the Department has been run and how it has had hills and valleys over the years. As I mentioned earlier, just pointing back to the decade of the '90s, there was a series of Secretaries who had very little if any knowledge of science and certainly did not do a very good job of operating the Department or setting priorities.

Now that the *Energy Policy Act of 2005* elevated the position of the Director of the Office of Science to the Under Secretary level, providing the Under Secretary the necessary authority to promote the role of science and technology research and development at the Department, I am convinced that it would be better for the ARPA–E agency to report to the Under Secretary for Science rather than to the Secretary. And I feel very strongly about that.

In addition, my argument is strengthened by the fact that Mr. Augustine and the *Gathering Storm* report recommended the same thing. I believe that creating a new agency focused expressly in the development of innovative energy technologies and putting it outside the science missions of the Department underlines the authority of the Under Secretary for Science. In fact, the authors of the *Gathering Storm* included in their recommendation that the Director of ARPA–E report to the Under Secretary, definitely not to the Secretary of Energy.

So I strongly urge the adoption of this. I think it will improve the bill and will make it a more workable agency as a result. We have said a lot here this morning about bureaucrats, getting bureaucrats out of the way. I think in view of the fact that we want to avoid bureaucracy, it is best to have them reporting directly to the scientists rather than to a Secretary, who is frequently not a scientist.

I want to make clear that my comments here do not refer to the current Secretary of Energy, who I think is one of the best we have had in a long time, and I certainly appreciate Secretary Bodman's work. But we have an outstanding Under Secretary of Science in Dr. Raymond Orbach, who has a proven record as both a scientist and as an administrator.

And so at this point especially this would be good, but I think if you look at the historical record, you will also agree it is best to have the agency report to the Under Secretary of Science.

I yield back the balance of my time.

Chairman GORDON. The gentleman yield?

Mr. EHLERS. Yes. I would be happy to yield.

Chairman GORDON. Let me say to the gentleman, there is no question this is a good-faith amendment, and we did not receive it until this afternoon or yesterday. Was it yesterday? Well, we recently received it. The original purpose of going to or reporting to the Secretary was to try to get away from bureaucracy, to go to the head of the stream so you wouldn't get into any of that. I still think that is probably a good idea.

I am going to oppose this amendment today, but I want to continue to talk with the gentleman before we, as we go through this process. I may be wrong, you know, and but on short notice I think it does streamline it, and I think it is better to go directly to it, but I will oppose it, but as I say, I think this is a discussion that we need to continue to have. And so as has been earlier said I reluctantly oppose what I know is a good-faith amendment.

Mr. EHLERS. Reclaiming my time, I appreciate those comments. I would point out that it was, the amendment was submitted at nine o'clock, 9:00 a.m. on Tuesday. We thought that would be adequate time, and I think it is not only a good-faith amendment, but it is a good amendment, and so I would appreciate everyone's vote on this particular amendment.

Chairman GORDON. Is there further discussion on the amendment?

Mr. Rohrabacher.

Mr. ROHRABACHER. I would just note that Mr., Dr. Ehlers is highly respected in terms of his understanding of science and how science works and how it works in this system, and I will be sup-

porting him in that. And when we are talking, his whole theory is let us get the, make sure that a scientist is someone who is being reported to, and of course, we have a disagreement between the scientists, and Mr. Chairman, I don't believe that you are a scientist, so I will be siding with the scientist.

Chairman GORDON. Well, if the gentleman would yield, I do know that if there is a disagreement between the Under Secretary scientist and the Secretary, I know who is going to win that one.

So with no further discussion—oh, yes, there is further discussion. Ms. Biggert is recognized.

Ms. BIGGERT. I move to strike the last word.

Chairman GORDON. The lady is recognized for five minutes.

Ms. BIGGERT. I thank the gentleman. I couldn't agree more with my colleague, Dr. Ehlers. In conjunction with Senator Domenici and Senator Bingaman and Secretary Bodman I worked very hard during that conference on the *Energy Policy Act of 2005,* to create the position of Under Secretary of Science at the Department of Energy, and I think that this organizational structure is working to bridge the gap between fundamental discoveries and their applied use. Dr. Ray Orbach, a former Director of the Office of Science and the first to fill this position, made a point to get quickly up to speed on applied energy technology programs as soon as he assumed the position of Under Secretary. And why? And that was to make sure that the Department's basic research programs were helping the Applied Energy Programs overcome fundamental technical obstacles to the development and deployment of advanced energy technologies.

I think the Augustine Committee recognized how important this organizational change was at DOE, and that is why they were explicit that the Director of ARPA–E should report to the Under Secretary of Science. And in my opinion the *Gathering Storm* report wasn't clear about a lot of things, but the witnesses at our Subcommittee hearing last month generally agreed the ARPA–E recommendation was more vague, but this is one of the things that was quite clear in the report. It is even in the very first sentence, the action item at the beginning of the recommendation. So this bill essentially creates, you know, without it, another stovepipe within the DOE by keeping ARPA–E totally autonomous from the Department's basic and applied research programs, creating an unnecessary bureaucracy.

So one way to avoid this stovepipe effect is for the Director to report to the Under Secretary of Science, and I would urge you, you know, to work with Dr. Ehlers, and I would yield to Dr. Ehlers.

Mr. EHLERS. I thank the gentlelady for yielding. I apologize to the Chairman if you did not see the amendment in time to give it adequate consideration. I don't, my goal is not to embarrass you by defeating you here, and I don't even know if I could, but if you sincerely believe it would be better to offer it as a manager's amendment on the Floor or some other assurance that this will receive the consideration there or in Rules Committee, that is certainly an option. But lacking any assurances of that, then I would like to proceed to a vote here.

So I would appreciate your reaction to that. I certainly am not trying to stir the pot or upset your game. I just want fair consideration.

Chairman GORDON. If the gentleman will yield, clearly you have nothing but the best intentions, and I am sure if the amendment was filed by you, it is an error on our part by not getting it early.

I cannot promise to you that we will make this change, only that we will consider it as we go forward. Again, my feeling is that to help reduce the bureaucracy by reporting directly to the Secretary, you are going to have less bureaucracy, and as a practical matter, the Secretary is going to overrule any Under Secretary if they are not happy with it.

I think we'll discuss it more. I don't want to mislead you into thinking that this is automatically going to be a part of a manager's amendment. I would suggest if you want to vote today, you should have a vote, because I can't make that promise.

Mr. EHLERS. Well, Mr. Chairman, I recognize you can't make that promise, but I don't want to take the time for a roll call vote if, in fact, we are going to continue our discussions on this.

Mr. HALL. Will the gentleman yield?

Mr. EHLERS. Yes. I would be happy to yield.

Mr. HALL. Do you think this is more of a killer amendment than Ms. Biggert's are?

Chairman GORDON. No, it is not.

Mr. HALL. Then I recommend passage of the amendment.

Chairman GORDON. Is there further discussion? If there is no further discussion, then the vote is on Mr. Ehlers' amendment. All in favor of the amendment say aye. Those opposed say no. It appears the no's have it, but would you like to have a show of hands? What would you like to do?

Mr. EHLERS. A show of hands is adequate, I believe.

Chairman GORDON. Okay.

Mr. EHLERS. As long as we can each count.

Chairman GORDON. All right. That is a big assumption here, but those in favor please raise your hand. I get 15. All opposed, raise your hand. And I believe there is 21. If there is no disagreement, then the amendment failed.

The eighth amendment on the roster is offered by the gentleman from California, Mr. Bilbray. Are you ready to proceed?

The Clerk will report the amendment.

The CLERK. Amendment to H.R. 36——

Mr. BILBRAY. Mr. Chairman, I move that the amendment be accepted as read.

Chairman GORDON. The gentleman is recognized for five minutes to explain his amendment.

Mr. BILBRAY. Mr. Chairman, it is quite clear that the intent here is to create a $14 million or I mean, $14 billion new vehicle. All my bill does is strike that money, basically places this in a position of making some priority decisions here. Do we want to create this new vehicle? Do we want to have it separate and isolated? And it basically says that there are some priority decisions to be made, and those priority decisions I think up front ought to be that DOE, the Office of Science, is going to be impacted one way or the other, the people that just developed the new lithium battery that is not

toxic, can handle high energy without creating hazardous problems in the future, that we need to make some priority decisions. And this bill just basically strikes the funding for the new agency and the new group and basically says that in the tradition of the 1990s when we required that if you wanted to create something new and add something new, you had to find the money within the existing structure. My motion basically does that, Mr. Chairman, and I yield back.

Chairman GORDON. Thank you, Mr. Bilbray. I would just quickly say that the Bilbray amendment would eliminate funding for ARPA–E, effectively killing the program, and if there is no further discussion——

Mr. ROHRABACHER. Mr. Chairman.

Chairman GORDON. Yes. Mr. Rohrabacher is recognized.

Mr. ROHRABACHER. I would suggest that if Mr. Bilbray's amendment is adopted, that it will not kill the idea, that instead it will force us to set the priorities that we are supposed to set. If the argument in favor of ARPA–E is that the status quo currently going on is not an efficient use of resources and thus, a restructuring is necessary, we should have the courage enough to say what programs are not an efficient use of the money and what in the status quo isn't worthy of financing and use that money to finance ARPA–E. Should Mr. Bilbray's amendment not be accepted, I would, of course, be planning to move forward on the Floor with an amendment that will accomplish just that.

If we do believe that this is a necessary restructuring, we should have the courage to say why it is necessary by eliminating those things that are costing money that aren't cost effective, that are currently being spent on. And this idea of just shoving it off to the oil companies, which, I, again, voted against that particular subsidy, tax-incentive subsidy, but that is just a way of getting around trying to set priorities and doing the tough job that we are supposed to do here.

So I would suggest Mr. Bilbray's amendment is going in the right direction and forcing us to try to make set priorities and get rid of failing programs, if, indeed, the status quo isn't working, which is the premise of this whole argument, and I support that, by the way. I support that concept. Let us have courage enough to defund those projects that aren't working.

Chairman GORDON. Thank you, Mr. Bilbray. I mean, Mr. Rohrabacher. I am afraid there won't be a majority courage to get that done, and so if there is no further discussion, all in favor of the amendment say aye. All opposed say no. The no's have it.

The 9th amendment on the roster is offered by the gentleman from Nebraska, Mr. Smith. Are you ready to proceed with your amendment?

Mr. SMITH OF NEBRASKA. Yes, Mr. Chairman. Thank you.

Chairman GORDON. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 364 offered by Mr. Smith of Nebraska.

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

The gentleman is recognized for five minutes to explain the amendment.

Mr. SMITH OF NEBRASKA. Thank you, Mr. Chairman and Members. My amendment would transfer all of the funds, the relevant funds and projects to the appropriate programs at DOE. If a study required under Section 1821 of the *Energy Policy Act of 2005,* concludes that ARPA–E should not be established, the study mandated under Section 1821 of EPA would look at the applicability of the management practices used by the Department of Defense, Advanced Research Projects Agency, DARPA, to research programs at the Department of Energy and the advisability of creating an agency within DOE modeled after DARPA. A National Academy of Public Administration, an independent and non-partisan organization. I would emphasize an independent and non-partisan organization is charged with carrying out this study.

Mr. Chairman, I am extremely concerned about the creation of a new bureaucracy and possible waste of taxpayer dollars should ARPA–E be established without fully addressing whether this new agency is the most effective tool for delivering new technologies to the marketplace.

Therefore, I believe it would be beneficial to have the Academy of Public Administration's recommendation on whether it is even advisable to create a new agency. Should the Academy's findings reflect negatively on the establishment of ARPA–E, the agency would be terminated, and all funds would be directed to the appropriate programs within the Department of Energy. We have heard several times this morning that various amendments may be killer amendments. Certainly this one is not a killer amendment. It simply defers to an independent, non-partisan organization for their recommendations.

Also, I would suggest that the approach of a new agency, perhaps taking dollars from other projects, is indeed a continuation of the status quo. I hope that this inclusion of an independent organization's opinion would lead to favorable public policy and wise use of taxpayer dollars.

I yield back.

Chairman GORDON. With all due respect let me repeat what I said earlier. Again, this is a killer amendment, and the reason it is a killer amendment, this same amendment was passed by the Congress, signed by the President, requiring the Department of Energy to do this study and send it to Congress by January of 2007. The Department of Energy has yet to even put it out for study, you know, so if you are going to, and this was one of Mr. Hall's big "shalls." The Department shall do that, but they did not do it. They didn't do it then, there is no reason that says they are going to do it again, and so this is a killer amendment.

And, again, it is a demonstration of ineptitude, I think, within the Department of Energy when they are flaunting themselves and not doing the will of the Congress.

Mr. Bilbray.

Mr. BILBRAY. Mr. Chairman, pardon me if I am wrong, but the gentleman from Nebraska has given you, you know, you say let us jump, let us move now, and he is creating a parachute for you that says only if it is a long haul, only if the report comes out and says there is a problem, you know, the fact is that you are saying the study doesn't come out, doesn't say it is a problem, it is going to

kill the bill. He is giving you a safety valve where the fact is if the experts in the field come back after we have moved ahead and says, you have got major problems, that gives you a fallback to say, okay, let us do a rethink, but only if they come out and say that. Not beforehand.

So in all fairness I think the gentleman from Nebraska is trying to be more than accommodating to your original legislation that creates a safety escape hatch in case the people on the front line say this could be a major disaster. And so it actually could reinforce your argument for moving forward now because you do have that parachute in the back. So the gentleman from Nebraska seems like he is trying to accommodate your intention of moving forward while still guaranteeing some protection for the taxpayers and for the consumer that needs this technology moving forward.

And I yield back, Mr. Chairman.

Mr. HALL. Will the gentleman yield?

Mr. BILBRAY. I yield.

Mr. HALL. You are saying it is not a killer, just allows the program to move forward, aren't you?

Mr. ROTHMAN. Mr. Chairman.

Chairman GORDON. Yes, Mr. Rothman.

Mr. ROTHMAN. Thank you, Mr. Chairman. To just respond to my distinguished colleague's remarks from the other side, sometimes as we all know people of goodwill and positions of power use their positions to thwart opposing ideologies or opposing approaches to problems simply by, well, by various means including delay, passive aggression, whatever you want to call it. And I think what our Chairman has indicated is that the Department of Energy has used its power to thwart reforms in the past, even those directed by the Congress through delay.

And so while one may view the gentleman's amendment as simply an opportunity to provide for what he describes as a parachute, or it has been described as a parachute, in the eyes of others would simply be enabling an agency of this Administration that has resisted the will and thwarted the will of the Congress to deny them an opportunity to do so again.

So I would respectfully oppose this amendment.

Chairman GORDON. If there is no—Mr. Smith is recognized.

Mr. SMITH OF NEBRASKA. Move to strike the last word. I would point out that if there is a delay of the study, this agency continues. I mean, I think I heard the Chairman say that the Department has delayed various studies and so forth. If that takes place, this new agency continues, and it is only if the study takes place and finds very objectively that the agency is unnecessary and that taxpayer dollars could be better spent elsewhere, then the dollars could be spent elsewhere in accordance with the study.

Mr. ROTHMAN. If the gentleman would yield.

Mr. SMITH OF NEBRASKA. Yes.

Mr. ROTHMAN. I thank the gentleman. Is it the usual occurrence when a new project is suggested to begin that at the same time funds are authorized to then study whether the project is worthwhile?

Mr. SMITH OF NEBRASKA. Oftentimes projects have sunset clauses. Mine is basically only a sunset if the study concludes that it should sunset. Otherwise it continues indefinitely.

Mr. ROTHMAN. If the gentleman would continue to yield. I think that, you know, one might argue that in which branch of government the decision about whether to continue a program should continue and to leave it in the hands of this administration to decide that a Congressionally-authorized and approved program must end I think would be the wrong approach. I think certainly if the Administration, for whatever reason, presented evidence to the Congress that something we were doing here in the Congress was wasteful or wrong, the majority of us on each side of the aisle would respond appropriately.

I thank the gentleman for yielding.

Mr. SMITH OF NEBRASKA. I appreciate your concern. I would say from my experience in public policy that a lot of new programs are started with the best of intentions and are continued with more and more dollars with newly-developed constituencies perhaps hijacking various programs. I am not accusing this project immediately of such violations.

I would say, however, deferring to the independent organization such as the Public Administration, Academy of Public Administration, a very well-respected organization that does a very nice job of staying above the political fray, especially in a nonpartisan manner, that getting their input on this is wise and I think very appropriate.

I yield back.

Chairman GORDON. If there is no further discussion the vote is on the gentleman from Nebraska's amendment. All in favor say aye. Opposed, no. The no's——

Mr. SMITH OF NEBRASKA. Mr. Chairman, I would ask for a recorded vote, please.

Chairman GORDON. The Clerk will call the roll.

The CLERK. Mr. Gordon.

Chairman GORDON. No.

The CLERK. Chairman Gordon votes no. Mr. Costello.

Mr. COSTELLO. No.

The CLERK. Mr. Costello votes no. Ms. Johnson.

Ms. JOHNSON. No.

The CLERK. Ms. Johnson votes no. Ms. Woolsey.

Ms. WOOLSEY. No.

The CLERK. Ms. Woolsey votes no. Mr. Udall.

[No response]

The CLERK. Mr. Wu.

Mr. WU. No.

The CLERK. Mr. Wu votes no. Mr. Baird.

Mr. BAIRD. No.

The CLERK. Mr. Baird votes no. Mr. Miller.

Mr. MILLER. No.

The CLERK. Mr. Miller votes no. Mr. Lipinski.

Mr. LIPINSKI. No.

The CLERK. Mr. Lipinski votes no. Mr. Lampson.

Mr. LAMPSON. No.

The CLERK. Mr. Lampson votes no. Ms. Giffords.

Ms. GIFFORDS. No.
The CLERK. Ms. Giffords votes no. Mr. McNerney.
Mr. MCNERNEY. No.
The CLERK. Mr. McNerney votes no. Mr. Kanjorski.
[No response]
The CLERK. Ms. Hooley.
Ms. HOOLEY. No.
The CLERK. Ms. Hooley votes no. Mr. Rothman.
Mr. ROTHMAN. No.
The CLERK. Mr. Rothman votes no. Mr. Honda.
[No response]
The CLERK. Mr. Matheson.
Mr. MATHESON. No.
The CLERK. Mr. Matheson votes no. Mr. Ross.
Mr. ROSS. No.
The CLERK. Mr. Ross votes no. Mr. Chandler.
Mr. CHANDLER. No.
The CLERK. Mr. Chandler votes no. Mr. Carnahan.
Mr. CARNAHAN. No.
The CLERK. Mr. Carnahan votes no. Mr. Melancon.
Mr. MELANCON. No.
The CLERK. Mr. Melancon votes no. Mr. Hill.
Mr. HILL. No.
The CLERK. Mr. Hill votes no. Mr. Mitchell.
Mr. MITCHELL. No.
The CLERK. Mr. Mitchell votes no. Mr. Wilson.
Mr. WILSON. No.
The CLERK. Mr. Wilson votes no. Mr. Hall.
Mr. HALL. Aye.
The CLERK. Mr. Hall votes aye. Mr. Sensenbrenner.
[No response]
The CLERK. Mr. Lamar Smith.
[No response]
The CLERK. Mr. Rohrabacher.
Mr. ROHRABACHER. No.
The CLERK. Mr. Rohrabacher votes no. Mr. Bartlett.
Mr. BARTLETT. No.
The CLERK. Mr. Bartlett votes no. Mr. Ehlers.
Mr. EHLERS. No.
The CLERK. Mr. Ehlers votes no. Mr. Lucas.
Mr. LUCAS. Aye.
The CLERK. Mr. Lucas votes aye. Mrs. Biggert.
Ms. BIGGERT. Aye.
The CLERK. Mrs. Biggert votes aye. Mr. Akin.
Mr. AKIN. Aye.
The CLERK. Mr. Akin votes aye. Mr. Bonner.
Mr. BONNER. Aye.
The CLERK. Mr. Bonner votes aye. Mr. Feeney.
Mr. FEENEY. Aye.
The CLERK. Mr. Feeney votes aye. Mr. Neugebauer.
Mr. NEUGEBAUER. Aye.
The CLERK. Mr. Neugebauer votes aye. Mr. Inglis.
Mr. INGLIS. No.
The CLERK. Mr. Inglis votes no. Mr. Reichert.

Mr. REICHERT. Aye.

The CLERK. Mr. Reichert votes aye. Mr. McCaul.

Mr. MCCAUL. Aye.

The CLERK. Mr. McCaul votes aye. Mr. Diaz-Balart.

Mr. DIAZ-BALART. Aye.

The CLERK. Mr. Diaz-Balart votes aye. Mr. Gingrey.

Mr. GINGREY. Aye.

The CLERK. Mr. Gingrey votes aye. Mr. Bilbray.

Mr. BILBRAY. Aye.

The CLERK. Mr. Bilbray votes aye. Mr. Adrian Smith.

Mr. SMITH OF NEBRASKA. Aye.

The CLERK. Mr. Adrian Smith votes aye.

Chairman GORDON. Are there any Members not recorded? The Clerk will report the vote.

The CLERK. Mr. Chairman, 13 Members vote aye, 25 vote no.

COMMITTEE ON SCIENCE AND TECHNOLOGY

ROLL CALL 4 BILL H.R. 3644 DATE 5/23/2007

AMEND # 9 PASSED ___ DEFEATED ✓ VOICE VOTE ___ WITHDRAW ___

SPONSOR/AMENDMENT Smith

MEMBER	AYE	NO	PRESENT	NOT VOTING
Mr. GORDON, Chairman		✓		
Mr. COSTELLO		✓		
Ms. JOHNSON		✓		
Ms. WOOLSEY		✓		
Mr. UDALL		✓		
Mr. WU				
Mr. BAIRD		✓		
Mr. MILLER		✓		
Mr. LIPINSKI		✓		
Mr. LAMPSON		✓		
Ms. GIFFORDS		✓		
Mr. McNERNEY		✓		
Mr. KANJORSKI				
Ms. HOOLEY		✓		
Mr. ROTHMAN		✓		
Mr. HONDA				
Mr. MATHESON		✓		
Mr. ROSS		✓		
Mr. CHANDLER		✓		
Mr. CARNAHAN		✓		
Mr. MELANCON		✓		
Mr. HILL		✓		
Mr. MITCHELL		✓		
Mr. WILSON		✓		
Mr. HALL	✓			
Mr. SENSENBRENNER				
Mr. LAMAR SMITH, TX				
Mr. ROHRABACHER		✓		
Mr. BARLETT		✓		
Mr. EHLERS		✓		
Mr. LUCAS	✓			
Mrs. BIGGERT	✓			
Mr. AKIN	✓			
Mr. BONNER	✓			
Mr. FEENEY	✓			
Mr. NEUGEBAUER	✓			
Mr. INGLIS		✓		
Mr. REICHERT	✓			
Mr. McCAUL	✓			
Mr. DIAZ-BALART	✓			
Mr. GINGREY	✓			
Mr. BILBRAY	✓			
Mr. ADRIAN SMITH, NE	✓			
Vacant				
TOTALS				

Mr. Chairman, 13 Members vote AYE and 25 vote NO

43 / Quorum /15 vote / 22 Report
Revised 5/16/07

Chairman GORDON. The amendment is not carried.

The tenth amendment on the roster is offered by the gentleman from Georgia, Mr. Gingrey. Are you ready to proceed with your amendment?

Mr. GINGREY. I am, Mr. Chairman. I have an amendment at the desk.

Chairman GORDON. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 364 offered by Mr. Gingrey of Georgia.

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without objection so ordered. The gentleman is recognized for five minutes to explain his amendment.

Mr. GINGREY. Mr. Chairman, thank you. If you didn't like the amendment submitted by the gentleman from Nebraska, Mr. Smith, you are really going to hate this one, Mr. Chairman.

But I think it is an amendment that maybe is more logical to all the Members on both sides of the aisle. Basically EPAct 2005, *Energy Policy Act 2005,* in Section 1821, that is why it is some similar to Mr. Smith's amendment, call for the study to say, to ask the question would ARPA–E, we were playing with those acronyms a little earlier, but the *Advanced Project Research Act,* under the Department of Energy, would it fit, would it be as successful as the DARPA Program under the Department of Defense, which, of course, has existed for 50 years or more and has a fantastic track record.

I submit, Mr. Chairman, that maybe it is not analogous to that program in that under DARPA there is a ready-made customer, and of course, that is our military. And many of the studies that are done by DARPA, there is this opportunity to immediately apply technology to the field, if you will. But that is not actually the way it would occur with a similar program under the Department of Energy. There may be no market, and I suggest that for that reason that a study before we authorize $5 billion over five years for a new program, that this study under Section 1821 of the *Energy Policy Act of 2005* is supposed to be done, in fact, five months ago, January of '07. And that this is the right way to do things. This is the right way to spend the people's money to make sure that just a few pages out of a very thick volume, the rise of the *Gathering Storm* report, which doesn't really get very specific.

So I think it is very appropriate in EPAct 2005, that this study be done before we go ahead and spend the money. That is how my amendment, Mr. Chairman, is different from the Smith amendment. His amendment says, well, you know, you go ahead and start the program, you start the funding, and if and when the study finally gets done and it shows that it is not a worthwhile project, then you stop the funding.

My amendment simply says you don't start the funding until you do the study. If you go ahead and start the program without the study, it is like scheduling a wedding before you pick the bride and groom. So I think it is just a very logical amendment, and it is a commonsense, fiscally responsible amendment.

I don't mind seeing government grow if there is a good reason for it, but I think that the study should be done before we start spending the money, and I will yield back my time.

Mr. HALL. Will the gentleman yield.

Chairman GORDON. Mr. Hall is recognized.

Mr. HALL. Actually, you just conditioned the establishment of ARPA–E on a positive recommendation which was made in the *Energy Policy Act.* Right?

Mr. GINGREY. That is correct, Mr. Hall.

Mr. HALL. I urge the adoption of the amendment.

Chairman GORDON. I will be very brief and say that the gentleman, my friend from Georgia correctly described my view of this amendment. I mean, you know, it is, we talk about this a lot, so I am starting to be repetitious on this. But keep in mind the Department of Energy by law passed by Congress, signed by the President was required with a big shall, was required to do this study and present it to Congress. I have written them myself asking for it. They have not even commissioned it. I mean, you know, if that is, you know, it is just not a credible approach, and so if there is no further discussion, we will have a vote on the amendment.

All in favor of Mr. Gingrey's amendment say aye. Opposed, nay.

Mr. GINGREY. Mr. Chairman, I would like a recorded vote. Thank you.

Chairman GORDON. The Clerk will call the roll.

The CLERK. Chairman Gordon.

Chairman GORDON. No.

The CLERK. Chairman Gordon votes no. Mr. Costello.

Mr. COSTELLO. No.

The CLERK. Mr. Costello votes no. Ms. Johnson.

Ms. JOHNSON. No.

The CLERK. Ms. Johnson votes no. Ms. Woolsey.

Ms. WOOLSEY. No.

The CLERK. Ms. Woolsey votes no. Mr. Udall.

[No response]

The CLERK. Mr. Wu.

Mr. WU. No.

The CLERK. Mr. Wu votes no. Mr. Baird.

Mr. BAIRD. No.

The CLERK. Mr. Baird votes no. Mr. Miller.

Mr. MILLER. No.

The CLERK. Mr. Miller votes no. Mr. Lipinski.

Mr. LIPINSKI. No.

The CLERK. Mr. Lipinski votes no. Mr. Lampson.

Mr. LAMPSON. No.

The CLERK. Mr. Lampson votes no. Ms. Giffords.

Ms. GIFFORDS. No.

The CLERK. Ms. Giffords votes no. Mr. McNerney.

Mr. MCNERNEY. No.

The CLERK. Mr. McNerney votes no. Mr. Kanjorski.

[No response]

The CLERK. Ms. Hooley.

[No response]

The CLERK. Mr. Rothman.

Mr. ROTHMAN. No.

The CLERK. Mr. Rothman votes no. Mr. Honda.

[No response]

The CLERK. Mr. Matheson.
Mr. MATHESON. No.
The CLERK. Mr. Matheson votes no. Mr. Ross.
Mr. ROSS. No.
The CLERK. Mr. Ross votes no. Mr. Chandler.
Mr. CHANDLER. No.
The CLERK. Mr. Chandler votes no. Mr. Carnahan.
Mr. CARNAHAN. No.
The CLERK. Mr. Carnahan votes no. Mr. Melancon.
Mr. MELANCON. No.
The CLERK. Mr. Melancon votes no. Mr. Hill.
Mr. HILL. No.
The CLERK. Mr. Hill votes no. Mr. Mitchell.
Mr. MITCHELL. No.
The CLERK. Mr. Mitchell votes no. Mr. Wilson.
Mr. WILSON. No.
The CLERK. Mr. Wilson votes no. Mr. Hall.
Mr. HALL. Aye.
The CLERK. Mr. Hall votes aye. Mr. Sensenbrenner.
[No response]
The CLERK. Mr. Lamar Smith.
[No response]
The CLERK. Mr. Rohrabacher.
Mr. ROHRABACHER. No.
The CLERK. Mr. Rohrabacher votes no. Mr. Bartlett.
Mr. BARTLETT. No.
The CLERK. Mr. Bartlett votes no. Mr. Ehlers.
[No response]
The CLERK. Mr. Lucas.
Mr. LUCAS. Aye.
The CLERK. Mr. Lucas votes ayes. Mrs. Biggert.
Ms. BIGGERT. Aye.
The CLERK. Mrs. Biggert votes aye. Mr. Akin.
Mr. AKIN. Yes.
The CLERK. Mr. Akin votes aye. Mr. Bonner.
Mr. BONNER. Aye.
The CLERK. Mr. Bonner votes aye. Mr. Feeney.
Mr. FEENEY. Aye.
The CLERK. Mr. Feeney votes aye. Mr. Neugebauer.
Mr. NEUGEBAUER. Aye.
The CLERK. Mr. Neugebauer votes aye. Mr. Inglis.
Mr. INGLIS. No.
The CLERK. Mr. Inglis votes no. Mr. Reichert.
Mr. REICHERT. Aye.
The CLERK. Mr. Reichert votes aye. Mr. McCaul.
Mr. MCCAUL. Aye.
The CLERK. Mr. McCaul votes aye. Mr. Diaz-Balart.
Mr. DIAZ-BALART. Aye.
The CLERK. Mr. Diaz-Balart votes aye. Mr. Gingrey.
Mr. GINGREY. Aye.
The CLERK. Mr. Gingrey votes aye. Mr. Bilbray.
Mr. BILBRAY. Aye.
The CLERK. Mr. Bilbray votes aye. Mr. Adrian Smith.
Mr. SMITH OF NEBRASKA. Aye.

The CLERK. Mr. Adrian Smith votes aye.

Chairman GORDON. Any Members not recorded? Dr. Ehlers.

The CLERK. Mr. Ehlers is not recorded.

Mr. EHLERS. No.

The CLERK. Mr. Ehlers votes no.

Chairman GORDON. Any other Members here? The Clerk will report the vote.

With no objections since the vote has not been recorded yet, we will allow the gentlelady from Oregon to vote.

Ms. HOOLEY. No.

The CLERK. Ms. Hooley votes no.

Chairman GORDON. Once again, is there any other—the Clerk will report.

The CLERK. Mr. Chairman, 13 Members vote aye, 25 Members vote no.

COMMITTEE ON SCIENCE AND TECHNOLOGY

ROLL CALL 5 BILL H.R. 364 DATE 5/23/2007

AMEND # 10 PASSED ___ DEFEATED ✓ VOICE VOTE ___ WITHDRAW ___

SPONSOR/AMENDMENT Quinghey

MEMBER	AYE	NO	PRESENT	NOT VOTING
Mr. GORDON, Chairman		✓		
Mr. COSTELLO		✓		
Ms. JOHNSON		✓		
Ms. WOOLSEY		✓		
Mr. UDALL				
Mr. WU		✓		
Mr. BAIRD		✓		
Mr. MILLER		✓		
Mr. LIPINSKI		✓		
Mr. LAMPSON		✓		
Ms. GIFFORDS		✓		
Mr. McNERNEY		✓		
Mr. KANJORSKI				
Ms. HOOLEY		✓		
Mr. ROTHMAN		✓		
Mr. HONDA				
Mr. MATHESON		✓		
Mr. ROSS		✓		
Mr. CHANDLER		✓		
Mr. CARNAHAN		✓		
Mr. MELANCON		✓		
Mr. HILL		✓		
Mr. MITCHELL		✓		
Mr. WILSON		✓		
Mr. HALL	✓			
Mr. SENSENBRENNER				
Mr. LAMAR SMITH, TX				
Mr. ROHRABACHER		✓		
Mr. BARLETT		✓		
Mr. EHLERS		✓		
Mr. LUCAS	✓			
Mrs. BIGGERT	✓			
Mr. AKIN	✓			
Mr. BONNER	✓			
Mr. FEENEY	✓			
Mr. NEUGEBAUER	✓			
Mr. INGLIS		✓		
Mr. REICHERT	✓			
Mr. McCAUL	✓			
Mr. DIAZ-BALART	✓			
Mr. GINGREY	✓			
Mr. BILBRAY	✓			
Mr. ADRIAN SMITH, NE	✓			
Vacant				
TOTALS	13	25		

Mr. Chairman, ~~19~~ Members vote AYE and ~~22~~ vote NO

43 / Quorum /15 vote / 22 Report
Revised 5/16/07

Chairman GORDON. The amendment fails.

The eleventh amendment on the roster is offered by the gentleman from Missouri, Mr. Akin. Are you ready to proceed with your amendment?

Mr. AKIN. I am, Mr. Chairman, and I have to say to start out the whole idea of ARPA–E's——

Chairman GORDON. If I could, my mistake. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 364 offered by Mr. Akin of Missouri.

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without objection, so ordered. The gentleman is recognized for five minutes to explain his amendment.

Mr. AKIN. Mr. Chairman, I was inclined to really like your bill, because I like Arby's. They have roast beef sandwiches and milkshakes there, and I thought it was going to be a pretty good thing, but now I understand we got a $4.9 billion program going to run for five years. Mr. Chairman, my amendment simply says at the end of five years, we are going to sunset. In other words, we are going to take a look, and if the program did what you wanted it to do, then we can proceed. If it suggests that maybe it should be folded into a different agency or bureau or something like that, we could make those changes. But we just take a good look at it.

My impression, Mr. Chairman, is that five years or four years or three years, even one year from this day there is no one in this committee that will remember we did this other than perhaps you as the Chairman. And so five years out I think maybe this thing could take a review. We would then assess whether it has really worked or not.

So, Mr. Chairman, it just seems to me to make sense why not subject it to a review five years out. I just wanted to know, I would yield to you, what you think about that idea.

Chairman GORDON. Thank you. I hope our kids will remember this, and I hope they remember it gratefully and fondly.

Let me respond by saying the current bill already states that after 54 months, not 60, but after 54 months the President's Committee on Science and Technology will evaluate ARPA–E and include a recommendation on whether it should be continued or terminated. Congress then can act on those recommendations, on that recommendation.

Mr. AKIN. So you are assuming it is going to be continued unless it is terminated.

Chairman GORDON. No, no, no. We are saying that, well——

Mr. AKIN. If we didn't take any action on their recommendation, then it would continue. Correct?

Chairman GORDON. Yes. It leaves, again, it is stated clearly after 54 months the President's Committee on Science and Technology will evaluate ARPA–E and include a recommendation on whether it should be continued or terminated. Congress can then act on the recommendation.

Mr. AKIN. But my amendment would have been the converse. We would stop it unless we thought it was good. Now, I assume that you would really like that idea more than this other approach. Is that correct, Mr. Chairman?

Chairman GORDON. I think the appropriate approach is, again, after 54 months, having a thorough review by a qualified operation.

Mr. AKIN. Mr. Chairman, if I could interrupt. Am I reading between the lines that you probably wouldn't support my amendment?

Chairman GORDON. You are very insightful.

Mr. AKIN. And being a person of some statistical savvy and seeing how the previous votes have gone, would it be alright if I don't ask for a roll call vote?

Chairman GORDON. I would add to those accolades courteous, too.

Mr. AKIN. Then, Mr. Chairman, I would, unless there is further discussion, proceed to a voice vote and move on with the day.

Chairman GORDON. All in favor of the——

Mr. ROHRABACHER. Mr. Chairman.

Chairman GORDON. Mr. Rohrabacher is recognized.

Mr. ROHRABACHER. I just want to make sure I am on the record in supporting Mr. Akin's amendment, because even though I am very supportive of this concept, ARPA–E, I think that it is incumbent upon us to say that we will have to reaffirm that this program is working after a given time period. 60 months being a good time period, suggests five years, that we should have to make a positive act to reaffirm that this deserves the taxpayers' money and is an effective restructuring that is taking place.

So I would think Mr. Akin's suggestion is a very, very positive one, and if we really believe in what we are doing, this is exactly the type of measure that we should have in all of the changes that we make, that we have to reaffirm that they have been positive changes or that they go out of existence.

Thank you very much.

Chairman GORDON. If the gentleman would yield very quickly, this really, we are trying to accomplish the same thing in that there should be a review. I think we are looking at it in a real political sense. Right now as you very well know we could have a majority of the Congress that thinks this is a good program, but if one person in the Senate decides to put a hold, and we have to make an affirmative vote, that vote may never come up. Even if it is not with a hold, you know, less than a majority can stop something from coming up there.

So it is just, again, we are trying to accomplish the same thing in that clearly if it is not a good bill and a good program, it should stop, just like the managers have the authority if there is a specific research program that is going on, to terminate it. But I think the political reality is that a majority of the Congress can support this program yet the will of that majority might not be heard.

So if there is no further discussion, all in favor of the gentleman's amendment say aye. Opposed nay. The amendment fails.

The twelfth amendment on the roster is offered by the gentleman from Florida, Mr. Diaz-Balart. Are you ready to proceed with your amendment?

Mr. MCCAUL. I am Mr. Chairman, and thank you for extending the courtesy of allowing me to speak for the gentleman from Florida.

The amendment simply——

Chairman GORDON. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 364 offered by Mr. McCaul for Mr. Diaz-Balart.

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without objection so ordered. The gentleman is recognized for five minutes to explain his amendment.

Mr. MCCAUL. Thank you, Mr. Chairman. This amendment simply sunsets ARPA–E after five years if importation of foreign energy sources is not reduced by at least five percent. A reduction of five percent is a modest and very achievable goal. If the goal is not reached, or, I am sorry, if the goal is reached, then ARPA–E would be sunseted after 10 years if importation of foreign energy sources is not reduced by at least 20 percent.

Mr. Chairman, this amendment just reinstates the goals of the original bill before that language was removed at the Subcommittee markup two weeks ago. This reduction would be certified by the Under Secretary of Energy and Science in coordination with the Energy Information Administration.

I am concerned that we are creating a brand new, billion dollar agency without any form of accountability. This amendment simply gives this new agency clear and measurable goals. It establishes benchmarks that are consistent with one of the main goals of the program; to reduce America's dependence on foreign sources of energy. It holds the program accountable for tangible results and protects the taxpayers from unnecessary and wasteful spending.

And with that I yield back.

Chairman GORDON. Is there further discussion on the amendment?

If not, all of those in favor of the amendment say aye. All opposed, no. The no's have it.

Mr. MCCAUL. Mr. Chairman, I ask for a recorded vote.

Chairman GORDON. The Clerk will call the roll.

The CLERK. Chairman Gordon.

Chairman GORDON. No.

The CLERK. Chairman Gordon votes no. Mr. Costello.

Mr. COSTELLO. No.

The CLERK. Mr. Costello votes no. Ms. Johnson.

Ms. JOHNSON. No.

The CLERK. Ms. Johnson votes no. Ms. Woolsey.

Ms. WOOLSEY. No.

The CLERK. Ms. Woolsey votes no. Mr. Udall.

[No response]

The CLERK. Mr. Wu.

Mr. WU. No.

The CLERK. Mr. Wu votes no. Mr. Baird.

Mr. BAIRD. No.

The CLERK. Mr. Baird votes no. Mr. Miller.

Mr. MILLER. No.

The CLERK. Mr. Miller votes no. Mr. Lipinski.

Mr. LIPINSKI. No.

The CLERK. Mr. Lipinski votes no. Mr. Lampson.

Mr. LAMPSON. No.

The CLERK. Mr. Lampson votes no. Ms. Giffords.

[No response]

The CLERK. Mr. McNerney.
Mr. MCNERNEY. No.
The CLERK. Mr. McNerney votes no. Mr. Kanjorski.
[No response]
The CLERK. Ms. Hooley.
Ms. HOOLEY. No.
The CLERK. Ms. Hooley votes no. Mr. Rothman.
Mr. ROTHMAN. No.
The CLERK. Mr. Rothman votes no. Mr. Honda.
[No response]
The CLERK. Mr. Matheson.
Mr. MATHESON. No.
The CLERK. Mr. Matheson votes no. Mr. Ross.
Mr. ROSS. No.
The CLERK. Mr. Ross votes no. Mr. Chandler.
Mr. CHANDLER. No.
The CLERK. Mr. Chandler votes no. Mr. Carnahan.
Mr. CARNAHAN. No.
The CLERK. Mr. Carnahan votes no. Mr. Melancon.
Mr. MELANCON. No.
The CLERK. Mr. Melancon votes no. Mr. Hill.
Mr. HILL. Yes.
The CLERK. Mr. Hill votes aye. Mr. Mitchell.
Mr. MITCHELL. No.
The CLERK. Mr. Mitchell votes no. Mr. Wilson.
Mr. WILSON. No.
The CLERK. Mr. Wilson votes no. Mr. Hall.
Mr. HALL. Aye.
The CLERK. Mr. Hall votes aye. Mr. Sensenbrenner.
[No response]
The CLERK. Mr. Lamar Smith.
[No response]
The CLERK. Mr. Rohrabacher.
Mr. ROHRABACHER. Yes.
The CLERK. Mr. Rohrabacher votes aye. Mr. Bartlett.
Mr. BARTLETT. No.
The CLERK. Mr. Bartlett votes no. Mr. Ehlers.
Mr. EHLERS. No.
The CLERK. Mr. Ehlers votes no. Mr. Lucas.
Mr. LUCAS. Aye.
The CLERK. Mr. Lucas votes aye. Mrs. Biggert.
[No response]
The CLERK. Mr. Akin.
Mr. AKIN. Yes.
The CLERK. Mr. Akin votes aye. Mr. Bonner.
Mr. BONNER. Aye.
The CLERK. Mr. Bonner votes aye. Mr. Feeney.
Mr. FEENEY. Aye.
The CLERK. Mr. Feeney votes aye. Mr. Neugebauer.
[No response]
The CLERK. Mr. Inglis.
Mr. INGLIS. No.
The CLERK. Mr. Inglis votes no. Mr. Reichert.
Mr. REICHERT. Aye.

The CLERK. Mr. Reichert votes aye. Mr. McCaul.

Mr. MCCAUL. Aye.

The CLERK. Mr. McCaul votes aye. Mr. Diaz-Balart.

Mr. DIAZ-BALART. Aye.

The CLERK. Mr. Diaz-Balart votes aye. Mr. Gingrey.

Mr. GINGREY. Aye.

The CLERK. Mr. Gingrey votes aye. Mr. Bilbray.

[No response]

The CLERK. Mr. Adrian Smith.

Mr. SMITH OF NEBRASKA. Aye.

The CLERK. Mr. Adrian Smith votes aye.

Chairman GORDON. How is the gentlelady from Arizona, Ms. Giffords recorded?

The CLERK. Ms. Giffords is not recorded.

Ms. GIFFORDS. No.

The CLERK. Ms. Giffords votes no.

Chairman GORDON. And the Clerk will report the vote.

The CLERK. Mr. Chairman, 12 Members vote aye, 23 vote no.

COMMITTEE ON SCIENCE AND TECHNOLOGY

ROLL CALL 6 BILL H.R. DATE

AMEND # 12 PASSED ___ DEFEATED ✓ VOICE VOTE ___ WITHDRAW ___

SPONSOR/AMENDMENT DIAZ-BALART - OFFERED BY McCAUL

MEMBER	AYE	NO	PRESENT	NOT VOTING
Mr. GORDON, Chairman		✓		
Mr. COSTELLO		✓		
Ms. JOHNSON		✓		
Ms. WOOLSEY		✓		
Mr. UDALL				
Mr. WU		✓		
Mr. BAIRD		✓		
Mr. MILLER		✓		
Mr. LIPINSKI		✓		
Mr. LAMPSON		✓		
Ms. GIFFORDS		✓		
Mr. McNERNEY		✓		
Mr. KANJORSKI				
Ms. HOOLEY		✓		
Mr. ROTHMAN		✓		
Mr. HONDA				
Mr. MATHESON		✓		
Mr. ROSS		✓		
Mr. CHANDLER		✓		
Mr. CARNAHAN		✓		
Mr. MELANCON		✓		
Mr. HILL	✓			
Mr. MITCHELL		✓		
Mr. WILSON		✓		
Mr. HALL	✓			
Mr. SENSENBRENNER				
Mr. LAMAR SMITH, TX				
Mr. ROHRABACHER	✓			
Mr. BARLETT		✓		
Mr. EHLERS		✓		
Mr. LUCAS	✓			
Mrs. BIGGERT				
Mr. AKIN	✓			
Mr. BONNER	✓			
Mr. FEENEY	✓			
Mr. NEUGEBAUER				
Mr. INGLIS		✓		
Mr. REICHERT	✓			
Mr. McCAUL	✓			
Mr. DIAZ-BALART	✓			
Mr. GINGREY	✓			
Mr. BILBRAY				
Mr. ADRIAN SMITH, NE	✓			
Vacant				
TOTALS				

Mr. Chairman, 12 Members vote AYE and 23 vote NO

43 / Quorum /15 vote / 22 Report
Revised 5/16/07

Chairman GORDON. The amendment fails.

The thirteenth amendment on the roster is offered by the gentleman from Georgia, Mr. Gingrey.

Mr. GINGREY. Mr. Chairman, thank you. I have an amendment at the desk.

Chairman GORDON. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 364 offered by Mr. Gingrey of Georgia.

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without objection so ordered. The gentleman is recognized for five minutes.

Mr. GINGREY. Mr. Chairman, thank you, and I won't take five minutes.

This is a friendly amendment. I hope the Chairman and the Majority Members, as well as the Minority will like this amendment. It is a little misleading. It says it inserts a savings clause. Typically when you talk about savings, you are talking about cutting something. In this instance, of course, Mr. Chairman, it basically says that the authorities granted by this Act are in addition to the existing authorities granted to the Secretary of Energy and not intended to supersede or modify any existing authorities.

In other words, I want to make sure that the program is a good program within the Department of Energy, the Office of Science. We all agree, I think, that Secretary Bodman is doing an outstanding job. We don't want to cut into the muscle of programs that are already working well and make sure that the language is clear that this is an additional program and not to take away from existing programs.

Chairman GORDON. Mr. Gingrey, I think this is lucky 13, and it is appropriate that we conclude our amendments today with what I hope will be a unanimous vote for your amendment.

And let me point out that I know that the Minority was not successful on a variety of amendments today, but they were also successful on some earlier. There were lots of discussions, lots of the suggestions were put into this bill, so do not think this is not, I mean, this bill has lots of mothers and fathers.

And so with that I will call a vote.

Mr. ROHRABACHER. Mr. Chairman.

Chairman GORDON. Yes, Mr. Rohrabacher.

Mr. ROHRABACHER. I hate to be the skunk at the lawn party here, but——

Chairman GORDON. Well, you have before so go ahead.

Mr. ROHRABACHER.—it isn't unanimous. This is exactly the wrong way to go. This is exactly the wrong way to go. If we are saying that the current structure does not work, we should not be saying that the current structure will not be touched, and this is just an addition. So we are just adding more spending onto something that has failed. If it has failed, we need something else, we need restructuring. Let us take it from where it has failed, and again, I will have to say that I agree with the concept of restructuring, creating ARPA–E, because I don't believe the current system is working, and it is overly bureaucratic. It is overtly an old boy network spread throughout the scientific community on energy research. We need to break through that and to have some real re-

form here. Just suggesting that we are not going to touch the system——

Mr. GINGREY. If the gentleman would yield.

Mr. ROHRABACHER.—this is counter to what we are trying to do here. So I oppose this.

Mr. GINGREY. If the gentleman would yield to me, Mr. Rohrabacher, and I thank the gentleman for yielding. And let me just say that, you know, the final vote here in Committee has not been taken on this bill, and I at the outset suggested that maybe this program was not needed. And I still feel that way, and that will become obvious when the final vote is taken, although I have great respect, great respect for our Chairman and most of the time I am going to be supportive of much of his legislation as I have been so far in the 110th.

But what this amendment basically says is if this bill does pass, which I think those of us on this side of the aisle can count, it very likely will pass, but in that event I certainly don't want to have this funding to cut into the meat of the overall Department of Energy budget. That is the reason.

Mr. ROHRABACHER. Well, that is clearly your intent, and that is clearly the wrong direction to go, and I am sorry. If you have got a reason to create restructuring within Department of Energy, we should be restructuring it by defunding those things that aren't working well and not just adding more spending onto programs that have failed.

So I would——

Chairman GORDON. Would the gentleman yield?

Mr. ROHRABACHER.—I just want to be on the record.

Chairman GORDON. If the gentleman from California would yield, let me suggest that you don't smell quite as bad as you point out, in that we are not doing our job. I think there are probably some things at the Department of Energy that aren't as good as they should be.

Mr. ROHRABACHER. Right.

Chairman GORDON. We are not doing our job here in oversight if we don't look into that, and I think that as this committee, I don't want to acquiesce that. We should look at it. If there are some things that aren't being good, it is our job to point it out and do something about it. And I hope that we will do that.

Mr. GINGREY. Thank you.

Chairman GORDON. And so all in favor say aye. Opposed. The ayes have it.

Are there other amendments? If not then the vote is on the bill, H.R. 364 as amended. All in favor will say aye. All opposed no. In the opinion of the Chair the ayes have it.

Mr. HALL. Mr. Chairman. I would ask for a recorded vote.

Chairman GORDON. The gentleman from Texas asks for a recorded vote.

Chairman GORDON. The Clerk will read the vote, read the roll.

The CLERK. Chairman Gordon.

Chairman GORDON. Aye.

The CLERK. Chairman Gordon votes aye. Mr. Costello.

Mr. COSTELLO. Aye.

The CLERK. Mr. Costello votes aye. Ms. Johnson.

Ms. JOHNSON. Aye.
The CLERK. Ms. Johnson votes aye. Ms. Woolsey.
Ms. WOOLSEY. Aye.
The CLERK. Ms. Woolsey votes ayes. Mr. Udall.
[No response]
The CLERK. Mr. Wu.
Mr. WU. Aye.
The CLERK. Mr. Wu votes aye. Mr. Baird.
Mr. BAIRD. Aye.
The CLERK. Mr. Baird votes aye. Mr. Miller.
Mr. MILLER. Aye.
The CLERK. Mr. Miller votes aye. Mr. Lipinski.
Mr. LIPINSKI. Aye.
The CLERK. Mr. Lipinski votes aye. Mr. Lampson.
Mr. LAMPSON. Aye.
The CLERK. Mr. Lampson votes aye. Ms. Giffords.
Ms. GIFFORDS. Aye.
The CLERK. Ms. Giffords votes aye. Mr. McNerney.
Mr. MCNERNEY. Aye.
The CLERK. Mr. McNerney votes aye. Mr. Kanjorski.
[No response]
The CLERK. Ms. Hooley.
Ms. HOOLEY. Aye.
The CLERK. Ms. Hooley votes aye. Mr. Rothman.
Mr. ROTHMAN. Aye.
The CLERK. Mr. Rothman votes aye. Mr. Honda.
[No response]
The CLERK. Mr. Matheson.
Mr. MATHESON. Aye.
The CLERK. Mr. Matheson votes aye. Mr. Ross.
Mr. ROSS. Aye.
The CLERK. Mr. Ross votes aye. Mr. Chandler.
Mr. CHANDLER. Aye.
The CLERK. Mr. Chandler votes aye. Mr. Carnahan.
Mr. CARNAHAN. Aye.
The CLERK. Mr. Carnahan votes aye. Mr. Melancon.
Mr. MELANCON. Aye.
The CLERK. Mr. Melancon votes aye. Mr. Hill.
Mr. HILL. Aye.
The CLERK. Mr. Hill votes aye. Mr. Mitchell.
Mr. MITCHELL. Aye.
The CLERK. Mr. Mitchell votes aye. Mr. Wilson.
Mr. WILSON. Aye.
The CLERK. Mr. Wilson votes aye. Mr. Hall.
Mr. HALL. No.
The CLERK. Mr. Hall votes no. Mr. Sensenbrenner.
[No response]
The CLERK. Mr. Lamar Smith.
[No response]
The CLERK. Mr. Rohrabacher.
Mr. ROHRABACHER. Aye.
The CLERK. Mr. Rohrabacher votes aye. Mr. Bartlett.
Mr. BARTLETT. Aye.
The CLERK. Mr. Bartlett votes aye. Mr. Ehlers.

Mr. EHLERS. Aye.
The CLERK. Mr. Ehlers votes aye. Mr. Lucas.
Mr. LUCAS. No.
The CLERK. Mr. Lucas votes no. Mrs. Biggert.
Ms. BIGGERT. No.
The CLERK. Mrs. Biggert votes no. Mr. Akin.
Mr. AKIN. No.
The CLERK. Mr. Akin votes no. Mr. Bonner.
Mr. BONNER. No.
The CLERK. Mr. Bonner votes no. Mr. Feeney.
Mr. FEENEY. No.
The CLERK. Mr. Feeney votes no. Mr. Neugebauer.
Mr. NEUGEBAUER. No.
The CLERK. Mr. Neugebauer votes no. Mr. Inglis.
Mr. INGLIS. Aye.
The CLERK. Mr. Inglis votes aye. Mr. Reichert.
Mr. REICHERT. No.
The CLERK. Mr. Reichert votes no. Mr. McCaul.
Mr. MCCAUL. No.
The CLERK. Mr. McCaul votes no. Mr. Diaz-Balart.
Mr. DIAZ-BALART. No.
The CLERK. Mr. Diaz-Balart votes no. Mr. Gingrey.
Mr. GINGREY. No.
The CLERK. Mr. Gingrey votes no. Mr. Bilbray.
[No response]
The CLERK. Mr. Adrian Smith.
Mr. SMITH OF NEBRASKA. No.
The CLERK. Mr. Adrian Smith votes no.
Chairman GORDON. Are there others Members that were not recorded?
If not, the Clerk will report the vote.
The CLERK. Mr. Chairman, 25 Members vote aye, and 12 Members vote no.

COMMITTEE ON SCIENCE AND TECHNOLOGY

ROLL CALL 7 BILL H.R. 364 DATE 5/23/2007

AMEND #____ PASSED ✓ DEFEATED ___ VOICE VOTE ___ WITHDRAW ___

SPONSOR/AMENDMENT Final Passage

MEMBER	AYE	NO	PRESENT	NOT VOTING
Mr. GORDON, Chairman	✓			
Mr. COSTELLO	✓			
Ms. JOHNSON	✓			
Ms. WOOLSEY	✓			
Mr. UDALL				
Mr. WU	✓			
Mr. BAIRD	✓			
Mr. MILLER	✓			
Mr. LIPINSKI	✓			
Mr. LAMPSON	✓			
Ms. GIFFORDS	✓			
Mr. McNERNEY	✓			
Mr. KANJORSKI				
Ms. HOOLEY	✓			
Mr. ROTHMAN	✓			
Mr. HONDA				
Mr. MATHESON	✓			
Mr. ROSS	✓			
Mr. CHANDLER	✓			
Mr. CARNAHAN	✓			
Mr. MELANCON	✓			
Mr. HILL	✓			
Mr. MITCHELL	✓			
Mr. WILSON	✓			
Mr. HALL		✓		
Mr. SENSENBRENNER				
Mr. LAMAR SMITH, TX				
Mr. ROHRABACHER	✓			
Mr. BARLETT	✓			
Mr. EHLERS	✓			
Mr. LUCAS		✓		
Mrs. BIGGERT		✓		
Mr. AKIN		✓		
Mr. BONNER		✓		
Mr. FEENEY		✓		
Mr. NEUGEBAUER		✓		
Mr. INGLIS	✓			
Mr. REICHERT		✓		
Mr. McCAUL		✓		
Mr. DIAZ-BALART		✓		
Mr. GINGREY		✓		
Mr. BILBRAY				
Mr. ADRIAN SMITH, NE		✓		
Vacant				
TOTALS	25			

Mr. Chairman, 25 Members vote AYE and 12 vote NO

43 / Quorum /15 vote / 22 Report
Revised 5/16/07

Chairman GORDON. The bill passes. Mr. Hall is recognized.

Mr. HALL. Mr. Chairman, I want to thank you for the way you have conducted this. As the gentleman, Dr. Gingrey said, we can count, and we can count each of these times, and actually about the only excitement we have had here today is when Ms. Deborah would call for the gentleman from Louisiana to vote.

But we like the direction we are going. We don't like the fact that you have another agency, the money spending, but we thank you for your courtesy and your generosity in the way you handle the gavel.

Yield back.

Chairman GORDON. Thank you, Mr. Hall. I wish this could have been a unanimous vote, but it was a unanimous work in that both at the Subcommittee level, working together all through. I think that we have a better bill, and I am glad it is a bipartisan bill, and I want Dr. Ehlers and anyone else to know that we will continue our conversation to have the very best bill we can through going to the Floor and going through conference.

I now recognize Mr. Lampson to offer a motion.

Mr. LAMPSON. Mr. Chairman, I move that the Committee favorably report H.R. 364 as amended to the House with the recommendation that the bill do pass.

Furthermore, I move that the staff be instructed to prepare the legislative report and make the necessary technical and conforming changes and that the Chairman take all necessary steps to bring the bill before the House for consideration.

Chairman GORDON. The question is on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. Opposed no. The ayes have it, and the bill is favorably reported.

Without objection the motion to reconsider is laid upon the table. I move that Members have two subsequent calendar days in which to submit supplemental, minority, or additional views on the measure.

I move pursuant to Clause 1 of Rule 22 of the Rules of the House of Representatives that the Committee authorize the Chairman to offer such motions as may be necessary in the House to adopt and pass H.R. 364, *To provide for the establishment of Advanced Research Projects Agency–Energy,* as amended.

Without objection, so ordered. And once again, I want to thank the Members for your patience. I know there are lots of markups going on. We have three more bills which I hope will be unanimous, and we will now proceed to those.

Many thanks to everyone, and I want to conclude this markup.

[Whereupon, at 1:00 p.m., the Committee was adjourned.]

Appendix:

SUBCOMMITTEE MARKUP REPORT, H.R. 364, AS REPORTED BY THE SUBCOMMITTEE ON ENERGY AND ENVIRONMENT, AMENDMENT ROSTER

COMMITTEE ON SCIENCE AND TECHNOLOGY
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT
REPORT FROM SUBCOMMITTEE MARKUP

MAY 10, 2007

H.R. 364, To provide for the establishment of the Advanced Research Projects Agency–Energy

I. Purpose

The purpose of the bill is to establish within the Department of Energy, the Advanced Research Projects Agency–Energy (ARPA–E), and set up an Energy Independence Acceleration Fund to conduct activities under the Act.

II. Background and Need for Legislation

H.R. 364 follows on the recommendation of the National Academies 2005 report, *Rising Above the Gathering Storm,* also known as the "Augustine Report" for its Chair, retired Lockheed Martin CEO Norman Augustine. This report called on the Federal Government to create a new energy research agency within Department of Energy patterned loosely on the successful Defense Advanced Research Projects Agency (DARPA) within the Department of Defense. According to the *Gathering Storm* report, ARPA–E should be structured to "sponsor creative, out-of-the-box, transformational, generic energy research in those areas where industry itself cannot or will not undertake such sponsorships, where risks and potential payoffs are high, and where success could provide dramatic benefits for the Nation. ARPA–E would accelerate the process by which research is transformed to address economic, environmental, and security issues. It would be designed as a lean, effective, and agile—but largely independent—organization that can start and stop targeted programs based on performance and ultimate relevance."

The primary motivations for establishing an ARPA–E are the need for the U.S. to obtain more energy from domestic sources, become more energy efficient, and become less reliant on energy sources and technologies that have an adverse effect on the environment. The push for new technologies is especially urgent given the geopolitical forces that threaten global energy supplies and economic stability, the looming threat of global climate change, and probable regulation of carbon dioxide emissions. In addition to addressing the Nation's energy challenges, the *Gathering Storm* report also concluded that ARPA–E will contribute to U.S. competitiveness by playing an important role in "advancing research in engineering, the physical sciences, and mathematics; and in developing the next generation of researchers." While isolated elements in the national labs, industry, and academia have collaborated with varying degrees of success, there is currently no federal program charged with bringing these elements together and seeding a strong and cohesive domestic community of researchers and technology developers focused on pushing transformational energy solutions into the marketplace. ARPA–E is intended to play this critical role.

To pursue truly transformational research ARPA–E will utilize an organizational structure that is fundamentally different from that of the traditional energy research enterprise. Critics of the Department of Energy's management of research programs contend that the stove-piped and bureaucratic structure of DOE is not conducive to the quick development of cross-cutting energy solutions, or translating energy research results into commercial technologies. ARPA–E will instead have a relatively flat and nimble organization, similar to the small, flexible, non-hierarchical reporting structure at DARPA that fostered a successful culture of innovation. Because the director of ARPA–E reports directly to the Secretary of Energy, it is not beholden to any one particular technology area or research program within DOE. Furthermore, changes were made in Subcommittee to ensure that no other programs within DOE report to ARPA–E. These two factors ensure that ARPA–E has a unique independence within DOE, and does not add another "layer" to the DOE bureaucracy, especially since bureaucratic impediments are the main thing it seeks to avoid.

ARPA–E's unique function is best described as that of a "marriage broker" that can identify people and capabilities within industry, universities, and the national labs, and assemble hybrid research teams to quickly develop novel solutions to pressing energy problems. Key to this function is the Program Manager. As with DARPA, these individuals would ostensibly be very talented, knowledgeable, experienced in industry or academia, and passionate in pursuit of their mission. Because

of the flexible hiring authority that is written into Section 2 of the bill, talented Program Managers can be recruited from a variety of fields, hired for a term of approximately three years, and paid a salary commensurate with what they would make in the private sector. The initial start-up staff of ARPA–E will be crucial in making it both successful and distinct from the traditional federal R&D enterprise, and the Subcommittee added language to further specify their qualifications. To allow ARPA–E to pursue truly novel technology areas, projects will not undergo the traditional peer-review process which has been criticized as promoting incremental changes to existing systems. Instead, Program Managers and their superiors are given extraordinary autonomy and resources to quickly pursue unique technology pathways, and just as quickly change course or stop research if it does not look fruitful. This is different from the current DOE model which is criticized for requiring inordinate amounts of time to start up research projects, and then sustaining support for projects and people beyond a timeframe where meaningful results are likely.

Language was added in subcommittee to further clarify that ARPA–E is expected to pursue a "whatever it takes" approach to moving a potentially transformational technologies from the labs to the marketplace. If adequately funded and directed the mission-driven ARPA–E will leverage its resources and institutional capabilities to aggressively engage in basic research into fundamental concepts with possible technology applications, and later-stage technology prototyping and large-scale demonstrations.

Despite the recent attention to energy challenges, R&D investment in energy remains far below the historically high levels of the 1970's. A recent GAO report commissioned by Chairman Gordon and Congressman Honda noted that "DOE's total budget authority for energy R&D dropped by over 85 percent (in real terms) from 1978 to 2005, peaking in the late 1970's but falling sharply when oil prices returned to lower levels in the mid-1980's." (GAO–07–106) Witnesses at the April 26 Subcommittee hearing all agreed that, for ARPA–E to be successful, the program must be funded at levels to match the magnitude and complexity of energy challenges, and the high costs of energy research and technology demonstration. According to venture capitalist John Denniston: ". . .federal spending on renewable energy research amounts to little more than $1 billion per year. Frankly, this is inadequate relative to the scope of our problems, and the sheer size of the energy and transportation industries which amount to over $1.8 trillion annually. We are way off scale." It was suggested in the hearing that no other technology-based industry invests such a small proportion of revenues in research. By comparison, Mr. Denniston pointed out that the National Institute of Health receives $28 billion for research annually, and DARPA itself was initially budgeted for the equivalent of $3.5 billion, and remains at roughly the same level today.

Investment in ARPA–E should be seen in the context of increasing overall energy R&D expenditures enough to truly address the challenge. Furthermore, it is not intended for ARPA–E to come from other research accounts within DOE. The *Gathering Storm* report calls for ARPA–E to be authorized at $300 million in the first year, and quickly escalate to $1 billion within five years. The Subcommittee changed the authorization levels to reflect concern on the part of the witnesses and other outside testimony that the previous authorizations levels were inadequate for the scale of the challenge. The authorizations now ramp up more quickly to $1 billion in the second year to allow ARPA–E to be fully operational quickly. Hearing witnesses and others have suggested that the only way a high-cost, risk-tolerant program like ARPA–E would survive is if it has dedicated stream of funding, and therefore would not be subject to annual political/financial pressures and resource fluctuations that stifle innovation.

III. Subcommittee Actions

H.R. 364 was introduced by Chairman Gordon on January 10, 2007, and referred to the House Committee on Science and Technology, Subcommittee on Energy and Environment. This bill was first introduced as H.R. 4435 in the 109th Congress. In the 109th Congress the House Committee on Science held a hearing on March 9, 2006 examining the concept of an ARPA–E (HOUSE REPT. 109–39). Several similar bills calling for an ARPA–E were introduced in the 109th and 110th, in both the House and Senate (including S. 696 and S. 761, the Senate COMPETES Act).

The Subcommittee on Energy and Environment held a hearing on April 26, 2007 to hear testimony on H.R. 364 from the following witnesses:

- **Mr. John Denniston—**partner in the venture capital firm of Kleiner Perkins Caufield and Byers, and energy technology investor.

- **Mr. William Bonvillian—**Director of the Washington Office of the Massachusetts Institute of Technology and former Senate staff on legislation establishing HS–ARPA at the Department of Homeland Security.
- **Dr. Stephen Forrest—**Vice President for Research at the University of Michigan, which recently established the Michigan Memorial Phoenix Energy Institute.
- **Dr. Richard Van Atta—**senior researcher at the Science & Technology Policy Institute of the Institute for Defense Analysis, and one of the leading experts on DARPA history.

The Subcommittee on Energy and Environment met to consider H.R. 364 on May 10, 2007 and consider the following amendments to the bill:

1. On behalf of Mr. Lampson, Ms. Giffords, and Mr. Bartlett which adds additional goals for greenhouse gas emissions, efficiency, and economic competitiveness; clarifies reporting structure, personnel responsibilities, activities, and participants; specifies desired experience of some personnel and limits terms to three years; specifies coordination and non-duplication with DOE and other agencies; increases authorization levels; sets guidelines and limits for funding allocations for demonstration and commercial application, federally funded R&D Centers, overhead expenses, and new construction. The amendment was agreed to by voice vote.
2. On behalf of Ms. Biggert, Replaces text with directions to DOE and NAS to study ARPA–E concept and make recommendations on implementation. The amendment was defeated by voice vote.

Ms. Giffords moved that the Subcommittee favorably report the bill H.R. 364, as amended, to the Full Committee. The motion was agreed to by voice vote.

IV. Summary of Major Provisions of the Bill

H.R. 364 authorizes $6.3 billion for ARPA–E for the fiscal years 2008–2013. The bill also outlines the organizational structure, hiring practices, goals, and activities of ARPA–E. The bill specifies that, to the extent practicable, ARPA–E will not duplicate the specific efforts of other research programs, will coordinate with those programs wherever possible, and seek opportunities to demonstrate technologies within the Federal Government. Specific guidelines are set for the proportion of funds that may be used for overhead expenses, late-stage demonstration and commercial applications, federally funded research and development centers, and new construction. After roughly five years of operations ARPA–E will be evaluated by the President's Committee on Science and Technology.

V. Section by Section Analysis of the Bill, as reported by the Subcommittee

Section 1.

Findings—The U.S. can meet long-term energy challenges through sustained investment in energy research programs at DOE augmented by an innovative and aggressive new energy technology development effort based on the same operating principles that make DARPA successful.

Section 2.

Advanced Research Projects Agency–Energy—Establishes the Advanced Research Projects Agency–Energy (ARPA–E) within the Department of Energy. Similar to the Department of Defense's Advanced Research Projects Agency (DARPA), this new organizational structure will support revolutionary and transformational energy research where risk and payoffs are high.

The stated goal of ARPA–E is to develop technologies to reduce the dependence of the U.S. on foreign energy sources, improve energy efficiency of the U.S. economy, reduce the impact of the energy sector on the environment, and provide for the U.S. leadership in developing energy technologies. To achieve this ARPA–E will support targeted high-risk, high pay-off research to accelerate the innovation cycle for both traditional and alternative energy sources and energy efficiency. ARPA–E shall be headed by a Director, appointed by the Secretary, who will administer competitive grants, cooperative agreements, or contracts to universities, industry and consortia which may include federal labs.

Organization of ARPA–E will be flat and nimble to avoid bureaucratic impediments that stifle innovation today. The Director shall designate program managers who will have flexibility in establishing R&D goals for the program, publicizing goals, issuing solicitations and selecting projects, monitoring their progress, and changing or eliminating projects as needed. Projects will be chosen based on factors

such as novelty, scientific and technical merit, applicant's capabilities and other criteria as the Director determines. ARPA–E will have authority to hire specialized science and engineering personnel to be program managers. (This is similar to DARPA and HS–ARPA.)

In addition, the Director shall ensure that ARPA–E's activities do not duplicate and are coordinated with other federal research programs, and shall seek opportunities to demonstrate technologies through procurement in the Federal Government.

Section. 3.

Energy Independence Acceleration Fund—Establishes the Energy Independence Acceleration Fund administered by the Director of ARPA–E. $6.3 billion is authorized for FY 2008 through 2013, to remain available until expended.

Section 4.

Recoupment—The provision allows the Secretary complete flexibility in developing recoupment agreements, and the ability to waive it entirely if necessary for the commercial viability of a project. All recouped funds will be returned to the Energy Independence Acceleration Fund.

Section 5.

Advisory Committee—The ARPA–E Advisory Committee may seek advice either from an existing DOE advisory committee or may establish a new advisory committee. If the Director of ARPA–E requires industry advice, a panel to advise on a specific technology area, or to hire an outside consultant, this provision provides the appropriate authorities.

Section 6.

ARPA–E Evaluation—At the end of five and one-half years, the President's Committee on Science and Technology (PCAST) shall evaluate how well ARPA–E has performed in achieving its goals and mission. The Committee is required to recommend whether ARPA–E should be continued or terminated as well as lessons learned from its operation.

H.R. 364, AS REPORTED BY THE SUBCOMMITTEE ON ENERGY AND ENVIRONMENT

On May 10, 2007

1 **SECTION 1. FINDINGS.**

2 The Congress finds the following:

3 (1) The United States faces a range of energy
4 challenges that affect our economy, security, and en-
5 vironment. Fundamentally, these challenges involve
6 science and technology.

7 (2) The Department of Energy already has
8 some of the mechanisms necessary to promote long-
9 term research, but it lacks the mechanisms for
10 quickly transforming the results into technology that
11 meets national needs.

12 (3) A recent report of the Secretary of Energy's
13 Advisory Board's Task Force on the Future of
14 Science Programs at the Department of Energy con-
15 cluded that "America can meet its energy needs only
16 if we make a strong and sustained investment in re-
17 search in physical science, engineering, and applica-
18 ble life sciences and if we translate advancing sci-
19 entific knowledge into practice".

1 (4) The Department of Defense, since 1958,
2 has used its Defense Advanced Projects Research
3 Agency (DARPA) for aggressively addressing real-
4 time defense problems through targeted programs of
5 research and technology development that have im-
6 proved our national defense through trans-
7 formational technologies.
8 (5) The National Academy of Sciences' report
9 entitled "Rising Above the Gathering Storm: Ener-
10 gizing and Employing America for a Brighter Eco-
11 nomic Future" recommends creating a new agency
12 within the Department of Energy to sponsor "cre-
13 ative, out-of-the-box, transformational, generic en-
14 ergy research in those areas where industry by itself
15 cannot or will not undertake such sponsorship,
16 where risks and pay-offs are high". Such an organi-
17 zation would be able to accelerate the process by
18 which research is transformed to address energy-re-
19 lated economic, environmental, and security issues to
20 decrease dependence on foreign energy through tar-
21 geted research and technology development.
22 **SEC. 2. ADVANCED RESEARCH PROJECTS AGENCY-ENERGY.**
23 (a) ESTABLISHMENT.—There is established the Ad-
24 vanced Research Projects Agency-Energy (in this Act re-

1 ferred to as "ARPA-E") within the Department of En-
2 ergy.
3 (b) GOALS.—The goals of ARPA-E are to enhance
4 the Nation's economic and energy security through reduc-
5 tions in imports of energy from foreign sources, to reduce
6 emissions of greenhouse gases from the energy and indus-
7 trial sectors, to improve energy efficiency of all economic
8 sectors, and to ensure that the United States maintains
9 a technological lead in developing and deploying energy
10 technologies. ARPA-E will achieve this by—
11 (1) identifying and promoting revolutionary ad-
12 vances in fundamental sciences with potential energy
13 and environmental applications;
14 (2) translating scientific discoveries and cut-
15 ting-edge engineering innovations into technologies
16 that promote energy security and sound environ-
17 mental stewardship; and
18 (3) accelerating the market adoption of trans-
19 formational technological advances in areas such as
20 alternative fuels and transportation technology, en-
21 ergy efficiency, electricity production and infrastruc-
22 ture, and carbon capture and sequestration.
23 (c) DIRECTOR.—ARPA-E shall be headed by a Direc-
24 tor who shall be appointed by the Secretary of Energy.
25 The Director shall report to the Secretary. No other pro-

1 grams within the Department of Energy shall report to
2 the Director of ARPA-E.
3 (d) RESPONSIBILITIES.—The Director shall admin-
4 ister the Fund established under section 3 to award com-
5 petitive grants, cooperative agreements, or contracts to in-
6 stitutions of higher education, companies, research foun-
7 dations, trade and industry research collaborations, or
8 consortia of such entities which may include federally
9 funded research and development centers, to achieve the
10 goals stated in subsection (b) through targeted accelera-
11 tion of—
12 (1) novel early-stage energy research with pos-
13 sible technology applications;
14 (2) development of techniques, processes, and
15 technologies, and related testing and evaluation;
16 (3) development of manufacturing processes for
17 technologies; and
18 (4) demonstration and coordination with non-
19 governmental entities for commercial applications of
20 technologies and research applications.
21 (e) PERSONNEL.—
22 (1) PROGRAM MANAGERS.—The Director shall
23 designate employees to serve as program managers
24 for each of the programs established pursuant to the
25 responsibilities established for ARPA-E under sub-

1 section (d). Program managers shall report directly
2 to the Director of ARPA-E, and shall be responsible
3 for—
4 (A) establishing research and development
5 goals for the program, including through the
6 convening of workshops and conferring with
7 outside experts, as well as publicizing its goals
8 to the public and private sectors;
9 (B) soliciting applications for specific areas
10 of particular promise, especially those which the
11 private sector alone cannot or will not provide
12 funding;
13 (C) building research collaborations for
14 carrying out the program;
15 (D) selecting research projects for support
16 under the program from among applications
17 submitted to ARPA-E, following consideration
18 of—
19 (i) the novelty and scientific and tech-
20 nical merit of the proposed projects;
21 (ii) the demonstrated capabilities of
22 the applicants to successfully carry out the
23 proposed research project; and
24 (iii) such other criteria as are estab-
25 lished by the Director; and

1 (E) monitoring the progress of projects
2 supported under the program, adding new par-
3 ticipants, and terminating research partnerships
4 or whole projects that do not show promise.
5 (2) HIRING AND MANAGEMENT.—In hiring per-
6 sonnel for ARPA-E, the Secretary shall have the hir-
7 ing and management authorities described in section
8 1101 of the Strom Thurmond National Defense Au-
9 thorization Act for Fiscal Year 1999 (5 U.S.C. 3104
10 note). For purposes of subsection (c)(1) of that sec-
11 tion, the term of appointments for employees may
12 not exceed 3 years before the granting of any exten-
13 sion. In hiring initial staff the Secretary shall give
14 preference to applicants with experience in the De-
15 fense Advanced Research Projects Agency, or private
16 sector technology development.
17 (f) COORDINATION AND NONDUPLICATION.—To the
18 extent practicable, the Director shall ensure that the ac-
19 tivities of ARPA-E are coordinated with, and do not dupli-
20 cate the efforts of, existing programs and laboratories
21 within the Department of Energy and other relevant re-
22 search agencies. Where appropriate, the Director may co-
23 ordinate technology transfer efforts with the Technology
24 Transfer Coordinator established in section 1001 of the
25 Energy Policy Act of 2005 (42 U.S.C. 16391).

(g) FEDERAL USE OF TECHNOLOGIES.—The Secretary shall seek opportunities to utilize Federal agencies' purchasing and procurement programs to demonstrate technologies resulting from activities funded through ARPA-E and to facilitate their entry into private markets.

SEC. 3. FUND.

(a) ESTABLISHMENT.—There is established in the Treasury the Energy Independence Acceleration Fund (in this Act referred to as the "Fund"), which shall be administered by the Director of ARPA-E for the purposes of carrying out this Act.

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Director of ARPA-E for deposit in the Fund $300,000,000 for fiscal year 2008, $1,000,000,000 for fiscal year 2009, $1,100,000,000 for fiscal year 2010, $1,200,000,000 for fiscal year 2011, $1,300,000,000 for fiscal year 2012, and $1,400,000,000 for fiscal year 2013, to remain available until expended.

(c) ALLOCATION.—Of the amounts appropriated for a fiscal year under subsection (b)—

(1) not more than 50 percent shall be for activities under section 2(d)(4);

(2) not more than 8 percent shall be made available to Federally Funded Research and Development Centers;

(3) not more than 10 percent may be used for administrative expenses; and

(4) during the first 5 years of operation of ARPA-E, no funds may be used for construction of new buildings or facilities.

SEC. 4. RECOUPMENT.

(a) REQUIREMENT.—Not later than 180 days after the date of enactment of this Act, the Secretary shall establish procedures and criteria for the recoupment of the Federal share of each project supported under this Act. Such recoupment shall occur within a reasonable period of time following the date of the completion of such project, but not later than 20 years following such date, taking into account the effect of recoupment on—

(1) the commercial competitiveness of the entity carrying out the project;

(2) the profitability of the project; and

(3) the commercial viability of the technology utilized.

(b) WAIVER.—The Secretary may at any time waive or defer all or some portion of the recoupment requirement as necessary for the commercial viability of the project.

1 (c) AVAILABILITY OF FUNDS.—Revenue received by
2 the Federal Government pursuant to this section shall be
3 deposited into the Fund and shall be available with further
4 appropriation to fund future grants, contracts, and coop-
5 erative agreement as authorized by the Director.
6 (d) DEFINITIONS.—For the purposes of this sec-
7 tion—
8 (1) the term "for-profit entity" means a li-
9 censee or successor in interest to a venture member,
10 or any other for-profit person or entity, or combina-
11 tion of such persons or entities, that earns or ac-
12 crues amounts subject to this section;
13 (2) the term "product or invention supported
14 by or produced as a result of funding under this
15 Act" includes any product or invention of a venture
16 member based on or using any technology or inven-
17 tion arising out of a venture funded under this Act;
18 and
19 (3) the term "revenue generated by or resulting
20 from a product or invention" includes revenue de-
21 rived from the sale or licensing of patents or other
22 rights with respect to the product or invention.
23 **SEC. 5. ADVICE.**
24 (a) ADVISORY COMMITTEES.—The Director may seek
25 advice on any aspect of ARPA-E from—

1 (1) existing Department of Energy advisory
2 committees; and
3 (2) new advisory committees organized to sup-
4 port the programs of ARPA-E and to provide advice
5 and assistance on—
6 (A) specific program tasks; or
7 (B) overall direction of ARPA-E.
8 (b) APPLICABILITY.—Section 14 of the Federal Advi-
9 sory Committee Act shall not apply to advisory committees
10 organized under subsection (a)(2).
11 (c) ADDITIONAL SOURCES OF ADVICE.—The Direc-
12 tor may seek advice and review from the National Acad-
13 emy of Sciences, the National Academy for Engineering,
14 and any other professional or scientific organization with
15 expertise in specific processes or technologies under devel-
16 opment by ARPA-E.
17 **SEC. 6. ARPA-E EVALUATION.**
18 After ARPA-E has been in operation for 54 months,
19 the President's Committee on Science and Technology
20 shall begin an evaluation (to be completed within 12
21 months) of how well ARPA-E is achieving its goals and
22 mission. The evaluation shall include the recommendation
23 of such Committee on whether ARPA-E should be contin-
24 ued or terminated, as well as lessons-learned from its oper-

1 ation. The evaluation shall be made available to Congress
2 and to the public upon completion.

COMMITTEE ON SCIENCE AND TECHNOLOGY
FULL COMMITTEE MARKUP
MAY 23, 2007

AMENDMENT ROSTER

H.R. 364 – *to provide for the establishment of the Advanced Research Projects Agency-Energy*

No.	Sponsor	Description	Results
1	Mr. Gordon	Manager's amendment expands hiring authorities of the Director; clarifies Program Managers role in terminating projects; changes name of fund; strikes last year of funding; strikes recoupment section.	Agreed to by voice vote.
2	Mr. Hall with Mr. Gingrey and Ms. Biggert	Amendment in the nature of a substitute makes technical and substantive changes to various sections of the underlying bill.	Defeated by roll call vote 24-12.
3	Mr. Inglis	Amends the bill to provide a one year protection for existing funding levels for the Office of Science; directs the program managers of ARPA-E to select projects on the basis of merit; clarifies how ARPA-E will assist in improving technology transfer.	Agreed to by voice vote.
4	Ms. Biggert	Amends section 3(c)(2) by substituting "available for expenditure by" for "available to."	Not offered.
5	Ms. Biggert	Amendment to section 3 conditioning appropriated funds for ARPA-E in any fiscal year on the appropriation of the full authorization amount under section 971(b) of EPAct for the previous year.	Defeated by roll call vote 19-11.
6	Ms. Biggert	Amendment to section 3 striking the 8 percent limit on funding for Federally Funded Research and Development Centers.	Defeated by roll call vote 23-13.

No.	Sponsor	Description	Results
7	Mr. Ehlers	Amends section 2 to have the Under Secretary of Energy for Science appoint the Director of ARPA-E and have the Director report to the Under Secretary of Energy for Science.	Defeated by voice vote.
8	Mr. Bilbray	Strikes section 3.	Defeated by voice vote.
9	Mr. Smith	Amends section 3 to provide for the termination of ARPA-E if the study required under section 1821 of EPAct 2005 concludes ARPA-E should not be established.	Defeated by roll call vote 25-13.
10	Mr. Gingrey	Amends section 3 to halt appropriations for ARPA-E unless the study required under section 1821 of EPAct 2005 is completed and concludes that ARPA-E should be established.	Defeated by roll call vote 25-13.
11	Mr. Akin	Adds a new section providing for the termination of ARPA-E after 60 months.	Defeated by voice vote.
12	Mr. Diaz-Balart	Adds a new section terminating ARPA-E: --after 5 years if energy imports have not decreased by at least 5 percent from import levels at the date of enactment --after 10 years if energy imports have not decreased by at least 20 percent from import levels at the date of enactment	Defeated by roll call vote 23-12.
13	Mr. Gingrey	Adds new section creating a savings clause.	Agreed to by voice vote.

AMENDMENT TO H.R. 364

OFFERED BY MR. GORDON OF TENNESSEE

Page 5, lines 1 and 2, strike "shall report directly to the Director of ARPA-E, and".

Page 6, lines 1 through 4, amend subparagraph (E) to read as follows:

1 (E) monitoring the progress of projects
2 supported under the program, and prescribing
3 program restructure or termination of research
4 partnerships or whole projects that do not show
5 promise.

Page 6, line 15, insert "academia," after "Projects Agency,".

Page 6, line 16, insert "The Secretary or Director may contract with private recruiting firms in hiring qualified technical staff." after "technology development.".

Page 6, after line 16, insert the following new paragraph:

6 (3) ADDITIONAL HIRING.—The Director may
7 hire additional technical, financial, managerial, or

1 other staff as needed to carry out the activities of
2 the program.

Page 7, line 8, strike "Energy Independence Acceleration Fund" and insert "Energy Transformation Acceleration Fund".

Page 7, line 17, insert "and" after "2011,".

Page 7, lines 17 and 18, strike "and $1,400,000,000 for fiscal year 2013,".

Page 8, line 9, through page 9, line 22, strike section 4 (and redesignate the subsequent sections accordingly).

AMENDMENT IN THE NATURE OF A SUBSTITUTE TO H.R. 364 OFFERED BY MR. HALL OF TEXAS, MR. GINGREY OF GEORGIA, AND MRS. BIGGERT OF ILLINOIS

Strike all after the enacting clause and insert the following:

1 **SECTION 1. ADVANCED RESEARCH PROJECTS AUTHORITY-**
2 **ENERGY (ARPA-E).**
3 (a) FINDINGS.—The Congress finds the following:
4 (1) The Department of Energy through existing
5 authorities and programs promotes technology trans-
6 fer of basic and applied research funded by the De-
7 partment of Energy and performed at its national
8 laboratories, nonprofit and educational institutions,
9 and the private sector, but there is a need to more
10 quickly identify opportunities to accelerate the com-
11 mercial application of new energy technologies to
12 meet national energy needs.
13 (2) The principal Department of Energy pro-
14 gram organizations that already oversee various
15 projects for basic and applied research and commer-
16 cialization of new energy technologies are the Office
17 of Science, the Office of Energy Efficiency and Re-

1 newable Energy, the National Nuclear Security Ad-
2 ministration, the Office of Fossil Energy, the Office
3 of Electricity Delivery and Energy Reliability, and
4 the Office of Nuclear Energy.
5 (3) A more fully integrated Departmental ap-
6 proach to advanced energy research will help bridge
7 the gap between basic research and applied tech-
8 nology to overcome long-term and high-risk techno-
9 logical barriers to the development of advanced en-
10 ergy technologies.
11 (b) DEFINITIONS.—For purposes of this section—
12 (1) the term "ARPA-E project" means a
13 project identified by the Secretary that shows prom-
14 ise to accelerate efforts to overcome long-term and
15 high-risk technological barriers to the development
16 of advanced energy technologies, including projects
17 on—
18 (A) advanced basic energy-related research
19 that shows unique innovation and scientific and
20 technical merit and the potential for commercial
21 application;
22 (B) development of resultant technologies
23 and processes for energy supply and efficient
24 end use; and

(C) demonstration and commercial application of the most promising energy technologies and research applications on both a large and small scale; and

(2) the term ''Secretary'' means the Secretary of Energy.

(c) SELECTION CRITERIA.—In identifying ARPA-E projects for support, the Secretary shall—

(1) ensure that ARPA-E projects do not alter the Department's current balance of effort along the spectrum of energy research and development activities;

(2) consider the novelty, scientific and technical merit, and potential transformative nature of the proposed projects;

(3) consider the demonstrated capabilities of the applicants to successfully carry out the proposed research project;

(4) consider the viability of avenues for commercial application, including the transfer of technologies to the private and public sector; and

(5) consider such other criteria as are established by the Secretary.

1 (d) AUTHORIZATION.—There are authorized to be ap-
2 propriated to the Secretary for carrying out ARPA-E
3 projects—
4 (1) $100,000,000 for fiscal year 2008;
5 (2) $125,000,000 for fiscal year 2009;
6 (3) $150,000,000 for fiscal year 2010;
7 (4) $275,000,000 for fiscal year 2011; and
8 (5) $100,000,000 for fiscal year 2012.
9 (e) PERSONNEL.—
10 (1) HIRING OF PERSONNEL.—The Secretary
11 shall carry out a program of experimental use of
12 special personnel management authority in order to
13 facilitate recruitment of eminent experts in science
14 or engineering for ARPA-E projects.
15 (2) SPECIAL PERSONNEL MANAGEMENT AU-
16 THORITY.—Under such program the Secretary may
17 utilize the hiring and management authorities de-
18 scribed in section 1101(b), (c), and (d) of the Strom
19 Thurmond National Defense Authorization Act for
20 Fiscal Year 1999 (5 U.S.C. 3104 note), except
21 that—
22 (A) for purposes of subsection (b)(1), the
23 number of positions that may be appointed
24 shall be no more than 20; and

(B) for purposes of subsection (c), the term of initial appointments for employees may not exceed 3 years.

(f) PROTECTION OF INFORMATION.—

(1) IN GENERAL.—Disclosure of information that is submitted to the Department of Energy under a competitive or noncompetitive process pursuant to the authority granted in this section is not required under section 552 of title 5, United States Code, for five years after the date on which the information is received by the Department of Energy. Such information includes—

(A) a proposal, proposal abstract, and supporting documents;

(B) a business plan submitted on a confidential basis; or

(C) technical information submitted on a confidential basis.

(2) PROJECT INFORMATION.—The Secretary, for a period of up to five years from the receipt by the Department of information that results from any transaction identified as an ARPA-E project, and which is of a character that it would be protected from disclosure under the meaning of section 552(b)(4) of title 5, United States Code, if the infor-

1 mation had been obtained from a non-Government
2 party, may provide appropriate protections against
3 the dissemination of such information, including ex-
4 emption from subchapter II of chapter 5 of title 5,
5 United States Code.
6 (g) COST SHARING.—Any transaction authorized by
7 this section shall be cost shared according to the principles
8 set forth in section 988 of the Energy Policy Act of 2005
9 (42 U.S.C. 16352).
10 (h) COORDINATION WITH OTHER AGENCIES.—The
11 Secretary may coordinate program activities associated
12 with an ARPA-E project with other agencies, and may
13 enter into agreements with other agencies to further the
14 success of an ARPA-E project. Where appropriate the
15 Secretary shall coordinate technology transfer efforts with
16 the Technology Transfer Coordinator established in sec-
17 tion 1001 of the Energy Policy Act of 2005.
18 (i) AWARD OF PRIZE MONEY.—To the extent consid-
19 ered appropriate by the Secretary, the Secretary may exer-
20 cise the authority provided in section 1008 of the Energy
21 Policy Act of 2005 (42 U.S.C. 16396) to award prizes for
22 achievements under an ARPA-E project.
23 (j) RELATIONSHIP TO OTHER AUTHORITIES.—The
24 authorities granted by this section are in addition to exist-

1 ing authorities granted to the Secretary, and are not in-
2 tended to supersede or modify any existing authorities.
3 (k) ISSUANCE OF DIRECTIVE.—Not later than 120
4 days after the date of enactment of this Act, the Depart-
5 ment of Energy shall issue a Directive that sets forth how
6 the Department intends to identify, manage, and admin-
7 ister ARPA-E projects.
8 (l) INITIAL PROJECTS.—Not later than 270 days
9 after the date of enactment of this Act, the Secretary shall
10 designate up to 2 ARPA-E projects for funding.
11 (m) REPORT TO CONGRESS.—Not later than one year
12 after the date of enactment of this Act, the Secretary shall
13 submit a report to Congress describing the status of any
14 proposed or existing ARPA-E projects.
15 (n) POSITIVE RECOMMENDATION.—The Secretary
16 shall take no actions under this section unless the study
17 conducted under section 1821(b)(3) of the Energy Policy
18 Act of 2005 contains a recommendation that the manage-
19 ment practices used by the Defense Advanced Research
20 Projects Agency are applicable to the research programs
21 at the Department of Energy.

AMENDMENT TO H.R. 364

OFFERED BY MR. INGLIS OF SOUTH CAROLINA

Page 5, lines 15 through 17, strike "research projects" and all that follows through "ARPA-E," and insert "on the basis of merit, with advice under section 5 as appropriate, each of the projects to be supported under the program".

Page 5, line 23, strike "and".

Page 5, line 24, redesignate clause (iii) as clause (iv).

Page 5, after line 23, insert the following new clause:

1 (iii) the applicant's consideration of
2 future commercial applications of the
3 project, including the feasibility of
4 partnering with a commercial entity or en-
5 tities to help increase the chances of mar-
6 ket penetration; and

Page 7, line 20, redesignate subsection (c) as subsection (d).

Page 7, after line 19, insert the following new subsection:

1 (c) LIMITATION.—No amounts may be appropriated
2 for the first year of funding for ARPA-E unless the
3 amount appropriated for the activities of the Office of
4 Science of the Department of Energy for that fiscal year
5 exceed the amount appropriated for that Office for fiscal
6 year 2007, as adjusted for inflation according to the Con-
7 sumer Price Index.

Page 8, line 5, strike "and".

Page 8, line 6, redesignate paragraph (4) as paragraph (5).

Page 8, after line 5, insert the following new paragraph:

8 (4) at least 2.5 percent shall be designated for
9 technology transfer and outreach activities; and

AMENDMENT TO H.R. 364

OFFERED BY MRS. BIGGERT OF ILLINOIS

Page 8, line 2, strike "available to" and insert "available for expenditure by".

AMENDMENT TO H.R. 364

OFFERED BY MRS. BIGGERT OF ILLINOIS

Page 7, line 20, redesignate subsection (c) as subsection (d).

Page 7, after line 19, insert the following new subsection:

1 (c) LIMITATION.—Amounts may be appropriated
2 under the authority of subsection (b) for a fiscal year only
3 if the full amount authorized to be appropriated under sec-
4 tion 971(b) of the Energy Policy Act of 2005 (42 U.S.C.
5 16311(b)) has been appropriated for the previous fiscal
6 year.

AMENDMENT TO H.R. 364

OFFERED BY MRS. BIGGERT OF ILLINOIS

Page 8, lines 1 through 3, strike paragraph (2).

Page 8, lines 4 and 6, redesignate paragraphs (3) and (4) as paragraphs (2) and (3), respectively.

AMENDMENT TO H.R. 364

OFFERED BY MR. EHLERS OF MICHIGAN

Page 3, line 24, strike "Secretary of Energy" and insert "Under Secretary of Energy for Science".

Page 3, line 25, strike "Secretary"and insert "Under Secretary for Science".

Rep Brian Bilbray (R-CA)

AMENDMENT TO H.R. 364

OFFERED BY Brian P. Bilbray

Page 4, lines 3 and 4, strike "administer the Fund established under section 3 to".

Page 7, line 6, through page 8, line 8, strike section 3 (and redesignate the subsequent sections accordingly).

AMENDMENT TO H.R. 364

OFFERED BY MR. SMITH OF NEBRASKA

Page 8, after line 8, insert the following new subsection:

1 (d) TERMINATION.—ARPA-E shall be immediately
2 terminated, and all its funds and projects shall be trans-
3 ferred to the appropriate programs at the Department of
4 Energy, if the study required under section 1821 of the
5 Energy Policy Act of 2005 concludes that ARPA-E should
6 not be established.

AMENDMENT TO H.R. 364

OFFERED BY MR. GINGREY OF GEORGIA

Page 8, after line 8, insert the following new subsection:

1 (d) LIMITATION.—No amounts may be appropriated
2 for ARPA-E unless the study required under section
3 1821(b)(3) and (b)(4) of the Energy Policy Act of 2005
4 has been completed and has concluded that ARPA-E
5 should be established.

AMENDMENT TO H.R. 364

OFFERED BY MR. AKIN OF MISSOURI

Page 11, after line 2, add the following new section:

1 **SEC. 7. SUNSET.**

2 ARPA-E shall be terminated after 60 months, and
3 all unexpended and recouped funds shall be made available
4 to the Secretary to support energy research, development,
5 demonstration, and commercial application at the Depart-
6 ment of Energy.

AMENDMENT TO H.R. 364

OFFERED BY MR. MARIO DIAZ-BALART OF FLORIDA

At the end of the bill, add the following new section:

1 **SEC. 7. SUNSET.**

2 (a) 5-YEAR THRESHHOLD.—ARPA-E shall be termi-
3 nated if, after the expiration of 5 years after the date of
4 enactment of this Act, the amount of energy the United
5 States imports from foreign sources has not decreased,
6 compared to the level of imports as of that date of enact-
7 ment, by at least 5 percent.

8 (b) 10-YEAR THRESHHOLD.—ARPA-E shall be ter-
9 minated if, after the expiration of 10 years after the date
10 of enactment of this Act, the amount of energy the United
11 States imports from foreign sources has not decreased,
12 compared to the level of imports as of that date of enact-
13 ment, by at least 20 percent.

14 (c) CERTIFICATION.—The Under Secretary of En-
15 ergy for Science, in coordination with the Energy Informa-
16 tion Administration, shall certify the reduction in the
17 amount of energy the United States imports from foreign
18 sources for purposes of this section.

AMENDMENT TO H.R. 364

OFFERED BY Mr. Gingrey of Georgia

At the end of the bill, insert the following new section:

1 **SEC. 7. SAVINGS CLAUSE.**

2 The authorities granted by this Act are in addition
3 to existing authorities granted to the Secretary of Energy,
4 and not intended to supersede or modify any existing au-
5 thorities.

PROCEEDINGS OF THE FULL COMMITTEE MARKUP ON H.RES. 487, RECOGNIZING THE CONTRIBUTION OF REMODELING AND SIMULATION TECHNOLOGY TO THE SECURITY AND PROSPERITY OF THE UNITED STATES, AND RECOGNIZING MODELING AND SIMULATION AS A NATIONAL CRITICAL TECHNOLOGY

FRIDAY, JUNE 22, 2007

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
Washington, DC.

The Committee met, pursuant to call, at 10:50 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Bart Gordon [Chairman of the Committee] presiding.

Chairman GORDON. The Committee will come to order. Pursuant to notice, the Committee on Science and Technology meets to consider the following measures: H.R. 2698, the *Federal Aviation Research and Development Reauthorization Act of 2007;* and H.Res. 487, *Recognizing the contribution of modeling and simulation technology to the security and prosperity of the United States and recognizing modeling and simulation as a national critical technology,* and let me thank the Members for coming here this morning. We have lots going on. There will be a vote in about an hour but I think we can take care of our business with that period. So again, thank you.

We will now proceed with the markup. Today the Committee is meeting to mark up two good bipartisan pieces of legislation.

The first bill we will consider today is H.R. 2698, the *Federal Aviation Research and Development Reauthorization Act of 2007,* and H.R. 2698 was introduced by Chairman Udall. The Space and Aeronautics Subcommittee met last Thursday to consider H.R. 2698 and favorably reported the bill by voice vote without amendment. I want to thank and congratulate the Members of the Subcommittee for their hard work and bipartisan cooperation on this bill. There are two central features of this legislation before us. The first is a set of provisions intended to strengthen both the national authority and the accountability of the Next Generation Air Transportation System Joint Planning and Development Office, JPDO, because its success or failure is going to determine in large measure whether or not the Nation will have a safe and efficient air

traffic management system in the future, and let me just say, this is a big deal, bigger than we are making it today. It is imperative that for both the aviation industry as well as our nation at large that we have this Next Generation air traffic control system and by and large it is going to be developed by virtue of the R&D we are going to provide here in the FAA bill as well as in the NASA bill, so we are going to play a major role, and this is important to the country.

The second feature is a four-year authorization of FAA's research and development activities including the establishment of important new research initiatives on the impact of space weather on aviation, the impact of aviation on the climate research, runway materials and engineering materials, restraining systems, among others. This FAA authorization expires this year. That is why it is important for us to move forward, and the reason it is important is that we have the option of going to the conference with Transportation either without a bill or with a bill, and I think by us putting a mark in the sand today, it is going to make us more relevant in being able to do that. Our friend and colleague, Mr. Costello, isn't here but I was hoping he would come so we could give him a lesson on legislating so that he could get it out of his committee also. I am sure he will finally get here at which time we will give him some pointers. But again, this is important. This bill will expire and we have the option of either participating or not participating, and I think we are doing the right thing, and I thank you for that. So I urge my colleagues to support this very good bipartisan bill.

Today we will also take up H.Res. 487, *Recognizing the contribution of modeling and simulation technology to the security and prosperity of the United States and recognizing modeling and simulation as a national critical technology,* as well as the thousands of Americans who work to develop this project. This is an under-appreciated but fundamentally important area of research to our country and I urge my colleagues to support this measure.

[The prepared statement of Chairman Gordon follows:]

PREPARED STATEMENT OF CHAIRMAN BART GORDON

Good morning. Today the Committee is meeting to mark up two good pieces of legislation that have bipartisan support.

The first bill that we will consider today is H.R. 2698, the *Federal Aviation Research and Development Reauthorization Act of 2007.*

H.R. 2698 was introduced by Chairman Udall, and I was pleased to be an original co-sponsor of the legislation.

The Space and Aeronautics Subcommittee met last Thursday to consider H.R. 2698 and favorably reported the bill by voice vote without amendment.

I want to thank and congratulate Members of the Subcommittee for their hard work and bipartisan cooperation on this bill.

There are two central features to the legislation before us today.

The first is a set of provisions intended to strengthen both the authority and the accountability of the Next Generation Air Transportation System's Joint Planning and Development Office–JPDO—because its success or failure is going to determine in large measure whether or not the Nation will have a safe and efficient air traffic management system in the future.

The second feature is a four-year authorization of FAA's research and development activities, including the establishment of important new research initiatives on the impact of space weather on aviation, the impact of aviation on the climate, research on runway materials and engineered materials restraining systems, among others.

I believe each of those new initiatives will better position the FAA to respond to emerging research challenges.

As I have noted, the focus of today's markup is FAA's R&D program and the Next Generation Air Transportation System initiative.

However, it is clear that FAA cannot ensure the successful development of the Nation's future air transportation system on its own.

As the establishment of the interagency JPDO by Congress four years ago indicates, it is going to take the combined efforts of multiple federal agencies, working in partnership with industry and the academic community, to make the NextGen initiative a success.

NASA, in particular, has an important R&D role to play, and we will need to ensure that NASA is given the necessary resources to play that role, and—in turn—that NASA steps up to its responsibilities for conducting needed R&D.

That is something that the Committee will devote more attention to as we start work on reauthorizing NASA later in this Congress.

For now, however, our focus is on the FAA, and I think that H.R. 2698 is a good bill that will help ensure that America's aviation system remains safe and preeminent in the world.

I urge my colleagues to support it.

Today, we will also take up H.Res. 487, *Recognizing the contribution of modeling and simulation technology to the security and prosperity of the United States, and recognizing modeling and simulation as a National Critical Technology.*

Chairman GORDON. I now recognize Mr. Hall to present his opening statement.

Mr. HALL. I thank you, Chairman Gordon, for the chance to make some opening remarks about today's markup on H.R. 2698, the *Federal Aviation Research and Development Reauthorization Act of 2007,* and H.Res. 487, recognizing the contribution of modeling and simulation technology to the security and the prosperity of our country. These are two very important pieces of legislation, as you pointed out, that have been worked out in a bipartisan fashion. I believe the FAA legislation will do a great deal to improve research and development in aviation and I am proud that this committee is advancing this legislation.

I am also very supportive of the resolution co-sponsored by my good friend, Mr. Feeney, which praises the good work of modeling and simulation technology.

Mr. Chairman, as always, I look forward to discussing these bills further we move through the markup today, and I yield back the balance of my time.

Chairman GORDON. Without objection, Members may now place statements in the record at this point.

We will now consider H.Res. 487, *Recognizing the contribution of the modeling and simulating technology to the security and prosperity of the United States, and recognizing modeling and simulation as a national critical technology.* Just for your information, this is a bill that Mr. Forbes, the parliamentarian, sent it to our committee. We feel that it is a good bill but we thought it would be best to have someone on the Committee that would bring it forth, so Mr. Feeney has agreed to do that, so we are glad you could help Mr. Forbes. I now yield five minutes to the gentleman from Florida to explain the bill.

Mr. FEENEY. Thank you, Mr. Chairman. Does the resolution need to be read formally before I explain it or should I weigh in?

Chairman GORDON. I think you can cut loose.

Mr. FEENEY. Okay. Great. Well, this morning's markup of H.Res. 487 recognizes that modeling and simulation technology is a national critical technology essential for American's long-term na-

tional security and economic prosperity. Congressman Randy Forbes, as Chairman Gordon mentioned, a former Member of this committee and current Chairman of the Modeling and Simulation Caucus, introduced this legislation. I, as a member of that caucus and representing one of the larger modeling and simulation clusters in the United States, am honored to urge this committee to pass this legislation.

Your child's or grandchild's video game represents one product of the modeling and simulation industry. Aircraft training simulators provide another well-known example. I don't know if Ranking Member Ralph Hall used the link trainer as he prepared for World War II service but that rather rudimentary flight simulator helped train a generation of military pilots and laid the foundation for this important technology. Simulation uses combinations of sound, sight and motion to make you feel that you are experiencing an actual event. Modeling involves the complex computer models used to create these artificial environments. For training purposes, modeling and simulation places people in an artificial but seemingly real environment and puts them through their paces. But unlike live training, if you make a mistake, you get to live another day and learn valuable lessons. An inestimable number of lives have been saved that otherwise might have been lost in training accidents while improving the overall quality of training. In the latter part of the 20th century, the U.S. military revolutionalized war fighting by emphasizing high-fidelity training that simulates the stress and decision-making of actual combat. Servicemen and women gain experience and judgment previously only earned on the actual battlefield. Substantial amounts of that simulation and training come from my Congressional district where representatives of all service branches collaborate. By the way, it is the oldest joint military facility in the country with the University of Central Florida and private contractors of all sizes producing these training systems.

Other clusters of modeling and simulation excellence exist throughout the United States but such training expands far beyond military uses. Medical simulation is an especially promising field. By creating artificial but seemingly real environments, doctors and nurses can hone their skills in using sophisticated and invasive medical technology or in treating severely injured patients.

Beyond training, modeling and simulation replicates complex environments, allowing planners and designers to ask various "what if" questions. Transportation planners simulate highway networks to determine how to best alleviate congestion. The Illinois State Toll Highway Authority uses simulation to determine how to improve highway signage and reduce crashes near toll plazas. Emergency management experts simulate large-scale natural or man-made disasters to better improve coordinated emergency responses. Hurricane Katrina highlighted the need to better utilize modeling and simulation in order to protect life and property. Because of these growing numbers of uses, the modeling and simulation industry is a rapidly growing industry that demands the best students with extensive math and science backgrounds including psychology, medicine, computer science, mathematics, engineering and physics.

In these brief remarks, I have used examples of modeling and simulation technology to illustrate its value in our complex and dy-

namic world. I urge all my colleagues to support this resolution that recognizes the national critical technology and urges government action in the areas of industry classification codes and intellectual property to strengthen America's lead in this technology.

I want to thank the Chairman and the Ranking Member and would yield back the balance of my time.

[The prepared statement of Mr. Feeney follows:]

PREPARED STATEMENT OF REPRESENTATIVE TOM FEENEY

This morning's markup of H.Res. 487 recognizes that modeling and simulation technology is a National Critical Technology essential for America's long-term national security and economic prosperity.

Congressman Randy Forbes—a former Member of this committee and current Chairman of the Modeling and Simulation Caucus—introduced this legislation. I—as a member of that caucus and representing one of the larger modeling and simulation clusters in the United States—am honored to urge that this committee pass this legislation.

Your child's or grandchild's video game represents one product of the modeling and simulation industry. Aircraft training simulators provide another well-known example.

I don't know if Ranking Member Ralph Hall used the Link Trainer as he prepared for World War II service, but that rather rudimentary flight simulator helped train a generation of military pilots and laid the foundation for this technology.

Simulation uses combinations of sound, sight, and motion to make you feel that you are experiencing an actual event. Modeling involves the complex computer models used to create these artificial environments.

For training purposes, modeling and simulation places people in an artificial—but seemingly real—environment and puts them through their paces. But unlike "live" training, if you make a mistake, you get to live another day and learn valuable lessons. An inestimable number of lives have been saved that otherwise might have been lost in training accidents while improving the overall quality of training.

In the later part of the 20th Century, the U.S. military revolutionized war-fighting by emphasizing high-fidelity training that simulates the stress and decision-making of actual combat. Servicemen and women gain experience and judgment previously only earned on the actual battlefield.

Substantial amounts of that simulation and training came from my Congressional District where representatives of all service branches collaborate with the University of Central Florida and private contractors of all sizes to produce these training systems. Other clusters of modeling and simulation excellence exist throughout the United States.

But such training expands far beyond military uses. Medical simulation is an especially promising field. By creating artificial but seemingly real environments, doctors and nurses can hone their skills in using sophisticated and invasive medical technology or in treating severely injured patients.

Beyond training, modeling and simulation replicates complex environments—allowing planners and designers to ask various "what if" questions. Transportation planners simulate highway networks to determine how to best alleviate congestion. The Illinois State Toll Highway Authority uses simulation to determine how to improve highway signage and reduce crashes near toll plazas.

Emergency management experts simulate large scale natural or man-made disasters to better improve coordinated emergency responses. Hurricane Katrina highlighted the need to better utilize modeling and simulation in order to protect life and property.

Because of these growing number of uses, the modeling and simulation industry is rapidly growing and demands the best of students with extensive math and science backgrounds including psychology, medicine, computer science, mathematics, engineering and physics.

In these brief remarks, I've used examples of modeling and simulation technology to illustrate its value in our complex and dynamic world. So I urge you to support this resolution that recognizes this National Critical Technology and urges governmental action in the areas of industry classification codes and intellectual property to strengthen America's lead in this technology.

Chairman GORDON. Thank you, Mr. Feeney, for that good explanation.

Mr. Hall, did you have anything you would like to add?

Mr. HALL. I think it is very good legislation and I appreciate the gentleman's time and your cooperation. I yield back.

Chairman GORDON. Does anyone else wish to be recognized?

Mr. McNerney.

Mr. MCNERNEY. Mr. Chairman, I would like to strike the last word.

Chairman GORDON. The gentleman is recognized for five minutes.

Mr. MCNERNEY. Mr. Chairman, I spent most of my professional career in modeling and simulation and I can tell you that it is a great activity. It is exciting and it allows scientists to reach in and see what is going on in very remote processes. It allows developers to understand what is going on with their products. It allows industry a lot of leeway in terms of expenditures. It is a great tool and the Americans are in the lead in this tool. We need to acknowledge that lead. We need to nurture and stimulate, shall I say, growth of that industry in our country. It also allows our military to understand the impacts of their weapons and it is a terrific tool that will allow us to maintain our lead in the world in many, many fields. So I encourage my colleagues to support this legislation.

I yield back the balance of my time.

Chairman GORDON. Thank you, Mr. McNerney.

Any other comments? If not, let me just—in conclusion, let me say I think this really is a good example of what I hope this committee will be known for, and that is a committee of good ideas and consensus. This bill didn't originate from any Member of this committee and so let the word go out if we have colleagues, Democrats, Republicans that have good ideas and the jurisdiction is here that we want them to bring them forth and they will be treated fairly.

So now I ask unanimous consent that the resolution is considered as read and open at any point and that the Members proceed with amendments in the order of the roster. Without objection, so ordered.

I assume there are no amendments. Without any amendments then, the vote is on H. Resolution 487. All those in favor say aye. Opposed, no. The ayes have it. I recognize Mr. Hall to offer a motion.

Mr. HALL. Mr. Chairman, I move that the Committee favorably report House Resolution 487 to the House with the recommendation that the bill do pass. Furthermore, I move that the staff be instructed to make necessary technical and conforming changes and that the Chairman take all necessary steps to bring the resolution before the House for consideration, and I yield back my time.

Chairman GORDON. The question is on the motion to report the resolution favorably. Those in favor of the motion will signify by saying aye. Opposed, no. The ayes have it and the resolution is favorably reported.

Without objection the motion to reconsider is laid upon the table. I move pursuant to clause 1 of Rule 22 of the Rules of the House of Representatives that the Committee authorize the Chairman to offer such motions as may be necessary in the House to adopt and pass H.Res. 487, *Recognizing the contribution of modeling and simulation technology to the security and prosperity of the United*

States, and recognizing modeling and simulation as a national critical technology. Without objection, so ordered.

And now let me thank the Members for one more constructive markup, and the Committee is adjourned.

[Whereupon, at 11:35 a.m., the Committee was adjourned.]

Appendix:

H.Res. 487

IV

110TH CONGRESS
1ST SESSION

H. RES. 487

Recognizing the contribution of modeling and simulation technology to the security and prosperity of the United States, and recognizing modeling and simulation as a National Critical Technology.

IN THE HOUSE OF REPRESENTATIVES

JUNE 14, 2007

Mr. FORBES (for himself, Mrs. DRAKE, Mr. FEENEY, Mrs. JO ANN DAVIS of Virginia, Mr. KELLER of Florida, Mr. CONAWAY, Mr. TOM DAVIS of Virginia, Mrs. WILSON of New Mexico, and Mr. ORTIZ) submitted the following resolution; which was referred to the Committee on Science and Technology

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RESOLUTION

Recognizing the contribution of modeling and simulation technology to the security and prosperity of the United States, and recognizing modeling and simulation as a National Critical Technology.

Whereas the United States of America is a great and prosperous Nation, and modeling and simulation contribute significantly to that greatness and prosperity;

Whereas modeling and simulation in the United States is a unique application of computer science and mathematics that depends on the validity, verification, and reproducibility of the model or simulation, and depends also on

the capability of the thousands of Americans in modeling and simulation careers to develop these models;

Whereas members of the modeling and simulation community in government, industry, and academia have made significant contributions to the general welfare of the United States, and while these contributions are too numerous to enumerate, modeling and simulation efforts have contributed to the United States by—

(1) expanding the understanding of nuclear chain reactions during the Manhattan Project through some of the earliest simulations replicating the reaction process, which ultimately contributed to the end of World War II;

(2) serving as a foundational element of the Stockpile Stewardship Program, which enabled the President of the United States to certify the safety, security, and reliability of the nuclear stockpile for more than ten years without the use of live nuclear testing, which demonstrates the Nation's commitment to nuclear nonproliferation;

(3) accelerating the effectiveness of joint, coalition, and interagency training exercises, while dramatically reducing the costs of such exercises, as demonstrated by United States Joint Forces Command's 2007 homeland security exercise, Noble Resolve, which was conducted virtually and required 5 months, 140 personnel, and $2,000,000 for development, compared to a 2002 Millennium Challenge exercise that was conducted live and required 5 years, 14,000 personnel, and $250,000,000 for development;

(4) preserving countless human lives, as well as military and civilian aircraft, ships, and other vehicles through the rehearsal of repeatable, simulated emergencies that otherwise could not have been practiced;

(5) increasing the quality of health care through the development of medical simulation training, which led the Food and Drug Administration to require such training for physicians before certain high-risk procedures to treat heart disease and strokes;

(6) reducing the cost of health care, as demonstrated by medical malpractice insurance rate discounts being provided to anesthesiologists and obstetricians who include simulated procedures in their biennial training requirements;

(7) simulating large scale natural or man-made disasters to improve the effectiveness of local, State, and Federal first responders, law enforcement, and other agencies involved in a coordinated emergency response;

(8) forecasting weather and predicting climate change to enable scientists, industry, and policymakers to study the effects of climate change and also to prepare for extreme weather, such as hurricanes;

(9) protecting rivers, waterways, and endangered species reliant on these waters through the Environmental Protection Agency's hydrology Dynamic Stream Simulation and Assessment Model, which predicts impacts on water quality for the Truckee River, including its effect on Lake Tahoe and other portions of its basin;

(10) producing analysis that resulted in enhanced designs and construction of critical infrastructure, such as roads, interchanges, airports, harbors, railways, and bridges that increases transportation capacity and safety, and reduces travel time and environmental impact; and

(11) providing National Aeronautics and Space Administration (NASA) astronauts training to ensure a safe and productive mission in space, including the utilization of the Shuttle Training Aircraft, which simulates real air-

craft shuttle characteristics and enables NASA pilots to have 1,000 simulated shuttle landings before they land the Space Shuttle for the first time as a glider;

Whereas these contributions, in addition to numerous contributions that are not listed but that equally have brought prosperity to our Nation, demonstrate that modeling and simulation efforts have, and will continue to—

(1) provide vital strategic support functions to our Military;

(2) defend our freedom and advance United States interests around the world;

(3) promote better health care through improved medical training, improved quality of care, reduced medical errors, and reduced cost;

(4) encourage comprehensive planning for national disaster and emergency preparedness response;

(5) improve and secure our critical infrastructure and transportation systems;

(6) protect the environment; and

(7) allow the Nation to explore the Earth and space to further our understanding of our world and universe;

Whereas modeling and simulation frequently complements or replaces experimentation where experimentation is hazardous, expensive, or impossible, thus providing far greater capability than experimentation alone;

Whereas the modeling and simulation industry provides well-paying jobs to many Americans and represents an opportunity for Americans with strong foundations in science, technology, engineering, and mathematics to contribute to the prosperity and security of the United States;

Whereas other countries have recognized the value of modeling and simulation as an opportunity to gain a competi-

tive advantage over the United States economically and militarily, and some of these same countries produce more engineers each year than the United States;

Whereas modeling and simulation efforts are critically dependent on a fundamental education in science, technology, engineering, and mathematics;

Whereas modeling and simulation require unique knowledge, skills, and abilities that are not adequately incorporated into governmental occupational classification codes; and

Whereas advances in modeling and simulation can be achieved through innovation in the private sector, and proper export controls and intellectual property rights are critical to the continued growth and innovation in this sector: Now, therefore, be it

Resolved, That the House of Representatives—

(1) commends those who have contributed to the modeling and simulation efforts which have developed essential characteristics of our Nation;

(2) urges that, consistent with previous legislation passed by this and previous Congresses, science, technology, engineering, and mathematics remain key disciplines for primary and secondary education;

(3) encourages the expansion of modeling and simulation as a tool and subject within higher education;

(4) recognizes modeling and simulation as a National Critical Technology;

(5) affirms the need to study the national economic impact of modeling and simulation;

(6) supports the development and implementation of governmental classification codes that include separate classification for modeling and simulation occupations; and

(7) encourages the development and implementation of ways to protect intellectual property of modeling and simulation enterprises.

○

GREEN CHEMISTRY RESEARCH AND DEVELOPMENT ACT OF 2007

Mr. GORDON of Tennessee, from the Committee on Science and Technology, submitted the following:

REPORT

[To accompany H.R. 2850]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science and Technology, to whom was referred the bill (H.R. 2850) to provide for the implementation of a Green Chemistry Research and Development Program, and for other purposes, having considered the same, reports favorably thereon with an amendment and recommends that the bill as amended do pass.

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I. AMENDMENT

The amendment is as follows:

Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the "Green Chemistry Research and Development Act of 2007".

SEC. 2. DEFINITIONS.

In this Act—

(1) the term "green chemistry" means chemistry and chemical engineering to design chemical products and processes that reduce or eliminate the use or generation of hazardous substances while producing high quality products through safe and efficient manufacturing processes;

(2) the term "Interagency Working Group" means the interagency working group established under section 3(c); and

(3) the term "Program" means the Green Chemistry Research and Development Program described in section 3.

SEC. 3. GREEN CHEMISTRY RESEARCH AND DEVELOPMENT PROGRAM.

(a) IN GENERAL.—The President shall establish a Green Chemistry Research and Development Program to promote and coordinate federal green chemistry research, development, demonstration, education, and technology transfer activities.

(b) PROGRAM ACTIVITIES.—The activities of the Program shall be designed to—

(1) provide sustained support for green chemistry research, development,demonstration, education, and technology transfer through—

(A) merit-reviewed competitive grants to individual investigators and teams of investigators, including, to the extent practicable, young investigators, for research and development;

(B) grants to fund collaborative research and development partnerships among universities, industry, and nonprofit organizations;

(C) green chemistry research, development, demonstration, and technology transfer conducted at federal laboratories; and

(D) to the extent practicable, encouragement of consideration of green chemistry in—

(i) the conduct of federal chemical science and engineering research and development; and

(ii) the solicitation and evaluation of all proposals for chemical science and engineering research and development;

(2) examine methods by which the Federal Government can create incentives for consideration and use of green chemistry processes and products;

(3) facilitate the adoption of green chemistry innovations;

(4) expand education and training of undergraduate and graduate students, and professional chemists and chemical engineers, including through partnerships with industry, in green chemistry science and engineering;

(5) collect and disseminate information on green chemistry research, development, and technology transfer, including information on—

(A) incentives and impediments to development and commercialization;

(B) accomplishments;

(C) best practices; and

(D) costs and benefits;

(6) provide venues for outreach and dissemination of green chemistry advances such as symposia, forums, conferences, and written materials in collaboration with, as appropriate, industry, academia, scientific and professional societies, and other relevant groups;

(7) support economic, legal, and other appropriate social science research to identify barriers to commercialization and methods to advance commercialization of green chemistry; and

(8) provide for public input and outreach to be integrated into the Program by the convening of public discussions, through mechanisms such as citizen panels, consensus conferences, and educational events, as appropriate.

(c) INTERAGENCY WORKING GROUP.—The President shall establish an Interagency Working Group, which shall include representatives from the National Science Foundation, the National Institute of Standards and Technology, the Department of Energy, the Environmental Protection Agency, and any other agency that the President may designate. The Director of the National Science Foundation

and the Assistant Administrator for Research and Development of the Environmental Protection Agency shall serve as co-chairs of the Interagency Working Group. The Interagency Working Group shall oversee the planning, management, and coordination of the Program. The Interagency Working Group shall—

(1) establish goals and priorities for the Program, to the extent practicable in consultation with green chemistry researchers and potential end-users of green chemistry products and processes; and

(2) provide for interagency coordination, including budget coordination, of activities under the Program.

(d) AGENCY BUDGET REQUESTS.—Each federal agency and department participating in the Program shall, as part of its annual request for appropriations to the Office of Management and Budget, submit a report to the Office of Management and Budget which identifies its activities that contribute directly to the Program and states the portion of its request for appropriations that is allocated to those activities. The President shall include in his annual budget request to Congress a statement of the portion of each agency's or department's annual budget request allocated to its activities undertaken pursuant to the Program.

(e) REPORT TO CONGRESS.—Not later than two years after the date of enactment of this Act, the Interagency Working Group shall transmit a report to the Committee on Science and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate. This report shall include—

(1) a summary of federally funded green chemistry research, development, demonstration, education, and technology transfer activities, including the green chemistry budget for each of these activities; and

(2) an analysis of the progress made toward achieving the goals and priorities for the Program, and recommendations for future program activities.

SEC. 4. MANUFACTURING EXTENSION CENTER GREEN SUPPLIERS NETWORK GRANT PROGRAM.

Section 25(a) of the National Institute of Standards and Technology Act (15 U.S.C. 278k(a)) is amended—

(1) by striking "and" at the end of paragraph (4);

(2) by striking the period at the end of paragraph (5) and inserting "; and"; and

(3) by adding at the end the following:

"(6) the enabling of supply chain manufacturers to continuously improve products and processes, increase energy efficiency, increase recycling, identify cost-saving opportunities, and optimize resources and technologies with the aim of reducing or eliminating the use or generation of hazardous substances."

SEC. 5. UNDERGRADUATE EDUCATION IN CHEMISTRY AND CHEMICAL ENGINEERING.

(a) PROGRAM AUTHORIZED.—(1) As part of the Program activities under section 3(b)(4), the Director of the National Science Foundation shall carry out a program to award grants to institutions of higher education to support efforts by such institutions to revise their undergraduate curriculum in chemistry and chemical engineering to incorporate green chemistry concepts and strategies.

(1) Grants shall be awarded under this section on a competitive, merit-reviewed basis and shall require cost sharing in cash from non-federal sources, to match the federal funding.

(b) SELECTION PROCESS.—(1) An institution of higher education seeking funding under this section shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. Minority Serving Institutions shall receive due consideration for such funding. The application shall include at a minimum—

(A) a description of the content and schedule for adoption of the proposed curricular revisions to the courses of study offered by the applicant in chemistry and chemical engineering; and

(B) a description of the source and amount of cost sharing to be provided.

(2) In evaluating the applications submitted under paragraph (1), the Director shall consider, at a minimum—

(A) the level of commitment demonstrated by the applicant in carrying out and sustaining lasting curriculum changes in accordance with subsection (a)(1); and

(B) the amount of cost sharing to be provided.

(c) AUTHORIZATION OF APPROPRIATIONS.—In addition to amounts authorized under section 8, from sums otherwise authorized to be appropriated by the National

Science Foundation Authorization Act of 2002, there are authorized to be appropriated to the National Science Foundation for carrying out this section $7,000,000 for fiscal year 2008, $7,500,000 for fiscal year 2009, and $8,000,000 for fiscal year 2010.

SEC. 6. STUDY ON COMMERCIALIZATION OF GREEN CHEMISTRY.

(a) STUDY.—The Director of the National Science Foundation shall enter into an arrangement with the National Research Council to conduct a study of the factors that constitute barriers to the successful commercial application of promising results from green chemistry research and development.

(b) CONTENTS.—The study shall—

(1) examine successful and unsuccessful attempts at commercialization of green chemistry in the United States and abroad; and

(2) recommend research areas and priorities and public policy options that would help to overcome identified barriers to commercialization.

(c) REPORT.—The Director shall submit a report to the Committee on Science and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on the findings and recommendations of the study within 18 months after the date of enactment of this Act.

SEC. 7. PARTNERSHIPS IN GREEN CHEMISTRY.

(a) PROGRAM AUTHORIZED.—(1) The agencies participating in the Program shall carry out a joint, coordinated program to award grants to institutions of higher education to establish partnerships with companies in the chemical industry to retrain chemists and chemical engineers in the use of green chemistry concepts and strategies.

(2) Grants shall be awarded under this section on a competitive, merit-reviewed basis and shall require cost sharing from non-federal sources by members of the partnerships.

(3) In order to be eligible to receive a grant under this section, an institution of higher education shall enter into a partnership with two or more companies in the chemical industry. Such partnerships may also include other institutions of higher education and professional associations.

(4) Grants awarded under this section shall be used for activities to provide retraining for chemists or chemical engineers in green chemistry, including—

(A) the development of curricular materials and the designing of undergraduate and graduate level courses; and

(B) publicizing the availability of professional development courses of study in green chemistry and recruiting graduate scientists and engineers to pursue such courses.

Grants may provide stipends for individuals enrolled in courses developed by the partnership.

(b) SELECTION PROCESS.—(1) An institution of higher education seeking funding under this section shall submit an application at such time, in such manner, and containing such information as shall be specified by the Interagency Working Group and published in a proposal solicitation for the Program. The application shall include at a minimum—

(A) a description of the partnership and the role each member will play in implementing the proposal;

(B) a description of the courses of study that will be provided;

(C) a description of the number and size of stipends, if offered;

(D) a description of the source and amount of cost sharing to be provided; and

(E) a description of the manner in which the partnership will be continued after assistance under this section ends.

(2) The evaluation of the applications submitted under paragraph (1) shall be carried out in accordance with procedures developed by the Interagency Working Group and shall consider, at a minimum—

(A) the ability of the partnership to carry out effectively the proposed activities;

(B) the degree to which such activities are likely to prepare chemists and chemical engineers sufficiently to be competent to apply green chemistry concepts and strategies in their work; and

(C) the amount of cost sharing to be provided.

SEC. 8. AUTHORIZATION OF APPROPRIATIONS.

(a) NATIONAL SCIENCE FOUNDATION.—There are authorized to be appropriated to the National Science Foundation for carrying out this Act—

(1) $20,000,000 for fiscal year 2008;

(2) $21,000,000 for fiscal year 2009; and
(3) $22,000,000 for fiscal year 2010.

(b) NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY.—There are authorized to be appropriated to the National Institute of Standards and Technology for carrying out this Act—
(1) $8,000,000 for fiscal year 2008;
(2) $9,000,000 for fiscal year 2009; and
(3) $10,000,000 for fiscal year 2010.

(c) DEPARTMENT OF ENERGY.—There are authorized to be appropriated to the Department of Energy for carrying out this Act—
(1) $13,000,000 for fiscal year 2008;
(2) $14,000,000 for fiscal year 2009; and
(3) $15,000,000 for fiscal year 2010.

(d) ENVIRONMENTAL PROTECTION AGENCY.—There are authorized to be appropriated to the Environmental Protection Agency for carrying out this Act—
(1) $10,000,000 for fiscal year 2008;
(2) $11,000,000 for fiscal year 2009; and
(3) $12,000,000 for fiscal year 2010.

II. PURPOSE OF THE BILL

The purpose of the H.R. 2850 is to provide for the implementation of a Green Chemistry Research and Development Program.

III. BACKGROUND AND NEED FOR THE LEGISLATION

Chemical manufacturing, although a necessary part of our economy, can result in harm to human health and the environment due to the usage of hazardous materials and the generation of hazardous byproducts. Green chemistry seeks to mitigate such harmful outcomes. In short, the goal of green chemistry is to minimize or, ideally, to eliminate this harm by using safer materials and manufacturing processes.

By considering chemical hazards in the design of products and processes, chemists can design chemicals to be safe, just as they can design them to have other properties. One example of green chemistry was the development of pesticide alternatives that are effective at killing target organisms, but are benign to non-target organisms and do not persist in the environment. Another example of successful green chemistry is the use of a benign solvent, supercritical carbon dioxide, in dry cleaning processes instead of toxic perchloroethylene (PERC).

Besides protecting human health and the environment, green chemistry can offer economic advantages and improvements to worker safety, public safety, and national security. However, significant impediments exist that discourage businesses from pursuing such alternatives, such as a workforce unfamiliar with green chemistry, lack of existing green chemistry alternatives, lack of demonstrated green chemistry alternatives, costs of up-front capital investment, lack of regulatory drivers, and inertia.

CURRENT PRIVATE SECTOR EFFORTS IN GREEN CHEMISTRY

A number of companies have undertaken green chemistry projects on their own. The Federal Government has highlighted some of these efforts through programs such as EPA's Presidential Green Chemistry Challenge Awards Program. A number of companies are also acting to increase their usage of more environmentally friendly ingredients to avoid costs associated with handling or treating more hazardous substances and in response to consumer demand for more environmentally friendly products. For

example in 2001, U.S.-based global consumer products manufacturer and marketer S.C. Johnson & Son, Inc. developed a process called Greenlist to formalize the classification of raw materials used in its products according to the impact they have on the environment and human health. Greenlist provides ratings for more than 95 percent of raw materials used by the company, including surfactants, solvents, propellants, insecticides, and packaging.

Through the Greenlist process, each raw material ingredient receives a rating from 3 to 0. An ingredient with a 3 rating is considered "Best," 2 is "Better," and 1 is "Acceptable." 0-rated materials may be used only when an acceptable alternative is not available and requires approval by senior management. When S.C. Johnson scientists create a new product or reformulate existing products, they work to select raw materials rated "Better" or "Best." Thus, Greenlist is a continual improvement process that increases the company's use of environmentally preferred raw materials in its products.

CURRENT FEDERAL GOVERNMENT GREEN CHEMISTRY RELATED ACTIVITIES

The Federal Government supports activities related to green chemistry through agencies including the National Science Foundation (NSF), the Environmental Protection Agency (EPA), the Department of Energy (DOE) and the National Institute of Standards and Technology (NIST). Some agencies, such as EPA, run programs that are focused directly on green chemistry. Other agencies, such as DOE, fund green chemistry as byproducts of efforts to achieve other goals, such as improving energy efficiency. Because some green chemistry investments are direct and some are indirect, and because green chemistry is not broken out in agency budgets, it is difficult to determine the precise level of federal investment in green chemistry.

It is clear, however, that the investment in green chemistry and chemical engineering is small compared to the investment in chemistry and chemical engineering as a whole. In 2000, the four agencies mentioned above spent approximately $540 million on chemistry and chemical engineering research and development (R&D); investment in green chemistry R&D was probably close to $40 million. In addition, green chemistry activities are not fully coordinated among the federal agencies.

EPA supports both green chemistry R&D and outreach efforts to promote green chemistry. The R&D is funded through the Office of Research and Development; the outreach and promotion through the Office of Pollution Prevention and Toxic Substances (OPPTS).

In fiscal year 2004 (FY04), EPA spent approximately $5 million directly on green chemistry and chemical engineering R&D and approximately $2 million on other green chemistry activities. The R&D funding was split between internal R&D, conducted at EPA's lab in Cincinnati and external R&D through the Science to Achieve Results (STAR) program. As part of the STAR program, EPA and NSF developed a partnership, the Technologies for a Sustainable Environment (TSE) program, which primarily funded green chemistry and chemical engineering R&D. The other $2 million in funding for green chemistry activities supported green chemistry out-

reach programs such as the Presidential Green Chemistry Challenge Award Program.

The TSE program was the external R&D program most focused on green chemistry in the Federal Government. EPA and NSF put out a joint request for proposals, and then each agency awarded grants based on its own mission. NSF funded more basic green chemistry R&D, while EPA funded more applied R&D. TSE was initiated in 1995, and the last TSE solicitation was issued in 2003. Through 2003, EPA and NSF awarded over $57 million for 205 research projects under the TSE program.

However, the Administration has eliminated EPA funding for TSE. The result has been a large decrease in the amount of funding EPA spends on green chemistry activities. Because EPA discontinued funding for the TSE program, NSF has also virtually eliminated specific funding for the TSE program which was NSF's only explicit green chemistry funding opportunity. While NSF does not put out specific solicitations for green chemistry R&D, NSF funds a wide range of research in green chemistry R&D.

DOE does not track spending on green chemistry activities, and does not conduct activities that it specifically identifies as green chemistry. However, DOE conducts R&D that has many green chemistry applications. DOE's fundamental research efforts in chemistry are focused on attaining an atomic and molecular level understanding of processes involved in the generation, storage, and use of energy.

NIST has no programs specifically focused on green chemistry but conducts R&D with implications for, and application to, green chemistry. For example, the Chemical Science and Technology Laboratory produces more accurate measurement methods and standards to enable the development and implementation of green technologies and assess their impact.

H.R. 2850

H.R. 2850 is designed to focus and integrate the Federal Government's green chemistry R&D activities, and to make them a higher priority. The legislation is also designed to increase education and training in green chemistry.

One impediment to the application of green chemistry is the lack of a chemistry workforce that is skilled in green chemistry techniques. H.R. 2850 would support undergraduate and graduate education in green chemistry. This should help create a new generation of chemists and chemical engineers who are familiar with green chemistry and its advantages, and can bring those skills to bear in the workplace. The Act would also support continuing education for professional chemists and chemical engineers so that the large existing workforce can be trained in green chemistry techniques.

The coordinated R&D program would also support R&D and demonstration projects at universities, industry and federal labs. This includes industry-university partnerships to facilitate the transfer of new ideas to industry. In addition, H.R. 2850 makes information about green chemistry activities readily available through a green chemistry database of accomplishments and best practices. This should aid interested companies in learning about,

overcoming barriers to, and implementing green chemistry alternatives.

IV. Committee Actions

110th CONGRESS

On June 10, 2007, Mr. Gingrey introduced H.R. 2850, the *Green Chemistry Research and Development Act of 2007,* along with Mr. Mario Diaz-Balart, Mr. Wu, Mr. Ehlers, and Mr. Welch. H.R. 2850, as introduced, was substantially the same as the bills introduced and passed by the Committee in the previous two Congresses: H.R. 1215 (Report 109–82) in the 109th Congress and H.R. 3970 (Report 108–462) in the 108th Congress. The major change to the legislation is an increase in funding levels for the agencies responsible for carrying out the legislation.

On July 11, 2007, the Committee on Science and Technology met to consider H.R. 2850. The Committee considered the following amendments to the bill:

1. Mr. Lipinski offered an amendment to expand the activities in the Manufacturing Extension Program with the aim of reducing the use or generation of hazardous substances to include recycling. The amendment was agreed to by voice vote.
2. Ms. Johnson offered an amendment to ensure that Minority Serving Institutions receive consideration for funds available under the act for green chemistry instruction. The amendment was agreed to by voice vote.

The legislation was agreed to by a voice vote. Mr. Hall moved that the Committee favorably report the bill, H.R. 2850, as amended, to the House with the recommendation that the bill, as amended, do pass, and that the staff be instructed to make technical and conforming changes to the bill, as amended, and prepare the legislative report, and that the Chairman take all necessary steps to bring the bill before the House for consideration. The motion was agreed to by a voice vote.

V. Summary of Major Provisions of the Bill, as Reported

The major provisions of the legislation are:

Establishes an interagency research and development (R&D) program to promote and coordinate federal green chemistry research, development, demonstration, education, and technology transfer activities.

Establishes an interagency working group composed of representatives from the National Science Foundation (NSF), the National Institute for Standards and Technology (NIST), the Department of Energy (DOE), the Environmental Protection Agency (EPA), and any other agency that the President may designate, to oversee the planning, management, and coordination of all federal green chemistry R&D activities. Designates the Director of NSF and the Assistant Administrator for Research and Development at EPA as co-chairs.

Requires the interagency working group to report to Congress within two years of enactment, summarizing federally-funded

green chemistry research and development activities and progress made toward the goals and priorities of the program, as established by the working group.

Amends the *National Institute of Standards and Technology Act* to make eligible as a Manufacturing Extension Program activity the enabling of supply chain manufacturers to conduct activities with the aim of reducing or eliminating the use or generation of hazardous substances.

Authorizes a program at NSF to award grants to institutions of higher education to support efforts to revise their undergraduate curriculum in chemistry and chemical engineering to incorporate green chemistry concepts and strategies. This program is authorized at $22.5 million total over three years, FY08 through FY10.

Requires the Director of NSF to enter into a contract with the National Research Council to conduct a study of the factors that constitute barriers to the successful commercial application of green chemistry R&D.

Authorizes a program to award grants to institutions of higher education to establish partnerships with companies in the chemical industry to retrain chemists and chemical engineers in the use of green chemistry concepts and strategies.

Authorizes appropriations from sums otherwise authorized to be appropriated for NSF, NIST, DOE and EPA. Total authorizations are $51 million in FY08, $55 million in FY09, and $59 million in FY10.

VI. Section-by-Section Analysis

Section 1: Short Title

"Green Chemistry Research and Development Act of 2007"

Section 2: Definitions

Defines terms used in the text including green chemistry, interagency working group, and program.

Section 3: Green Chemistry Research and Development Program

This section directs the President to establish an interagency research and development (R&D) program to promote and coordinate federal green chemistry research, development, demonstration, education, and technology transfer activities. The program will provide sustained support for green chemistry R&D through merit-reviewed competitive grants, R&D partnerships of universities, industry, and nonprofit organizations, and through R&D conducted at federal laboratories.

The program will provide support for, and encouragement of, the application of green chemistry through encouragement of, the application of green chemistry in all federally funded chemical science and engineering R&D; examination of methods to create incentives for the use of green chemistry; promotion of the education and training of undergraduate and graduate students and professional chemists and chemical engineers in green chemistry; collection and dissemination of information on green chemistry R&D and technology transfer; and provision of venues of outreach and dissemination of green chemistry advances such as symposia, forums, conferences, and written materials.

Establishes an interagency working group composed of representatives from the National Science Foundation, the National Institute for Standards and Technology, the Department of Energy, the Environmental Protection Agency, and any other agency that the President may designate, to oversee the planning, management, and coordination of all federal green chemistry R&D activities.

Names the Director of the National Science Foundation and the Assistant Administrator for R&D at the Environmental Protection Agency as co-chairs and requires the group to establish goals and priorities for the program and provide for inter-

agency coordination, including budget coordination. Requires the group to submit a report to the Committee on Science and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate within two years of the enactment of this legislation that includes a summary of the progress made towards the goals and priorities established for the program, including recommendations for future program activities.

Section 4: Manufacturing Extension Center Green Suppliers Network Grant Program

Amends the National Institute of Standards and Technology Act to make eligible as a Manufacturing Extension Program activity with the enabling of supply chain manufactures to conduct activities with the aim of reducing or eliminating the use or generation of hazardous substances.

Section 5: Undergraduate Education in Chemistry and Chemical Engineering

This section enables the Director of the National Science Foundation to award grants to institutions of higher learning, including Minority Serving Institutions, to revise undergraduate curriculum in chemistry and chemical engineering to incorporate green chemistry concepts and strategies.

Section 6: Study on the Commercialization of Green Chemistry

This section calls for the Director of the National Science Foundation to conduct a study with the National Research Council to examine the barriers to the successful commercial application of promising results from green chemistry research and development.

Section 7: Partnerships in Green Chemistry

This section establishes a program to award grants to institutions of higher education to create partnerships with companies in the chemical industry to retrain chemists and chemical engineers in the use of green chemistry concepts and strategies.

Section 8: Authorization of Appropriations

Authorizes appropriations for green chemistry R&D programs from sums already authorized to be appropriated, for the National Science Foundation, the National Institute of Standards and Technology, the Department of Energy, and the Environmental Protection Agency.

Agency	FY08	FY09	FY10
NSF	$ 20 M	$ 21 M	$ 22 M
NIST	$ 8 M	$ 9 M	$ 10 M
DOE	$ 13 M	$ 14 M	$ 15 M
EPA	$ 10 M	$ 11 M	$ 12 M
Total	$ 51 M	$ 55 M	$ 59 M

VII. Committee View

The Committee expects NSF, EPA, DOE and NIST to give more focused attention to green chemistry. That means running programs that are specifically targeted at funding green chemistry R&D, education, and technology transfer, not just funding such work as an afterthought or as a byproduct of other efforts, or if proposals related to green chemistry happen to be submitted by researchers. The Committee is disappointed that the Administration terminated the EPA–NSF Technologies for a Sustainable Environment (TSE) program in 2004. This was the only explicit green chemistry R&D program. The program should be reconstituted.

The Committee also expects the agencies to do a better job of coordinating their efforts in green chemistry so that the Federal Gov-

ernment has a comprehensive effort in green chemistry that can meet industry's needs while drawing on the unique strengths and expertise of each agency.

The Committee expects the Interagency Working Group to track Federal expenditures on green chemistry. The legislation requires agencies and OMB to explicitly state the portion of their request that will contribute to the activities authorized by this legislation. The Committee expects this report to reflect an effort to think through what is specifically needed for green chemistry; it should not be a mere cobbling together of disparate budgets submitted by each agency.

The Committee expects that, as part of its coordination efforts, the Interagency Working Group will identify areas in which green chemistry could help achieve federal, as well as industry needs. Obvious areas include improving homeland security and the development of non-toxic chemicals to combat invasive species. Clear industry needs include the development of benign solvents or solventless processes for a range of chemical processes, and new materials for buildings, such as paints and carpets that have lower toxicity.

One way green chemistry R&D programs can help assure both relevance to, and adoption by, industry is to fund university-industry partnerships, which may also include national laboratories and other non-profit institutions. Not all green chemistry R&D should be funded this way, but it should be an emphasis in the R&D programs. The Committee intends that all R&D grants awarded under this legislation be competitively awarded and merit reviewed.

Beyond operating more specific programs to fund green chemistry activities, the federal agencies should integrate green chemistry techniques in all of their chemistry and chemical engineering R&D activities. The Committee believes that, when soliciting and evaluating all chemistry and chemical engineering R&D grant proposals, the agencies should consider whether the application addresses the toxicity of the proposed chemical process and product.

The Committee considers education and outreach activities as essential parts of a comprehensive green chemistry effort. For this reason, the legislation authorizes two specific education programs—one to update undergraduate chemistry curricula to incorporate green chemistry concepts and strategies and a second to authorize grants for universities that partner with chemical companies to retrain professional chemists and chemical engineers in the use of green chemistry concepts and strategies. The Interagency Working Group should make sure that participating agencies are engaging in these activities, consistent with their overall missions.

Outreach activities should include the creation of an easily accessible one-stop-shop for green chemistry information. Specifically, the Interagency Working Group may want to consider whether it would be useful to maintain a list of chemical products and processes that are benign so that a company looking for a green chemistry solution could have easy access to available green chemistry alternatives.

The Committee believes that there are many barriers to the successful commercialization of green chemistry. For this reason, the Committee believes that the Interagency Working Group should fund research to determine economic, legal and other barriers. This

is also why the Committee authorizes a National Research Council study into the barriers to successful commercialization of green chemistry.

In carrying out its responsibilities, the Interagency Working Group should consult regularly with a wide range of researchers and end-users, especially private companies. The Committee also expects the Interagency Working Group to be able to provide Congress with a clear explanation of the goals and priorities of the green chemistry program, how each agency's activities are contributing to those goals, and how achievement of those goals is being evaluated. An important metric for the program should be whether new green chemistry products and processes are being developed and whether they are being adopted by industry.

VIII. Cost Estimate

A cost estimate and comparison prepared by the Director of the Congressional Budget Office under section 402 of the *Congressional Budget Act of 1974* has been timely submitted to the Committee on Science and Technology prior to the filing of this report and is included in Section X of this report pursuant to House Rule XIII, clause 3(c)(3).

H.R. 2850 does not contain new budget authority, credit authority, or changes in revenues or tax expenditures. Assuming that the sums authorized under the bill are appropriated, H.R. 2850 does authorize additional discretionary spending, as described in the Congressional Budget Office report on the bill, which is contained in Section X of this report.

IX. Congressional Budget Office Cost Estimate

SUMMARY

H.R. 2850 would authorize appropriations to promote the development of green chemistry technologies. Green chemistry encourages the design of products and processes that reduce or eliminate the use or generation of hazardous substances. Activities under the bill would include the establishment of a Green Chemistry Research and Development Program and the creation of collaborative, multi-agency grant programs. Assuming appropriation of the authorized and necessary amounts, CBO estimates that implementing H.R. 2850 would cost $18 million in 2008 and $181 million over the 2008–2012 period. Enacting H.R. 2850 would not affect direct spending or revenues.

H.R. 2850 contains no intergovernmental or private-sector mandates as defined in the *Unfunded Mandates Reform Act* (UMRA) and would benefit State and local governments.

ESTIMATED COST TO THE FEDERAL GOVERNMENT

The estimated budgetary impact of H.R. 2850 is shown in the following table. The costs of this legislation fall within budget functions 250 (science, space, and technology) and 800 (general government).

	By Fiscal Year, in Millions of Dollars				
	2008	2009	2010	2011	2012
CHANGES IN SPENDING SUBJECT TO APPROPRIATION					
National Science Foundation					
Authorization Level	27	29	30	0	0
Estimated Outlays	6	18	25	21	10
National Institutes of Standards and Technology					
Authorization Level	8	9	10	0	0
Estimated Outlays	1	5	8	8	3
Environmental Protection Agency					
Authorization Level	10	11	12	0	0
Estimated Outlays	4	9	11	7	2
Department of Energy					
Authorization Level	13	14	15	0	0
Estimated Outlays	7	12	14	7	2
Interagency Working Group					
Estimated Authorization Level	*	1	*	*	*
Estimated Outlays	*	1	*	*	*
Total Changes					
Estimated Authorization Level	58	64	67	*	*
Estimated Outlays	18	45	58	43	17

Notes: * = less than $500,000.

BASIS OF ESTIMATE

For this estimate, CBO assumes that H.R. 2850 will be enacted near the end of fiscal year 2007 and that the entire amounts authorized and estimated to be necessary will be appropriated for each fiscal year. Estimated outlays are based on historical spending patterns for similar programs.

Green Chemistry Research and Grant Programs

H.R. 2850 would authorize the appropriation of $58 million in 2008 and about $188 million over the 2008–2010 period to create multi-agency grant programs for the study of green chemistry. (Green chemistry encourages the design of products and processes that reduce or eliminate the use or generation of hazardous substances.) Under the bill, grants would be awarded to investigators for general research and development, and to universities for establishing partnerships with the chemical industry to retrain chemists and engineers in the field of green chemistry. The bill would authorize several agency appropriations for those grant and research activities.

For NSF, H.R. 2850 would authorize the appropriation of between $27 million and $30 million a year over the 2008–2010 period. NSF also would be required to conduct a study on the barriers to commercial application of green chemistry technologies.

For the other specified agencies, the following amounts would be authorized to be appropriated over the 2008–2010 period: $27 mil-

lion for the National Institute of Standards and Technology, $42 million for the Department of Energy, and $33 million for the Environmental Protection Agency to carry out the coordinated grant programs. Assuming appropriation of the authorized amounts for all agencies, CBO estimates that implementing those provisions would result in discretionary spending of $18 million in fiscal year 2008 and $181 million over the 2008–2012 period.

Interagency Working Group

H.R. 2850 would establish a Green Chemistry Research and Development Program within the Executive Office of the President and create an interagency working group to promote and coordinate federal green chemistry research and development. Agencies participating in the program would report annually on their activities, and the interagency working group would report within two years to the Congress on the status of green chemistry research. Based on information from the Office of Management and Budget and the cost of similar programs, CBO estimates that implementing those provisions would cost $1 million over the 2008–2010 period.

INTERGOVERNMENTAL AND PRIVATE–SECTOR IMPACT

H.R. 2850 contains no intergovernmental or private-sector mandates as defined in UMRA and would create several grant programs benefiting institutions of higher education. Any costs State, local, or tribal governments might incur, including matching funds, would be incurred voluntarily.

ESTIMATE PREPARED BY:

Federal Costs: Science Space and Technology: Leigh Angres; EPA: Susanne Mehlman; Public Buildings: Matthew Pickford; NIST: Susan Willie; Impact on State, Local, and Tribal Governments: Neil Hood; Impact on the Private Sector: Amy Petz.

ESTIMATE APPROVED BY:

Peter H. Fontaine, Deputy Assistant Director for Budget Analysis

X. Compliance With Public Law 104–4

H.R. 2850 contains no unfunded mandates.

XI. Committee Oversight Findings and Recommendations

The oversight findings and recommendations of the Committee on Science and Technology are reflected in the body of this report.

XII. Statement on General Performance Goals and Objectives

Pursuant to clause (3)(c) of House Rule XIII, the goal of H.R. 2850 is to advance green chemistry by establishing a green chemistry research and development program and a manufacturing extension center green suppliers network grant program, and by supporting undergraduate education in chemistry and chemical engineering.

XIII. Constitutional Authority Statement

Article I, section 8 of the Constitution of the United States grants Congress the authority to enact H.R. 2850.

XIV. Federal Advisory Committee Statement

H.R. 2850 does not establish nor authorize the establishment of any advisory committee.

XV. Congressional Accountability Act

The Committee finds that H.R. 2850 does not relate to the terms and conditions of employment or access to public services or accommodations within the meaning of section 102(b)(3) of the *Congressional Accountability Act* (Public Law 104–1).

XVI. Earmark Identification

H.R. 2850 does not contain any congressional earmarks, limited tax benefits, or limited tariff benefits as defined in clause 9(d), 9(e), or 9(f) of Rule XXI.

XVII. Statement on Preemption of State, Local, or Tribal Law

This bill is not intended to preempt any State, local, or tribal law.

XVIII. Changes in Existing Law Made by the Bill, as Reported

In compliance with clause 3(e) of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY ACT

* * * * * * *

REGIONAL CENTERS FOR THE TRANSFER OF MANUFACTURING TECHNOLOGY

SEC. 25. (a) The Secretary, through the Director and, if appropriate, through other officials, shall provide assistance for the creation and support of Regional Centers for the Transfer of Manufacturing Technology (hereafter in this Act referred to as the "Centers"). Such centers shall be affiliated with any United States-based nonprofit institution or organization, or group thereof, that applies for and is awarded financial assistance under this section in accordance with the description published by the Secretary in the *Federal Register* under subsection (c)(2). Individual awards shall be decided on the basis of merit review. The objective of the Centers is to enhance productivity and technological performance in United States manufacturing through—

(1) * * *

* * * * * * *

(4) the active dissemination of scientific, engineering, technical, and management information about manufacturing to industrial firms, including small- and medium-sized manufacturing companies; **[**and**]**

(5) the utilization, when appropriate, of the expertise and capability that exists in federal laboratories other than the Institute[.]*; and*

(6) the enabling of supply chain manufacturers to continuously improve products and processes, increase energy efficiency, increase recycling, identify cost-saving opportunities, and optimize resources and technologies with the aim of reducing or eliminating the use or generation of hazardous substances.

* * * * * * *

XIX. Committee Recommendations

On July 11, 2007, the Committee on Science and Technology favorably reported H.R. 2850, as amended, by a voice vote and recommended its enactment.

XX: PROCEEDINGS OF THE FULL COMMITTEE MARKUP ON H.R. 2850, THE GREEN CHEMISTRY RESEARCH AND DEVELOPMENT ACT OF 2007

WEDNESDAY, JULY 11, 2007

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
Washington, DC.

The Committee met, pursuant to call, at 10:17 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Bart Gordon [Chairman of the Committee] presiding.

Chairman GORDON. The Committee will come to order. Pursuant to notice, the Committee on Science and Technology meets to consider the following measures: H.R. 2850, the *Green Chemistry Research and Development Act of 2007;* and H.R. 2337, the *Energy Policy Reform and Revitalization Act of 2007.*

And I would like to briefly talk about H.R. 2337. H.R. 2337 was referred to the Committee on Natural Resources, the Committee on Agriculture, and also, the Committee on Science and Technology. The Natural Resources Committee held hearings on the bill in May, and marked up the bill last month. The Agriculture Committee has not yet acted on the bill.

The Committee staff, on a bipartisan basis, have been in discussions over the last week or so with the Natural Resources Committee about provisions in H.R. 2337 where there are policy differences within the Science and Technology jurisdiction. Following consideration of H.R. 2850, I plan to recess the Committee, and postpone consideration of H.R. 2337 until Thursday or Friday, so that our staff may continue with these bipartisan, good faith negotiations.

And let me say that I think we all, Democrats and Republicans, are concerned about maintaining the, certainly the prerogative of this committee, jurisdiction of this committee, and we also want to get a good product. I think we can do this without being a jerk. The fact of the matter is, as we go through the energy bills, there is going to be a lot of joint jurisdiction, sometimes two, sometimes three committees at once. Jim Matheson and I, on another committee, that we are working on some joint things, and so, my hope is, again, that we can work these things out without getting into a lot of problems between committees. The fact of the matter is Democrats and Republicans on this committee are going to work together for a while, our brothers and sisters on Resources, Energy and Commerce, and Agriculture, we are going to be working together for a while. I think we want to deal with everybody honorably, and that is the way we are going to try to proceed.

We now proceed with the markup. The bill we consider today is H.R. 2850, the *Green Chemistry Research and Development Act of 2007.* When I became Chairman of this committee, I made a promise that this would be a committee of good ideas and consensus. We

are here to solve the problems, and solutions are welcome from both sides of the aisle. Today, the Committee is meeting to consider legislation introduced by Congressman Gingrey that addresses an issue that he has particular expertise with, and that is green chemistry. With an undergraduate degree in chemistry, followed by a medical degree, Dr. Gingrey has long been an advocate for increasing government research into the green chemistry.

Chemical manufacturing can result in harm to human health and the environment, due to the use of hazardous materials and the generation of hazardous byproducts. Green chemistry seeks to mitigate such harmful outcomes. In short, the goal of green chemistry is to minimize or to eliminate this harm, by using safer materials and manufacturing processes. Besides protecting human health and the environment, green chemistry can offer economic advantages, improvements to work safety, public safety, and our national security.

H.R. 2850 establishes an interagency program to enhance green chemistry R&D at the National Science Foundation, EPA, DOE, and NIST. This legislation will provide grants to individual researchers, spur university-industry partnerships, fund research at federal laboratories, and train students in green chemistry science.

H.R. 2850 is the third iteration of a bill that Congressman Gingrey has introduced addressing this issue. Democratic amendments were agreed to, and now make up sections of H.R. 2850. This bill is a product of good bipartisan cooperation.

However, there has, and there remains, apprehension among some Democratic Members that this Act simply does not go far enough to promote the adoption of green chemistry, but H.R. 2850 is a good first step, and I urge my colleagues on the Committee to support this legislation, and I am sure Dr. Gingrey will be glad for us all to take credit for it at home when we get this passed.

I want to thank all the Members for their cooperation and participation during this first half of the year. I look forward to working with all of you as we move into August.

And let me particularly say thank you to the staff, both Democrats and the Majority. I know we have asked you to do a lot. You have done a lot. The fact of the matter is that we are going to be a major participant in the Energy Bill that is going to come down here very soon. We could have decided no, we are not going to do it, but we didn't. We decided we were going to work hard, get things done, and I think it is going to be pay off, because we are going to have a lot of provisions in this bill. We are also going to be major players in the conference, and so, there will be many of us on that conference, so we can have more input.

Also, I went over to the Senate yesterday to talk with Lamar Alexander. The conference, well, not the conference, but the pre-conference is coming along on our Competitiveness Agenda. He is very anxious to move this forward. He is doing really a very good job over in the Senate. Chuck Atkins, who I don't think is here now, but has been a great taskmaster, in setting forth an agenda for all of these, and we have no telling how many committees of jurisdiction in the Senate, that are all working together, again, on a bipartisan, bicameral basis.

I think we are going to be able to get this thing done by the end of this session. If we can get it done and passed—and I remind you that it passed unanimously out of this committee, we only had 21 negative votes on the House Floor—I think this Competitiveness Agenda will be the major legislative accomplishment of this first six months, and again, we will all be a part of that, and I thank you all for working and helping us.

Let me also say that for those of you that are going on the CODEL to Greenland this following weekend, Jerry McNerney just made me aware that you need to get your hepatitis and typhoid shots. If they are not up to speed, you can check with the doctor's office. They will know. I don't think Greenland is a very hazardous area, but there are those shots that we need to take, and we will get ready for that.

So I now recognize Mr. Hall, to present his opening remarks.

[The prepared statement of Chairman Gordon follows:]

PREPARED STATEMENT OF CHAIRMAN BART GORDON

Good Morning. The Committee will come to order. Pursuant to notice, the Committee on Science and Technology meets to consider the following measures:

- H.R. 2850, the *Green Chemistry Research and Development Act of 2007.*
- H.R. 2337, the *Energy Policy Reform and Revitalization Act of 2007.*

I would like to briefly talk about H.R. 2337. This bill was referred to the Committee on Natural Resources, the Committee on Agriculture, and also to the Committee on Science and Technology. The Natural Resources Committee held hearings on the bill in May and marked up the bill last month. The Agriculture Committee has not yet acted on the bill.

Committee staff has been in discussions over the last week or so with the Natural Resources Committee about provisions in H.R. 2337 where there are policy differences within the Science and Technology jurisdiction. Following consideration of H.R. 2850, I plan to recess the Committee and postpone consideration of H.R. 2337 until Thursday or Friday so that we may continue negotiations.

We will now proceed with the markup. The bill we will consider today is H.R. 2850, the *Green Chemistry Research and Development Act of 2007.*

When I took the reigns of this committee, I made a promise that this would be a committee of "Good Ideas" and "Consensus." We are here to solve problems, and solutions are welcome from both sides of the aisle.

Today, the Committee is meeting to consider legislation introduced by Congressman Gingrey that addresses an issue that he has particular expertise with—green chemistry. With an undergraduate degree in chemistry followed by a medical degree, Dr. Gingrey has long been an advocate for increasing government research into green chemistry.

Chemical manufacturing can result in harm to human health and the environment due to the use of hazardous materials and the generation of hazardous byproducts. Green chemistry seeks to mitigate such harmful outcomes. In short, the goal of green chemistry is to minimize or to eliminate this harm by using safer materials and manufacturing processes. Besides protecting human health and the environment, green chemistry can offer economic advantages and improvements to worker safety, public safety, and our national security.

H.R. 2850, the *Green Chemistry Research and Development Act*, establishes an interagency program to enhance green chemistry R&D at NSF, EPA, DOE, and NIST.

This legislation will provide grants to individual researchers, spur university/industry partnerships, fund research at federal laboratories, and train students in green chemistry science.

H.R. 2850 is the third iteration of a bill that Congressman Gingrey has introduced addressing this issue. Under Chairman Boehlert's leadership in the 108th and 109th Congresses, Democratic amendments were agreed to and now make up sections of H.R. 2850. This bill is the product of good bipartisan cooperation.

However, there was, and remains, apprehension among Democratic Members that this Act simply does not go far enough to promote the adoption of green chemistry.

But H.R. 2850 is a good first step, and I urge my colleagues on the Committee to support this legislation.

I want to thank all the Members for their cooperation and participation during the first half of this year. I look forward to working with all of you as we move toward the August recess.

Mr. HALL. Mr. Chairman, I thank you, and I have listened carefully to what you have said, and it is obvious that we want to get along. We want to work together. We have from here back. We hope we can from here forward. And we thank you for holding this markup today, and I am very pleased that we are marking up Dr. Gingrey's Green Chemistry Research and Development Bill today. It is a good bill. It has passed the House of Representatives twice already, and hopefully, this time, the other body is going to recognize its merits. But it seemed like I am more inclined to want to have some questions, some parliamentary inquiries, but let me go on with my statement and see where we are going.

It is my understanding that we will be recessing the Committee following consideration of Dr. Gingrey's bill, H.R. 2850, I think that is what I gleaned from what you said. I am disappointed to hear that the Committee may not mark up H.R. 2337, the *Energy Policy Reform and Revitalization Act of 2007,* and may instead have an exchange of letters with the Resources Committee pending agreement on a couple of provisions. A number of Members on our side of the aisle have expressed concern about other provisions in the bill that are within the Committee's jurisdiction.

For instance, there is concern that a provision of H.R. 2337 establishes a new procurement program at the National Oceanic and Atmospheric Administration, yet our committee has not even held a hearing on this provision. I had hoped that we could have a full and open debate on this legislation. I have a number of concerns with legislation. I am primarily concerned that it may have a negative effect on American consumers and our energy independence, as I have expressed on a number of occasions. America is at a crossroads. We are faced with large energy challenges, such as an ever-increasing demand for energy that will inevitably drive up costs for our taxpayers, threaten our national security, and hamper our ability to compete in the world marketplace.

This concern is shared by several organizations that you are very familiar with: the Chamber of Commerce, the National Association of Manufacturers. I could go on and on—International Brotherhood of Electrical Workers and on and on. We have to meet these challenges, energy challenges head-on, by increasing our domestic supply, using all available resources.

This bill, however, could move our country in the opposite direction. It repeals several bipartisan provisions of the *Energy Policy Act of 2005,* and it will result in increased dependence on foreign energy, higher prices for American consumers, and a loss of American jobs. These are provisions in this bill that limit upgrading energy transmission and distribution facilities, delay development of oil shale and tar sands leasing contracts, add layers of bureaucracy to slow oil and gas operations, impose new fees on oil and gas leases, and establish new requirements that will make wind energy absolutely unaffordable.

I urge the Chairman to move forward with the markup of this legislation, in this committee. The Science and Technology Com-

mittee has a lot to add to the debate. I would be disappointed if we didn't to give our Members that opportunity.

And Mr. Chairman, I have copies of numerous letters in opposition to this bill that I would like to offer into the record at this time, and I would like to yield to Mr. Gingrey for——

[The prepared statement of Mr. Hall follows:]

PREPARED STATEMENT OF REPRESENTATIVE RALPH M. HALL

Thank you, Mr. Chairman, for holding this markup today. I am pleased we are marking up Dr. Gingrey's Green Chemistry Research and Development bill today. This is a good bill that has passed the House of Representative twice already. Hopefully, this time the other body will recognize its merits.

It is my understanding that we will be recessing the Committee following consideration of Dr. Gingrey's bill, H.R. 2850. I am disappointed to hear that the committee may not markup H.R. 2337, the *Energy Policy Reform and Revitalization Act of 2007,* and may instead have an exchange of letters with the Resources Committee pending agreement on a couple of provisions. A number of Members on our side of the aisle have expressed concern about other provisions in this bill that are within this committee's jurisdiction. For instance, there is concern that a provision of H.R. 2337 establishes a new procurement program at the National Oceanic and Atmospheric Administration, yet our committee has not even held a hearing on this provision. I had hoped that we could have a full and open debate on this legislation.

I have a number of concerns with this legislation. I am primarily concerned that it may have a negative effect on American consumers and our energy independence. As I have expressed on a number of occasions, America is at a crossroads. We are faced with large energy challenges, such as an ever increasing demand for energy, that will inevitably drive up costs for our taxpayers, threaten our national security, and hamper our ability to compete in the world marketplace. This concern is shared by several organizations, such as the Chamber of Commerce, the National Association of Manufacturers, and the International Brotherhood of Electrical Workers.

We must meet these energy challenges head on by increasing our domestic supply using all available resources. This bill, however, moves our country in the opposite direction. It repeals several bipartisan provisions of the *Energy Policy Act of 2005* and it will result in increased dependence on foreign energy, higher prices for American consumers and a loss of American jobs. There are provisions in this bill that limit upgrading energy transmission and distribution facilities, delay development of oil shale and tar sands leasing contracts, add layers of bureaucracy to slow oil and gas operations, impose new fees on oil and gas leases, and establish new requirements that will make wind energy unaffordable.

I urge the Chairman to move forward with the markup of this legislation in this committee. The Science and Technology Committee has a lot to add to this debate, and I would be disappointed if we did not give our Members that opportunity.

[The information follows:]

CHAMBER OF COMMERCE
OF THE
UNITED STATES OF AMERICA

R. BRUCE JOSTEN
EXECUTIVE VICE PRESIDENT
GOVERNMENT AFFAIRS

1615 H STREET, N.W.
WASHINGTON, D.C. 20062-200
202/463-5310

June 4, 2007

The Honorable Nick Rahall
Chairman
Committee on Natural Resources
United States House of Representatives
Washington, DC 20515

The Honorable Don Young
Ranking Member
Committee on Natural Resources
United States House of Representatives
Washington, DC 20515

Dear Chairman Rahall and Ranking Member Young:

The U.S. Chamber of Commerce, the world's largest business federation representing more than three million businesses and organizations of every size, sector, and region, strongly opposes H.R. 2337, the "Energy Reform and Revitalization Act of 2007." This purported "energy bill" not only fails to produce a single kilowatt of energy, but also threatens to reduce (and in some sectors eradicate) energy production. Any lawmaker serious about energy security or energy independence should have strong reservations about voting for H.R. 2337.

Upon the introduction of H.R. 2337, the Committee issued a press release stating that it is "committed to adopting energy policies that truly reflect the needs of the American people and provide for our environmental, economic, and national security – not jeopardize it." However, the U.S. already has a vehicle for achieving these goals: the Energy Policy Act of 2005 (EPAct). In 2005, lawmakers from both sides of the aisle worked together to enact EPAct, a comprehensive energy policy that increases energy efficiency and conservation, ensures adequate energy supplies and generation, renews and expands the energy infrastructure, and encourages investment in new energy technologies.

Yet, rather than fully fund and implement EPAct, H.R. 2337 attempts to scale it back. The bill would stunt the development of transmission infrastructure necessary to unclog congested energy corridors. It would further restrict access to valuable domestic oil and gas supplies. It would effectively shut down all wind energy production in the United States. In short, H.R. 2337 does exactly what energy legislation should not do: it picks winners and losers.

Members of the Committee have repeatedly called on this country to "march boldly toward energy independence." H.R. 2337 makes that goal practically impossible. The bill produces no new energy, and instead reduces the country's access to its own energy supplies. For these reasons, the Chamber strongly opposes H.R. 2337.

Sincerely,

R. Bruce Josten

Cc: Members of the Committee on Natural Resources

NATIONAL WATER RESOURCES ASSOCIATION
Meeting Tomorrow's Challenge

President W.E. "Bill" West, Jr.
Vice President Lawrence M. Libeu
Treasurer Wade Noble
Executive Vice President Thomas F. Donnelly

June 7, 2007

The Honorable Doug Lamborn
437 Cannon House Office Building
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressman Lamborn,

On behalf of the Board of Directors and Members of the National Water Resources Association (NWRA), I am writing in strong support Representative Doug Lamborn's amendment to protect Bureau of Reclamation water and power users from increased electricity costs as proposed under the Energy Policy Reform and Revitalization Act of 2007, H.R. 2337.

As agriculture and municipal water users in California and the 16 other Western States, our members are dependent upon reliable and predictable Bureau of Reclamation energy and water supplies. Those supplies and their associated costs are contracted through the Bureau of Reclamation. While the intention of H.R. 2337 to create additional sources of energy through solar panels and wind turbines is laudable, the effects of placement and costs of such facilities upon Bureau of Reclamation projects, and the multi-purposes they serve, must be fully taken into account. Representative Lamborn's amendment ensures Reclamation water and power users and their essential operations are physically and financially protected from any unfunded mandates contained within H.R. 2337.

Again, as we look for new opportunities to develop alternative sources of power, we must ensure that water and power users are not adversely impacted through increased costs or interference with critical water delivery facilities.

Our members in the 17 Western states support Representative Lamborn's amendment and look forward to working with you to ensure its passage.

Sincerely,

Thomas F. Donnelly
Executive Vice President

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THE DEPUTY SECRETARY OF THE INTERIOR
WASHINGTON

JUN 0 5 2007

Honorable Nick J. Rahall II
Chairman, Committee on Natural Resources
United States House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

This letter sets forth the views of the Administration on H.R. 2337, the "Energy Policy Reform and Revitalization Act of 2007." While there are some provisions the Administration supports, the Administration strongly opposes H.R. 2337 as written.

The United States continues to face a challenge with regard to high energy prices. Our security, economy, and our quality of life are dependent on energy. H.R. 2337 would have a significant negative impact on current efforts to increase domestic production of energy on our public lands. The bill would reverse many of the positive steps Congress took when it enacted the Energy Policy Act of 2005 (EPAct), and which are now beginning to yield positive results.

EPAct was a significant bipartisan accomplishment that provided a comprehensive, strategic energy plan focused on efficiency, fuel diversification, alternative and renewable energy, advanced technologies, and increased domestic production of resources. H.R. 2337 seeks to essentially pause progress on increased domestic production of oil and natural gas at a time when prices are high and the need for more, not less supply, is critical. The Administration encourages Congress to focus its efforts on legislation that will actually increase energy security by providing more supplies to American homes and businesses, such as opening a small portion of the Arctic National Wildlife Refuge; providing greater access to Outer Continental Shelf resources; and streamlining the siting and expansion of refineries.

Specifically, our concerns with the bill are as follows:

TITLE I: ENERGY POLICY ACT OF 2005 REFORMS

Section 101. Cost Recovery.

We recommend section 101 be amended.

Section 101 would repeal the Permit Processing Improvement Fund created by the EPAct, repeal the cost recovery prohibition in section 365(i) of EPAct, and substitute an

Application for Permit to Drill (APD) cost recovery fee as the source of funding for the pilot office project established by EPAct.
Repeal of this section is consistent with the President's FY 2008 Budget request, and we strongly support it. However, H.R. 2337 does not outline a source of funding for the interim period between elimination of the Permit Processing Improvement Fund and the implementation of the final cost recovery rule. Establishment of an interim fee is critical to ensure that the pilot offices can proceed without interruption to the overall purposes of the pilot program and without disruption to the employees the Bureau of Land Management (BLM) and the other Federal and State agencies have already hired to carry out its implementation. The Department of the Interior submitted a legislative proposal on May 23, 2007 that would address this deficit.

Section 102. Permit Processing.

We recommend section 102 be deleted.

Section 102 would repeal the 30-day time frame mandated under EPAct for the BLM to process onshore oil and gas permits. Timelines assure operators of prompt bureau action on their applications. Regardless of whether the congressionally mandated timeline is maintained or eliminated, the BLM will continue to process all APDs with due diligence.

Section 103. Energy Corridor Designation Process.

We recommend section 103 be deleted.

Section 103 would eliminate the two-year time frame for energy corridor designation required by section 368 of EPAct, and exclude corridor designation on or within one mile of lands protected by federal or state law for their natural, cultural or historic resources. Section 103 would negate the substantial effort and cost already undertaken by the BLM and its cooperating agencies on the West-Wide Energy Corridors study pursuant to section 368 of EPAct.

Section 103 would also preclude the designation of right-of-way corridors in individual BLM land use plans under section 503 of the Federal Land Policy and Management Act (FLPMA) and the authority to grant specific rights-of-way in these corridors. This language is overreaching and would prevent BLM from responding to energy right-of-way needs at a local level. It would be extremely difficult to facilitate new renewable energy projects in a timely manner if the current process is stopped.

Finally, we would like to note that the Programmatic Environmental Impact Statement (PEIS) being prepared for the West-wide Energy Corridor Project will clearly indicate that federal land management agencies will still comply with all applicable statutes and regulations when an energy corridor right-of-way is proposed on federal land.

Section 104. Oil Shale and Tar Sands Leasing.

We recommend section 104 be deleted.

Section 104 would amend the EPAct to extend timelines for the development of a program for oil shale and tar sands leasing. Section 369 of EPAct requires the BLM develop a framework for future commercial oil shale leasing and establishes certain deadlines for steps in this process. The EPAct also requires the Secretary of the Interior to consult with Governors, representatives of local governments, and affected Indian tribes to determine the level of support and interest in developing these resources before any future commercial development is authorized.

We oppose the change in the timeline provided in section 104. We believe the approach laid out in section 369 of the EPAct is reasonable, promotes cooperation and input from interested parties, and facilitates the careful development of a resource that may have tremendous potential for helping to meet our energy needs.

Section 105. Categorical Exclusions.

We recommend section 105 be deleted.

Section 105 would eliminate the series of categorical exclusions from the National Environmental Policy Act (NEPA) created under section 390 of the EPAct for certain activities, such as drilling an oil and gas well at a location or well pad site at which drilling has occurred within the past five years.

Under the EPAct, categorical exclusions are only used if previous oil and gas activity of the same character occurred in the same area within five years, or a recent NEPA document has analyzed the activity, such as drilling, as a foreseeable one. When a categorical exclusion is used, BLM field staff continue to conduct field exams, inspections, and enforcement for APD or right-of-way applications filed by the oil and gas industry. In addition, we are required to comply with the Endangered Species Act, Clean Water Act, and other federal statutes as well as consult with State agencies.

We believe the categorical exclusion authority provided for in section 390 of EPAct has eliminated redundant documentation and reviews without sacrificing environmental safeguards on the ground. Therefore, we recommend section 105 be deleted from the bill.

Section 106. Best Management Practices.

We recommend section 106 be amended.

Section 106 requires the Secretary of the Interior to amend the Best Management Practices guidelines for oil and gas development on Federal lands to require public review and comment prior to waiving any stipulation of an oil and gas lease. Section 106

would also create an incentive for oil and gas operators to adopt best management practices by providing expedited permit review for any operator that commits to adhering to those practices without seeking waiver of such stipulations.

While the Department of the Interior supports the use of appropriate Best Management Practices, we oppose this section as written because it would impede the ability of field staff to respond to rapidly changing circumstances by tailoring appropriate and routine waivers having little or no environmental impact. The Department could support these provisions with the following recommend changes:

(1) require public review and comment prior to approval of a waiver or modification of a lease stipulation that involves an issue of a significant effect on the environment not previously considered ~~waiving any stipulation of an oil and gas lease for such lands~~; and
(2) create an incentive for oil and gas operators to adopt environmental best management practices by providing incentives, such as expedited permit review, for any operator that commits to ~~adhering to those practices without seeking waiver of such stipulations~~ on-the-ground application of all technologically feasible environmental best management practices that will reduce impacts to environmental and cultural resources.

Section 107. Federal Consistency Appeals.

We recommend section 107 be deleted.

Section 107 would double the amount of time the Department of Commerce has to process an appeal under the Coastal Zone Management Act (CZMA) from the current 160 days established in the EPAct to 320 days. Section 107 would also allow the Secretary of Commerce to stay the decision record period for one, unspecified, period of time. Currently, the law allows the Secretary of Commerce to stay the decision record period for one 60-day period. We are concerned with the ability to extend the deadline, once, for an indefinite period. In the past, decisions on appeals sometimes took years to be reached. As the Department of Commerce testified on May 23, 2007, the Energy Policy Act of 2005 amended the CZMA to provide this needed balance between flexibility and establishing deadlines. NOAA believes that this framework should be implemented before Congress deliberates its merit and contemplates any further changes.

TITLE II: FEDERAL ENERGY PUBLIC ACCOUNTABILITY, INTEGRITY AND PUBLIC INTEREST

Section 201. Limitations on Royalty In-Kind.

We recommend section 201 be deleted.

Section 201 would limit the royalty-in-kind (RIK) program solely to the purpose of filling the Strategic Petroleum Reserve. This provision fails to recognize the benefits of

the RIK program and will result in losses to the Treasury. Additionally, the RIK program has significantly lowered administrative costs and, we believe, increased receipts to the Treasury. In FY 2006, the Minerals Management Service (MMS) estimates, based on measurements against benchmarks under the royalty-in-value system, that the RIK Program generated $28.8 million in additional revenue for the U.S. Treasury, and resulted in administrative costs that were approximately 30 percent less than those for Royalty-In-Value activities, translating to cost avoidance of $2.3 million. Moreover, this provision would terminate the partnerships MMS has with several states regarding RIK and end the Small Refiner Program, in which RIK is used to help eligible small refiners gain access to crude oil supplies.

Section 202. Audits

We recommend section 202 be deleted.

Section 202 would require the MMS to perform no less than 550 audits of oil and gas leases each fiscal year. It also directs the Secretary of the Interior to issue regulations requiring all employees involved in audit or compliance review activities to meet auditor qualifications consistent with the Government Auditing Standards published by Government Accountability Office (GAO).

For MMS to complete work on an average of 550 audits per year would require an increase of approximately 178 auditors and 20 supervisors at a cost of approximately $27.4 million per year. Moreover, additional funding would be needed for office space, training and travel associated with these auditors.

We do not believe it is appropriate to focus on a specific number of audits that need to be conducted. Rather, the focus should be on implementing a well-designed, risk-based compliance strategy. MMS is in the process of developing such a strategy, which we believe is consistent with the Inspector General's findings in his December 2006 report on MMS's compliance review process.

Section 202 would also require all employees responsible for compliance reviews and audits to meet auditor qualifications consistent with standards published by the GAO. MMS employees responsible for compliance reviews and audits are already required to meet the GAO standards. In fact, audits conducted by all Federal agencies, including MMS, are governed by standards developed and published by the GAO.

Section 203. Fines and Penalties.

We recommend section 203 be amended.

Section 203 would amend section 109 of the Federal Oil and Gas Royalty Management Act of 1982 (FOGRMA). The amendments would strengthen MMS's civil penalty authorities by adding additional incentives for industry to report and pay correctly the first time and comply quickly when they are notified of a violation, if one occurs. This

will assist the MMS greatly in gaining compliance with a much less intensive resource commitment.

The proposed section 109(a)(2)(B) should be revised to provide for a penalty of "up to" $25,000 per violation per day. MMS should be afforded some flexibility to determine appropriate penalty amounts in light of the nature and severity of the violation involved in a particular case. We note that in some instances the potential penalty amounts appear to be onerous. In addition, the corresponding criminal penalty section, section 110, of FOGRMA should also be amended to reflect any change made to the civil penalties.

Finally, the proposal should also apply to Federal and Indian geothermal and solid mineral leases.

Section 212. Interest.

We support section 212.

Section 212 would eliminate the Royalty Simplification and Fairness Act (RSFA) provision mandating the Government pay interest on Federal oil and gas overpayments. Under RSFA the Government pays interest on Federal oil and gas overpayments at the rate applicable under Section 6621 of the Internal Revenue Code of 1986.

When MMS implemented RSFA, the computer system was redesigned to automatically generate an interest payment on an overpayment. It is important to note that if this RSFA provision is eliminated, the MMS would be required to make significant computer system changes at an estimated cost of approximately $1 million to implement the changes made by this section.

Section 213. Obligation Period.

We support section 213.

Section 213 would allow MMS seven years from the date a payor files an adjustment to audit or review the adjustment to determine if it is proper.

Section 215. Liability for Royalty Payments.

We support section 215.

Section 215 would make both the lessee and the payor/designee liable for payments due by the lessee under a lease. We support section 215, and the conforming changes to sections 211 and 214, which provides that any person who pays, offsets or credits monies, makes adjustments, requests or receives refunds, or submits reports with respect to payments the lessee must make is the lessee's designee. This would clarify that a lessee's designee is liable for any payment obligation and that the operating rights owner

and the lessee of record title are liable for their share of payment obligations under the lease. Section 215 should significantly reduce the administrative burden on MMS.

Section 221. Surface Owner Protection.

We recommend section 221 be deleted.

Subsections (d)(1) & (2) of section 221 impose an obligation to conduct surface owner notification prior to and immediately following leasing. Given the differences of how counties and local governments manage and maintain property records, this would prove to be a time-consuming and onerous task to implement in a short timeframe. While we support the goal of these subsections, we believe it would be prudent to first create a pilot project, or to phase in the concept, so that it can be tested on a smaller scale before attempting across the board adoption.

Section 222. Onshore Oil and Gas Reclamation and Bonding.

We recommend section 222 be deleted.

Section 222 would require the BLM to update reclamation standards and financial assurance/bond amounts posted by oil and gas companies to reflect actual reclamation costs. We have already begun an effort to update our bonding requirements under existing authority. In addition, the reclamation requirements contained in subsection (p) are consistent with current BLM practices on reclamation requirements. Consequently, this section of the legislation is unnecessary as it is duplicative of existing efforts.

Section 223. Protection of Water Resources.

We recommend that section 223 be deleted.

Section 223 would require operators producing oil or gas under a lease to replace the water supply of any water user who obtains all or part of his water supply from underground or surface sources if the supply has been contaminated, diminished, or interrupted as a proximate result of drilling operations for production in addition to complying with all applicable requirements of Federal and State law for water discharge. An application for a lease would have to be accompanied by a water management plan that, among other things, would require provision of alternative sources of water if there is any adverse effect on surface or ground water systems, on-site or off-site.

Under current laws, regulations, and orders, the Bureau of Land Management requires operators to treat contaminated water and to dispose of water produced from a lease appropriately. In addition, operators must follow State law with regard to water rights and any affect to the rights of others. Section 223 appears to create a right in water users off-site to water produced from a lease. Given that H.R. 2337 was introduced on May 16, 2007, we have not had time to analyze the extent of the impact of this section. We

believe, however, that it could have serious implications for development of Federal resources on Federal lands. We therefore are opposed to its inclusion in this bill.

Section 224. Due Diligence Fee/Healthy Lands.

We recommend section 224 be amended.

Section 224 would impose a $1 per acre fee on non-producing Federal onshore oil, gas, and coal leases. While we are pleased that the legislation would support the Secretary of the Interior's Healthy Lands Initiative, which is contained in the President's FY 2008 Budget request, we note that the Initiative is not aimed solely at oil and gas development. Land health is being affected by pressures such as community expansion, wildfires, demand for energy resources, recreation uses, and weed invasion. These pressures often interact among themselves to affect large landscapes and ecosystems, particularly those in the growing wildlife-energy interface.

We would like to work with the Committee on refining the concepts behind this section.

Subtitle D. Ensuring Safety of Wildlife With Respect to Wind Energy.

We recommend subtitle D be deleted.

Sections 231 through 235 would require the Secretary of the Interior, acting through the Fish and Wildlife Service, to promulgate regulations that establish minimum standards for siting, construction, monitoring, and adaptive management that must be satisfied by all wind projects to avoid, minimize, and mitigate adverse impacts on migratory birds, bats, and other wildlife. The regulations would need to be promulgated within 180 days after enactment of H.R. 2337. We agree it is important that wind power facilities seek to minimize and mitigate adverse impacts on migratory birds, bats and other wildlife. In fact, the Endangered Species Act, the Migratory Bird Treaty Act, and other federal statutes must be complied with. However, the Department of the Interior opposes this subtitle as its enactment would be premature.

On March 13, 2007, the Secretary of the Interior announced the formation of a Federal Advisory Committee Act (FACA) Committee, the Wind Turbine Guidelines Advisory Committee, to look at the very issues raised under Section 231. The FACA Committee consists of a broad group of representatives, including those from State and Federal agencies, environmental groups, and industry organizations. They will be carefully considering all of the issues related to wind energy facilities and making recommendations whether the guidelines can be voluntary, mandatory, or may require regulations. Therefore, we believe it is premature for Congress to legislate this process and instead we would like Congress to allow the FACA process to move forward.

TITLE III: ALTERNATIVE ENERGY AND EFFICIENCY

Section 301. State OCS Alternative Energy Planning.

We recommend section 301 be amended.

Section 301 would authorize a grant program under the Secretary of Commerce for Coastal States to identify potential areas suitable for exploration, development, and production of alternative energy on the OCS. The provision requires Coastal States to provide Federal agencies (and others) the opportunity for participation in the surveys.

Under subsection (k), areas identified as suitable for potential alternative energy development under the surveys developed would be given priority consideration by Federal agencies for the siting, licensing, leasing, or permitting of alternative energy facilities. This provision may undermine MMS's authority under Section 388 of EPAct and create confusion as Coastal States could recommend areas that MMS would put off limits or vice versa. We recommend that this section be amended making the funding under the grants program available for states to work cooperatively with the Federal government on assessing potential development and any environmental implications.

Section 302. Canal-Side Power Production at Bureau of Reclamation Projects.

We recommend section 302 be amended.

Section 302 requires an evaluation and report to Congress within one year on the potential for the development of rights-of-way along Bureau of Reclamation (Reclamation) canals and infrastructure for possible solar or wind energy production facilities. The lands retained by Reclamation that are associated with its projects, including rights-of-way along canals and infrastructure, are needed for accessibility and project operation and maintenance. There is limited, if any, opportunity for the installation of the structures needed to produce wind or solar energy along those rights-of-way. We are concerned that any future use of Reclamation lands or rights-of-way for energy production may adversely effect current project operations.

Section 303. Increasing Energy Efficiencies for Water Desalination.

We recommend section 303 be deleted.

Section 303 directs the Secretary of the Interior in consultation, with the Secretary of Energy, to implement a program to research methods for improving energy efficiency in reverse osmosis technology for water desalination and recycling. Reclamation has the authority needed to allow for such research. Additional authority is not necessary. In fact, the Federal government has been involved in desalination research since the early 1950's. One of the main focuses of this research has been to reduce the cost of desalination and water recycling to allow them to be competitive sources of additional

water supply. Energy costs are one of the largest costs of desalination which has led Reclamation to focus numerous studies on energy efficiency in the process.

Section 306. Federal Hydropower Production Facilities Inventory and Map.

We recommend section 306 be amended.

Section 306 requires an inventory of groundwater resources and uses near federal hydropower facilities. Conducting an analysis of ground-water use and describing the source of recharge areas for aquifers would provide important information for planning for our Nation's energy and water future. The United States Geological Survey (USGS) Ground Water Resources Program is currently evaluating the ground-water availability of the Nation's principal aquifers; many of these aquifers may be in watersheds containing Federal Power Facilities. If requested, the Department of the Interior could design a program within the existing authorities to evaluate the ground water associated with all Federal power facilities. However, we have several concerns with this section of H.R. 2337.

Many federal hydropower facilities operated by the Army Corps of Engineers or the Tennessee Valley Authority exist nationwide, while the Department of the Interior only operates in the 17 western states. The Department is unclear if the intent of this section is to direct the study of all watersheds containing federal hydropower or rather those containing Department of the Interior hydropower facilities. In addition, the proposed timeframe to collect and analyze this information does not recognize the complexity and magnitude of the requirement. One year would not be sufficient to conduct complete studies as required by this section. Any federal studies or subsequent actions taken regarding groundwater resources must respect state water rights because jurisdiction over groundwater typically lies with the States. Finally, ground water and surface water are connected, and any increased use of ground water will likely reduce surface-water flows that could be used for the production of power.

Section 307. Establishing a Pilot Program for the Development of Strategic Solar Reserves on Federal Lands.

We recommend section 307 be amended.

Section 307 would establish a pilot program for the development of strategic solar reserves on Federal lands for the advancement, development, assessment, and installation of commercial concentrating solar power energy systems. This section would also establish by statute a rental fee structure for solar facilities on federal lands and a waiver of rentals during development and construction.

In general, this section is unnecessary as it duplicates current procedures under existing authorities to authorize solar energy facilities on BLM-administered federal lands. The BLM is currently processing right-of-way applications for solar energy facilities on public lands in California, Nevada and Arizona and has issued policy guidelines for the

processing of these applications. In addition, the current policy provides for a phase-in of rental fees during the development phase of an authorization. We can not support a complete waiver of rental fees during the development and construction phase of projects permitted under this section because it would tie up federal land with no incentive for diligent development. We believe it is premature to prescribe what the appropriate size is for a solar energy reserve.

TITLE IV: CARBON CAPTURE AND CLIMATE CHANGE MITIGATION

Subtitle A. Geological Sequestration Assessment.

We recommend subtitle A be amended.

Subtitle A would establish the "National Carbon Dioxide Storage Capacity Assessment Act of 2007". The Secretary of the Interior, in consultation with the Secretary of Energy and State geological surveys, would be required to complete a national assessment of capacity for carbon dioxide in accordance with a methodology developed by the Secretary.

While the USGS does not currently have experience assessing the national capacity of geologic sequestration of carbon dioxide, USGS experience with national and international assessments of natural resources could allow USGS to develop geologically based methodologies to assess the National capacity for geologic sequestration of carbon dioxide. The USGS could create a scientifically based, multi-disciplinary methodology for geologic carbon dioxide storage assessment that can be consistently applied on a national scale. Many states already have some storage capacity data already developed, most of which is compiled in the National Carbon Sequestration Atlas published by the Department of Energy, as recognized in subtitle A.

The methodology developed would have to be updated periodically, including at least once every five years. The requirement to update the methodology at least once every five years should be removed. Assuming the methodology is correctly developed, it takes substantive new data that change fundamental understandings of the system to truly change a methodology, and this may not occur in less than five years. Further, consistency is important when doing assessments so that results are comparable and usable in public and private sector decision-making. Therefore, updates in methodology should be determined based on revelation of truly new understandings and developments in the field rather than within an arbitrary time period.

In addition, subtitle A would require the national assessment to be done in two years after publishing the methodology and soliciting comments from the public and the heads of affected Federal and State agencies. The Administration supports a national assessment, but the activities authorized under this bill must compete under the normal prioritization, budgetary, and funding processes. To ensure that this happens, the bill would have to be amended to provide flexible timeframes that will ensure that the national assessment will be funded consistent with other Administration and Congressional priorities. The bill

does not provide sufficient time to develop the methodology and carry out the required assessment. USGS needs flexibility to ensure that we are able to develop the best product.

Subtitle B. Terrestrial Sequestration Assessment.

We recommend subtitle B be amended.

Sections 421 through 423 would require the Secretary of the Interior, acting through the USGS, to conduct an assessment of the amount of carbon stored in terrestrial, aquatic and coastal ecosystems, to determine the processes that control carbon fluxes through these ecosystems, to estimate the potential for increasing carbon sequestration in these ecosystems, and to develop both near and long-term adaptation strategies to enhance sequestration in each of these ecosystems. Further, the legislation would direct the Secretary to establish the methodology for this assessment within 270 days and to complete the assessment within two years after publication of the methodology.

We are concerned with the timeline contemplated, especially given the scope of what would need to be accomplished. A methodology could be developed within one year, not within 270 days, and this type of assessment could be completed within three years after publication of the final methodology, not within two years.

We believe an assessment of the carbon storage potential of terrestrial, aquatic, and coastal ecosystems will be a valuable tool for understanding the best estimates for the amount of "managed" storage in those systems and the range of uncertainties and for putting realistic limits on the capacity of natural systems for sequestration. This assessment will improve our understanding of the duration and extent to which biological uptake of atmospheric carbon dioxide can be enhanced to reduce its concentration in the atmosphere. The USGS will work closely with the United States Fish and Wildlife Service (FWS), the National Park Service (NPS), BLM, Reclamation, and the United States Forest Service on this effort. It will, however, require more than the time allotted under this section to complete the assessment methodology and conduct the assessment.

Subtitle D. Wildlife Programs. Chapter 1. National Policy and Strategy.

We recommend Chapter one of Subtitle D be deleted.

The Administration share's the committee's concern about climate change and the potential impacts on the fisheries and wildlife populations of the United States. While the earth's climate is not static and land, wildlife, and fisheries managers have long managed their resources around climate events such as drought and changing land use and weather patterns, the Administration believes that questions of adaptation and mitigation will become more acute in the future under many of the scenarios depicted by today's climate models.

As such, the Administration welcome's the Committee's interest in calling attention to the impacts on fisheries and wildlife resources and share's their interest in furthering our understanding of the scientific underpinnings of climate science and the impacts on natural ecosystems. We feel however, this chapter is duplicative of existing efforts and that there are existing mechanisms within the Executive Branch by which the goals of this section can and are being accomplished.

Section 451. State and Tribal Wildlife Grants Program.

We support section 451.

Section 451 would codify two important FWS grant programs it currently administers.

Subtitle E. Miscellaneous

While the Administration strongly supports assessing the effects of climate change to land, ocean and coastal ecosystems we are concerned that HR 2337 adds additional multiple new reporting requirement to a growing list of reports already required by law, such as the National Assessment requirement under the Global Change Research Act, or being performed in collaboration within the international community (e.g. Intergovernmental Panel on Climate Change assessment reports). Duplicative reporting requirements are becoming an increasing impediment to the climate science community and have the potential to divert their energy from important climate research questions. The Administration would welcome the opportunity to discuss the reporting needs of the Committee and how to best meet those needs in a coordinated and efficient manner.

Section 461. Climate Change Adaptability Intra-Governmental Panel.

We recommend section 461 be deleted.

Section 461 is duplicative of existing interagency panels and of requirements under the Global Change Research Act of 1990. Section 461 would require the Secretary of the Interior to establish a Climate Change Adaptability Intra-Governmental Panel to address the impacts of climate change on federal lands, the ocean, and federal water infrastructure. There are existing mechanisms within the Executive Branch by which the goals of this section are currently being accomplished.

Section 462. Ocean Policy and Global Warming Program.

We recommend section 462 be deleted.

We believe that the goals of the section can best be achieved through existing statutes and interagency coordination.

Section 464: National Integrated Coastal and Ocean Observation Act of 2007

We recommend section 464 be amended.

Section 464 would authorize a National Integrated Coastal and Ocean Observation System. The Administration has long supported an integrated ocean observing system. In July 2003, President Bush expressed his personal support for comprehensive and sustained integrated Earth observations in comments provided to the Earth Observation Summit. Subsequently, the Administration responded to the report of the U.S. Commission on Ocean Policy in the President's *U.S. Ocean Action Plan*. The *Action Plan* supports the Integrated Ocean Observing System (IOOS) and emphasizes that the system will serve many valuable purposes, including improving our understanding of climate change and its socio-economic consequences. IOOS is the ocean component of the U.S. Integrated Earth Observation System, being developed by 15 agencies and 3 White House offices. The U.S. integrated system is our contribution to the emerging Global Earth Observation System of Systems.

We do, however, object to the interagency financing provisions contained in section 464. We also believe that there should be a more explicit matching requirement for the regional associations.

Section 465. NOAA Report on Climate change Effects

We recommend section 465 be deleted.

Section 465 is duplicative of existing reporting requirements and interagency efforts. Section 465 would amend the *CZMA* to require NOAA issue a report to Congress within two years of enactment of this section, and every five years thereafter, on the effects of climate change. The bill specifically requests that the reports address the effects on sea level rise, storm activity and intensity, extreme weather, fisheries and ecosystems, and ocean acidification.

While the Administration supports assessing the effects of climate change to ocean and coastal ecosystems we are concerned that Section 465 adds an additional reporting requirement to a growing list of reports already required by law, such as the National Assessment requirement under the Global Change Research Act, or being performed in collaboration within the international community (e.g. Intergovernmental Panel on Climate Change assessment reports). Duplicative reporting requirements are becoming an increasing impediment to the climate science community and have the potential to divert their energy from important climate research questions. The Administration would welcome the opportunity to discuss the reporting needs of the Committee and how to best meet those needs in a coordinated and efficient manner.

The Administration looks forward to working with the Congress on meaningful energy legislation. While some provisions of H.R. 2337 provide a positive step, too many of the provisions would derail improvements made by the EPAct that are currently underway and lead to decreased domestic supply and increased prices for consumers and businesses. The Office of Management and Budget has advised that it has no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,

P. Lynn Scarlett

cc: Honorable Don Young
Ranking Minority Member

Chairman GORDON. With no objection, the letters are to be made a part of the record.

Mr. HALL. Thank you, sir, and I will yield the balance of my time to Dr. Gingrey.

Chairman GORDON. If you don't mind, is that on the green chemistry?

Mr. HALL. Yes.

Chairman GORDON. Let me, I think the gentleman raised good points. Before you yield, if you would yield to me.

Mr. HALL. Sure.

Chairman GORDON. You deserve to be responded to. We are waiting for the Parliamentarian. I know there are some concerns on the Resources Bill. As I understand it now, we are only, have been given joint jurisdiction in two areas, and I think most of what you raised are outside that, and I would like to ask anybody on my staff, I think the Parliamentarian may still be looking into a couple of other areas where we have asked for that, and that's one reason that we have asked for this recess, to find out. Obviously, we can't be marking up areas, even though you may not like those areas, if they're not within our jurisdiction. So, you will understand that.

Also, we are preserving our right to have a markup in those areas where we do have that jurisdiction, and we are working in a bipartisan, bi-committee effort to accomplish that. So, again, you deserve an answer to those concerns, and I want to be sure you had that.

Mr. HALL. Yes. I thank you, and I am glad to hear that you like those. You noticed seven, so you must have liked them, and thought we had jurisdiction.

Chairman GORDON. Right. And so far, the Parliamentarian has said that we only have two, and so, unless they, you know, we are still trying to, we are pushing for all of it, and——

Mr. HALL. Okay.

Chairman GORDON. But we can't go where they don't allow us to go.

Mr. HALL. All right. Then the parliamentary inquiry, is H.R. 2337 on the markup notice? The answer to that is yes it is.

Chairman GORDON. Yes. Yes, sir.

Mr. HALL. And why is it on the notice if we are not going to mark it up today?

Chairman GORDON. Well, because right now, the Parliamentarian only gives us, has only responded to two of the seven areas of jurisdiction. Secondly, we are in bipartisan, bicameral negotiations, and I think that we are going to be better off if we can work these things out in a bipartisan, bicameral, not bicameral, excuse me, bi-committee basis, rather than just slam bam, because I think that they would treat us the same way with our bills, and again, we are trying to establish, with Minority and Majority, and with different committees, to treat each other, you know, we want to try to have a Golden Rule here. I think we are better off by doing that.

Mr. HALL. What is the exchange of letters about that you mentioned.

Chairman GORDON. We have not had an exchange of letters, I don't think, yet, until we reach some type of a bipartisan, and again, a bicameral agreement.

Mr. HALL. Then, I guess, the question is what sections are being discussed of the seven?

Chairman GORDON. They are, I will give you, let us see. If someone could, 441 and 473 are the ones where the Parliamentarian has said that we have jurisdiction.

Mr. HALL. And are you working out a deal?

Chairman GORDON. And 303.

Mr. HALL. Are you working out a deal on policy on these seven sections, on the full seven sections?

Chairman GORDON. No, sir, because we, the Parliamentarian has not said that we have jurisdiction on the other of those seven. So, right now, we wrote the Parliamentarian, in conjunction with the Minority staff, on those areas where we thought that we might have jurisdiction, to preserve our jurisdiction. The Parliamentarian, again, as I understand it, and please, I do not want to misrepresent this, so if I say something that someone has better information, I welcome to be corrected. But it is my understanding that they have not referred all of those seven, and only a portion of those to us, that we are still working with them to get further referral. And again, I stand, I welcome, if someone has better information.

Mr. HALL. That is not my understanding, but I will accept your explanation at this time. And now, can I—if I have any time left, can I give it to Dr. Gingrey?

Mr. GINGREY. Mr. Chairman, I can move to strike the last word, and——

Chairman GORDON. Okay. And if I could, let me correct one more thing. It is a tetanus shot, not a typhoid shot. So, pardon me for, I don't want anybody to be, you know, getting stuck with the wrong needle there.

Mr. FEENEY. A parliamentary inquiry, Mr. Chairman, if it is appropriate.

Chairman GORDON. Certainly.

Mr. FEENEY. I understood the Chairman to say that the Parliamentarian has said we have jurisdiction of the two sections that were set out, but has the Parliamentarian said that we do not have jurisdiction over the other five or seven sections in question?

Chairman GORDON. Let me check with our Parliamentarian, and I will tell you.

It is my understanding that we went to the Parliamentarian on all seven provisions. Resources countered on that, and said that we didn't. The Parliamentarian has ruled that we have jurisdiction on two of those, and likely, a third, but unlikely on four others. And again, this is another reason that we feel like that we are recessing now on this issue until we get a more definitive issue from the Parliamentarian, and so that we, again, can continue our conversations, not again, it is more than just protecting jurisdiction. It is trying to get good policy, too, and trying, again, to deal with another committee in a way that is appropriate.

What we are finding, and this is just for your information, what we are finding is some committees are holding their bills to report to the very last moment, so that it is virtually impossible to have any kind of input there. I don't think that is the way to proceed, and where those committees are working in good faith, I think that

we need to try to work in good faith with them. So, that is where we are, and if anyone else has any——

Mr. GINGREY. Mr. Chairman.

Chairman GORDON. Mr. Gingrey.

Mr. GINGREY. Well, I have a parliamentary inquiry as well.

Chairman GORDON. Okay. Yes.

Mr. GINGREY. And Mr. Chairman, thank you, and not necessarily to beat a dead horse here——

Chairman GORDON. Are you satisfied?

Mr. FEENEY. Well, if I could——

Chairman GORDON. Mr. Feeney.

Mr. FEENEY. Thank you, Mr. Chairman. Just a quick follow-up. Would the—obviously, both the Majority and certainly the Chairman and the Minority as well would have an interest in not ceding jurisdiction unnecessarily, because this is all of our committee. We all have an interest in it.

Would it be appropriate for the Minority to weigh in with a letter to the Parliamentarian, as he makes his decision about these last five——

Chairman GORDON. We would welcome that. I would hope that our original letters to them was bipartisan. I mean, I hope that it was, but if it wasn't, we would welcome your support in that, and best arguments.

Mr. FEENEY. Well, surely, the Parliamentarian would appreciate us bringing it to his attention anything that may be relevant to his decision.

Chairman GORDON. Sure.

Mr. FEENEY. And with that, I thank the Chairman for his——

Chairman GORDON. We wouldn't have asked for referral on those seven provisions if we weren't interested in getting them.

Mr. GINGREY. Mr. Chairman, thank you, and I think Mr. Feeney and I, obviously, are thinking on the same wavelength here this morning, because that was my point as well, and my parliamentary inquiry is, since you scheduled the bill, H.R. 2337, to be marked up this morning, with specific enumeration of the sections of which, obviously, we would have jurisdiction, 303, 305, 306, 441, 447, 471, 472, and 473.

Chairman GORDON. I am not sure that we would. That is——

Mr. GINGREY. Well, I guess my inquiry is, has the Parliamentarian changed his mind? And to follow up on what Mr. Feeney said, if he has, and the Parliamentarian, of course, by definition is a bipartisan figure that represents all of the House, then all of us should have an opportunity, both on the Minority and the Majority side, both on the Science Committee and the Resources Committee, where this bill was debated for 12 hours, and passed on a 26–22 vote, so certainly not an uncontroversial piece of legislation, that is the Parliamentarian is going to be changing his mind, then we should have input as well in this interim, while we are discussing which sections are going to be germane to our committee.

Chairman GORDON. If the gentleman would yield, again, let me tell you how I understand the situation to be. We made, we asked the Parliamentarian for joint jurisdiction in seven areas. The Parliamentarian has said you have jurisdiction in two. You probably have jurisdiction in a third. We have not made a decision on that

yet. And you probably do not have jurisdiction in four areas. And so, we welcome your letter, and any other thoughtful letters to the Parliamentarian, and efforts to, you know, establish those jurisdictional concerns.

I will point out, well——

Mr. GINGREY. Well, Mr. Chairman, thank you.

Chairman GORDON. That is where we are.

Mr. GINGREY. I understand what you said, I just want very quickly——

Chairman GORDON. Sure.

Mr. GINGREY. Very briefly, I would say based on the information that we received, Members maybe on both sides of the aisle, but certainly on this side, including yours truly, has a very thoughtful amendment, he thinks, to Section 306, which would make the bill a much better bill. So, we are very concerned about that, and I appreciate the Chairman's indulgence.

Mr. HALL. Make a parliamentary inquiry, Mr. Chairman.

Chairman GORDON. The gentleman from Texas is recognized.

Mr. HALL. Is it our intention to mark up at least two sections?

Chairman GORDON. Well, it is our intention to work on a bipartisan basis with the Resources Committee in an effort to work those out. If a markup is necessary, we may have a markup, but it is not—it has not been determined yet whether that is necessary.

Mr. HALL. You noticed them for seven, and they said two are good, and we are here and ready. Why is it we are not going to have a markup on the two?

Chairman GORDON. Well, by the same reasoning——

Mr. HALL. And we want to work together, and we got sense enough.

Chairman GORDON. Sure. Yeah.

Mr. HALL. You know my old story about my mathematical problem, but I still can count.

Chairman GORDON. Right. Yes.

Mr. HALL. And we can get outvoted, and we understand that. We don't mind that, as long as we have some input on it.

Chairman GORDON. Well, it is my understanding that your staff has been in on all of the meetings. I think one of those two sections was worked out yesterday on a bipartisan basis, and I think there was a meeting this afternoon on the second one, and it would seem to me as long as we have got bipartisan, bi-committee meetings going on, it would be a little bit presumptuous to try to have a markup when we are still working to work these things out.

Mr. HALL. Mr. Chairman, I am satisfied, but I am not happy. I will yield back my time to you.

Mr. EHLERS. Mr. Chairman.

Chairman GORDON. Certainly. The gentleman from Michigan, Mr. Ehlers.

Mr. EHLERS. Thank you, Mr. Chairman. Just to add to this, a little bit of history and concern on my part. As we know, this committee has been the youngest committee of the Congress for many years, until Homeland Security came along, and when it was created, it was given pretty much jurisdiction over the space program, but most of the other committees were reluctant to give up jurisdiction over things that should have been assigned to this committee,

for example, the nuclear power program still is in Energy and Commerce. It clearly belongs under our jurisdiction. And I can give many other examples.

I have also observed, in my years here, that we are often victimized by the big, powerful committees who claim jurisdiction, and fight very hard to get jurisdiction over things that we are working on, and I have had several of my bills stymied just for that reason, stymied to the point that they were delayed a couple years. So, I would urge you, Mr. Chairman, to fight strenuously to maintain as much jurisdiction as you can possibly get. Arguing with the parliamentarians, arguing with the Resources Committee.

In fact, one of my bills, which deals with invasive species, was basically stopped by the Resources Committee over a dispute like this. So, I would urge you to fight hard, because this poor little old Science Committee often is victimized by this big, powerful committees that have been around for a century or more, and I think we have to fight for every little bit that we can get. So I encourage you to put up a huge battle, and try to get all seven of those things put in our jurisdiction. Thank you.

Chairman GORDON. Mr. Ehlers, let me point out, it is not just Resources. It is going to be Energy and Commerce.

Mr. EHLERS. Yeah.

Chairman GORDON. It is going to be Agriculture. We are going to have a number of areas where there is going to be joint jurisdiction. A part of the reason that, again, these staff and Members have worked so hard, was to make us relevant, and to get us into these battles. You can be well assured that we are going to be holding our ground, and again, a part of our objective, my objective, so far, is to make this committee more relevant. That is why we are going to be, we are getting into health care IT, we are getting into financial security, data security. I mean, you are going to see this committee cast a wider net, using NIST, using a number of areas. So, we are not pulling back. We are going forward.

I will give you a quick little note. I was talking with John Dingell a while back, and I was real proud. I was telling him, you know, I was explaining the origin of the Science Committee and some of the things that, you know, that we are doing, and he sort of looked at me gruffly, and said: "I am well aware of the origin of the Science Committee, because most of your jurisdiction came from us."

So, we will be there.

Mr. EHLERS. Right. And I just think, since we are the only committee that knows how to make nuclear weapons, we should have a little more respect around here.

Mr. NEUGEBAUER. Mr. Chairman.

Chairman GORDON. Yes, sir.

Mr. NEUGEBAUER. Along with that, I don't know if this is necessarily a parliamentary inquiry, but I guess it is. In other words, we have scheduled a Committee markup today for a bill that we are not going to mark up. Is that correct?

Chairman GORDON. We gave notice, and the reason is that we are in a bipartisan, bi-committee—let me give you an example. Let us just say this. Let us say the Democrats had a bill today, and it was marked up, and the Republicans had some amendments that

were good, but we got them late. Well, we could say, you know, to heck with you, we are going to go ahead and mark this up, or we could say you made a good faith effort to get involved with this bill. Why don't we wait a day or two, and try to work these things out?

It is the same situation, I think, with the Natural Resources Committee. Right now, we have bipartisan, bi-committee negotiations going on, and it would seem to me that it would be, the more prudent thing is to let these talks proceed, and narrow the issues, and then, we can go forward. We are preserving our right, make no mistake about it, we are preserving our right to have a markup if that is necessary.

Mr. NEUGEBAUER. I guess that—the point I was making, Mr. Chairman, are we going to mark up this bill?

Chairman GORDON. If we feel it is necessary.

Mr. NEUGEBAUER. Who is going to determine if it is necessary will?

Chairman GORDON. The Chairman will.

Mr. NEUGEBAUER. Well, Mr. Chairman, I mean, is something as important as national energy policy in this country, for those kinds of decisions to be made in closed door meetings, behind——

Chairman GORDON. They are not going to be made in closed door meetings.

Mr. NEUGEBAUER. Well, they are not in this meeting. This is a public forum.

Chairman GORDON. Well, let me make—what time is the meeting this afternoon? Okay, at 4:00 this afternoon, all of your staff knows that there is a bipartisan, bi-committee meeting, just like all your staff have been involved in the other ones. You are welcome, and any Member is welcome to attend those.

Mr. NEUGEBAUER. Well, what about——

Chairman GORDON. The door is not closed.

Mr. NEUGEBAUER. What about Members of this committee, on our side, and maybe on your side, too, that have amendments, that they think would make this bill better, and want an open, and as I remember, the Chairman's remarks when he opened up this committee for the first time as the new Chairman, said we are going to work in a bipartisan, open way. We are going to have markups. We are going to discuss. We are going to work on this product, and at the end, we are going to vote on it. And that is the process that we are going to move forward with, and yet, today, what we are told, is well, we are going to put this on the agenda, but we are going to work out the details behind the door with Committee staff, and when I like it, then it is moving forward without any open debate and consideration for this committee.

Chairman GORDON. Well, you know, I guess it is one of those two people can see an accident and see it different ways. The fact of the matter is, once again, let me, this is how we proceed with most bills. We start off with bipartisan discussion, on the staff level, representing you—you are welcome to attend—so that we can narrow those issues, that we can try to, you know, knock down the edges, so that we can have informed markups.

The fact of the matter is, you are more than welcome to attend the afternoon—you are already noticed about it. You are welcome to attend that meeting. And we would hope that you would. Bring

your best ideas. Let them be discussed, in a bipartisan, again bi-committee way, and that is the way we should proceed.

Mr. NEUGEBAUER. But can we do that, and then bring that, whatever everybody thinks is kind of the consensus product, then, back to this committee, and let us debate it, and make sure that there is a consensus to do that.

Chairman GORDON. Well, that is the way we are proceeding.

Mr. NEUGEBAUER. Well, no, you told me that we weren't going to mark this bill up.

Chairman GORDON. No, I did not tell you that.

Mr. NEUGEBAUER. I asked the question, and you said no.

Chairman GORDON. No. No. I said that has not been determined, whether it is going to be necessary to.

Mr. NEUGEBAUER. Well, the answer to my question, are we going to mark up this bill, you said if it is necessary. Is that——

Mr. HALL. Would the gentleman yield.

Mr. NEUGEBAUER. You just repeat, so that——

Chairman GORDON. That is not a no.

Mr. NEUGEBAUER. But then you told me, and you were going to determine if it is necessary.

Chairman GORDON. Well, ultimately, the Chairman will, in consultation with the Minority and the Majority. Certainly.

Mr. NEUGEBAUER. I yield to the gentleman.

Mr. HALL. Mr. Chairman, it reminds me of a question I asked a company to loan us some money, and they said I will listen to your ignorant proposal with an open mind. I don't like the position I am in, but once again, I can count. But it seems to me, and the Chairman is a man of character and a long time friend, but it seemed like having a markup is holding the ground. You talked about holding the ground. I think that we are holding our ground if you go on and have this markup. What is to keep you from doing that?

Chairman GORDON. Because the issues haven't been fully vetted, and it would be, it would seem to me that it would be irresponsible to move forward when we have just gotten this, you know, right now, the Parliamentarian hasn't even told us whether we have jurisdiction in five areas. We are still trying to get those five areas of jurisdiction.

I mean, it is sort of difficult to mark up a bill that you don't have jurisdiction on, and we don't know that yet. So, and that is the reason that we want to give full notice, and we have given notice, so that—and the reason that we are recessing is to keep the hammer on the Resource Committee to know that we can have this markup. And again, I think most of the concern that, and particularly my friends from the oil producing area in Texas are having, are in those areas of the Resource Bill that we don't have jurisdiction, at least we haven't been given it yet.

So, I mean, I think that is the main concern, isn't it?

Mr. NEUGEBAUER. My main concern is just that I think every other issue that has come before this committee, I have sat in here under the Chairman's leadership, and have appreciated the very open exchange between ideas brought forward on both sides, but yet on what I think may be the most important piece of legislation that the 110th Congress will act on, it is being approached in a dif-

ferent manner, and quite honestly, I think it shortchanges the American people. They, you allude to staff, and——

Chairman GORDON. Would the gentleman yield?

Mr. NEUGEBAUER. As soon as I finish.

Chairman GORDON. Okay, sure.

Mr. NEUGEBAUER. Yeah. The gentleman alludes to staff. We have very capable staff, but the American people sent the people that are sitting on this side of the room to debate these ideas and discussions, and come up with what is, in our estimation, the best policy for this country moving forward with energy. Because quite honestly, maybe the greatest security risk this country faces today is energy, and something as important as that, I don't think should be done with letters and people's prerogative. I think it ought to be done in an open and fair way, so that the American taxpayers can see that we did give this full consideration.

Chairman GORDON. I agree with you, but again, let me again point out we can't mark up provisions that we don't have jurisdiction on, and I think your concerns are virtually exclusively in areas that we have not yet been given jurisdiction. So, we cannot mark up, just like we can't mark up the dairy subsidies. I am concerned about dairy subsidies. I am concerned, you know, about a variety of issues, but we don't have jurisdiction. So, you cannot mark up a bill. I guess you could, if we want to take, you know, the time to go through some kind of faux exercise, but it is simply not, and I guess the easy thing would have been not to have even talked about it. We wouldn't have had this, but I didn't think that was a fair thing either.

You know, we are putting a notice, so that we can hold a hammer over the Resources Committee, to know that we are going to preserve our right to mark up bills that we have jurisdiction on, and that is the way we are going to proceed. And I think Mr. Gingrey deserves now to move forward. I mean, I welcome anything else——

Mr. BAIRD. Mr. Chairman. On the left side, Mr. Chairman.

Chairman GORDON. Yes, sir.

Mr. BAIRD. I would just make two quick observations. First of all, I, as many people know, have been long a champion of an open process here in this body, and believe we should have it at the Committee level and at the public level, but I think it would be unfair to imply that this committee has not had hearings on energy. We have had a number of hearings on energy since this Congress began, and those hearings have had a good give and take about various policies and their effects on our economy and our environment and other things.

So, we have had hearings, and the markup is a place where you debate the particular amendments, but to suggest that this markup would come up without any hearings on energy, I think, is inaccurate. And I, just for the record, I would just point out that my dear friends on the other side of the aisle voted repeatedly in the last and prior Congresses to that, unanimously, or nearly so, for rules that allowed bills such as the Medicare bill to come to the Floor of the House with less than 24 hours for review, and not a single amendment offered, that they locked the Chairman of the Ways and Means Committee out of conference committees, and

that standard operating procedure, standard operating procedure in the prior Congress was that the more important the legislation, the less public the process, and the less input the minority party had.

So, I find it admirable that my friends on the other side have come to realize that a fair and open process is part of a democratic republic, but I would ask them where the heck they were, where were they, when those votes were taken on the Floor. I don't recall a single Member of that party saying to their leadership in public this is wrong. This is wrong. You ought to allow the Minority an opportunity for amendments. You ought to allow time for deliberation, and you ought not lock the Chairman of a committee out of a conference committee.

I yield back.

Chairman GORDON. I think we need to move on. Let me just say, I think that is an example of what we don't want to do. We are trying to do better, and every provision within the Resources Bill that we have been given jurisdiction on now is, there is bipartisan, bi-committee discussions on that, with an open door, and you know, you can't do any more than that

And so, with no objection, I would like to proceed to Mr. Gingrey's bill.

Mr. HALL. Mr. Chairman, I do object.

Chairman GORDON. Okay.

Mr. HALL. I would like to strike the last word for just a moment, if I might.

Chairman GORDON. Certainly. Mr. Hall is recognized.

Mr. HALL. I stated in my opening statement there is concern that a provision in H.R. 2337 establishes a new procurement program at the National Oceanic and Atmospheric Administration, yet our committee has not even had a hearing on this, and that is what I said, and I don't remember having a hearing. If we did, correct me, but that is, we have not had a hearing on Section 473. It could cost up to $100 million a year, and I just think that we talk about government in the sunshine. If the Republicans did it, they shouldn't have, and if the Democrats are going to do it, I don't think you would be proud of it.

Let us go forward. We will work our way as it goes, and I yield back my time.

Chairman GORDON. Thank you, Mr. Hall. Again, at 4:00 today, that will be discussed in an open door manner.

Dr. Gingrey is recognized.

Mr. GINGREY. Thank you, Mr. Chairman. I am recognized for the Green Chemistry Bill.

Chairman GORDON. I would hope so.

Mr. GINGREY. Yeah. I would hope so, too, after that long, lengthy discussion. Mr. Chairman, I appreciate your continued comity.

Chairman GORDON. Mr. Gingrey, why don't we, we are still in the area, before we take up your bill, I think Mr. Wu had a comment that he wanted to make on the bill, and then, we will take, we will let other statements be placed in the record.

Mr. WU. No, Mr. Chairman. I would like to follow Dr. Gingrey in making a very brief statement on the Green Chemistry Bill.

Chairman GORDON. Okay.

Mr. WU. But I very much, at this point in time, look forward to the markup on the green chemistry bill.

Chairman GORDON. Okay. All right. So, we will now consider H.R. 2850, the *Green Chemistry Research and Development Act of 2007.*

I yield to the gentleman from Georgia five minutes to describe his bill.

Mr. GINGREY. Mr. Chairman, thank you, and I want to thank you especially, and of course, I want to thank Ranking Member Mr. Hall. I want to thank the original co-sponsors, my Subcommittee Chairman, David Wu, Mr. Ehlers, Mr. Mario Diaz-Balart, and Mr. Welch of Vermont, who is not a Member of this committee, but very, very interested in this subject.

I do appreciate, Chairman Gordon, you working very closely with me and with us on this very important, bipartisan piece of legislation. In your opening remarks, Mr. Chairman, you mentioned some of the history of the *Green Chemistry Research and Development Act,* and it goes back to the 108th Congress. And of course, as you pointed out, it passed the 108th with a wide bipartisan margin. You talked about the 109th, when you were Ranking Member, and again, I think on the Floor it, under suspension, it passed by voice vote. And then, right at the end of the day, when we approached—Mr. Chairman, you remember I had a conversation with you about this bill, and you did everything humanly possible to get the other body to get it through, and at the very last minute, a Member of my party put a closet hold, for whatever reason, I don't know, but I just want to, as we get into discussion of the bill, thank you for your efforts and your commitment to me, and this is good legislation. I am pleased that we could work together to bring it through the Committee again, and I hope the third time will truly be the charm, that we will see H.R. 2850 quickly passed by both chambers and signed by the President.

In the way of explanation, H.R. 2850, the *Green Chemistry Research and Development Act,* it establishes a program that promotes and coordinates federal green chemistry research and development activities within several federal agencies, specifically the NSF, the National Science Foundation, the Environmental Protection Agency, the National Institute of Standards and Technology, NIST, and of course, the Department of Energy.

Chemists can design chemicals to be safe, just like they can design them to have other properties like color and texture. This technique of considering not only the process in which products are manufactured, but also, the environment in which they are created, is the basic definition of green chemistry. That is basically what this bill is all about. It is a method of designing chemical products and processes that, at the very least, reduce, and at the very best, eliminate the use or generation of hazardous material.

The basic idea is this, preventing pollution and hazardous waste from the start of the design process is a lot more preferable to cleaning up that mess, pollution, and waste at a later date. Additionally, the innovation created by this enhanced research will subsequently spur economic growth, as developing new products and processes is an integral component of many industries, from fabrics to fuel cells. Green chemistry doesn't just help protect our environ-

ment; it protects our workers, too. The conditions under which chemicals are created and used present many risks to those who work on their production, but if companies utilize green chemistry, the materials they use will be as benign as possible, and vastly improve employee conditions.

Unfortunately, despite all the promise of green chemistry, the Federal Government invests very little in this area. H.R. 2850 works to remedy this by promoting greater federal investment in and coordination of this important research area.

And Mr. Chairman, I want to thank, as you pointed out earlier, the excellent staff of both the Majority and the Minority of the Science Committee, and working with us, and I think, indeed, even improving this bill in regard to authorizing additional funding, but only in the proportion that we have already increased the funding of those particular agencies, basically, at the same percentage.

So, make no mistake, greater federal attention will encourage universities and academic institutions around the country to train future workers in this exciting technology. H.R. 2850 will achieve this by supporting research and development grants to partnership between universities, industry, and nonprofit organizations. It will also promote education through curriculum development and fellowships that will collect and disseminate information about green chemistry.

In past years, many industries, from chemical companies and pharmaceutical corporations, to carpet manufacturers and biotechnology businesses have endorsed this bill, showing a broad range of support for the merits of the legislation. This bill, as I say, is nearly identical to the version passed in the 108th and 109th, and the companies and corporations that have voiced their strong support for this bill realize that the advancement of green chemistry is positive, not only for their specific business, but also, for the country's environment, our economy, and our nation's citizens.

I urge my colleagues to support H.R. 2850. I know there are a couple of amendments, Mr. Chairman, on the Democratic side. I know Mr. Lipinski has an amendment, and I want to thank him, the gentleman from Illinois, for offering it. I agree with him that one of the most basic and underrated steps toward a greener environment is to encourage recycling. That saves energy, and it decreases solid waste, and I believe adding recycling to the *Green Chemistry Research and Development Act* strengthens the bill, and I would be glad to accept the amendment from the gentleman, my friend from Illinois.

And then, there is another amendment from the gentlewoman from Texas, Ms. Eddie Bernice Johnson, and her amendment, again, is something that I am supportive of, and I am sure she will speak to that in just a few minutes.

So, in closing, Mr. Chairman, I appreciate your indulgence. I know I went beyond my five minutes, but I urge my colleagues, please support H.R. 2850, and I do yield back at this time.

[The prepared statement of Mr. Gingrey follows:]

PREPARED STATEMENT OF REPRESENTATIVE PHIL GINGREY

Thank you, Mr. Hall, for yielding me time to describe my bill.

First, I want to take this opportunity to thank Chairman Gordon and his staff for working with me on this bill. This legislation has passed the House of Represent-

atives in both the 108th and 109th Congresses, and I am pleased we could work together to bring it through this committee again. I hope the third time will truly be the charm and that we see H.R. 2850 quickly passed by both chambers and signed by the President.

H.R. 2850, the *Green Chemistry Research and Development Act,* establishes a program that promotes and coordinates federal green chemistry research and development activities within several federal agencies. Specifically, the National Science Foundation, the Environmental Protection Agency, the National Institute of Standards and Technology, and the Department of Energy.

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The basic idea is this: preventing pollution and hazardous waste from the start of a design process is far preferable to cleaning up that pollution and waste at a later date. Additionally, the innovation created by this enhanced research will subsequently spur economic growth, as developing new products and processes is an integral component of many industries, from fabrics to fuel cells.

Green chemistry doesn't just help protect our environment, it helps protect our workers, too. The conditions under which chemicals are created and used can present many risks to those who work on their production. But if companies utilize green chemistry, the materials they use will be as benign as possible, vastly improving employee conditions.

Unfortunately, despite all of the promise of green chemistry, the Federal Government invests very little in this area. H.R. 2850 works to remedy this by promoting greater federal investment in and coordination of this important research area.

Make no mistake: greater federal attention will encourage universities and academic institutions around the country to train future workers in this exciting technology. H.R. 2850 will achieve this by supporting research and development grants to partnerships between universities, industry and non-profit organizations. It will also promote education through curricula development and fellowships that will collect and disseminate information about green chemistry.

In past years, many industries—from chemical companies and pharmaceutical corporations to carpet manufacturers and biotechnology businesses—have endorsed H.R. 2850, showing a broad range of support for the merits of this legislation. This bill is nearly identical to the version passed in the 109th Congress.

The companies and corporations that have voiced their strong support for this bill realize that the advancement of green chemistry is positive for not only their businesses, but also our country's environment, our economy and our nation's citizens.

I urge my colleagues to support H.R. 2850 and I yield back the balance of my time.

Chairman GORDON. Thank you, Dr. Gingrey. I know you have worked long and hard. I hope we are going to get this done. Let me ask to report now to, the Clerk to report the bill.

Mr. WU. Mr. Chairman. Mr. Chairman.

Chairman GORDON. Mr. Wu, if you would, please, we need to report the bill.

The CLERK. H.R. 2850, to provide for the implementation of the Green Chemistry Research and Development Program, and for other purposes.

Chairman GORDON. With unanimous consent, the reading of the bill is dispensed with, and Mr. Wu is recognized.

Mr. WU. Thank you, Mr. Chairman. I wanted to make a brief statement to recognize that we have a good bill for us. It is a bipartisan bill. I want to recognize the hard work of Dr. Gingrey to bring this bill back to the Committee, and again, back to the Floor.

We have passed this bill a couple of times through this committee, and we have passed it through the entire House. This is a good bill that deserves to become legislation. It is long past due, and with that, I yield back the balance of my time.

[The prepared statement of Mr. Mitchell follows:]

PREPARED STATEMENT OF REPRESENTATIVE HARRY E. MITCHELL

Thank you, Mr. Chairman.

Our nation has a long history of innovation in chemical engineering, but along the way chemical production has become somewhat notorious for hurting the environment.

The *Green Chemistry Research and Development Act* takes important steps toward cleaning up the chemical research and manufacturing industry.

It puts money into our prized research institutions to find ways to ensure that the progress we make in chemical engineering does not damage the environment.

Additionally, it encourages governmental agencies, like the Environmental Protection Agency and the National Science Foundation, to work closely together to establish clean chemistry standards.

Similar versions of this bill passed the House in both the 108th and 109th Congresses with strong bipartisan support.

I am looking forward to what I hope will be the Committee's favorable consideration of it again today.

I yield back the balance of my time.

Chairman GORDON. Does anyone else wish to be recognized? If not, I ask unanimous consent that the bill is considered as read and open to amendment at any point, and that the Members proceed with the amendments in the order of the roster. Without objection, so ordered.

The first amendment on the roster is offered by the gentleman from Illinois, Mr. Lipinski. Are you ready to proceed with your amendment?

Mr. LIPINSKI. Thank you, Mr. Chairman.

Chairman GORDON. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 2850, offered by Mr. Lipinski of Illinois.

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

The gentleman is recognized for five minutes to explain the amendment.

Mr. LIPINSKI. Thank you.

My amendment is a very simple thing, a small, yet important addition to the underlying bill. The amendment actually is two words, "increase recycling."

The amendment would help supply chain manufacturers to increase recycling with the goal of reducing or even eliminating the use or generation of hazardous substances. Manufacturing extension partnership centers, or MEP centers, would assist in these efforts, as they work to enhance the productivity and technological performance of U.S. manufacturers.

I firmly believe by incorporating innovative recycling practices into their manufacturing processes, American industries will better position themselves to compete in the increasingly global marketplace. In addition, through the increased practice of recycling, our manufacturers will help to reduce the production of solid and hazardous waste, and improve our environment, and potentially lower greenhouse gas emissions, and make our country more secure by lessening our need for foreign sources of energy.

The MEP centers do a great job. I have a lot of manufacturers in my district who work very well with the MEP centers, and I think this is, just a great opportunity to improve this bill by adding recycling in there. I applaud Dr. Gingrey's work on this bill. I am

pleased that Chairman Gordon has worked for its passage. I would like to thank the Committee staff and Dr. Gingrey for working with me and accepting my amendment.

It is a very good bill. Hopefully, the third time is a charm. I was just thinking about this. Maybe—Dr. Gingrey no longer has the mustache. Maybe that will be the change. Maybe that will be the difference. This Congress will get the Senate to go ahead and also accept this, pass this bill. But——

Mr. GINGREY. If the gentleman will yield. I will admit to being shameless. I will do anything.

Mr. LIPINSKI. I encourage all my colleagues to support this amendment, and I yield back the balance of my time.

[The prepared statement of Mr. Lipinski follows:]

PREPARED STATEMENT OF REPRESENTATIVE DANIEL LIPINSKI

Thank you, Mr. Chairman. My simple amendment contains a small, yet important addition to the underlying bill.

The amendment would help supply chain manufacturers to increase recycling, with the goal of reducing or even eliminating the use or generation of hazardous substances. Manufacturing Extension Partnership (MEP) Centers would assist in these efforts as they work to enhance the productivity and technological performance of U.S. manufacturers.

I firmly believe that by incorporating innovative recycling practices into their manufacturing processes, American industries will better position themselves to compete in the increasingly global marketplace. In addition, through the increased practice of recycling, our manufacturers will help to reduce the production of solid and hazardous waste, and improve our environment, and potentially lower greenhouse gas emissions and make our country more secure by lessening our need for foreign sources of energy.

I applaud Dr. Gingrey's work on this bill and am pleased that Chairman Gordon has worked toward its passage. I'd like to thank the Committee staff and Dr. Gingrey for working with me and accepting my amendment. I encourage all of my colleagues to support this amendment.

I yield back the balance of my time.

Chairman GORDON. Is there further discussion on the amendment? If no, the vote occurs on the amendment. All in favor, say aye. Aye. Those opposed, no. The ayes have it. The amendment is agreed to.

The second amendment on the roster is offered by the gentlelady from Texas, Ms. Johnson. Are you ready to proceed with your amendment?

Ms. JOHNSON. Yes, Mr. Chairman. I have an amendment at the desk.

Chairman GORDON. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 2850, offered by Ms. Eddie Bernice Johnson of Texas.

Chairman GORDON. I ask unanimous consent to dispense with the reading. Without objection, so ordered. The gentlelady is recognized for five minutes to explain the amendment.

Ms. JOHNSON. Thank you, Mr. Chairman. I won't take the five minutes. I will submit the statement. I simply want to say that I strongly support the bill, and I appreciate Dr. Gingrey accepting this amendment, which merely says "Minority-serving institutions shall receive due consideration for such funding." And that is the end of it. I yield back the balance of my time, and ask that the bill be passed.

Chairman GORDON. Are there further, anyone, is there anyone else that would like to address this amendment? If no, the vote occurs on the amendment. All in favor, say aye. Aye. Those opposed, no. The ayes have it. The amendment is agreed to.

Are there other amendments? If no, then the vote is on the bill, H.R. 2850, as amended. All those in favor will say aye. Aye. All those opposed will say no. In the opinion of the Chair, the ayes have it.

I recognize Mr. Hall to offer a motion.

Mr. HALL. Mr. Chairman, I move that the Committee favorably report H.R. 2850, as amended, to the House with the recommendation that the bill, as amended, do pass. Furthermore, I move that the staff be instructed to prepare the legislative report, and make necessary technical and conforming changes, and that the Chairman take all necessary steps to bring the bill before the House for consideration.

I yield back.

Chairman GORDON. The question is on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. Aye. Opposed no. The ayes have it. The bill is favorably reported.

Without objection, the motion to reconsider is laid upon the table. The Members will have two subsequent calendar days in which to submit supplemental, Minority, or additional views on the measure, ending Monday, June the 16th, at 7:00 a.m.

I move, pursuant to Clause 1 of Rule 22 of the Rules of the House of Representatives, that the Committee authorize the Chairman to offer such motions as may be necessary in the House to adopt and pass H.R. 2850, the *Green Chemistry Research and Development Act of 2007,* as amended. Without objection, so ordered.

I want to thank Members for their attendance. Under Rule IJ, further proceedings of this markup will stand in recess, subject to the call of the Chair.

[Whereupon, at 11:07 a.m., the Committee stood in recess.]

Appendix:

H.R. 2850, Section-by-Section Analysis, Amendment Roster

I

110TH CONGRESS
1ST SESSION

H. R. 2850

To provide for the implementation of a Green Chemistry Research and Development Program, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JUNE 25, 2007

Mr. GINGREY (for himself, Mr. WU, Mr. EHLERS, Mr. MARIO DIAZ-BALART of Florida, and Mr. WELCH of Vermont) introduced the following bill; which was referred to the Committee on Science and Technology

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A BILL

To provide for the implementation of a Green Chemistry Research and Development Program, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Green Chemistry Research and Development Act of 2007".

SEC. 2. DEFINITIONS.

In this Act—

(1) the term "green chemistry" means chemistry and chemical engineering to design chemical products and processes that reduce or eliminate the

use or generation of hazardous substances while producing high quality products through safe and efficient manufacturing processes;

(2) the term "Interagency Working Group" means the interagency working group established under section 3(c); and

(3) the term "Program" means the Green Chemistry Research and Development Program described in section 3.

SEC. 3. GREEN CHEMISTRY RESEARCH AND DEVELOPMENT PROGRAM.

(a) IN GENERAL.—The President shall establish a Green Chemistry Research and Development Program to promote and coordinate Federal green chemistry research, development, demonstration, education, and technology transfer activities.

(b) PROGRAM ACTIVITIES.—The activities of the Program shall be designed to—

(1) provide sustained support for green chemistry research, development, demonstration, education, and technology transfer through—

(A) merit-reviewed competitive grants to individual investigators and teams of investigators, including, to the extent practicable, young investigators, for research and development;

(B) grants to fund collaborative research and development partnerships among universities, industry, and nonprofit organizations;

(C) green chemistry research, development, demonstration, and technology transfer conducted at Federal laboratories; and

(D) to the extent practicable, encouragement of consideration of green chemistry in—

(i) the conduct of Federal chemical science and engineering research and development; and

(ii) the solicitation and evaluation of all proposals for chemical science and engineering research and development;

(2) examine methods by which the Federal Government can create incentives for consideration and use of green chemistry processes and products;

(3) facilitate the adoption of green chemistry innovations;

(4) expand education and training of undergraduate and graduate students, and professional chemists and chemical engineers, including through partnerships with industry, in green chemistry science and engineering;

(5) collect and disseminate information on green chemistry research, development, and technology transfer, including information on—

(A) incentives and impediments to development and commercialization;

(B) accomplishments;

(C) best practices; and

(D) costs and benefits;

(6) provide venues for outreach and dissemination of green chemistry advances such as symposia, forums, conferences, and written materials in collaboration with, as appropriate, industry, academia, scientific and professional societies, and other relevant groups;

(7) support economic, legal, and other appropriate social science research to identify barriers to commercialization and methods to advance commercialization of green chemistry; and

(8) provide for public input and outreach to be integrated into the Program by the convening of public discussions, through mechanisms such as citizen panels, consensus conferences, and educational events, as appropriate.

(c) INTERAGENCY WORKING GROUP.—The President shall establish an Interagency Working Group, which shall

include representatives from the National Science Foundation, the National Institute of Standards and Technology, the Department of Energy, the Environmental Protection Agency, and any other agency that the President may designate. The Director of the National Science Foundation and the Assistant Administrator for Research and Development of the Environmental Protection Agency shall serve as co-chairs of the Interagency Working Group. The Interagency Working Group shall oversee the planning, management, and coordination of the Program. The Interagency Working Group shall—

(1) establish goals and priorities for the Program, to the extent practicable in consultation with green chemistry researchers and potential end-users of green chemistry products and processes; and

(2) provide for interagency coordination, including budget coordination, of activities under the Program.

(d) AGENCY BUDGET REQUESTS.—Each Federal agency and department participating in the Program shall, as part of its annual request for appropriations to the Office of Management and Budget, submit a report to the Office of Management and Budget which identifies its activities that contribute directly to the Program and states the portion of its request for appropriations that

is allocated to those activities. The President shall include in his annual budget request to Congress a statement of the portion of each agency's or department's annual budget request allocated to its activities undertaken pursuant to the Program.

(e) REPORT TO CONGRESS.—Not later than 2 years after the date of enactment of this Act, the Interagency Working Group shall transmit a report to the Committee on Science and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate. This report shall include—

(1) a summary of federally funded green chemistry research, development, demonstration, education, and technology transfer activities, including the green chemistry budget for each of these activities; and

(2) an analysis of the progress made toward achieving the goals and priorities for the Program, and recommendations for future program activities.

SEC. 4. MANUFACTURING EXTENSION CENTER GREEN SUPPLIERS NETWORK GRANT PROGRAM.

Section 25(a) of the National Institute of Standards and Technology Act (15 U.S.C. 278k(a)) is amended—

(1) by striking "and" at the end of paragraph (4);

(2) by striking the period at the end of paragraph (5) and inserting "; and"; and

(3) by adding at the end the following:

"(6) the enabling of supply chain manufacturers to continuously improve products and processes, increase energy efficiency, identify cost-saving opportunities, and optimize resources and technologies with the aim of reducing or eliminating the use or generation of hazardous substances.".

SEC. 5. UNDERGRADUATE EDUCATION IN CHEMISTRY AND CHEMICAL ENGINEERING.

(a) PROGRAM AUTHORIZED.—(1) As part of the Program activities under section 3(b)(4), the Director of the National Science Foundation shall carry out a program to award grants to institutions of higher education to support efforts by such institutions to revise their undergraduate curriculum in chemistry and chemical engineering to incorporate green chemistry concepts and strategies.

(2) Grants shall be awarded under this section on a competitive, merit-reviewed basis and shall require cost sharing in cash from non-Federal sources, to match the Federal funding.

(b) SELECTION PROCESS.—(1) An institution of higher education seeking funding under this section shall

1 submit an application to the Director at such time, in such
2 manner, and containing such information as the Director
3 may require. The application shall include at a min-
4 imum—
5 (A) a description of the content and schedule
6 for adoption of the proposed curricular revisions to
7 the courses of study offered by the applicant in
8 chemistry and chemical engineering; and
9 (B) a description of the source and amount of
10 cost sharing to be provided.
11 (2) In evaluating the applications submitted under
12 paragraph (1), the Director shall consider, at a min-
13 imum—
14 (A) the level of commitment demonstrated by
15 the applicant in carrying out and sustaining lasting
16 curriculum changes in accordance with subsection
17 (a)(1); and
18 (B) the amount of cost sharing to be provided.
19 (c) AUTHORIZATION OF APPROPRIATIONS.—In addi-
20 tion to amounts authorized under section 8, from sums
21 otherwise authorized to be appropriated by the National
22 Science Foundation Authorization Act of 2002, there are
23 authorized to be appropriated to the National Science
24 Foundation for carrying out this section $7,000,000 for

fiscal year 2008, $7,500,000 for fiscal year 2009, and $8,000,000 for fiscal year 2010.

SEC. 6. STUDY ON COMMERCIALIZATION OF GREEN CHEMISTRY.

(a) STUDY.—The Director of the National Science Foundation shall enter into an arrangement with the National Research Council to conduct a study of the factors that constitute barriers to the successful commercial application of promising results from green chemistry research and development.

(b) CONTENTS.—The study shall—

(1) examine successful and unsuccessful attempts at commercialization of green chemistry in the United States and abroad; and

(2) recommend research areas and priorities and public policy options that would help to overcome identified barriers to commercialization.

(c) REPORT.—The Director shall submit a report to the Committee on Science and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on the findings and recommendations of the study within 18 months after the date of enactment of this Act.

1 **SEC. 7. PARTNERSHIPS IN GREEN CHEMISTRY.**

2 (a) PROGRAM AUTHORIZED.—(1) The agencies par-
3 ticipating in the Program shall carry out a joint, coordi-
4 nated program to award grants to institutions of higher
5 education to establish partnerships with companies in the
6 chemical industry to retrain chemists and chemical engi-
7 neers in the use of green chemistry concepts and strate-
8 gies.

9 (2) Grants shall be awarded under this section on a
10 competitive, merit-reviewed basis and shall require cost
11 sharing from non-Federal sources by members of the part-
12 nerships.

13 (3) In order to be eligible to receive a grant under
14 this section, an institution of higher education shall enter
15 into a partnership with two or more companies in the
16 chemical industry. Such partnerships may also include
17 other institutions of higher education and professional as-
18 sociations.

19 (4) Grants awarded under this section shall be used
20 for activities to provide retraining for chemists or chemical
21 engineers in green chemistry, including—

22 (A) the development of curricular materials and
23 the designing of undergraduate and graduate level
24 courses; and

25 (B) publicizing the availability of professional
26 development courses of study in green chemistry and

1 recruiting graduate scientists and engineers to pur-
2 sue such courses.
3 Grants may provide stipends for individuals enrolled in
4 courses developed by the partnership.
5 (b) SELECTION PROCESS.—(1) An institution of
6 higher education seeking funding under this section shall
7 submit an application at such time, in such manner, and
8 containing such information as shall be specified by the
9 Interagency Working Group and published in a proposal
10 solicitation for the Program. The application shall include
11 at a minimum—
12 (A) a description of the partnership and the
13 role each member will play in implementing the pro-
14 posal;
15 (B) a description of the courses of study that
16 will be provided;
17 (C) a description of the number and size of sti-
18 pends, if offered;
19 (D) a description of the source and amount of
20 cost sharing to be provided; and
21 (E) a description of the manner in which the
22 partnership will be continued after assistance under
23 this section ends.
24 (2) The evaluation of the applications submitted
25 under paragraph (1) shall be carried out in accordance

with procedures developed by the Interagency Working Group and shall consider, at a minimum—

(A) the ability of the partnership to carry out effectively the proposed activities;

(B) the degree to which such activities are likely to prepare chemists and chemical engineers sufficiently to be competent to apply green chemistry concepts and strategies in their work; and

(C) the amount of cost sharing to be provided.

SEC. 8. AUTHORIZATION OF APPROPRIATIONS.

(a) NATIONAL SCIENCE FOUNDATION.—There are authorized to be appropriated to the National Science Foundation for carrying out this Act—

(1) $20,000,000 for fiscal year 2008;

(2) $21,000,000 for fiscal year 2009; and

(3) $22,000,000 for fiscal year 2010.

(b) NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY.—There are authorized to be appropriated to the National Institute of Standards and Technology for carrying out this Act—

(1) $8,000,000 for fiscal year 2008;

(2) $9,000,000 for fiscal year 2009; and

(3) $10,000,000 for fiscal year 2010.

1 (c) DEPARTMENT OF ENERGY.—There are author-
2 ized to be appropriated to the Department of Energy for
3 carrying out this Act—
4 (1) $13,000,000 for fiscal year 2008;
5 (2) $14,000,000 for fiscal year 2009; and
6 (3) $15,000,000 for fiscal year 2010.
7 (d) ENVIRONMENTAL PROTECTION AGENCY.—There
8 are authorized to be appropriated to the Environmental
9 Protection Agency for carrying out this Act—
10 (1) $10,000,000 for fiscal year 2008;
11 (2) $11,000,000 for fiscal year 2009; and
12 (3) $12,000,000 for fiscal year 2010.

○

SECTION-BY-SECTION ANALYSIS OF H.R. 2850, THE GREEN CHEMISTRY RESEARCH AND DEVELOPMENT ACT OF 2007

Section 1: Short Title

"Green Chemistry Research and Development Act of 2004."

Section 2: Definitions

Defines terms used in the text including green chemistry, interagency working group, and program.

Section 3: Green Chemistry Research and Development Program

This section directs the President to establish an interagency research and development (R&D) program to promote and coordinate federal green chemistry research, development, demonstration, education, and technology transfer activities. The program will provide sustained support for green chemistry R&D through merit-reviewed competitive grants, R&D partnerships of universities, industry, and non-profit organizations, and through R&D conducted at federal laboratories.

The program will provide support for, and encouragement of, the application of green chemistry through encouragement of, the application of green chemistry in all federally funded chemical science and engineering R&D; examination of methods to create incentives for the use of green chemistry; promotion of the education and training of undergraduate and graduate students and professional chemists and chemical engineers in green chemistry; collection and dissemination of information on green chemistry R&D and technology transfer; and provision of venues of outreach and dissemination of green chemistry advances such as symposia, forums, conferences, and written materials.

Establishes an interagency working group composed of representatives from the National Science Foundation, the National Institute for Standards and Technology, the Department of Energy, the Environmental Protection Agency, and any other agency that the President may designate, to oversee the planning, management, and coordination of all federal green chemistry R&D activities.

Names the Director of the National Science Foundation and the Assistant Administrator for R&D at the Environmental Protection Agency as co-chairs and requires the group to establish goals and priorities for the program and provide for interagency coordination, including budget coordination. Requires the group to submit a report to the Committee on Science and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate within two years of the enactment of this legislation that includes a summary of the progress made towards the goals and priorities established for the program, including recommendations for future program activities.

Section 4: Manufacturing Extension Center Green Suppliers Network Grant Program

Amends the *National Institute of Standards and Technology Act* to make eligible as a Manufacturing Extension Program activity with the enabling of supply chain manufactures to conduct activities with the aim of reducing or eliminating the use or generation of hazardous substances.

Section 5: Undergraduate Education in Chemistry and Chemical Engineering

This section enables the Director of the National Science Foundation to award grants to institutions of higher learning to revise undergraduate curriculum in chemistry and chemical engineering to incorporate green chemistry concepts and strategies.

Section 6: Study on the Commercialization of Green Chemistry

This section calls for the Director of the National Science Foundation to conduct a study with the National Research Council to examine the barriers to the successful commercial application of promising results from green chemistry research and development.

Section 7: Partnerships in Green Chemistry

This section establishes a program to award grants to institutions of higher education to create partnerships with companies in the chemical industry to retrain chemists and chemical engineers in the use of green chemistry concepts and strategies.

Section 8: Authorization of Appropriations

Authorizes appropriations for green chemistry R&D programs from sums already authorized to be appropriated, for the National Science Foundation, the National Institute of Standards and Technology, the Department of Energy, and the Environmental Protection Agency.

Agency	FY08	FY09	FY10
NSF	$ 20 M	$ 21 M	$ 22 M
NIST	$ 8 M	$ 9 M	$ 10 M
DOE	$ 13 M	$ 14 M	$ 15 M
EPA	$ 10 M	$ 11 M	$ 12 M

COMMITTEE ON SCIENCE AND TECHNOLOGY
FULL COMMITTEE MARKUP
JULY 11, 2007

AMENDMENT ROSTER

H.R. 2850, the Green Chemistry Research and Development Act 0f 2007

No.	Sponsor	Description	Results
1	Mr. Lipinski	Amends Sec. 4 by adding "increase recycling" to eligible activities under the Manufacturing Extension Center green Suppliers Grant Program	Agreed to by Voice Vote
2	Ms. Johnson	Amends Sec. 5(b)(1) to give consideration to Minority Serving Institutions	Agreed to by Voice Vote

AMENDMENT TO H.R. 2850

OFFERED BY MR. LIPINSKI OF ILLINOIS

Page 7, line 6, insert "increase recycling," after "increase energy efficiency,".

AMENDMENT TO H.R. 2850
OFFERED BY MS. EDDIE BERNICE JOHNSON OF TEXAS

Page 8, line 3, insert "Minority Serving Institutions shall receive due consideration for such funding." after "Director may require.".

PROCEEDINGS OF THE MARKUP BY THE SUBCOMMITTEE ON TECHNOLOGY AND INNOVATION ON H.R. 5789, THE SCIENCE AND TECHNOLOGY INNOVATION ACT OF 2008

WEDNESDAY, APRIL 16, 2008

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TECHNOLOGY AND INNOVATION,
COMMITTEE ON SCIENCE,
Washington, DC.

The Subcommittee met, pursuant to call, at 2:08 p.m., in Room 2318 of the Rayburn House Office Building, Hon. David Wu [Chairman of the Subcommittee] presiding.

Chairman WU. Good afternoon. The Subcommittee on Technology and Innovation will now come to order, and pursuant to notice, the Subcommittee on Technology and Innovation meets to consider the following measure: H.R. 5789, the *Science and Technology Innovation Act of 2008.* We will now proceed with the markup, beginning with opening statements, and the Chair recognizes himself.

I want to welcome everyone to the Subcommittee markup of H.R. 5789, the *Science and Technology Innovation Act of 2008.* This bill reauthorizes two programs critical to the competitiveness of the United States, the Small Business Innovation Research Program, or SBIR, and the Small Business Technology Transfer Program, STTR. Our committee has been working on this bill for quite some time, and I want to thank Ranking Member Phil Gingrey and all of the Members of the Committee for continuing our work in crafting legislation which supports innovation.

In today's economy, small business is often where innovation comes from. The Science and Technology Committee, and especially the Technology and Innovation Subcommittee, intends to promote science and technology research that drives an innovation-based economy. SBIR and STTR are key components of our innovation agenda. At more than $2.3 billion per year, SBIR and STTR comprise the largest source of federal support for technology innovation for the private sector. These funds help companies with innovative ideas bring their products to market to create both new products and jobs. However, these programs originated more than 20 years ago, and much has changed since then. These programs need to be restructured to reflect the current global competitive environment, and the Technology and Innovation Subcommittee held numerous hearings last year on the SBIR and STTR programs to analyze their place in an innovation agenda for the 21st century.

Our witnesses made many suggestions on how the SBIR and STTR programs could be strengthened. During hearings for the reauthorization of the National Nanotechnology Initiative, witnesses said that programs like SBIR and STTR are necessary if the U.S. is going to capture the economic benefits of our federal investment in nanotechnology research. Outside groups agree. SBIR and STTR are important to commercializing inventions that begin with invest-

ments in basic research and end with new jobs, new products, and new services. Members of this committee agree on the importance of our high-tech entrepreneurial companies in creating new technologies, and these are exactly the companies targeted by SBIR. STTR links these small high-tech companies with our universities, which are a key creator of new high-tech ideas.

Based upon this subcommittee's hearings, H.R. 5789 will do the following: it reauthorizes the SBIR and STTR programs through 2010. Although this period is short, it will put both programs on the same reauthorization cycle. In addition, the authorization timeframe will give Congress time to examine how well each program is working to better focus on innovation. Next, for any federal agency which spends more than $100 million per year on extramural research, it would set increases to 3.0 percent for SBIR and to 0.6 percent for STTR. This emphasizes the importance we place upon SBIR and STTR as part of the innovation agenda. Third, this bill increases phase-one awards from $100,000 to $300,000, and it increases phase-two awards from $750,000 to $2.2 million to better reflect the actual costs of doing high-tech research in today's environment. Number four, it increases the flexibility of the SBIR program by allowing cross-agency awards and allowing applicants to apply directly for phase-two funding. Number five, the bill allows venture-capital backed small businesses to apply for awards and defines eligibility requirements. Number six, the bill expands requirements on agency databases of award recipients and also requires inter-operability and accessibility between agency databases, and this will permit improved oversight by the agencies and by Congress, on how on the agencies and how the programs are operating. Number seven, the bill allows for no more than three percent of program funds to be used for administrative costs. Currently, agencies pay for administration of SBIR, taking funds from other agency programs, and naturally, they must try to administer the program as cheaply as possible. This results in little oversight of the program, with a focus on simply obligating all of the funds. That is not the type of management we want for an over $2 billion program. At our hearing, it was agreed that allowing some administrative costs would help improve the quality and oversight of the program. And finally, the bill establishes an interagency committee, co-chaired by the Director of OSTP and the Director of NIST, to report to Congress on both practices for commercialization of SBIR- and STTR-funded research.

In closing, this subcommittee has been a leader in passing legislation that advances our innovation agenda. Today, we continue our leadership by reauthorizing SBIR and STTR. I urge my colleagues to support the legislation, and I now recognize Dr. Gingrey to present his opening remarks.

[The prepared statement of Chairman Wu follows:]

PREPARED STATEMENT OF CHAIRMAN DAVID WU

I want to welcome everyone to the Subcommittee markup of H.R. 5789, the *Science and Technology Innovation Act of 2008.* This bill reauthorizes two programs critical to the competitiveness of the U.S., the Small Business Innovative Research Program (SBIR) and the Small Business Technology Transfer Research Program (STTR).

Our committee has been working on this bill for some time, and I want to thank my Ranking Member Dr. Gingrey and all the Members of the Committee for continuing our work in crafting legislation that supports innovation.

In today's economy, small business is where innovation happens. The Science and Technology Committee, especially the Technology and Innovation Subcommittee, intends to promote science and technology research that drives an innovation-based economy.

SBIR and STTR are key components of our innovation agenda. At more than $2.3 billion per year, SBIR and STTR comprise the largest source of federal support for technological innovation in the private sector. These funds help companies with innovative ideas bring their products to market.

However, these programs originated more than 20 years ago. Much has changed since then; these programs need to be restructured to reflect the current global innovation environment.

The Technology and Innovation Subcommittee held hearings last year on the SBIR and STTR programs to analyze their place in an innovation agenda for the 21st century. Our witnesses made many suggestions on how the SBIR and STTR programs could be strengthened.

During hearings for the reauthorization of the National Nanotechnology Initiative (NNI), witnesses said that programs like SBIR and STTR are necessary if the U.S. is going to capture the economic benefits of our federal investment in nanotechnology research.

Outside groups agree—SBIR and STTR are important to commercializing products that begin with investments in basic research.

Members of this committee agree on the importance of our high-tech entrepreneurial companies in creating new technologies. These are exactly the companies targeted by SBIR. STTR links those small high-tech companies with our universities, which are a key cradle of new high-tech ideas.

Based upon this subcommittee's hearings H.R. 5798 does the following:

1. Reauthorizes the SBIR & STTR programs thru 2010. This will put both programs on the same reauthorization cycle. In addition, the authorization time frame will give Congress time to examine how well both programs are working to better focus on innovation.
2. For any federal agency which spends more than $100 million in intra- or extramural research per year, the set aside increases to 3.0 percent for SBIR and to 0.6 percent for STTR. This emphasizes the importance we place upon SBIR and STTR as part of the innovation agenda.
3. Increases the Phase I awards from $100,000 to $300,000 and Phase II awards from $750,000 to $2.2 million to better reflect the actual costs of doing high-tech research;
4. Increases the flexibility of the SBIR program by allowing cross-agency awards and allowing applicants to apply directly for Phase II funding;
5. Allows venture capital-backed small businesses to apply for awards and defines eligibility requirements;
6. Expands requirements on agency databases of award recipients. This section also requires inter-operability and accessibility between agency databases. This will allow for improved oversight by Congress on how agencies actually operate SBIR programs.
7. Establishes an Interagency Committee co-chaired by the Director of OSTP and the Director of NIST to report to Congress on the best practices for commercialization of SBIR- and STTR-funded research.

In closing, this subcommittee has been a leader in passing legislation that advances our innovation agenda. Today we continue our leadership by reauthorizing SBIR and STTR. I urge my colleagues to support this bill.

Mr. GINGREY. Chairman Wu, I am pleased that this markup has been called today to look at the important issue of reauthorizing both the Small Business Innovation Research grant program, and the Small Business Technology Transfer Program, STTR.

These are both grant programs that have been effective in providing government assistance to small businesses to help more people in our country achieve the American dream. However, Mr. Chairman, I do have to express concerns with the process, the legislative process, by which this bill has been conducted. I appreciate

the Majority's willingness to hold hearing on this important matter, like we did last summer, but I do find it troubling that the final text of the *Science and Technology Innovation Act of 2008* was only made available to the Minority once this markup was scheduled, late last week. I am proud to say, as I have many times in the past, that this committee operates in a very bipartisan way. In most cases, our Minority side is certainly given the opportunity to provide its input to the bills before they are marked up at the Subcommittee level. However, I find it unfortunate that that bipartisanship was compromised, I think, on this bill, maybe for the sake of legislative expediency. Had the Minority been consulted much earlier, and had we been given a better notice of today's markup, I believe—I truly believe that this legislation would be a reflection of broad input from Members on both sides of the aisle.

With that said, Mr. Chairman, I yield back the balance of my time.

[The prepared statement of Mr. Gingrey follows:]

PREPARED STATEMENT OF REPRESENTATIVE PHIL GINGREY

Chairman Wu, I am pleased that this markup has been called today to look at the important issue of reauthorizing both the Small Business Innovation Research grant program and the Small Business Technology Transfer program. These are both grant programs that have been effective in providing government assistance to small businesses to help more people in our country achieve the American Dream.

However, Mr. Chairman, I have to express my concerns with the legislative process by which this bill has been conducted. I appreciate the Majority's willingness to hold hearings on this important matter last summer, but I find it troubling that the final text of the Science and Technology Innovation Act of 2008 was only made available to the Minority once this markup was scheduled late last week.

I am proud to say that this committee operates in a very bipartisan way. In most cases, the Minority is given the opportunity to provide its input to the bill before it is marked up at the Subcommittee level. However, it is unfortunate that the bipartisanship was compromised on this bill for the sake of legislative expediency. Had the Minority been consulted much earlier and been given better notice of today's markup, I believe that this legislation would be a reflection of broad input from Members on both sides of the aisle.

Mr. Chairman, I yield back the balance of my time.

Chairman WU. And I thank the gentleman, and I understand the gentleman's concern about the pace of these proceedings, and I personally apologize for any sense of rush on this bill. And quite honestly, it was our intent, I think, by staff on both sides, to markup this bill just a little ways down the pike. But I do believe that a copy of the bill, which is substantially unchanged from today's bill, was given to both the Majority and Minority side around the middle of March, but it was the expectation of both sides that this markup would occur a little bit later than this, and due to circumstances beyond this Chairman's control, the markup is occurring today.

Mr. GINGREY. Chairman, if you would yield to me for a question.

Chairman WU. Yes, I would be happy to yield.

Mr. GINGREY. Well, that being said, is it the intention that this bill will be marked up in the Full Committee after we get done with the markup today in Subcommittee?

Chairman WU. This subcommittee will markup the legislation. The full Small Business Committee, which traditionally has marked up first, will markup parallel legislation tomorrow, and

then we will be bringing those bills together and bringing the legislation to the Floor.

Mr. GINGREY. If the Chairman will yield for just an additional question?

Chairman WU. I would be happy to yield.

Mr. GINGREY. Is it not true, though, that that is not what we would normally consider regular order, regular order being a markup at a Subcommittee level, and then pending approval, a markup by the Full Committee. I would assume that is what is happening in the Small Business Committee, and I just wonder why they are swaying away from regular order in that regard.

Chairman WU. Reclaiming my time, my understanding, although I am not intimately familiar with their proceedings, my understanding is that the Small Business Committee is not having a Subcommittee markup. They are having a Full Committee markup. Now, prior to this date, at least in this Congress, we have, as far as I know, consistently moved legislation from Subcommittee to Full Committee and then to the Floor. There may have been an exception to that during the 100 days agenda, but I am working off recollection, and I just don't know if it is 100 percent or not.

Mr. GINGREY. If the Chairman will yield?

Chairman WU. I would be happy to yield.

Mr. GINGREY. Mr. Chairman, and I appreciate very much that explanation. How do you foresee these bills being put together before they go to the Floor?

Chairman WU. I think that the two committees, the bills, as marked-up by this subcommittee, and the bill as marked-up by the full Small Business Committee, will be substantially similar. That is not to preclude the possibility that there may be managers amendments or other changes between there and the Rules Committee and the Floor.

Mr. EHLERS. Will the gentleman yield?

Chairman WU. I would be happy to yield.

Mr. EHLERS. Thank you, Mr. Chairman. Just to comment—and nothing I say should be construed as criticism of you or the Chairman of the Full Committee or the majority party, but I am disturbed by the process and largely because this, once again, is a case where the Science Committee is getting stomped upon by another committee with which it shares jurisdiction. We are equal partners in this particular topic, the SBIR. SBA runs the program, but we are supposed to monitor the science related to it, and we, by the extreme rush with which the other committee is handling this, without giving us adequate time to deal with it, with suddenly going to Full Committee, reporting it out to the Floor. That does not give us an opportunity to really work our will on this. We have had the hearings. We have had a couple of hearings, over two years, on this issue, waiting for the other committee of jurisdiction to act, and now finally they are acting, and after two years of diddling around, suddenly it has to be done in two days and go to the Floor immediately. I object to that procedure, partially because I think it really endangers the jurisdiction of this committee. This is not the first time that other committees have treated us shabbily. I think we really have to, as the youngest committee here, and one that did not get adequate jurisdiction when it was originally cre-

ated—obviously, NIH should be in this committee, but it isn't because another committee refused to give it up. But we see this over and over, and the only way we are going to get the subjects before this committee that really belong before this committee is to dig in our heels and say enough. We are going to claim full responsibility and full opportunity in this committee as well. So as I say, this is not a criticism of you or the Majority in any sense. It is a criticism of the institution, perhaps, on behalf of this committee, that we really have to make it clear we are here to stay. We are going to act with force on all issues that come before, and above all, I would hope that the Majority would insist that when this bill goes to the Floor, it goes after proceeding through the Rules Committee so that we have the opportunity to present amendments there. If after this charade that we are going through now it goes directly to the Floor on a suspension, we will not have had any opportunity to input, and I will certainly raise strong objections to that. And I vow to get leaders of the Minority party to also raise a fuss about it, lest there be an opportunity to debate these issues on the Floor, at least, if we don't have a chance to work on them with the other committee of jurisdiction.

So as you know, I am an even-tempered person. I don't get angry often, but this is a case where I think we have to fight together. We have to fight for the jurisdiction of this committee and make it known that we do not want this sort of thing. Thank you very much for yielding.

Chairman WU. I thank the gentleman for his comments, in reclaiming my time. Without commenting on the scheduling of any other committee, it is precisely because I believe very strongly in the input of the Subcommittee, and preferably the whole Committee, that we are holding this markup today so that Members can have as much opportunity as possible to consider the bill, to propose amendments, and the gentleman certainly has my full support to take this bill to the Floor under a rule, rather than under suspension of the rules.

Mr. EHLERS. And I do thank you for holding this hearing, and I appreciate that.

Chairman WU. I thank the gentleman.

Mr. GINGREY. Mr. Chairman, if you would yield for an addition short——

Chairman WU. I would be happy to yield.

Mr. GINGREY. The gentleman from Michigan said he is an even-tempered man, and the gentleman from Georgia is also even-tempered; mad all of the time. But no, truly, in the spirit of bipartisanship, which especially prevails on this subcommittee, Mr. Chairman, we respect you for that, a great wake-up call not only would be to bring this bill to the Floor under a rule, but also encourage you, Mr. Subcommittee Chairman, to ask our Full Committee Chairman and maybe also Chairman Velazquez of the Small Business Committee, to encourage the Rules Committee to make this open rule. And that would be, I think, a very great statement for bipartisanship, and we would hope that you would do that for us.

Chairman WU. Reclaiming my time, I certainly enjoy and encourage and value the bipartisanship of this subcommittee and the Full Committee. I will strongly encourage bringing this bill under a rule

to the Floor. I am afraid that what kind of rule it is under is a little bit above my pay-grade, and I thank the gentleman for his comments. We do have a set of Floor votes, which have been called, and there are two minutes left to vote, and under those circumstances, I would like to recess this markup until after the Floor votes, and those Floor votes will take probably somewhere between 30 and 60 minutes, and we will reconvene, very promptly after the Floor votes.

[Recess.]

Chairman WU. The Committee is reconvened. Without objection, any Members who have opening statements may place their statements in the record at this point.

I ask unanimous consent that the bill is considered read and open to amendment at any point, and that Members proceed with the amendments in the order of the roster. Without objection, so ordered.

The first amendment on the roster is an amendment offered by the gentleman from Michigan, Dr. Ehlers. Dr. Ehlers, are you ready to proceed with your amendment?

The Clerk will report the amendment.

The CLERK. Amendment to H.R. 5789.

Chairman WU. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

Dr. Ehlers, you are recognized for five minutes.

Mr. EHLERS. Thank you, Mr. Chairman. This is a very straightforward amendment. It would strike sections 201 and 202, which provide for an increase in the agencies set aside to three percent, when it is currently 2.5 percent, for SBIR, and .06 percent, up from the current .03 percent, for the STTR.

My concern about this is, first of all, it is a substantial increase in the set-aside in both cases. Secondly, as we all know, when the Omnibus Bill was passed last fall, it did major damage to the funding for the science organizations of the federal government, particularly the National Science Foundation, NIST, Department of Energy, and several other agencies. And it seems to me particularly strange that when we have either reduced or given very small increases for the basic research, which this country desperately needs, and which is what the COMPETES Act was all about, which this committee worked on so hard for so long, it seems strange to me that when the funding is low, that we would increase the set-aside and do even greater damage to a agencies such as the National Science Foundation, et cetera. It is just—even aside from whether or not they should have the increase, which we can certainly debate, this is obviously the wrong time to do it, and I believe it will hurt the science agencies of the Federal Government which are already really struggling. The Department of Energy, for example, is laying off several hundred people as a result of the cuts they received in the Omnibus Bill, so I strongly support this amendment, and I hope we will pass it. We can consider changing the set-aside at some future date, once we properly restore funding to the science agencies I mentioned.

I yield back the balance of my time.

Chairman WU. Thank you, Doctor. Anyone seeking time?

The Chair recognizes himself. Regrettably, I oppose this amendment. The increase to three percent would be more than offset by the R&D increases authorized in the *America COMPETES Act,* and if the authorization levels are met by the appropriators of the increase to three percent, it will not decrease the amount of funds available for pure research.

Additionally, at our hearings, there is uniform support for increasing the size of awards, at a minimum, to adjust for inflation. However, I think that many folks are concerned that if we do increase the size of awards, that there will be fewer awards, so we do need to increase the set-aside, and on that basis, I support the gentleman's sentiment to increase the amount of money available to research, but I think three percent is a reasonable number for commercialization of the products, of the fruits of that research, to turn the research into products and jobs.

Any other comment on the amendment?

Mr. EHLERS. Will the gentleman yield?

Chairman WU. I would be happy to yield.

Mr. EHLERS. Thank you for yielding. I just would like to comment that—and I can see the handwriting on the wall here—but I think this is another good argument for taking this to the Floor under a rule so that we will have an opportunity to offer these amendments there, primarily because this is not going to Full Committee, and so most of the Science Committee will not have an opportunity to debate this amendment unless we do have the opportunity to offer amendments on the Floor.

Chairman WU. Reclaiming my time, as the gentleman knows, I support the gentleman's sentiment about bringing this legislation to the Floor under a rule.

Is there any further discussion of the amendment?

Chairman GORDON. Mr. Chairman?

Chairman WU. The Chairman of the Full Committee is recognized for five minutes.

Chairman GORDON. Well, he doesn't need that long, but let me just say that Dr. Ehlers has a reputation for not bringing frivolous got-you amendments to this committee, and this is a thoughtful—there can be disagreements, but no one would disagree that his approach here—it is my understanding, and I am not guaranteeing anything—but it is my understanding that there is an interest in bringing this bill to the Floor with a rule. I will communicate, again for whatever that is worth, to the Rules Committee that I think it is appropriate. I may not support it. I probably won't support it, because there has been a delicate balance reached in making this, with a consultation, both with the Minority as well as with the Small Business, but there can be no question that this is a worthwhile amendment, and I will, again, ask—I used to be on the Rules Committee, but I am not any longer, so all I can do is ask.

Mr. EHLERS. I appreciate that. Thank you.

Chairman WU. Is there any further discussion of the amendment?

And if not, the vote occurs on the amendment. All in favor say aye. Those opposed to say no. In the opinion of the Chair, the nos have it. And the nos have it.

Mr. EHLERS. Mr. Chairman, could we have a recorded vote on that, please?

Chairman WU. The Clerk will call the roll.

The CLERK. Chairman Wu.

Chairman WU. No.

The CLERK. Chairman Wu votes no.

Ms. Richardson.

Ms. RICHARDSON. No.

The CLERK. Ms. Richardson votes no.

Mr. Matheson.

Mr. MATHESON. No.

The CLERK. Mr. Matheson votes no.

Mr. Mitchell.

[No response.]

The CLERK. Mr. Wilson.

Mr. WILSON. No.

The CLERK. Mr. Wilson votes no.

Mr. Chandler.

Mr. CHANDLER. No.

The CLERK. Mr. Chandler votes no.

Mr. Ross.

Mr. ROSS. No.

The CLERK. Mr. Ross votes no.

Mr. Gordon.

Chairman GORDON. No.

The CLERK. Mr. Gordon votes no.

Mr. Gingrey.

Mr. GINGREY. Yes.

The CLERK. Mr. Gingrey votes aye.

Mr. Ehlers.

Mr. EHLERS. Yes.

The CLERK. Mr. Ehlers votes aye.

Ms. Biggert.

Ms. BIGGERT. Aye.

The CLERK. Ms. Biggert votes aye.

Mr. Adrian Smith.

Mr. SMITH. Aye.

The CLERK. Mr. Adrian Smith votes aye.

Mr. Broun.

[No response.]

The CLERK. Mr. Hall.

[No response.]

Chairman WU. The Clerk will report the tally.

The CLERK. Mr. Chairman, four Members vote aye, and seven Members vote no.

Chairman WU. The amendment is not agreed to.

The second amendment on the roster is an amendment offered by the gentleman from Georgia, Dr. Gingrey. Dr. Gingrey, are you ready to proceed with your amendment?

Mr. GINGREY. Mr. Chairman, yes, I have an amendment at the desk.

Chairman WU. The Clerk will report the amendment.

The CLERK. Amendment 017, Amendment to H.R. 5789, offered by Mr. Gingrey of Georgia.

Chairman WU. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

I recognize the Ranking Member, Dr. Gingrey, for five minutes to explain his amendment.

Mr. GINGREY. Mr. Chairman, thank you. This amendment that I am offering to H.R. 5789 will provide a practical way to maintain the integrity of SBIR and STTR programs.

In the current form, the bill allows for companies to apply directly for a Phase II grant, and we know those grants have a maximum award, now, of $2.2 million. They can do this without having received a Phase I grant. I find this practice to be somewhat problematic because it allows companies to conduct Phase I process on private funds before approaching the Federal Government for SBIR or STTR assistance in Phase II. Ostensibly, if a company has the ability to use private funds for Phase I, then it should be able to continue to Phase II on private funds. I believe that the current language regarding this within H.R. 5789 only provides incentives to companies that can already afford to cultivate R&D initiatives to come to the Federal Government when they should not do so. This practice has the potential of reducing the opportunity for companies that truly need the assistance to utilize SBIR and STTR programs the way that they are intended.

I am offering this amendment to specifically address this issue by striking the language that provides for bypassing Phase I grants. Therefore, the bill would require that in order for a company to be eligible for a Phase II grant, it would first have to have been a recipient of a Phase I grant. I believe that adopting this amendment will strengthen the SBIR and STTR programs so that they can fulfill the mission, that of providing small-business assistance to entrepreneurs that are in the most need of financial assistance from the Federal Government.

I urge my colleagues to support this amendment, and Mr. Chairman, with that, I will yield back the balance of my time.

[The prepared statement of Mr. Gingrey follows:]

PREPARED STATEMENT OF REPRESENTATIVE PHIL GINGREY

Mr. Chairman, this second amendment that I am offering to H.R. 5789 will provide yet another practical way to maintain the integrity of the SBIR and the STTR programs.

In its current form, H.R. 5789 allows for companies to apply directly for a Phase II grant that has a maximum award of $2.2 million, without having received a Phase I grant. I find this practice to be somewhat problematic because it allows companies to conduct the Phase I process on private funds before approaching the federal government for SBIR or STTR assistance in Phase II.

Ostensibly, if a company has the ability to use private funds for Phase I, then it should be able to continue to Phase II on private funds. I believe that the current language regarding this within H.R. 5789 only provides incentives to companies that can already afford to cultivate R&D initiatives to come to the Federal Government when they should not do so. This practice has the potential of reducing the opportunity for companies that truly need the assistance to utilize the SBIR and STTR programs the way they are intended.

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I believe that adopting this amendment will strengthen the SBIR and STTR programs so that they can fulfill the mission of providing small business assistance to entrepreneurs that are in the most need of financial assistance from the Federal Government.

I urge all of my colleagues to support this amendment, and I yield back the balance of my time.

Chairman WU. I thank the gentleman, and again, regrettably, I must oppose the amendment, because if a small business has already done the preliminary work under Phase I, I do not think that the business should be penalized for having spent its own money, and then coming to the Federal Government for a Phase II grant, and skipping Phase I. The amounts are dramatically different. A Phase I grant, under the proposed legislation, is for $300,000, and a company that can afford $300,000 in development may not be able to afford the new amount in Phase II of $2.2 million.

The agencies which testified to this subcommittee stated that it would enhance SBIR and STTR programs if a small business could apply directly for a Phase II award, and I must add that this is a not a mandatory program. This is an option to the agencies to permit skipping Phase I, if they choose to do so.

Does anyone else seek recognition on the amendment?

If not, then the vote occurs on the amendment. All in favor, say aye. Those opposed, say no. In the opinion of the Chair, the nos have it, and the amendment is not agreed to.

It is now in order to consider the third amendment on the roster, and it is also offered by the gentleman from Georgia, Dr. Gingrey. Dr. Gingrey, are you ready to proceed with your amendment?

Mr. GINGREY. Mr. Chairman, yes, I have an amendment at the desk.

Chairman WU. The Clerk will report the amendment.

The CLERK. Amendment 019, Amendment to H.R. 5789, offered by Mr. Gingrey of Georgia.

Chairman WU. I ask unanimous consent to dispense with the reading, and without objection, so ordered.

I recognize the gentleman from Georgia for five minutes to explain his amendment.

Mr. GINGREY. Mr. Chairman, thank you. Again, I brought forth what I believe is a very common sense and practical amendment to ensure that small business innovation and research grants actually go to small business applicants.

Put simply, venture capital is important to small business initiatives because it provides needed financial assistance and credibility to the ideas and products that possess the potential to be commercialized. However, because these grants are intended for small business research and development, we must ensure that venture capital does not represent a majority of the financial interest within an SBIR application. The manner in which this bill is currently written only limits a single venture capital firm from owning 49 percent of the interest of the company applying for the SBIR grant. This leaves open the possibility that more than one venture capital firm could own in the aggregate a majority of financial interest within the company. I mean an example, in the aggregate, all owning less than 49 percent, they could own 99 percent of the company, if you had two or more, as an example.

I have just given that worst-case scenario, so Mr. Chairman, I believe that this really goes against the spirit of the SBIR program, and I had some language that I wanted to read from the report language of the original bill, back in 1982, and it says "the recognition

of the ability of the small firm to develop and commercialize new technologies coupled with the apparently declining rate of innovation and productivity in United States industries as a whole have led to widespread interest in the problems of the small business community and the amount of federal R&D funding which is flowing into this sector." And then it goes on to say under subparagraph B, state of small business participation in federal R&D, "a purpose of the bill is to increase the utilization of small business in federal research and development. Some have argued that a set-aside of federal R&D funds for small business is justified on the basis that small firms have been demonstrably innovative and yet receive a small share of the federal R&D budget. During debate on the legislation, frequent reference have been made to the small business share of federal R&D."

Mr. Chairman, again, I believe that that hopefully reflects the original intent of the bill, and that what we are doing in regard to venture capitalists goes against the spirit of the SBIR program. Reading further from that report language, it says, specifically, the legislation is also intended to "provide seed capital to small, high-technology firms at the early high-risk stage of initial concept development." Funds provided under—well, that was the name of the bill back then. They go on to elaborate on that point. So the program is designed to provide assistance to a small business that may have an idea that can be considered a diamond in the rough, if you will, without necessarily having the financial backing to move its promising idea towards commercialization and maybe even the interest of venture capitalists at the outset.

My amendment would assure that we continue to help out the true small business entrepreneurs by simply limiting the total amount of venture capital investment in the company of a SBIR application to 49 percent of their financial interest. With the adoption of this amendment, this legislation will acknowledge the importance of the influence that venture capital can play in small business research and development, while still maintaining the integrity of the SBIR program.

Mr. Chairman, I urge all of my colleagues on the Subcommittee to support this amendment, and I yield back the balance of my time.

[The prepared statement of Mr. Gingrey follows:]

PREPARED STATEMENT OF REPRESENTATIVE PHIL GINGREY

Mr. Chairman, I have brought forth what I believe is a very common sense and practical amendment to ensure that Small Business Innovation Research grants actually go to small business applicants.

Put simply, venture capital is important to small business initiatives because it provides needed financial assistance and credibility to the ideas and products that possess the potential to be commercialized. However, because these grants are intended for small business research and development, we must ensure that venture capital does not represent a majority of the financial interest within an SBIR applicant.

The manner in which this bill is currently written only limits a single venture capital firm from owning 49 percent of the interest of the company applying for the SBIR grant. This leaves open the possibility that multiple venture capital firms could own the majority of financial interest within the company. Additionally, in the worst-case scenario, two venture capital firms could own up to 98 percent of the holdings of the company.

Mr. Chairman, I believe that this goes against the spirit of the SBIR program. The program is designed to provide assistance to a small business that may have an idea that can be considered a diamond in the rough, without necessarily having the financial backing to move its promising idea toward commercialization.

My amendment would ensure that we continue to help out the true small business entrepreneur by simply limiting the total amount of venture capital investment in the company of an SBIR applicant to 49 percent of the financial interest. With the adoption of this amendment, this legislation will acknowledge the importance of the influence that venture capital can play in small business research and development while maintaining the integrity of the SBIR program.

Mr. Chairman, I urge all of my colleagues on the Subcommittee to support this amendment and I yield back the balance of my time.

Chairman WU. I thank the gentleman.

Chairman GORDON. If the Chairman would yield? Let me just say that although Dr. Gingrey is not quite as pure as Dr. Ehlers, I recognize this is not a frivolous amendment by any means and that it is offered in good spirit. I have some concerns about basing the amendment on the 1982 report, but I know that, again, this is legitimate.

I want to also point out that I am uncomfortable with this procedure. I think, you know, we have never taken this—although in previous Congresses, it has been not uncommon to be, what you might say, out of regular order, we have not done that in this Congress. I think this is somewhat different in the fact that the minority received the draft on March 19. There were only minor changes, of which one was a—one of the minority suggestions which was incorporated into it. We got into extensive deliberations with the Small Business, much of which was, as Dr. Ehlers always recommends, maintaining our jurisdiction and trying to get it right. And so for that reason, we are going to be going, you know, to the Floor next week. There is not time to have a Full Committee markup. But I am once again, going to recommend to the Rules Committee that both of Dr. Gingrey's amendments be made in order, because I think it is appropriate that we have a more full discussion on this.

Again, with that said, I will yield back the balance of my time.

Chairman WU. If there are no other speakers, I must again regrettably oppose the amendment.

I must say that from the inception of SBIR until an Administrative Law Judge decision, there was no restriction on participation of venture capital in SBIR applicants, and in my view, the Administrative Law Judge got the law wrong in 2003, in interpreting the term "American person." And I view that as a domestic ownership requirement, but the ALJ said that the term "person" did not include non-real person entities, and that is a determination that lawyers make as a standard item of statutory interpretation, so after that, in my view, erroneous interpretation, venture capitalists have not been permitted to own a majority stake in SBIR applicants, and this bill, in essence, partially, reverses that decision, and it is a carefully crafted partial reversal of that decision.

No single venture capitalist may own a majority share of an SBIR applicant, but a consortium of venture capitalists may own any particular percentage of an applicant, and it is precisely those applicants which are potentially in a weaker negotiating position which may have had to give up a large share of their equity in order to get the application that would be hurt by a restriction on

SBIR applications by those entities which have had to give up more than 50 percent of their ownership in order to get financed by a venture capitalist.

And just one further point is that after this ALJ decision restricting the type of applicants eligible for SBIR grants, the National Cancer Institute noted a drop-off in applications and potentially a decrease in the quality of the applicants. Frequently, the venture capitalists are backing folks who have a better mousetrap, and a lot of those folks have become ineligible to apply for venture capital, so for all of those reasons, I am going to oppose the motion.

Mr. EHLERS. I move to strike the last word.

Chairman WU. The gentleman is recognized for five minutes.

Mr. EHLERS. Thank you, Mr. Chairman. This is really a difficult issue, and something that we have discussed in this committee quite a few times, and I guess my concern is the same as before that another committee has made this decision and we are simply accepting it. We have had some very good discussions and good ideas that have emerged, and this is, I think, a sort of brute-force approach, I think, to really resolve the problem properly and fairly for all parties, we need more consideration, more discussion, and try to come up with an approach that really accomplishes—or accommodates all of the parties involved, and so I am hesitant to—well, I certainly support the amendment, just because that will help us approach it better in further discussion, but I think—I recognize there is the possibility that we need some change here, but why this sudden dramatic change? And I would prefer that we did it in a more deliberate manner and tried to come up with a solution that really made more sense.

So I will support the amendment and hope that we can debate this on the Floor.

Chairman WU. If the gentleman would yield?

Mr. EHLERS. I would be happy to yield.

Chairman WU. In terms of any discussion with other committees, I would just like to point out that it was this committee which stood up for the ability of applicants to structure their capital structure any which way that they wished and not any other committee, and I yield back to the gentleman.

Mr. EHLERS. I will yield back. Thank you.

Chairman GORDON. If the Chairman would yield, just very quickly.

Chairman WU. The gentleman is recognized for five minutes.

Chairman GORDON. Once again, the reason that—there should be no misunderstanding that the reason we are running a little bit late is that the Committee staff negotiated hard and tough and wouldn't let it come up next week until we got concessions from the other committee in question.

Let me also point out that we have got to go through—hopefully, this will pass on the Floor, and hopefully the Senate will get up a bill, and that we will go through conference, and that this is a dialogue that will continue, because we want the best bill that we can get.

Chairman WU. Is there any further discussion of the amendment?

Mr. GINGREY. Mr. Chairman, if you would yield?

Chairman WU. I have no time to yield, but if——

Mr. EHLERS. I will yield——

Mr. GINGREY. Mr. Chairman, I can move to strike the last word, then.

Chairman WU. The gentleman is recognized.

Mr. GINGREY. Thank you, Mr. Chairman. I don't need five minutes. Basically, I just wanted to, Mr. Chairman, for unanimous consent to submit a couple of letters in support of both amendments for the record, and one of these, Mr. Chairman, comes from the U.S. Small Business Administration. I will not read the letter, but it is a letter from a Steven Preston, the Administrator of the U.S. Small Business Administration in support of the amendment. And the other letter in support, Mr. Chairman, is from SBTC, the Small Business Technology Council, again, both addressed to you, Mr. Chairman, and myself, in support of both of the amendments that I have submitted, and I will ask unanimous consent to submit these for the record in support of the amendment.

Chairman WU. Without objection, so ordered.

[The information follows:]

U.S. SMALL BUSINESS ADMINISTRATION
WASHINGTON, D.C. 20416

OFFICE OF THE ADMINISTRATOR

Honorable David Wu
Chairman
Subcommittee on Technology and Innovation
Committee on Science
US House of Representatives

Dear Chairman Wu,

I understand your subcommittee will be considering legislation reauthorizing the Small Business Innovation Research (SBIR) program. The Administration supports the SBIR program as an important source of research and development funding for small businesses and wishes to offer its views on the proposed legislation.

Unfortunately, the Administration must express opposition to certain provisions of the proposed legislation. In particular, the Administration would strongly oppose any increase in the current percentage of funds set-aside for the SBIR program. Currently, the small business share of federal R&D funding exceeds the 2.5% set-aside and the Administration has seen no empirical basis for an increased set-aside for the SBIR program. More importantly, because SBIR funding is allocated through a levy on overall agency research budgets, increasing this set-aside effectively reduces funding available for agencies' core research programs. For similar reasons, the Administration opposes increasing the Small Business Technology Transfer (STTR) set aside. Also, while the Administration is currently reviewing whether increased flexibility is warranted in enabling firms funded primarily by venture capital to participate in the SBIR set-aside, the Administration has concerns about the proposed changes to ownership and control standards for SBIR firms in the draft bill. Size certification rules are vital to small business programs and creating exceptions for certain programs could have potential negative effects on other programs.

I look forward to working with you to ensure the effectiveness of these programs. Thank you for your consideration of these views.

Sincerely,

Steven C. Preston
Administrator
US Small Business Administration

Honorable David Wu
Chairman
Subcommittee on Technology and Innovation
Committee on Science and Technology
U.S. House of Representatives
Washington, DC 20515

Honorable Philip Gingrey
Ranking Minority Member
Subcommittee on Technology and Innovation
Committee on Science and Technology
U.S. House of Representatives
Washington, DC 20515

15 April 2008

Dear Chairman Wu and Representative Gingrey,

SBTC would like to comment on the Subcommittee's draft legislation to reauthorize the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs, a copy of which we received a few hours ago.

SBTC is the nation's largest association of small, technology-based companies in diverse fields. We also serve as the Technology Council of the National Small Business Association, the nation's oldest nonprofit advocacy organization for small business, reaching over 150,000 small businesses in the U.S., and we represent more companies in the SBIR Program than any other nonprofit association.

We believe that SBIR is one of the most successful federal programs for technological innovation in U.S. history, delivering more than 55,000 patents and hundreds of valuable innovations in agriculture, defense, energy, health sciences, homeland security, space, transportation, and other fields. As the recent evaluation of the SBIR Program by the National Academy of Sciences noted, SBIR "is sound in concept and effective in practice." Reauthorization of the Program will serve the small business community, technological innovation, and the public interest.

We appreciate the time that the Subcommittee has devoted to this issue, and the way that the Subcommittee has approached several SBIR issues in this draft legislation.

For example, SBTC agrees with the Subcommittee that the SBIR Program has proved its worth and should be expanded. The decision to increase the SBIR share of extramural R&D at the largest federal R&D agencies is the right one, in our view. So is the decision to increase the share of R&D devoted to the STTR Program. Likewise, SBIR agrees with the concept of supporting a portion of the agencies' administrative expenses by allocating a small percentage of SBIR funds (3% in the draft bill) to this purpose.

We do, however, have some serious concerns with the bill, especially with respect to award sizes, the expanded use of Phase II awards, venture capital companies, commercialization and the duration of the reauthorization.

Small Business Technology Council
1156 15th Street NW Suite 1100 Washington, DC 20005
202-785-4300 Fax: 202-872-8543 www.sbtc.org

I. AWARD SIZES

SBTC agrees with the National Academy of Sciences study and the Committee that increases in the maximum sizes of SBIR Phase I and Phase III awards are overdue. As the Committee is aware, these awards have not been adjusted for inflation or other cost factors in more than fifteen years.

The new caps that the Committee proposes, $300,000 for Phase I and $2.2 million for Phase II, are very high, however. They are significantly higher than inflation and higher than the NAS study recommended.

In the past, when agencies frequently exceeded the statutory limit on award sizes, there has been a dramatic reduction in the number of awards made. At the National Institutes of Health, for example, the number of SBIR awards has declined significantly since 2003 – Phase I awards by about one-third, and Phase II awards by about 17% – as average dollar values of awards rose. Indeed, many awards exceeded the maximum value permitted in the Program Guidelines. This decline has occurred during a period of rapid increase in the overall NIH budget, followed by a leveling out.

SBTC has done a rough calculation of the impacts of the award maximums in the proposed bill on the number of awards.

Even with an increase in the SBIR program from 2½% to 3% of R&D Phase I awards would be likely to fall by 57% and Phase II awards by 57.5%. (Without the increase in Program size, the dropoffs would have been 64% and 65%, respectively.) Even this is a conservative calculation. It does not include the further shrinkage of award funds that would be caused by agencies deducting their administrative costs and mentoring costs from funds available for awards, as the proposed legislation would permit.

<u>Thus, over half the companies currently in the Program, and / or over half the awards currently being made, would cease.</u>

When the award maximums were last raised in 1992, the SBIR share of extramural R&D dollars at participating federal agencies was raised by an *equivalent amount* to avoid shrinking the number of companies and awards in the Program.

SBTC strongly urges the Subcommittee to do likewise by gradually increasing the size of the SBIR Program from 2½% of R&D to 5%, in gradual steps of ½ of 1% per year.

Without such a re-balancing of SBIR, the loss of Phase I awardees would create a snowballing effect.

With fewer awards to make, agencies would raise the hurdles for obtaining them. Phase I awards would decline, excluding more companies with promising innovations. Fewer Phase I awardees would lead to fewer companies qualifying for Phase II awards. Even these would face greater obstacles, as Phase II award levels rose and awardees shrank.

The "seed corn" of SBIR, from which its hundreds of celebrated innovations and its 55,000 patents have grown, would be inexorably destroyed.

II. EXPANDED USE OF PHASE II AWARDS

Perhaps recognizing that these jumbo award sizes would dramatically shrink the number of participating SBIR companies, the Committee bill proposes to let agencies make Phase II awards without having first made Phase I awards.

Since there is no apparent restriction on this grant of authority, agencies could seemingly eliminate Phase I awards entirely.

There are two crucial problems with this approach, in SBIR's view.

First, it takes capital away from a phase of technology where that capital is exceedingly scarce, very early stage R&D. It reallocates that capital to a later phase of R&D where capital is – if not plentiful, then at least far more common.

Second, it fundamentally changes the SBIR Program. SBIR would no longer be the sequential Phase I, Phase II and Phase III program that the National Academy of Sciences found "sound in concept and effective in practice." It would be a different program.

As SBTC has noted to the House Small Business Committee, we are happy to work with Congress in developing a new federal innovation program. We did exactly this a decade ago in developing the STTR Program. And we played a crucial role in reauthorizing STTR.

But *substituting* a new program for the SBIR Program would be a grave mistake, in SBTC's view, just as substituting STTR for SBIR would have been a decade ago.

III. PARTICIPATION OF VENTURE CAPITAL COMPANIES IN THE SBIR PROGRAM

Large companies, including large venture capital companies, have always been free to partner with SBIR companies in the Phase III commercialization of SBIR technologies, and even to own controlling stakes in those Phase III companies.

In Phase I and Phase II, however, SBIR has been, and remains, the preserve of small business. Venture capital firms make a positive contribution to SBIR, are an important source of financing, and have always been eligible to participate in the SBIR program. Since the inception of SBIR, VC's have been free to obtain *non-controlling* interests in Phase I and Phase II SBIR companies (a fact that is sometimes overlooked in this discussion.) Also, VC's that are small by the SBIR statutory definition (having fewer than 500 employees, including subsidiaries and affiliates) are free to own *controlling* stakes in SBIR companies (another fact that is frequently overlooked.)

An independent analysis of the VC presence in the SBIR Program, the 2006 GAO study, found that VC-backed firms are a rising factor in the Program under current law.

At NIH, the study found that SBIR awards to companies with VC backing rose from 15% of all awardee companies to 21%, over the 2001-2004 period. At DoD, a similar pattern prevailed. VC-backed awardees rose from 5% to 8% of all awardees over the same period.

With respect to SBIR firms that are majority controlled by *multiple* venture capital companies, as the draft Committee legislation would permit, <u>we remain concerned about situations in which *syndicates or consortiums* of VC's that are large by SBA standards could exercise de facto control over SBIR companies.</u> This could occur through joint ownership, control or operation agreements, or through the control of multiple VC's by third parties.

Absent language to close this major loophole, the proposed legislation would allow de facto control of SBIR companies by large businesses, contravening 25 years of legislative history and agency practice, as well as public acceptance of SBIR as a small business program. Shortly, or certainly within few years, it would subject the program to attacks and ridicule.

Today, more scientists and engineers work for small companies than for universities or large companies. And yet, 25 years after the creation of SBIR, the small business share of federal R&D remains just over 4% – with SBIR accounting for over half of that. Large businesses, universities, and federal labs still account for over 90% of federal R&D spending, just as they did in 1982. There is simply no room in the SBIR Program to allow large businesses to annex part of it.

Still, SBTC recognizes the important role that our colleagues in the venture capital world play in small business growth. We stand ready to work with the Committee in devising channels for large VC's and small, technology-based companies to pair up with one another.

IV. COMMERCIALIZATION

SBTC urges the Subcommittee to devote further attention to achieving the full promise of the SBIR program through enhanced measures for commercialization, as has other proposed and enacted SBIR legislation. For example, legislation approved by the Senate Small Business Committee in 2006 developed several creative approaches to this challenge. In 2007, Congress approved an $85 million appropriation, outside of regular SBIR funds, to speed the adoption of promising SBIR technologies by mainstream DoD acquisition processes. This year, the House Small Business Committee has been considering several SBIR commercialization initiatives.

V. DURATION OF THE REAUTHORIZATION.

Past SBIR reauthorizations have averaged about eight years. This allows time for any changes in the Program to work their way through two or three cycles of Phase I and Phase II awards and then be fully evaluated. In 2006, the Senate Small Business and Entrepreneurship Committee approved legislation that would have made the SBIR Program permanent. Last year, the full Senate approved legislation to extend SBIR for two years, with no changes in the Program, so that SBIR's evaluation and changes could be undertaken in a less politically-charged environment, without a Presidential election.

With the changes discussed above, SBTC would prefer a permanent reauthorization, or, absent that, reauthorization for at least eight years.

But a program lapse, even for a short time, would create chaos at the eleven federal agency SBIR Programs, as well as among the hundreds of companies actively working on SBIR-funded projects. It would cost jobs and disrupt families. To avoid all that, the 2007 Senate approach would be acceptable.

However, combining major changes in SBIR with a short, two-year reauthorization -- an approach that the draft bill contemplates -- invites upheaval at the agencies and broad uncertainty in Congress. Two years does not allow time for even one complete cycle of Phase I and Phase II awards to occur. Meaningful evaluations of changes in the Program would be virtually impossible. For companies in the Program, the prospect of three sets of rules within four years would be extremely troubling, and would probably create disincentives to participate. Even the authorizing Committees in Congress would likely experience "SBIR fatigue" with a whole new set of hearings looming ahead in another year or so.

SBTC strongly urges the Subcommittee to address the issues we have raised and to approve a reauthorization of eight or more years, so that the positive changes embodied in the draft legislation have time to develop and to be properly evaluated, and so that participating agencies and companies can move forward with some degree of certainty.

We look forward to working with you. We hope to reach a point where everyone can agree on the provisions of this bill.

Sincerely,

Jere Glover
Executive Director

SBTC is proud to serve as the council organization of the National Small Business Association for technology issues. NSBA is the nation's oldest nonprofit advocacy organization for small business, serving more than 150,000 smaller companies throughout the United States.

Chairman WU. Is there any further discussion of the amendment? If not, the vote occurs on the amendment. All in favor, say aye. Those opposed, say no.

In the opinion of the Chair, the nos have it.

Mr. GINGREY. Mr. Chairman, with that, I ask for a recorded vote.

Chairman WU. The Clerk will call the roll.

The CLERK. Chairman Wu.

Chairman WU. No.

The CLERK. Chairman Wu votes no.

Ms. Richardson.

Ms. RICHARDSON. No.

The CLERK. Ms. Richardson votes no.

Mr. Matheson.

Mr. MATHESON. No.

The CLERK. Mr. Matheson votes no.

Mr. Mitchell.

[No response.]

The CLERK. Mr. Wilson.

Mr. WILSON. No.

The CLERK. Mr. Wilson votes no.

Mr. Chandler.

Mr. CHANDLER. No.

The CLERK. Mr. Chandler votes no.

Mr. Ross.

Mr. ROSS. No.

The CLERK. Mr. Ross votes no.

Mr. Gordon.

Chairman GORDON. No.

The CLERK. Mr. Gordon votes no.

Mr. Gingrey.

Mr. GINGREY. Yes.

The CLERK. Mr. Gingrey votes aye.

Mr. Ehlers.

Mr. EHLERS. Yes.

The CLERK. Mr. Ehlers votes aye.

Ms. Biggert.

[No response.]

The CLERK. Mr. Adrian Smith.

Mr. SMITH. Aye.

The CLERK. Mr. Adrian Smith votes aye.

Mr. Broun.

[No response.]

The CLERK. Mr. Hall.

[No response.]

Chairman WU. The Clerk will report that tally.

The CLERK. Mr. Chairman, three Members vote aye, and eight Members vote no.

Chairman WU. The amendment is not agreed to.

If we proceed expeditiously, we may be able to get through the entire bill before—and get to the Floor in time for this series of votes. The fourth amendment on the roster is an amendment offered by the gentleman from Ohio, Mr. Wilson. Mr. Wilson, are you ready to proceed with your amendment?

Mr. WILSON. I am.

Chairman WU. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 5789, offered by Mr. Wilson of Ohio.

Chairman WU. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

I recognize the gentleman from Ohio for five minutes to explain his amendment.

Mr. WILSON. As a strong supporter of small business innovation research and small business technical transfer programs which serve as a lifeline for many small businesses and innovative businesses, my amendment today would designate nanotechnology-related research as a critical technology in the SBIR—excuse me—and STTR programs. This would allow companies to receive special consideration as they apply for federal grants for their work in nanotechnology.

Today, nanotechnology has an impact on all sectors of our economy, and the work of nanotechnology can be found in electronics like our cell phones and Blackberries, in our cosmetics, cars, and medical products. With nanotechnology playing such a fundamental role in our economy, it is critical that the U.S. investment in this industry continue to grow.

In my district, at Ohio University, such research is being done daily. I recently heard from nanoscientists that if the research were included in this way, it would help their projects to go from the lab and to migrate to the market. The inclusion of nanotechnology research as a critical technology will help ensure that federal agencies continue to assist and even increase their support for nanotechnology companies in both SBIR and STTR programs.

I encourage all of my colleagues to support my amendment and reauthorize the Small Business Innovation Research program. Thank you, Mr. Chairman.

[The prepared statement of Mr. Wilson follows:]

PREPARED STATEMENT OF REPRESENTATIVE CHARLIE WILSON

Mr. Chairman, I have an amendment to offer.

Thank you. I am here today as a strong supporter of the Small Business Innovation Research (SBIR) and Small Business Technical Transfer (STTR) programs—which serve as a lifeline for many small and innovative businesses.

My amendment today would designate nanotechnology-related research as a critical technology in the SBIR and STTR programs. This would allow companies to receive special consideration as they apply for federal grants for their work in nanotechnology. As you know special consideration means that they're given extra weight throughout their application process.

Today, nanotechnology has an impact on all sectors of our economy. And the work of nanotechnology can be found in electronics—like our cell phones and blackberries—in out cosmetics, cars, and medical products. With nanotechnology playing such a fundamental role in our economy—it is critical that U.S. investment in this industry continue to grow.

In my district, at Ohio University such research is being done. I recently heard from some nano-scientists that if their research was included in this way, it would help their projects in the lab migrate to the market.

The inclusion of nanotechnology research as a critical technology will help ensure that federal agencies continue to assist and even increase their support for nanotechnology companies in both the SBIR and STTR programs.

I encourage all of my colleagues to support my amendment and reauthorize the Small Business Innovation Research Program.

Thank you.

Chairman WU. I thank the gentleman.

Is there further discussion on the amendment? If not, the vote occurs on the amendment.

Mr. GINGREY. Mr. Chairman?

Chairman WU. The Ranking Member?

Mr. GINGREY. Mr. Chairman, thank you. I am sorry. I was a little slow responding there. Mr. Chairman, I am supportive of nanotechnology research and education initiatives, but I have some concerns about this particular amendment. As I read the amendment, the SBIR program includes nanotechnology topics in its list of other priorities, alongside those from the Department of Defense and the National Critical Technologies Panel. For the STTR programs, nanotechnology endeavors would be singled out as a category of projects that could receive funding, thereby potentially narrowing the scope of the program, so I am concerned that the language for these two programs, and especially the STTR, would carve out a specific benefit for nanotechnology at the expense of other worthy endeavors.

It is very important to point out that under the current law, nanotechnology initiatives are not excluded from grant consideration. They compete for funding with other research and development projects, and there is nothing in the underlying bill that detracts from that reality. Nanotechnology research should be considered for grant funding, but it should not, I don't think, be given special consideration above other important topics.

Just this morning, the Full Committee held a hearing reauthorizing the National Nanotechnology Initiative. It is my understanding that the bill being drafted will incorporate SBIR and STTR programs, and certainly I look forward to working with my friend, Mr. Wilson, the gentleman, to ensure that nanotechnology programs are advanced across many agencies. So while I support nanotechnology research and development initiatives, I have concerns that the amendment might unduly advance those concerns over many other worthy fields of study, so I therefore would reluctantly urge a no vote on this amendment.

[The prepared statement of Mr. Gingrey follows:]

PREPARED STATEMENT OF REPRESENTATIVE PHIL GINGREY

Mr. Chairman, while I am supportive of nanotechnology research and education initiatives, I have some concerns about this particular amendment.

As I read the amendment, the SBIR program includes nanotechnology topics in a list of other priorities alongside those from the Department of Defense and the National Critical Technologies Panel. For the STTR program, nanotechnology endeavors would be singled out as a category of projects that could receive funding, thereby potentially narrowing the scope of the program. I am concerned that the language for these two programs, and especially the STTR program, would carve out a specific benefit for nanotechnology at the expense of other worthy endeavors.

It is important to point out that under current law, nanotechnology initiatives are not excluded from grant consideration. They compete for funding with other research and development projects, and nothing in the underlying bill detracts from that reality. Nanotechnology research should be considered for grant funding, but it should not be given special consideration above other important topics.

This morning the Full Committee held a hearing in anticipation of reauthorizing the National Nanotechnology Initiative. It is my understanding that the bill being drafted will incorporate SBIR and STTR programs. I look forward to working with the gentleman to ensure that nanotechnology programs are advanced across many agencies.

So, while I support nanotechnology research and development initiatives, I have concerns that this amendment might unduly advance those concerns over many

other worthy fields of study. Therefore, I would urge a "NO" vote on this amendment.

Chairman WU. Is there further discussion of this amendment?

If no, the vote occurs on the amendment. All in favor, say aye. Those opposed say no. In the opinion of the Chair, the ayes have it, and the amendment is agreed to.

The fifth amendment on the roster is an amendment offered by the gentleman from Nebraska, Mr. Smith. Mr. Smith, are you ready to proceed with your amendment?

Mr. SMITH. Yes.

Chairman WU. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 5789, offered by Mr. Adrian Smith of Nebraska.

Chairman WU. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

I recognize the gentleman from Nebraska for five minutes to explain his amendment.

Mr. SMITH. Very briefly, thank you, Mr. Chairman and Members of the Committee. My amendment encourages the federal agencies to give priority to applications so as to increase the number of SBIR and STTR award recipients from rural areas.

Firms located in a relatively small number of states have been successful in obtaining the awards through the program. According to an '06 government accountability study, about 70 percent of dollars awarded went to firms in only 10 states. Let me also say that the rural outreach program contained in these programs sunsetted. It expired, and certainly, in the rural areas, we need to address the brain-drain. I don't want to expound, in the interest of time, on my full remarks here, but certainly, it is my intention to bring this to the attention of the Committee and urge the Committee to work together on the brain-drain and urge its adoption. Thank you.

[The prepared statement of Mr. Smith follows:]

PREPARED STATEMENT OF REPRESENTATIVE ADRIAN SMITH

Mr. Chairman and Members of the Committee,

My amendment would encourage federal agencies give priority to applications so as to increase the number of SBIR and STTR award recipients from rural areas. Firms located in a relatively small number of states have been successful in obtaining awards through the SBIR program. According to an April 2006 Government Accountability Office study, about 70 percent of all SBIR awards and dollars awarded went to firms in 10 states. This leaves many qualified firms in rural areas, such as high-tech firms in the Third District of Nebraska, at a disadvantage when it comes to funding for innovative research and development.

In order to assist states experiencing difficulty in obtaining these awards, the 2001 reauthorization of SBIR encouraged SBIR agencies to do a better job of partnering with states via the creation of the Rural Outreach Program. The Rural Outreach Program's primary purpose was to provide federal assistance to support statewide outreach to small high-tech business located in 25 states that are underrepresented in SBIR awards. This outreach program has expired and rural areas are once again at a disadvantage in funding for developing commercial technologies.

Unfortunately, many rural states have seen a 'brain drain' in recent years. As the depletion occurs, we lose our most vital economic asset to more populated areas. Responsible policy is needed to retain and grow our workforce to make our rural communities more competitive in the modern economy.

Mr. Chairman, it is my intention today to bring this to the attention of the Committee and urge the Committee to continue working to promote outreach and participation of rural areas in innovative research. I look forward to continuing consideration and work on this important issue.

Chairman WU. I thank the gentleman. I commend him for his amendment and support rural outreach. Is there any further discussion of the amendment?

The Ranking Member?

Mr. GINGREY. Thank you, Mr. Chairman, and I want to support the efforts of Mr. Smith. Businesses in rural areas typically have a harder time getting capital, even when they have a very good concept, because of the limited numbers of lending institutions or venture capital firms, so this amendment does not require that agencies pick one business over another. It simply requires them to consider rural businesses and how they are represented in the overall agency awards to increase the number of rural businesses receiving grants. I think it is a good amendment, Mr. Chairman, and I urge my colleagues to support it.

[The prepared statement of Mr. Gingrey follows:]

PREPARED STATEMENT OF REPRESENTATIVE PHIL GINGREY

Mr. Chairman, I want to support the efforts of Mr. Smith. Businesses in rural areas typically have a harder time getting capital, even when they have a good concept, because of the limited numbers of lending institutions or venture capital firms. This amendment does not require that agencies pick one business over another; it simply requires them to consider rural businesses and how they are represented in the overall agency's awards to increase the number of rural businesses receiving grants.

It is a good amendment and I urge my colleagues to support it.

Chairman WU. I thank the gentleman. Are there any further comments on the amendment? If not, the vote occurs on the amendment. All in favor, say aye. Those opposed, say no. In the opinion of the Chair, the ayes have it. And the ayes have it and the amendment is agreed to.

Are there any other amendments?

Hearing none, the vote is on the bill H.R. 5789, the *Science and Technology Innovation Act of 2008,* as amended. All those in favor will say aye. All those opposed will say no. In the opinion of the Chair, the ayes have it.

I recognize Dr. Gingrey to offer a motion.

Mr. GINGREY. Mr. Chairman, I move that the Subcommittee favorably report H.R. 5789, as amended, to the Full Committee. Furthermore, I move that staff be instructed to prepare the Subcommittee legislative report, and make necessary technical and confirming changes to the bill, as amended, in accordance with the recommendations of the Subcommittee.

Chairman WU. The question is on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. Those opposed, say no. The ayes have it, and the bill is favorably reported.

Without objection, the motion to reconsider is laid upon the table. I want to take this moment to thank staff on both sides for their very hard work on this bill. Bill Behn, who was a detailee to this committee, worked hard on this bill. The gentleman sitting next to me, Mike Quear, has worked tirelessly on this bill. And for my personal staff, Dennis Worden has worked very, very hard on this bill, and I thank them all very, very much.

And Dr. Gingrey?

Mr. GINGREY. Mr. Chairman, if you will allow me to say one thing for the staff on the Minority side, I would like to thank them for their hard work. They really did a great job on this, and I thank, Mr. Chairman, you as well in running a very fair Subcommittee markup as best you can, and I hope that you and Chairman Gordon will remember to urge the Committee on Rules to make this a fair an open process and ask for an open rule, and I thank you, Mr. Chairman.

Chairman WU. I thank the gentleman, and I thank the gentleman for his cooperation, and I will commit to urging that the Rules Committee take this up as a full bill under some form of rule, and I want to thank the Members for their attendance. This concludes our Subcommittee markup. Thank you all very much.

[Whereupon, at 4:15 p.m., the Subcommittee was adjourned.]

Appendix:

H.R. 5789, Section-by-Section Analysis, Amendment Roster

.....
(Original Signature of Member)

110TH CONGRESS
2D SESSION

H. R. 5789

To reauthorize the Small Business Innovation Research (SBIR) Program and the Small Business Technology Transfer (STTR) Program, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

Mr. WU introduced the following bill; which was referred to the Committee on _____

A BILL

To reauthorize the Small Business Innovation Research (SBIR) Program and the Small Business Technology Transfer (STTR) Program, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "Science and Technology Innovation Act of 2008".

(b) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

Sec. 1. Short title; table of contents.

TITLE I—REAUTHORIZATION OF PROGRAMS

Sec. 101. Extension of SBIR and STTR Programs.

TITLE II—FEDERAL INNOVATIONS INVESTMENTS

Sec. 201. SBIR cap increase.
Sec. 202. STTR cap increase.
Sec. 203. Adjustments in SBIR and STTR award levels.
Sec. 204. Majority equity investment in SBIR and STTR firms.

TITLE III—UTILIZATION SUPPORT

Sec. 301. Agency databases to support program evaluation.
Sec. 302. Agency databases to support technology utilization.
Sec. 303. Interagency Policy Committee.

TITLE IV—OUTREACH AND TECHNICAL ASSISTANCE

Sec. 401. Use of program funds for administrative costs.
Sec. 402. SBIR discretionary technical assistance.

TITLE V—IMPLEMENTATION

Sec. 501. Conforming amendments to the SBIR and STTR policy directives.
Sec. 502. National Research Council SBIR Study.

TITLE I—REAUTHORIZATION OF PROGRAMS

SEC. 101. EXTENSION OF SBIR AND STTR PROGRAMS.

(a) SBIR PROGRAM.—Section 9(m) of the Small Business Act (15 U.S.C. 638(m)) is amended by striking "2008" and inserting "2010".

(b) STTR PROGRAM.—Section 9(n)(1)(A) of the Small Business Act (15 U.S.C. 638(n)(1)(A)) is amended by striking "2009" and inserting "2010".

TITLE II—FEDERAL INNOVATIONS INVESTMENTS

SEC. 201. SBIR CAP INCREASE.

Section 9(f)(1) of the Small Business Act (15 U.S.C. 638(f)(1)) is amended—

(1) in subparagraph (B), by striking "and" at the end;

(2) in subparagraph (C), by striking "each fiscal year thereafter," and inserting "each of fiscal years 1997 through 2008; and"; and

(3) by adding after subparagraph (C) the following new subparagraph:

"(D) not less than 3 percent in fiscal year 2009 and each fiscal year thereafter,".

SEC. 202. STTR CAP INCREASE.

Section 9(n)(1)(B) of the Small Business Act (15 U.S.C. 638(n)(1)(B)) is amended—

(1) in clause (i), by striking "and" at the end;

(2) in clause (ii), by striking "fiscal year 2004 and each fiscal year thereafter." and inserting "each of fiscal years 2004 through 2008; and"; and

(3) by adding after clause (ii) the following new clause:

"(iii) 0.6 percent for fiscal year 2009 and each fiscal year thereafter."

SEC. 203. ADJUSTMENTS IN SBIR AND STTR AWARD LEVELS.

(a) SBIR ADJUSTMENTS.—Section 9(j)(2)(D) of the Small Business Act (15 U.S.C. 638(j)(2)(D)) is amended—

1 (1) by striking "$100,000" and inserting
2 "$300,000"; and
3 (2) by striking "$750,000" and inserting
4 "$2,200,000".
5 (b) STTR ADJUSTMENTS.—Section 9(p)(2)(B)(ix) of
6 the Small Business Act (15 U.S.C. 638(p)(2)(B)(ix)) is
7 amended—
8 (1) by striking "$100,000" and inserting
9 "$300,000"; and
10 (2) by striking "$750,000" and inserting
11 "$2,200,000".
12 (c) ANNUAL ADJUSTMENTS.—Section 9 of the Small
13 Business Act (15 U.S.C. 638) is amended—
14 (1) in subsection (j)(2)(D), by striking "and an
15 adjustment of such amounts once every 5 years to
16 reflect economic adjustments and programmatic con-
17 siderations" and inserting "and a mandatory annual
18 adjustment of such amounts to reflect economic ad-
19 justments and programmatic considerations"; and
20 (2) in subsection (p)(2)(B)(ix), by striking
21 "greater or lesser amounts" and inserting "with a
22 mandatory annual adjustment of such amounts to
23 reflect economic adjustments and programmatic con-
24 siderations, and with lesser amounts".

1 (d) LIMITATION ON CERTAIN AWARDS.—Section 9 of
2 the Small Business Act (15 U.S.C. 638) is amended by
3 adding at the end the following:
4 "(z) LIMITATION ON PHASE I AND II AWARDS.—No
5 Federal agency shall issue an award under the SBIR pro-
6 gram or the STTR program if the size of the award ex-
7 ceeds the amounts established under subsections (j)(2)(D)
8 and (p)(2)(B)(ix).
9 "(aa) SUBSEQUENT PHASES.—
10 "(1) IN GENERAL.—A small business concern
11 which received an award from a Federal agency
12 under this section shall be eligible to receive an
13 award for a subsequent phase from another Federal
14 agency, if the head of each relevant Federal agency
15 makes a written determination that the topics of the
16 relevant awards are the same.
17 "(2) CROSSOVER BETWEEN PROGRAMS.—A
18 small business concern which received an award
19 under this section under the SBIR program or the
20 STTR program may, at the discretion of the grant-
21 ing agency, receive an award under this section for
22 a subsequent phase in either the SBIR program or
23 the STTR program.
24 "(3) PHASE II SBIR APPLICATIONS.—An agency
25 may permit an applicant to apply directly for a

1 Phase II award, as described in subsection
2 (e)(4)(B), without first completing a Phase I award,
3 as described in subsection (e)(4)(A), if the applicant
4 can demonstrate that project feasibility was achieved
5 without SBIR or other Federal funding.
6 "(4) PHASE II STTR APPLICATIONS.—An agen-
7 cy may permit an applicant to submit proposals for
8 Phase II awards, as described in subsection
9 (e)(6)(B), without first completing a Phase I award,
10 as described in subsection (e)(6)(A), if the applicant
11 can demonstrate it has accomplished Phase I
12 through cooperative research and development
13 achieved without STTR or other Federal funding.
14 "(bb) WAIVER OF MINIMUM WORK REQUIREMENT.—
15 A Federal agency making an SBIR or STTR award under
16 this section may waive the minimum small business con-
17 cern or research institution work requirements under sub-
18 section (e)(7) if the agency determines that to provide
19 such waiver would be consistent with the purposes of this
20 section and consistent with achieving the objectives of the
21 award proposal.".

1 **SEC. 204. MAJORITY EQUITY INVESTMENT IN SBIR AND**
2 **STTR FIRMS.**

3 Section 9 of the Small Business Act (15 U.S.C. 638),
4 as amended by this Act, is further amended by adding
5 at the end the following:

6 "(cc) MAJORITY EQUITY INVESTMENT IN SBIR AND
7 STTR FIRMS.—

8 "(1) QUALIFICATION REQUIREMENTS.—No
9 small business concern shall be excluded from par-
10 ticipation in the SBIR or STTR program on the
11 ground that such small business concern is owned in
12 majority part by more than 1 equity provider, except
13 that no single equity provider shall be permitted to
14 own more than 49 percent of such small business
15 concern.

16 "(2) DEFINITIONS.—For purposes of this sub-
17 section—

18 "(A) the term 'equity provider' means a
19 venture capital operating company; and

20 "(B) the term 'venture capital operating
21 company' means a business concern that—

22 "(i) is a venture capital operating
23 company, as that term is defined in regula-
24 tions promulgated by the Secretary of
25 Labor under the Employee Retirement In-
26 come Security Act of 1974;

"(ii) is registered under the Investment Company Act of 1940 (15 U.S.C. 80a–51 et seq.); or

"(iii) is an investment company, as defined in section 3(c)(14) of such Act (15 U.S.C. 80a–3(c)(14)), which is not registered under such Act because it is beneficially owned by less than 100 persons.".

TITLE III—UTILIZATION SUPPORT

SEC. 301. AGENCY DATABASES TO SUPPORT PROGRAM EVALUATION.

Section 9(k) of the Small Business Act (15 U.S.C. 638(k)) is amended—

(1) in paragraph (2)(A)—

(A) by striking "and" at the end of clause (ii);

(B) by inserting "and" at the end of clause (iii); and

(C) by adding at the end the following new clause:

"(iv) information on the ownership structure of award recipients, both at the time of receipt of the award and upon completion of the award period;";

1 (2) by amending paragraph (3) to read as fol-
2 lows:
3 "(3) UPDATING INFORMATION FOR DATA-
4 BASE.—
5 "(A) IN GENERAL.—A Federal agency
6 shall not make a Phase I or Phase II payment
7 to a small business concern under this section
8 unless the small business concern has provided
9 all information required under this subsection
10 with respect to the award under which the pay-
11 ment is made, and with respect to any other
12 award under this section previously received by
13 the small business concern or a predecessor in
14 interest to the small business concern.
15 "(B) APPORTIONMENT.—In complying
16 with this paragraph, a small business concern
17 may apportion sales or additional investment
18 information relating to more than one second
19 phase award among those awards, if it notes
20 the apportionment for each award.
21 "(C) ANNUAL UPDATES UPON TERMI-
22 NATION.—A small business concern receiving an
23 award under this section shall—
24 "(i) in the case of a second phase
25 award, update information in the data-

bases required under paragraphs (2) and (6) concerning that award at the termination of the award period;

"(ii) in the case of award recipients not described in clause (iii), be requested to voluntarily update such information annually thereafter for a period of 5 years; and

"(iii) in the case of a small business concern applying for a subsequent first phase or second phase award, be required to update such information annually thereafter for a period of 5 years."; and

(3) by adding at the end the following new paragraph:

"(6) AGENCY PROGRAM EVALUATION DATABASES.—Each Federal agency required to establish an SBIR or STTR program under this section shall develop and maintain, for the purpose of evaluating such programs, a database containing information required to be contained in the database under paragraph (2). Each such database shall be designed to be accessible to other agencies that are required to maintain a database under this paragraph.".

1 **SEC. 302. AGENCY DATABASES TO SUPPORT TECHNOLOGY**
2 **UTILIZATION.**

3 Section 9(k) of the Small Business Act (15 U.S.C.
4 638(k)), as amended by this Act, is further amended by
5 adding at the end the following new paragraph:

6 "(7) AGENCY DATABASES TO SUPPORT TECH-
7 NOLOGY UTILIZATION.—Each Federal agency with
8 an SBIR or STTR program shall create and main-
9 tain a technology utilization database, which shall be
10 available to the public and shall contain data sup-
11 plied by the award recipients specifically to help
12 them attract customers for the products and services
13 generated under the SBIR or STTR project, and to
14 attract additional investors and business partners.
15 Each database created under this paragraph shall
16 include information on the other databases created
17 under this paragraph by other Federal agencies.
18 Participation in a database under this paragraph
19 shall be voluntary, except that such participation is
20 required of all award recipients who received supple-
21 mental payments from SBIR and STTR program
22 funds above their initial Phase II award.".

23 **SEC. 303. INTERAGENCY POLICY COMMITTEE.**

24 (a) ESTABLISHMENT.—The Director of the Office of
25 Science and Technology Policy shall establish an Inter-
26 agency SBIR/STTR Policy Committee comprised of one

1 representative from each Federal agency with an SBIR
2 program.
3 (b) COCHAIRS.—The Director of the Office of Science
4 and Technology Policy and the Director of the National
5 Institute of Standards and Technology shall jointly chair
6 the Interagency Policy Committee.
7 (c) DUTIES.—The Interagency Policy Committee
8 shall review the following issues and make policy rec-
9 ommendations on ways to improve program effectiveness
10 and efficiency:
11 (1) The public and government databases de-
12 scribed in section 9(k)(1) and (2) of the Small Busi-
13 ness Act (15 U.S.C. 638(k)(1) and (2)).
14 (2) Federal agency flexibility in establishing
15 Phase I and II award sizes, and appropriate criteria
16 to exercise such flexibility.
17 (3) Commercialization assistance best practices
18 in Federal agencies with significant potential to be
19 employed by other agencies, and the appropriate
20 steps to achieve that leverage, as well as proposals
21 for new initiatives to address funding gaps business
22 concerns face after Phase II but before commer-
23 cialization.
24 (d) REPORTS.—The Interagency Policy Committee
25 shall transmit to the Committee on Science and Tech-

1 nology and the Committee on Small Business of the House
2 of Representatives, and to the Committee on Small Busi-
3 ness and Entrepreneurship of the Senate—
4 (1) a report its review and recommendations
5 under subsection (c)(1) not later than 1 year after
6 the date of enactment of this Act;
7 (2) a report its review and recommendations
8 under subsection (c)(2) not later than 18 months
9 after the date of enactment of this Act; and
10 (3) a report its review and recommendations
11 under subsection (c)(3) not later than 2 years after
12 the date of enactment of this Act.

13 TITLE IV—OUTREACH AND 14 TECHNICAL ASSISTANCE

15 SEC. 401. USE OF PROGRAM FUNDS FOR ADMINISTRATIVE 16 COSTS.

17 Section 9 of the Small Business Act (15 U.S.C. 638)
18 is amended—
19 (1) in subsection (f)(2)(A), by striking "any"
20 and inserting "more than 3.0 percent"; and
21 (2) in subsection (n)(2)(A), by striking "any"
22 and inserting "more than 3.0 percent".

23 SEC. 402. SBIR DISCRETIONARY TECHNICAL ASSISTANCE.

24 Section 9(q) of the Small Business Act (15 U.S.C.
25 638(q)) is amended—

1 (1) in paragraph (1)—
2 (A) by striking "paragraph (2)" and in-
3 serting "paragraph (2)(A), or another Federal
4 agency under paragraph (2)(B),";
5 (B) by striking "and" at the end of sub-
6 paragraph (C);
7 (C) by striking the period at the end of
8 subparagraph (D) and inserting "; and"; and
9 (D) by adding at the end the following new
10 subparagraph:
11 "(E) implementing manufacturing proc-
12 esses and production strategies for utilization.";
13 (2) by amending paragraph (2) to read as fol-
14 lows:
15 "(2) ASSISTANCE PROVIDERS.—
16 "(A) VENDOR SELECTION.—Each agency
17 may select a vendor to assist small business
18 concerns to meet the goals listed in paragraph
19 (1) for a term not to exceed 3 years. Such se-
20 lection shall be competitive and shall utilize
21 merit-based criteria.
22 "(B) INTERAGENCY COLLABORATION.—In
23 addition, each agency may enter into a collabo-
24 rative agreement with the technical extension or
25 assistance programs of other Federal agencies

in order to provide the assistance described in paragraph (1).''; and

(3) in paragraph (3)—

(A) in subparagraph (A), by striking ''$4,000'' and inserting ''$5,000''; and

(B) by amending subparagraph (B) to read as follows:

''(B) SECOND PHASE.—Each agency referred to in paragraph (1) may provide directly, or authorize any second phase SBIR award recipient to purchase with funds available from their SBIR awards, services described in paragraph (1), in an amount equal to not more than $8,000 per year, per award.''.

TITLE V—IMPLEMENTATION

SEC. 501. CONFORMING AMENDMENTS TO THE SBIR AND STTR POLICY DIRECTIVES.

Not later than 180 days after the date of enactment of this Act, the Administrator of the Small Business Administration shall promulgate amendments to the SBIR and the STTR Policy Directives to conform such directives to this Act and the amendments made by this Act.

SEC. 502. NATIONAL RESEARCH COUNCIL SBIR STUDY.

Section 108(d) of the Small Business Reauthorization Act of 2000 is amended—

1 (1) by striking "of the Senate" and all that fol-
2 lows through "not later than 3" and inserting "of
3 the Senate, not later than 3"; and
4 (2) by striking "; and" and all that follows
5 through "update of such report".

SECTION-BY-SECTION ANALYSIS OF
H.R. 5789, SCIENCE AND TECHNOLOGY
INNOVATION ACT OF 2008

Section 1. Short Title Science and Technology Innovation Act of 2008

TITLE I—REAUTHORIZATION OF PROGRAMS

Section 101. Extension of SBIR and STTR Programs Extends the termination date of the SBIR and STTR programs to 2010.

TITLE II—FEDERAL INNOVATION INVESTMENTS

Section 201. SBIR Cap Increase Increases the amount of research funds devoted to small business concerns by requiring federal agencies with SBIR programs to expend not less than 3.0 percent of extramural research funds towards SBIR.

Section 202. STTR Cap Increase Increases the amount of research funds devoted to small business concerns by requiring federal agencies with STTR programs to expend not less than 0.6 percent of extramural research funds towards STTR.

Section 203. Adjustments in SBIR and STTR Award Levels Increases the award levels for the SBIR and STTR Programs to $300,000 for Phase I and $2,200,000 for Phase II, and limits the awards to no more than the specified maximum amounts. Increases program flexibility by allowing a small business that has received an award in the SBIR or STTR programs to receive a subsequent phase award in either the SBIR or STTR programs; allowing a small business to submit an SBIR Phase II application without first completing a Phase I award; and allowing a small business to submit an STTR Phase II application without first completing a Phase I award.

Section 204. Majority Equity Investment in SBIR and STTR Firms Makes eligible small businesses that are backed by venture capital firms and defines eligibility requirements.

TITLE III—UTILIZATION SUPPORT

Section 301. Agency Databases to Support Program Evaluation Requires that the database of Program Awardees required under the current Act include the additional information of ownership structure of award recipient at award and after completion of the award period and requires that the database be updated annually for five years. Requires that each agency database be designed to be accessible to other federal agencies required to establish SBIR/STTR programs.

Section 302. Agency Databases to Support Technology Utilization Requires each federal agency to create and maintain a technology utilization database that is available to the public.

Section 303. Interagency Policy Committee Establishes an Interagency SBIR/STTR Policy Committee comprised of representatives from each federal agency with SBIR/STTR and names the OSTP and NIST Directors as co-chairs. Requires the Interagency Policy Committee to make policy and report to Congress its review and recommendations regarding federal agency flexibility, commercialization assistance, and initiatives to address funding gaps.

TITLE IV—OUTREACH AND TECHNICAL ASSISTANCE

Section 401. Use of Program Funds for Administrative Costs Allows federal agencies to use no more than three percent of its SBIR budget for administrative expenses.

Section 402. SBIR Discretionary Technical Assistance Allows federal agencies to select a vendor to assist award recipients to develop and commercialize new products for a term not to exceed three years. Increases the amount an agency can provide for technical assistance to $5000 for Phase I and $8000 for Phase II.

TITLE V—IMPLEMENTATION

Section 501. Conforming Amendments to the SBIR and STTR Policy Directives Requires the Director of the Small Business Administration to promulgate amendments to the SBIR and STTR Policy Directives to conform to the Act within 180 days.

Section 502. National Research Council SBIR Study Removes the requirement of the *Small Business Reauthorization Act of 2000* that the National Research Council provide an updated report.

COMMITTEE ON SCIENCE AND TECHNOLOGY
SUBCOMMITTEE ON TECHNOLOGY AND INNOVATION
SUBCOMMITTEE MARKUP
April 16, 2008

AMENDMENT ROSTER

H.R. 5789, the Science and Technology Innovation Act of 2008.

No.	Sponsor	Description	Results
1.	Mr. Ehlers	Strikes sections 201 and 202, which provide for an increase in the agency set-aside to 3% (from 2.5%) for SBIR and .6% (from .3%) for STTR.	Defeated by roll call vote 7-4.
2.	Mr. Gingrey 017	Strikes language allowing a small business to submit an SBIR or STTR Phase II application without first completing a Phase I award.	Defeated by voice vote.
3.	Mr. Gingrey 019	Strikes language expanding eligibility to small businesses that are majority backed by venture capital firms, and replaces with language to exclude majority backed venture capital participation.	Defeated by roll call vote 8-3.
4.	Mr. Wilson	Adds nanotechnology-related research to the list of topics that receive "special consideration" in determining SBIR and STTR awards.	Agreed to by voice vote.
5.	Mr. Smith	Adds a section requiring priority be given to SBIR and STTR applications from rural areas.	Agreed to by voice vote.

AMENDMENT
OFFERED BY Mr. Ehlers

Strike sections 201 and 202.

AMENDMENT

OFFERED BY MR. GINGREY OF GEORGIA

Page 5, line 24, through page 6, line 13, strike paragraphs (3) and (4).

AMENDMENT

OFFERED BY MR. GINGREY OF GEORGIA

Page 7, lines 8 through 15, strike "No small business" and all that follows through "small business concern" and insert "A small business concern shall be excluded from participation in the SBIR or STTR program on the ground that such small business concern is owned in majority part by 1 or more equity providers"

AMENDMENT

OFFERED BY MR. WILSON OF OHIO

At the end of the bill, add the following new section:

1 **SEC. 503. NANOTECHNOLOGY-RELATED RESEARCH TOPICS.**

2 (a) SBIR.—Section 9(g)(3) of the Small Business
3 Act (15 U.S.C. 638(g)(3)) is amended—

4 (1) by striking "or" at the end of subparagraph
5 (A);

6 (2) by adding "or" at the end subparagraph
7 (B); and

8 (3) by adding at the end the following new sub-
9 paragraph:

10 "(C) the national nanotechnology strategic
11 plan required under section 2(c)(4) of the 21st
12 Century Nanotechnology Research and Develop-
13 ment Act (15 U.S.C. 7501(c)(4)) and in subse-
14 quent reports issued by the National Science
15 and Technology Council Committee on Tech-
16 nology, focusing on areas of nanotechnology
17 identified in such plan;".

18 (b) STTR.—Section 9(o)(1) of the Small Business
19 Act (15 U.S.C. 638(o)(1)) is amended by inserting ", giv-
20 ing special consideration to topics that further 1 or more

1 critical technologies, as identified by the national
2 nanotechnology strategic plan required under section
3 2(c)(4) of the 21st Century Nanotechnology Research and
4 Development Act (15 U.S.C. 7501(c)(4)) and in subse-
5 quent reports issued by the National Science and Tech-
6 nology Council Committee on Technology, focusing on
7 areas of nanotechnology identified in such plan'' after ''its
8 STTR program''.

AMENDMENT

OFFERED BY Rep. Adrian Smith

At the end of the bill, add the following new section:

1 **SEC. 503. RURAL PREFERENCE.**

2 Section 9 of the Small Business Act (15 U.S.C. 638)
3 is amended by adding at the end the following new sub-
4 section:

5 "(dd) RURAL PREFERENCE.—In making awards
6 under this section, Federal agencies shall give priority to
7 applications so as to increase the number of SBIR and
8 STTR award recipients from rural areas.".

PROCEEDINGS OF THE BUSINESS MEETING TO CONSIDER AUTHORIZATION OF A SUBPOENA FOR DOCUMENTS RELATED TO THE DEPARTMENT OF ENERGY'S FUTUREGEN PROJECT

THURSDAY, JUNE 26, 2008

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
Washington, DC.

The Subcommittee met, pursuant to call, at 1:10 p.m., in Room 2318 of the Rayburn House Office Building, Hon. Brad Miller [Chairman of the Subcommittee] presiding.

Chairman MILLER. This meeting has now come to order. It will be a very short meeting just to advise everyone here of the status.

We were prepared today to have the Committee consider issuing a subpoena for documents pertaining to the decision to end the FutureGen project, what was proposed to be a $1.8 billion project that was specifically mentioned in three different State of the Union addresses. That was somewhat precipitously canceled. Obviously a good many Members of Congress were more than a little curious about that decision. The Subcommittee staff has been involved in discussions with the Department of Energy and with the White House for some considerable time now, had reviewed several documents without taking copies, that was the understanding, and determined that there were at least three documents that the Committee really did need to see to understand the decision for this committee, for the Full Committee to meet probably in September and consider the decision on FutureGen. I have within the last five minutes been assured by the White House General Counsel's Office by Emmett Flood that the three specific documents they have now reviewed and do not have any objection to providing this subcommittee a copy of. Mr. Sensenbrenner, there was one other document, a strategic plan, and that was provided, although that had been promised some considerable time ago. Our subcommittee staff just got that this morning within the last couple of hours. Mr. Sensenbrenner had also agreed to call the Department of Energy to encourage them to provide that document if it was not provided. The document that we have gotten, however, is a draft so I am hoping there will be some other discussions to make sure we got the right version, the final version. But based upon the recent, recent being within the last 20 minutes, showing of good faith, we will accept, for now at least, that we will get that document forthwith, not promptly but forthwith, and in fact, we have been promised all the remaining documents, which are only, you know, maybe eight pages collectively, by tomorrow. And with that understanding, we will assume that everyone is acting in good faith until that assumption is disproven and——

Mr. SENSENBRENNER. Will the Chairman yield?

Chairman MILLER. The Chairman yields to Mr. Sensenbrenner.

Mr. SENSENBRENNER. Let me say that I think that the representation that the Chairman has just recounted does show good faith on the part of the White House. And earlier today before this was wrapped up, I offered to call Secretary Bodman up suggesting that the best thing to do is to allow the Committee to review the documents that were in question. It appears now that that offer does not need to be taken up, but it still is on the table.

Let me make one other observation. This committee has not issued a subpoena since 1992. I think we have gone through four Chairs, including myself, that has not found a need to issue a subpoena on anything within the oversight jurisdiction of the Committee on Science and Technology and its predecessor committees. Should we issue a subpoena, the Administration will resist it; because they have resisted every other subpoena that has been issued by every other committee in this Congress. And that is going to mean that we won't have a chance to review this document during the life of this Congress because an attempt to enforce the subpoena is going to take a while to wind its way through the courts. So accepting the good faith on the part of the White House and the good faith on the part of the Majority and its staff, I think that not issuing or authorizing a subpoena at this time will say that we are happy to meet the Administration halfway. So far there is good faith that is being expressed on both sides, and if that continues, we will be able to put this matter to rest. I thank the Chair for yielding.

Chairman MILLER. And thank you, Mr. Sensenbrenner, and provided that sweet reason does continue to prevail, perhaps we don't have to issue any subpoenas.

Does anyone else wish to be heard? On that happy conciliatory note, the meeting is adjourned.

[Whereupon, at 1:14 p.m., the Subcommittee was adjourned.]

○